

The Effects of Natural Disasters: A Study to Sustain Paddy and other Seasonal Crop Farmers in Sri Lanka

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Introduction

The United Nations (UN) Development Programme set out seventeen sustainable development goals (SDGs) to be achieved by the UN member countries in 2030. One such goal, SDG 8 is about decent work and economic growth, where the agriculture sector can play a wider role for economic growth by reducing unemployment in the country. Worldwide, various factors can adversely affect many occupations, especially with unfavorable effects on those engaged therein. Previous researchers have shown that natural disasters cause impacts in terms of income volatility, particularly negative income shocks regardless of the cause whereas risks force households in developing countries to lower their expenditure on health and education. Mottaleb et al. (2013) identified natural disasters impacting on household income and expenditure volatilities in Bangladesh as well.

Ministry of Disaster Management (DM) in Sri Lanka identifies flood and drought as the major types of natural disasters affecting Sri Lanka (Karunaratna and Athukorala, 2018). Nevertheless, Tsunami has also been a major issue in the recent past. Its likelihood of occurrence is rather small, but it causes high damage. Ancient Sri Lanka was a country with self-sufficiency. Currently, an open market economy, Sri Lanka's dependency is higher on imports, partly due to insufficient local production. In addition, over the years cultivation has declined due to various reasons. The International Trade Administration (2018) states that in Sri Lanka, over 25% are employed in the agricultural sector, which contributes 6.9 % to Gross Domestic

Production (GDP). This indicates the magnitude of any adverse impacts to the agricultural sector. In Malaysia, Hein (2019) discussed the response to extreme disasters and climate change when the government intervenes to mitigate same and spread awareness of climate changes. However, in Sri Lanka no long term plan is in place to mitigate or at least minimize the effects of natural disasters, which can lead to inequalities in the population. The findings/results of this study can assist Sri Lanka to initiate policies to reduce inequality among farmers, and thereby improve and sustain the agricultural practices in Sri Lanka; and thus to achieve SDG 8 as set out by the UN.

Objective

To investigate the socioeconomic and demographic characteristics of paddy and other seasonal crop farmer households affected by natural disasters in Sri Lanka.

Methodology

This study ascertains the number of natural disasters farmer households have encountered, and socioeconomic and demographic characteristics such as age, gender, religion, marital status among other factors, which vary between affected and non-affected paddy and other seasonal crop farmers. Pearson's Chi-square test identifies significant relationships among variables, if any. STATA 12 software analyzes secondary data collected. Pearson's Chi-square formula is:

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

O = Observed (actual) value

E = Expected value

Data is obtained for Sri Lanka from the Household Income and Expenditure Survey (HIES) 2016.

Results and Discussion

Highest share of farmers with 13.64% for paddy and other seasonal crops are observed in the Kurunegala district and least around 0.72% from the Kilinochchi district; the highest percentage of paddy and other seasonal crop

farmers affected by natural disasters are in the Kurunegala district with 18.74 % and the least affected 0.2 % in the Colombo district.

Table 1: Demographic characteristics of paddy and other farmers

Comparison	Non-affected (%)	Affected (%)	Total (%)
Sector *			
Urban	94.38	5.62	100
Rural	87.42	12.58	100
Estate	97.1	2.9	100
Ethnicity			
Sinhala	87.87	12.13	100
Sri Lankan Tamil	87.24	12.76	100
Other	89.43	10.57	100
Religion			
Buddhist	87.92	12.08	100
Hindu	89.57	10.43	100
Islam	82.05	17.95	100
Roman Catholic	84.96	15.04	100
Marital Status			
Never Married	87.77	12.23	100
Married	87.74	12.26	100
Widowed	89.57	10.43	100
Separated/Divorced	88.89	11.11	100
Average	87.89	12.11	100

Note: * Differences are statistically significant at $\alpha = 0.01$ levels Pearson's Chi-Square.

Percentage of farmers affected in main categories such as flood, drought, landslide, wild animal attack, wind affected, other natural disasters and different combinations of these aspects are relatively higher in the country. Most farmers face wild animal attacks. Animals entering farm land in search of food being warded off by farmers lead to conflicts, and hence victimize farmers. In addition, same farmer would have been affected by two or three disasters; observations are less but occur countrywide. Table 1 demonstrates demographic characteristics of paddy and other seasonal crop farmers between affected and non-affected farmers. Pearson's Chi-Square indicates that there is a significant difference between affected and non-affected farmers based on sector wise distribution. In addition to that, other general demographic characteristics are provided in Table 1 too, but the significance of association among affected and non-affected among the variables is less. Ethnicity,

religion and marital states wise comparison between the affected and non-affected is much more similar.

Conclusion

Between affected and non-affected groups related to demographic characteristics, there is no significant association/relationship among variables. However, sector wise an association/a relationship exists among these two parties. Government of Sri Lanka can focus on uplifting farmers to increase economic growth in the county and achieve SDGs as set out by the UN. Policy makers need to initiate action to mitigate risks and disasters caused by animals, as it is the major threat faced by farmers.

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