Structural Change and Economic Dynamics 40 (2017) 64–71

Contents lists available at ScienceDirect

Structural Change and Economic Dynamics

journal homepage: www.elsevier.com/locate/sced

Size and technology: *The Odd Couple* for affiliates survival

Giorgia Giovannetti[a,b,e], Giorgio Ricchiuti[a,c,*], Margherita Velucchi[d]

[a] Università degli Studi di Firenze, Italy
[b] Fondazione Manlio Masi, Italy
[c] Complexity Lab in Economics (CLE), Department of Economics and Finance, Università Cattolica del Sacro Cuore, Milano, Italy
[d] Università Europea di Roma, Italy
[e] European University Institute, Firenze, Italy

ARTICLE INFO

Article history:
Received 19 April 2016
Received in revised form 3 December 2016
Accepted 14 December 2016
Available online 21 December 2016

JEL classification:
C41
L11
L25
F21

Keywords:
Business demography
Survival
Competitiveness
Internationalization

ABSTRACT

Firms' survival and internationalization modes are key elements to assess a country's competitiveness. We draw on this to study how firms' characteristics affect business demographic dynamics. We focus on affiliates survival probability, modeling it conditional on both parent company' and affiliates' set of characteristics. We generalize the base model used in business demography, disentangling and stressing the effects of both size and technological relationships between affiliates and investors. We show that, larger affiliates of large investors compete better and survive longer. Being part of a network of affiliates in the same country and/or sector improves firm survival probability. When investors have a higher (lower) technological level than their affiliates, the affiliates' failure probability increases (decreases). An investor more technologically advanced than its affiliates, it is likely to consider them a cost-saving investment. While affiliates with a higher level of technology than their parent may be considered strategic.

© 2016 Elsevier B.V. All rights reserved.

1. Introduction

A well established literature has highlighted the importance of firms' survival, as well as entry of new firms, start up, incubators etc. for growth and competitiveness of a country (see for instance Bartelsman et al., 2003, 2004; Coad et al., 2016). A different strand of literature has emphasized that firms involved in international activities through export or FDI are *different* from purely domestic firms in several aspects: productivity, wages, skill intensity (see for all Mayer and Ottaviano, 2007) and that international strategies are one of the main channels driving the firms' success.

In Giovannetti et al. (2011), we draw on these two strands of literature to assess the relationships among firms' characteristics and their competitiveness by analyzing demographic dynamics and survival of firms. In this paper, we focus directly on foreign investors, i.e. firms with complex mode of internationalization. Our goal is to model the affiliates' survival probability conditional on characteristics of both parent company and affiliates.

The novelty of our approach is twofold. On the one hand, we generalize the base model used in business demography separating the effect of affiliates and parent companies on the affiliates' survival probability. On the other, we highlight how possible technological differences between affiliates and parents (i.e., affiliates with higher/lower technology level than their parent) affect survival probability. We show that, larger affiliates of large investors compete better and survive longer. Being part of a network of affiliates in the same country and/or sector also improves firm survival probability. When investors have a higher (lower) technological level than their affiliates, the affiliates' failure probability increases (decreases). An investor more technologically advanced than its affiliates is likely to consider the investment abroad a low skills, cost-saving investment. Hence, it may consider to disinvest, moving to a more convenient economic context. On the contrary, affiliates with a higher level of technology than their parent are likely to be considered strategic, due to their skills, talent and competencies. They can exploit a sort of monopoly power given by their peculiarities.

The base business demography model uses size and technology as driving forces of the firm survival: we generalize it, highlighting the different roles of size and technology for parent company and its affiliates, including information on distance from the head quarter,

* Corresponding author at: Dipartimento di Scienze dell'Economia e l'Impresa, Università degli Studi di Firenze, via delle Pandette 9, 50127 Firenze, Italy.
E-mail address: giorgio.ricchiuti@unifi.it (G. Ricchiuti).

http://dx.doi.org/10.1016/j.strueco.2016.12.001
0954-349X/© 2016 Elsevier B.V. All rights reserved.

typology of investment (Greenfield vs. M&A), number of affiliates per country and per country/sector, GDP per capita of country of destination. Moreover, we show that the affiliates' survival probability depends on whether the affiliates technology level is higher or lower than that of the parent.

We analyze a decade of important transformations for the global economy. For the empirical exercise we exploit an original longitudinal dataset of Italian outward FDI. The dataset is obtained by merging two different firm-level datasets: AIDA and ICE-Reprint for the period 2001–2012. This allows us to have longitudinal data from balance sheet of both Italian parent companies and their affiliates.

The paper is structured as follows: after a brief overview of two strands of literature (business demography and firms' internationalization, Section 2), we sketch the econometric techniques used (Section 3) then, we describe the context and data (Section 4) and present the empirical results (Section 5). We conclude by drawing some policy implications.

2. A sketch of the literature

Business demography and survival analysis have a strong tradition in industrial organization studies. Many papers analyze the relationship between firm survival and firms' characteristics, such as size, innovation and technological level (Agarwal and Audretsch, 2001), presence in foreign markets or a combination of the above (Coad et al., 2016; Wang, 2013; Giovannetti et al., 2011; Bandick, 2010), and the role of foreign firms within the domestic economy (Ferragina and Mazzotta, 2014; Ferragina et al., 2012; Bandick, 2010).

In this line of research, there is a consensus on the fact that size increases the likelihood of survival in the more technologically advanced industries and the likelihood of exiting the market in traditional sectors. These studies cover different time periods and countries (Inui et al., 2016; Dai et al., 2016; Giovannetti et al., 2011; Perez et al., 2004). Most of them are consistent with theories of industry evolution (Agarwal and Gort, 1996; Agarwal, 1998; Audretsch, 1995) and with the theory of strategic niches (Caves and Porter, 1977; Porter, 1979). According to the latter, firms remain small because they occupy product niches that are not easily accessible or profitable for their larger counterparts.

A different strand of literature, the new trade theory, has focused on firms' heterogeneity and emphasized how the existence of substantial differences between domestic and internationalized firms explains their different success (Melitz and Redding, 2014; Grossman, 2013; Greenaway and Kneller, 2007; Grossman and Rossi-Hansberg, 2012; Helpman et al., 2004). To tackle the challenges of globalization such as new actors on international markets or lower costs of production, these firms have upgraded quality, lowered costs, or they have merged with foreign firms and/or established subsidiaries abroad. In other words, firms' response to new actors, different situations, availability of new technology has been a modification of their internationalization strategies, making these strategies more complex and articulated. Against this background, heterogeneity among firms is high in terms of productivity, size and characteristics of the internationalization modes, also regarding countries of destination (Blomstrom, 1986). In this line of research, at first linked to the simplest internationalization modes (imports, exports and two ways), Helpmann et al. (2004) incorporate horizontal FDI: relatively few firms are able to compete in international markets and these firms are more productive, pay higher wages, employ more skilled workers and invest more in R&D. To the extent that costs of investing abroad are higher than costs of exporting, only the most productive firms will invest abroad, the second most productive will serve foreign markets through exports and possibly imports (or both) and the least productive will 'stay domestic'. Bandick (2010), Coad et al. (2013), Mayer and Ottaviano (2007), for instance, analyze heterogeneity empirically ranking EU exporters as more productive than domestic firms, foreign investors more productive than exporters, and so on. Along the same lines, Helpmann et al. (2004) deal with US firms' heterogeneity and FDI, while De Masi et al. (2013) show that even firms sharing internationalization mode (i.e. FDI) and sector may be heterogeneous as well, since heterogeneity may arise from several different economic dimensions. Along this perspective, firms' heterogeneity in both domestic and international markets may represent an interesting characteristic to explain firms survival. Concerning Italy, we can highlight how, triggered by globalization, low transport costs and new technologies, also Italian firms typically characterized by a small dimension and therefore likely to be penalized in their international expansion, have moved to a multi-country dimension, where the opportunities are many as are the new risks and to survive for the affiliates is a challenge itself.

In this paper we aim at merging these two approaches by showing how the heterogeneous survival probability of internationalized firms is strongly influenced by some well know firms' characteristics (as size and technological level) in a peculiar way. Size and especially technology have to be common to both the parent and affiliate company. More precisely, the study of the relationship between the technology level of parents and affiliates allows us to better capture and disentangle its effect on the parent' survival probability.

3. Survival analysis

To analyze the determinants of firms survival, or more precisely, to what extent the likelihood of survival depends on firm size, international involvement and technological intensity, we use the Analysis of Duration (Lancaster, 1990) that allows us to estimate the length of the time until failure. The survival analysis' variable of interest is the length of time that elapses from the beginning of some events either until their end or until the end of the analysis. Observations will typically consist of a cross section of durations $t_1, t_2, \ldots, t_n \epsilon T$, where T is a random variable (discrete or continuous), and for this type of data the analysis of duration allows one to estimate the probability that the event failure occurs next period. In this approach, the dependent variable is the span of survival and is calculated as the difference between time t and the firm's set up year while the failure event includes winding-up, failure or end of activity (Agarwal and Audretsch, 2001). The process observed may have started at different points in time and, because its length is not constant over time, the random variable T is unavoidably censored. Let T be a random variable with a cumulative probability

$$F(t) = \int_0^t f(s)\,ds = Pr(T \geq t) \tag{1}$$

where $f(t)$ is the continuous probability distribution. We are interested in the probability that the period is of length at least t, which is given by the survival function

$$S(t) = 1 - F(t) \tag{2}$$

The probability that the phenomenon will end the next short interval of time, Δ, is, on the other hand:

$$l(t, \Delta) = Pr(t \leq T \leq t + \Delta | T \geq t). \tag{3}$$

The hazard rate, i.e. the rate at which spells are completed after duration t, given that they last at least until t, is:

$$\lambda(t) = \frac{f(t)}{S(t)} \tag{4}$$

To measure the effect of different regressors on the survival probability of the phenomenon, we estimate the parameter λ using

Download English Version:

https://daneshyari.com/en/article/5104522

Download Persian Version:

https://daneshyari.com/article/5104522

Daneshyari.com