

Applying the Explicit Aggregation Algorithm to Discrete Choice Economies: With an Application to Estimating the Aggregate Technology Shock Process *

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Abstract

This paper applies the explicit aggregation algorithm in Den Haan and Rendahl [2010. Solving the incomplete markets model with aggregate uncertainty using explicit aggregation. *Journal of Economic Dynamics and Control*, 69-78] to lumpy investment models of plants studied in Khan and Thomas [2008. Idiosyncratic shocks and the role of nonconvexities in plant and aggregate investment dynamics. *Econometrica* 76, 395-436]. The explicit aggregation algorithm can solve heterogeneous agent models in less computation time without considering the distribution of plants. Although the individual decision rules in discrete choice models exhibit high nonlinearity, the explicit aggregation algorithm yields similar results in terms of the aggregate and plant-level moments, as compared to the standard Krusell and Smith algorithm. This paper also estimates the aggregate technology shock process in both the representative agent model and the heterogeneous plant model using the simulated method of moments to match the aggregate moments, and finds that the estimation results look very similar.

Keywords: Projection methods; discrete choice models; lumpy investment; simulated method of moments

JEL codes: C63; D52

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