

Empirical estimation of non linear input-output modelling: an Entropy Econometrics approach

Topic:

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Non-linear input-output (NIO) modelling, despite the relatively rich literature that developed its theoretical basis, has been only very modestly applied to empirical analysis. The main reason for this lack of empirical estimation of NIO models is that the number of parameters to estimate is much higher than the number of available data points. In order to solve this problem, calibration techniques are usually applied (as in the case of GCE estimation).

This paper proposes an alternative approach to estimate NIO models. Taking advantage of the proliferation of IO databases in the last few years; and by applying an estimation strategy that relies on entropy econometrics, the paper suggests estimating (instead of calibrating) the parameters that characterize a non-linear relation between inputs and output. This nonlinear model is characterized by having scale dependent input coefficients, instead of fixed ones. Several types of multiplier can be calculated from this nonlinear model, allowing for calculating confidence intervals of our results. The proposed technique is developed and then illustrated by means of an empirical application where the parameters that characterize a NIO model are estimated for the Spanish economy.