

Methods for analyzing the economics of pastoralism worldwide

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Summary

Pastoralism, an extensive farming system based on the mobility of herds, is practiced in three quarters of the world's countries, particularly in arid and semi-arid regions. Despite the significant contribution made by pastoralists to the economies of certain countries, their poverty levels remain high. Despite the significant contribution made by pastoralists to the economies of some countries, their poverty levels remain high. This literature review explores methods of economic analysis of pastoralism, highlighting common methodological shortcomings and presenting various approaches to assessing its impact.

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Introduction

Pastoralism is an extensive production system based on the mobility of herders and their flocks in order to exploit the natural resources of rangelands. It is practiced in three quarters of the world's countries (McGahey et al., 2014) and is favored in arid and semi-arid regions (Rass, 2006) because of the resilience and productivity offered by mobility. Of the world's 120 million pastoralists and agropastoral, 50 million live in sub-Saharan Africa (id.). Despite their large numbers, pastoralists represent one of the poorest population sub-groups in the world. In Africa, the rate of extreme poverty among pastoralists varies from 25% to 55% (id.). Paradoxically, it has been shown that pastoral systems impact the economies of their countries in different ways. In Chad, pastoralists contribute 27% of gross domestic product (GDP), in Mongolia 11.9% and in Argentina 1.4% (Wane et al., 2020).

The implementation of effective policies to improve the pastoral sector and pastoralists is hampered by the lack of data and the poor quality and reliability of existing data (id.).

Numerous studies have been carried out to assess the contribution of pastoralism to the economies of countries in order to highlight the importance of this often-undervalued sector, but methodological weaknesses make it impossible to obtain an accurate picture (Behnke, 2008). Two recurring methodological flaws are the underestimation of the value of self-consumed products and the failure to take full account of the various direct and indirect products (goods and services) produced by pastoralism (id.).

The aim of this literature review is to identify the different methods that have been used to analyze the economics of pastoralism worldwide and to highlight the strengths and potential weaknesses of each. In order to draw up this summary, we reviewed the state of the art of the methods through various publications on the subject.

Analysis of the economics of pastoralism generally involves the use of different methods to understand the complex dynamics and economic factors that influence this activity. In this review we describe some of the commonly used methods.

Overall economic approach

Assessment of income and expenditure

The comprehensive economic approach to pastoralism is based on a detailed analysis of cash flows. This methodology evaluates not only the income from pastoral activity but also the associated costs. In the case of the World Bank's RuralStruc programmed in Mali, cash income from livestock activities was calculated using the evaluation grid proposed by the World Bank (Bélières et al., 2009), based on sales of animal products, less expenditure on maintenance, feed, veterinary products and animal purchases (Samaké et al., 2008).

By examining the financial equilibrium, this approach enables us to understand the economic viability of pastoralism as an activity. However, it is important to note that this method may underestimate the true contribution of pastoralism to community livelihoods, as it does not take into account self-consumption, manure recovery, traction and herd growth (Duteurtre, 2009). In order to obtain a more accurate assessment of the real contribution of livestock farming to the income of pastoral households, these non-market elements need to be taken into account (Corniaux et al., 2009).

Commodity chain study

A commodity chain study is an analytical methodology that provides an in-depth understanding of a sector's economy. Here, this approach involves examining the entire value chain associated with pastoralism, from the production of animals to their marketing and distribution on markets. By looking at each stage of the chain, it is possible to make an in-depth assessment of the various players involved, the associated costs, market dynamics and opportunities for value creation. Studies such as those of the dairy sector in Senegal (Infoconseil et al., 2006) and Uganda (Pastel, 2001) help to identify the place of pastoral production on national markets and their potential. They provide a global view of how

livestock farmers interact with other players such as processors, traders and consumers. They also highlight the economic factors that influence the profitability of pastoralism, such as production costs, price fluctuations and market regulations. The historical analysis of the clarified butter sector in Chad (Duteurtre et al., 2007) provides an insight into the importance of pastoral milk production for the development of this product over time. This work shows the involvement of the pastoral sector in the commercial world.

By understanding the weak and strong links in the value chain, this approach facilitates the development of strategies to strengthen an economy, by identifying opportunities for improvement and implementing targeted interventions to stimulate the sustainable development of pastoralism.

Livelihood analysis

Income diversification

Income diversification analysis aims to understand how pastoral households diversify their sources of income beyond livestock. Diversification, both by necessity and by choice, reflects cultural changes and the socio-economic aspirations of pastoral communities (Lenaiyasa et al., 2020). By exploring the additional economic activities in which pastoralists participate, such as agriculture, trade or services, it is possible to assess the financial resilience of pastoral communities in the face of economic challenges. People's ability to benefit from diversification varies according to a number of criteria, such as age, gender and education level, because of their influence on decision-making processes, work roles and access to resources (Bullock et al. 2022).

Understanding how income diversification contributes to the economic security of pastoral communities is essential for designing appropriate development policies and programmes that enhance the financial sustainability of pastoralism while stimulating economic diversification.

Risk management strategies

Analyzing pastoral livelihoods through risk management strategies is an essential approach to understanding how pastoral communities cope with the challenges inherent in their way of life. Pastoralists face a variety of risks, such as climatic variations, livestock diseases, price fluctuations on the livestock market, and conflicts over access to resources (Ndiaye, 2021). In this context, risk management strategies are developed to minimize the impact of these factors on the economic stability of pastoral households. These strategies may include diversifying herds (species and breeds), selling livestock or assets, and seeking alternative sources of income, but the main strategy implemented is to increase the frequency or amplitude of mobility (id.).

Valuation of assets

Livestock

Livestock assets play an important role as a 'store of value' (Hesse et al., 2006). Pastoralists invest in their herds and the sale of animals enables them to meet their needs (Dia et al. 2012). The value of a herd is calculated by multiplying the sum of animal categories (physiological stage or age or performance) by the estimated market sale price (Alary et al., 2011). This value makes it possible to identify the standing capital held by pastoral households and thus determine their viability in the face of the various risks and hazards associated with the pastoral system (Dia et al. 2012).

Social capital

Assessing pastoral assets through social capital is a key approach to understanding the wealth and sustainability of pastoral communities. Social capital encompasses technical know-how, cultural wealth, social ties (Dia et al., 2012) and the norms that facilitate cooperation and coordination within these communities. This approach makes it possible to measure the resilience of pastoral societies, but it faces difficulties based partly on the vagueness of the concept of social capital (Dasgupta, 2002), the diversity of the methods used and the technical difficulties of its application (Amsidder, 2022). Social capital is used in particular in the livelihoods approach, which provides a set of quantitative and qualitative indicators ranging from the endowment of resources to their use and the means and rights households have to access them. This framework is a means of highlighting the complexity of pastoral households' coping strategies insofar as it emphasizes the diversity of interactions between the different assets held by individuals or communities (id.).

Economic modelling

General equilibrium models

General equilibrium models provide a comprehensive representation of the complex interactions between different economic actors, markets and resources (Parrot, 1997). By applying these models to pastoralism, it is possible to simulate various economic scenarios, taking into account fluctuations in commodity prices, climate change, agricultural policies and other factors. This method provides an in-depth understanding of the economic dynamics of pastoralism and its impact on the livelihoods of pastoral communities. The economic modelling approach also makes it possible to assess the consequences of different policy interventions and to formulate recommendations for promoting the economic sustainability of pastoralism. By integrating monetary, social and environmental aspects, this approach offers a holistic view.

Participatory approaches

Stakeholder consultation

The participatory approach to the economic analysis of pastoralism plays a crucial role in integrating the perspectives and experiences of stakeholders, including pastoralists, local communities, researchers and policy-makers. Stakeholder consultation involves an interactive process that gathers information directly from those involved. Respondents bring an in-depth understanding of the economic and cultural aspects of their community (Alam et al. 2012). Integrating these perspectives into the economic analysis provides a more complete picture of the dynamics of pastoralism, enabling better decision-making and the design of more appropriate policies. By engaging stakeholders at all levels, from planning to implementation, economic analysis becomes more holistic, reflecting the complexity of pastoralism and promoting sustainable and equitable solutions.

Applying these methods in an integrated way provides a more holistic and accurate view of the economics of pastoralism, taking into account its social, cultural and environmental dimensions.

Policy assessment

Policy analysis

Policy evaluation is an essential part of the economic analysis of pastoralism, as it allows the impact of policy decisions on this specific active Policy analysis in the context of pastoralism encompasses an in-depth examination of regulations, government programmed, financial incentives and other interventions that directly or indirectly influence pastoral practices. This assessment aims to understand how policies can help or hinder the sustainable development of pastoralism, taking into account factors such as livestock mobility, access to grazing lands, natural resource management and pastoralists' land rights (The World Initiative for Sustainable Pastoralism, 2008). Policy analysis provides a critical perspective for identifying gaps, inconsistencies and potential opportunities in the existing regulatory framework. It also helps to recommend the adjustments needed to create an enabling environment for pastoral communities to thrive, balancing economic, social and environmental imperatives.

Conclusion

This literature review highlights the importance of a multidimensional approach to analyzing the economics of pastoralism.

The overall economic approach, with its detailed assessment of income and expenditure, offers a crucial insight into the financial viability of pastoralism, while highlighting the need to include non-market elements for a more accurate assessment. The value chain study provides

an in-depth understanding of the market dynamics and value-creation opportunities associated with pastoralism.

Analysis of livelihoods, including income diversification and risk management strategies, highlights the coping mechanisms of pastoral communities in the face of economic and environmental challenges. Valuation of assets, whether herds or social capital, broadens the perspective by taking into account the social and cultural aspects of pastoralism. Economic modelling, via general equilibrium models, offers a holistic view of complex interactions and possible economic scenarios.

Participatory approaches, through stakeholder consultation, ensure inclusive decision-making, reflecting the realities and aspirations of pastoralists and local communities. Finally, policy evaluation, with its critical analysis of government regulations and interventions, aims to create an enabling environment for pastoralism, balancing economic, social and environmental imperatives.

By integrating these different methods, it is possible to obtain a comprehensive and accurate view of the economics of pastoralism, thereby promoting more appropriate and sustainable policies and interventions. These complementary approaches make it possible to respond to the multiple challenges facing pastoral communities, thereby helping to promote a resilient and socially equitable pastoral activity.

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