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IFN Working Paper No. 1280, 2019

Intrapreneurship and Trust

Niklas Elert, Erik Stam and Mikael Stenkula

Intrapreneurship and trust[‡]

Niklas Elert^{a*}, Erik Stam^{b**} and Mikael Stenkula^{a***}

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Abstract: Trust and entrepreneurship are seen as key ingredients of long-term prosperity. However, it is not clear how these two are related. Part of the confusion can be traced back to the measurement of entrepreneurship, biased towards independent entrepreneurship (self-employed and new firms), and excluding entrepreneurship within established organizations. We shed new light on the relationship between trust and entrepreneurship, by proposing two mechanisms relating trust to entrepreneurship by employees, so-called intrapreneurship. We hypothesize that generalized trust influences the prevalence of intrapreneurship in an economy, and the allocation of entrepreneurial talents between independent entrepreneurship and intrapreneurship, through two mechanisms. First, generalized trust may substitute for complete contracts as a means of organizing labor in society, enabling a level of job autonomy in organizations necessary for intrapreneurship to flourish. Second, by way of its influence on the size and scope of the welfare state, generalized trust may increase the benefits of employment relative to self-employment, causing entrepreneurial individuals to elect to be intrapreneurs rather than independent entrepreneurs. Using a novel dataset, we find support for these hypotheses in a cross-country regression model covering the time period 2011–2017.

Keywords: trust, intrapreneurship, entrepreneurship, entrepreneurial behavior, institutions, job autonomy, welfare state

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1. Introduction

Independent entrepreneurship has received massive attention in the academic literature because of its promise to stimulate economic development, building on a legacy going back to Schumpeter (1934). However, over the last decades, we have learnt that not all independent entrepreneurship is productive (Shane 2009). In fact, most firms do not grow at all (Davidsson and Delmar 2006), and most entrants die young (Delmar and Wennberg 2010). There is also an increasing recognition that the entrepreneurial function need not be filled by independent entrepreneurs but can just as well be filled by entrepreneurial employees, also called *intrapreneurs*.

That this phenomenon has previously been overlooked may be due to the Schumpeterian legacy of seeing entrepreneurs/innovators as founders of private kingdoms (Schumpeter 1934), predominately by creating new firms. However, already in Schumpeter (1934, p. 74–75), he characterized entrepreneurs as “[...] not only those ‘independent’ businessmen in an exchange economy who are usually so designated, but all who actually fulfill the function by which we define the concept [of entrepreneurship], even if they are, as is becoming the rule, ‘dependent’ employees of a company [...]”. Increasingly he came to think of entrepreneurship as a function – that of innovating/making new combinations – which “may be and is often filled co-operatively. With the development of the largest-scale corporations this has evidently become of major importance” (Schumpeter 1989 [1949], p. 261). Big firms, Schumpeter believed, had the means necessary to stimulate the entrepreneurial function in their employees (Becker et al. 2011, p. 18–19), or what we would now call intrapreneurship.

Parker (2011, p. 19) defines intrapreneurship as “the practice of developing a new venture within an existing organization, to exploit a new opportunity and create economic value.” In the management literature, the phenomenon has been studied under the umbrella of corporate entrepreneurship (Burgelman 1983; Zahra 1991; Zahra & Covin 1995; Sharma & Chrisman

1999; Antoncic & Hisrich 2001), and corporate venturing (Burgelman 1983; Miles & Covin 2002), providing a strong knowledge base on the organizational antecedents and consequences of the entrepreneurial orientation and behavior of firms (Kuratko 2007). Less is known, however, about the societal antecedents and consequences of intrapreneurship; notably, while the few prior studies that exist suggests that proximate causes of economic growth like human capital are positively related to intrapreneurship (Stam 2013; Bosma et al. 2018), the effects of more fundamental, institutional causes have yet to be investigated. Arguably, this dearth of knowledge relates to the fact that until recently, there was no large-scale data collection to verify the prevalence of intrapreneurship across countries, and over time.

Academically, this research gap is problematic since it suggests that there has been too much focus on the causes and consequences of entrepreneurial behavior of independent firms and start-ups, at the expense of entrepreneurial behavior in other organizational settings (Foss et al. 2007; Sorenson and Fassiotto 2011; Stam 2013). Acknowledging the gap and shifting the focus from independent entrepreneurship to intrapreneurship may, for example, make it necessary to reexamine the relationship between the welfare state and entrepreneurship, and arguments that key welfare state institutions reduce economic incentives for entrepreneurship (Henrekson 2005; McMullen et al 2008). More generally, this acknowledgement is an important step toward furthering our knowledge of the prevalence of intrapreneurship in societies, thereby helping us refine institutional theory on the allocation of entrepreneurial talent in society (Baumol 1990). Ultimately, this could yield a greater understanding of what factors determine whether entrepreneurial activity is undertaken by independent entrepreneurs or by employees within existing firms.

This study aims to fill a part of the identified research gap. To do so, we revisit the role of that generalized trust plays as a fundamental, institutional cause with great relevance for economic development (see e.g., Zak and Knack 2001; Bjørnskov 2012), theorizing that it may

be an important factor explaining the variation in intrapreneurship between countries. Countries characterized by high trust between individuals—like the Nordic countries—have been shown to have a high proportion of intrapreneurs, and trust has previously been identified as a crucial determinant for the prevalence of large firm organizations in the economy (e.g. La Porta et al. 1997). Intrapreneurship may be the missing link that explains why trust is so essential in such contexts. Drawing on theoretical insights and previous empirical evidence, we hypothesize that generalized trust influences intrapreneurship through two mechanisms. A first mechanism is the role of generalized trust in lowering the risk of opportunistic behavior within organizations, which lessens firms' need for complete contracts (La Porta et al. 1997), thereby facilitating greater job autonomy of employees, which should enable them to be more creative and entrepreneurial; research on entrepreneurial motivation suggests that autonomy, rather than financial gain, is rated as the most important motive for starting a business (Shane et al. 2003; Van Gelderen and Jansen 2006). A second mechanism concerns the positive effect of generalized trust on the (scope and extent of the) welfare system, which is often biased toward employees, increasing the opportunity costs of leaving a situation of employment for self-employment (Henrekson 2005; Hessels et al 2007). These opportunity costs cause relatively more entrepreneurially individuals to choose intrapreneurship over independent entrepreneurship.

To examine these hypotheses, we develop a cross-country regression model over the period 2011–2017. Results reveal a distinct, positive association between generalized trust and intrapreneurship, and lend support to the notion that trust mainly affects intrapreneurship through its effects on job autonomy and the welfare state. Our results lend support to a more complex view of entrepreneurial activity in the economy that includes both independent entrepreneurs as well as entrepreneurial employees. Ignoring the last category may give policy makers false and deceptive impressions about the extent and causes of entrepreneurial activity.

From a policy point of view, it is important to understand that both the formal as well the informal institutions in a country may have profound effect not only on the prevalence of the total entrepreneurial activity but also on the allocation of this activity among independent entrepreneurship and intrapreneurship. Previous studies have shown that the prevalence of intrapreneurs oriented towards job generation is as high as the prevalence of independent entrepreneurs oriented towards job generation in OECD-countries (Bosma et al 2012; Stam and Stenkula 2017). From an innovation point of view, investments in knowledge also seem strongly related to intrapreneurship, suggesting that intrapreneurship is an important means to turn knowledge into useful applications in society (see also Stam 2013).

2. Intrapreneurship

Entrepreneurship, rather than having to do with a specific type of firm or occupation, is best construed as a function (Schumpeter 1934), a type of behavior (Sternberg & Wennekers 2005), or a process (Shane & Venkatamaran 2000). Here, we follow Henrekson & Stenkula (2016), who define entrepreneurship as the ability and willingness of individuals, *both independently and within organizations*,

- to identify circumstances and develop ideas perceived to be conducive of the creation of new economic activities (i.e., what is commonly referred to as discovering or creating new economic opportunities);
- to introduce their ideas in the market under uncertainty, making decisions regarding the location, product design, use of resources and reward systems; and
- to create value.

The definition is largely in line with the process definition of entrepreneurship by Shane & Venkatamaran (2000), and closely related to those by Wennekers & Thurik (1999) and Stam et al. (2011). Intrapreneurship, in our view, refers to the creation of new economic activities by

employees in existing firms. Both independent entrepreneurship and intrapreneurship, furthermore, unfold in a world plagued by the Hayekian knowledge problem, meaning that information is not only important and incomplete (and thus expensive) but also *tacit* and *dispersed* throughout the economy (Hayek 1945). In large measure, market processes have evolved to respond to the problem of how to navigate such a world and enable decentralized decision-making. Experimentation and testing serve as means for market actors to discard mistakes and erroneous judgments and learn what works. Hence, independent entrepreneurs in the economy act on local knowledge which is enhanced through learning and experimentation (Rosenberg 1992). Less appreciated is the corresponding existence of a Hayekian knowledge problem *within* firms, increasing with the size of the organization (Foss 1997). Due to its nature, entrepreneurs and managers cannot centralize the tacit knowledge held by employees, but in order to survive, firms must successfully coordinate their internally dispersed knowledge. In times of firm growth and development, this problem is of special significance (Sautet 2000).

Intrapreneurship can be analyzed or explained at three different levels: the individual level, the firm level, and at the level of the aggregate (regional, national) economy. At the *individual* micro level, one tries to explain why a person chooses to be an intrapreneur or behave entrepreneurially. Individual micro economic studies include Bosma et al. (2010, 2011, 2012), Bager and Schøtt (2011), Parker (2011) and Nyström (2012). A common conclusion hints at the importance of human capital, since studies find that the probability of becoming an intrapreneur increases with knowledge or education level.

At a *firm* micro level, researchers try to explain why some firms are more entrepreneurial than others and what the individual firm can do to stimulate intrapreneurship within the company. Within management literature this issue is often investigated under the heading “corporate entrepreneurship” (see e.g., Burgelman 1983; Zahra 1991; Zahra & Covin 1995;

Sharma & Chrisman 2007), and studies often highlight the organizational structure and business culture.

Finally, the prevalence of intrapreneurship can be analyzed at the aggregate level of the economy. As mentioned, systematic aggregate analyses of *intrapreneurship* are largely missing. An exception is Stam (2013), who, undertaking the first large-scale cross-country level analysis of intrapreneurship, focuses on the knowledge level in the economy as a potential explanation for (part of) the difference in the prevalence of intrapreneurship between countries. A more recent example includes is a study Bosma et al. (2018) on the determinants of different types of entrepreneurship, including intrapreneurship. The only significant effect they find is the importance of (perceived) skill to start a business. Proximate causes of economic growth, like human capital, have been found to be positively related to intrapreneurship. Our interest in this paper is to drill deeper and consider more fundamental, institutional causes, trust in particular.

3. Intrapreneurship across Countries: The Role of Trust

3.1 Trust and entrepreneurship

From an economic point of view, trust can be defined as “the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespectively of the ability to monitor or control that other party” (Mayer et al. 1995). Trustworthiness is the opposite side of the coin: If most people in a country are trustworthy, trusting people is a good rule of thumb for economic agents as this will facilitate transactions and exchange in the economy. The calculation changes if most people are not trustworthy, as someone who trusts people is then likely to fall prey to opportunistic behavior (Butler et al. 2016); however, a mean national level of generalized trust that does not correspond to a mean level of trustworthiness is unlikely to be sustainable since

trusting people eventually adjust their beliefs downward (Bjørnskov 2007). That said, if a country has a sufficiently high proportion of trustworthy people, generalized trust among its population might spontaneously evolve, provided that people are rational and not too risk averse (Hardin 1996, p. 29). Hence, what matters is trustworthiness, with generalized trust (at the country level) being a good proxy for this phenomenon.

The most commonly used empirical measure of generalized trust is based on data from the World Value Survey where the proportion of people agreeing with the statement that “most people can be trusted” proxies for the level of trust within a society. Thus approximated, generalized trust has been shown to have a positive effect on macroeconomic outcomes such as growth and efficiency in the economy (see, e.g., Zak and Knack 2001; Glaeser et al. 2002; Sobel 2002; Beugelsdijk et al. 2004; Berggren et al. 2008; Bjørnskov 2012).

That said, social capital and general trust is a relatively new field of interest within entrepreneurship research (Kwon and Arenius 2010). While some studies find a positive relationship between trust and self-employment (Guiso et al. 2006; Kwon et al. 2013), and trust and a country’s entrepreneurial spirit (Kodila-Tedika and Agbor 2016) other findings point to a negative relationship (Doh and Zolnik 2011). Welter (2012) emphasizes the bright as well as dark sides of trust in relation to entrepreneurship, arguing that trust can breed corruption, privilege some groups at the expense of others, and contribute to lock-in effects and overconfidence.

Nevertheless, there are reasons to think that generalized trust encourages entrepreneurial activity (broadly defined) in several ways that help alleviate the Hayekian knowledge problem. First, trust facilitates the flow of information (across groups) in society (cf. Tsai and Ghoshal 1998). With a high level of generalized trust, people will interact more with people who may be different from themselves, causing more information to flow between entrepreneurs, (potential) customers, employees, and investors. This increases the perception and recognition

of entrepreneurial opportunities (Kwon and Arenius 2010; Kwon et al. 2013). Secondly and relatedly, generalized trust reduces conflicts (across groups) and increases cooperation between individuals and groups in the economy, thus facilitating the exploitation of entrepreneurial opportunities as negotiations and collaboration are often involved in this process (Kwon and Arenius 2010).

Third, generalized trust can help entrepreneurs overcome a legitimacy problem related to a lack of recognizability and established reputation. High trust (and trustworthiness) may make customers, suppliers and investors more inclined to interact with small or unestablished firms without a proven track record (Kwon et al. 2013). Fourth, many deals made by entrepreneurs are informal, “made just by shaking hands” (Guiso et al. 2006). Hence, entrepreneurs often need to rely on generalized trust, suggesting that trustworthy individuals have a comparative advantage in becoming—and surviving—as entrepreneurs. Conversely, corruption seems to decrease the prevalence of entrepreneurship through its detrimental effect on trust (Anokhin and Schulze 2009).

Generalized trust and intrapreneurship have seldom been analyzed together. Nonetheless, the aforementioned mechanisms relating trust to independent entrepreneurship also seem to have validity when it comes to relating trust and intrapreneurship—after all, trust among citizens enables (large scale) human cooperation, including multi-person firms (Fukuyama 1995; La Porta et al 1997; Rose 2012). That said, there are additional reasons to think that trust positively influences intrapreneurship. Below, we highlight and develop hypotheses regarding two mechanisms which we deem to be of special importance.

3.2 Trust, job autonomy, and intrapreneurship

Independent entrepreneurship is stimulated if (potential) business owner-managers are able to act (e.g., start business, expand business or change business orientation according to perceived business opportunities) based on the information that they possess. Intrapreneurship should be stimulated if employees are able to do the same. Yet as mentioned, the Hayekian knowledge problem exists both outside and within organizations, especially if they are large (Foss 1997; Sautet 2000). Hence, to be able to act intrapreneurially, employees must be able to act on local knowledge and generate and experiment with ideas. And while several authors emphasized the role of trust as a facilitator of knowledge and information transfers within organizations, thereby promoting economic activity and opportunity perception (Chung and Gibbons 1997; Zahra et al. 2006), less has been said about the crucial role that trust plays for intrapreneurship by enabling greater job autonomy.

Since employees are not independent entrepreneurs, intrapreneurship will be facilitated if the owner-manager delegates the possibility to act to employees or allows them to act relatively autonomously. That is, workers must have some level of *job autonomy* to behave entrepreneurially. Another way to express this idea is to say that the owner-manager must use *relational contracts*, including informal agreements and unwritten codes of conduct; according to Baker et al. (2002) such contracts allow “the parties to utilize their detailed knowledge of their specific situation and to adapt to new information as it becomes available.” Earlier research associates job autonomy with personal initiatives and the suggestion and implementation of ideas. De Jong et al. (2015) show, for example, that increased job autonomy increases entrepreneurial behavior in firms by increasing employees’ perceived capability and willingness to act entrepreneurially. Conversely, the strive for autonomy, rather than financial gain, is rated as the most important motive for starting an independent business (Shane et al. 2003; Van Gelderen and Jansen 2006).

That said, giving employees increased freedom and job autonomy has a flipside because it widens the scope for opportunistic behavior, defined by Rose (2012, p. 21) as the “acting to promote one’s welfare by taking advantage of a trust extended by an individual, group, or society as a whole.” If overall trust is low, the (perceived) threat of opportunism will be high, meaning that managers will spend more time on monitoring the employees than they otherwise would and job autonomy will be lower. Incomplete and relational contracts will be used to a lesser extent, whereas bureaucratic structures and procedures will be used more extensively. Even if this is a rational response from the perspective of an employer wishing to minimize opportunistic behavior, it will also stifle entrepreneurial activity among employees.

Generalized trust may work as a substitute for formal and complete contracts. If trust (and trustworthiness) is high in society and within organizations, the need for detailed contractual and monitoring devices is lower and hence, job autonomy may be larger. Earlier research has shown that trust decreases the need for tight monitoring, control mechanisms and rigid rules within organizations (Quinn 1979, Dakhli and de Clercq 2004). Conversely, a trusting employee may feel safe that the manager will not fool him/her and (opportunistically) take advantage of an entrepreneurial opportunity that the employee reveals (see McEvily et al. 2003). Generalized trust hence works both ways, as a managing and organizing device that facilitates job autonomy, and therefore recognition, evaluation and exploitation of entrepreneurial opportunities (Zahra et al. 2006; McEvily et al. 2003). Thus, we formulate a first hypothesis:

Hypothesis 1: There is a positive relationship between generalized trust and the prevalence of intrapreneurship, mediated through increased job autonomy.

3.3 Trust, the welfare state, and intrapreneurship

Generalized trust may also affect a country's welfare system, both in terms of spending and the ability to raise the revenue required to finance that spending (Bjørnskov and Svendsen 2013). First, welfare state financing is enabled because high-trust economies have less underground activities (D'Hernoncourt and Méon 2011), likely because high-trust people are less inclined to conceal income and economic activities from the government. Second, high-trust populations may be more willing to vote for extending welfare spending to more people with less direct monitoring since they are less fearful of free-riding (Nannestad 2008); by contrast, people in a low-trust society will be reluctant to introduce overly generous welfare program as they may suspect that people will cheat and overuse the system (Bergh and Bjørnskov 2011). In addition, trust implies that welfare state bureaucracies become more effective (Putnam 1993; Knack 1999), thereby lessening the fiscal burden stemming from a large bureaucracy devoted to monitoring the provision of public goods and benefits (Bjørnskov 2010).¹

Generalized trust's effects on the functioning of the welfare state could, in turn, impact the entrepreneurially inclined part of the population's willingness to become intrapreneurs, rather than entrepreneurs. As such, the effect determines the allocation of entrepreneurial ability across the economy (cf. Baumol 1990). This is because the welfare system, i.e., the individual's entitlement to different forms of social benefits such as family, health and unemployment benefits, fundamentally affects the costs and benefits for being an entrepreneur vis-à-vis an intrapreneur. Overall, the more generous the welfare system, and the more conditional it is on

¹ There are arguments suggesting an opposite causal direction, see e.g. Rothstein (2003, 2009), who argues that the institutional quality of the welfare state determines the level of generalized trust, but empirical studies relying on rigorous identification establish that the direction of causality runs from generalized trust to the welfare state, not the other way around (see e.g. Bergh and Bjørnskov 2011; Bjørnskov and Svendsen 2013).

formal employment, the more beneficial it is to be an intrapreneur versus an independent entrepreneur. The logic, we argue, operates through at least three channels.

First, some welfare benefits provided by the government may be restricted to employees only. In many countries, employee benefit schemes such as unemployment/sickness benefits or parent's allowances are designed to compensate a specific share of your wage/salary (up to a pre-specified cap). Most independent entrepreneurs (in partnerships or sole proprietorships) are not formally employees and do not receive a wage; rather, they are remunerated through the surplus (business income) the business generates, which may not entitle them to any social benefits.

Second, even if some independent entrepreneurs (such as owner-managers in incorporated businesses) are employees in their own companies, they often do not give themselves a salary or only a very low salary, especially in early phases when liquidity may be constrained. Independent entrepreneurs also counteract economic fluctuations faced by their business by decreasing their remuneration. This low and/or fluctuating wage makes the potential compensation within a public benefit program low and/or uncertain for an independent entrepreneur.²

Third, independent entrepreneurs often find it difficult to use benefit programs even if they are entitled to them (through the wage or social security contributions paid). For example, making use of a generous parental leave program would cause you to lose customers and you might have to close your business or sell it. Oftentimes you may also have a hard time using sick leave benefits and other forms of incapacity benefits—at least for long.

² Owner/managers may also remunerate themselves through dividends or through capital gains when they are selling their company. These capital incomes are not included in the income that is entitled to any welfare benefits.

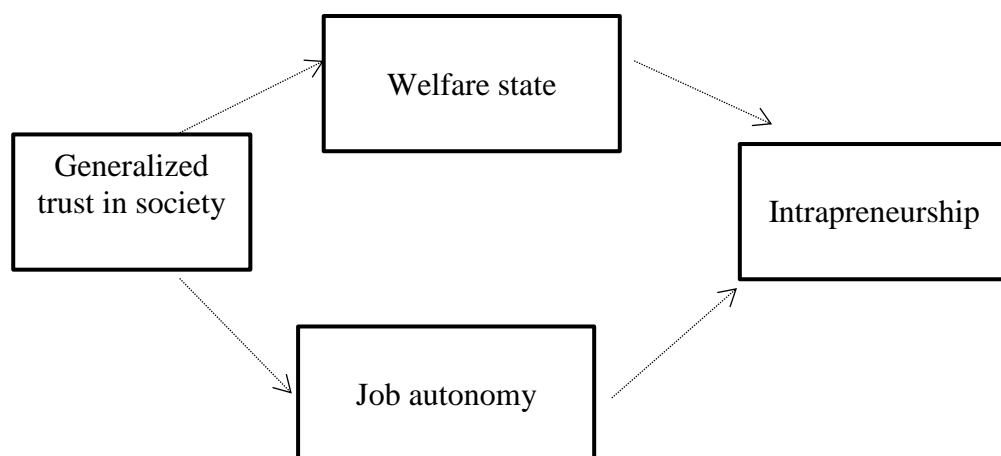
An intrapreneur with a pre-determined salary avoids these problems and is often also fully covered by all programs provided by the welfare state. Many individuals—be they entrepreneurially inclined or not—will be unwilling to forgo a large part of their social protection by choosing to be independent entrepreneurs. As a result, many persons with entrepreneurial talent may “get stuck” in established companies as intrapreneurs in countries with extensive welfare systems. In view of this opportunity cost argument, we formulate a second hypothesis:

Hypothesis 2: There is a positive relationship between generalized trust and the allocation of entrepreneurial talents to intrapreneurship, mediated through a larger welfare state (biased toward employees).

3.4 Summary of hypotheses

Our arguments are summarized in Figure 1. We argue that a high level of generalized trust in society positively influences the prevalence of intrapreneurship. The effect is indirect, via two mechanisms, as trust influences both the extent of job autonomy and the extent of the welfare state. Both these variables will, in turn, affect the prevalence of intrapreneurship.

Figure 1. Relationship between trust and intrapreneurship.



We should point out that job autonomy and the welfare state potentially influence intrapreneurship in different ways, and also to different degrees. Whereas the degree of job autonomy across an economy affects the overall prevalence (or absolute level) of intrapreneurship—meaning that more job autonomy should yield more intrapreneurship, *ceteris paribus*—a welfare state tailored to employees will affect the choice between intrapreneurship and independent entrepreneurship and hence be akin to a relative effect. Furthermore, it remains unclear whether generalized trust will affect these two channels in a similar way; trust could, for example, have a large effect on intrapreneurship through its effect on job autonomy, but a modest or even negligible effect on trust through its effect on the welfare state, or vice versa. In Figure 2, we capture the relationship in a two-by-two matrix.

Figure 2. The hypothesized effects on the prevalence of intrapreneurship and the allocation of entrepreneurship.

	<i>Low job autonomy (negative effect on intrapreneurship prevalence)</i>	<i>High job autonomy (positive effect on intrapreneurship prevalence)</i>
<i>Restricted (employee-unfriendly) welfare state (negative effect on intrapreneurship allocation)</i>	A: High share of independent entrepreneurship and employees less likely to be intrapreneurial. (Empirically: Low level of intrapreneurship, High level of independent entrepreneurship, Low intrapreneurship share)	B: High share of independent entrepreneurship but employees more likely to be intrapreneurial. (Empirically: High level of intrapreneurship, High level of independent entrepreneurship, Medium intrapreneurship share)
<i>Extensive (employee-friendly) welfare state (positive effect on intrapreneurship allocation)</i>	C: Lower share of independent entrepreneurship and employees less likely to be intrapreneurial. (Empirically: Low level of intrapreneurship, Low level of independent entrepreneurship, Medium intrapreneurship share)	D: Lower share of independent entrepreneurship but employees more likely to be intrapreneurial. (Empirically: High level of intrapreneurship, Low level of independent entrepreneurship, High intrapreneurship share)

In scenario A, low trust yields a weak (employee-unfriendly) welfare state as well as little job autonomy, resulting in a situation where people are not hold back to become independent entrepreneurs, and furthermore, where those who are employed are unlikely to be able to engage

in intrapreneurship. In essence, low trust negatively affecting both the welfare-state and job autonomy produces a situation where independent entrepreneurship is predominant. In scenario B, the trust level has a lopsided effect, and whereas the welfare-state remains weak (employee-unfriendly), job autonomy is higher: again, more people are not hold back to become independent entrepreneurs but those who are employed are now more able to act entrepreneurially. Whereas independent entrepreneurship should be on a par with scenario A, intrapreneurship should be greater.

Scenario C explores the opposite lopsided effect, i.e. a strong (employee-friendly) welfare-state coupled with little job autonomy. Now, the share of independent entrepreneurs should be smaller but the employees are less likely to act entrepreneurially, yielding a situation where the prevalence of independent entrepreneurship is less than in scenarios A and B *and* the level of intrapreneurship is low. Finally, Scenario D explores a clear-cut high-trust case where a strong (employee-friendly) welfare state is coupled with a high degree of job autonomy, ushering in a situation where people are disincentivized to become independent entrepreneurs but where employees have greater opportunity to act entrepreneurially.

4. Data, measures, and methods

4.1 Data

4.1.1 Measuring intrapreneurship

The most consistent way to measure the prevalence of intrapreneurship across countries has been performed by the Global Entrepreneurship Monitor (GEM), a project surveying the extent of independent entrepreneurship around the world on an annual basis since 1999. In 2011, GEM included comprehensive measures of intrapreneurship in their survey for the first time (Bosma et al. 2013) but only from 2014 onward is intrapreneurship measured annually. Hence,

intrapreneurship rates with an extensive country coverage are merely available for the years 2011 and 2014–2017.³

According to the definition used in GEM's publicly available data about intrapreneurship, an intrapreneur is an employee who in the past three years was actively involved in the development of new activities for the main employer, with a leading role in idea development, implementation, or both. The number of intrapreneurs as a proportion of working age adults (18–64 years) in the population is denoted *Entrepreneurial Employee Activity* (EEA).⁴ The corresponding measure of independent entrepreneurship is called *Total Entrepreneurial Activity* (TEA), and defined as the proportion of working age adults who either are involved in the process of founding a firm or are active as owner-managers of firms less than 3.5 years of age.

The correlation between TEA and EEA is negative and as low as -0.27, but it is arguably more meaningful to consider different types of countries combining different characteristics (with high and/or low levels of independent entrepreneurship and intrapreneurship) (Stam and Stenkula 2017; cf. Bosma et al. 2013). The Nordic countries stand out as countries with a prevalence of intrapreneurship around 9 percent, whereas the opposite is true for Mediterranean and Eastern European countries as well as developing countries. Generally, it may be said that whereas innovation-driven economies see a lot of intrapreneurship relative to the level of independent entrepreneurship, efficiency-driven and factor-driven economies do not.

³ The investigation covers at most 69 countries (2014). In 2011 and from 2014, questions about the prevalence of intrapreneurship was included in the main survey. In 2012 and 2013, a subsample of the countries participating in GEM voluntarily added questions about intrapreneurship.

⁴ GEM uses several other definitions of intrapreneurs that do not require a leading role or requires the employee to be currently involved in this kind of process. The correlations between the different intrapreneurship measures are high, meaning that regardless of measurement, the rank between the countries will be about the same (Stam and Stenkula 2017).

4.1.2 Explanatory variables

The main underlying variable of interest is generalized trust. Following much of the previous literature analyzing the effects and causes of trust at the macro level, we use survey data from the World Value Survey (WVS) where the percentage of people agreeing with the statement that “most people can be trusted” is a proxy for the level of trust within a society. We use average country values from all survey waves (the last ended in 2014) to make the country coverage as large as possible, ending up with data covering 81 countries. Since the trust level is a stable cultural feature of society, the fact that WVS covers different years than GEM is not problematic.

To capture job autonomy, we consult the World Economic Forum’s Global Competitive Report, where the variable “willingness to delegate authority”, captures the extent to which senior management delegates authority to subordinates on a seven-grade scale. Average country data on this variable between 2011 and 2017 should, in our view, capture the job autonomy among firms and in the economy, and covers 97 countries.

Turning to the welfare state, we first note that different benefit schemes may be of different importance for the incentives of being an employee (including intrapreneurs). A proper measure should, for our purposes, measure the generosity of the welfare system for an employee compared to an independent entrepreneur (self-employed or a business owner). It is reasonable to assume that social expenditure programs connected to incapacity (like sick leave benefits) and family (like maternity and parental leave benefits), are less available to non-employees. Hence, the scope of such programs can be seen as an indication of the intrapreneurship-promoting effect of a welfare state. We extract data on aggregated and disaggregated governmental and social expenditures as a share of GDP in different countries from the OECD, and employ average values between 2011 and 2015, but the dataset only covers 33 countries.

The correlation between this type of welfare expenditures and the size of the government expenditures in total (including e.g., elderly care and other expenditures which may not favor employees over non-employees) is relatively high (about 0.55). Hence, countries with a generally extensive welfare states (measured as total government expenditures) also have a relatively large share of expenditures which typically favors employees over self-employed.

4.1.3 Control variables

The business structure may influence the prevalence of intrapreneurship in the economy: after all, the existence of multi-person firms is a necessary condition for intrapreneurship to occur. As a result, economies with a high share of (employment in) multi-person firms will have more intrapreneurs, *ceteris paribus*. To account for this fact, we use the country's employment share in firms with more than 250 employees, based on GEM survey's question about the size of the employee's employer organization. This measure is unfortunately only available for the year 2011 and covers 51 countries.

As earlier studies have found that an economy's education and knowledge level may influence the prevalence of intrapreneurship, we control for this by following Stam (2013) and include the number of patents, tertiary school enrollment, and the employment share in knowledge-intensive services. Additionally, we add measures from the World Bank's Doing business data of average severance pay and notice period, since such aspects of a country's employment protection legislation have the potential of affecting intrapreneurship rates.⁵

⁵ The effect of EPL on the intrapreneurship level is, however, ambiguous. From an employer's point of view, a strict EPL may make employers more reluctant to hire new employees and expand their firms, which might have a negative effect on intrapreneurship. A related effect might be that employers will contract-out work to self-employed to circumvent EPL (Román et al. 2011). However, from the employee's point of view, a strict EPL increases the opportunity costs of self-employment and employees might be unwilling to become independent entrepreneurs as they have to give up their legal rights as employees. A possible outcome could be that employees prefer to be intrapreneurs. In addition, Liebrechts and Stam (2019) have found that the severance pay and notice period may influence intrapreneurship and independent entrepreneurship levels in contrasting directions.

Finally, we add (the logarithm of) GDP per capita as a control capturing the level of economic development.

Summary statistics and correlations between the variables that we use are provided in Tables 1 and 2, whereas explicit definitions of all variables and sources are provided in Table A1 in the appendix. As can be seen, the correlation between the prevalence of intrapreneurship and trust is significant and relatively high (0.56). Trust also correlates highly with job autonomy (0.66) and the welfare state (0.42). These variables, in turn, correlate highly with intrapreneurship (0.69 and 0.65, respectively). The correlation concerning the share of intrapreneurship is about the same, though somewhat higher when it comes to the welfare state (0.74). At a first glance, our hypotheses can at least not be rejected.

Table 1. Regression variables: descriptive statistics.

Variable	N	Average	Stdv	Min	Max
Intrapreneurship	95	3.0	2.55	0.16	13.0
Independent entrepreneurship	95	13.1	7.79	3.6	38.6
Share of intrapreneurship	95	20.6	16.5	1.5	71.7
Trust	80	25.7	16.9	2.8	74.2
Job autonomy	96	3.94	0.807	1.90	6.16
Welfare state	34	4.09	1.96	0.66	8.5
Employment share large firms	51	26.2	13.6	0	53.7
Knowledge workers	78	35.0	16.49	4.4	66.4
Education	90	49.4	27.42	0.775	120.8
Patent	86	551	1393	2	9115
EPL	93	19.4	13.56	8	82.33
GDP per capita, ln	96	9.66	1.032	6.90	11.95

Table 2. Regression variables: Correlations.

	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)
1) Intrapreneurship	1.0											
2) Entrepreneurship	-0.2740*	1.0										
3) Share of Intrapreneurship	0.9116*	-0.5430*	1.0									
4) Trust	0.5637*	-0.3673*	0.5538*	1.0								
5) Job autonomy	0.6932*	-0.3472*	0.6856*	0.6639*	1.0							
6) Welfare state	0.6460*	-0.3580*	0.7393*	0.4160*	0.4821*	1.0						
7) Employment share large firms	0.5237*	-0.1580	0.5178*	0.4028*	0.4200*	0.5034*	1.0					
8) Knowledge workers	0.6871*	-0.6719*	0.8111*	0.4872*	0.6089*	0.6002*	0.6653*	1.0				
9) Education	0.4838*	-0.5507*	0.5706*	0.3725*	0.4203*	-0.1495	0.2880	0.7551*	1.0			
10) Patent	0.1486	-0.2529*	0.2609*	0.3118*	0.2017	-0.1624	0.0019	0.3293*	0.2894*	1.0		
11) EPL	-0.2987*	0.3212*	-0.3435*	-0.2026	-0.1977	-0.3407	-0.3469*	-0.3591*	-0.2740*	-0.0748	1.0	
12) GDP per capita, ln	0.6414*	-0.6260*	0.7352*	0.4333*	0.6221*	0.5323*	0.5220*	0.8510*	0.7271*	0.2524*	-0.2369*	1.0

Note: * indicates significance at the 5 percent

4.2 Methodology

To test the relationship between trust and intrapreneurship, variations of the following equation are estimated using ordinary least-squares (OLS):

$$Y_i = \alpha + \mathbf{IV}_i\beta + \mathbf{X}_i\gamma + \varepsilon_i \quad (1)$$

where Y_i is the relevant average independent entrepreneurship or intrapreneurship measure of country i in the time period 2011–2017, \mathbf{IV}_i is a vector with the independent variable(s) of interest, and \mathbf{X}_i is a vector including the controls enumerated above. In the base model, the dependent variable is the average prevalence of intrapreneurship, but we will also use the allocation of entrepreneurship and the average prevalence of independent entrepreneurship. \mathbf{IV} will include trust (fundamental cause) as well as measures of job autonomy and the welfare state (proximate causes), separately and together.

5. Results

Table 3 shows the outcomes of estimating Equation (1), using the prevalence of intrapreneurship as the dependent variable. Model 1 includes the control variables and generalized trust only, since this is relevant to consider as a fundamental cause. As can be seen, trust is statistically significant at the 1 percent level, and furthermore economically significant: if the trust level increases with 10 percentage points, the associated increase in the intrapreneurship level will be about 0.74 percentage points, where the average intrapreneurship level in the sample is 3.0 percent. The share of large firms is the only statistically significant control.

In Model 2, we exclude generalized trust and consider instead the proximate causes, i.e. job autonomy and the welfare state. Both are statistically (at the 1 or 5 percent level) and

economically significant, effectively lending support to hypotheses 1 and 2.⁶ If job autonomy increases with 1 unit on the 7-grade scale (the average is 3.94), the intrapreneurship level will increase with 2 percentage points, or about 65% relative to the cross-country average. Meanwhile, if welfare spending on incapacity and family increases with one percent of GDP (average spending is 4.2 percent), the intrapreneurship level will increase with about 0.5 percentage points, or about 16 percent relative to the cross-country average. No other variables are significant.

In Model 3, we include both the fundamental and proximate causes.⁷ Job autonomy and the welfare state are still highly statistically and economically significant and effect sizes are about the same. In contrast, trust is no longer significant, suggesting that if trust affects the intrapreneurship level (as shown in Model 1) this likely occurs through trust's effects on job autonomy and the welfare state. These findings effectively lend support to hypotheses 1 and 2, i.e. that generalized trust primarily affects the prevalence of intrapreneurship through its effect on job autonomy and the welfare state.⁸

⁶ White's test shows no sign of heteroskedasticity. However, if the model is rerun using robust standard errors, the significant effect from the welfare state disappears (the same thing happens in model 3). The positive effect from job autonomy is however still present.

⁷ This regression only includes 25 observations due to lack of data. Rerunning the regression models 1 and 2 only using these 25 observations as a robustness check does not change the main results. For example, the point estimate of trust in model 1 increases somewhat from 0.074 to 0.088 and the t-value decreases from 3.63 to 2.94, but it will still be highly statistically significant (p-value 0.011).

⁸ VIF-tests show no sign of problem with multicollinearity in the regressions. The VIF-factor is below 10 for all control variables.

Table 3. Regression results. Prevalence of intrapreneurship

	Fundamental cause	Proximate causes	Full model
	Model 1	Model 2	Model 3
Trust	0.074 (3.63)***		-0.041 (0.96)
Job autonomy		2.00 (3.62)***	2.68 (3.03)***
Welfare state		0.473 (2.37)**	0.521 (2.41)**
Share large firms	0.057 (1.79)*	0.012 (0.30)	0.015 (0.35)
Knowledge worker	0.059 (1.03)	0.084 (1.14)	0.084 (1.07)
Education	-0.0006 (0.04)	0.019 (1.41)	0.024 (1.47)
Patent	-0.0002 (1.21)	-0.0001 (0.67)	-0.00006 (0.38)
EPL	-0.015 (0.30)	0.0094 (0.16)	0.0218 (0.34)
Ln GDP per capita	-0.210 (0.16)	-2.878 (1.26)	-2.692 (1.16)
Constant	0.66 (0.06)	18.3 (0.90)	14.02 (0.67)
R ²	0.71	0.84	0.86
Adj R ²	0.65	0.77	0.77
N	38	26	25

Note: t-values in parenthesis. ***, **, and * indicate significance level at the 1, 5, and 10 percent level, respectively.

When we use the allocation of entrepreneurship (share of intrapreneurship of the total amount of entrepreneurship in society) as dependent variable, a somewhat different picture emerges (see Table 4). Generalized trust has a significant (but small) positive effect when analyzed without the proximate causes, but a significant negative effect when the proximate causes are included.⁹ And whereas welfare state is economically and statistically significant both with and without trust, job autonomy is only significant in the full model.

⁹ However, in model 1 without the proximate causes, the positive significant effect of trust disappears if one only uses the 25 countries included in model 3 (the t-value decreases to 1.49).

Table 4. Regression results. Intrapreneurship in the allocation of entrepreneurship.

	Fundamental cause	Proximate causes	Full model
	Model 1	Model 2	Model 3
Trust	0.294 (2.54)**		-0.355 (1.83)*
Job autonomy		3.43 (1.27)	9.06 (2.26)**
Welfare state		3.83 (3.92)***	4.58 (4.66)***
Share large firms	0.310 (1.69)	0.121 (0.60)	0.050 (0.26)
Knowledge worker	0.438 (1.35)	0.371 (1.03)	0.146 (0.41)
Education	-0.106 (1.18)	-0.041 (0.60)	0.033 (0.45)
Patent	0.0002 (0.18)	0.0008 (0.98)	0.0012 (1.51)
EPL	-0.245 (0.88)	-0.095 (0.33)	-0.294 (1.00)
Ln GDP per capita	3.97 (0.52)	1.58 (0.14)	3.87 (0.37)
Constant	-35.3 (0.54)	-29.0 (0.29)	-59.3 (0.62)
R ²	0.76	0.88	0.91
Adj R ²	0.70	0.83	0.85
N	38	26	25

Note: t-values in parenthesis. ***, **, and * indicate significance level at the 1, 5, and 10 percent level, respectively.

Finally, we examine the prevalence of independent entrepreneurship (Table 5). The R-squared in these regressions is much lower and few variables are statistically significant, i.e., suggesting that they do not capture the differences in entrepreneurship levels between countries particularly well. While no variable is significant in the first model, the welfare state measure has a substantial negative and statistically significant effect (at the 10 percent level) in the second regression (Model 2). This effect is, however, not robust and disappears if one controls

for trust (Model 3).¹⁰ Job autonomy also has a significant (but positive) effect in the second regression, but as with the welfare state this effect disappears if one controls for trust. No variable is statistically significant in the full model. As a robustness check, we also examined the effects of the explanatory variables on the overall level of entrepreneurship in society, i.e. the sum of intrapreneurship and independent entrepreneurship as a share of the adult population (see Appendix Table A2). While we do not find any significant effect of trust, there is a very large positive effect from job autonomy, independently of model. There is no effect from the welfare state: it seems that the positive effect on intrapreneurship and negative effect on independent entrepreneurship level cancels out in this combined measure, which may suggest that the size and composition of the welfare state has an allocative effect on entrepreneurship.

¹⁰ The p-value is 11.1. However, using robust standard errors, the effect will persist and be significant negative at the 5 percent level.

Table 5. Regression results. Prevalence of Independent Entrepreneurship.

	Fundamental cause	Proximate causes	Full model
	Model 1	Model 2	Model 3
Trust	-0.031 (0.58)		-0.027 (0.22)
Job autonomy		2.792 (1.74)*	3.293 (1.28)
Welfare state		-1.009 (1.74)*	-1.064 (1.69)
Share large firms	0.076 (0.89)	0.053 (0.44)	0.078 (0.63)
Knowledge worker	-0.034 (0.23)	0.084 (0.39)	0.140 (0.62)
Education	0.064 (1.53)	0.029 (0.71)	0.021 (0.46)
Patent	-0.0004 (0.91)	-0.0006 (1.24)	-0.0006 (1.13)
EPL	0.113 (0.87)	0.157 (0.93)	0.244 (1.30)
Ln GDP per capita	-4.57 (1.29)	-9.43 (1.42)	-9.49 (1.41)
Constant	51.3 (1.29)	89.5 (1.51)	84.9 (1.40)
R ²	0.37	0.49	0.52
Adj R ²	0.22	0.25	0.24
N	38	26	25

Note: t-values in parenthesis. ***, **, and * indicate significance level at the 1, 5, and 10 percent level, respectively.

6. Conclusions

In this paper we have shed new light on the relationship between trust and entrepreneurship, by proposing two mechanisms relating trust to intrapreneurship. First, generalized trust may substitute for complete contracts as a means of organizing labor within society, enabling the job autonomy in organizations necessary for intrapreneurship to flourish. Second, through its influence on the size and scope of the welfare state, generalized trust may increase the benefits

of being employed relative to self-employment, causing entrepreneurial individuals to elect to be intrapreneurs rather than independent entrepreneurs.

With our in-depth cross country study on intrapreneurship, we have enriched the debate on entrepreneurship in society. The study suggests that intrapreneurship levels in a country are positively affected by levels of generalized trust, which increase job autonomy and welfare state arrangements for employees that ultimately enhances intrapreneurship. As such, the development of our hypotheses, in conjunction with our empirical results, contributes to the broader academic debate on entrepreneurship by shifting the focus from the causes and consequences of independent entrepreneurship to intrapreneurship. In doing so, we highlight the necessity of reexamining the relationship between the welfare state and entrepreneurship, and arguments that key welfare state institutions necessarily reduce economic incentives for entrepreneurship. Furthermore, our contribution puts the role of trust in the prevalence of large firms in another light, by suggesting that intrapreneurship may be the missing link that explains why trust is so essential in such contexts. Our results are also relevant from a policy point of view, since they improve our understanding of how a country's (formal and informal) institutions affect not only the prevalence of entrepreneurial activity but also the allocation of this activity over independent entrepreneurship and intrapreneurship.

Future studies should expand our analysis to a larger set of countries, to test whether our findings hold in other (low-income) settings as well, and to include a larger set of institutional variables (McMullen et al. 2008). When richer data becomes available, studies can also help tackle the shortcomings of our empirical analyses, notably the potential of reverse causality. Future studies can also shed light on whether the relationship between trust and intrapreneurship is spurious, i.e. whether the statistical correlation is caused by some other underlying variable.

Societies that have high levels of trust breed high levels of job autonomy and a well-developed welfare state, i.e. open societies with respect to participation of its citizens (however

sometimes with a bias towards employees over self-employed), which also enhances intrapreneurship. From a societal point of view, it seems that open, knowledge-based societies, with a well-developed welfare state provide the best conditions for intrapreneurship, and ultimately prosperity.

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Appendix

Table A1. Regression variables: definitions and sources.

Variable	Definition	Source	n	Time period
Intrapreneurship	Percentage of 18-64 population who are involved as employees in entrepreneurial activities, such as developing or launching new goods or services, or setting up a new business unit, a new establishment or subsidiary	GEM	95	2011–2017
Entrepreneurship	Percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business (TEA).	GEM	99	2011–2017
Share of intrapreneurship	Calculated as EEA / (EEA + TEA)		95	2011–2017
Trust	Percentage of people believe that they can trust unspecified other people	WVS	80	All 6 waves
Job autonomy	Average value of the (executives') answer to the question: "In your country, to what extent does senior management delegate authority to subordinates? [1 = not at all; 7 =to a great extent]"	WEF Executive Opinion Survey	96	Time intervals – code as the end point (e.g. '17 for '16-'17) 2011–2017
Welfare state	Public social expenditures on incapacity and family benefits as a share of GDP.	OECD	34	2011–2015
Employment share large firms	Indicator based on GEM survey asking employees about the size of their employer organization.	GEM	51	2011
Innovation index	Index capturing the multi-dimensional facets of innovation based on 81 indicators.	Global Innovation Index	93	2013–2018
Knowledge workers	People in professions "managers; professionals; technicians and associate professionals; clerical" (2008 classification) as a share of all people employed	ILO, Laborstat database	78	2011–2017
Education	Ratio of tertiary enrollment, regardless of age, to the population of the age group that officially corresponds to the tertiary level of education.	UNESCO	90	2011–2017
Patent	Number of resident applications per 100 billion USD GDP (2011 PPP).	WIPO database	86	2011–2016
EPL	Sum of notice period and severance pay for redundancy dismissal (in salary weeks, averages for workers with 1, 5, and 10 years of tenure, with a minimum threshold of 8 weeks)	World bank (Doing business)	93	2013–2018
GDP per capita, ln	Ln of real GDP per capita PPP (2011US\$) from expenditure side	Penn World database	96	2011–2014

Note: Average values for the stated time period is used for each variable.

Table A2. Regression results. Overall Entrepreneurship Activity (independent entrepreneurship plus intrapreneurship).

	Fundamental cause	Proximate causes	Full model
	Model 1	Model 2	Model 3
Trust	0.43 (0.72)		-0.068 (0.46)
Job autonomy		4.793 (2.51)**	5.973 (1.97)*
Welfare state		-0.536 (0.78)	-0.543 (0.73)
Share large firms	0.133 (1.43)	0.065 (0.45)	0.093 (0.64)
Knowledge worker	0.025 (0.15)	0.168 (0.66)	0.224 (0.84)
Education	0.064 (1.39)	0.049 (1.00)	0.045 (0.82)
Patent	-0.0006 (1.25)	-0.0007 (1.23)	-0.0006 (1.07)
EPL	0.099 (0.70)	0.167 (0.82)	0.265 (1.20)
Ln GDP per capita	-4.78 (1.24)	-12.3 (1.55)	-12.18 (1.53)
Constant	52.0 (1.57)	107.9 (1.53)	98.9 (1.38)
R ²	0.23	0.40	0.46
Adj R ²	0.05	0.11	0.13
N	38	26	25

Note: t-values in parenthesis. ***, **, and * indicate significance level at the 1, 5, and 10 percent level, respectively.