The nature of productivity shocks is a central feature of models of heterogeneous firm dynamics. Using firm-level data from Spain, we show that the observed productivity dynamics differ from those implied by the canonical, linear AR(1) representation with normally distributed shocks. We document that the productivity process features non-linear persistence and non-normality. Motivated by this, we estimate a flexible stochastic process for productivity which allows for these features and compare its implications with the canonical one. We find that the flexible model fits the productivity data much better. We also estimate non-parametric, semi-reduced form empirical investment functions and find that the two processes imply very different responses to productivity shocks. Those estimated under the flexible process fit much better the relationship between investment and productivity in the data. Finally, we embed both the non-linear and the canonical process in a structural, partial equilibrium investment model and estimate capital adjustment costs under both specifications. The model estimated under the non-linear process fits the data much better and has very different implications for the relative importance of fixed versus quadratic costs of adjustment.

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