The impact of irrigation on agriculture productivity: Evidence from Sri Lanka

P. Dunusinghe

Department of Economics, University of Colombo, Sri Lanka

Sri Lanka has a great history of irrigation dating back to 500 BC. During the post-independence era, successive governments launched a number of major and minor irrigation projects aiming at, among other targets, agricultural and rural development. Nevertheless, irrigation-productivity nexus has limitedly been investigated in the context of Sri Lanka. The overall objective of this study is to examine the impact of irrigation on agricultural productivity. This study examines the impact of irrigation on selected crops, namely paddy and maize, by estimating Cobb-Douglas production functions where crop yield is a function of a number of agricultural inputs including irrigation. Data for the study were extracted for the period of 2008 Maha-2017 Yala seasons, from bi-annual surveys on the cost of cultivation of major agricultural crops conducted by the Department of Agriculture. Regression results suggest that agriculture productivity is significantly higher in irrigated systems than that of in the rain-fed systems. Paddy average yield is around 40 per cent higher in irrigated systems than that in the rain-fed systems. Estimated results suggest that maize yield is around 14 per cent higher in irrigated systems than that in the rain-fed systems. Regression results are consistent with both national and international literature. More importantly, our results indicate that public funds invested in irrigation projects in the past have contributed to economic growth and the wellbeing of the general public. A number of other explanatory variables were statistically significant and over 70 per cent of total variation in yield is explained by the regression models. Higher productivity implies that the country could meet its food requirements with less lands thereby reducing pressure on environment. In the light of recent food price increase and expansion of demand for non-agricultural use of land, raising agricultural productivity is more significant than ever for environmental sustainability.

Keywords: *agriculture, irrigation, productivity, production function, Sri Lanka*