

Self-Employment and Regional Development in Disruptive Times - Germany 1895 - 2020

Extended abstract of a contribution to the 65th Congress of the European Regional Science Association (ERSA), August 25-28 2026, Sofia, Bulgaria

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Keywords: Entrepreneurship, self-employment, regional prosperity, patenting

JEL Codes: L26, R11, O52

1. Aims and scope

We investigate the long-term development of self-employment and its relationship with economic prosperity. Does regional self-employment have a positive impact on economic performance, and if so, does this effect extend over long periods of time, such as several decades or even a century? Our analysis focuses on Germany and covers a period of over 120 years, from the late 19th century to the present. Germany is a particularly interesting case for such an analysis due to the turbulent developments that occurred during this period. By analyzing development over longer periods, we also aim to determine the extent to which self-employment contributes to regional resilience in the face of disruptive socio-economic shocks.

We expect places with high self-employment rates to show greater growth and are more resilient to external shocks. This expectation is based on the assumption that the entrepreneurial behavior of firm owners—especially their above-average propensity to take initiative and bear risk—is beneficial to regional performance (Ratten, 2023). We also expect a positive relationship between self-employment levels and innovation. Another potential explanation for the

resilience of regions with high self-employment rates is the high proportion of small businesses in the business population and the variety of their products and technologies. This variety should lead to a lower vulnerability of these regions to external developments.

A key issue in the relationship between self-employment and regional performance is the timing of its effects. While entrepreneurial behavior can produce immediate results, the main outcomes, such as the consequences of strategic decisions, materialize only after a considerable period of time. However, little is known about the time frame of these effects. At the regional level, identifying the relevant time lags is further complicated by the transfer of firm ownership and entrepreneurial behavior across generations, as well as by the fact that such transfers may be influenced by the economic success of the self-employed (Wyrwich & Fritsch, 2026). Consequently, one might expect to find significant correlations between regional levels of entrepreneurial activity and regional performance over long periods of time that require careful interpretation.

2. Data and regions

The regional framework of the analysis is the German labor market regions¹ which are functional travel to work areas and thus conceptually related to commuting zones. Each labor market area consists of several NUTS3 regions, ideally a city center and the interwoven surrounding area. There are 257 labor market regions in Germany, 203 in the West and 54 in the East of the country.

The data particularly includes information on regional self-employment and economic structures for the years 1895, 1907, 1925, 1939, and 1950 taken from Censuses that were conducted in these years. Due to the division of Germany into two separate states after WWII, the 1950 Census was only conducted in West Germany and not in the East German state. For West Germany, we use yearly information from regularly official statistics from the year 1970 onward. The only available regional data on self-employment in the

¹ We use the definition of the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR) (2014).

socialist East German state relates to end-September 1989, shortly before the socialist regime collapsed.

We use regional rankings to assess the long-term dynamics of entrepreneurial activity. One main advantage of comparing rank positions of regions over time is that this measure can be expected to be rather robust with regard to national trends that affect all regions in more or less the same way. Therefore, changes in rank positions should reflect primarily regional rather than national influences. Another advantage of rankings is that, due to their ordinal character, they are rather robust with respect to the effect of extreme values ('outliers') that could distort the results if continuous metrics are used. Finally, rankings help mitigate biases in metrics arising from different measurement concepts.

To quantify changes in rank positions, we calculate a Rank Mobility Index (RMI) for each region r as

$$RMI_r = \frac{Rank_{r,t=0} - Rank_{r,t=1}}{n - 1} \quad (1).$$

The numerator counts the number of positions changed and the denominator adjusts the index with the highest possible rank change given by the number of ranks (n) minus 1 so that all RMI values are in the interval -1 and +1 (cf. Fotopoulos & Storey, 2017).

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We use regional rankings to measure the long-term dynamics of the levels of entrepreneurial activity as well as the regional income. One main advantage of comparing rank positions of regions over time is that this measure can be

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The dependent variables are Gross Value Added and patent application per population. The choice of independent variables to explain regional self-employment and its development is limited by the availability of data. We use information on population density, industry structure, workforce qualification, and on the success of regional self-employed persons in the year 1925 that is provided by a respective Census. As a control for the quality of the soil of a region, we apply a set of dummy variables indicating any limits to agricultural use such as gravel, lithic or sodic soil.

3. Results

There is a highly significant positive relationship between historical levels of self-employment and regional GDP per capita. A similar relationship exists between historical self-employment and the number of patents per capita, that is a measure of knowledge generation and innovation. Remarkably, population density does not play a significant role in these relationships. Overall, our analyses confirm the significant role of entrepreneurship in regional development.

Our results highlight the importance of self-employment for long-term economic development. We demonstrate that not only start-ups and young businesses but self-employment in general is positively related to economic prosperity. We conclude that leveraging entrepreneurship is an important strategy to achieve sustainable regional growth and improve the well-being of the population. To harness the potential of entrepreneurship and regional resilience for long-term economic development, policymakers and stakeholders should adopt a comprehensive long-term approach. The main element of such a strategy is the provision of entrepreneurship education and training, facilitating access to finance, fostering collaboration and networking, supporting research and

innovation, facilitating access to knowledge, enhancing workforce adaptability, diversifying the economic base, strengthening supportive institutions, and creating a supportive regulatory environment.

Since Germany can be regarded a special case in several respects, it is unclear to what extent our findings may hold for other countries. An important feature in this respect is that the relationship between entrepreneurship and regional development in Germany tends to follow a pattern that quite different from the Silicon Valley model that dominates the literature. In contrast to the Silicon Valley model, where the impact of entrepreneurship is driven by a few highly innovative and economically successful firms, the relationship between entrepreneurship and growth in Germany is based on an ecosystem of small and medium-sized firms including long-established family businesses, which primarily serve niche markets and focus on customer-oriented innovation (Audretsch, 2021; Pahnke & Welter, 2019). For these reasons, it may well be the case that the long-term relationships between entrepreneurship and regional performance that we found in Germany do not hold in the same way in other countries, particularly in countries where different types of entrepreneurship play a more prominent role. Further research should identify the different models for the effect of entrepreneurship on development.

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