Assessing rural livelihood resilience to achieve the SDGs: A case study of extensive livestock farming in the Pyrenees

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Overview: Extensive livestock farming plays a key role in achieving many of the Sustainable Development Goals (SDGs). It contributes to food security, poverty reduction, ecosystem conservation and climate change mitigation. However, livestock family farms in Europe are decreasing in number while the remaining ones are intensifying their production. Properly addressing the sustainability and resilience of farming systems from a holistic perspective is crucial for the implementation of effective policies targeted at pursuing the United Nations Agenda 2030. This study aimed to assess the livelihood strategies adopted by extensive livestock households in the Spanish Pyrenean region of Pallars and the coupled resilience dimension by applying the Latent Class Analysis (LCA).

Methods

Pyrenean region of Pallars
This mountainous territory supports a strong livestock tradition where small-size and family-run farms have driven the local economy during decades. Nowadays, multiple climate and socio-economic changes (globalization, depopulation, lack of services, tertiarization of the economy) hinder the continuity of extensive livestock farms.

Livelihood resilience framework
The study builds on the sustainable rural livelihood (Scoones, 1998) and farm resilience (Speranza et al., 2014) frameworks conceptualizing three main components of households:

- Activities or the actions carried out to produce outcomes and improve households well-being (livestock, land and labour).
- Capital assets or resources and abilities available (natural, human, social physical and financial capital). It also represents buffer capacity.
- Resilience or capacity to cope with and recover from adverse conditions while maintaining or improving their functions (capacity for learning and adaptation, self-organisation and diversity).

Data collection and analytical procedures
We surveyed 103 farmers (16% of farms in the territory). Then, we fitted a Three-step Latent Class Analysis (LCA) and a factorial LCA with 22 mixed variables. The resulting probabilistic model grouped households sharing similar patterns of livelihood strategies according to their activities while assessing the relationship with both capital assets and resilience. All analysis were performed with Latent GOLD v 5.1 software (Vermunt and Magidson, 2016).

Results

The model showed five main typologies of rural livelihood strategies which were significantly influenced by capital assets’ availability and farm location context while showing different degrees of resilience towards global change.

Conclusions

- Farming system in the Pyrenees is very diverse and households use multiple pathways in order to improve their well-being. The contribution to SDGs would be also heterogeneous.
- The role of diversification is central among farms (68%), suggesting that livestock farming income by itself is not enough to make ends meet.
- Non-agricultural activities are driven by tourism which might compete (profile 1), complement (profile 2) or enhance (profile 4) livestock activity.
- Farm abandonment and intensification patterns arise from livelihood strategies and are significantly related to the altitude where the farms are located.

References


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