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Historical local industry structure, voting patterns and the long-run entrepreneurial character of regions: Swedish examples

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Abstract

Spatial variations in rates of new firm formation are large and spatially persistent over long periods of time. A common explanation of this empirical regularity is so-called local entrepreneurship cultures, which refer to spatially embedded social characteristics that change in slow processes. This paper discusses perspectives on the development of such cultures and focuses on the role of historical industry structures in forming the long-run entrepreneurial character of regions. To illustrate the empirical relevance of arguments and findings in the literature, we use historical data on voting patterns in municipalities in Sweden, as well as indications of their early industrial concentrations, and assess their correlations with present-day entrepreneurial activity. We show that places with a high share of left-wing votes in the period 1917–1948 and early historical presence of heavy industry have lower rates of new firm formation, less positive public attitudes toward entrepreneurship as well as larger average establishment sizes in the twenty-first century. The empirical patterns are consistent with the argument that regions' historical industry structure is one factor that influences the development of local entrepreneurship cultures.

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1 Introduction

The process through which a local economy becomes dense in new firm formation is important for several reasons. Perhaps most importantly, local growth is tightly connected with the rate of new firm formation as well as with the density of small and medium sized enterprises (SMEs) (Fritsch 2013; Fritsch and Wyrwich 2016; Glaeser et al. 2015, 2010; Tsvetkova et al. 2019). As a consequence, significant interest in understanding the drivers of spatial variations in new firm formation and SME density is shared among researchers and policy makers alike.

In part, the empirical literature on the geography of entrepreneurship has emphasized the role of so-called economic fundamentals in explaining the geography of entrepreneurship (Plummer and Pe'er 2010, Glaeser 2010). Fundamentals refer to basic supply- and demand-side conditions, such as local supply of labor, business services, suppliers as well as access to financial capital, knowledge resources and local presence of population and employment.

However, it is increasingly recognized that fundamentals only provide a partial account of startup activity in regions. The presence of resources is simply not sufficient for people to act on perceived opportunities. There is growing evidence that different regions have different locally embedded values and attitudes toward entrepreneurship, and that these have a strong and persistent influence on local entrepreneurial activity. These values are analyzed in a multitude of ways in the literature, Some studies undertake case-based research. For example, Saxenian's (1996) analysis of the success of Silicon Valley over Boston's route 128 of regional development emphasizes that one of Silicon Valley's main advantages is a local culture that is more supportive toward entrepreneurs and entrepreneurial activity.[1] Others focus on the persistence of regional variations in entrepreneurial activity. Fritsch and Wyrwich (2014) use data from East Germany to show that regional entrepreneurship levels of 1925 predict contemporary levels, even after controlling for other factors. This spatio-temporal persistence of entrepreneurship holds despite Nazism and the Second World War, the communist dictatorship that actively sought to stomp out entrepreneurial tendencies (see also Fritsch et al. 2014), and several economic crises. Giannetti and Simonov (2009) find that entrepreneurs in entrepreneurship-dense localities have *lower* earnings and face *higher* opportunity costs, compared to entrepreneurs in other places, conditioned on a rich set of individual and place-based characteristics. These findings cannot be explained on the basis of fundamental factors alone.

How can we systematize and understand these inferred social factors? Many researchers use the concept"local entrepreneurship cultures" as a catch-all term to capture social, as opposed to fundamental, phenomena that are external to the

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[1] In an often-cited quote by an entrepreneur reflecting on differences between Boston and Silicon Valley it is stated: "In Boston, if I said I was starting a company, people would look at me and say: 'Are you sure you want to take the risk? You are so well established. Why would you give up a good job as vice president at a big company?' In California, I became a folk hero when I decided to start a company. It wasn't just my colleagues. My insurance man, my water deliverer—everyone was excited. It's a different culture out here." (Saxenian 1994, p 63).

individual but internal to the region. The term is usually employed to refer to the level of social acceptance and encouragement of entrepreneurs and their activities in a place (Fritsch and Wyrwich 2014, 2019, Andersson and Koster 2011). As this 'social fabric' of regions changes slowly and have long-lasting effects, they constitute a major challenge for policy.

The question is then how and why different local entrepreneurship cultures develop and persist over time. In this paper, we link up to the works of Chinitz (1961), Glaeser et al (2015), Fritsch et.al (2019) and Stuetzer et al (2016) and discuss these issues with a focus on how and why a region's industry structure shapes the long-run entrepreneurial character of a region. First, we present theoretical perspectives and empirical findings of the relationship between historical industry structure of a region and its entrepreneurship culture. Supported by previous research, we argue that the historical development of a place's industry is tightly linked with the industriousness of its culture, and point to local social interaction as one of the mechanisms that fosters the formation as well as persistence of a local entrepreneurship culture in a region. We argue that local social interaction effects constitute vehicles for the transmission of attitudes, behaviors and information among residents in a region. Second, to illustrate the empirical relevance of the arguments about a link between historical industry structure and local entrepreneurship cultures, we discuss historical circumstances in Sweden and provide examples of findings from recent case studies of Swedish municipalities. We also employ data on historical voting patterns and local fraction of manufacturing industry across municipalities in Sweden and assess their correlation with present-day entrepreneurial activity as well as measures of public attitudes to entrepreneurship.

The empirical analyses show that municipalities with a high share of left-wing votes in the period 1917–1948 have lower rates of new firm formation, less positive public attitudes toward entrepreneurship as well as larger average establishment sizes in the twenty-first century. The same is true about places with early reliance on manufacturing industries. Our interpretation is that early presence of heavy industry has spurred local economies dominated by labor union activity, and ultimately less entrepreneurship-friendly attitudes among the local population. While merely suggestive, these patterns are consistent with the argument that regions' historical industry structure is one channel through which local entrepreneurship cultures may influence present-day rates of new firm formation in regions. While our study lacks any causal ambitions, our results lend further support first, to the hypothesis that 'entrepreneurship cultures' are spawned through local industry, and second, that these long-lasting regional attributes change slowly. Our contribution is to summarize perspectives in the literature on how and why historical local industry structure is one factor that shapes the local entrepreneurship culture of place and to point to empirical regularities in Sweden that lends further support for these arguments. The paper also aims to inspire future research in this vein, and we point to different research areas of relevance to further advance our understanding of how and why local entrepreneurship cultures develop and persist.

2 Local entrepreneurship cultures

A local culture conducive to entrepreneurship is a locally embedded informal institution that shapes a locality's attitudes to, and legitimacy and encouragement of, entrepreneurial activity (e.g. Fritsch & Wyrwich 2019). A productive local entrepreneurship culture may for example amplify spinoff processes analyzed by Klepper and Sleeper (2005), by reducing local transaction costs and by supplying additional entrepreneurs (Avnimelech and Feldman 2010). The entrepreneurship cluster of Gnosjö in the south of Sweden provides several examples. The local mechanical workshop Hylténs Metallvarufabrik was established in 1874. When it closed a century later it had given birth to at least 24 spinoff firms; in turn, these spinoffs have generated at least 135 additional firms (Johnson 2008, p. 13). Such numbers illustrate how cumulative processes in due time can produce powerful outcomes if seeded in the "right" local milieu, even for small initial differences (in this case one firm).

2.1 Perspectives on factors that influence local entrepreneurship cultures

Most studies of the history of entrepreneurial places depart from different conceptions of path-dependence, coupled with interactions between informal institutions, industry and policy (Braunerhjelm & Feldman 2006). A common argument is that the intial 'spark' may often emanate from unintended consequences of past events or historical (unplanned) circumstances. Williamson (2000) claims that informal institutions in general "…have mainly spontaneous origins – which is to say that deliberative choice of a calculative kind is minimally implicated. Given these evolutionary origins, they are 'adopted' and thereafter display a great deal of inertia". Likewise, Minniti (2005) claims that the social environment in a region "… is not the planned outcome of the decisions of purposeful actors; rather it emerges as the unintended consequence of a sequence of decisions taken by individuals and serves as a conduit for information". This suggests a region's entrepreneurship culture may be traced to historical circumstances and that such a culture evolve in self-organized processes over time in response to initial conditions. We do however know enough about the link between region's historical industry structures and present-day levels of entreprepreneurial activity to suggest that historical local industry structures appear to be one factor shaping the entrepreneurial character of a region.

Alfred Marshall (1920) identified what he called "industrial districts", where knowledge is refined over time in a social process (IV.X.3):

Good work is rightly appreciated, inventions and improvements in machinery, in processes and the general organization of the business have their merits promptly discussed: if one man starts a new idea, it is taken up by others and combined with suggestions of their own; and thus it becomes the source of further new ideas.

Table 1 Alfred Marshall's observations of localization of industry and early initial conditions

	Industry	Initial condition(s)
Staffordshire	Pottery	Cheap coal, high-quality clay
Bedfordshire	Straw plaiting	The right type of grass: thin enough to plait, strong enough to hold
Buckinghamshire	Chair making	Beech wood
Sheffield	Cutlery	Excellent grindstone material

Source: Marshall (1920, IV.X.2)

In Marshall's analysis, the initial conditions were conceived of as mainly geographic in nature. Natural preconditions had motivated some initial investment. Then skills attract complementary skills. Some industrial districts originally considered by Marshall are presented in Table 1.

Entrepreneurial places naturally tend to diversify their industrial structure over time by branching out in related activities (Neffke et al. 2011). Jane (1969) departed from (unplanned) import substitution, where cities grow more productive by gradually replacing production that used to be imported from other places. The Jacobs process leads to increased scope for division of labor and rapidly expanding local diversity. She also analyzed decline in a similar setting; see for instance Jacobs (1969, pp. 122) for an early analysis of the rise and subsequent decline of Detroit. Jacobs was an early proponent of the view that local competitiveness is related to the ability of a place to generate *new* economic activity, which is now common in the literature and linked to the entrepreneurial character of places.[2] However, new economic activity can be stifled by current economic activity.

Following the idea that one historical root of the entrepreneurial character of place is industry, Chinitz (1961, p. 284) claimed that the supply of entrepreneurship of an area is influenced by"certain traditions and elements of the social structure which are heavily influenced by the character of the area's historic specializations". He then went on to discuss the differences between steel and apparel industries, where the former is historically more tied to large firms and the latter to small-scale businesses. A larger density of small-scale industries, he claimed, is more likely to produce a social environment conducive for entrepreneurship. He saw the social environment as being linked to ease of entry and hypothesized that"there is an aura of second-class citizenship attached to the small businessman in an environment dominated by big businesses" and that"the ease of entry, to borrow a concept from industrial organization, is considerably greater in an environment dominated—not

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[2] Jacobs has come to represent the "diversity" view of regional growth and development. Conversely, Marshall has been associated with gains derived from "specialization" of local communities. Marshall, however, specifically pointed out that specialization is a high-risk strategy, particularly in the long run. Rather, the development of partially overlapping industries would maximize long-term growth (Marshall 1920, IV.X.4): *A district which is dependent chiefly on one industry is liable to extreme depression, in case of a falling-off in the demand for its produce, or of a failure in the supply of the raw material which it uses. This evil again is in a great measure avoided by those large towns or large industrial districts in which several distinct industries are strongly developed.*

dominated to be more exact—by small firm industries" (ibid. p. 285). Chinitz argued that these considerations constitute an important explanation for the difference in entrepreneurial character between New York and Pittsburgh.

There is growing evidence in favor of Chinitz's hypothesis. Regions with a history of dependence on one or a few large employers, such as large-scale manufacturing like mines, coalfields and shipyards, which are thus likely to have developed a culture of labor rather than entrepreneurs, appear to be less entrepreneurial even in modern times. Following Chinitz's (1961) analysis, Glaeser et al. (2015) use distance to mining sites in 1900 as an exogenous instrument that is strongly correlated with modern-day average firm size. Stuetzer et al. (2016) conduct an analysis for regions in Great Britain and use distance to coalfields as an exogenous instrument for the regional presence of large-scale industries. A main finding in their analysis is that regions which had a greater concentration of workers in large-scale industries in the nineteenth century have lower entrepreneurship rates and weaker entrepreneurship culture today. These results are robust to competing explanations and several confounding factors.

Strong industrial cultures may be perceived of as 'gifts from the past' for present-day policy makers, and the influence of policy today may be contingent upon a region's entrepreneurship culture. However, over longer time horizons, there is an interplay and interaction between local culture, industry and policy, and policy can beget entrepreneurial attitudes and behaviors.[3] For instance, when the Swedish town of Borås received town privileges in 1622, the town's travelling merchants (*knallar*) received unique permission to trade with other localities through an institutional reform that sparked a culture around textiles that is still a powerful local influence (Johnson 2008; Schön 2000). The "cultural" component of this process may be illustrated by the fact that the merchants had a secret language (known as *Månsing)* that subsequently contributed several slang words to Swedish (Johnson 2008). Another historical example is the city of Eskilstuna. Following a royal initiative in 1654, the Swedish city Eskilstuna received inflows of skilled blacksmiths from the Netherlands and Germany. This event took place too early in Sweden's development to produce immediate effects, but in 1771 parts of Eskilstuna abolished the guild system; local blacksmiths did not have to be members of a guild to carry out their trade and were excised of duties and certain taxes. Eskilstuna became the primary spot for refinement of iron in the country. The city produced, via the local firm Munktells, Sweden's first mechanic loom (1835), steam train (1853) and tractor (1913). But the city's entrepreneurs have also innovated on the consumer side through the national hardware chain Järnia, and the city is still famous for cutlery making and other fine crafts. (Johnson 2008, pp. 316–321).

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[3] Marshall (1890) did consider the "public policy" that could achieve critical mass at his time of writing, namely patronage of the Court. Wealthy individuals frequenting the Court will demand goods of high quality, of the sort that could only be produced by a small number of skilled people. Therefore, craftsmen agglomerated around the Courts on their own accord. It was also common for wealthy rulers to simply invite people possessing competences that were in high demand, and to bring artisans with complementary skills together. Marshall remarked that such a process could make industrial districts self-sustaining over time, even if the local Court moved.

The examples illustrate that a local culture may be both cause and by-product, as local entrepreneurs and businesses are standing on the shoulders of their predecessors. From this perspective, local entrepreneurship cultures are clearly important for regional development, but their consequences for policy is complicated by a myriad of intricacies of time and place (cf. Rodríguez-Pose 2013).

2.2 Social interactions and the formation and persistence of local entrepreneurship cultures

The tendency for individuals to acquire common behaviors of surrounding agents is what anthropologists refer to as "conformist transmission" (Henrich & Boyd 1998). For cultural evolution to occur, behavior must be both *persistent*, and *transmitted* through some mechanism 'from affected to non-affected' (Boyd & Richerson 1996). The exact micro-foundations of such a process are difficult to pin down. A culture may be defined as *"information that is acquired from other individuals* via *social transmission mechanisms"* where "information" in a very broad sense refers to *"what social scientists and lay people might call knowledge, beliefs, attitudes, norms, preferences, and skills"* (Mesoudi 2011, pp. 2–3).

There are indeed many proposed mechanisms for how entrepreneurship may be rooted in a regional culture. A unifying description holds that places with many established entrepreneurs seem to have developed more positive attitudes toward prospective new entrepreneurs, are dense in relevant (often industry-specific) knowledge flows and have enacted local policies conducive to entrepreneurship. Positive attitudes to entrepreneurship typically correlate with the quality of local public services, tax pressure and other determinants of productive entrepreneurship (Andersson & Henrekson 2015). These observations support the existence of feedback-effects between geography, industry and culture. For instance, geographic preconditions for mining communities could determine early industrial development, and influence attitudes to entrepreneurship through local industry (cf. Glaeser et al. 2015; Stuetzer et al. 2016).

A social multiplier is present in situations where actions of some individual influences the behavior of others (Glaeser et al. 2003).[4] The potential for social interactions to be productively realized decreases swiftly with distance (Glaeser 2000), which explains why many effects of social interactions are localized. One of Mesoudi's (2011) examples of cultural transmission of know-how is chopstick usage. Social interaction through imitation was key in the learning process historically. While it is fully possible to consciously *teach* the skill at a distance, at least to a targeted audience, it is straightforward to see how physical proximity can act as a lubricant in the transmission of such a skill, including spontaneously to a non-targeted audience. The necessity of face to face interaction increases the likelihood that knowledge of tools and techniques can be internalized in an area.

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[4] Social interaction has quantitatively important effects on a wide array of societal issues with a regional dimension, including unemployment (Topa 2001) and crime (Glaeser et al. 1996).

There are many ways in which social interaction effects may materialize in the context of entrepreneurship. Andersson et al. (2016) propose to classify social interactions into peer effects and learning on the one hand, and imitation and emulation on the other. An example of a social interaction mechanism that is particularly effective for transmission of entrepreneurial values is (local) role models (Bosma et al. 2012; Giannetti & Simonov 2009; Wyrwich et al. 2015). Role models are an intuitive vehicle, since there is an obvious imitation mechanism at play, but in principle many social mechanisms could create similar feedback effects (Minniti 2005).

Wolfe and Gertler (2006) assert that for something to trigger development involving entrepreneurship "what is required is some external shock to the regional economy that dramatically alters the opportunity cost for entrepreneurship and new firm formation" (ibid, p. 251). But over long time periods, social interaction may explain extremely segregated outcomes through path-dependent processes, even for small differences in initial conditions, e.g., as described in the seminal segregation work by Schelling (1971), or as illustrated by the "information cascades" described in Bikhchandani et al. (1992). If a person decides to become an entrepreneur, then the decision has a direct effect on the aggregate number of entrepreneurs, but also a ripple effect via e.g., role model effects. If the local stock of entrepreneurs exerts a (any) net feedback effect, then a growing stock will produce additional new entrepreneurs, predicting exactly the type of outcome outlined above: strong persistence within the local culture, neighborhood or peer group.

Over time, social interactions could result in a type of local social capital that may be either entrepreneurship-inhibiting or entrepreneurship-facilitating. In the words of Westlund and Bolton (2003), social capital forms part of a locality's "place surplus". Such social capital not only exerts an influence on entrepreneurial attitudes and behavior of individuals, but could also influence the quality of local service provision and the 'business friendliness' with which regulations are interpreted and enforced. Andersson and Henrekson (2015) show that in Swedish municipalities where the public's perceived attitudes to entrepreneurship are low, entrepreneurs are less satisfied with local services, and that this figure varies substantially across regions. Westlund et al. (2014) demonstrate that in the top end of that distribution, where local entrepreneurs perceive positive attitudes from the public at large, new firm formation is markedly higher across industries.

The social capital gradually built from the bottom-up by social interaction may span much larger areas than an individual mechanism and be much more persistent. This is particularly true since attitudes are transformed into the political arena through the ballot box and direct participation in the political process.[5] This implies that the entrepreneurial character of place over time may be 'built into' the local organizations and institutions of a locality (cf. Westlund and Bolton 2003). This is one of the ways in which the effects of institutions may substantially outlive the people that first gave rise to them. Hence, turning a 'failing' local culture around is

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[5] In fact, the original conception of a "neighborhood effect" was the study of convergence in local voting patterns (Durlauf 2004).

about more than changing attitudes, since local institutions are likely to change even more slowly (i.e., be even more *persistent*).

3 Entrepreneurship cultures:examples from Sweden

3.1 A tale of two cities: Norrköping and Linköping

Linköping and Norrköping are two Swedish cities of about 100 000 inhabitants. They are situated 25 miles apart, about a two-hour drive south of Stockholm. Fredin and Jogmark (2015, 2017) study the development of these two neighboring (and by Swedish standards relatively large) cities over the twentieth century. Through interviews with local entrepreneurs at different key stages in the cities' developments, they conclude that cultural differences have had far-reaching consequences for local industry growth. Their key findings are summarized in Table 2.

Linköping, barely a town in the early twentieth century, is now a hub of innovation and home to one of Sweden's leading universities. Norrköping, a rather large urban core in the beginning of the twentieth century by Swedish standards, instead faced a century of relative decline, and absolute decline after around 1970. Parallel with this development, distinct cultures developed in response to the local industries. Today, the differences manifest themselves in the fact that Linköping's local economy is characterized by many smaller firms, while Norrköping is dominated by large-scale manufacturing firms. The analysis by Fredin and Jogmark (2015, 2017) in this way also stress the role of historical industry structure.

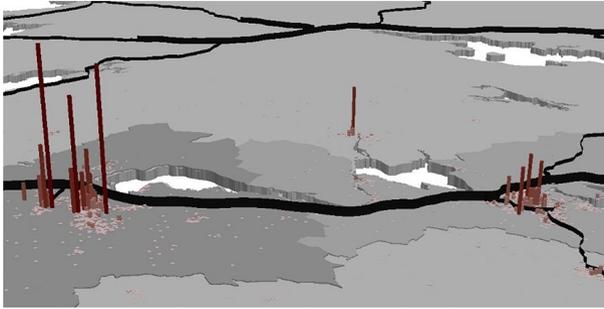The modern-day differences in entrepreneurship and innovativeness are illustrated in Fig. 1, where knowledge-intensive employment in Linköping (dark grey shaded area, left) and Norrköping (light grey shaded area, right) are contrasted. The figure is built on a grid of 1-by-1 km cells, and the height of each bar indicates the number of knowledge-intensive employees per square kilometer.

The local culture in Linköping began to change quickly after the establishment of a Saab aircraft construction plant in the late 1930s. As the new industry attracted skilled migrants from the entire country, Saab engaged with other local entrepreneurs to, among other things, establish Linköping University, which today is famous for cooperating with local industry in the production of innovative output. Within these technology-based social networks attitudes conducive to entrepreneurship were fostered. (Fredin and Jogmark 2015, 2017) Neffke et al. (2011) show that Linköping's new development paths have followed an evolutionary pattern of related variety, in technology fields that intersect the stock of existing knowledge.

Technological innovation is a strong determinant of Swedish between-region migration flows (Martynovich and Lundquist 2015). All other comparisons aside, such has generally also been the case for today's leading global clusters, including Hollywood (Scott 2006) and Silicon Valley (Kenney & Patton 2006). In fact, it has been claimed that among the researchers and engineers that kicked off the Silicon Valley cluster, *no one* grew up in the region (Carlsson 2006). Hence, Linköping's experience in attracting human capital from far outside the own region appears to be a general characteristic of growing entrepreneurial clusters (see also Carlsson 2006).

Table 2 Typical factors in the formation of local culture, from Fredin and Jogmark (2015, 2017)

	Local culture not conducive to entrepreneurship	Local culture conducive to entrepreneurship
Initial conditions	Early industrialization	Late industrialization
Characteristics of key players	Trade unions	Technology-based private company
Networking activities	Preserving existing structures: thick institutional tissues on the local and national levels	Creation of new local structures: expansion of the technology-based network
Composition of newcomers	From within the region	From other regions

Source: Reproduced from Fredin and Jogmark (2015, 2017)

Fig. 1 Knowledge-intensive employment in Linköping (dark grey shaded area, left) and Norrköping (light grey shaded area, right). *Note:* The bars are based on 1-by-1 km cells and indicate the number of employees in 1-digit ISCO-88 (1) Legislators, senior officials and managers, and (2) Professionals, incl. STEM/sciences. The black bands denote highways and other main roads

Norrköping's economy was dominated by the textile industry. Consistent with Marshall's predictions, the city's geography was instrumental in this development. Norrköping had ample differences in altitude, watercourses for manufacturing, and access to the Baltic. The other industries that were attracted (notably metal and pulp manufacturing) shared demand for similar inputs and infrastructure with the textile industry, and the city increasingly specialized in large-scale manufacturing. Size, not innovative techniques, was the main source of competitiveness. The in-migration experienced during the twentieth century predominantly came from within the own region (Fredin and Jogmark 2015, 2017).

In Norrköping, the unions stifled entrepreneurship, and the local politicians were stuck with the perception that the manufacturing sector would eventually turn things around. The intermingling of the unions and the Social Democratic Party (which ruled Sweden for most of the twentieth century) worked to conserve the existent industrial structure through national and regional policy. After some time, the local incentives were increasingly aligned to benefit the sort of industrial monostructures referred to above. This development in the short-term strengthened industries that were subject to quite similar demand. (Fredin and Jogmark 2015, 2017).

The main challenge for specialized twentieth century local economies was to manage an increasingly dynamic world economy. For Norrköping, international competition intensified substantially after the Second World War. Between 1950 and 1975, the relative price of textiles dropped by 40 percent (Gråbacke 2002). As international competition hollowed out local demand, Norrköping experienced a deep crisis (Fredin and Jogmark 2015, 2017). The sort of overlapping industries that Marshall had hoped would offer employment when the demand for other industries dropped off did not exist locally. As demand plunged, the textile union (with some success) lobbied the state to introduce tariffs and other trade barriers on textiles (Gråbacke 2002). The state also attempted to revive the local economy by locating government agencies there (Fredin and Jogmark 2015, 2017).

The history of these two cities illustrate how entrepreneurship cultures are formed, but also how local institutions are shaped in interaction with local industry
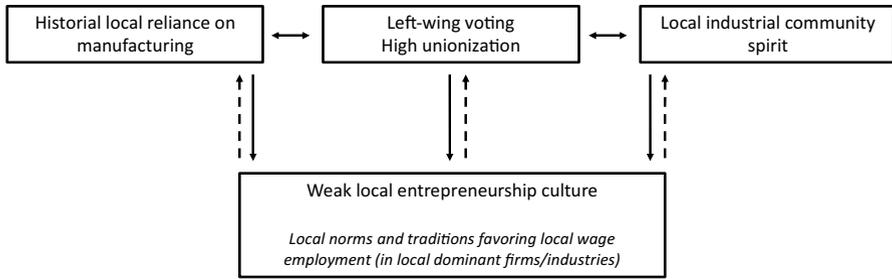
Fig. 2 Conceptual model of local entrepreneurship culture

and policy makers. The story also provides an example of how state intervention can support local entrepreneurship. The Linköping case clearly illustrates how the incentives of firms and local industry can be aligned with those of the members of society at large, for instance in the local provision of human capital. History also points to quite a few lessons in terms of how misguided and large-scale intervention can have a negligible, or negative, effect on local industry. Norrköping's experience was with the textile industry, but the rest of the country had similar experiences in other industries that also tended to dominate entire local economies. A case in point is the ship-building industry that by the second half of the 1970's received state subsidies that often exceeded the corresponding wage costs per employee (Myhrman 2003, p. 193).

Fredin and Jogmark (2015, 2017) further reveal how everyday social interactions influenced entrepreneurship through attitudes; e.g., a local entrepreneur in Linköping reminisces how, in the 1980s, "entrepreneurs were celebrated like rock stars or astronauts," whereas the Norrköping entrepreneurs describe how they developed into "our own little group", despite seeking support from local politicians and public service providers initially.

3.2 Empirical regularities across Swedish municipalities

The above discussion leads to a conjecture: there seems to exist a dynamic relationship where early industrial development together with political-institutional developments affect future entrepreneurship, and likely also the perception of entrepreneurs in the local economy. In this section we explore these links, by analyzing data on voting for left-wing alternatives in political elections between 1917 and 1948 as well as data on manufacturing employment before 1960. We investigate the links between these variables and three modern-day outcomes: i) new firm formation, ii) mean establishment size, and iii) measurement of the public's attitudes toward entrepreneurship.[6]

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[6] The historical voting data are drawn from www.ortshistoria.se, and the data on public attitudes come from the Swedish Confederation of Enterprise (https://www.foretagsklimat.se).

3.2.1 Main idea

The underlying conceptual model for the empirical analysis is presented in Fig. 2. Historical reliance on manufacturing is often associated with an historical local reliance on large local employers in a limited set of industries. There is also arguments in favor of that such a local industry structure is connected to an historically high vote share of the of the SAP and the Communist Party (SKP, today the Left Party) in local elections (i.e., left-wing vote share). The historical average vote share of SAP and SKP is linked to historical industry structure in the sense that municipalities with high vote shares for these parties typically relied on large-scale employers and had a large rate of membership in unions. They are municipalities in which the 'norm' historically was to be an employee, typically in large-scale employers, rather than being an entrepreneur.[7] Such local norms are often referred to as "bruksmentalitet" in Sweden (a form of local industrial community spirit or mentality). As emphasized by Westlund (2006), it was often (perhaps implicitly) in part supported by both local trade unions as well as local dominants firms, where the latter wanted to keep their local monopoly power. That is, lack of local entrepreneurship culture in places with such characteristics could be argued to be a result of local norms, social capital and informal institutions, created in part by both dominant employers and trade unions.

The purpose of the empirical analysis in this section is to test the empirical relevance of arguments that such historical roots leave footprints in present-day entrepreneurial activities in Swedish municipalities. We stress that a causal analysis, or even a Granger-type analysis of 'what came before what' would require much more detailed data sources. Our only interest below is to tentatively illustrate the empirical relevance of arguments reviewed up to this point.

3.2.1.1 Results We begin by presenting some empirical regularities across Swedish municipalities to illustrate the empirical relevance of arguments and examples presented above. We investigate this link further later on in the empirical analysis. Voting data in the form of avergae vote share of the SAP and the Communist Party (SKP, today the Left Party) in local elections (i.e., left-wing vote share). between 1917 and 1948 are available for 126 out of 290 municipalities (covering 75 percent of the modern-day national population). The average left-wing vote share ranges from a low of 27 percent to a high of 87 percent (Table 1).

Allow us to stress again, that the focus here is to illustrate some broad historical patterns relative to modern-day outcomes; not to make causal claims about effects of left wing voting. Figure 3 presents the relationship between left-wing votes 1917–1948 and average yearly new firm formation rates 1990–2010. Clearly, local communities with an early twentieth century record of voting for left-wing parties have lower new firm formation rates about half a century later.

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[7] For a review of Swedish policy and the perception of entrepreneurs and entrepreneurship in Swedish policy, SAP in particular, see e.g., Henrekson (1996) and Henrekson and Jakobsson (2001).
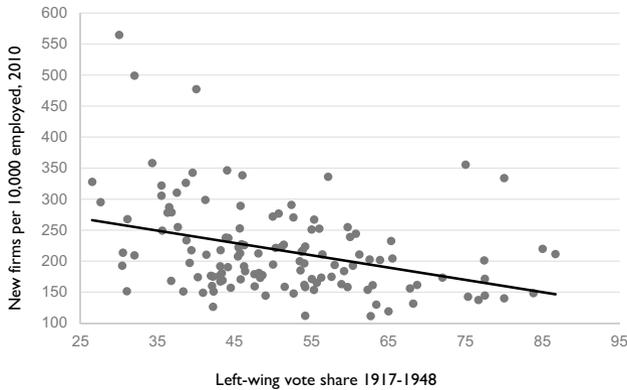
Fig. 3 Left-wing voters in local elections 1917–1948 vs. new firm formation rates per employed, 2010

Fig. 4 Left-wing voters in local elections 1917–1948 vs. local entrepreneur's perceptions of public's attitudes, 2010

Attitudes to entrepreneurship may also be measured directly using modern data. This route is taken in Fig. 4 where the historical left-wing vote is plotted against local business leaders' perceptions of local public attitudes to entrepreneurship; the data come from the confederation of Swedish enterprise. Although this relationship is statistically weaker, it is decidedly negative. Municipalities that had relatively high shares of votes cast for left-wing parties before the Second World War tend to exhibit lower modern-day perceived attitudes toward entrepreneurship.

In order to test if these patterns are robust to the inclusion of basic confounding factors, Tables 3, 4, 5 present results from OLS-regression with each respective dependent variables mentioned above, i.e., (i) average start-up rate per employee in 2010, (ii) local entrepreneurs' perceptions of the local public's attitudes toward entrepreneurship in 2010 and (iii) average mean establishment size in 2010. Our analysis includes two variables of interest:

Table 3 Start-up rates and history across municipalities in Sweden

Dependent variable: Rate of new firm formation per 10,000 inhabitants, 2010	(1)	(2)	(3)	(4)	(5)
Left-wing vote share before 1950	−1.986***		−1.042***		−0.113
	(0.475)		(0.288)		(0.416)
Manufacturing 1900–1960		−235.1***		−149.6***	−140.2***
		(52.38)		(31.09)	(46.59)
Population density (ln) in 1900			3.592	5.835	5.747
			(3.928)	(3.834)	(3.863)
Employment density (ln)			−222.6***	−237.5***	−235.7***
			(21.76)	(20.44)	(21.47)
Total population (ln)			215.6***	227.6***	226.2***
			(23.72)	(22.49)	(23.20)
Share highly educated			717.6***	578.2***	583.3***
			(94.07)	(99.14)	(101.3)
Share 35–54			1,574***	1,305***	1,345***
			(420.9)	(384.9)	(413.8)
Share 55–74			999.1***	691.4***	711.9***
			(243.7)	(241.7)	(254.1)
Share 75+			−50.92	36.98	41.91
			(390.5)	(376.7)	(378.7)
Employment share			−13.18	72.20	60.84
			(106.9)	(97.25)	(106.2)
Constant	318.8***	326.9***	−582.7***	−468.3***	−476.0***
	(24.99)	(25.14)	(170.0)	(165.0)	(168.1)
Observations	126	126	124	124	124
R^2	0.124	0.140	0.789	0.804	0.804

Note: Robust standard errors in parenthesis. All variables are recorded in the same year (2010) as the dependent variable except for the historical variables. Bivariate correlation Left-wing vote share before 1950 and Manufacturing 1900–1960 = 0.735. Statistical Significance is reported at 1, 5 and 10 % (***, ** and * respectively)

- Fraction of left-wing voters 1917–1948
- Fraction of employment in manufacturing industries over the period 1900–1960

  Fraction of employment in manufacturing industry 1900–1960 is intended as a measure of historical industry structure and, in particular, of early industrial development. As expected, the correlation between this variable and the fraction of historical left-wing voters is strong and amounts to 0.75. While manufacturing is a more direct measure of industry structure, we consider the voting variable as a more direct measure of historical attitudes toward entrepreneurs and entrepreneurship. Further, we include an additional six control variables, all more or less standard in the literature:

- Population density (log) in 1900
- Employment density (log) in 2010
- Fraction of population with a university education of at least three years (high education) in 2010.

Table 4 Public atttitudes to entrepreneurship and history across municipalities in Sweden

Dependent variable: Public's perceived attitudes to entrepreneurship, 2010	(1)	(2)	(3)	(4)	(5)
Left-wing vote share before 1950	−0.00615*** (0.00209)		−0.00452** (0.00184)		−0.00588** (0.00275)
Manufacturing 1900–1960		−0.437* (0.238)		−0.284 (0.210)	0.206 (0.309)
Population density (ln) in 1900			0.0911*** (0.0251)	0.0925*** (0.0259)	0.0879*** (0.0256)
Employment density (ln)			−0.109 (0.139)	−0.180 (0.138)	−0.0900 (0.142)
Total population (ln)			0.0673 (0.151)	0.127 (0.152)	0.0517 (0.154)
Share highly educated			1.366** (0.601)	1.299* (0.669)	1.563** (0.671)
Share 35–54			3.221 (2.687)	1.465 (2.599)	3.556 (2.740)
Share 55–74			−4.265*** (1.556)	−4.908*** (1.632)	−3.843** (1.683)
Share 75+			2.322 (2.493)	1.930 (2.544)	2.186 (2.508)
Employment share			2.529*** (0.682)	3.010*** (0.657)	2.420*** (0.703)
Constant	4.160*** (0.110)	4.049*** (0.114)	1.997* (1.086)	2.242** (1.114)	1.840 (1.113)
Observations	126	126	124	124	124
R-squared	0.065	0.026	0.508	0.491	0.510

Note: Robust standard errors in parenthesis. All variables are recorded in the same year (2010) as the dependent variable except for the historical variables. Bivariate correlation Left-wing vote share before 1950 and Manufacturing 1900–1960 = 0.735. Statistical Significance is reported at 1, 5 and 10 % (*** ** and * respectively)

- Total population (log) in 2010
- Shares describing the age structure of the municipality in 2010.
- Employment share in 2010.

Tagen together, these factors control for size, degree of urbanization, human capital, age structure and characteristics of the labor market. The first results, with new firm formation, are presented in Table 3.

The results in Table 3 for start-up rates in modern times show that the negative association between historical left-wing votes and present-day start-up rates are robust to inclusion of the control variables. However, once controlling for historical concentration of manufacturing, the voting variable becomes statistically indistinguishable from zero. This suggests that left-wing voting do proxy

Table 5 Mean establishment size and history across municipalities in Sweden

Dependent variable: Mean establishment size, 2010	(1)	(2)	(3)	(4)	(5)
Left-wing vote share before 1950	0.0607*** (0.0136)		0.0436*** (0.00875)		0.0223* (0.0128)
Manufacturing 1900–1960		4.583*** (1.577)		5.079*** (0.972)	3.225** (1.438)
Population density (ln) in 1900			−0.157 (0.119)	−0.224* (0.120)	−0.207* (0.119)
Employment density (ln)			7.208*** (0.660)	7.848*** (0.639)	7.509*** (0.663)
Total population (ln)			−7.392*** (0.720)	−7.921*** (0.703)	−7.636*** (0.716)
Share highly educated			−2.209 (2.855)	1.881 (3.100)	0.880 (3.126)
Share 35–54			−24.66* (12.78)	−11.49 (12.04)	−19.40 (12.77)
Share 55–74			−8.456 (7.397)	2.183 (7.558)	−1.848 (7.844)
Share 75 +			−38.79*** (11.85)	−39.96*** (11.78)	−40.93*** (11.69)
Employment share			−3.679 (3.244)	−7.617** (3.041)	−5.382 (3.278)
Constant	4.330*** (0.715)	5.295*** (0.757)	29.07*** (5.162)	25.09*** (5.160)	26.61*** (5.190)
Observations	126	126	124	124	124
R-squared	0.139	0.064	0.764	0.768	0.774

Note: Robust standard errors in parenthesis. All variables are recorded in the same year (2010) as the dependent variable except for the historical variables. Bivariate correlation Left-wing vote share before 1950 and Manufacturing 1900–1960 = 0.735. Statistical Significance is reported at 1, 5 and 10 % (***, ** and * respectively)

historical industry structure, but when it comes to explaining present-day start-up rates, it is industry structure as such that matters. It may also be noted that the rather minimal empirical model in the table can account for (or "explain) 80% of the variance in average start-ups rates across municipalities in Sweden.

Table 4 shows that when it comes to public attitudes, historical left-wing voting remains statistically significant and negative in all specifications, even after including historical manufacturing concentration. The latter variable, in turn, performs rather poorly in explaining these attitudes. Clearly, the historical left-wing voting variable is more apt to capture present-day attitudes toward entrepreneurs and entrepreneurship.

The results for present-day mean establishment size (Table 5) also show that municipalities with historical left-wing voting today often have a local industry structure with large-scale establishments. In this case, both the manufacturing variable and the voting variable remain statistically significant in the fully

specified model, although the latter is only statistically significant at the 10% level.

4 Conclusion

The empirical observation that entrepreneurship rates are geographically persistent for long time periods as well as case-based evidence have sparked a rejuvenation of interest in which types of local milieus that are conducive to entrepreneurship. This paper has discussed how such local entrepreneurship cultures evolve and provide some examples and empirical regularities from Sweden.

Our assessment of research findings and theoretical perspectives suggests that local entrepreneurship cultures evolve in the intersection of historical antecedents and triggering events. In the evolution of the entrepreneurial character of places, we are likely to see divergence, as local attitudes to entrepreneurship, local services, as well as local intergenerational transfers of entrepreneurial skills move in a similar direction. The examples and mechanisms discussed in the paper suggest that regions and local areas are truly different, and the entrepreneurial character of a region may be understood as a myriad of intricacies of time and place (cf. Rodríguez-Pose 2013). However, a rather robust finding that emerges from the literature is that historical industry structure does play an important role in shaping local entrepreneurship outcomes as well as attitudes toward entrepreneurship.

The analyses in this paper point to empirical regularities across Swedish municipalities that are in line with this narrative. Swedish municipalities with a history of left-wing voting in 1917–48, an indicator related to large-scale employment, unionization and a norm for employment rather than self-employment, still today exhibit lower new firm formation rates, and lower public attitudes to entrepreneurship. The data presented in our paper show a historical importance of the manufacturing and historical voting patterns on aspects of current entrepreneurship across places. It must be recognized that the regional antecedents discussed here may represent aspects of what could be called an entrepreneurship culture, but they are not necessarily the origin of such a culture. It is, and will remain, difficult to pinpoint a starting point for such a culture. In this paper, we have reviewed developments as far back as the 1600 s that could credibly constitute relevant antecedents of entrepreneurship cultures, making choices of historical circumstances and their timing an issue of utmost relevance. Moreover, relevant "starting points" are of course different across regions. Furthermore, although being a standard approach in the literature, current start-up rates and attitudes do not necessarily measure an entrepreneurship culture, but they are also influenced by current characteristics of places.

Against this backdrop, we emphasize that the conditional correlations reported in the paper should not be interpreted as evidence of causal relationships. Instead, they show empirical regularities consistent with the argument that regions' historical industry structures represent one channel through which local entrepreneurship cultures may influence present-day rates of new firm formation in regions. We hope that these results, combined with the overview of perspectives on the formation and persistence of local entrepreneurship cultures, inspire future research on these issues

which further advance our understanding of how and why local entrepreneurship cultures develop and persist, as well as how policy can be designed to boost entrepreneurial activitiy in regions with different entrepreneurship cultures.

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