

## 6 Micro-Econometric Survival Analysis of New Businesses<sup>1</sup>

### 6.1 Introduction

It has been said that the great thing about starting your own business is that you get to decide which 24 hours of the day you will work. Maybe it is owner exhaustion that leads to such a high failure rate among new businesses! Joking aside, though, the subject of new business failure has generated extensive empirical research using econometric methods of survival time analysis, covering numerous countries as well as varying time periods. Nevertheless, it is worth revisiting this topic for at least two reasons: First, while industry characteristics are broadly taken into account in micro-econometric survival time analyses, the same is not true of the regional dimension. One main reason for this deficit may be the lack of adequate data for considering the regional dimension. However, if the regional dimension of the data is not considered, estimates may be inefficient and the standard errors may be estimated wrongly due to regional dependency in the error terms.

Second, the results found may be highly country-specific because of different underlying institutions. This chapter aims to provide empirical evidence on the survival chances of new businesses in Western Germany during 1993–2002 using establishment data provided by the Institute for Employment Research (IAB). To date, there is little evidence on new firm survival in Germany due to a lack of micro data with a sufficiently long time series. Although the IAB *establishment panel* is suitable for analyzing the survival chances of new businesses, it has not yet been exploited in this area. Furthermore, the IAB *establishment panel* allows accounting for the regional dimension.

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<sup>1</sup> A modified version of this chapter is published in *Applied Economics* (Taylor & Francis) with the title *Survival Chances of New Businesses: Do Regional Conditions Matter?*

The remainder of the chapter is organized as follows. Section 6.2 provides a review of the theoretical framework, the hypotheses, and the current empirical evidence on new business survival. Section 6.3 describes the data; section 6.4 discusses the estimation procedure. The results are presented in section 6.5. Finally, section 6.6 sets out a summary of the main results and some suggestions for further research.

## 6.2 Theoretical Framework and Hypotheses

Following Kihlstrom and Laffont (1979), Evans and Jovanovic (1989), and Holtz-Eakin et al. (1994), the entrepreneur's decision to start and continue a business is dependent on the economic profit  $P$  from the new business. The profit is defined as

$$P = a(\text{firm-, industry-, regional-level characteristics}) - w \quad (6.1)$$

where  $a$  is the expected accounting profit and  $w$  is the wage the entrepreneur could earn in the same industry and region if he or she were to work for someone else.<sup>2</sup> For simplicity, the wage in the industry and region is assumed to be exogenous. The expected accounting profits depend on firm-, industry-, and regional-level characteristics in an uncertain environment. Survival in any time period for any business requires  $P \geq 0$ .

This simple theoretical framework is in line with empirical studies showing that smaller-scale entry has a lower likelihood of survival than its larger counterparts. Except for Audretsch et al. (1999) and Agarwal and Audretsch (2001), who find that the relationship between firm size and likelihood of survival does not hold for mature stages of the industry life-cycle, most studies found evidence linking start-up size with survival.<sup>3</sup> Aldrich and Auster (1986, 179–183) enumerate four factors for this *liability of smallness* that make survival problematic for small businesses regardless of whether they are new or old, although the major interest in this chapter is in new businesses:

1. The most severe problem facing small businesses is raising capital.
2. Tax laws often work against the survival of small businesses.
3. Government regulation weighs more heavily on small than on large businesses.
4. Small businesses face major disadvantages in competing for labour with larger businesses.

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<sup>2</sup> Burke et al. (2005) account for the possibility of multi-entrepreneur startups.

<sup>3</sup> For a survey of the literature, see Geroski (1995) and Sutton (1997).