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Employment protection, firm selection, and growth ☆

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ABSTRACT

How do firing costs affect aggregate productivity growth? To address this question, a model of endogenous growth through selection and imitation is developed. It is consistent with recent evidence on firm dynamics and on the importance of reallocation for productivity growth. In the model, growth is driven by selection among heterogeneous incumbent firms and is sustained as entrants imitate the best incumbents. In this framework, firing costs not only induce misallocation of labor, but also affect growth by affecting firms' exit decisions. Importantly, charging firing costs only to continuing firms raises growth by promoting selection. Also charging them to exiting firms is akin to an exit tax, hampers selection, and reduces growth—by 0.1 percentage points in a calibrated version of the model. With job turnover very similar in the two settings, this implies that the treatment of exiting firms matters for growth. In addition, the impact on growth rates is larger in sectors where firms face larger idiosyncratic shocks, as in services. This fits evidence that recent EU–U.S. growth rate differences are largest in these sectors and implies that firing costs can play a role here.

1. Introduction

How do firing costs affect the growth rate of aggregate productivity? Research has focussed on their impact on the level of productivity or on employment. To evaluate the growth effect, a heterogeneous-firm model with endogenous growth is developed. Besides being consistent with recent evidence on firm dynamics and on the importance of reallocation for productivity growth, the model can also account for the fact that recent productivity growth differences between the U.S. and the EU were particularly strong in the service sector. Employment protection legislation (EPL) here does not only affect the efficiency of the allocation of labor across plants or the incentive to work or to search as in most of the existing

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literature, but also affects the endogenous growth of aggregate productivity through its impact on the market selection process through the entry and exit margins.

Recent empirical research on firm dynamics has highlighted the importance of entry and exit and the heterogeneity of firms and plants. For example, Dwyer (1998) finds that productivity differs by a factor 3 between establishments in the ninth and the second decile of the productivity distribution in the U.S. textile sector. Foster et al. (2001) (FHK) find that in the U.S. Census of Manufactures, more than a quarter of the increase in aggregate productivity between 1977 and 1987 was due to entry and exit. This is even more pronounced in the retail sector, as they find in their Foster et al. (2006) paper. The contribution of exit to aggregate productivity is positive in almost all of the 24 industrial and developing countries analyzed by Bartelsman et al. (2004) (BHS). Gabler and Licandro (2006) and Luttmer (2007) find in calibration exercises that around half of U.S. post-war productivity growth can be traced to the process of market selection, entry, and exit.[1]

The importance of entry and exit varies across industries. Generally, they contribute more to growth in sectors with high turbulence and with high TFP growth (BHS). These sectors, in particular services, were precisely the ones where Europe lagged U.S. productivity growth in recent years (Blanchard, 2004). Theory suggests that EPL imposes tighter constraints on firms in these more turbulent sectors (see e.g. Bentolila and Bertola, 1990). Indeed, Pierre and Scarpetta (2004) show that innovative firms feel particularly constrained by EPL. These pieces of evidence suggest the following account: productivity growth is higher in high-turbulence industries. In these industries, EPL constrains firms more strongly. With stricter EPL in continental Europe compared to the U.S., this fits the pattern of recent productivity growth differences showing up particularly in the service sector.[2]

This paper takes this evidence as a point of departure. The mechanism of growth through selection and experimentation developed here fits many facts on firm dynamics and introduces a relationship between turbulence and growth. Most importantly, it allows quantifying the effect of firing costs along several margins, including their growth effect via entry, exit, and selection. The basic model is similar to the ones developed in Gabler and Licandro (2006) and Luttmer (2007). In its treatment of firing costs, the analysis is related to the seminal paper by Hopenhayn and Rogerson (1993), and the more recent ones by Alvarez and Veracierto (2001), Veracierto (2001), and Samaniego (2006a). These four all analyze the effect of firing costs on the level of aggregate productivity. They employ a setting of exogenous growth and concentrate on the static efficiency of the allocation of labor. Bertola (1994), conversely, analyzes the effect of hiring and firing costs on growth, using a model of endogenous growth through variety expansion. In such a setting, firing costs affect entry but not exit, so that the selection effect that is crucial here cannot arise.

In the model developed here, firms receive idiosyncratic productivity shocks and therefore differ in their productivity. Growth arises and is sustained endogenously through the interaction of selection (among incumbents) and imitation (by entrants). Each period, the least productive incumbents are eliminated, implying that the average productivity of remaining firms grows. Entry sustains growth: entrants try to imitate firms close to the technological frontier. They do not succeed fully, but on average enter a constant fraction below it. Hence, there is a spillover from incumbents to entrants through the location of the frontier. How much the economy benefits from it depends on how much entry and exit, and thus selection, there is, so growth is driven by both selection and imitation. In addition, growth depends on the variance of productivity shocks. A higher variance, as observed in the service sector, makes high productivity draws more likely. While it also makes very low draws more likely, these are cut off by subsequent exit. As a result, selection is stricter, and growth is faster.

In this context, labor market regulation affects the entry and exit incentives of firms, and thereby the engines of growth in this model. It is well-known that firing costs, as one-sided adjustment costs, lead to an inefficient allocation of labor and lower aggregate productivity. Firm value is also lower, which is the mechanism reducing entry and growth in Bertola (1994).

In the present paper, there is an additional effect through exit and selection. To analyze it, it is crucial to distinguish if exiting firms have to pay firing costs or are exempt. This distinction is also made by Samaniego (2006a) in an environment of exogenous growth. The crucial observation is that firing costs have two distinct effects: they are not only an adjustment cost but also a tax on exit. The latter discourages exit of low-productivity firms, thereby weakens the selection process, and reduces productivity growth through selection. When exiting firms are exempt, however, firing costs lower a firm's continuation value relative to the value of exit, thereby promoting exit of low-productivity firms, strengthening selection, and increasing growth relative to the frictionless economy. Both effects are stronger when the variance of idiosyncratic shocks is larger—so EPL has a stronger effect on growth in the service sector.

To quantitatively evaluate the impact of labor market regulation on observed differences in productivity growth, the model is calibrated to the U.S. business sector. Then the effects of introducing firing costs of one year's wages, close to the level observed in many continental European countries, is evaluated. Results show that charging firing costs only to

[1] For more on methods and results on firm-level dynamics see also Haltiwanger (1997), Bartelsman and Doms (2000) and Bartelsman et al. (2003).

[2] Additional effects can arise through specialization, as argued by Saint-Paul (2002). Scarpetta et al. (2002) find that industries with wider productivity dispersion have higher average productivity. Cuñat and Melitz (2007) provide evidence that high-EPL countries tend to specialize in low-dispersion industries, avoiding the industries where EPL has more bite. Similarly, Samaniego (2006b) analyzes how EPL can constrain technology adoption and shape specialization patterns in the presence of exogenous embodied technical progress. Gust and Marquez (2004) establish an empirical link between EPL and lower growth that passes through lower use of information technology.