Economic sustainability of the mango value chain

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Summary: This research explores the economic dimension of sustainability with a specific focus on the mango value chain in Cai Be, a key fruit production area in Vietnam. A comprehensive analysis of the mango value chain provides a deep understanding of how the total added value is distributed among different actors and of who holds the most power. This analysis results in several recommendations that farmers join cooperatives to gain economic benefits thanks to more stable prices and low input costs. This research can hopefully result in the betterment of farmers' livelihoods and poverty alleviation in Cai Be.

INTRODUCTION

Cai Be, which is located in the southern part of Vietnam, is a river town in Tien Giang Province. This rural area has diverse ecological resources, and its climatic conditions are suitable for producing tropical fruits. Moreover, water supplied by huge branches of the Mekong River, the high rainfall rate, and ideal soil conditions play a key role in creating a competitive advantage for Cai Be regarding mango production.

Although this area possesses good growing conditions, it faces many problems that need to be addressed for the betterment of farmers' livelihoods. First, the presence of intermediaries has a negative influence on farmers' income and agro value chains. Given farmers' lack of both market information and bargaining power, the mango value chain in Cai Be is monopolized by middle actors, thereby greatly affecting the resilience of the chain. In addition, the swings in mango prices increase poverty since the income for farmers becomes less stable, greatly reducing their profits. Furthermore, the absence of concerted public support, the shortage of market information, the lack of cooperatives, and the poor understanding of how the value chain works are among the main barriers to the development of mango production. Therefore, this project, with a focus on analyzing the entire mango value chain, aims to sustainably increase farmers’ income and alleviate poverty in Cai Be.

DATA AND METHODOLOGY

Data were collected from annual reports of the Agriculture and Rural Development Department,
mango cooperatives, and previous studies on the mango value chain in Cai Be. In addition, I conducted surveys with farmers and cooperatives in Cai Be.

The main method used in the capstone is value chain analysis to understand how the total added values in eight channels are distributed. The added value used in this capstone is equal to mango prices minus total costs. In addition, descriptive statistics are used to measure the variability of mango prices.

RESULTS

Figure 1: The involved actors and their interaction in the value chain.

Figure 2: Eight channels in the mango value chain
DISCUSSION

The relationship between market power and shared values in the mango value chain in Cai Be

Farmers who belong to cooperatives have higher added values in terms of absolute and relative values. This is because they can have more bargaining power and are less affected by middle actors. Therefore, farmers in mango cooperatives in Cai Be can sell their mangoes at higher prices, leading to increased profits, which is a typical feature of horizontal integration. Additionally, the total added values for cooperative channels are also higher since they can export mangoes to foreign markets with higher prices, while the channels with lowest prices include small-scale farmers.

The sharing of the total added values

In some channels, farmers only receive 30 – 35% of the total, leaving a substantial share to other participants since most of the mangoes are sold to retailers through middle actors. In contrast, farmers selling mangoes directly to retailers or packaging plants can take almost half of the total added values. However, the quantity of mangoes in direct channels without the intervention of middlemen is insignificant. The implication is that the total added value of the entire mango value chain, in general, is not shared equally among actors.

Price variability

The quarterly export prices of cooperatives are higher than those of small-scale farmers in Cai Be. Although experiencing some fluctuations, mango prices of the former show an upward trend over time. When prices increase, farmers expand their production, resulting in surpluses. Conversely, when prices become lower, mango growers often cut down their trees and convert to other crops, leading to the periods of scarcity or high prices. Furthermore, it is a norm that when there is a substantial drop in prices, collectors or middlemen will not pick mangoes. This situation leads to a vicious circle for farmers who are heavily affected by price fluctuations.

In general, being price takers in the market and infrequent participants in the global value chain, farmers in Cai Be have to face numerous risks that negatively affect their profits in the long term.

Post-harvest losses

Transport and harvest techniques are the main reasons for the substantial losses of mangoes. In Cai Be, farming is organized on the small scale, and farms are located far away from main roads, local markets, and processing plants. The situation is worsened by the lack of modern transport facilities. Therefore, transporting mango fruits to distribution centers or retailing markets not only requires time but also entails substantial losses. In addition, a significant percentage of mangoes are harvested prematurely.

Furthermore, most mangoes are directly transported to local markets and distribution centers without initial processing, which greatly reduces the marketability of mangoes.

The integration into the global value chain

The mango value chain in Cai Be is mainly geared towards domestic channels rather than global markets. However, mangoes are exported to a small number of markets, with China making up the lion’s share of the exports. Relying on only one importer presents a risk for mango producers.

In addition, Vietnamese mangoes could not enter the biggest mango importer, U.S markets, because of not having the license from the USDA. The current situation necessitates radical transformations to help local mangoes tap into potential markets.
RECOMMENDATIONS

The mango cooperative model in Cai Be

There should be different cooperatives in Cai Be with each responsible for one village. To ensure coordination among cooperatives, one main cooperative would manage all smaller cooperatives, which would allow farmers to produce mangoes of the same quality and have more power when negotiating with their partners.

The establishment of mango cooperatives in Cai Be would have some notable benefits that contribute to addressing problems confronting small-scale farmers. First, this serves to reduce input costs to a large extent to increase their profit margins. To clarify, cooperatives will act on behalf of their members to purchase in large volumes. Bulk purchases will result in more bargaining power and higher discounts. Second, mango cooperatives in Cai Be give members more bargaining or purchasing power to negotiate contract terms such as price, deposit, timing, or packaging. Another benefit is standardization, which serves to increase the quality of mangoes in Cai Be. Farmers in cooperatives in Cai Be have to conform to the same standards or practices such as VietGap and GlobalGap, which ensures that all mangoes produced are marketable.

**Changing means of transport and packaging materials**

It is important to enhance farmers’ ability to get their crop to the market quickly and efficiently to reduce the post-harvest losses. This requires the efficient coordination between farmers and collectors or transporters to reduce the amount of time from being harvested to reaching the market.

The integration into the global value chain should be promoted in the future, especially entering the U.S. market. The approval of the USDA for Vietnamese mangoes to be exported to the U.S. is a promising opportunity to help increase the total added values.

**CONCLUSION**
Due to the limit of time and data, the capstone focuses on how to measure economic sustainability and what factors affect the viability of one value chain. Therefore, there is room for further research on economic sustainability. First, the role of the government in enhancing this dimension of sustainability through financial incentives, non-monetary aid, and new regulations can be explored. For example, the government’s policy can affect the production of produce and foreign channels through the introduction of tariffs. In addition, how economic sustainability affects the other pillars in the agricultural sector and how to quantify their interaction can also be a research topic to gain a deeper understanding of the triple-bottom model. Finally, this capstone employs some key criteria to measure economic sustainability; therefore, further research can explore more factors that affect agro value chains.