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Innovation and Product Reallocation in the Great Recession

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Abstract

We use detailed product- and firm-level data to study the sources of innovation and the patterns of productivity growth over the period from 2007 to 2013. We document several new facts on product reallocation. First, every quarter around 8 percent of products are reallocated in the economy, and the entry and exit of products are prevalent among different types of firms. Second, most reallocation of products occurs within the boundaries of the firm. The entries and exits of firms only make a small contribution in the overall creation and destruction of products. Third, product reallocation is strongly pro-cyclical and declined by more than 25 percent during the Great Recession. This cyclical pattern is almost entirely explained by a decline in within firm reallocation. Motivated by these facts, we study the causes and consequences of reallocation within incumbent firms. As predicted by Schumpeterian growth theories, the rate of product reallocation strongly depends on the innovation efforts of the firms and has important implications for revenue growth, improvements in products' quality, and productivity dynamics. Our estimates suggest that the decline in product reallocation through these margins has contributed greatly to the slow growth experienced after the Great Recession.

Keywords: Innovation; Reallocation; Productivity; Great Recession

1. Introduction

For decades, economists have identified product entry and exit as one of the key mechanism through which product innovation translates into economic growth (Aghion and Howitt, 1992; Grossman and Helpman, 1991; Aghion et al., 2014). But despite the important theoretical implications of product innovation, little is known empirically about about the process of the creation and destruction of a product, and how this process differs across different types of firms. In this paper, we study product reallocation across and within producers and how it evolved during the Great Recession. What is the role of product reallocation on output growth and quality improvements in the recent decade? How sensitive is innovation by new firms, small incumbents, and large incumbents to changes in aggregate economic conditions? New evidence on these questions will shed light on how resources are allocated to their best use within an economy and inform the recent debate on the sources of productivity slowdown in the US (Davis and Haltiwanger, 2014; Decker et al., 2014).

We begin by assessing the magnitude of product creation and destruction in the consumer goods sector over the period from 2007Q1 to 2013Q4. We use detailed product- and firm-level data at the barcode level and find that new products are systematically displacing existing products in the market. In our data set, a 12-digit number called the Universal Product Code (UPC) uniquely identifies each product, which is the finest level of disaggregation at the product level. Under this definition, firms reallocate more than 8 percent of the products in the economy every quarter. In this setting reallocation results from both the introduction of new products and the destruction of existing products. This is particularly relevant for large and well-diversified firms that sell products in several product categories. Consistent with several theories of creative

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