



TENTH SRI LANKA ECONOMIC RESEARCH CONFERENCE



Understanding Farmers' Decision to Move Away from Tobacco Cultivation in Sri Lanka

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Introduction

- Many international organizations portrayed tobacco as “a major threat not just to health, but also to social and economic development and environmental sustainability” (Geist et al., 2009).
- Negative consequences,
 - High labour requirement
 - Health risks associated with leaf harvesting and leaf-curing
 - Environmental degradation
- Article 17 of the WHO Framework Convention on Tobacco Control (FCTC) requires to implement economically sustainable alternatives to tobacco growing
- Since the 1990s, the policy support provided to tobacco cultivation dropped sharply with the global drive against tobacco

Introduction Cont.,

Countries have initiated programmes supporting tobacco farmers shift to economically viable alternative livelihoods

- India

Tobacco farmers in India are willing to shift to viable economic alternatives to tobacco if institutional mechanisms and support is provided for the same (WHO)

- Bangladesh

Tobacco Cultivation Control Policy of Bangladesh, 2017 has set targets to reduce tobacco cultivation at all stages by 2040

Early 2020, Bangladesh Bank notified all its branches not to sanction loans for tobacco farming, contract or direct

It is also increasing credit flow to farmers switching to alternative crops

Several surveys have already identified alternative crops for different cropping seasons and for different geographical areas

- Indonesia

Many farmers were now making a better living growing corn, sweet potato and vegetables.

According to the 2018 World Bank Report, poverty plays an important role in the tobacco farmer's decision to shift crop.

Research Gap

- In 2017, Sri Lanka committed to shift all its tobacco farmers (nearly 3000) to alternative crops/livelihoods
- Shifting from tobacco to other alternative crop is a decision by individual farmers based on various external reasons
- Sri Lanka is lacking research studies related to tobacco cultivation and shifting behaviour of tobacco farmers to other alternatives
- Therefore, it is important to find out the factors affect on farmers' decision to switch to the other alternative crops
- Also, it is important to find out farmer expectations in shifting decision and what are the crops they have selected already after shifting.

Literature Review

Research study	Study Focus	Main finding
<p>In-and-Out of Tobacco Farming: Shifting Behavior of Tobacco Farmers in Indonesia <i>Sahadewo, G. A., Drope, J., Li, Q., Witoelar, F., & Lencucha, R. (2020)</i></p>	<p>The research focuses on the variables that affect tobacco farmers' decisions to continue tobacco farming or shift to non-tobacco farming.</p>	<p>The results of the quantitative analysis suggest that farming profits and positive rainfall shocks are two of the key variables that affect the decision to cultivate tobacco. The qualitative results confirm these findings and further illuminate that access to credit, education (agricultural and otherwise) and information play substantial roles in farmers' economic decision making</p>
<p>Choice of alternative crop enterprises among smallholder tobacco farmers in Teso District, Kenya: A multinomial logit analysis <i>Mbaye, D. K., & Mulungu, H. K. (2014).</i></p>	<p>The study analysed the factors affecting the choice of alternative crop enterprises among smallholder tobacco farmers in Teso district, Kenya, using Multinomial logit model.</p>	<p>This shift and the choice of the alternative gone into was found to be influenced positively by factors such as land size, experience, access to extension services and distance to market. Demographic factors such as age, education, household size and gender had no role in influencing the farmers' decision to shift to alternative crops.</p>

Literature Review Cont.,

Research study	Study Focus	Main finding
<p>Determinants of tobacco cultivation in Bangladesh Rahman, M. S., Ahmed, N. F., Ali, M., Abedin, M. M., & Islam, M. S. (2020).</p>	<p>The aim of this study is to determine the factors those are influenced farmers' decisions to grow tobacco.</p>	<p>Binary logistic regression results suggest that company's incentives to farmers, farmers' profitability, a guaranteed market for the tobacco crop and economic viability were the variables most affecting the decision to cultivate tobacco.</p>
<p>Perception of farmers towards alternative crops to tobacco Cultivation in dinhata subdivision of koch bihar district, west Bengal Das, J., & Bhattacharya, S. K.</p>	<p>The main objective is to study the perceptions of tobacco and non-tobacco farmers' why they cultivate tobacco or substitute crops of tobacco in the study area.</p>	<p>Tobacco farmers tend to shift to another crop in the next cropping season due to unprofitability, high input cost and labor requirements while non-tobacco farmers shift to tobacco due to suitable soil and climate and its high price.</p>
<p>Evaluation of response of Tobacco growers in Teso District - Kenya to global fight against Tobacco Mbaye, D. K. (2014).</p>	<p>This study was carried out in Teso district to evaluate tobacco farmers' responses in light of the global efforts towards tobacco control where the farmers' awareness of tobacco effects, the types and level of alternative enterprises replacing tobacco and what influences the choice of an alternative enterprise were investigated.</p>	<p>The results showed that farmers are reducing the acreage under tobacco and moving to other alternative crops. This shift is influenced positively and significantly by land size, access to extension services and distance to the market.</p>

Research Questions and Objectives

Research Questions

1. What are the factors affect farmers' decision to switch to the other alternative crops?
2. What are the alternative choices by tobacco farmers instead of tobacco?
3. If farmers are shifting, what they expect from the government?

Research objectives

1. To identify the factors affecting farmers' decision to switch to the other alternative crops instead of growing tobacco.
2. To identify alternative crops
3. To identify farmer expectations from the government

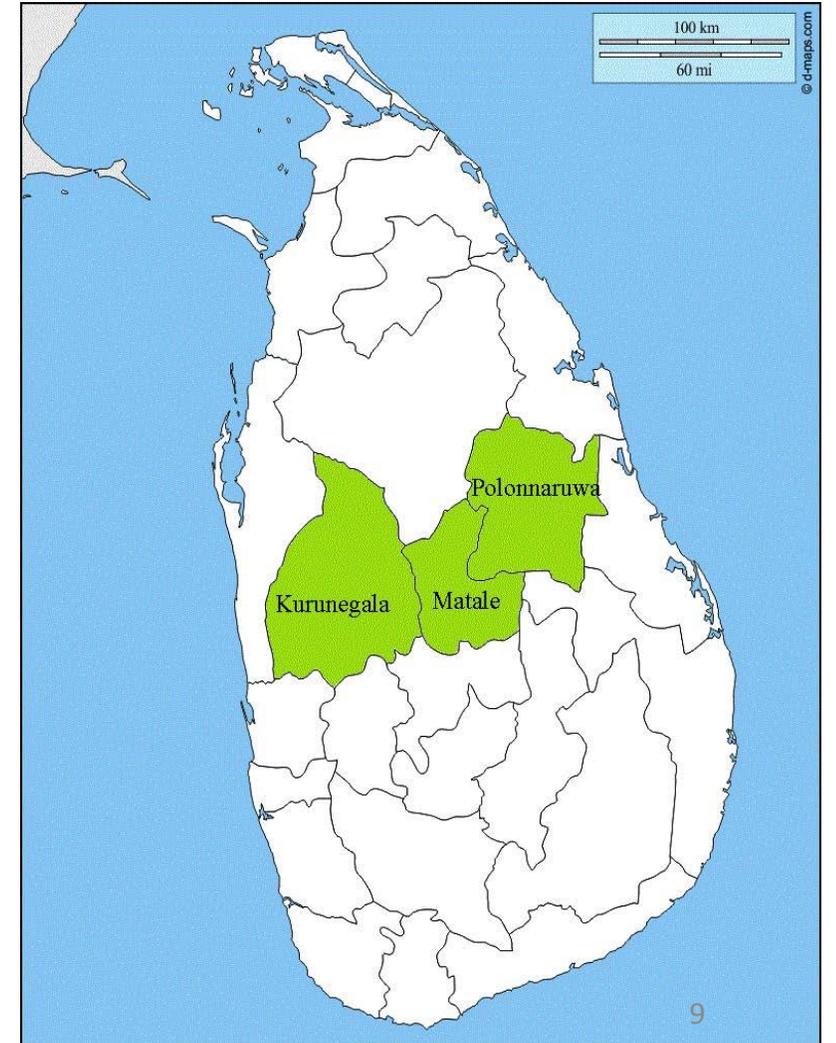


Significance of the study

The findings of this study are expected to better equip the policymakers in making evidence-based policy decisions related to the efforts in controlling tobacco related issues.

Methodology

- **Multi-stage cluster sampling** technique was used in selecting the sample from three leading tobacco-producing districts of Sri Lanka;
Polonnaruwa (n=53)
Kurunegala(n=79) ➔ **n=207**
Matale (n=75)
- Farmers did not switch: n= 141
- Farmers who switched: n= 66
- Sampling was based on cultivation data from the Ministry of Agriculture of Sri Lanka



Bivariate Logistic regression

$$\text{DTS} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 \ln X_6 + \dots + \beta_n X_n \quad (1)$$

DTS = Decision to shift to other alternatives from tobacco

- Where,
- X1 = Age of the head of the household*
 - X2 = Education of the head of the household*
 - X3 = Employment status of the head of the household*
 - X4 = Experience of tobacco farming(yrs)*
 - X5 = Whether used Hired labour or not*
 - X6 = Total revenue from tobacco in the last season*
 - X7 = Alternative water sources in Yala season*
 - X8 = Other crop cultivations (pattern of growing in Yala and Maha)*
 - X9 = Contractual arrangement with leaf buyer*
 - X10 = Cultivated land acres*
 - X11 = Whether have taken a loan for tobacco cultivation or not*



Marginal effects

- This is a useful way to describe the average effect of changes in the explanatory variables on the change in the probability of outcomes in logistic regression.
- To observe the average change in probability when independent variables increase by one unit, the average marginal effects were calculated holding all else constant.
- This study used Average Marginal Effects (AME) to calculate the marginal effect (Equation 2).

$$F(X) = P(Y=1 | X),$$

$$\text{Marginal Effect for } X_k = P(Y=1 | X) * P(Y = 0 | X) * b_k. \quad (2)$$

Results & Discussion

The Results of the Logistic Regression and Marginal Effects

Variable	Coefficient	Marginal effect dy/dx	P value
Age	0.0667**	0.0123	0.002
Education	0.0285	0.0052	0.884
Employment status	-0.5218*	-0.0961	0.085
Experience in tobacco farming(yrs)	-0.0582**	-0.0108	0.002
Cultivated land acres	0.2235**	0.0415	0.005
Partnership with a contractor	0.1163	0.0214	0.806
Other crop cultivation pattern	-0.1420	-0.0263	0.449
Alternative water sources in Yala	0.4361**	0.0809	0.019
Hired labour	-0.1063	-0.0200	0.815
Log_tobacco revenue	-0.9838**	-0.1826	0.000
Received inputs/loans	-0.5218	-0.0934	0.317

Number of observations = 206

LR chi2(10) = 70.49

Prob > chi2 = 0.0000

Pseudo R2 = 0.2728

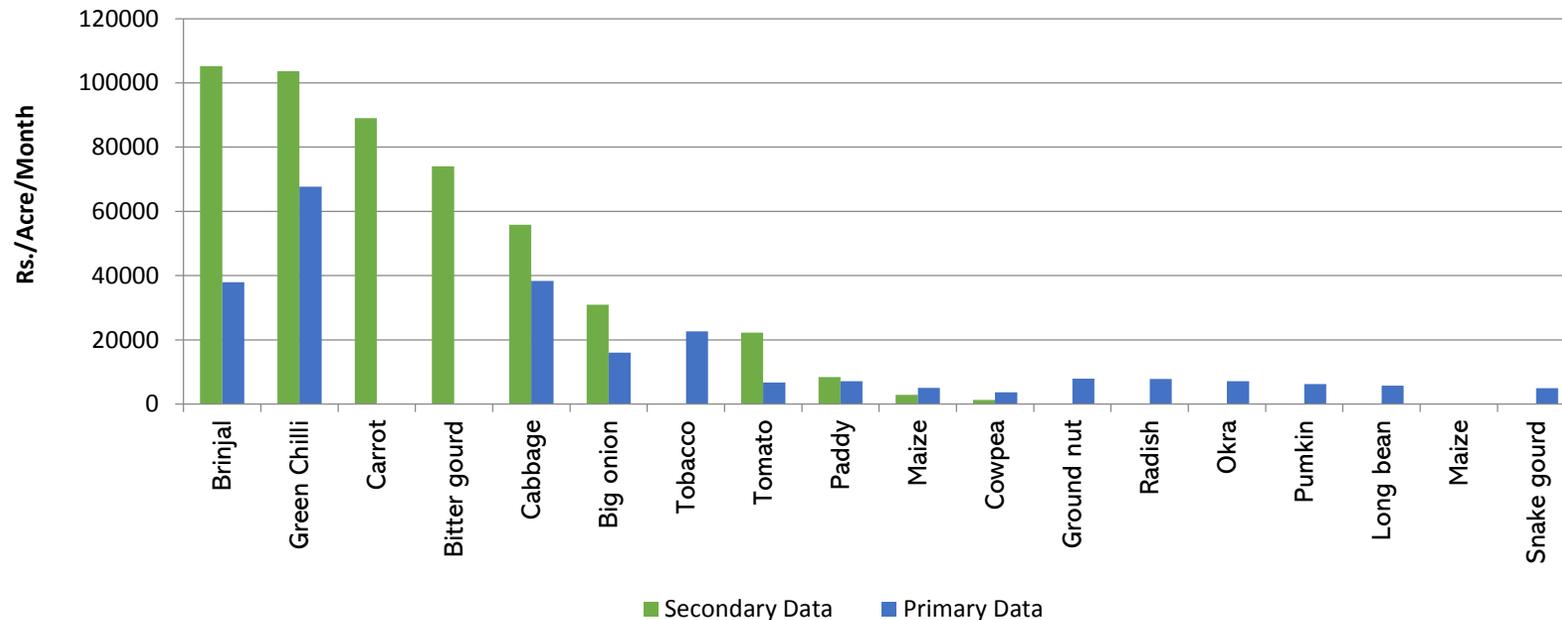
Results & Discussion Cont.,

- Based on the results the parameter estimates of the variables,
 - ✓ Age of the farmer,
 - ✓ Total cultivated land ,
 - ✓ Alternative water source during Yala seasonhave **positive** and statistically significant (5% level) impacts on switching decision.
- Similarly,
 - ✓ Employment status,
 - ✓ Experience in tobacco farming,
 - ✓ Revenue from tobaccohave **negative** and statistically significant impacts on switching decision (5% and 10% levels).

Results & Discussion Cont.,

Alternative Crop Choices

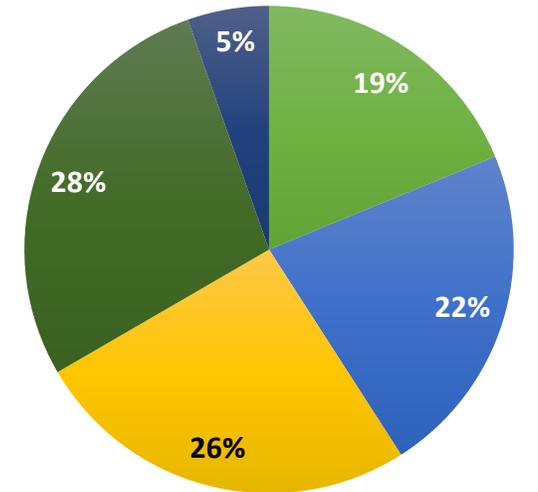
- Farmers had chosen **Paddy (35%), Maize (14%)** as main alternative crops after leaving tobacco cultivation.
- Others had crop choices such as **Brinjal, Chilli, Big Onion, Cabbage, Ground Nut, and Okra.**



Results & Discussion Cont.,

Farmer expectations from the government

- 28% of the farmers expect a subsidy for the inputs such as fertiliser.
- Another 26% farmers expected an assured market for the new crops.
- 22% is in favour of government extension support.
- 19% are expecting well-established contracts.



- Well-established contract farming
- Government support (extension)
- Assured market for the new crops
- Subsidizing plant materials & inputs
- Other

Conclusion

- Decision to switch to other crops is mostly influenced by the factors of the age, years of experience in tobacco cultivation, total cultivated land, having an alternative water source in yala season, total tobacco revenue and employment status.
- Several crops such as **Paddy, Maize, Brinjal, Chilli, Big Onion, Cabbage, Ground Nut, and Okra** were the main alternative crop choices by farmers.
- Farmers who are not willing to shift from tobacco would like to move away only if they receive **well-established contract farming systems, more government support, assured market, subsidized inputs for the other field crops.**

Recommendations

- 1. The government should identify economically sustainable alternatives.**
Study identified alternatives such as Paddy, Maize, **Chili, Brinjal, Cabbage and Big onion** which have the potential to support the livelihoods of tobacco farmers when they are switching from tobacco.
- 2. Agriculture extension services should be strengthened**
Institutional mechanisms and support should be provided to the farmers
- 3. Smallholders should be linked with the private sector agribusiness ventures through Public-Private-Producer-Partnership (4P) contracts**



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Thank you