

To share or not to share:
Open versus closed innovation processes in the Hungarian wine sector

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Food companies are exposed to severe competitive pressures worldwide. Adopting an effective innovation system to successfully introduce and develop new products to the market has become one of the most important strategies for food companies. However, whether it is more effective to speed up the innovation process by sharing ideas and resources with other companies, or to innovate in-house in a more closed system is still under debate. The issue is particularly controversial in the wine sector, where innovative marketing strategies have to be combined with sometimes “exclusive” and “secret” recipes, which make the quality of the products unique. One of the most critical questions to be answered by wine companies is how to arrange external ties with other companies and research organizations - potentially leading to a successful innovation system - without compromising unique and highly specific assets. Therefore, understanding the main factors that lead wine companies to adopt an open, rather than a closed, innovation system is the main research question of this paper.

Chesbrough (2003) has been the first to introduce the concept of ‘open innovation’. The idea of open innovation indicates that a company is increasingly using resources from outside to speed up the innovation process. Most empirical studies on open innovation deal with high-tech industries such as biopharmaceuticals, ICT and computers (e.g. Christensen et al., 2005; Dittrich and Duysters, 2007; Fetterhoff and Voelkel, 2006) and have a strong focus on large North American corporations (Chesbrough, 2003, 2006). Although there is a widespread practice of cooperation between companies within the food sector, empirical investigations on open innovation in low- and medium-tech industries, such as the food and beverages industry are relatively scarce in literature (Huston and Sakkab, 2006; Sarkar and Costa, 2008; Vanhaverbeke and Cloudt, 2006; Enzing et al., 2011).

Archibugi et al. (1991) indicate that a more open system of innovation is particularly interesting for food companies, which normally rely even more on external resources than other industries (see also Enzing et al., 2011). Moreover, some specific features of the innovation pattern in food companies make that looking at only internal, closed innovation processes (i.e. the effort in R&D) is a misleading indicator of food companies’ innovation capacity (Avermaete et al., 2004; Galizzi and Venturini, 2008; Capitanio et al., 2010). On the other hand, a strong R&D department and access to well-trained and expert human resources are necessary conditions to adopt a more open innovation system. Based on the available

literature on open innovation in the food sector we have set-up three main research hypotheses:

Hypothesis 1: The degree of openness of the innovation process is expected to be low in the wine industry as producers of “premium” and “super-premium” products are less prone to participate in open innovation due to high asset specificity and the risk of being exploited by other companies.

Hypothesis 2: Open innovation in the wine industry is more likely to occur in later stages of the innovation process (i.e. commercialization) because the risk of losing competitive advantage through the diffusion of unique product- and process-related knowledge is lower.

Hypothesis 3: Large wine companies have a higher absorptive capacity and are therefore better equipped to reap the benefits of an open innovation system. Larger wine companies are expected to show higher degrees of openness throughout the innovation process.

We test these hypotheses using a sample of 115 companies operating in the Hungarian wine industry. Data were collected in 2006 through a random survey covering all major wine-producing regions in Hungary. The Hungarian wine industry presents an interesting case for research on the issue of open innovation. First, wine contributes significantly to the total turnover in the Hungarian agri-food industry. Wine typically offers opportunities for strong value creation and can be marketed as a premium processed agrifood product. However, in recent years the Hungarian wine industry has been left behind in worldwide trends on premium and superpremium wine markets Wittwer (2007). A better understanding of the process of innovation is therefore crucial to improve the competitive position of the Hungarian wine sector. Second, the dataset allows to incorporate differences in regional conditions that can support or constrain the opportunities that companies have to participate in open innovation networks. From a rural development perspective, this may provide valuable information for policymakers that are interested in creating an innovation-friendly environment. Furthermore, these insights can contribute to targeted rural development policies in lagging regions. Finally, at a more general level, the issue of open innovation is still under-researched with respect to SMEs especially in the food sector. Therefore, the use of a unique primary dataset on the Hungarian wine industry can make an interesting contribution to the literature.

As dependent variable we use an indicator of the degree of openness at the three main stages in the innovation process, more specifically the share of in-house idea generation, idea development and idea commercialization. Contrary to the first hypothesis, we find that open innovation is quite extensive in the Hungarian wine industry: 25-30% of companies generate,

develop and commercialise the majority of new ideas in cooperation with other partners.

As a second result, we find that the degree of openness decreases as a company moves through the consecutive stages of innovation. In other words, Hungarian wine companies are significantly more likely to use outside ideas in the idea generation and development stages than in the commercialization stage. This contradicts findings in the literature (Lee et al., 2010). However, conclusions from this earlier research focused on the importance of outbound activities in the later innovation stages, while our data only allow us to look at the inbound open innovation processes (i.e. the ‘buy’ decision with respect to knowledge and technology transfer). This may explain our rejection of hypothesis 2.

Finally, we use a multivariate probit model to determine the factors that drive the degree of openness at different innovation stages. The multivariate probit allows the binary dependent variables – indicating whether a company uses substantial external inputs to generate, develop or commercialise ideas – to be correlated. The independent variables are derived from the literature and include indicators of (1) companies’ absorptive capacity, which is hypothesised to be a precondition to benefit from open innovation (proxied by size, skilled labour force; extent of external networks); (2) regional characteristics (availability of specific research facilities; proximity of specialised suppliers; being part of a well-developed regional cluster); (3) control variables (companies’ age and legal form).

Results show that there is a high positive correlation between the degree of openness in different stages of the innovation process. The use of the multivariate probit model is therefore justified. This result leads us to the conclusion that companies are inclined to be open (or closed) throughout the whole innovation process. Drivers that stimulate openness in idea creation in a company may therefore also contribute to a positive attitude towards openness in idea development and commercialisation and vice versa. Furthermore, the estimation shows evidence in support of hypothesis 3, namely that larger wine companies have more open innovation processes. Other significant results are the positive impact of access to specialised regional suppliers and the negative impact of a company’s age. The former seems to indicate that supplier-buyer relationships are crucial in stimulating knowledge and technology transfer. The latter shows that younger wine companies rely more on in-house innovation processes. In general we conclude that both the regional (access to suppliers) and the company-specific (age and size) context affect the openness of innovation processes in the Hungarian wine industry. It remains to be investigated to what extent this is related to the actual costs of openness or to the limitations in accessing its potential benefits for individual companies.

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