

Factors affecting fertilizer use intensity among farm size groups: Perception about fertilizer subsidy policy in Bangladesh

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Background

- The increasing demand for food, caused by rapid rising population, has been met by improved agricultural productivity since green revolution in Bangladesh
- Fertilizer has been a vital input which accounts for about 50 to 60 percent of the total increase in cereal production (Roy and Farid, 2011)
- Universal subsidy policy is followed which gives extra benefits for better-off producers who would have used fertilizers anyway (Mujeri *et al.*, 2012)
- For sustainable development of the country's agricultural sector, access and use of fertilizer is necessary for majority of financially constrained marginal and small land holders
- Major hinders behind differential fertilizer usage of farmers have to be analyzed further
- Price might not be the only bottleneck preventing fertilizer use

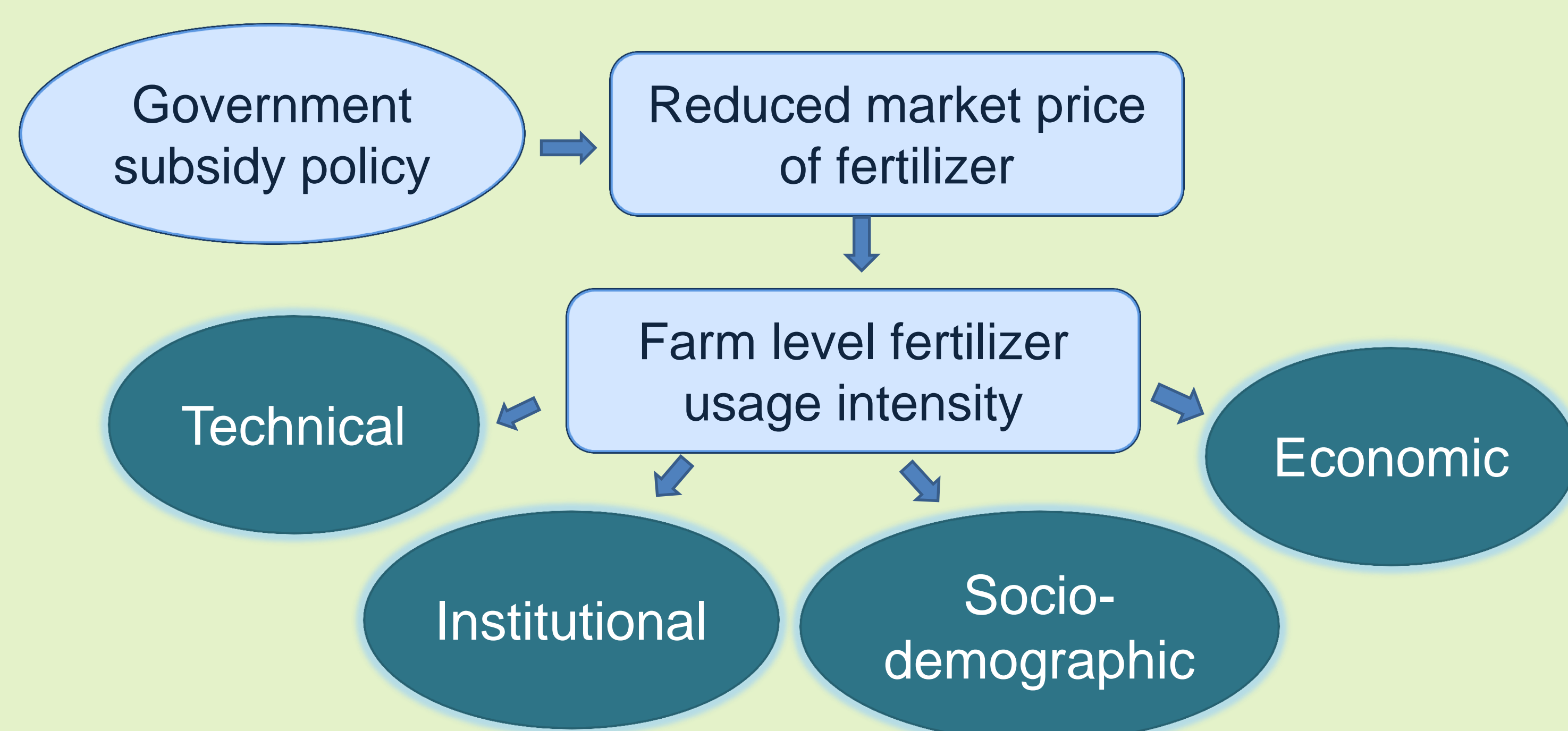
Research question

How do farmers perceive the existing fertilizer subsidy policy and which factors are affecting their fertilizer usage?

Objectives

- Exploring farmer's perceptions about fertilizer subsidy policy
- Measuring the influence of determinants that affect the farm level fertilizer usage

Conceptual framework



Research methods

Study area: Research covers three districts namely, Dinajpur, Mymensingh and Tangail from northern part of Bangladesh based on farming concentration

Sampling technique: Purposive sampling

Sample size: 299 farm households

- Marginal (operating between 0.02 and 0.2 ha of land) - 43
- Small farms (operating between 0.2 and 1.0 ha of land) – 156
- Medium farms (operating between 1.0 and 3.0 ha of land) – 85
- Large farms (operating above 3.0 ha of land) – 15

Data source: Primary data from field survey conducted during June to October, 2014

Analytical techniques: Descriptive statistics, multiple regression model (Ordinary Least Square)

Results

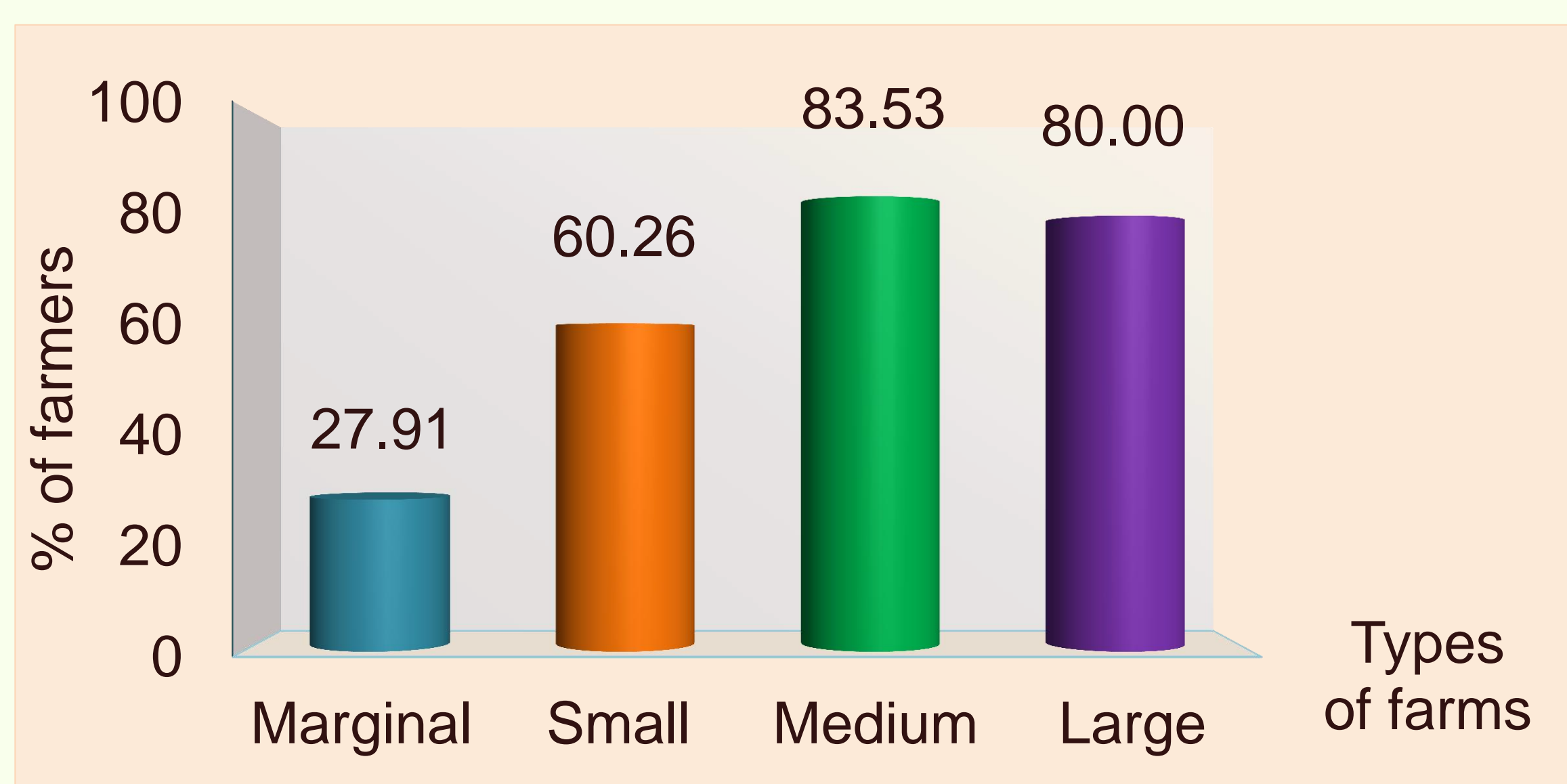


Figure 1: Proportion of farmers knowing about fertilizer subsidy policy

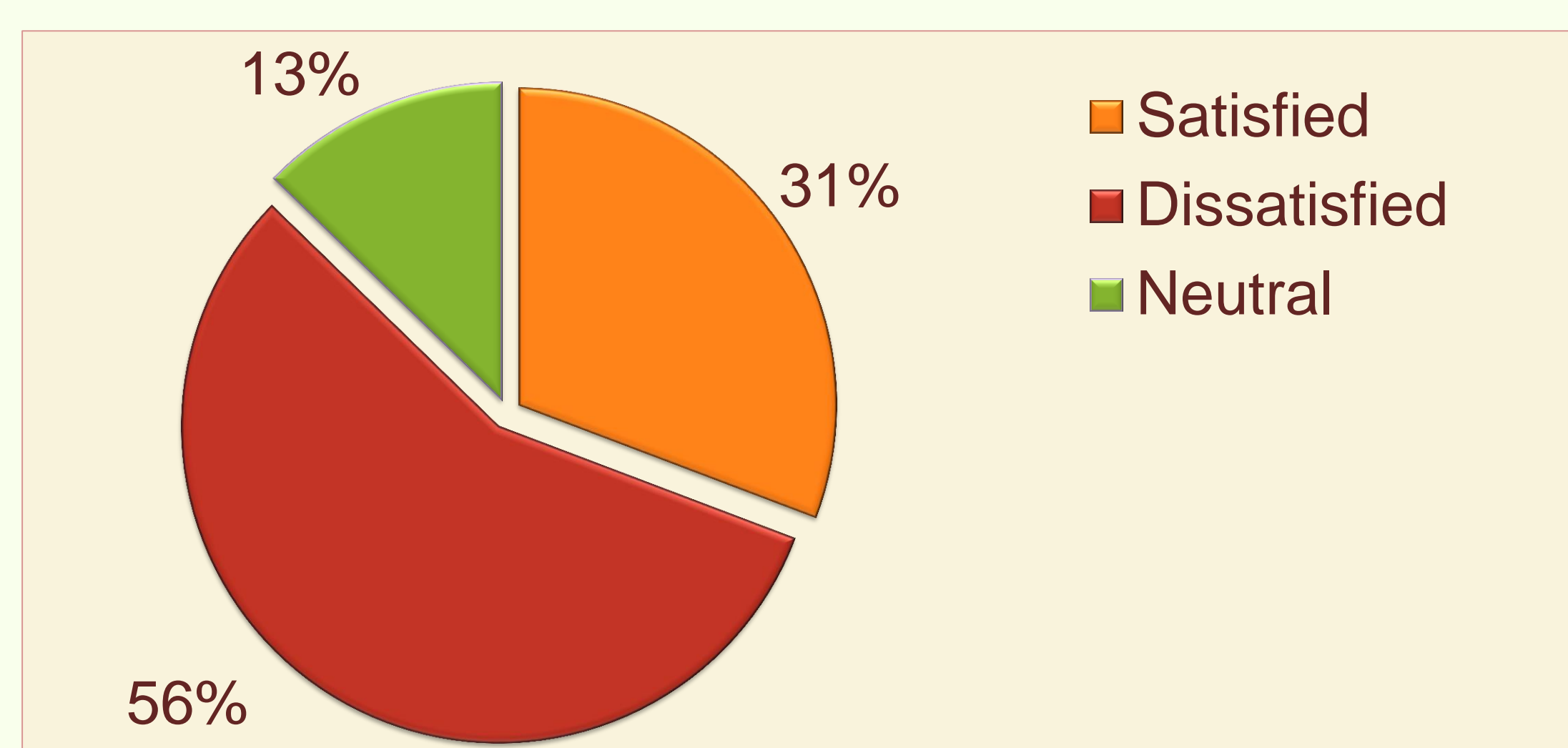


Figure 2: Farmer's satisfaction with fertilizer policy

Results

Table: Factors affecting farm households' fertilizer use intensity

Variables	Marginal		Small		Medium & large	
	Coeff.	Robust SE	Coeff.	SE	Coeff.	Robust SE
Education (years)	0.204	1.078	0.398**	0.134	0.669**	0.265
Farming experience (years)	-0.258	0.418	0.145	0.532	0.537	0.751
Knowledge of fertilizer subsidy (1=yes)	2.283**	1.201	1.168	4.519	1.321	2.102
Off-farm income (BDT/hh)	0.006***	0.002	0.004***	0.001	0.003***	0.001
Value of agricultural assets (BDT/hh)	0.046	0.120	0.057**	0.023	0.031	0.041
Availability of labor (man-day/ha)	1.781**	0.813	1.525***	0.566	0.870**	0.340
Manure applied (ton/ha)	-0.015	0.014	-0.012	0.015	-0.019	0.018
Fertilizer-paddy price ratio	-0.636***	0.134	-0.728**	0.199	-0.442**	0.027
Expected product price (BDT/kg)	0.254***	0.135	0.191***	0.038	0.122	0.319
Assessment of soil fertility (1= good or average)	6.070*	2.021	5.771	15.033	-3.402**	1.851
Extension services received (1=received)	5.524**	2.235	6.182**	1.906	4.829**	1.701
Credit access (1=yes)	4.216**	1.016	3.939	4.691	2.561	12.832
Constant	53.405	75.975	128.204	81.181	158.524	155.786
Model summary						
Model fit (R ²)	0.72		0.59		0.58	
Adjusted R ²	-		0.53		-	
F-value	22.83***		14.88***		10.17***	

Note: ***, ** and * represent statistical significance at 1%, 5% and 10% level, respectively
Coeff. = Coefficients; SE = Standard Error

References

- Mujeri, M. K., Shahana, S., Chowdhury, T. T. and Haider, K. T. (2012). Improving the effectiveness, efficiency and sustainability of fertilizer use in South Asia. Briefing Paper, Global Development Network, New Delhi, India.
- Roy, R.N. and Farid, A.T.M. (2011). Bangladesh. In: Case studies on policies and strategies for sustainable soil fertility and fertilizer management in South Asia. RAP publication, Food and Agriculture Organization of the United Nations (FAO), Regional Office for Asia and the Pacific, Bangkok.

Acknowledgement

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Conclusion

- Most of marginal farmers are not aware of the fact that subsidy policy is benefitting them by lowering the market prices
- Some medium and large farmers are satisfied with current policy
- Farmer's fertilizer usage is driven not only by the current market price but also mostly by their financial liquidity position, output prices, labor availability and extension services