

Economic assessment of food safety: Is there a ‘one-size-fits-all’ approach?

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1 Problem statement

Due to a considerable number of food scandals and food-borne illness outbreaks in recent years the issue of food safety and quality is again in the focus of public interest worldwide. Consumer confidence in food safety has been damaged dramatically, whereas the food safety concerns of both consumers and producers have increased (de Jonge et al., 2010). Nowadays retailers and food processors source their products globally, creating international chain networks of numerous supplier-buyer relationships. Since the structure of global food chains is getting more and more complex, the scope of possible food scandals has long become a matter of international food safety concerns. Such phenomena as concentration of food production and globalisation of food markets seem to increase the risk of a food scandal and make its occurrence even more large-scale and difficult to control (Mørkbak et al. 2011). Moreover, due to the growing preparedness for bioterrorism events now there are both accidental as well as intentional contaminations in the food and feed chain on the global food safety agenda. As a result, the demand for safe or safer, respectively, food has grown considerably (Valeeva et al. 2004). Moreover, food contaminations jeopardize not only public health, but also represent an enormous social and economic burden for the state and economy. Therefore, the increase of food safety demand as well as public concerns about economic consequences for the global economy almost instantly raises incentives for improving food safety. There is, among others, a particular need to study the economic side of concern and to search for cost-effective ways to achieve the goal of a safer food supply.

Such ways or methods include both the assessment of economic consequences of food-borne illness outbreaks as well as the cost-benefit evaluation of quality and safety improvement measures in order to avoid them. However, in spite of the existing concepts and attempts to systemize the approaches to economic assessment of food safety (Antle, 2001; Valeeva et al. 2004; Baert et al., 2011) there is no complete taxonomy and a unanimous classification of numerous studies is missing in the literature. Another problem concerns the scope of the existing studies. Though there is enough literature about the economic aspects of improving food safety along the chain, most of the previous studies have been limited to either a single company level (Jacxsens et al., 2010; Luning et al., 2010) or to specific stages of the chain (Jensen and Unnevehr, 2000; Mortlock et al., 2000). There seems to be a gap in the literature covering the measurement of food safety applied to the complete food chain at country level. The challenge therefore would be to consider the supply chain as a whole and not only a single stage like it was done before. In this regard, there are a number of questions to be raised. How can an “all-embracing” economic assessment be carried out? Which measurement approaches do already exist? How can they be classified? What are their strengths and weaknesses? What can be measured “directly” and what “indirectly”? What can we assess relatively easily and what can be grasped only under assumptions? Therefore, the research aim of this paper is to conduct a comprehensive literature overview of existing approaches to economic assessment of food safety and to develop a conceptual framework for the German beef and dairy chain.

2 Methods of research

The existing approaches to the economic assessment of food safety include both cost-benefit estimations of the consequences of food contaminations as well as cost-benefit estimations of intervention activities in order to avoid them. We provide a systematic review of the present state in this field of research. Besides, we show the empirical scope of the various studies in view of products, diseases, regions etc. considered. Finally, we work out a conceptual framework taking into account the limitations of previous studies in order to empirically validate it on the German dairy and beef chain at a later stage of research.

3 Preliminary results and conclusions

Having analysed the literature we can generally conclude that an approach which takes into account the whole supply chain from the farm to the final consumer is missing. But exactly this kind of approach is needed the most when conducting an economic assessment of food safety improvements. Moreover, the empirical studies tend to focus more on estimations of costs. Studies on benefits of improvement measures are scarce and one-sided considering mostly the benefits for consumers and almost ignoring the benefits for the private industry sector. The most common strategy is to calculate the expected costs of food crises and compare them with the investment costs for improvement activities. Little attention has been paid so far to a comprehensive coverage of the benefits other than for consumers. Another area of research which can be considered incomplete and challenging in this respect is the quantitative estimation of intangible goods. Most studies consider the material costs in order to measure the cost-benefit effects of certain intervention activities. However, the intangible costs and benefits are rarely considered, since there is no market for them and their evaluation remains almost a 'black box'. We believe that in order to make the economic assessment of food safety more complete the consideration of intangible costs and benefits is also necessary.

One of the main conclusions that can be made so far is that the measurement of costs and benefits of food safety improvements is undoubtedly a very complex task. There is a variety of methodological approaches in the literature which have different strengths and weaknesses. Depending on the setting and the availability of empirical data the method can be different. The next step in our research would be to conduct an empirical investigation of the German dairy and beef chains within the framework of the German SiLeBAT Project (Securing the Feed and Food Supply Chain in the Event of Biological and Agroterrorism (BAT) Incidents <http://bundesforschungsministerium.de/de/15034.php>).

4 References

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