Product Market Dynamics over the Business Cycle: Market Structure and Shock Propagation

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Theoretically, product market dynamics through the entry and exit of varieties have been analyzed as a crucial mechanism in propagating the business cycle (Bilbiie, Ghironi, and Melitz, 2012; Etro and Colciago, 2010; Hamano and Zanetti, 2017). Previous research suggests that this phenomenon is linked with a reduction in competitors during recessions, resulting in countercyclical markups (Jaimovich and Floetotto, 2008). The subsequent decline in competitors and rise in markups signify a shift in market structure, with implications for welfare (Bilbiie, Ghironi, and Melitz, 2019).

Despite its theoretical importance, the empirical investigation of how cyclical entry and exit of products precisely shape market structure and welfare remains unresolved. Furthermore, the lack of evidence using disaggregated microdata has constrained the exploration of dynamic behaviors across heterogeneous products, firms, and markets. Empirical identification is essential for designing effective policies, considering the diverse characteristics of products in practice.

This paper aims to address this literature gap by providing new empirical evidence. Specifically, I empirically examine the theoretical claim using methods in industrial organization (e.g., Ericson and Pakes, 1995); building and estimating a strategic dynamics model of heterogeneous producers. Entry and exit decisions are determined based on product quality, separately estimated using discrete choice methods, and expectations about future market structure. The research employs Oblivious equilibrium as a solution to the product market dynamics, proposed by Weintraub, Benkard, and Van Roy (2008) in the spirit of Hopenhayn (1992).

The model is estimated using the Nielsen Retail Scanner dataset, highly representative of studying product market dynamics with vast coverage in the US. This data provides information on the price, quantities sold, and the identification of entry and exit for each product, conveying the product market competition structure. Given that the data covers from 2006, this paper focuses on a single business cycle episode around the time of the Great Recession. Examining the dynamics during the Great Recession is valuable for observing the effects on market structure from substantial and uncertain aggregate shocks.

Quantifying product market dynamics through real-world data facilitates the analysis of welfare costs of business cycles. This study highlights that, beyond the number of competitors, considering the heterogeneous impact of entry and exit provides insights into market structure, revealing how firms compete throughout the business cycle. Exploring heterogeneity across the product quality distribution offers additional welfare implications, with low-quality products being most affected by negative shocks. The distinct impact of aggregate shocks is strengthened in the presence of strategic interaction, recognizing that high-quality ones are likely to survive as competitors during the recession. Finally, the study conducts counterfactual experiments to investigate the impact of entry subsidies for mitigating propagating effects.

This study empirically verifies the endogenous change in market structure over the business cycle, with the largest impact on already vulnerable ones. Neglecting this dynamic aspect of market structure may hinder policy effectiveness and our understanding of economic welfare.

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