

Extended Abstract

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Paper/Poster Title	Culture and Agricultural Biodiversity Conservation
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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	200 words max
<p>We investigate how culture influences farmers' response to monetary incentives provided under biodiversity conservation agri-environmental schemes (AES). Using census panel data of all Swiss farms from 2010 to 2017, and a spatial regression discontinuity design, we exploit a natural experiment where a country-wide policy reform substantially increased AES payments. Specifically, we examine how farmers at different sides of the inner-Swiss French-German language border responded differently to the reform. Before the reform, farmers in the French-speaking region lagged systematically in participation in biodiversity conservation AES by up to 99 percent compared to their German-speaking counterparts. These differences are partially attributable to farm structural differences between the language regions. With increased monetary incentives under the 2014 policy reform, French-speaking farmers responded more strongly, leading to reduced relative economic significance of the cultural effect. Thus, we find that with higher agri-environmental economic incentives the cultural differences between the farmers becomes less important. Our study highlights the importance for policymakers to take into account such cultural effects when implementing agri-environmental policies. Among other advantages, this helps to predict the uptake of agri-environmental schemes and how changes in payments lead to changes in the importance of regional cultural differences.</p>	
Keywords	biodiversity, conservation, culture, environmental behaviour, agri-environmental schemes, result-based schemes
JEL Code	Q57, Q18, Q28 see: www.aeaweb.org/jel/guide/jel.php?class=Q)
Introduction	100 – 250 words
<p>Agricultural and food systems are main source of environmental degradation and biodiversity decline globally. Agri-environment schemes (AES) are a key policy instrument to encourage farmers to switch to more environmentally friendly practices and contribute to more sustainable agriculture. Despite a long history in Europe, the effects of AES in improving environmental quality remain mixed. The success of an AES depends on incentive schemes that could effectively trigger farmers' participation. Crucial to the effectiveness of incentive schemes is how well the incentives match with farmers' preferences, which, shaped by farmers' social and cultural background, determines farmers' decision-making. Previous literature has indicated that farmers' response to pro-environmental policies depends on their social and cultural background, highlighting the importance of placing agri-environmental policymaking in the cultural context.</p>	



In this study, we investigate the role of culture in farmers' response to incentives under biodiversity-conserving AES. We leverage a unique setting at the inner-Swiss French-German language border, where different native languages represent different cultural backgrounds within a common political framework. The within-country cultural difference, combined with a country-wide policy reform in Switzerland in 2014 that substantially increased AES payments, creates a unique natural experiment to evaluate the effects of culture on farmers' response to increased incentives for AES participation. Utilizing a farm-level census panel dataset of all Swiss farmers, we estimate such effects in a difference-in-discontinuities setting. Our study contributes to the literature on biodiversity conservation and sustainable agriculture under AES, as well as the broader literature on culture and environmental behaviour.

Methodology

100 – 250 words

We apply difference-in-discontinuities analyses to estimate farmers' biodiversity conservation decisions over time and identify the role of culture in farmers' response to increased monetary incentives under AES. For each year in our sample period, we use a spatial regression discontinuity design to examine how the level of farmers' participation in biodiversity payment schemes differs across the French-German language border within Switzerland. The panel structure of our data allows us to further examine farmers' response to the policy reform in 2014 by comparing the discontinuities in periods before and after the policy reform. Since the native language of the population does not perfectly correspond to the language region, we apply a fuzzy regression discontinuity design. Our outcomes of interest are AES payments (total payment, action-based payment, and result-based payment) for biodiversity conservation in CHF per hectare. We separately examine mountain and valley agricultural zones. In addition to the baseline analyses, we include additional covariates to investigate the potential mechanisms for any cultural differences in biodiversity conservation.

As robustness checks, we estimate whether there are discontinuities in farmers' response to the policy reform using first-differenced outcomes of farms that appeared in the data both before and after the policy reform. We further conduct placebo test to ensure the estimated discontinuities are not due to spurious effects.

Results

100 – 250 words

Preliminary results show that in both mountain and valley zones, farms in the French-speaking regions receive less AES payments per hectare than those on the German-speaking side over the period 2010-2013. After the policy reform in 2014, farms in the French-speaking region responded more strongly in action-based payments for both mountain and valley zones, which narrowed the payment gap prior to the policy reform, yet the payment gap in result-based AES widened in the valley zone.



Therefore, the increased monetary incentives introduced by the policy reform were effective in motivating farmers to participate more extensively in biodiversity conservation, which potentially paves the way for more substantial land use adjustment to conserve biodiversity in the future (i.e., via participating in result-based AES). Overall, the increase in monetary incentives under the policy reform mitigated the culture-driven difference in farmers' biodiversity conservation practices.

For mountain farms, the difference in biodiversity conservation AES participation can be largely attributed to farm structural differences such as farm size, labour intensity, and human impact in the region. This suggests that for farmers in the French-speaking mountain region, response to increased monetary incentives under AES may be partially limited by farm structural conditions. On the contrary, difference within farms in the valley zone reflect preferences beyond structural conditions.

Discussion and Conclusion

100 – 250 words

Our findings show systematically different behaviours in terms of participation in biodiversity-promoting AES between German- and French-speaking farmers, which evidence that culture plays a role in farmers' preference in conserving biodiversity under AES. Furthermore, while farmers from different cultural backgrounds may have different motivations to conserve biodiversity, monetary incentives offered by AES could potentially mitigate the behavioural difference.

Our study advances the understanding of the role of culture in economic decision-making by quantifying the relative importance of monetary versus cultural motivations, as well as their interaction. Culture-driven behavioural differences can arise not only within the general population, but also in sub-populations characterized with a common profession and considered to share a strong common identity. This bears important implications for policymaking, especially when targeting at a particular sub-population, in our context agri-environmental policymaking. For policymakers, our results indicate that first, culture plays a role in shaping farmers' behaviour in terms of biodiversity conservation. Our analyses quantify this cultural effect and show that it is far from trivial. Second, monetary incentives offered by AES help mitigate the cultural gap in biodiversity conservation, as evidenced by the stronger response to the increased incentives from the cultural group that was previously behind. Furthermore, our study generate broad implications for a wide range of policy scenarios where identical policy instruments with monetary incentives for pro-environmental behaviours are applied to individuals with diverse cultural backgrounds. Policymakers need to bear in mind the cultural differences among individuals when expecting and evaluating their response to a policy instrument.