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Persistence of Regional Entrepreneurship: Causes, Effects, and Directions for Future Research

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Abstract. This paper reviews the empirical evidence of persistent levels of regional self-employment and new business formation and the effect this persistence has on development. It is argued that a regional culture of entrepreneurship plays an important role in explaining persistence of entrepreneurship. We discuss possible explanations for the emergence of a culture of entrepreneurship, and how it becomes self-perpetuating over time. Finally, we draw policy implications and identify some promising avenues for further research.

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1. Introduction

A number of studies have found that the level of new business formation tends to be constant over long periods of time.[2] Moreover, even if the national level of entrepreneurial activity rises, the regions that comprise that national total seem to make the same relative contribution so that the ranking of regions in the 'National League Table of Entrepreneurship' remains largely unchanged (Fotopoulos & Storey 2017; Fritsch & Kublina 2016). One reason for persistence of entrepreneurial activity, particularly new business formation, could be that important determinants of entrepreneurship remain more or less unchanged. If factors such as qualification of the workforce or the degree of agglomeration are fairly constant over time, the effect of urban advantages and disadvantages on entrepreneurship should remain relatively constant as well. However, in this paper we argue that there may be something more to the persistence of entrepreneurship,

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2. Audretsch & Fritsch (2002), Fritsch & Mueller (2007), Andersson & Koster (2011), Fotopoulos (2014), Fritsch & Wyrwich (2014), Fritsch et al. (2014).

namely that an enduring culture that values entrepreneurship may play an important role. We provide compelling evidence for this argument by reviewing our previous work that used Germany as an intriguing "natural laboratory" for studying the sources of the persistence of entrepreneurship. We also show that a regional culture of entrepreneurship has a long-lasting and positive effect on growth via its influence on new business formation.

In what follows, we first review the empirical evidence on the persistence of regional entrepreneurship (Section 2) and different explanations for this phenomenon (Section 3). Section 4 then discusses possible causes for the emergence of a culture of entrepreneurship. Section 5 describes different aspects of an entrepreneurial culture and how it can be self-perpetuating. Finally, we discuss empirical evidence for the effect of persistent entrepreneurship on regional development (Section 6), draw policy conclusions, and identify some promising avenues for further research (Section 7).

2. Possible Reasons for Persistence of Regional Entrepreneurship

Studies of a number of established market economies have found that the regional level of new business formation tends to be constant over periods of 10–20 years. One obvious explanation for this phenomenon could be that regional determinants of new business formation and their effects are relatively stable over time. Indeed, variables that have been shown to be conducive to the emergence of new firms, such as qualification of the regional workforce or employment share in small firms (Fritsch & Falck 2007), do tend to remain fairly constant over successive years (Fotopoulos 2014; Fritsch & Kublina 2016). A second explanation for the persistence of regional levels of new business formation could be the presence of an entrepreneurial culture (Andersson & Koster 2011; Fritsch & Wyrwich 2014). An entrepreneurial culture can be thought of as an informal institution that is 'in the air'. Research has shown that these types of informal institutions tend to change much slower than formal institutions, and only over long periods of time (North 1994; Nunn 2009; Williamson 2000).

Analyzing cases that are characterized by disruptive shocks of framework conditions may help to identify the relevance of regional cultures. The main idea here is that if there is persistence of regional entrepreneurship despite radical changes in the framework conditions, this may be viewed as an indication that stable structural characteristics are not the primary cause of this persistence. In this regard, because of the historical realities of the last 90 years, Germany offers us a "natural laboratory" to study the role entrepreneurial culture plays in the persistence of entrepreneurship.

3. The Example of Germany

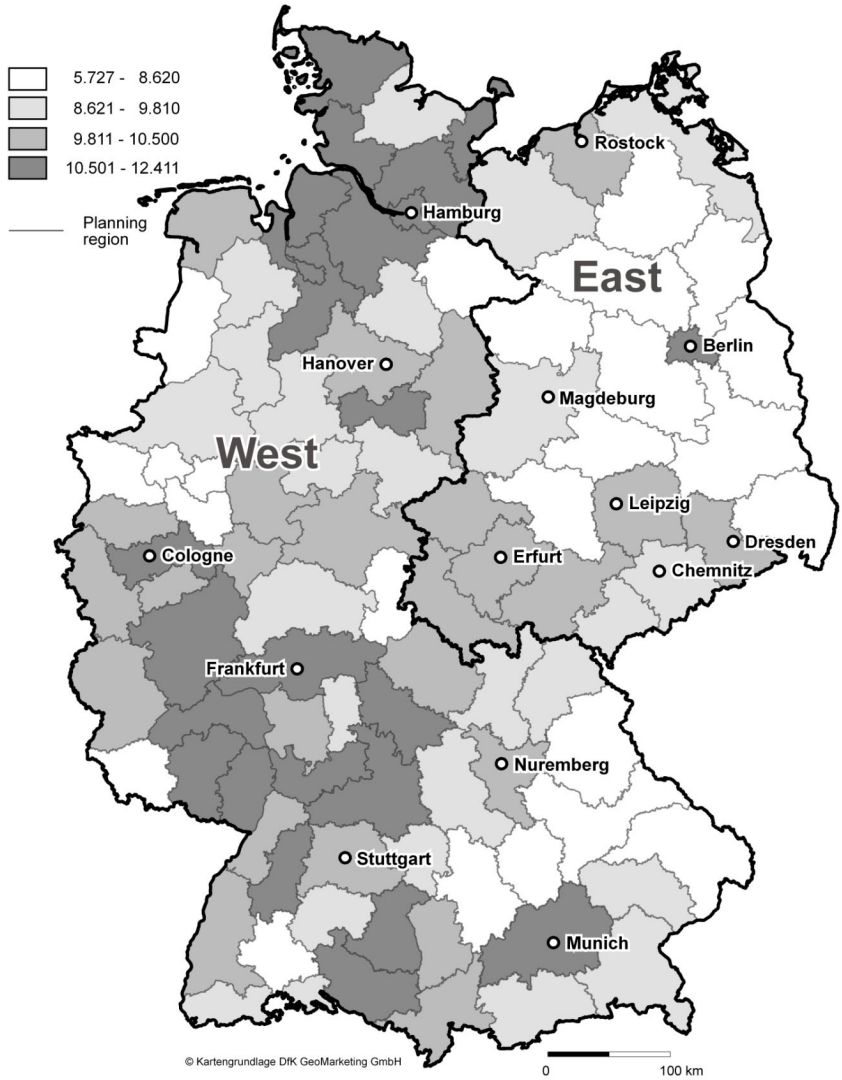
3.1. Self-Employment in 1925 and Disruptive Shocks

Based on data provided by a comprehensive survey conducted in 1925 (Statistik des Deutschen Reichs 1927), we investigated the persistence of entrepreneurship in the eastern and the western part of Germany between 1925 and today (Fritsch & Wyrwich 2014; Fritsch et al. 2014). During this time period, East and West Germany experienced a number of considerable disruptions, including: the world economic crisis of the late 1920s, the devastation of World War II, occupation by the Allied powers, massive in-migration, the introduction of a new constitutional base and political system, as well as reconstruction of the economy.

These disruptive changes have been particularly pronounced in East Germany, which was occupied by the Soviet army at the end of World War II. In contrast to West Germany, where the western allies soon began to assist in the reconstruction of the economy, the Soviets dismantled existing machinery and transferred it for productive use in the USSR. Moreover, they quickly installed a socialist regime with a centrally-planned economic system, and established the German Democratic Republic (GDR) as a part of the Soviet bloc. The socialist regime of the GDR adopted a rigorous anti-entrepreneurship policy strategy that included massive socialization of private enterprises and the suppression of any remaining private-sector activity. The socialist East German state collapsed in late 1989, and East and West Germany were reunified in 1990. The ensuing transformation of the East German economy to a market economic system was a "shock treatment" where the ready-made formal institutional framework of West Germany was adopted practically overnight (e.g., Brezinski & Fritsch 1995; Hall & Ludwig 1995).

Figure 1 shows the distribution of self-employment rates across the regions of Germany in 1925. The regional self-employment rate is the number of establishments in a region's non-agricultural private-sector industries divided by the regional workforce (including unemployed persons). A first observation is that these self-employment rates were, on average, higher in regions that became West Germany after World War II. Regions with relatively high self-employment rates are especially found around the urban centers of Hamburg, Frankfurt, Cologne, Munich, and Nuremberg. The southwestern part of Germany, which is known for its innovative spirit and entrepreneurial culture (e.g., Baten et al. 2007), also had high levels of self-employment in 1925. Regions with relatively low self-employment rates in West Germany include the Ruhr area north of Cologne, which is characterized by a high concentration of large-scale industries such as coalmining and steel processing, as well as a number of rural regions in the east and the southeast.

Figure 1: Self-employment rates in non-agricultural sectors in German regions 1925.



Source: Fritsch and Wyrwich (2014).

3.2. Persistence of Entrepreneurship in West German Regions

In our previous work, we analyzed the persistence of regional entrepreneurship by regressing the start-up rates in West German regions for the years 1984–2005 on the self-employment rate in 1925 (Fritsch & Wyrwich 2014).[3] The start-up rate is measured in accordance with the labor market approach (Audretsch & Fritsch 1994), whereby the number of annual start-ups in the private sector is divided by

the sum (in thousands) of employees in the private sector plus registered unemployed persons.

A number of control variables are employed to account for relevant characteristics of the regional environment. These include regional population density, which represents a "catch-all" variable of regional characteristics, the employment share of R&D personnel, which may indicate the level of innovative entrepreneurial opportunities available in a region and the local unemployment rate (for a discussion of these variables, see Fritsch & Mueller 2007). Federal State dummies are supposed to capture effects of different political conditions and spatial autocorrelation.

The overall results reveal a significant positive effect of the self-employment rate in 1925 on the start-up rates in West German regions in the years 1984–2005. Controlling for the industry structure in 1925 does not change this pattern.[4] The significant effect of the self-employment rate in 1925 strongly indicates persistence of regional differences in start-up activity over longer time periods that include several disruptive shocks to environmental conditions.

In a further step, we followed Andersson & Koster (2011) and run quantile regressions. The idea behind this analysis is that the effect of a culture of entrepreneurship that leads to a persistence of start-up rates should be particularly strong in regions with relatively high levels of new business formation. We do indeed find that the estimated marginal effect of previous levels of new business formation is considerably stronger in areas of high entrepreneurship rates. Based on this empirical evidence, we conclude that regional differences in entrepreneurship in West Germany have persisted for a period of 80 years, in spite of several disruptive shocks to the environmental conditions. This high level of persistence is particularly remarkable given the high levels of in-migration by refugees from former German territories into West Germany after World War II, causing considerable demographic changes.[5] The fact that we find persistence of the levels of entrepreneurship despite such severe changes, can be regarded as a strong indication that there are region-specific factors at work that determine a regional entrepreneurship culture.

3. The data on start-up activity are obtained from the German Social Insurance Statistics. This dataset contains every German establishment that employs at least one person obliged to pay social insurance contributions (Spengler 2008).
4. The employment shares of three large economic sectors—construction, manufacturing, and other industries—in 1925 have been used to control for the economic structure of the regional economy. This shall avoid that the self-employment rate mainly reflects the industry structure in that year.
5. It is remarkable that the refugees from former German territories of Eastern Europe showed a relatively low propensity for self-employment. In the year 1950 the self-employment rate among the refugees was just 4.1 percent, while the self-employment rate of the original population was about 14 percent (see Census 1950).

3.3. The Case of East Germany

In Fritsch & Wyrwich (2014), we also investigated persistence of entrepreneurship in East Germany. As a result of the massive anti-entrepreneurship policy of the socialist period in East Germany, the self-employment rate at the end of the GDR regime in 1989 was only about 1.8 percent compared to 10.5 percent in West Germany. The few private firms in existence were primarily found in those small trades that were ill-served by inflexible centrally planned state firms. Quite remarkably, the socialist regime was not able to crowd out self-employment with uniform effectiveness across the GDR. This is, for instance, indicated by the finding that in regions with a pronounced entrepreneurial tradition a higher share of craftsmen abstained from joining socialist handicraft cooperatives (Wyrwich 2012). Hence, the remaining levels of self-employment were particularly high in those regions that had a pronounced entrepreneurial tradition in pre-socialist times. This persistence of regional entrepreneurial cultures during 40 years of a socialist regime is particularly remarkable because the anti-entrepreneurial policy should have created relatively high incentives for people with an entrepreneurial mindset to leave the GDR, an effect that certainly led to an entrepreneurial blood-letting in these regions.

With German unification in 1990, and the transformation to a market economic system, new business formation in East Germany started to boom, particularly in the services and construction sectors. However, it was not until 2005, 15 years later, that the self-employment rate in East Germany matched that of West Germany (Fritsch et al. 2014). Despite the now similar levels of self-employment, however, there are also a number of differences between the two parts of the country with regard to the characteristics of the new businesses in terms of industry affiliation, survival, and size. Start-ups in East Germany post-1990 have been much more concentrated in sectors characterized by a small minimum efficient size, particularly construction, tourism, and consumer services. These start-ups have lower survival rates and, on average, fewer employees than new businesses set up in West Germany during the same period. In short, due to its socialist legacy East Germany did not become a carbon copy of West Germany, but is instead a distinct regional growth regime (Fritsch 2004; Fritsch et al. 2014).

Analyzing the persistence of East German start-up rates in successive years is limited by the relatively short time series of available data, and by the particularly pronounced turbulence of the transformation process during the 1990s. Therefore, this analysis was restricted to start-up rates for 2000–2005.[6] Moreover, in addition to the self-employment rate in 1925, we also use information on the level of self-employment at the end of the socialist period in 1989.

6. The spatial framework consists of the 22 East German Planning Regions. The region of Berlin is excluded since the data do not allow distinguishing between the eastern and western part of the city, the latter of which was not under socialist regime.

We find that there is a significant positive relationship between the regional self-employment rates for 1925, 1989, and 2000–2005, indicating high levels of the persistence of entrepreneurship despite a number of severe shocks. The significantly positive correlation of self-employment in 1925 with that in 1989, which marks the demise of the GDR regime, is particularly remarkable. This statistical relationship indicates that the policy of crowding out private firms during the socialist regime had weaker effects in areas with high levels of self-employment before World War II. This may be regarded as an indication of regional differences in resistance to anti-entrepreneurship policies that are reflective of strong entrepreneurial intentions and the strength of a regional entrepreneurship culture. High levels of continuing self-employment are found in regions that had a relatively strong tradition in the manufacturing sector prior to World War II, such as Chemnitz and Dresden (for a more detailed description, see Wyrwich 2012).

One reason for the survival of entrepreneurial culture may be intergenerational transmission via role models of self-employed parents or grandparents (e.g., Chlosta et al. 2012; Dohmen et al. 2012; Laspita et al. 2012). Furthermore, there might have been a favorable collective memory (for a discussion, see Assmann 2006) about the merits of entrepreneurship in regions where it played an important role for economic prosperity in the past.

Quantile regressions show that the effect of the self-employment rate in 1925 on current start-up activity is strongest for regions with high entrepreneurship rates. Quite remarkably, the increase of the marginal effect with rising historical self-employment rates is not as straightforward as in West Germany. This might be explained by the much higher intensity of the disruptive shocks in East Germany that may have damaged the entrepreneurial culture, particularly the strong attempts of the socialist regime to eradicate entrepreneurship.

Our analysis for East Germany once again confirms the high persistence of regional entrepreneurship despite a number of severe shocks. That regional entrepreneurship survived the hostile circumstances of a socialist regime suggests that a regional entrepreneurship culture, once established, may be quite robust. In particular, this finding of persistence is evidence that political attempts to destroy a culture of entrepreneurship will face considerably more resistance in regions that have a strong tradition of self-employment. It is also remarkable that the recovery of entrepreneurship in East Germany after reunification with the West was particularly fast in those regions that had relatively high self-employment rates in pre-socialist times.

Altogether, we know from Fritsch & Wyrwich (2014) that there is a strong positive relationship between regional variation in self-employment in the year 1925 and start-up activity across East and West German regions around the year 2000. These results demonstrate that past entrepreneurship exerts an influence on start-up activity despite disruptive changes to the socio-political-economic environment, and a variety of political, social, and economic shocks such as

World War II and forty years of a socialist regime in East Germany, followed by a shock transition to a market economy.

4. Potential Historical Sources of Persistent Spatial Differences in Entrepreneurship

Before discussing the possible reasons for persistence of entrepreneurship and the role of entrepreneurship culture for economic growth, it is worthwhile to talk about the sources of differing levels of regional entrepreneurship in earlier times that have persisted over time. Our knowledge about these regional differences in historical entrepreneurship is still very incomplete.

One potential historical source of regional differences in historical entrepreneurship could be industry specialization that is due to natural conditions. In this respect, Stuetzer et al. (2016) show that regional differences in entrepreneurship in Great Britain can be explained by historical specialization in large-scale industries that they associate with the emergence of an anti-entrepreneurial climate over time. To identify the long-term effect of large-scale industries on entrepreneurial culture, the study relies on an instrumental variables approach with distance to coal deposits as an instrument for the historical emergence of such industries. Glaeser et al. (2015) also use distance to coal mines as an instrument to explain low entrepreneurship rates in the US today, which they attribute to a low entrepreneurial culture in mining areas (see also Chinitz 1961). These two studies have a geography-based explanation for the regional levels of self-employment in the past and the subsequent emergence of a culture that does not stimulate entrepreneurial attitudes.

In spite of these two studies, not much is known about institutional sources of entrepreneurship. This is a worrisome research gap since institutions can play a pivotal role in economic development (Acemoglu & Robinson 2012). One problem in identifying the effect of formal institutions on entrepreneurship is that they might be partly endogenous, i.e., shaped by the already existing level of entrepreneurship. Furthermore, the implementation of formal institutions can be considerably shaped by the (regional) culture (Williamson, 2000). Our finding that East German regions with a pronounced level of self-employment in 1925 showed considerable stronger resistance against the anti-entrepreneurship policy under socialism provides a good example for such an effect (see Section 3.3).

An analysis of the effect of a sudden exogenous change in the regulatory framework affecting entrepreneurship could, for example, be based on the spread of the legal Code Civil in some European regions over the course of the Napoleonic Wars. Its introduction to the respective regions was an exogenous institutional change that affected economic development (Acemoglu et al. 2011; Buggle 2016). The new legislation came along with transparent regulation of commercial activity, lower entry barriers, and fewer restrictions with regard to

trade and the labor market. This should have created entrepreneurial opportunities and the incentives to exploit them. Better legal protection due to the introduction of the Code Civil led to higher levels of trust among economic actors that may have also been conducive to entrepreneurship. Hence, it can be assumed that regions where the Code Civil was introduced should have developed higher levels of entrepreneurship and private sector economic activity in the 19th century. If there is a persistence of spatial differences in entrepreneurship, regions that adopted the Code Civil relatively early in the 19th century should have had higher entrepreneurship rates at the beginning of the 20th century.

Interactions between geography and institutions may have also played a considerable role in explaining the changes in the regional levels of entrepreneurship, for instance, over the course of industrialization in the 18th and 19th century. An intriguing example of this is the appropriateness of soil for agricultural use; a geographical factor (for details, see Panagos et al. 2012) that may have determined the huge regional variation in dominating inheritance practices across Germany (Becker 1998).[7] If, for example, it was common practice in a region to divide the land of a deceased among the beneficiaries in real terms (*Realteilung*), the size of the resulting lots may be too small (depending on the quality of the soil) to be profitably used for agricultural development. This loss of profitability may then have created an incentive to shift economic activity toward a type of craft business, perhaps first as a secondary occupation that later became the main source of income. This type of economic shift would not have been so likely to occur if land was cohesively transferred to one beneficiary only (*Anerberecht*). Therefore, regional differences dictating inheritance practices may have had an effect on the rise of entrepreneurship and, ultimately, industrialization (Jaeger et al. 2016). Thus, geography (characteristics of soil) may have determined institutions (inheritance pattern) that, in turn, could have affected the emergence of regional differences in entrepreneurship. High levels of historical entrepreneurship may imply a virtuous circle of self-reinforcing entrepreneurship leading to the emergence of an entrepreneurship culture over time.

7. These differences of the dominant inheritance practices were largely independent of the respective formal legislation and could vary considerably across regions at a rather small spatial scale.

5. How Does Regional Entrepreneurship Culture Persist and Stimulate New Business Formation?

5.1. Entrepreneurial Culture: A Multifaceted Phenomenon

An entrepreneurial culture is typically understood "as a positive collective programming of the mind" (Beugelsdijk 2007, 190). Etzioni (1987) argues that one important aspect of entrepreneurial culture is spatial variation in the social legitimacy of entrepreneurs and their activities. Put to the regional level, the degree of societal legitimacy for entrepreneurship may be higher in some regions than in others (Kibler, Kautonen & Fink 2014). As a consequence, the more entrepreneurship is regarded as legitimate from a societal point of view, the higher the demand for it and the more resources are dedicated to such activity. This social acceptance of entrepreneurship within a society can be regarded as part of the informal institutions of a community, which is defined as codes of conduct as well as norms and values (North 1994). They are the building blocks of 'culture'. According to Williamson (2000), culture belongs to the level of social structure that is deeply embedded in a population and that tends to change very slowly over long periods of time.

Another concept of entrepreneurial culture is to characterize it as an "aggregate psychological trait" (Freytag & Thurik 2007, 123) in the regional population that favors entrepreneurial values such as individualism, independence, and motivation for achievement. One way of capturing such a conceptualization of entrepreneurship culture is computing the share of people with an entrepreneurship-prone personality profile in the population at the regional level. Applying the Big Five concept of personality measurement, entrepreneurial people score high on extraversion, conscientiousness, and openness, but have low scores in agreeableness and neuroticism (Obschonka et al. 2013; 2015). According to Rentfrow et al. (2008), regional differences in the share of people with an entrepreneurial mindset today may be explained by social influence within the region as people respond, adapt to, or get socialized according to regional norms, attitudes, and beliefs. Furthermore, people with an entrepreneurial mindset may tend to migrate to places where the local population has similar personality characteristics (see also Obschonka et al. 2013; 2015).

5.2. The self-Perpetuation of Regional Entrepreneurship Culture

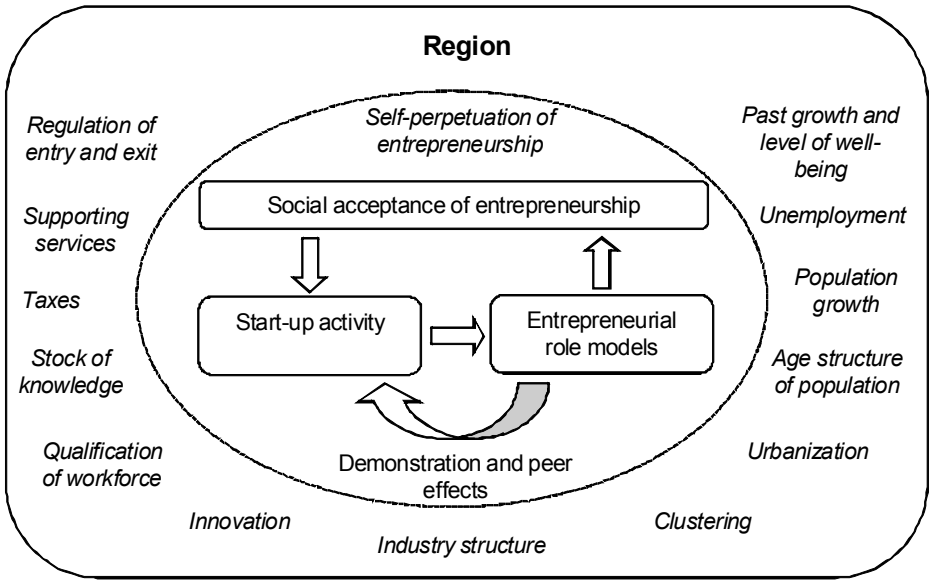
Social acceptance constitutes an important building bloc of a regional entrepreneurship culture. According to a widespread belief, the level of acceptance or legitimacy of entrepreneurship in a region is determined by the number of entrepreneurial role models. The main idea behind this hypothesis is

that an individual's perception of entrepreneurship, the cognitive representation, is shaped by observing entrepreneurial role models in the social environment. This is supposed to increase the social acceptance of entrepreneurial lifestyles and to raise the likelihood of adopting entrepreneurial behavior. Furthermore, entrepreneurs in the local environment provide opportunities to observe and learn about entrepreneurial tasks (e.g., Minniti 2005; Nanda & Sørenson 2010; Bosma et al. 2012). Observing successful entrepreneurs provides potential entrepreneurs with examples of how to organize resources and activities and increase self-confidence in the sense of 'if they can do it, I can, too' (Sorenson & Audia 2000, 443). In this way, factual entrepreneurship creates a sort of perceptual non-pecuniary externality that spurs additional start-up activity and makes entrepreneurship self-reinforcing. Furthermore, individuals who observe that one of their peers is a successful entrepreneur may perceive entrepreneurship as a favorable career option (for a detailed exposition of this argument, see Fornahl 2003). Generally, in regions that are characterized by a widespread positive attitude toward entrepreneurial activities more people might perceive entrepreneurship as a viable career option and start an own business.

Andersson & Koster (2011) argue that the demonstration and peer effects of past start-up activities can affect current entrepreneurship rates. They test their proposition with data for Swedish regions that cover only a relatively short time period, finding that the effect of past start-up activity is stronger in high entrepreneurship areas. This indicates that entrepreneurial role models accelerate future entrepreneurship in areas with high levels of entrepreneurship due to the just described mechanisms of self-perpetuation.

Minniti (2005) provides a theoretical model that, based on the above-mentioned regional role model effects, can explain why regions with initially similar characteristics may end up with different levels of entrepreneurial activity. In this model, chance events at the outset of such a process may induce entrepreneurial choice among individuals that leads to different levels of regional entrepreneurship. In historical terms, one could also think of certain natural conditions and institutional shocks that influence the emergence of certain types of economic activity in a region, and ultimately entrepreneurship. The presence of entrepreneurial role models in the social environment reduces ambiguity for potential entrepreneurs and may help them acquire necessary information and entrepreneurial skills. In Minniti's model, this self-reinforcing effect of entrepreneurship depends critically on the ability of individuals "to observe someone else's behavior and the consequences of it" (Minniti 2005, 5). The self-perpetuating effect of entrepreneurship through demonstration and peer effects and the role of social acceptance of entrepreneurship are illustrated in Figure 2.

Figure 2: The self-perpetuation of entrepreneurship through demonstration and peer effects.



Source: Fritsch and Wyrwich (2012).

A regional culture of entrepreneurship, however, may need more than societal legitimacy of entrepreneurial behavior, individuals able and willing to become entrepreneurs, entrepreneurial role models, networks, and peer effects. An infrastructure of supporting services, particularly the availability of competent consulting as well as appropriate financial institutions, may also be necessary. It is not farfetched to expect that regions characterized by high levels of new business formation and a pronounced entrepreneurship culture may develop such a supporting infrastructure. However, creating a supporting infrastructure in a region that lacks social acceptance of entrepreneurship and entrepreneurial role models might not be very effective.

Another way of describing the ingredients of an entrepreneurial culture is by assessing how much entrepreneurship-facilitating social capital exists represented, for instance, by networks aimed at stimulating the emergence of new firms, and by determining if a vital local culture of venture capital financing is in place (Westlund & Adams 2010). Furthermore, the acceptance of not only start-up activity but also of failure may be an important element of an entrepreneurship culture. If there is a low stigma of failure in a region, this may encourage people to give entrepreneurship a try because the psychological costs of failure are lower than elsewhere (e.g., Wyrwich et al. 2016). In short, there are many aspects of the regional environment that may be, to different degrees, conducive to new business formation (Dubini 1989).

5.3. The Two Layers of Entrepreneurship Culture

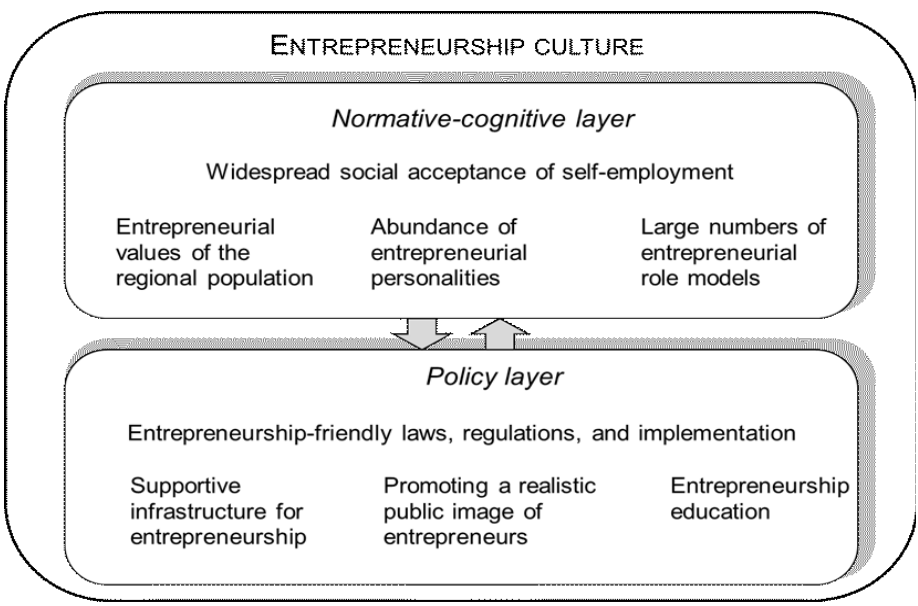
In earlier work, we developed a framework that is helpful in understanding the interplay of different elements of an entrepreneurship culture (Fritsch & Wyrwich 2016). In a nutshell, one can distinguish between a political and a normative-cognitive layer of a regional entrepreneurship culture (Figure 3). The normative-cognitive layer of an entrepreneurship culture pertains to the social acceptance of self-employment. In regions with a pronounced entrepreneurial culture, there is a widespread positive attitude toward entrepreneurial activity among the population. In particular this includes:

Entrepreneurial values of the regional population: entrepreneurial norms and values such as individualism, autonomy, and achievement or mastery are widespread.

Abundance of entrepreneurial personalities: the population contains a high share of persons with an entrepreneurial personality, which is characterized by traits such as extraversion, openness to experience, conscientiousness, and the ability to bear risk.

Large numbers of entrepreneurial role models which generate demonstration and peer effects: high levels of self-employment in the region.

Figure 3: Elements of an entrepreneurship culture.



Source: Fritsch and Wyrwich (2016).

The *political* layer consists of those factors that can be directly targeted by policy, including, for example:

Entrepreneurship-friendly laws and regulations: for example, conditions for entry and exit, freedom of establishment and trade, competition policy, the tax system, the social security system, and, last but not least, a low level of corruption.

A supportive infrastructure for entrepreneurship: the existence of supporting services for business founders, as well as for established firms, including good access to financial resources for start-ups and small businesses and training and consulting services.

Promoting a realistic public image of entrepreneurs: awareness campaigns, programs for encouraging contact with entrepreneurial role models.

Entrepreneurship education: particularly at universities but also beginning with some very basic skills at a lower level in the education system.

The political layer contains the formal institutions and mechanisms to create and support a regional culture of entrepreneurship. However, as previously mentioned, it is debatable as to how far policy can 'create' a culture of entrepreneurship. Perhaps it is more realistic to delegate policy to the role of strengthening and reinforcing the existing elements of a culture of entrepreneurship by supporting the preconditions for self-employment and promoting an awareness of successful entrepreneurial role models.

The normative-cognitive layer is a largely informal institution. An analysis of this layer provides an indication of how embedded the entrepreneurial culture is among the local population. Of course, the layers are interdependent. Policy can and does influence the beliefs and experiences of the regional population, and the preexisting culture can and does influence the design and implementation of policy. Empirical evidence, however, clearly suggests that the normative-cognitive layer of a regional entrepreneurship culture plays the dominate role. The survival of regional pockets of entrepreneurial activity that endured the anti-entrepreneurial policies of the socialist regime of East Germany already mentioned in Section 3.3, demonstrates that these entrepreneurial norms and values are able to withstand even severe policies aimed at their elimination. This also reinforces the notion that informal institutions tend to persevere.

5.4. Entrepreneurship Culture: An Informal Institution

The persistence of a positive perception of entrepreneurship is not something that is specific to an entrepreneurship culture. There is considerable empirical

evidence that points towards a long-term persistence of informal institutions in general. Becker et al. (2016), for instance, compare Eastern European regions that were affiliated with the Habsburg Empire to regions that were not. Their study shows that people in regions that were part of the Habsburg Empire have a higher level of trust in political institutions, and face lower levels of judicial and police corruption compared to regions with the same formal institutions but no past association with the Habsburg Empire. A long persistence of regional informal institutions is vividly illustrated by Voigtlaender & Voth (2012). The authors show that German regions that experienced anti-Semitic violence in the 14th century had higher levels of violence against Jews in the 1920s and 1930s. If these kinds of attitudes can survive for centuries, it seems possible that other attitudes, such as those regarding entrepreneurship, might also be long-term characteristics of a region.

The reasons for such a long-term persistence of values in a region are largely unclear. Several empirical studies have found that the generational transmission of entrepreneurial values and attitudes may explain this regional persistence (e.g., Chlosta et al. 2012; Dohmen et al. 2012; Laspita et al. 2012). The transmission could also take place in the course of everyday social interactions (e.g., Giannetti & Simonov 2009; Andersson & Larsson 2016) and through peer effects at the workplace (e.g., Nanda & Sørenson 2010).

6. Entrepreneurial Culture, Start-up Activity, and Growth

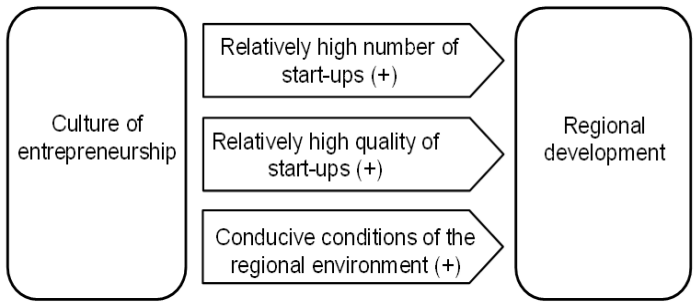
6.1. The Effect of Entrepreneurship on Growth

Theory, as well as mounting empirical evidence, strongly suggest that entrepreneurship has a positive effect on regional development (for an overview, see Fritsch 2013). There are two main channels for such an effect. First, the direct contribution of new businesses to employment and GDP, i.e., their success and growth. Second, an indirect effect in terms of increased performance of incumbents that results from the competitive challenge created by entry (for details, see Fritsch & Changoluisa 2017).

A regional entrepreneurship culture may affect the relationship between new business formation and growth via these channels in a number of ways (Figure 4, for details, see Fritsch & Wyrwich 2017). One of these ways could be that a culture of entrepreneurship leads to a relatively high number of start-ups, inducing supplementary growth. A second way a culture of entrepreneurship might impact regional development may be that it contributes to a higher average quality of the regional start-ups. This higher quality may result in higher survival chances and growth rates of the new businesses, as well as a more pronounced competitive challenge for incumbents resulting in improved productivity. A third

possibility is that an entrepreneurship culture is conducive to conditions that encourage the development of new businesses, such as easy availability of financing, supporting consulting services, and the like. It can also be possible that a regional culture of entrepreneurship attracts in-migration of persons with an entrepreneurial mindset that may then set up new businesses of a relatively high quality.

Figure 4: Ways a culture of entrepreneurship may effect regional development.



Source: Fritsch and Wyrwich (2016).

6.2. An Instrumental Variable Approach

Empirical research investigating how entrepreneurship impacts growth suffers from the "hen-egg" problem. It is unclear if the correlation between levels of new business formation or self-employment and economic growth is driven by entrepreneurship, or if regional growth fosters entrepreneurship (Casares & Khan 2016; Cima et al. 2017)? In an attempt to overcome this problem in the identification of a causal effect of entrepreneurship on regional development in Germany, we applied an instrumental variable approach (Fritsch & Wyrwich 2017). In this analysis, the historical level of entrepreneurship, or entrepreneurial tradition, is used as an instrument that represents a regional culture of entrepreneurship. The idea behind this approach is that while the historical level of self-employment should have an effect on start-up activity in later periods, it is unlikely to have a direct effect on growth in later periods. Thus, it is a valid instrument for identifying the causal effect of entrepreneurship on regional development (for details, see Fritsch & Wyrwich 2017).

Our overall findings indicate that an entrepreneurship culture as measured by historical self-employment rates has an indirect positive effect on regional development via start-up activity in later periods. In particular, start-up rates that can be explained by a regional entrepreneurship culture make a significantly positive contribution. On average, a 10 per-cent higher start-up rate that is due to historical self-employment is associated with an increase of employment growth by more than 6 percent.

7. Policy Implications and Avenues for Further Research

Our analyses clearly show that an important reason for the persistence of regional levels of entrepreneurship is the informal institution of a regional entrepreneurship culture. A regional culture of entrepreneurship is a deeply embedded regional resource that can endure despite disruptive changes of the framework conditions. We also demonstrated that a culture of entrepreneurship can have a significantly positive effect on regional development.

Previous work demonstrated long-term persistence of spatial differences in entrepreneurship. Furthermore, previous evidence suggests that there is a link between persistently high regional levels of entrepreneurship and economic growth. Our knowledge is, however, very limited when it comes to the sources of the persistent levels of regional entrepreneurship. There is also a lack of empirical evidence on the dynamics of the spatial differences of entrepreneurship. This alludes to the mechanisms behind persistence of entrepreneurship and the self-perpetuation of a regional entrepreneurship culture (Fotopoulos & Storey 2017; Fritsch & Kublina 2016). Finally, it is an open question as to how regions with persistently low entrepreneurship rates might begin to promote start-up activity.

As mentioned above, the available literature on historical sources of persistent spatial differences in entrepreneurship is limited to investigating the role of natural resource access; namely, distance to coal mines and subsequent historical industry specialization (Glaeser et al. 2015; Stuetzer et al. 2016). This approach neglects formal institutions as a competing factor that might explain economic development (Acemoglu & Robinson 2012). Future research should consider the role of formal, as well as informal institutions, and compare those findings with the role of geographical characteristics, such as location, soil quality, and natural resources, such as deposits of coal. An analysis of the interaction between institutions and geographical features may reveal new insights into the reasons for these spatial differences.

Understanding the link between the persistence of entrepreneurship and an entrepreneurship culture requires a more direct measurement of such a culture. Stuetzer et al. (2016) show that historical specialization in large-scale industries in Great Britain can explain both differences in the current rate of entrepreneurship and the share of people in the regional population that have an entrepreneurship-prone personality profile, an important element of an entrepreneurship culture.

In addition to historical sources and mechanisms of persistence, we also need a better understanding of the implications of persistent entrepreneurship for regional development. Previous studies of the link between persistence of entrepreneurship and regional growth (Glaeser et al. 2015; Fritsch & Wyrwich 2017) only focus on growth in relatively recent periods. Studies of longer term development and of growth in different historical periods are missing. In particular, there is almost no evidence available that indicates how high levels of

entrepreneurship can make regions more resilient to economic shocks. Finally, it might be useful to analyze specific regions as case studies where significant changes in the level of entrepreneurship and start-up activity took place in order to understand the reasons for these changes.

Altogether, there are many unanswered research questions about entrepreneurship culture. What are the main elements of such a culture, and what are the relevant mechanisms for creating it? How can a culture of entrepreneurship be able to persist over long periods of time despite severe disruptive shocks? How is it transferred across generations? What are the relevant channels? What is the role of formal institutions in the emergence of an entrepreneurial culture? What are the long-term dynamics of regional entrepreneurship over time? How does historical entrepreneurship explain the current spatial distribution of people with an entrepreneurship-prone personality profile in different institutional contexts? Does the effect of entrepreneurship on growth vary over time? Why is entrepreneurship not persistent in some regions?

Since a regional culture of entrepreneurship tends to be persistent over long periods of time, it can only be changed or built up in the long run. This implies that policy that aims at building up such a culture needs long-term orientation. However, once present, an entrepreneurship culture will have beneficial effects for a long period of time. Creating a culture of entrepreneurship could be a promising policy measure to insulate regions against external shocks.

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