Distributional test for endogenous effects: Case of binary investments

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This paper studies the effect of strategic complementarity among firms' lumpy investments on the fluctuations of aggregate investments. We investigate an extensive data set on Italian manufacturing firms. We first show that the fraction of firms that experience a large investment rate in a given region-year is distributed exponentially. Secondly, we estimate the degree of the strategic complementarity among the binary investment choices of firms within the same region. The first finding puts a question on the modeling strategy that attributes the cause of fluctuations to a collection of unspecified exogenous shocks outside of the model, because such a collection of shocks will form a Gaussian noise to the aggregate investments. We propose a simple model of investment fluctuations, in which the fluctuations endogenously arise from the strategic complementarity of firms and follow an exponential distribution. We argue that the pattern and magnitude of the fluctuations of the aggregate investments observed in the data can be explained by the degree of strategic complementarity that is identified in the same data.

Keywords
Lumpy investment, strategic complementarity, endogenous effect, reflection problem