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**Comment** Timothy Dunne

Over the last twenty years, there has been a substantial growth in the empirical literature on firm dynamics. This literature has documented the tremendous churning of firms through the entry and exit process. It is now a well-established fact that industry gross entry and exit rates and the concomitant labor flows exceed net rates by a substantial amount. The impact of this churning process of firms has been examined in a number of distinct literatures. The chapter by Bartelsman, Haltiwanger, and Scarpetta is an important addition to the literature on firm dynamics and the microeconomics of productivity. First, the chapter provides a detailed comparison of the patterns of firm dynamics across a wide range of countries and focuses on the role of firm dynamics in the evolution of industry productivity across countries. Second, the chapter takes a relatively novel empirical approach to a cross-country comparison project by working with individual researchers from each country to homogenize data construction methodologies. This is important, as the measurement of firm turnover can vary markedly across countries.

A main contribution of this chapter is the development of the cross-country data set on firm dynamics. Most data on firm dynamics are generated as a by-product of a country's administrative data collection systems or from business registers used as the basis of statistical frames in national statistics systems. The data on business dynamics are constructed by linking these cross-sectional data sources across time to create a panel structure on businesses. The definitions of what a firm is, when it is considered an entrant and an exit, how to deal with mergers and acquisitions and other such issues defining the life of the firm in the data are often determined by the administrative data collection systems (e.g., tax or unemployment insurance systems) or the nature of the data collected by the statistical agency. This creates challenges for using the systems to measure firm dynamics within an individual country but also creates challenges for comparing statistics across countries. For example, the inclusion rules for very small firms in business registers often differ across countries. Since firm turnover in very small firms can be quite high, differences in inclusion rules can greatly affect the firm turnover rates. One can see how such size cutoff differences affect firm turnover statistics by comparing the panels in figure 1.2. Alternatively, the methods that countries use to handle merger and acquisitions in various business registers can differ as well. These differences in measurement affect the entry and exit statistics produced and make cross-country comparisons from existing studies of firm dynam-

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ics statistics problematic. A real contribution of this chapter is that the authors have made a serious attempt to make their cross-country data more comparable by developing a set of measurement protocols and having researchers in various countries apply these protocols to the underlying microdata. This approach is referred to in the chapter as the analysis of distributed microdata. Although differences in measurement procedures certainly remain across countries and the authors are careful to point these out, this chapter reports on the development of the most comprehensive and comparable set of cross-country industry-level statistics on firm turnover and a related set of productivity decompositions to date.

Besides the basic data development contributions the chapter makes, it is also loaded with new facts about firm dynamics. In all countries, the turnover of firms (entry plus exit) greatly exceeds the net entry rates. These high turnover rates occur in large countries and small countries and in high income and moderate income countries alike. Surprisingly, a country like France—often thought to have institutions that restrict firm dynamics—has firm turnover rates similar to the United States (fig. 1.2). In fact, the United States—perceived to have low institutional barriers to the development of new firms—is usually ranked toward the middle of the distribution of countries with regard to firm turnover. Overall, industrial countries have lower firm turnover rates than less-developed countries, and manufacturing industries generally have lower turnover rates than service industries. What these striking patterns imply for thinking about the evolution of industries is that models of industry competition need to focus on equilibrium firm turnover (such as the models developed by Hopenhayn [1992] and Apslund and Nocke [2006]) and not simply on the equilibrium number of producers in a market. Firm turnover is high, and it is a persistent feature across countries and across industries.

The cross-industry and cross-country turnover patterns presented in the chapter raise the question of whether the variation in country-industry turnover rates is driven primarily by industry or country effects. Strong industry effects suggest that industry-specific technologies are an important driver of firm turnover. Alternatively, if country effects dominate, this suggests that country-specific institutional factors may play an important role. Though, to be sure, strong country effects are also consistent with persistent differences in measurement procedures across countries. I analyze this issue using a simple model and the statistics presented in table 1.6 of the chapter. The model estimated is

$$y_{ci} = \alpha_c + \lambda_i + \mu_{ic}$$

where  $y_{ci}$  is firm turnover in country  $c$  and industry  $i$ ,  $\alpha_c$  represents a set of country effects,  $\lambda_i$  controls for industry effects, and  $\mu_{ic}$  is the error term. The adjusted  $R^2$  from the model estimated with both industry and country effects is .348, the adjusted  $R^2$  with country effects only is .246, and with in-

dustry effects only the adjusted  $R^2$  is .079. Both sets of controls are statistically significant at conventional levels of significance. The results indicate that country effects explain more of the variation in cross industry-country turnover than industry effects. This finding is true if one focuses only on the industrial countries in the sample as well. This suggests the differences in turnover rates in countries are not simply driven by differences in industrial mix across countries, but that there are either systematic differences in firm turnover across countries or perhaps systematic differences in measurement. The authors are careful throughout the chapter to emphasize this latter possibility. Even with this caveat, a surprising result is the relatively low amount of the variation explained by industry controls. In a comparison of job flow data between Canada and the United States, Baldwin, Dunne, and Haltiwanger (1998) find that industry effects play a dominant role in explaining cross country-industry differences in job turnover.

The chapter finishes up with a set of cross-country labor productivity decompositions that show the relative importance of within-firm changes in productivity, between firm shifts in productivity and the contribution of firm turnover to overall changes in productivity. This analysis shows the novelty of the distributed microdata approach, as researchers in each country were sent computer programs to run on the microdata. The authors of the chapter only have access to a small subset of underlying microdata used in these productivity decompositions. As previous studies have found, the within-firm component dominates the between-firm component in explaining productivity growth of continuing firms in most countries. Entry and exit accounts for 20 to 50 percent of labor productivity growth across countries. Exit has the most consistent effect, as the failure of low productivity firms boosts aggregate productivity in all countries. The productivity analysis illustrates the important role that firm dynamics play across a wide range of countries in the evolution of aggregate productivity growth.

Overall, the chapter makes an important contribution to the empirical literature on producer dynamics. It provides many new facts and offers a novel approach to analyzing cross-country data based on confidential firm and establishment-level records.

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