A study of factors affecting the export participation and performance of agricultural commodities exporters of Tamil Nadu in India

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ABSTRACT

Exporters choose to export, for the foreign market through exporters participating in the foreign markets directly and also positively react to price signals in the domestic markets explicitly. When there is an increasing demand for commodities in the world market, exporter would receive higher prices. The specific objective of the study is; to identify factors affecting the export participation and performance of agricultural commodities exporters of Tamil Nadu. The results clearly indicated that among the independent variables, foreign market price and distribution of commodities by the i_th firm have significantly and positively influenced the State level of export participation of the exporters. On the contrary, domestic market price, the quantity produced for the domestic market, quantity produced for the foreign market and the cost of export commodities have influenced the export participation negatively. The firms would produce positive quantities for the domestic market, but, in practice, some firms would produce for zero exports. Significant and negative nonlinear results were also found for Domestic market price, Quantity produced for the domestic market, Quantity produced for the foreign market and the cost of export commodities in this study.

KEYWORDS

Agricultural Commodities, Export Participation, Probit Model, Comparative Advantage, Exporters

Agricultural Exports in India

Strong export performance is usually known as one of the important factors in driving a country’s economic growth, since exports can improve a firm’s production efficiency to overcome higher trade barriers and address different market tastes in competitive international markets. The trade being one of the ways out of the poverty and can provide huge employment opportunity. Agricultural export can be developed further from the current contribution of around 12.00 percent share in total export of the country in 2014-15. Still, India’s share in the world export trade is meager with less than one per cent, with the agricultural commodities exported from India were coffee, tea and mate, oil cakes, tobacco, cashew kernels, spices, raw cotton, rice, fish and fish preparations, meat and meat preparations, fresh fruits and vegetables, and processed fruits and vegetables. Among the being produced with less capital (Economic Survey of India, 2014-15).

Agricultural Exports in India

Agricultural trade forms a pivotal role in the discharge of the various activities of the trade division. The share of agricultural products including coffee, tea and fisheries in the total exports of India was 15.37 percent in 2014-15. The increasing trend observed in agricultural exports, is a welcoming trend.
In the era of WTO the export of agricultural commodities were not highly affected since the country produces a variety of commodities and its share in the total export has been maintained with stability. The main agricultural horticultural commodities, processed fruits and vegetables accounted for the largest share of exports, followed by fresh fruits and vegetables. Among fresh vegetables, onion, tomato and mushroom are reported to be highly exported competitiveness.

**Tamil Nadu Agricultural Trade Scenario**

Tamil Nadu is one of the major states in export of the agricultural commodities. The total share of Agricultural Commodities in total export of commodities from Tamil Nadu accounted to 8.57 percent in 2014-15. The major export items were tea, coffee, mate and spices, cereals, tobacco, oil seeds, edible fruits, nuts, peel or citrus fruit or Melons, Edible vegetables and certain roots and tubers, cotton, essential oils and silk. Among the major items, tea, coffee, meat and spices contributed 0.45 percent, oil seeds and oleaginous fruits, grains, seeds, etc., contributed 0.56 percent, edible fruits, nuts, peel or citrus fruit or melons contributed 0.83 percent, and fish and cretaceous molluscs and other aquatic invertebrates contributed 0.60 percent in 2014-15 of the total export from the Chennai port (www.magmark.tn.nic.in). Compared to the India, contribution of Tamil Nadu in the total trade of the country is high. Many initiatives were made for enhancing the export in the case of agricultural commodities such as Agri Export Zones, cold storages, central fruits and vegetables market complex, market complex, etc. Based on the location specific needs, the specific agricultural commodities produced in the State.

Agri Export Zones were established for enhancing and facilitating the export oriented activities in the areas where the specific agricultural commodities were produced. The state government announced many policies for the development of marketing of agricultural commodities. Tamil Nadu is facing stiff competition in the world markets for export of agricultural commodities. Besides, there are many domestic problems in the export of agricultural commodities. Lack of market intelligence, lack of transparent price discovery mechanism and lack of adequate post harvest infrastructure are some of the other trade related problems experienced by the exporters. As per the state government policy, various taxes are imposed on agricultural commodities exports, such as purchase tax (on indirect export), market fees, rural development fund, administrative charges etc. These taxes are rendering the price of agricultural commodities internationally competitive. Thus, an Indian agricultural commodity becomes costlier in the international market as compared to other competing countries in the world and Indian agricultural commodities exports get set back many times. There is a lack of proper infrastructural facilities. Many times exporters, when they carry their stock to seaport and if the stock is not loaded due to some reasons or other, exporters do not find godown or proper place to store their stocks properly and safely at sea port, besides, it adds additional expenditure to the exporters. Agricultural commodities production meant for export purpose is having subsidy in other countries, which reduces the cost of production thereby reducing the cost of agricultural commodities.

Therefore, the export price of agricultural commodities of such countries is more competitive in the international markets as compared to Indian agricultural commodities. The major agricultural commodities producing nations have decreased the price to capture the international markets, but the Indian agricultural commodity price is inelastic due to relatively high cost of production and becomes uncompetitive in the international markets. Much of agricultural commodity export prospects have been lost in the recent past to other competing countries like Pakistan because of the high price. The specific objective of the study is to identify the existing pattern of export of agricultural commodities from Tamil Nadu and major destinations.

The study further relied on primary data for which 337 exporters were identified and interviewed by using a well structured questionnaire. The total sample was distributed among the different districts. Among the 32 districts, Chennai has the major exporters and 49 exporters were contacted. More than 20 exporters were surveyed from Tuticorin, Madurai, Krishnagiri, Coimbatore, Tirunelveli, Virudhunagar, and Kanyakumari districts. A sample of less than five exporters were surveyed in Ariyalur, Dharmapuri, Kancheepuram, Karur,
of only one exporter each. Pretested comprehensive questionnaire was used for collection of information from exporters. The questionnaire enlists the details of the existing pattern of export of agricultural commodities from Tamil Nadu, their standards and destination points, quantity of export, mode of export, procurement of export commodities, primary processing activities (like cleaning, grading and standardization) followed by the exporters, package specification for commodities exported, channels of export and awareness on agencies related exports, besides the problems faced by the exporters (like sourcing, processing, packing, storage, adoption of export procedures, settlement of money, fluctuations in price of commodities, infrastructure facilities, government policies, market access, market information and quarantine procedures etc.

**Comparative Advantage of Commodities**

**Choice at Export level in Tamil Nadu**

Exporters choose to export, for the foreign market through exporters participating in the foreign markets directly and also positively react to price signals in the domestic markets explicitly. When there is an increasing demand for commodities in the world market, exporter would receive higher prices.

**Probit Model**

Aitken et al. (1997) and Echeveria et al. (2006) used probit model to capture the factors influencing the export participation of exporters. The same approach was used in this study. The production decision of the farms is given by the solution to the equation.

$$\max \{ Pdq'd + Pfq'f - h'(q'd + q'f + m'd(q'd) - m'f(q'f)) s.t.qd, qf \geq 0 \} \quad (1)$$

Where,

- $Pd =$ domestic market price (Rs/tonnes)
- $Qd =$ quantity produced for the domestic market (tonnes)
- $Pf =$ foreign market price (Rs/tonnes)
- $Qf =$ quantity produced for foreign markets (tonnes)
- $h' =$ export cost of commodities in $i^{th}$ firm (Rs/tonnes)
- $m' =$ distribution of commodities by $i^{th}$ firm (Rs/tonnes).

**Empirical Model**

Exporter’s participation in export oriented commodities was defined in terms of dichotomous variable that takes the value of one if the exporter

### Table 1. Exporter’s Participation in the Export

<table>
<thead>
<tr>
<th>S. N. Variable</th>
<th>Parameters</th>
<th>Standard Error</th>
<th>t-Ratio</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Constant</td>
<td>1.241***</td>
<td>0.237</td>
<td>5.232</td>
<td>0.000</td>
</tr>
<tr>
<td>2 Domestic Price</td>
<td>-0.053***</td>
<td>0.013</td>
<td>-4.087</td>
<td>0.000</td>
</tr>
<tr>
<td>3 Quantity produced for the domestic market</td>
<td>-0.011*</td>
<td>0.033</td>
<td>-1.340</td>
<td>0.073</td>
</tr>
<tr>
<td>4 Foreign market price</td>
<td>0.038*</td>
<td>0.021</td>
<td>1.797</td>
<td>0.072</td>
</tr>
<tr>
<td>5 Quantity produced for foreign market</td>
<td>-0.091**</td>
<td>-0.091**</td>
<td>-1.994</td>
<td>0.046</td>
</tr>
<tr>
<td>6 Export cost of commodities in $i^{th}$ firm</td>
<td>-0.124**</td>
<td>-0.124**</td>
<td>-2.240</td>
<td>0.025</td>
</tr>
<tr>
<td>7 Distribution of commodities by $i^{th}$ firm</td>
<td>0.431*</td>
<td>0.431*</td>
<td>1.495</td>
<td>0.062</td>
</tr>
<tr>
<td>8 $R^2$</td>
<td>0.733</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Adjust $R^2$</td>
<td>0.702</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 F-Value</td>
<td>6.530**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 No. of observations</td>
<td>3 3 7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Oil firms would produce positive quantities for the domestic market, but, in practice, some firms would produce for zero exports. As in Aitken, Hanson and Harrison (1997), it considers the possibility of a corner solution for the variable. The latent variable such that,

$$q_i^*f = q_i f \text{ if } q_i^*f > 0 q_i^*f = 0$$

Otherwise, it firm’s world market participation is given by the equation appropriately used in the study. Regional indicator variable $Z$ was not in the model for estimation but estimated for all the districts separately.

$$P r (Y_i = 1) = Pr(a + X_i + T^k_i + Z^k_i i + i > 0)$$

Where,

- $Y_i =$ $i^{th}$ firm’s export participation ($Y_i=1$ for export participation in the current year; 0 otherwise)
- $X_i =$ a vector of firm-characteristics, including size and productivity arising from the production and distribution cost functions
- $T^k_i =$ the price, terms of trade between exportable and domestic production ($P_f/P_d$)
- $Z^k_i =$ the $k$-th regional or geographic characteristics

The above model has been modified.
exported selected agricultural commodity in the current year and 0, otherwise. The exporters not participated in the current year and the reasons were identified from the analysis. Among the agricultural commodities selected, exportable commodities were identified based on the list of agricultural commodities exported from the State’s ports for the past ten years and expert opinion. Based on the export pattern, exporter’s export participation or orientation was defined as follows.

**Maximum Exported Commodities**

Exporters export participation, if they export up to the current year, or stopped the export at last year. In the present study, probit model is employed to study the Exporters’ participation for export the commodities. The function is specified as follows.

\[
EP = f (DMP, QDM, FMP, QPF, ECC, DC)
\]

Where,

- \( EP \) = Exporter’s Participation
- 1 = If Maximum participation
- 0 = if minimum participation
- \( DMP \) = Domestic Market Price (Rs)
- \( QDM \) = Quantity Produced for Domestic Market (in tones)
- \( FMP \) = Foreign Market Price (Rs)
- \( QPF \) = Quantity Produced for Foreign Market (in tones)
- \( ECC \) = Export cost of Commodities in \( i \)th firm
- \( DC \) = Distribution of Commodities by \( i \)th firm.

Terms of trade between commodities exported up to current year and previous, years were included in the model to find the price effects in export participation. Distribution of commodities of the exporters was calculated. In this estimation procedure, the probit regression, the binary variables were regressed on explanatory variables, including the residuals from the regression of firm efficiency (Echeverria and Gopinath, 2006).

**Results and Discussion**

The results clearly indicated that among the independent variables, foreign market price and distribution of commodities by the \( i \)th firm have significantly and positively influenced the State level of export participation of the exporters. On the contrary, domestic market price, the quantity produced for the domestic market, quantity produced for the foreign market and the cost of export commodities have influenced the export participation negatively. It could be understood from the results that when the domestic market price increased by one rupee the probability of participation of the exporters would decrease by 0.053 indicating that the traders would get their commodities from the domestic market itself. Likewise, if the foreign market price increased by one rupee, the probability of participation of the exporters would increase by 0.038 rupees. The same phenomenon holds true for the distribution of commodities. The results revealed that the distribution of commodities increased by one rupee the probability of participation of export would be increased by 0.431.

It was due to the fact the exporters would prefer to export many commodities at the same time and if one commodity is exported there is a chance of either rejected or earn less price. The cost of export revealed a negative impact on export. If the cost of export had increased the probability of export participation would decline by 0.124. Similarly, the quantity produced in the domestic market and quantity produced for foreign market as well had a negative impact on export participation. The results clearly showed that there was a need for enhancement of production of agricultural commodities both for attaining self sufficiency and for export purpose as well.

Prahadeeswaran (2007) also resulted influence of price in terms of trade on export participation probabilities of farms was found less compared to that of infrastructure development and farm efficiency. This may be due to the fact that crops like sugarcane and tomato were produced for domestic markets, whereas these crops fetched higher or equal prices compared to some of the exportable commodities. Not only the price in terms of trade, infrastructure development, farm efficiency and managerial ability of the exporters also would promote the export participation.
Conclusion

The firms would produce positive quantities for the domestic market, but, in practice, some firms would produce for zero exports. Significant and negative nonlinear results found for Domestic market price, Quantity produced for the domestic market, Quantity produced for the foreign market and the cost of export commodities in this study. Focusing on the effects of foreign market price and distribution of commodities on a firm’s decision to export and its export performance, producer concentration was found to have a significant and positive effect on a firm’s export decision and its export performance. Finally, evidence-based policies are provided to facilitate improvement in the international competitiveness of Tamil Nadu agricultural commodities exporter and in their export performance.

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