

Extended Abstract

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Paper/Poster Title	'Warm restructuring' of the German pig farming sector: are farmers ready for it?
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Abstract prepared for presentation at the 96th Annual Conference of the Agricultural Economics Society, K U Leuven, Belgium

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Abstract	<i>200 words max</i>
<p>Society is making increasing demands on livestock farming and the ensuing statutory changes are putting the sector under pressure to adapt. In the Netherlands, it is believed that the necessary changes can be accomplished through 'warm restructuring', whereby the Dutch government subsidises the decommissioning of pig livestock facilities in regions with high stocking rates. The objective of this paper was to ascertain whether German pig farmers would be willing to join such a decommissioning scheme and how the scheme's requirements affect their willingness to participate. The results of a scale-adjusted latent class model indicated that German pig fatteners would be very interested to join a decommissioning scheme. Key to the decision to give up barns is the level of compensation on offer. The respondents rejected severe restrictions such as an obligation to demolish barns, a ban on constructing new livestock facilities or on accepting slurry from other farms. Less severe restrictions such as demolishing barns with the costs reimbursed or being restricted to building barns that improve animal welfare were also viewed negatively, but less so. Differences in the perception of scheme attributes and uncertainty among participants were highlighted by the results of a scale-adjusted latent class estimation.</p>	
Keywords	Structural change; livestock decommissioning scheme, farm exits, scale-adjusted latent class model
JEL Code	Q5 see: www.aeaweb.org/jel/guide/jel.php?class=Q)
Introduction	<i>100 – 250 words</i>
<p>Key issues in the debate on agriculture and sustainability revolve around protecting the climate, conserving water, increasing biodiversity and improving animal welfare. The first steps in this shift in focus came with the amendment of the German Fertiliser Ordinance and the latest revision of the Livestock Farming Ordinance, both of which present considerable challenges for pig farmers. It is likely that these additional requirements will be very expensive for smaller farms in particular and that these costs will not be recouped in a meat sector that is characterised by cost leadership (Scientific Advisory Council on Agricultural Policy at the BMEL, 2015). How then can the economic impact of increasing demands on livestock farming be softened for individual farmers? One option is the state-subsidised closure of pig farms. The Dutch concept of 'warm restructuring' in pig farming is an example of this policy (Scientific Services of the German Bundestag, 2019). This article aims to establish whether German pig farmers would be interested in an exit scheme if it were available in Germany. It also examines how the specific design of a potential state-run exit scheme would affect pig</p>	

farmers' willingness to participate. Specifically, what terms of participation would farmers accept and what would be more likely to dissuade them? Finally, the paper investigates which farmers would lend themselves to being the target group for the 'warm restructuring' of German pig farming.

Methodology

100 – 250 words

The article is based on a voluntary online survey with 346 hog producers. In the Discrete Choice Experiment, the respondents were asked to choose their most preferred option: three alternatives were hypothetical state-subsidised schemes to decommission their livestock facilities, one was the status quo (no participation). The schemes differed in four attributes: compensation payment (Levels: € 12.50, € 15.00, € 17.50, € 20.00€ per place and year for the barn's remaining useful life), restrictions on the construction of new barns (Levels: barn construction allowed, ban of construction, construction of animal welfare barns only), restrictions on accepting slurry from other farms (Levels: permitted, current level only, prohibited), and the payment mode (Levels: annual or capitalised payment).

In general, it is assumed that respondents choose their most preferred option and that the utility of each alternative depends on the attributes of the support scheme. A scale-adjusted latent class model was used for the estimation. Latent class approaches assume that attributes are not valued by the participants in the same way and that preferences are distributed discretely among the participants. Homogenous preferences are assumed within the preference classes, and personal and farm characteristics are used to explain class membership. The novel scale-adjusted latent class model also considers scale heterogeneity. The model estimates which share of the respondents shows higher uncertainty in making choices. In the scale class membership model, personal and farms characteristics are used to explain which farmers are more likely to be insecure.

Results

100 – 250 words

The BIC criterion indicated that three preference classes and two scale classes should be considered. Two of the preference classes showed a high probability of choosing a support scheme, they accounted for 65 % of the respondents. For the first preference class the compensation payment was important, they disliked the requirement for demolition without costs being reimbursed, restrictions on barn construction and slurry imports. The results of the preference class membership model showed that they are younger and higher specialised in pig fattening. The second class was willing to accepted softer restrictions (animal welfare barns, demolition with costs reimbursed, slurry imports at current level), but showed low probabilities to participate. They were more likely of having photovoltaics and being engaged in piglet production: making it harder for them to participate. The third preference class disliked demolition requirements and bans on slurry imports, but seemed to accept restrictions on barn construction. They seemed to be uninterested to invest in pig fattening in the future. The preference class membership model revealed that they were older and had already switched to part-time farming.

The scale class membership model showed that 37 % of the participates were in the second scale class. The lower scale factor estimated for this scale class indicated

higher uncertainty. Participants in the second scale class were more likely to own older barns and to have already leased their barns to other farmers. Having these alternatives might have made it harder for them to decide whether to participate or not.

Discussion and Conclusion

100 – 250 words

In the estimation, around 65 % of participants showed high probabilities of choosing a support scheme. The high acceptance rate may be explained by a changing legal framework and fluctuating market revenues. Compensation based on low to average earnings values provides an opportunity to get out of pig farming without getting in financial trouble. With regard to the hypothetical subsidy scheme, a higher compensation payment increased the probability of participation. Auctions could potentially significantly reduce the budgetary costs of implementing the exit scheme in reality. In the Netherlands enterprises received farm-specific offers to keep costs as low as possible.

Tight restrictions on the import of livestock manure from other farms were strongly rejected by the respondents. Limiting it to the current level was evaluated less negatively. Financially this can be explained by the ensuing need to purchase mineral fertilisers, but also the by lost income from importing livestock manure from other farms. As manure is a valuable fertiliser, it is debatable whether a full ban makes sense.

In order to achieve the objectives of protecting animals and the environment, it might be politically desirable to reduce animal numbers. Implementation of an exit scheme can therefore only be recommended if it contains restrictions on permissions for new barn buildings. The limit to building barns that improve animal welfare with half occupancy had a less negative impact on participation than a complete ban on livestock farming. The exit scheme could therefore also help bring about changes in livestock farming in Germany.