

## Self-assessment System: Detrimental Effects on Entrepreneurial and Innovative Activity

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**Abstract** Efficient regulatory mechanisms that induce innovation, co-operation and deter competition law infringements have recently been the subject of growing attention. Competition is essential to the innovation process which in general terms enables entrepreneurship. But so too is co-operation between firms which requires an exchange of information and may lead to inefficient collusive behaviour. The optimal trade-off between the provision of stable entrepreneurial incentives and the new European competition law's reform with the *self-assessment system* has been largely missing from the current scholarly debate. This paper identifies the unintended, harmful horizontal side effects of this new European *self-assessment system* upon the entrepreneurial activity, offers a legal evaluation of the optimal entrepreneurial incentive mechanisms and provides legal and entrepreneurial arguments for an improved regulatory response.

**KJUČNE BESEDE:** • competition policy • information exchange • entrepreneurship • innovation • self-assessment system

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## 1. Introduction

The significant impact of legal rules and institutions upon the system of economic exchanges has been generally recognized (Coase, 1994; North, 1990), however, the particular effects of different competition rules upon entrepreneurial activity is still out of sight and offers ample opportunities for further research. The direct or indirect exchange of information between competitors under EU competition rules is one of the most controversial issues presenting one of the most challenging competition law questions (see for example Bennett & Collins, 2010; Capobianco, 2004; Odudu, 2011; Gonzalez, 2012). The most fundamental change and also the most disputed one in that respect is the replacement of the *centralized notification system* for a so-called *legal exemption system*. In a recent important paper Growitsch, Nulsch, & Rammerstorfer (2012) discuss the unintended side effects of this new system upon vertical establishments of illegal cartels and specific vertical R&D agreements and argue that arising uncertainty results in a reduced amount of vertical R&D agreements. However, the horizontal effect of the new legal exemption system upon the provision of stable and optimal entrepreneurial incentives (dynamic efficiency) has been largely exempted from the current scholarly debate.<sup>1</sup> Hence, in order to fill this gap this paper considers the new *self-assessment system* (legal exemption system) from such a dynamic horizontal perspective. It also provides a legal and economic analysis of the overlooked inducement effect on horizontal exchange of information and finally suggests an improved regulatory response.<sup>2</sup> Economically, the introduction of the legal exemption system and the associated threat of *ex post* punishments introduce *ex ante* uncertainty and generate negative effects in terms of information production and innovation. The fact that entrepreneurs can no longer apply for a negative clearance and have to self-assess the legality of their co-operation introduces the risk that they will refrain from efficient forms of information exchange. Moreover, the introduced block exemptions to categories of R&D may indeed reduce the uncertainty for some entrepreneurs but not for all, since legal uncertainty remains high as the existing market share threshold and the definition of the relevant market are difficult to determine *ex ante* (DFI, 2009). Furthermore, as we show the existing case law on information sharing may itself increase *ex ante* uncertainty and hence have a chilling effect on entrepreneurial activity, since any information sharing might, under certain circumstances, infringe EU competition rules.

The main propositions and conclusions of this paper are the following: (1) The identified expected benefits from certain marginal entrepreneurial activity may well, under the current *self-assessment system*, be outweighed by the inefficient risk shifting and increased transaction costs (uncertainty) assigned to the entrepreneur. This in effect hinders the optimal level of entrepreneurial activity and may be a source of dynamic inefficiencies. (2) Current EU competition law's *self-assessment system* (legal exemption system) might have unintended effect

upon entrepreneurial activity by increasing *ex ante* uncertainty, by deterring the utilisation of certain deliberately acquired productive information and might thus hinder innovation and entrepreneurial activity.

The prospect of future economic growth and increased social welfare requires innovation and technological progress. To bring them about, undertakings must invest in new products and processes. In so doing, they face substantial costs associated with innovation that they often cannot bear individually. They confront technical risk and uncertainties (costs) related to market acceptance and, due to the increasing complexity of new applications, they come up against the limits of their internal capabilities. To overcome this challenge, firms have responded with mergers and by co-operating (direct information sharing) with each other, where they share costs, pool risks and complement or enhance individual capabilities through joint R&D or technology development (Lorentzen & Mollgaard, 2006). This emphasis on fostering innovations is also part of the European Union's endeavour to increase its competitiveness. Yet, the uncertainty surrounding technological change in a highly dynamic economy implies difficult evaluation of the likely effect of horizontal inter-firm collaborations that are the principle target of the EU's anti-competitive practices.<sup>3</sup> This traditional EU competition policy aims at providing level playing fields for firms where perfect price competition and static efficiency are at the core of focus (i.e. consumer surplus). Deviations, like for example a horizontal exchange of information between undertakings (dynamic efficiency), from such a benchmark are perceived as infringements of EU competition law (see for example Eilmansberger, 2005).

However, the horizontal sharing of knowledge (information), enhancement of information flows between undertakings, and co-operation appear to be fundamental for creating the dynamic evolution of markets, improving cost-efficient processes and enhancing social welfare. Moreover, the economic literature identifies entrepreneurship as a crucial development and initiating factor which actually enables the process of the discovery, evaluation and exploitation of opportunities, combines new things or innovates, introduces new products or new quality in products, introduces new methods of production, a new organisation within an industry etc. The notions of entrepreneurship and innovation are thus clearly interrelated and obviously, without the role and function of the entrepreneur, the amount of innovation would be substantially lower.

Understanding the effects of the new, reformed EU competition law enforcement mechanisms, enacted by Regulation No. 1/2003<sup>4</sup> in 2003 (later on quoted as Regulation No. 1/2003), on undertakings, entrepreneurs and their innovative activities might, therefore, be significant. Whereas it is generally accepted that entrepreneurship and innovation are an instrument of economic progress (see for example Ross & Scherer, 1990; Tirole, 1988), their relationship with the current competition law enforcement policies remains controversial. The analysed EU

competition law provisions on information exchange and R&D horizontal agreements through the *self-assessment* procedures and vague evaluation criteria for when an information exchange amounts to an infringement of those EU rules introduces *ex ante* uncertainty which might deter the optimal amount of entrepreneurial activity. This may consequently also deter innovative activity, reduce competitiveness and eventually diminish social welfare. Such a reverse incentive mechanism, we argue, presents the identified EU competition law deterrence contradiction. Namely, the identified expected benefits from certain entrepreneurial activity may well, under the current EU enforcement regime, be outweighed by the inefficient risk shifting and increased transaction costs (*self-assessment* and vague rules on information exchange are a costly and uncertain process) assigned to the entrepreneur. In other words, a *self-assessment* requirement may mean that entrepreneurs simply do not engage in certain marginal entrepreneurial activities. The re-stating of competition enforcement policies in instances of exchange of information might be appropriate in order to induce certain marginal (additional) innovations and entrepreneurial activity.<sup>5</sup> By introducing additional *ex ante* uncertainty a reduction in entrepreneurial activity and in total welfare might be anticipated.

Throughout this article employed methodology is a multidisciplinary one and combines analytical methods used in traditional law and economics with those from entrepreneurship literature. Provided analysis is as positive as normative and utilizes rational choice approach as the basic methodological principle, which besides maximizing behaviour and market equilibrium, also comprises the assumption of stable preferences.

The first part of paper (Section 2) starts with a survey of the relevant substantive EU law provisions and then surveys a law and economics literature on the exchange of information, infringement of EU competition law and entrepreneurial activity. Second part (Section 3) describes employed research methods. Third part (Section 4) offers research results on the relationship between entrepreneurship, innovation and competition law enforcement (the deterrence contradiction) and establishes a set of criteria for when and in which conditions an exchange of information should not be regarded as an infringement of current EU competition law. The fourth part critically discusses the currently applied standards, provisions and decisions (Section 5). A conclusion is provided in Section 6.

## 2. Literature review and substantive EU law

It is commonly contended and well substantiated that competition is essential for both the innovation process and for entrepreneurship activity, which is regarded as one of the most important driving forces enabling innovation and competitiveness and finally social welfare.<sup>6</sup> But so too is the co-operation between firms which requires an exchange of information (even outside of specific R&D agreements)

and which might possibly lead to inefficient collusive behaviour. This collusive behaviour then, according to the literature, actually distorts competition.<sup>7</sup> Obviously, there may be a contradiction whereby the mechanisms supposed to protect and enforce competition may in fact partly impair entrepreneurship and innovative activity, thereby causing a decrease in such wealth-increasing activities.<sup>8</sup> As pointed out, the related optimal trade-off between the provision of stable and optimal entrepreneurial incentives (which generate innovation and competitiveness) and the related EU competition law enforcement procedures has largely been exempted from the current scholarly debate. Below, after surveying the general features of current EU competition law<sup>9</sup> and main law and economics insights (dynamic efficiency), the framework for such an optimal trade-off will be discussed and compressed into a single principle.

## **2.1. The substantive EU law**

Competition law has always played an important part in Community law where the enhancement of efficiency, protection of consumers and creation of a single European market have been advanced as some of the most relevant objectives and priorities.<sup>10</sup> A competitive economic system is also regarded in the EU as necessary for a prosperous, free and equitable society. The last few decades have witnessed the unprecedented success of such a policy, resulting in significant efficiency gains. Moreover, substantial benefits for European consumers and the related improved overall social welfare have been marked as some of the most remarkable achievements of European integration. In this context one should also note that the economic analysis of competition law provisions has recently become central to the assessment of competition cases throughout all fields of EC competition rules (Friederiszick, 2009).

The EC competition rules were set out in the Treaty establishing the European Community where, among other provisions,<sup>11</sup> in the ex-Article 81<sup>12</sup> (now Article 101 of the Treaty on the Functioning of the European Union, OJ C115/47, 9.5.2008, hereinafter the TFEU) prohibiting anticompetitive agreements appears as the principal remedy to deter anti-competitive behaviour. Namely, Article 101 TFEU prohibits all agreements, decisions or concerted practices which could in any way prevent, distort or restrict competition and automatically voids all such prohibited agreements. Moreover, even if there is no agreement at all, undertakings might be caught by the provisions of Article 101 TFEU if there is concerted practice (collusion).<sup>13</sup>

However, an agreement, decision or concerted practice is not necessarily unlawful since Article 101 (3) TFEU provides a legal exception (four conditions) to the prohibition contained in Article 101 (1) TFEU. The Commission had until recently the exclusive right to grant so-called “individual exemptions” to agreements notified to it and subject to review by the Court (Whish, 2012, p. 149). However,

the previous system of the ex ante notification of agreements to the Commission and the possible grant of individual exemption was abolished by Council Regulation no. 1/2003 on the implementation of the rules of competition laid down in Articles 101 and 102 of the TFEU (the so called 'Modernisation Regulation'). The new Council Regulation, which came into effect on 1 May 2004, replaces Council Regulation No. 17 which had been in force for over 40 years and had been the key to the enforcement of Community competition law (for a synthesis see Müller, 2004). New Regulation No. 1/2003 thus replaces the centralised notification and authorisation system with an enforcement system based on the direct application of Articles 101 and 102.<sup>14</sup>

The abolition of the individual exemption notification system means that lawyers can no longer notify agreements to the Commission (and await an administrative stamp of approval) but must now be self-reliant and conduct their own "self-assessment of the application of that provision" (Faull & Nikpay, 2007; Ritter, et al., 2000; Whish, 2012).

Further, this brief survey shall also address the particular issue of the application of Article 101 (1) and (3) to R&D agreements. The Commission generally considers that, unless there is a possibility of a foreclosure effect, R&D agreements at a rather theoretical level, far removed from the exploitation of results, fall outside Article 101 (1). As emphasised, co-operation between undertakings in research and technological development represents an essential tool for making EU industry internationally competitive (Roth & Rose, 2008, p. 587). Agreements whose true object is not R&D but the creation of a disguised cartel almost always fall within Article 101 (1), whereas agreements that may have the effect of restricting competition must be analysed in their economic context (invoking the self-assessment procedures on the market player's side) where the co-operation is close to the market launch and is between competitors in an existing product or technology market or innovation markets.<sup>15</sup> Council Regulation 2821/71 <sup>16</sup>(later on quoted as regulation 2821/71) introduces a block exemption for R&D agreements (expiring on 31 December 2010) where the parties' combined market share is below 25 percent. This block exemption shall apply for the duration of the R&D agreement and, where the results are jointly exploited, for seven years from the time the contract products are first put on the market within the common market.<sup>17</sup>

Last but not the least, one should also address the question of whether undertakings run the risk of infringing Article 101 when they exchange information with one another. In general, whether the exchange of information between competitors infringes Article 101 (1) depends on whether or not that information would normally be regarded as a business secret (Roth & Rose, 2008, p. 354). Commentators also note that the assessment of an information exchange depends mainly on three distinctive factors: a) the market structure; b) the type of

information exchanged,<sup>18</sup> and c) the frequency of the information exchange.<sup>19</sup> In many cases the Commission has held that the exchange of information was unlawful where it was part of a mechanism for monitoring and/or enforcing compliance with some other agreement that was itself unlawful (Whish, 2012, p. 523). Moreover, any exchange of information about their current and future prices is likely to be regarded as giving rise to an anti-competitive price-fixing agreement (ibid, p. 524).

Yet, would a mere exchange of information (without an explicit information exchange agreement), which is not ancillary to some other anti-competitive practice, also amount to an infringement of Article 101? In fact, the question of whether an exchange of information could have an adverse affect on competition by providing a platform for undertakings to co-ordinate their behaviour and to act in a parallel manner without explicitly entering into agreement or concerted practice (collusive behaviour) has been addressed in several recent decisions. The European Court of Justice in *Thyssen Stahl AG v. Commission* stated that ‘...it does, however, strictly preclude any direct or indirect contact between such traders, the object or effect of which is to create conditions of competition which do not correspond to the normal condition of the market in question...’ (Case C-194/99 (2003), ECR I-10821). Moreover, in the *Asnef-Equifax v. Ausbanc* case the European Court of Justice explicitly stated that ‘...according to the case-law on agreements on the exchange of information, such agreements are incompatible with the rules on competition if they reduce or remove the degree of uncertainty as to the operation of the market in question with the result that competition between undertakings is restricted.’ (Case C-238/05 (2006) ECR I-11125, (2007) 4 CMLR 224). An effect analysis is then required as an assessment of the relevant agreements and actions, whereby a full review of the context in which the exchange of information is taking place is required (ibid). Also Capobianco (2004, p. 1270) argues that the Commission has recognized that some degree of communication between competitors should be allowed and that the *UK Agricultural Tractor Exchange*<sup>20</sup> case has only defined broad rules of thumb which need to be verified on a case-by-case basis. In other words, any type of information that is directly or indirectly capable of being seen as collusive behaviour cannot be exchanged without causing EU competition authorities’ concerns.<sup>21</sup> To summarise, a survey of relevant cases shows that the assessment criteria for whether an exchange of information infringes the EU competition provisions (except in cases of business secrets) remains unsettled and is open to a judicial assessment of the relevant facts in a disputed case.<sup>22</sup>

## 2.2. The optimal exchange of information – a synthesis of law and economics literature

This section identifies several law and economics principles for establishing whether the exchange of information could have an adverse effect on dynamic

efficiency, and tries to compress them into a general principle. However, one should note that current EU competition policy embraces a multitude of political goals (Van den Bergh and Camesasca, 2006) and is largely based on static notions of efficiency in the sense that the range of products available and the methods of producing those products are taken as given (Bishop and Walker, 2010).<sup>23</sup> Moreover, static (allocative) efficiency can be also convincingly presented as a major policy goal for current EU competition law (Van den Bergh and Camesasca, 2006). Yet, this might be inappropriate in a dynamic environment where firms compete not only for prices, but also on innovation. Dynamic efficiency is achieved through the invention and refers to the rate of technological progress, whereas static efficiency is productive efficiency (Van den Bergh and Camesasca, 2006). Hence, these two conflicting goals might require certain trade-offs that have to be made between static and dynamic efficiency in cases where these two efficiency goals are not consistent with each other (Van den Bergh and Camesasca, 2006; Bishop and Walker, 2010). In the absence of unambiguous theoretical conclusions, the relationship between these two potentially conflicting goals is ultimately an empirical matter which exceeds the scope of this article. Thus, this article concentrates primarily on the aspects of dynamic efficiency which may well conflict with other efficiency goals of EU competition policy, but which should be taken into account in order to enable better policy decisions.

From a dynamic perspective information is a key factor in strategic decision-making and the main reason competition authorities are concerned with the exchange of information among competitors (the horizontal level) is that this practice can help firms monitor each other's behaviour. Monitoring is an essential element of collusion and allows firms to better and more promptly detect deviations facilitating the emergence of a collusive outcome (Buccirossi, 2008a, p. 318). In addition, one of the very important findings of economic scholarship is the notion that to tell nothing is always to say something. What that something is depends on the type of market. In some markets, parties (entrepreneurs, undertakings, competitors) who receive no information on the quality of a product will for example presume it is average in quality (Akerlof, 1970). Thus, any type of information exchanged between undertakings may raise expectations of the other party and may induce certain behaviour of competitors to whom this information has been transmitted. Moreover, the general consensus is that the frequent horizontal exchange of individual, disaggregated price and quantity information, easily identified aggregated information, as well as the sharing of strategic, future plans between rivals and not the public, has the highest collusion potential (das Nair & Mncube, 2009; Grillo, 2002; Haan, Schoonbeek, & Winkel, 2006).

Would this then imply that the simple rule of banning all information exchanges between undertakings should be introduced and enforced? This may indeed be a

straightforward argument, yet the economic literature identifies several arguments supporting a more prudent approach.

The pros and cons of horizontal information sharing are extensively discussed in recent law and economics literature (see for example Bergman, 2006) and it is generally acknowledged that horizontal information exchanges among firms increase transparency in the market to the benefit of consumers, but may in sufficiently concentrated markets also harm those consumers, since it enables firms to tacitly collude to increase prices, share or allocate markets, or enables easier detection and therefore punishment of deviating firms (Capobianco, 2004, 2010). Horizontal information sharing may also assist more efficient market outcomes and drive competition in the following ways: (1) allows firms to benchmark themselves in critical areas against other firms, including actual or potential competitors; (2) improves allocative efficiency by ensuring that scarce resources are allocated to those who want or need them most; (3) allows companies to understand market trends and hence enables better plan to match supply with demand; (4) reduces the problems of adverse selection and moral hazard; and (5) enables sharing technical information and related interconnection (Bennett & Collins, 2010; Carruth, Dickerson, & Henley, 2002; Jensen, 2007; Padilla & Pagano, 2000). However, the literature is equally clear that a broad exemption of information sharing also risks substantial harm to consumers – especially since it has the effect of facilitating coordination (ibid). This coordination, namely, allows firms to engage in, and sustain, tacit or explicit coordinated behaviour.<sup>24</sup>

In addition to this literature one may offer several other traditional law and economics principles which could be applied as an additional reference for establishing the essential features of information exchange in the light of a possible competition law infringement (see for example Posner, 2001; Shavel, 1994, De Geest, 1994, Cooter and Ulen, 2008; Parisi and Posner, 2013). Moreover, game theoretical models also show that the dominant strategy is not to reveal productive information, even though complete information sharing would be profitable (see for example Raith, 1996). Hence, a voluntary exchange of such productive information between horizontal competitors might be an indicator of their entrepreneurial and innovative activity where the expected benefits from such an exchange/activity exceed the individual ones (see also Clarke, 1983).

Obviously, by exchanging information, undertakings may pursue goals other than the restriction of competition (collusion) (Buccirossi, 2008a, p. 318). Therefore, the above listed arguments in essence call for a welfare-enhancing exchange of information as criteria for advanced competition law enforcement. Otherwise, such a *per se* illegality rule may deter undertakings from innovative activity, entrepreneurship and consequently prevent them from improving competitiveness and market efficiency.<sup>25</sup> The existence of many circumstances in which

information sharing is an equilibrium formed by dominant strategies makes the inference of an explicit agreement unfounded (Laffont & Martimort, 1997).

### 3. Methods

This paper utilizes the law and economics methodology and combines it with the inductive, non-quantitative entrepreneurship methodology. The economic analysis of law is one of the most ambitious and probably the most influential concepts that seek to explain judicial decision-making and to place it on an objective basis. It is regarded as the single most influential jurisprudential school in the US.<sup>26</sup> Although a comprehensive examination of the field is beyond the scope of this book and can be found elsewhere,<sup>27</sup> the basic approach will be outlined.<sup>28</sup> The central assumption of economics is that all people (except children and mentally disabled) are rational maximizers of their satisfactions in all of their activities. In other words, the rational choice approach is the basic methodological principle in this article, which besides maximizing behavior and market equilibrium, also comprises the assumption of stable preferences.

In this article, the analysis is as positive as it is normative. Moreover, it assumes the “traditional” rational (broadly defined rationality assumption), risk-averse, self-interested and wealth maximizing behaviour and does not employ, due to the space limitation, any recent behavioural law and economics’ insights. Furthermore, the analytical approach employed is novel. It combines insights and research methods of entrepreneurship literature<sup>29</sup> with the analytical methods and concepts used in the economic analysis of law. Entrepreneurship is a relatively young field; nonetheless, the research in this domain has been growing at an impressive rate in recent decades (Short et al., 2010). Entrepreneurship established itself as a field whose methodological rigor matches that of neighbouring fields such as organizational behaviour and strategic management, but some key challenges stand in the way of completing this endeavour (Short et al., 2010). This paper employs inductive approach, making use of more non-quantitative data and focuses on important aspects of the institutional environment that might induce innovative behaviour. Employment of such institutional-based inductive and non-quantitative research includes the ability to learn directly from the research subject, thereby reducing measurement errors common in survey studies which often need to make assumptions (Dana & Dana, 2005).

Law and economics on the other hand spurs the discussion on what good law is by analysing the incentive, risk and transaction cost effects of legal rules. The term ‘good’ can have two dimensions: good with respect to the content, and good with respect to the technical formulation. Moreover, law and economics may also offer useful advice on how to improve the technical formulation of the rules.<sup>30</sup>

#### **4. Entrepreneurship, innovation, information exchange and competition**

Information and the knowledge developed on its basis lie at the heart of innovation activities. As Jorde and Teece argue, an innovation is a simultaneous, continuous interplay between various stages, and innovation often requires lateral or horizontal linkages (very often informal, coincidental or continuous) in addition to vertical relations (Jorde & Teece, 1990, 1993). Moreover, as they argue, for innovations to be commercialised the economic system must somehow assemble all the relevant complementary assets and create an interactive and dynamically efficient system of learning and information exchange.<sup>31</sup> Information exchange and knowledge flows, not only within firms but also amongst them, are gaining in importance. Firms nowadays are basing more of their own innovation on knowledge assets lying beyond their boundaries (so-called “open innovation”, (see Box, 2009)) and empirical evidence shows that firms heavily involved in networking outperform the ones that make limited use of their networks (Havnes & Senneseth, 2001). Firms in innovation networks quite significantly exchange not only technological knowledge but also managerial and market knowledge, where the latter includes competences and know-how on customers’ characteristics, preferences and needs (Sammorra & Biggiero, 2008). One of the types of open innovation that has become increasingly popular recently is co-competition, namely, simultaneous co-operation and competition between firms (Devi R. Gnyawali & Park, 2009; D. R. Gnyawali & Park, 2011).

When discussing the issues of innovation and the related optimal incentive structure one should also include the notion of entrepreneurship in the current discussion. The economic literature recognises entrepreneurship as a crucial factor in economic development (for a synthesis, see Morlacchi, 2007). The focus of the research on entrepreneurship in management and business studies is on the processes of the discovery, evaluation and exploitation of opportunities and their effect on the creation of new undertakings (Shane & Venkataraman, 2000). According to Schumpeter, the entrepreneur’s main function is combining new things or innovating, introducing a new product or new quality in a product, a new method of production, a new market, or a new organisation within an industry (Schumpeter, 1934, 1949). The notions of entrepreneurship and innovation are clearly interrelated and obviously the amount of innovation would be substantially lower without the role and function of the entrepreneur (see for example Brouwer, 2000).

If information and knowledge flows are crucial for innovation and entrepreneurship, so are competitive markets. Antitrust laws protect two freedoms important for entrepreneurs: the freedom to engage in entrepreneurship and the freedom to innovate (Golodner, 2001). Let us first consider the effect of competition on innovation and growth. When it comes to determining their

relationship, neither theory nor empirical evidence offers an unequivocal answer. The common view that is reflected in policy initiatives – that competition is necessary since it encourages new entries and keeps incumbents on their toes, forcing them to innovate – is contradicted by the theoretical industrial organisation literature and growth theories, whereas micro-econometric empirical studies of the issue in the 1990s only added to the confusion (Aghion & Griffith, 2005). Aghion and Griffith proposed an extended theoretical model, confirmed by empirical testing, that integrated some of the key insights from the various theories, taking into account that competition affects both pre- and post-innovation rents. They conclude that product market competition will have opposite effects on frontier and laggard sectors; innovation in sectors in which firms are close to the technological frontier will react positively to an increase in competition where innovation reacts less positively or even negatively in sectors in which firms are further below the technological frontier (Aghion & Griffith, 2005).

Competition policy also plays a role in government policy that aims to foster entrepreneurial activity. A number of factors have been identified as being associated with the level of entrepreneurial activity acting as either promoters or inhibitors. One way of looking at the determinants of entrepreneurship is to distinguish between factors shaping the demand for entrepreneurship on one hand and those influencing the supply of entrepreneurs on the other. Government policy uses instruments to shift either the demand or the supply side. One of the demand-side policies is competition policy which has an impact on the accessibility of markets (for example, by decreasing the market power of large firms and lowering the barriers to the entry of small businesses). The role of competition policy for entrepreneurship is important. The US, for example, does not have an entrepreneurship policy – it only has a competition policy in which small businesses play a key role (Storey, 2005). The role of policies fostering market competition was also confirmed by empirical studies. Bartelsman et al. (2003) conclude that the entry and exit of firms (the process of “creative destruction” that Schumpeter sees as crucial for innovation and growth) depends on market concentration, among other things.

The competition policy therefore affects the extent to which new firms rather than incumbents fill the market gap and thus the exploitation of business opportunities and entrepreneurial activity (Audretsch, Grilo, & Thurik, 2007). Entrepreneurial small firms are also increasingly viewed as making a crucial contribution to innovative activity and technological change (Acs & Audretsch, 2005). A new set of interventions within entrepreneurship policy was designed to promote the viability of such firms, encompassing various support mechanisms, incubators, science and technology parks, subsidies for R&D, the support of linkages between universities and the private sector, fostering industrial clusters, technology transfers and so on (Minniti, 2008), and for some of them the exchange of information is crucial.

A previous survey on substantial EU law shows that the traditional EU competition policy aims at providing level playing fields for undertakings where perfect price competition and static efficiency lie at the core of the policy focus (i.e. consumer surplus).<sup>32</sup> However, this focus on the consumer surplus might be doubtful since society's welfare can also be enhanced if radically new and improved products are introduced to the market. According to Schenk and others (Cefis, Grondsmas, Sabidussi, & Schenk, 2007), society benefits from innovation by taking advantage from the development of new or improved products or new processes aimed at increasing productive efficiency.<sup>33</sup> A radical innovation in products may result in a significant increase in production and/or in living standards – thereby increasing social welfare (Cefis, et al., 2007).

Economic literature also suggests that sharing knowledge, enhancing information flows between undertakings, and co-operation in R&D activities appear to be fundamental for creating the dynamic evolution of markets, improving cost-efficient processes and enhancing social welfare (for a synthesis see Malerba & Brusoni, 2007). In other words, to produce/induce more important innovations it may be necessary to re-state competition policies and evaluating criteria concerning when a certain exchange of information amounts to a competition law infringement. The current EU competition law's *self-assessment* system, case law on information sharing and block exemptions may have a chilling effect on entrepreneurial and innovative activity.

#### **4.1. Legal exemption system and unintended horizontal entrepreneurial effects**

After discussing the relationship between competition, entrepreneurship and innovation, where competition and exchange of information appear as one of the pre-conditions for inducing entrepreneurship and innovative activity, our discussion turns to the related horizontal effects of the new *self-assessment* system. Namely, the analysed EU competition law provisions on information exchange and R&D horizontal agreements – besides the inefficient 25% market share criterion discussed by Ruble and Versaavel (2009) – and the discussed *self-assessment system* actually impose needless transaction costs (uncertainty) on entrepreneurs while they, *ex ante*, assess the benefits and costs of an entrepreneurial/innovative activity.<sup>34</sup> At this point one should note that existing uncertain case law on information sharing which made it clear that information sharing may, under certain circumstances, infringe Article 101 TFEU by itself increases *ex ante* uncertainty (costs). This case law may indeed already, in itself, have a chilling effect on entrepreneurial and innovative activity and should hence be open to criticism.

Yet, although this prohibition may have by itself a chilling effect upon horizontal entrepreneurial activity the replacement of the centralized notification system for

inter-entrepreneurial cooperation with a *self-assessment system* (legal exemption system) introduced additional *ex ante* uncertainty and substantially worsened existing chilling effect. Economically speaking, the introduction of the legal exemption system (uncertainty-costs) and the associated threat of *ex post* punishments introduce *ex ante* uncertainty, impose needless transaction costs and generate negative effects in terms of information production and innovation. The fact that entrepreneurs can no longer apply for a negative clearance and have to self-assess the legality of their co-operation introduces the risk that they will refrain from efficient forms of information exchange.

Namely, the uncertainty surrounding technological change in a highly dynamic sector implies that it is difficult to evaluate the likely effect of inter-firm collaborations where the costs of activity are borne with certainty, whereas the benefits should be discounted with the probability of an economising failure (expected benefits). These *ex ante* costs of innovative activity (implying an exchange of information) encompass information exchange, research, search and all the other related costs, including the costs of a possible anti-competitive examination (*self-assessment* procedures, lawyers' fees, litigation, administrative and all other costs associated with *self-assessment* procedures). If, for example, an information exchange which leads to the entrepreneurial activity and innovation is open to the EU's anti-competitive procedures,<sup>35</sup> then the costs of such probable practices are taken into account as the *ex ante* costs of such an entrepreneurial activity.<sup>36</sup>

Moreover, we argue that this evident *ex ante* uncertainty, along with the increased probability that a rational, self-interested and wealth maximizing entrepreneur will be subjected to anti-trust policies and *ex post* sanctions (thereby risking increased transaction costs), and combined with the vague evaluation criteria concerning when an information exchange amounts to an infringement of those EU rules might chill the optimal amount of entrepreneurial activity, and consequently also deter innovative activity, reduce competitiveness and finally diminish social welfare.

The identified expected benefits from certain marginal entrepreneurial activity may well, under the new *self-assessment system*, be outweighed by the inefficient risk shifting and increased transaction costs (*self-assessment* and vague rules on information exchange are a costly and uncertain process, plus the expected fines) assigned to the entrepreneur. Thus, by applying these arguments, one may establish a version of the Learned Hand Formula<sup>37</sup> where the unintended reform's impact may be formulated as one where the decision to start with certain entrepreneurial/innovative activity is deterred since the uncertain *ex post* benefits of such an activity ( $B^p$ ), which are discounted by the probability ( $p$ ) of actual commercialisation/economisation (an intrinsically uncertain event), are lower than the *ex ante* expected costs of such an activity ( $E_a(p)$ ). These *ex ante* costs are

borne with certainty (a high probability of enforcement, fines, litigation and administration costs, costs of innovative activity, search, etc. – one may call them the costs of competition law deterrence), since the self-assessment procedures must, for example, be duly made. The deterrence contradiction may be stated as follows:  $p B^P < E_a(p)$ . Furthermore, observed risks increase with the degree of *ex ante* uncertainty concerning a horizontal entrepreneurial activity (information flows) and its contribution to economic progress (Growitsch, Nulsch and Rammerstorfer, 2012).

This deterrence contradiction then in effect hinders the optimal level of horizontal entrepreneurial activity since a certain marginal amount of such welfare-enhancing activities will not take place. In other words, although competition is regarded as one of the necessary preconditions for optimal entrepreneurial activity (and consequent innovation) the current application of *self-assessment system*, enacted by Regulation No. 1/2003 in 2004 (whose main object is the protection of perfect market competition and hence an improvement in social welfare) might actually have a chilling effect on marginal entrepreneurial activity, may reduce social welfare and is hence a possible source of inefficiencies.

In addition, constantly changing case law is actually another source of *ex ante* legal uncertainty (Barros, 2003). Its decentralization creates uncertainty also due to the possible different interpretation among national competition authorities (Barros, 2003).

However, one may argue that the introduced R&D block exemptions might solve the problem and provide legal certainty if market shares are not above 25% threshold. Indeed, these block exemptions might reduce uncertainty for some horizontal entrepreneurial activity but not for all. Namely, due to the fact that it is very hard for an entrepreneur to *ex ante* determine the existing and future market share threshold and the related definition of the relevant market, legal *ex ante* uncertainty remains high (BDI, 2009). Hence, the risk of an inaccurate market share forecast still lies with the entrepreneur (BDI, 2009). Moreover, also the Commission's right to withdraw block exemptions is regarded to introduce *ex ante* legal uncertainty and costs (DG Enterprise, 2001). Therefore, one may argue that it is *ex ante* uncertain whether an exchange of information and horizontal entrepreneurial activity is legal or illegal.

In addition, also Lanjouw and Schankerman's empirical study on the relationship between exposure to litigation risk and the level of innovation may be employed as an additional argument for the identified deterrence contradiction (Lanjouw & Schankerman, 2001). Namely, their analysis shows that the *ex ante* cost of engaging in litigation (litigation risk exposure) over intellectual property assets actually diminishes firm's incentives to invest in research (innovation) (Lanjouw & Schankerman, 2001; see also Lerner, 1995). Hence, one may apply their

empirical findings to our discussion and argue that the *ex ante* litigation risk exposure to possible competition proceedings also, *ceteris paribus*, diminishes entrepreneurial activity (innovation).

Finally, the economic literature relating to investment under uncertainty offers an additional support for the possible chilling effect (see for example Caballero & Pindyck, 1996; Dixit & Pindyck, 1994). Namely, the literature suggests that increased uncertainty, at both aggregate and disaggregate levels, leads to lower investments rates (an irreversibility effect) where greater uncertainty raises the value of the “option” to delay a commitment to investment (Carruth, et al., 2002; see also Doyle & Snyder, 1999). This uncertainty encompasses also the litigation risk derived from the vague EU competition law enforcement’s policy which, with other sources of uncertainty, contributes to lower investment rates.<sup>38</sup>

Therefore, the fact that entrepreneurs can no longer apply for a negative clearance and have to self-assess the legality of their co-operation introduces additional risks that they will refrain from efficient forms of horizontal information exchange.

## **5. Discussion: a comment on current self-assessment system**

Commentators note that a very important consideration in the assessment of possible infringements of Article 101 TFEU in cases of pure exchanges of information<sup>39</sup> is the type of information which has been exchanged (Whish, 2012, p. 528). According to those commentators, an exchange of information which is already in the public domain, of a historical nature, does not infringe Article 101 TFEU (Whish, 2012). Yet, information which is not historical and which relates to matters such as price, capacity and cost is commercially sensitive and therefore its exchange is more likely to infringe than other types of information. The exchange of individual data about particular undertakings is more problematic than aggregated data. Another relevant factor is the frequency of any information exchange. A survey of several landmark decisions shows that practically any type of information that is directly or indirectly capable of being seen as a collusive behaviour cannot be exchanged without causing concerns for EU competition authorities.

Obviously, the application of such wide, all inclusive and vague criteria concerning when an exchange of information between undertakings may be regarded as an infringement of Article 101 TFEU may be a source of uncertainty and a needless increase in transaction costs. The previously described features and sources of inefficiencies clearly materialise in the observed vague and all-inclusive judicial criteria. Particularly, as we argue, such wide open and vague criteria which increase *ex ante* uncertainty (risks) and may have a chilling effect upon entrepreneurial activity.

The second source of uncertainty, as already emphasized, results from the adoption of the new, so-called *self-assessment system* which actually exacerbated the problem. The *self-assessment system* may be, as already stated, actually the most problematic for horizontal entrepreneurial activity as entrepreneurs face a higher degree of uncertainty than other industrial sectors. The uncertainty and related risks steaming from the new *self-assessment* system have been already discussed in previous section and one can at this point only stress the fact that entrepreneurs can no longer apply for a negative clearance and have to self-asses the legality of their co-operation introduces the risk that they will refrain from efficient forms of information exchange.

Moreover, Growitsch, Nulsch and Rammerstorfer (2012) show that generally the new system reduces the incentives to establish illegal cartels. But, at the same time it also prevents vertical innovative cooperations (Growitsch, Nulsch and Rammerstorfer, 2012). They also argue, in contracts to previous research, that fines but not the monitoring activities should be increased in order to deter illegal but not innovative vertical agreements (Growitsch, Nulsch and Rammerstorfer, 2012).

In addition to Growitsch, Nulsch and Rammerstorfer's (2012) suggestion proposed efficiency-based information-exchange criteria might decrease uncertainty, lower transaction costs and could also mitigate the identified negative effects in terms of information production and innovation. The application of such economically inspired criteria might thus induce entrepreneurial activity, innovation, competitiveness and increase social wealth, which is also the main goal of competition policy. Overall, a trade-off between static and dynamic aspects of efficiency and perfect balancing between different competition goals has to be made. Balancing efficiency effects requires an overall assessment of all possible impacts and match of all possible economic mechanism and regulatory responds. Undoubtedly, further analysis and research into the related case law is needed in order to offer conclusive results.

## **6. Conclusion**

Competition is essential to the innovation process and entrepreneurship. But so too is co-operation between firms which requires the disclosure of information and may lead to inefficient collusive behaviour. Providing incentives for technological innovation (spurring the generation and utilisation of productive information), entrepreneurship and co-operation, and deterring opportunism are vital for economic growth and the maximisation of social welfare. The last few decades have witnessed the unprecedented success of European competition policy (theoretical backgrounds, implications and daily enforcements) which has resulted in related efficiency gains, benefitted European consumers and consequently substantially increased European social welfare. Yet, the related optimal trade-off

between the horizontal provision of stable and optimal entrepreneurial incentives and the related EU competition law infringements has largely been exempted from the current scholarly debate. Hence, the challenge for the optimal regulation policy is to find the right balance between these seemingly conflicting issues and policies. This paper offered an economic evaluation of optimal entrepreneurial incentive mechanisms and provides legal and economic arguments for an improved regulatory response.

The identified expected benefits from certain marginal entrepreneurial activity may well, under the new self-assessment system, be outweighed by the inefficient risk shifting and increased transaction costs assigned to the entrepreneur. This in effect hinders the optimal level of entrepreneurial activity and might be a source of inefficiencies (thereby diminishing social welfare). Moreover, the enacted self-assessment system deters the utilisation of deliberately acquired productive information, thus hinders innovation and entrepreneurial activity, contrasts the Lisbon strategy and might, while reducing social welfare, endanger Europe's competitiveness.

#### Notes

<sup>1</sup> However, optimal regulatory mechanisms that induce innovation, co-operation and deter competition law infringements have recently been intensively discussed in the economic literature. See for example Glader, M. (2006). *Innovation markets and competition analysis: EU competition law and US antitrust law*: Edward Elgar Publishing.

<sup>2</sup> For the discussion on effects of information exchange between competitors, where also the triggering idea on possible horizontal effect of EU rules upon entrepreneurial activity has been firstly mentioned, see Kotnik, P., Kovač, M., *Horizontal exchange of information – institutional impact on entrepreneurial activity*, 12 *Perspect. Innov. Econ. Bus.* 32012, pp. 34-40.

<sup>3</sup> For a discussion on whether those are indeed the most proper and efficient goals see Bergh, R. C., & Camesasca, P. D. (2006). *European competition law and economics: A comparative perspective*. London: Sweet and Maxwell.

<sup>4</sup> Council Regulation (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty (Text with EEA relevance), OJ L 1, 4.1.2003.

<sup>5</sup> On the unintended vertical effects see Growitsch, Nulsch and Rammerstorfer (2012).

<sup>6</sup> EU competition law is currently aimed at encouraging market competition and discouraging activities that could in any way prevent, distort or restrict it.

<sup>7</sup> For an excellent synthesis of antitrust economics, see Buccrossi, P. (2008b). *Handbook of Antitrust Economics* (Vol. 1): The MIT Press. Also see Motta, M. (2004). *Competition policy: theory and practice*: Cambridge University Press.; Blair, R. D., & Kaserman, D. L. (1985). *Antitrust Economics*. Homewood, Ill.: Richard D. Irwin Inc.; Hovenkamp, H. (1985). *Economics and Federal Antitrust Law*: West Publishing Company.; Posner, R. A. (2001). *Antitrust law* (2nd ed.): University of Chicago Press.

<sup>8</sup> Hence, providing incentives for technological innovation (spurring the generation and utilisation of productive information), entrepreneurship and co-operation, and deterring opportunism are essential for economic growth and the maximisation of social welfare.

<sup>8</sup> In relation to information exchange and R&D agreements. For a synthesis on US antitrust law, see for example Areeda, P., Kaplow, L., & Edlin, A. S. (2004). *Antitrust analysis: problems, text, cases* (6th ed.): Aspen Law & Business.; Goetz, C. J., & McChesney, F. S. (2006). *Antitrust Law: Interpretation and Implementation*: Foundation Press.

<sup>9</sup> Its precise role is, however, contestable and a number of differing objectives can be pursued by competition policy, not all of which are mutually compatible Craig, P., & De Búrca, G. (2008). *EU law: text, cases, and materials* (4th ed.). Oxford: Oxford University Press. Also see Ritter, L., Braun, W. D., & Rawlinson, F. (2000). *European competition law: a practitioner's guide* (2nd ed.): Kluwer Law International.

<sup>9</sup> This also includes the key Article 102 (ex Article 82) of the TFEU prohibiting the abuse of a dominant position.

<sup>10</sup> Article 81 of the Treaty establishing the European Community (EC Treaty), OJ C 325/33, 24.12.2002.

<sup>11</sup> On the problems of concerted practices and on the theory of oligopolistic interdependence, see Whish, R. (2009). *Competition law* (6th ed.): OUP Oxford.

<sup>12</sup> For an elaborated discussion of a new enforcement system, see Faull, J., & Nikpay, A. (Eds.). (2007). *The EC Law of Competition*: Oxford University Press., p. 88 *et seq.*

<sup>13</sup> Paragraphs 60 to 67, 'Guidelines on the applicability of Article 81 to horizontal co-operation agreements,' OJ (2001) C 3/2.

<sup>14</sup> Regulation (EEC) No 2821/71 of the Council of 20 December 1971 on application of Article 85 (3) of the Treaty to categories of agreements, decisions and concerted practices, OJ L 285, 29.12.1971.

<sup>15</sup> However, this block exemption is not applicable where agreements contain severe anti-competitive restraints which directly or indirectly, in isolation or in combination with other factors under the control of the parties, infringe one of the related provisions.

<sup>16</sup> Here two main components arise: a) the level of detail; and b) whether the information constitutes historical information or recent data; Faull, J., & Nikpay, A. (Eds.). (2007). *The EC Law of Competition*: Oxford University Press., at p. 734.

<sup>17</sup> Faull and Nikpay, *supra* note 19, at p. 732.; Capobianco, *supra* note 2, at p.1266.

<sup>18</sup> 92/157/EEC: Commission Decision of 17 February 1992 relating to a proceeding pursuant to Article 85 of the EEC Treaty IV/31.370 and 31.446.

<sup>20</sup> See e.g. the well known Wood pulp case 89/85, 114/85, 116-117/85, 125-129/85, A. Ahlstrom Osakeyhtiö v. Commission (Wood Pulp) Decision of 27 September 198.

<sup>21</sup> Roth and Rose point out that the exchange of information on prices and markets if it is intended to help co-ordinate the participants' commercial strategies generally constitutes an infringement, whereas dissemination by a trade association of anonymised, historical data may be unobjectionable. Between those two extremes, difficult issues arise and the decision on whether an information exchange amounts to an infringement rests on the specific facts of the case. Roth, P., & Rose, V. (Eds.). (2008). *Bellamy & Child: European Community Law of Competition*: Oxford University Press.; at p. 354.

<sup>22</sup> Such static notions omit a number of dynamic issues relating to innovation and ignore the possibility that the range of available products and production processes may well change (Bishop and Walker, 2010).

<sup>23</sup> In addition, there are also so called "softening competition" theories of harm, whereby reductions in uncertainty without any coordination, tacit or otherwise, soften the degree of competition. See e.g. Kühn, K. U., & Vives, X. (1995). *Information exchanges among firms and their impact on competition*. Luxembourg: Office for official publications of the European communities.

<sup>24</sup> *Vice versa*, if information that has been exchanged is redistributive in nature (it does not enhance welfare, but is just redistributive), then a prohibition does not have any of the adverse affects the policymaker would like to avoid; Buccirossi, P. (2008a). Facilitating Practices. In P. Buccirossi (Ed.), *Handbook of Antitrust Economics* (pp. 305-351). Cambridge, Mass: MIT Press., at p. 318.

<sup>25</sup> Posner, A. Richard, 'Frontiers of Legal Theory,' Harvard University Press, 2001.

<sup>26</sup> See for example Shavell, Steven, 'Foundations of Economic Analysis of Law,' Harvard University Press, 2004; Polinsky, A. Mitchell, Shavell, Steven (eds.), 'The Handbook of Law and Economics,' Vol. I, Vol. II, North-Holland, 2008.

<sup>27</sup> For a synthesis see Kerkmeester, Heico, 'Methodology: General,' in Bouckaert, Boudewijn and De Geest, Gerrit (eds.), 'Encyclopedia of Law and Economics,' 1999; Georgakopoulos, L. Nicholas, 'Principles and Methods of Law and Economics: Basic Tools for Normative Reasoning,' Cambridge University Press, 2005.

<sup>28</sup> For a synthesis see Ireland, R. Duane, Justin W. Webb, Joseph E. Coombs (2005), *Theory and Methodology in Entrepreneurship Research*, in David J. Ketchen, Donald D. Bergh (ed.) *Research Methodology in Strategy and Management (Research Methodology in Strategy and Management, Volume 2)* Emerald Group Publishing Limited, pp.111 – 141.

<sup>29</sup> For a synthesis of law and economics scholarship, see De Geest, Gerrit, "Contract Law and Economics – Encyclopedia of Law and Economics, Volume 6," 2nd ed., Edward Elgar Cheltenham, 2011. Also see R.A. Posner, "Economic Analysis of Law," 8th ed., Wolters Kluwer Law Publishers, 2011.

<sup>30</sup> They also argue that competition policy should also allow alliances, joint ventures and horizontal agreements in commercialisation as well as exclusive practices and other conduct that is normally taken to signify monopolisation or an abuse of dominance.

<sup>31</sup> Deviations from such a benchmark are perceived as lowering welfare and are therefore the target of EU competition policy. For a thorough discussion on whether EC competition law should promote efficiency at all, see e.g. Kerber, W. (2008). Should Competition Law promote efficiency? Some reflections of an economist on the normative foundations of competition law. In J. Drexler, L. Idot & J. Moneger (Eds.), *Economic Theory and Competition Law*: Cheltenham: Edward Elgar. Also see Hildebrand, D. (1998). The role of economic analysis in the EC competition rules: Kluwer Law International.

<sup>32</sup> Achieving lower costs has, according to them, greater welfare consequences. A price reduction merely represents a transfer of economic benefit from one producer to the consumer, whereas a reduction in costs represents a net economic benefit for society as whole by making resources available that can then be deployed in other economic activities.

<sup>33</sup> The main reason for introducing the self-assessment system was to better use the Commission's resources, since "the notification regime no longer constituted an efficient tool for the protection of competition". Faull, J., & Nikpay, A. (Eds.). (2007). *The EC Law of Competition*: Oxford University Press., at p. 90.

<sup>34</sup> Subject to the EU's competition rules: self-assessment, information sharing as an infringement of EU competition rules etc.

<sup>35</sup> Moreover, these costs are borne with certainty.

<sup>36</sup> Judge Learned Hand negligence formula, denoting P as the probability of a loss, L as the magnitude of the loss and B as the cost of precaution. Judge Hand wrote that a potential injurer is negligent if but only if  $B < PL$  (see *United States v. Carroll Towing Co.*, 159 F.2d 169, 173 (2d Cir. 1947)). Although the Hand Formula is relatively recent, the method it encapsulates has been used to determine negligence ever since negligence was first adopted

as the standard to govern accident cases: see Posner, R. A. (1972). A theory of negligence. *The Journal of Legal Studies*, 1(1), 29-96.

<sup>37</sup> Such uncertainty may lead to lower investment rates into R&D, innovation and other entrepreneurial activity.

<sup>38</sup> Which is not ancillary to some other anti-competitive practice.

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