عنوان مقاله:

ENDOGENEITY, HAUSMAN TEST AND Bt COTTON PRODUCTIVITY IN PAKISTAN

محل انتشار:

هشتمین همایش بیوتکنولوژی جمهوری اسلامی ایران و چهارمین همایش ملی امنیت زیستی (سال: 1392)

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خلاصه مقاله:

In order to estimate unbiased estimates of production function, theoretical knowledge implies that right handside variables are exogenous in nature. However, considering farm inputs, we often come across endogeneity problem for all farm inputs. However, available literature shows that endogeneity is more severe in the case of pesticide use. Instrumental variables are used when the problem is more severe. However, less severe endogeneity problem does not pose serious impact on the coefficient estimates and therefore, the least square estimator is more efficient than instrumental estimator. In the present study, a variant of Hausman test was used to determine endogeneity of pesticide. First, we estimate pesticide use function by regressing pesticide quantity on different variables, namely prices of output and pesticide, Bt dummy variable, cropping season, regional dummies and socioeconomic variables. The residual value from pesticide use function was included in the Cobb Douglas production function. Its coefficient was insignificant, implying that there was not severe enough problem of pesticide endogeneity. On the basis of this finding, pesticide variable is used instead of instrumental variable in the production function. Results of the production function indicate that Bt cotton seed has significant effect on cotton yield. So we conclude that using Bt cotton seed has two types of impacts, namely, reduced pesticide use and increased returns in cotton production through improving cotton productivity.

کلمات کلیدی:

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