Institut für Mittelstandsforschung

IfM BONN

Working Paper

Regional Entrepreneurship: Pain or gain for economic growth?

Christian Dienes, Stefan Schneck, Hans-Jürgen Wolter

Working Paper 01/24

Suggested citation:
Dienes, C.; Schneck, S; Wolter, H.-J. (2024): Regional Entrepreneurship: Pain or gain for economic growth?, in: IfM Bonn Working Paper 01/24, Bonn

Impressum

Herausgeber

Institut für Mittelstandsforschung Bonn
Maximilianstr. 20, 53111 Bonn

Telefon +49/(0)228 / 72997 - 0
Telefax +49/(0)228 / 72997 - 34

www.ifm-bonn.org

Working Paper

ISSN 2193-1879 (Internet)
ISSN 2193-1860 (Print)

Bonn, Januar 2024

Das IfM Bonn ist eine Stiftung des privaten Rechts.

Gefördert durch:

Bundesministerium für Wirtschaft und Klimaschutz

aufgrund eines Beschlusses des Deutschen Bundestages

Ministerium für Wirtschaft, Industrie, Klimaschutz und Energie des Landes Nordrhein-Westfalen

Regional Entrepreneurship: Pain or gain for economic growth?

Christian Dienes[a] Stefan Schneck[a,b] Hans-Jürgen Wolter[a]

Abstract

This research note examines the relationship between start-up rates and GDP per capita growth in urban and rural regions in Germany. Hereby, we take into account that urban and rural areas differ markedly in their resource endowment for entrepreneurship, which might be responsible for different effects of start-up activity on regional development. Therefore, we examine the growth implications rural entrepreneurship might have on the local economy. Our results suggest that new business formation is positively associated with economic growth in rural areas. In urban districts, however, the effect of start-up activity is insignificant. Therefore, regional development is less dependent on the emergence of new businesses in urban counties. The results also unveil that the often-cited inverse U-shaped relationship between entrepreneurship and GDP growth is mainly evident in rural areas.

Keywords: Regional growth, entrepreneurship, start-up rate

JEL: L26, O18, O47

[a] Institut für Mittelstandsforschung (IfM) Bonn, Maximilianstr. 20, 53111 Bonn, Germany.
[b] Corresponding author: schneck@ifm-bonn.org

1. Motivation

It is common sense that start-up activity is related to the regional context (Sternberg 2009), with Maryann Feldman being among the first researchers calling entrepreneurship a "regional event" (Feldmann 2001). A setback of most regional studies is the lack of common sense with respect to how the region is defined. "[T]here is no universally accepted set of statistics in most countries and sub-national regions on the scope and dynamism of entrepreneurial activities […] that would also be suitable for inter-regional and intertemporal comparisons" (Sternberg, 2009, p. 221). However, scholars tend to agree on whether a region belongs to an urban or a rural area, relying on standard measures like population density. Literature also shows that the supposed benefits from entrepreneurship, like increasing productivity via competition or job creation (Fritsch 2013) depend on whether business formation takes place in urban or rural areas (e.g., Faggio and Silva 2014). Therefore, it seems that the mechanisms of how entrepreneurship influences economic growth are region-dependent.

Start-up rates in rural markets are typically lower than those in urban regions (Deller et al. 2019), which is due to a higher degree of shortages regarding required resources for entrepreneurship in rural areas: remoteness is usually associated with transportation efforts, small size and scope of labour markets hinder firms from employing qualified staff, and a comparably slower telecommunication infrastructure to name just a few (Stathopoulou et al. 2004, Deller et al. 2019). On the other hand, being active in rural markets can offer some opportunities for entrepreneurs. Among those are, e.g., lower prices for land and lower rents for buildings, which could balance potential adverse regional conditions. For urban areas, the opposite tends to be true. While all these factors seem to be well known, studies have not yet distinctively answered the question as to how too many start-ups can be a headwind for their local

economies. Studies in industrial economics put forward the notion that excessive market entry can lead to lower social welfare. This situation is likely to occur when new firms' products are (close) substitutes to products of incumbent firms (Berry and Waldvogel 1999; Davis 2002).

In this paper, we add to this discussion by investigating the association between start-up rates and GDP per capita growth on a fine-grained regional level in Germany, i.e., on the level of 402 counties (*Kreise*). While this regional level is subject to analysis in other industrialised countries, like the US (Guzman and Stern 2016) and Great Britain (Faggio and Silva 2014), the vast majority of empirical studies with German data rely on larger areas (the so-called *Raumordungsregion*[3]) as regional units (Fritsch 2013). Relying on these units has the advantage to examine regions which are economically interconnected. Using higher regional aggregates, in turn, prevents the analysis of regional differences between urban and rural areas.

2. Data & Methodology

We identify new firm entries across counties using 'The German Turnover Tax Statistics Panel' (Vogel and Dittrich 2008). This administrative data set includes all firms submitting a sales tax pre-registration in Germany. It contains data on firms from 2001 to 2011 at the regional level of counties (*Kreise und kreisfreie Städte*). According to article 19 (1) of the turnover tax law (*Umsatzsteuergesetz*), businesses in the data exceed 17,500 Euros. Although this legal threshold value was lower than 17,500 Euros until 2003, we harmonised the sample using it for all years. We identified new firms with the unique firm identifier. New entrants have been observed in year t, but not in the previous year t−1. To avoid identifying multiple firm entries of a single firm, we

[3] There are 97 *Raumordnungsregionen* in Germany. Their boundaries are partly based on administrative borders.

concentrated on firms, which are either observed in one single year or continuously over time (Schneck 2020). Note that, due to the sales threshold value, we might observe entry with potential time lags. We thus describe the first appearance with minimum sales of 17,500 Euro as the period of entry. This operationalisation has the advantage of describing the year of first market success as the entry period rather than a very early stage of firm foundation. To account for differences in counties' economic potential, we calculate regional start-up rates based on the ecological approach suggested by Fritsch and Niese (2004).[4] Specifically, we divide the number of new firms by the number of existing firms in the prior year.

Our dependent variable is the county's GDP per capita. To distinguish between urban and rural regions, we use administrative data that assigns the counties to a particular type of region, i.e., rural and urban areas (Bundesinstitut für Bau-, Stadt- und Raumforschung 2019).

3. Results

Fixed effects panel results suggest a positive and significant effect of higher start-up rates on GDP per capita growth (Table 1, specification (1)). However, the results also point to diminishing marginal effects of new business formation on GDP growth, indicated by the squared lagged start-up rate's negative coefficient. In sum, the estimated coefficients for the lagged start-up rates indicate an inverse U-shaped relationship between regional start-up formation and economic growth. Visual inspection of our estimation results suggests that – after accounting for time- and regional fixed-effects – GDP per capita is positively related to entrepreneurship but with decreasing marginal returns (upper panel in Figure 1). Based on the estimates for

[4] For a general discussion on the measurment of entry rates, also compare Audretsch and Fritsch (1994).

the full sample, the start-up rates are associated with positive marginal returns in more than 90% of districts. However, regional conditions and start-up activities differ in urbanised and rural regions. Since average start-up rates are higher in urbanised districts than in rural ones (11.1% vs. 10.2%), one might expect that urban areas are more likely to be subject to decreasing marginal returns to entrepreneurial activity. For this reason, we also estimate the regressions separately by regional type because of potentially overlapping and heterogeneous effects in urban and rural regions

[insert Table 1 about here]

[insert Figure 1 about here]

A look at the sub-sample regressions (Table 1; specifications (2) and (3)) unveils that the rural sub-sample mainly drives the total sample regression results. Precisely, only the coefficients in the rural counties are estimated to be statistically significant, which is largely due to larger effect sizes in the rural sample when compared to the urbanised areas.[5] For this reason, the effect of start-up activity on prosperity is much more pronounced in rural areas when compared with urban areas.

Our estimates of the coefficients of start-up activity in urban districts are insignificant (see Table 1, specification (2)). Based on the estimated coefficients presented in specification (2) in Table 1, we show that more than 90% of all urban regions are subject to decreasing marginal returns (Figure 1 lower left panel), which might be indicative of excessive entrepreneurship in these regions (Berry/Waldfogel 1999).

The effects for rural areas stand in sharp contrast (Table 1, specification (3)). When visualising the results, it becomes evident that most rural areas lie within the range of

[5] A decrease in the precision of the estimates – i.e. an increase in standard error – is not responsible for this result.

increasing marginal returns to start-up activity (see Figure 1, lower right panel). Only a few counties exhibit start-up rates above the turning point. Additional new firms thus mostly yield increasing marginal returns in rural counties.

Is the higher average start-up rate in urbanised districts hindering economic development? In this regard, Figure 1 indicates that the effects of start-up activity tend to be positive on average. Moreover, the average total impact of entrepreneurship is reasonably comparable in rural and urbanised areas with average start-up rates (recall that the average start-up levels of 11.1% in urban and 10.2% in rural regions). With increasing start-up rates, however, the effects tend to diverge. Rural prosperity tends to be more positively affected by higher start-up rates than the one in urban regions.

Our results are qualitatively robust to nonparametric methods, suggesting decreasing marginal returns to entrepreneurship in urban counties (Figure 2). In rural counties, in turn, we observe a specific range of start-up rates, which are associated with positive marginal returns to new firms.

[insert Figure 2 about here]

Although the GDP per capita declines in some regions, the relationship between entrepreneurship and negative regional growth is not conclusive. However, too high start-up activity tends to yield lower additional value-added – at least in urban areas.

4. Discussion & concluding remarks

Is regional entrepreneurship a pain or gain for economic growth? And as the answer is in most cases: it depends. Our research note contributes to the literature by investigating this question using fine-grained regional data to exploit regional variation between rural and urban counties. This paper's key takeaway is that there is a positive relationship between start-up rates and economic growth only in rural counties. Given

that the level of start-up activity is lower in rural areas, one could argue in favour of a higher marginal return of start-ups in rural markets. A possible reason could be that competition between start-ups and incumbents is less intense in rural districts when compared to urban areas. An explanation could be that new businesses are more likely to be similar to each other and therefore displace each others (substitution effect). In urban areas, it might be hypothesized that new firms are more likely to complement the existing ones, creating regional growth. Another takeaway is that an inverse U-shaped relationship between GDP growth and entrepreneurship as has been found in many studies (e.g., Fritsch/Mueller 2004; van Stel/Storey 2004) could be driven by the rural sample.

One of the main advantages of the study is that only new businesses of a certain size are taken into account when calculating start-up rates. Newly founded companies that do not achieve sales of at least 17.500€ per year remain unconsidered. In turn, the limitations of this study are linked to the parsimonious specification and the absence of control variables. But on the other hand, the regional granularity and the inclusion of time- and regional fixed effects can be expected to reflect (changes of) the regional context and ecosystem.

This study paves ground for a magnitude of follow-up studies examining the relationship between entrepreneurship and economic growth in the regional context. The paper also attempts to push forward a shift from a quantitative view of entrepreneurship to a qualitative one as has been suggested by Shane (2009) since it is well known that only a very small number of new companies account for a disproportionately large amount of wealth, innovation and job creation (Hurst/Pugsley 2011). Our results of decreasing marginal returns of entrepreneurship also has policy implications that are summarised in Shane (2009, p. 141): "Policy makers should stop

subsidizing the formation of the typical start-up and focus on the subset of businesses with growth potential. While government officials will not be able to "pick winners," they can identify start-ups with a low probability of generating jobs and enhancing economic growth". In their quest for efficient regional entrepreneurhip policy, policymakers are encouraged to explicitly consider the similarity of products or the potential substitution effects of new firms in regional entrepreneurship policy. If new firms largely provide substitutable goods and service to the existing ones of incumbents, the positive effects of competition might become destructive, which in turn is harmful to regional economic development. Due to competition only few survive, while the contribution to regional development is limited because of market failure and sunk costs associated with market exits. To examine this relationship in more detail, one might compare the similarity between entries and exits (Noseleit 2013). Besides, further research is needed to examine how a thriving entrepreneurial ecosystem might emerge and how different stakeholders (entrepreneurs, investors, and suppliers; Roundry/Fayard 2019) interact in urban and rural areas.

References

Audretsch, D.B. & Fritsch, M. (1994). On the measurement of entry rates, *Empirica, 21*(1), 105-113.

Berry, S.T.& Waldfogel, J. (1999). Free entry and social inefficiency in radio broadcasting, *RAND Journal of Economics*, *30*(3), 397-420.

Bundesinstitut für Bau-, Stadt- und Raumforschung (2019). INKAR – Indikatoren und Karten zu Raum- und Stadtentwicklung.

Davis, P (2002). Entry, Cannibalization and Bankruptcy in the U.S. Motion Picture Exhibition Market, *MIT Sloan*.

Deller, S.; Kures, M. & Conroy, T. (2019). Rural entrepreneurship and migration. *Journal of Rural Studies*, Vol. 66, 30-42.

Faggio, G. & Silva, O. (2014). Self-employment and entrepreneurship in urban and rural labour markets. *Journal of Urban Economics*, 84, 67-85.

Feldman, M.P. (2001). The entrepreneurial event revisited: firm formation in a regional context. *Industrial and corporate change*, *10*(4), 861-891.

Fritsch, M. (2013). New business formation and regional development: A survey and assessment of the evidence, *Foundations and Trends in Entrepreneurship*, *9*(3), 249-364.

Fritsch, M. & Mueller, P. (2004). Effects of New Business Formation on Regional Development over Time, *Regional Studies 38*(8), 961-975.

Fritsch, M. & Niese, M. (2004). Alternative Indikatoren des Gründungsgeschehens, Empirische Analysen zum Gründungsgeschehen in Deutschland, 5-17.

Guzman, Jorge, & Scott Stern (2016). The State of American Entrepreneurship: New Estimates of the Quality and Quantity of Entrepreneurship for 32 US States, 1988-2014. *National Bureau of Economic Research*. No. w22095.

Hurst, E. & Pugsley, B.W. (2011). What do small businesses do? *Brookings Papers on Economic Activity*, *2011*(2), 73-142.

Noseleit, F. (2013). Entrepreneurship, structural change, and economic growth, *Journal of Evolutionary Economics*, *23*(4), 735-766.

Pfeifer, S. & Sarlija, N. (2010). The Relationship between Entrepreneurial Activities, National and Regional Development and Firm Efficiency—Global Entrepreneurship Monitor (GEM)-based Evidence from Croatia, *Journal of Entrepreneurship 19*(1), 23-41.

Roundy, P.T. & Fayard, D. (2019). Dynamic capabilities and entrepreneurial ecosystems: The micro-foundations of regional entrepreneurship, *Journal of Entrepreneurship*, *28*(1), 94-120.

Schneck, S. (2020). Times are a Changin'? The Emergence of New Firms and Rank Reshuffling, *Journal of Industry, Competition and Trade*, *20*(1), 1-33.

Shane, S. (2009). Why encouraging more people to become entrepreneurs is bad public policy, *Small Business Economics*, *33*(2), S. 141-149.

Stathopoulou, S.; Psaltopoulos, D. & Skuras, D. (2004). Rural entrepreneurship in Europe – A research framework and agenda, *International Journal of Entrepreneurial Behaviour & Research*, *10*(6), 404-425.

Sternberg, R. (2009). Regional dimensions of entrepreneurship. Now Publishers Inc.

Tables and Figures

Tables

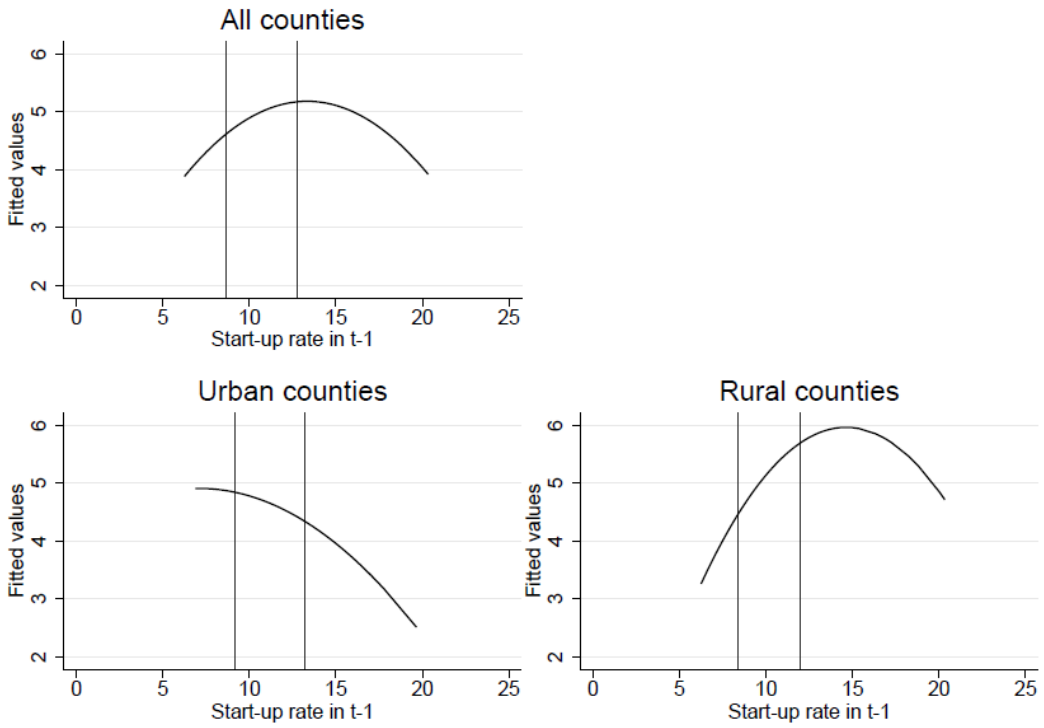
Table 1: Fixed-effects estimation results

	(1)	(2)	(3)
	GDP per capita growth rate$_{i,t}$		
Start-up rate$_{i,t-1}$	0.6879*	0.2141	1.1249**
	(0.3594)	(0.6738)	(0.4850)
Start-up rate$^2_{i,t-1}$	-0.0258*	-0.0151	-0.0384*
	(0.0146)	(0.0251)	(0.0211)
Annual dummy variables	Included	Included	Included
Constant	-3.6062	0.5853	-6.8803**
	(2.2662)	(4.5243)	(2.8357)
Number of observations	3,618	1,827	1,791
Counties (Kreise)	402.0000	203.0000	199.0000
R2	0.3515	0.3957	0.3193

i: County; t=2003,…2011.
Significance levels: * .10, ** .05.
Standard Errors clustered for Kreise.

Figures

Figure 1: Predicted GDP growth



$\widehat{GDPgrowth}_{i,t} = \widehat{\beta_0} + \widehat{\beta_1} startup\ rate_{i,t-1} + \widehat{\beta_1} startup\ rate^2_{i,t-1}$.
Vertical lines refer to P10 and P90 of lagged start-up rates.

Figure 2: Kernel-weighted local polynomial regression – year 2011