

Adaptation strategies of stakeholders in a region with concentrated livestock production during accelerated structural change

Verena Beck, Josef Efken and Anne Margarian¹

Abstract - Livestock density in Germany is most highly concentrated in the north-west of Germany. It is also associated with serious environmental problems due to land, air and water pollution. The enforcement of regulations targeting a reduction of livestock will particularly affect intensive livestock regions (BMU 2016; BMEL 2019). We present first results of a qualitative study on the adaptation strategies of regional actors in the livestock value chain facing the potential reduction of livestock in north-west Germany. The analyses are based on data from interviews with stakeholders. The theory of Strategic Action Fields (SAF) provides the analytical framework. Our preliminary findings indicate that in the face of declining livestock numbers, change is taking place in the field of the old production system. However, the behaviour of some incumbents also favours path dependence, making more radical change difficult. The likelihood of drastic field transformation depends on the strength of the incumbent groups as well as the attitude of relevant state actors.

INTRODUCTION

High livestock density in Germany is mainly concentrated in north-west Germany. Nine of the ten districts with the highest livestock densities per agriculturally used area are located in Lower Saxony and North Rhine-Westphalia. The case study region focuses on the districts of Cloppenburg, Emsland, Grafschaft Bentheim, Osnabrück and Vechta in Lower Saxony and the districts of Borken, Coesfeld, Steinfurt and Warendorf in North Rhine-Westphalia. Pig and poultry farming are particularly strong in the case study region. The high production levels not only contribute to economic prosperity, but also cause serious environmental problems. In general, the reduction of livestock is considered inevitable if standards for the protection of land, air and water are to be upheld (BMU 2016; BMEL 2019). If this reduction occurs, the region's livestock production as well as its upstream and downstream sectors will have to deal with strong changes. The adaptation to these changes depends strongly on individual and corporate agents' willingness to develop and implement new solutions in the context of new challenges. Therefore, we analyse the region's adaptability to possible livestock reduction from an actor-centred perspective to answer the following research question: What are the adaptation strategies of different stakeholders in the regional livestock value chain in the face of accelerated structural change?

METHODS

Conceptually, we refer to the theory of Strategic Action Fields (SAF) by Fligstein and McAdam (2011, 2015). Fligstein and McAdam define SAFs as "the fundamental units of collective action in society" (Fligstein and McAdam 2011, p. 3) that are "comprised of *incumbents*, *challengers*, and, sometimes, *governance units*" (Fligstein and McAdam 2011, p. 5). The participants in an SAF depend on the definition of the situation and the issue at stake. Examples for SAF are value chains, social movements, or governmental systems. The authors assume that SAFs are typically destabilized by exogenous shocks, such as "(1) invasion by outside groups, (2) changes in fields upon which the strategic action field in question is dependent, and (3) those rare macro events (e.g., war, depression) that serve to destabilize the broader social/political context in which the field is embedded" (Fligstein and McAdam 2015, p. 99). The transformation of a field is linked to the successful realization of innovations that have the potential to disrupt the ways things are done in the field. Potentially disruptive changes are often driven forward by "outside challengers", that means groups that had previously not been active "players" in the field (Fligstein and McAdam 2011, p. 15). The possibility for transformation increases if state actors will not protect the incumbents' social order.

Our analyses are based on information from stakeholder interviews.² The main criterion for the selection of the stakeholder interview partners is their regional and industrial link to the pig and poultry value chain within the region. The pig and poultry sector in the region is very heterogeneous. Therefore, the spectrum of stakeholders included in the study is wide. Stakeholder interviews are utilised to identify key actors' strategies and to assess their individual and collective networks. 35 stakeholder interviews with actors from the private sector who are directly or indirectly affected by livestock farming were conducted between January and May 2021. The interviews are evaluated using the qualitative content analysis according to Mayring (2010).

PRELIMINARY RESULTS

In this paper, we define the pig and poultry value chains (pig, poultry, and egg production) in the case study region as an SAF. They include the upstream, the midstream and the downstream sector. Its stakeholders are classified as incumbents. The incumbents differ significantly in terms of their use of

¹ The authors are from the Thünen-Institute of Market Analysis, Braunschweig, Germany (verena.beck@thuenen.de, josef.efken@thuenen.de, anne.margarian@thuenen.de).

² In addition, 21 expert interviews were conducted. This paper provides first insights from interviews with stakeholders from the livestock value chain in the region. The analyses we present here are part of a larger project. In the project, qualitative analyses are complemented by a second, quantitative approach.

capital and technology and their employee profiles. Stakeholders operating in the alternative protein market segment are seen as potential challengers. There are few challengers located in the region. For example, a fast-growing producer of plant-based products from North Rhine-Westphalia who began producing tofu in the 1980s. The company does not position itself as a manufacturer of meat substitutes but rather highlights the benefits of plant-based products as well as plant-based nutrition. Pioneers with potentially disruptive innovations like the development of cultured in-vitro meat, for example, are stakeholders located in the Netherlands, the USA and Israel, meaning from outside the region.

So far, a general finding from the interviews is that the stakeholders in the pig and poultry value chains in the case study region have mostly experienced stable growth in recent years which was rarely seriously threatened by exogenous shocks. The incumbents pursue typical strategies to defend themselves against external risks that range from increasing their market share within existing market segments to expanding into new markets and/or developing new, but related products to diversify into new market and/or product segments that are no longer related to their core businesses.

The area of plant-based proteins offers growth potential in niches. Following the development of vegetarian and vegan product lines by a traditional meat processor in 2013, many other regional sausage and cold meats producers are now processing plant-based proteins. Some traditional meat processors started calling themselves "suppliers of protein products". Even a large slaughter company has expanded vertically into the plant-based market segment and produces vegetarian and vegan products. A leading poultry breeder and processor established a vegan product brand in 2015 to enter the alternative protein business. In addition, the company is focusing on strategic investments. These are the acquisition of distribution rights for the European market (e.g., for a U.S. company producing plant-based egg products), venture capital investments in start-ups operating in promising markets (e.g. start-ups active in cell-cultured meat, vegan fish products, insect-based burgers, and plant-based products) and the creation of a joint venture with a global fund that invests in companies in the plant-based food sector (the new company is expected to become its production and distribution arm in the European market). However, the other "big players" of the poultry industry have not gone down this path so far but rather focus on growth within the segment. Moreover, the mentioned investments of the company are mainly made outside the region.

CONCLUSIONS

Environmental problems require a reduction of regional livestock densities. The adaptation strategies of stakeholders offer opportunities to transform the field of the old production regime and, besides, to meet environmental standards. Applying the Theory of SAF, the success of transforming the field depends, among other things, on the realization of disruptive innovations and the attitude of state actors.

Our preliminary findings show so far that there are challengers to the old production regime. For example, within the protein-related nutrition market the incumbents from the classical meat sector are challenged by new offers of insect-, plant- and cell-based substitution products. Potentially disruptive innovations like the development of cultured in-vitro meat are not driven forward by the incumbent actors in the field but by challenger groups from outside the field. If, in the long-term, these new products replace large fractions of the traditional meat markets, risk-averse incumbents of the case study region would be in danger of falling behind. An example of a risk-taking incumbent of the case study region is a poultry meat production enterprise. It is actively investing in cell-based meat. Since the enterprise lacks internal know-how in these new fields, it acquires market segments by investing in start-ups, for example, in order to realize growth opportunities in the future. However, these investments are mainly made outside the region. In the area of plant-based proteins we observe more activity in the region. The spatial linkage and the upstream integration of the meat processors to livestock production is weaker than in the preceding stages. It is possible that this relative independence from the regional production regime and its development explains the greater willingness of these enterprises to experiment. This is because their future importance depends to a lesser extent on the development of the local livestock, slaughter and meat industry.

Concerns about environmental problems have made the reduction of livestock density a prominent political question. At the same time, state actors have an interest in keeping capital and labour in the region. Therefore, policy makers should try to motivate the adapting incumbents as well as the existing challengers to keep their investments in the region.

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