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Abstract of Ph.D. Thesis in Agricultural Economics

Human Capital, Financial Capital, Infrastructure and Productivity of Indian Cotton, Thesis submitted by K.U. Viswanathan, Tata Institute of Social Sciences, Mumbai in May 2003.

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The study aims to identify the major determinants of productivity of cotton including human capital, financial capital and infrastructure based on a sample of 240 cotton farmers in two districts of Maharashtra, the State with largest area under cotton. The study districts of Amravati and Nagpur were selected at random from two groups of major cotton districts in the State varying in infrastructural development.

It was observed that human capital variable, viz., number of years of education of the head of the household had positive and statistically significant effect confirming the positive education-productivity hypothesis. Education variables such as the average number of years of education of all members of the household, maximum number of years of schooling attained by any one member of the farm household, education of the head of the household upto 4 years and education of the head of the household from 4 to 10 years, although had expected positive signs, were not significant. The findings implied that the education-productivity relationship is significant with respect to the education level of the farmer himself (decision maker). The education level of 10 years and above was required to have a significant education-productivity relationship.

The visit by Extension Officer to the farm had a positive influence on cotton productivity statistically significant at 10 per cent level. Adoption of recommended package of practices for cotton had positive influence on productivity statistically significant at 1 per cent level. Use of fertiliser nutrients, use of organic manure and crop loan from institutional sources had strong positive effect on cotton productivity, all statistically significant at 1 per cent level. Irrigation, though had the expected positive sign, its effect on productivity was not significant even at 10 per cent level. Infrastructure variable like road had a positive effect on productivity statistically significant at 5 per cent level in two specified equations and statistically significant at 1 per cent level in the rest four specifications. The impact of education variable on productivity was higher in Nagpur compared to Amravati district implying that the education-productivity relationship was strong in an environment of better infrastructure. The impact of visit by Extension Officer, another human capital variable, was also higher in Nagpur district as compared to Amravati district. This result corroborates the hypothesis that the education-productivity relationship is stronger in a dynamic setting. The education of the head of the household had a

positive effect on demand for credit statistically significant at 10 per cent level. This result was in confirmation with the hypothesis that education has positive and significant influence on demand for credit facilities. The farm size although had positive sign, was not significantly influencing the demand. The use of fertiliser nutrients affects the credit demand positively and statistically significant at 5 per cent level.

The logit regression model gave a good fit to the adoption behaviour of the sample farmers. Education in years of the head of the household influences the adoption decision positively and significant at 5 per cent level. The adoption of recommended package of practices was influenced positively by the visit by extension officer and the influence was statistically significant at 1 per cent level. Other variables that emerged to affect adoption decision positively were crop credit and irrigation each significant at 1 per cent level. Infrastructure variable like road also emerged as positively influencing adoption decision, coefficient statistically significant at 10 per cent level. The average probability of adoption of recommended package of practices of sample farmers was 0.26 in Amravati and 0.33 in Nagpur. Age variable, had positive sign contrary to the expectation that older farmers may be slower in adoption.

The marginal impact of one extra visit by the extension officer resulted in increase in the probability of adoption by 31 per cent and 42 per cent in Amravati and Nagpur, respectively. One year of additional education of the farmer increased the probability of adoption of the recommended package of practices by 11 per cent and 19 per cent. The marginal impacts of each of the variables were more in Nagpur district, which was infrastructurally better developed.