Does Risk or Variability in Federal Farm Programs Affect Efficiency and Productivity?

Saleem Shaik *

February 4, 2014

Abstract

This paper evaluates the importance of short-run and long-run risk or variability in direct government payments (commodity programs and conservation) and crop insurance on efficiency and productivity. First, the primal production function is estimated using double-heterogeneity stochastic frontier analysis with decomposed pure random error (v) and one-side error (u) that is linked to productivity and technical efficiency, respectively. Second, two sets of alternative panel estimator of double-heterogeneity stochastic frontier model is presented using pure random error (v) and one-side error (u) independently to transform variables. An empirical application to 48 U.S. states for the period 1960 to 2004 suggests differences in parameter coefficients of the production function and double-heterogeneity function. In addition, the difference in the panel parameter coefficient is due to the use of pure random error (v) and one-side error (u) to transform variables.

Keywords: *Direct government payments; crop insurance programs, efficiency and productivity; alternative panel estimators; stochastic frontier analysis; U.S. State-level data, 1960 to 2004.*

JEL Classification Numbers: *Q18, C33, Q24.*

*Saleem Shaik is an Associate Professor, Department of Agribusiness and Applied Economics at North Dakota State University, Fargo, ND. E-mail: Saleem.Shaik@ndsu.edu. The author wishes to thank Jessica Ebert, Senior Lecturer & Writing Consultant, North Dakota State University. Shaik's time on this project was supported by North Dakota State University Experiment Station project.