

# Camel Milk Market Structure in the Arid and Semi-arid North Eastern Kenya

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## Background and objective

- Kenya ranks second globally in camel milk production with an estimated per annum production of 0.95 million litres valued at US\$ 35 million.
- Due to market features such as price inefficiency, high transaction costs and lack of accurate information, the value chain performance have remained poor despite intervention by both government and NGOs over the last ten years.
- Producers rely on market intermediaries in marketing of milk due to the nomadic nature of the production system.
- Institutional arrangements such as trader cooperatives have emerged to reduce transaction costs. However, these institutions may come at a cost raising the question of whether there are gains in sharing of cost reduction benefits in cooperation.
- The study first test the level of oligopolistic nature of the market and then the potential for collective action at market intermediation to improve efficiency and competitiveness of the milk market through sharing of costs and gains.

## Material and methods

- Study area - Isiolo County Kenya. Purposively selected due to the intensity of the enterprise. 80% of camel milk transacted in Nairobi comes from this county.
- Research design – Semi-structure questionnaire was administered on a sample of 138 herdsmen and 193 traders was randomly drawn and randomly apportioned to 6 wards in Isiolo County.
- Data collected - Qualitative and Quantitative information on transacted volumes, prices, transaction, operation costs and value chain profile was collected.
- Survey period - August 2019- Feb 2020.
- Analytical method – Lorenz curve and Gini coefficient.

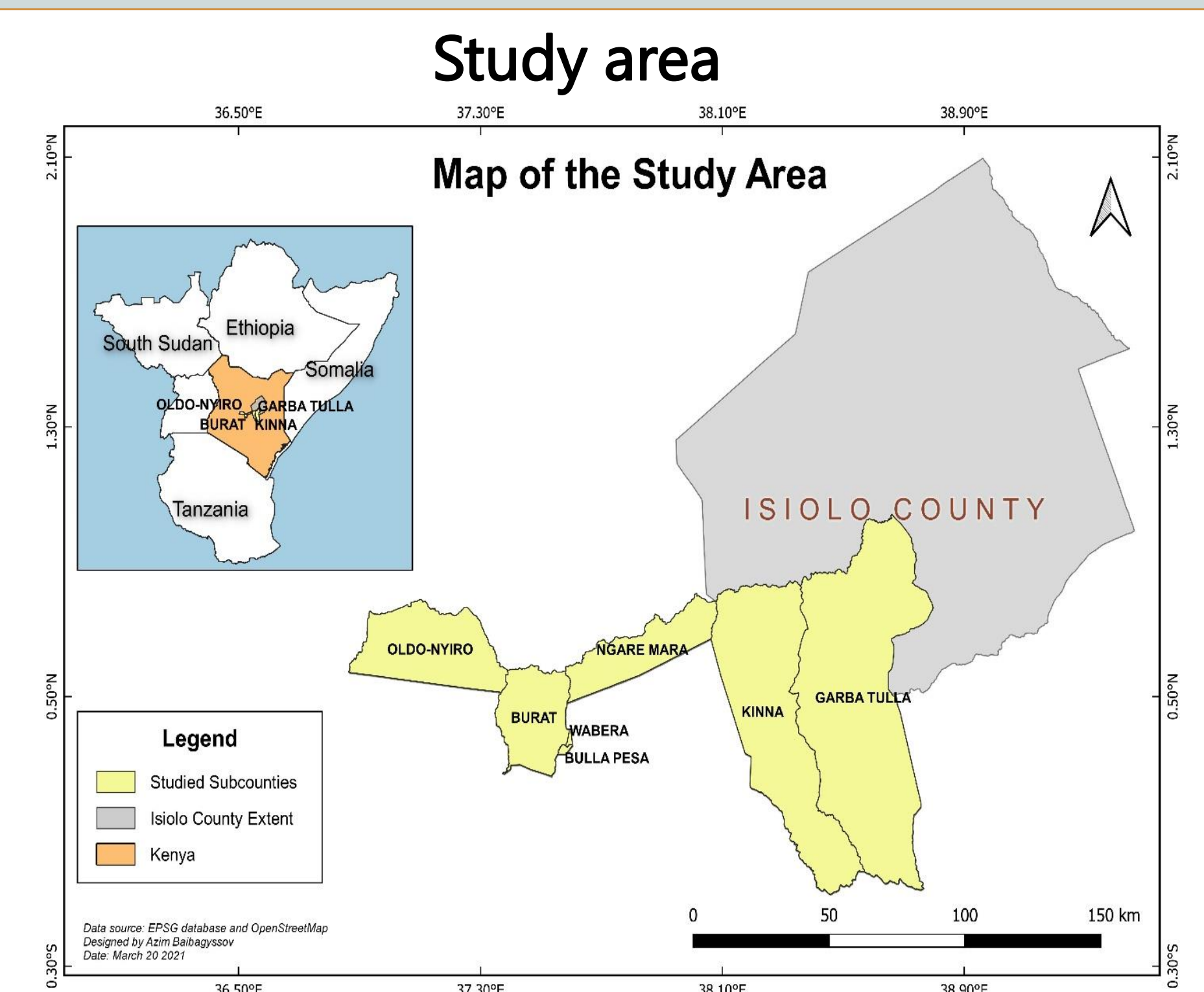
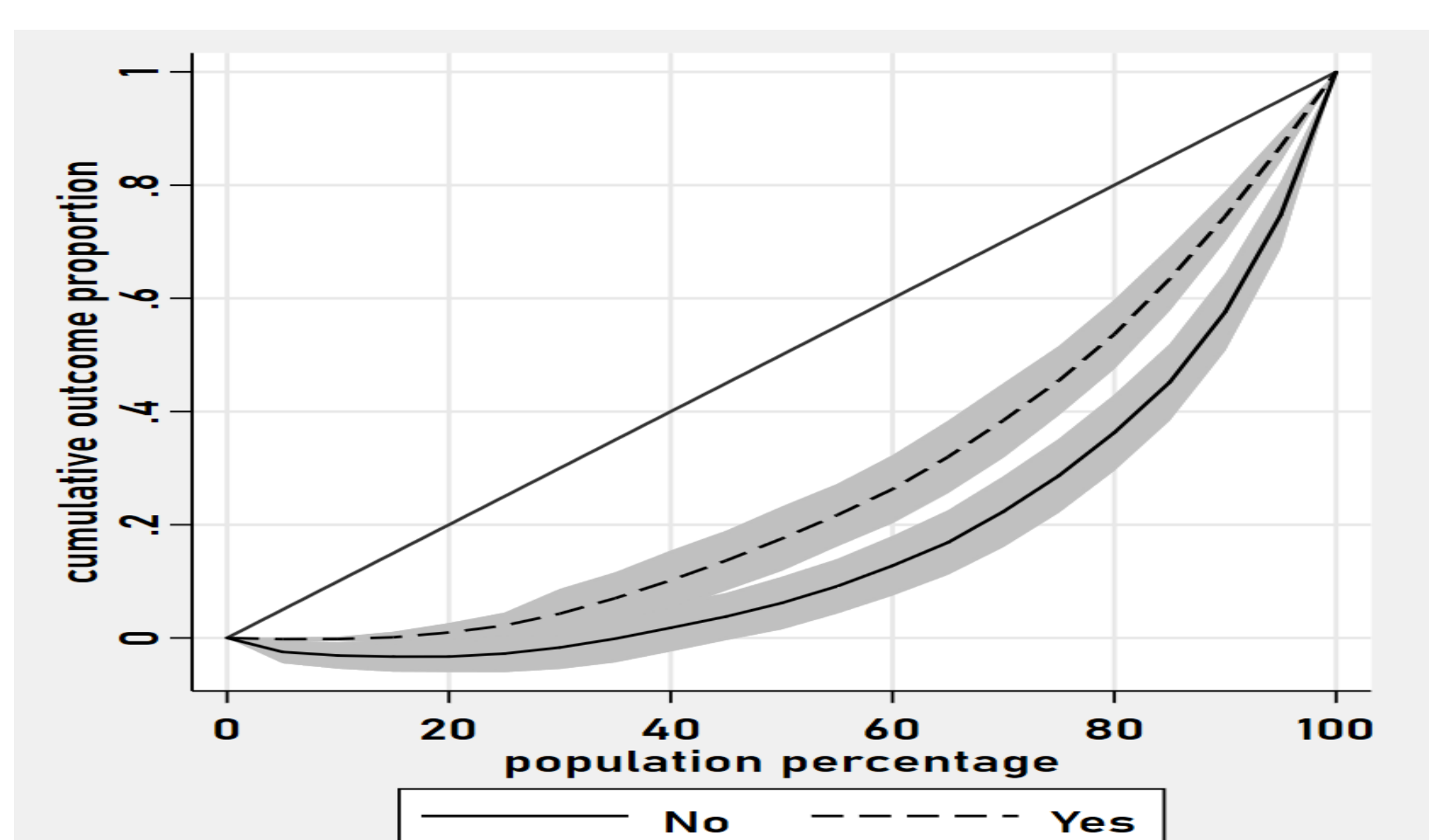


Figure 1: Map of the study area

## Results and Discussions

- Isiolo camel milk market showed highly oligopolistic nature with concentration ratio of 51.0% which was dominated by two trader cooperatives and traders operating individually.
- We apply the Lorenz to evaluate the differences in distribution of income between cooperating and individual traders.
- The Lorenz curve of the income of traders under cooperative lies above the Lorenz of the traders under sole operation. This means that the income of the individual trader is more unequal than that of cooperative



- This outcome does not allow for conclusion regarding preference for the stated distribution. We therefore evaluate whether the distribution of the net income from the enterprise by cooperative traders dominates the distribution of individual traders.

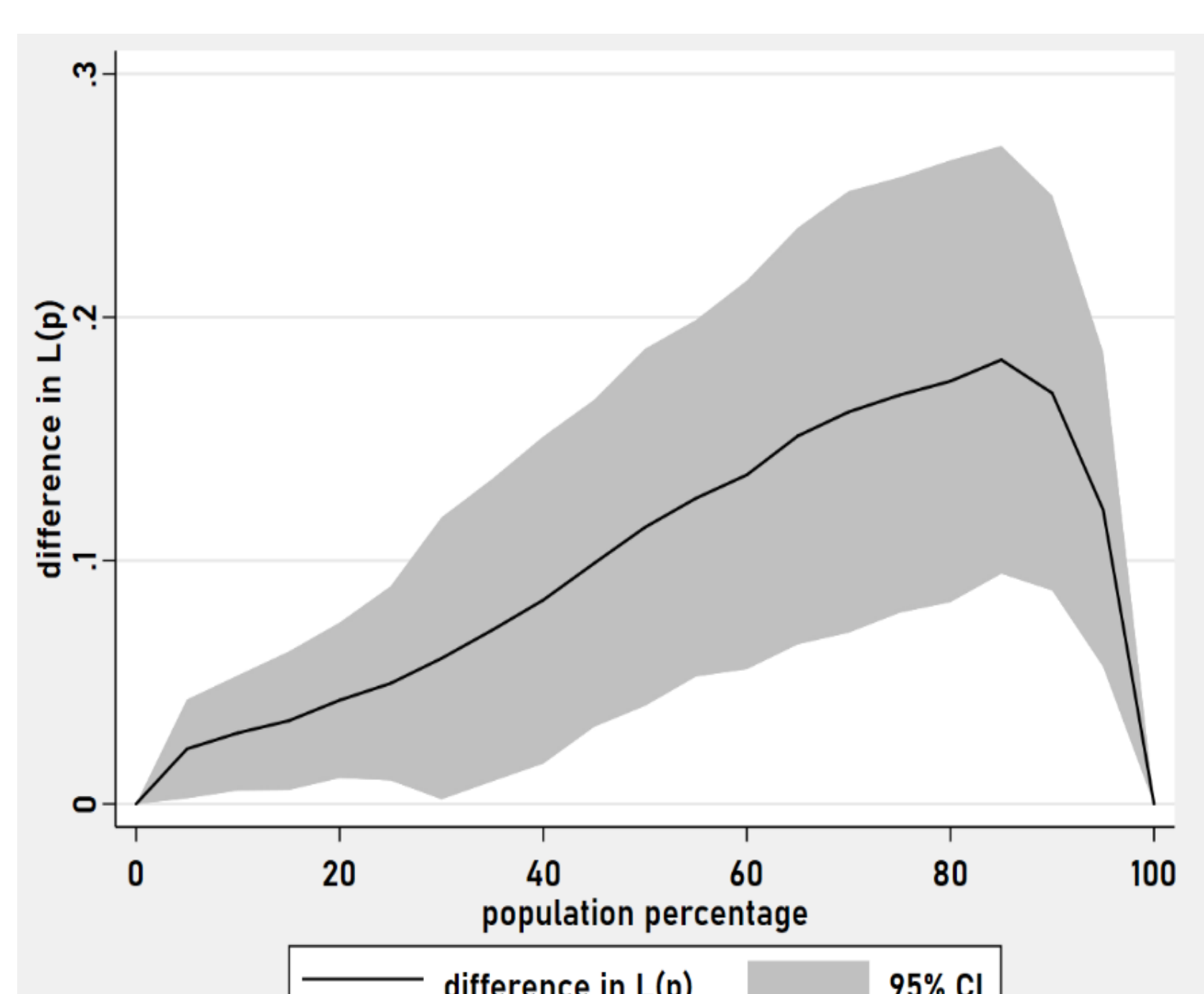


Figure: Lorenz curve of the income of cooperative and individual traders

- As shown in the figure, the cooperative traders Lorenz curve lies above that of individual traders. We can therefore conclude that enterprise income distribution is more equal among cooperative traders than those operating individually
- From a welfare perspective, this outcome does not allow for a conclusion regarding preference for the stated distribution.
- We therefore further make analyses of generalized Lorenz dominance.

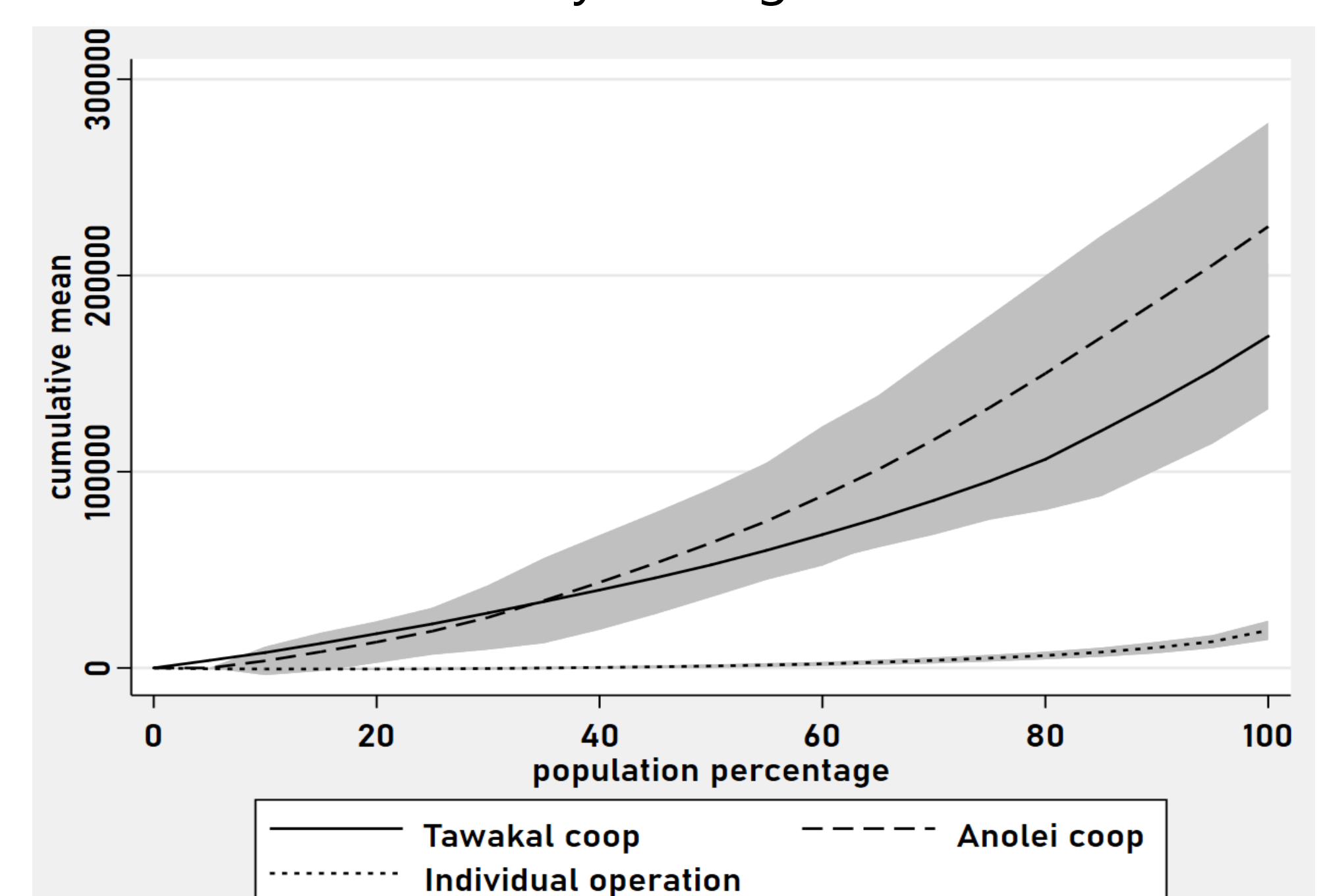


Figure: Income distribution among cooperative and individual traders

- The cooperative traders Lorenz curve lies above that of individual traders. We conclude that the welfare of the cooperating traders is higher than that of individual traders.
- From these results, we can conclude that the generalized Lorenz of the distribution of income from camel milk among cooperative traders dominates that of individual traders

## Conclusion

- The income distribution of cooperative traders is not only less unequal but also superior from a welfare perspective.
- Sharing can work to smoothen or narrow the inequalities in access to efficiency improvement opportunities hence less income inequality.
- Further analysis needed to identify the distribution of gains to the milk producers