ARTICLE IN PRESS
JBV-05805; No of Pages 23
Journal of Business Venturing xxx (2017) xxx–xxx
Contents lists available at ScienceDirect
Journal of Business Venturing

New business formation and the productivity of manufacturing incumbents: Effects and mechanisms☆

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ARTICLE INFO

Article history:
Received 9 September 2015
Received in revised form 7 January 2017
Accepted 30 January 2017
Available online xxxx

JEL classifications:
L26
D20
O12*Keywords:*
New business formation
Productivity
Incumbent firm

ABSTRACT

We analyze the effect of new business formation on the productivity of incumbent manufacturing establishments. We obtain robust empirical evidence that the emergence of new businesses in the same industry causes productivity improvements by intensifying competition in the output market. We also find enhanced productivity caused by increased competition from newcomers in the regional markets for inputs. We do not find any evidence for productivity enhancing effects of new business formation on upstream markets, or for more pronounced knowledge spillovers in innovative industries.

Executive Summary

Entry of new competitors presents not only a challenge to incumbent firms, but also may include considerable improvements of the performance of incumbent firms. Very few studies focus on entry of particularly innovative new firms, the set-up of very large establishments in a region, or entry of multinational companies into a national market. We expand on the studies that focus on particularly challenging entry by analyzing the effect of general new business formation on incumbents. General entry specifically includes a large share of very small new firms—'everyday entrepreneurship' (Welter et al., 2016)—that cannot be regarded as being particularly innovative.

In our empirical analysis we distinguish four mechanism by which new firm formation can lead to enhanced productivity of incumbents:

- Increased competition on the output market
- Increased competition on markets for local inputs such as labor and floor space
- Knowledge spillovers generated by start-ups
- Provision of better inputs that leads to productivity improvements of firms operating in downstream markets.

Based on panel data that allow us to track incumbent establishments over time, we tested the importance of these four channels. Incumbent establishments are those that already existed when the start-ups occured.

☆ The authors are grateful to the Research Data Center of the Institute for Employment Research (IAB) in Nuremberg, Germany, for hospitality and assistance during research visits. Comments from Michael Wyrwich, Martin Andersson, Alex Coad, Oliver Falck and Tatiana Plotnikova as well as from three anonymous referees helped us to considerably improve this paper. We also have to thank Muhammad Ali, Abiodun Egbetokun and Diego d'Andria for advice and support of our work on this paper. Financial support from the German Science Foundation (DFG RTG 1411) is gratefully acknowledged.

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http://dx.doi.org/10.1016/j.jbusvent.2017.01.004
0883-9026/

Please cite this article as: Fritsch, M., Changoluisa, J., New business formation and the productivity of manufacturing incumbents: Effects and mechanisms, J. Bus. Venturing (2017), http://dx.doi.org/10.1016/j.jbusvent.2017.01.004

A key finding in this paper is that new business formation in general—not only entry of highly innovative and technologically advanced firms—induces higher productivity of incumbents. With respect to the four mechanisms that may drive the productivity of incumbents, we identify significant effects of output market competition (start-ups in the same industry) and of competition on the local input markets (start-ups in all industries in the same region). We do not find significant effects generated by knowledge spillovers from start-ups, nor by the provision of better inputs. The results with regard to these two possible mechanisms may, however, be shaped by data limitations that allowed only for a rather crude measurement of these effects.

Quite remarkably and contrary to our expectations, the productivity enhancing effect of output market competition is not more pronounced for start-ups that occur in the same region as the incumbent. This clearly suggests that results of a number of aggregate level studies indicating a concentration of the effect of new business formation in the region where the new businesses emerge (see Fritsch, 2013, for an overview), can hardly be explained by competition in the output market. A concentration of the effects of new business formation in the respective region could, however, be explained by competition for local inputs. Input market competition might also explain the finding of previous studies that start-ups can have inter-sectoral spillovers effects on employment. The effect of competition on the local input markets that is created by start-ups also implies that the local conditions matter and can contribute to explaining regional differences in the effect of new business formation that have been found in previous studies

The results of our analyses clearly suggest that general new business formation can make a significant contribution to economic growth. A main implication for theory that can be derived from these findings is that the customary perception of creative destruction that emphasizes the displacement of incumbents by new firms needs to be balanced by a perspective that includes enhanced performance of incumbents. From a practical perspective, we encourage policymakers to include entrepreneurship in any policy that aims at fostering growth. Although highly innovative start-ups that pose a particularly strong competitive challenge on incumbents may have a relatively strong effect, policy should not neglect the relevance of 'everyday entrepreneurship', i.e., small and low-tech new ventures.

1. The effects of new business formation on incumbent firms

The Schumpeterian understanding of the effect of new businesses on economic development is usually termed "creative destruction", a process by which new firms displace incumbents.[1] Incumbent firms' reaction to new competitors, however, may be heterogeneous and depend on their characteristics and abilities. In fact, while some of the established suppliers will experience decreasing sales or even have to exit the market, others may react to the competitive challenge by improving their performance. Moreover, incumbents may also benefit from knowledge spillovers that originate from the newcomers, as well as from better inputs that are provided or induced by the start-ups. Empirical studies that find a significantly positive impact of entry (and exit) on average productivity at the aggregate level of industries,[2] regions, or nations[3] are not able to reveal the heterogeneity of individual reactions of incumbent firms to the threat posed by new competitors. In particular, such analyses cannot identify the extent to which the improvements are due to the performance of the newcomers or to that of the incumbents. This can be detected only at the micro-level of firms or establishments.

Apart from empirical studies by Aghion and Bessonova (2006), Aghion et al. (2009), Czarnitzki et al. (2008), and Greenstone et al. (2010) that investigate the effect of advanced, innovative, or large establishments on incumbent innovation and productivity at the firm level, empirical evidence is scarce.[4] When it comes to the effect of new businesses in general—not only particularly innovative or competitive firms—on the performance of incumbents, empirical evidence is even more limited. We are aware of only one empirical study (Andersson et al., 2012) that analyzes the effect of general new business formation on incumbents' productivity at the micro-level of firms. One important limitation of this study, however, is that the relevant time lags are not completely accounted for due to limited availability of time series data. More importantly, the study does not attempt to identify the mechanisms underlying the relationship between incumbent productivity and start-ups.

Based on panel datasets that provide data from long time series, this paper analyzes the effects of new business formation on incumbents' productivity. We add to the literature in at least three respects. *First*, we expand on the studies of Aghion et al. (2009), Czarnitzki et al. (2008) and Greenstone et al. (2010) who focus on high-quality entries by analyzing the effect of new business formation in general. This particularly includes very small new firms—'everyday entrepreneurship' (Welter et al., 2016)—that cannot be regarded as being particularly innovative and whose effect on development is largely unexplored. *Second*, we attempt to disentangle the extent to which this effect is due to competition in the output or input market, the provision of better inputs, or knowledge spillovers. We find that the main mechanisms behind the effect of new business formation are the competition that new firms impose on the output market, as well as competition in the markets for local inputs. *Third*, we perform the analyses in a spatial framework, thereby accounting for regional characteristics and spatial correlation. This is important because aggregate level research has clearly shown that the effects of new business formation may be largely limited to the region where the start-ups occur (Fritsch, 2013). Moreover, it has been found that there are significant differences with regard to the magnitude of these effects across regions (Fritsch and Schroeter, 2011; Fritsch and Wyrwich, 2017; Glaeser et al., 2015). The regional level analysis enables us to identify that a spatial concentration of the effect of new business formation is particularly a result of additional competition for regional inputs such as labor and floorspace while the effect of output market competition is not limited to the region where the newcomers occur.

[1] For formalizations of the concept of creative destruction (Schumpeter 1911/34, 1942) see Aghion and Howitt (1992, 1998) and Aghion et al. (2005).

[2] E.g., Baldwin (1995), Caves (1998), Disney et al. (2003), Foster and Haltiwanger (2001), Foster et al., 2006).

[3] E.g., Bosma (2011), Bosma et al. (2011), Callejon and Segarra (1999), and Carree and Thurik (2008).

[4] Iacovone (2012) analyzes the effect of increased foreign competition due to trade liberalization on the productivity of Mexican establishments. The study does not deal with the effect of new business formation and, although it is based on micro-data, does not distinguish between the performance of incumbents and that of newly founded firms. What is interesting for our analysis is that Iacovone (2012) finds that those establishments that operate close to the technological frontier show the strongest improvements in labor productivity.

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