The climate for entrepreneurship at higher education institutions

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ABSTRACT

While the importance of a supportive context for entrepreneurship is widely acknowledged, its antecedents are rarely investigated. We apply the concept of organizational climate to higher education institutions and examine the drivers of students' perceptions of the entrepreneurial climate in their university. Combining data from two unique datasets and using multilevel techniques, we analyze the relationship between university characteristics and such climate perceptions of 8009 students at public universities in Germany. We find university entrepreneurship measures to have a positive effect on students' climate perceptions, which also depend on students' background and gender. In addition, we find evidence for different peer effects, depending on students' affinity for entrepreneurship. For the general student population, including entrepreneurship content in their normal studies seems to be required to initiate a social process of sensemaking. However, students' perception of the entrepreneurial climate only depend to a certain degree on intentional entrepreneurship measures. In our study, general university characteristics have the strongest influence on climate perceptions. Overall, our study adds to our understanding of which parameters are important for establishing a more favorable and inspiring climate for becoming an entrepreneur at higher education institutions.

1. Introduction

There is growing evidence that the social and organizational context at universities has a substantial impact on the entrepreneurial attitudes and activities of academics and students (Bercovitz and Feldman, 2008; Hunter et al., 2011; Kenney and Goe, 2004; Walter et al., 2013). Related to this stream of literature, the concept of entrepreneurial climate has gained attention in the academic literature and public debate, capturing the perceptions of the members of an organization to what degree entrepreneurial activities are supported in the respective context (European Commission, OECD, 2012; Geissler et al., 2010; Kauffman Foundation, 2008; U.S. Department of Commerce, 2013). More and more universities have implemented measures to improve their entrepreneurial climate with the aim of fostering the entrepreneurial propensity of students and researchers (Eickelpasch and Fritsch, 2005; Rasmussen and Borch, 2010). Estimates suggest that, for example, universities in Germany spend more than 75 million Euro per year on entrepreneurship support measures (Frank et al., 2017). In the beginning, the focus of these endeavors was on the creation of an entrepreneurial climate (or culture) among academics with the intention to encourage technology transfer and the creation of spin-off companies (Etzkowitz et al., 2000). However, increasingly these measures also focus on students (Mok, 2005; Siegel and Wright, 2015). For example, one of the key objectives of EXIST, a large support program of the German Federal Ministry for Economic Affairs and Energy (BMWi), is to "establish a culture of entrepreneurship in university teaching, research and management" and promote a "favorable climate"[1]; among students, graduates and academics (Kulicke, 2014, p. 1f). One reason for this change in emphasis might be that startups by recent university graduates have been found to be much more frequent than spin-offs by their faculty and also not of low quality (Åstebro et al., 2012). Presumably, the most prominent measure in this respect is the establishment of Chairs of entrepreneurship, which typically offer relevant courses and entrepreneurship-related services for students. In Europe and in the U.S. there has been an enormous expansion of respective curricula and programs (Kuratko, 2005; Schmude et al., 2008). Universities also offer entrepreneurship advice, organize business plan competitions and provide relevant facilities (Kauffman Foundation,

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[1] Frequently in such policy reports, the terms culture and climate are used interchangeably.

2008). Yet, despite these growing efforts, there is hardly any systematic research on whether these measures have any impact on the perceived climate for entrepreneurship among students. Given these efforts and the potentially high number of start-ups by students and recent graduates, we need to better understand the nature and the drivers of such perceptions. Geissler, Jahn, & Haefner (2010) provide some evidence on individual climate perceptions for a limited number of organizations, without, however, being able to analyze the effect of contextual characteristics. Similarly, the growing literature on entrepreneurship education only looks at individual-level effects without considering the potential broader impact of such courses or programs on the organizational climate (Martin et al., 2013; Pittaway and Cope, 2007).

It is against this background that this paper aims to contribute to our understanding of the drivers of students' perceptions of the entrepreneurial climate in their university. Just like climate in general, entrepreneurial climate can be conceptualized in two different ways. Individual climate perceptions constitute the so-called *psychological climate*. If these individual perceptions match to a certain degree among organizational members, they can subsequently be aggregated to the unit-level and are usually referred to as *organizational climate*. Organizational climate measures shared perceptions and is thus not an individual phenomenon but a group-level construct, i.e. a property of organizations or their sub-units (Glick, 1985). Because we are interested in the underlying factors of a positive entrepreneurial climate, we focus on individual psychological climate perceptions, which are also the building block of broader climate conceptualizations. Specifically, we analyze the entrepreneurial climate perceptions among the general student body of public universities and study the impact of commonly applied policy measures to foster such a climate. While studies on start-ups by researchers and faculty members typically investigate the effect of technology transfer offices and intellectual property regimes (Djokovic and Souitaris, 2008), we focus on the effect of measures that are specifically targeted at students, like the existence of specialized support and advice institutions, entrepreneurship education, and the available financial budget for such measures. We conceptualize entrepreneurial climate as individuals' perceptions to what degree entrepreneurial behavior is encouraged, rewarded and supported in the university setting. We use and combine data from two unique datasets: Based on survey data, we measure the perceptions of the entrepreneurial climate of 8009 students of different subjects at 22 public universities in Germany. The organizational characteristics are taken from a comprehensive study on entrepreneurship support measures at universities in Germany.

Our analyses suggests that individual and contextual characteristics influence students' climate perceptions. Importantly, the effect of some context characteristics depends on personal characteristics of the students. We also find evidence for different social effects of peers. For the general student population, universities can improve climate perceptions by sensitizing and instructing a broad spectrum of students – including previously uninterested ones – for entrepreneurship. Our results suggest that this can initiate a discussion among previously uninterested students and affect those that have not themselves participated in an entrepreneurship course. For students with a previous affinity for entrepreneurship, elective offerings seem more appropriate to foster climate perceptions. Our analyses also suggest that universities' general characteristics like size (negatively) and general reputation (positively) influence climate perceptions to a large extent. The impact of these characteristics is bigger than that of intentional entrepreneurship measures. Thus, universities might develop a reasonably positive entrepreneurial climate without explicit policy measures to foster it. Overall, our results improve our understanding of the entrepreneurial climate at universities and contribute to the general literature on organizational climate and its antecedents.

2. Research on psychological and organization climate and related concepts

Research regarding the impact of organizations on their members has a long history in organizational science (Glick, 1985; Payne and Pugh, 1976; Weick, 1995). Originating from Lewin's (1936) classic observation that human behavior is a function of the person and his or her environment, a broad stream of literature has analyzed the role of the social context in organizations, typically applying the concepts of organizational climate or organizational culture (Schein, 1990; Schneider et al., 2017).

Organizational climate research is concerned with how members of an organization perceive and interpret their environment. Two different climate conceptualizations can be distinguished, *psychological climate* and *organizational climate* (Glick, 1985) (for extensive literature reviews concerning psych./org. climate: see James et al., 2008; Kuenzi and Schminke, 2009; Schneider et al., 2013). At an individual level, people's perceptions of their environment constitute the *psychological climate*, which is a product of the individual's cognitive construction of a certain situation. Such individual climate perceptions derive from the observation of and experience with organizational characteristics and events, like for example policies, practices and procedures (Schneider et al., 2017). As such, psychological climate is not only dependent on organizational aspects but also involves an interaction of environmental and individual characteristics. Psychological climate perceptions can differ between individuals who are more or less attentive to certain organizational characteristics or who process perceived environmental stimuli differently (James et al., 1978). Despite forming individual perceptions, organizational members are likely to develop similar (but not necessarily identical) climate perceptions because they are confronted with the same environment and because they interact. In this case, perceptions are partly shared and can be aggregated to the level of groups, departments, or whole organization; they are then typically referred to as *organizational climate* (Patterson et al., 2005). Organizational climate has been described as peoples' shared perceptions of organizational characteristics, such as "practices, procedures, and kinds of behavior that get rewarded and supported in a particular setting" (Schneider, 1990: 384). Because of its shared nature, organizational climate is an attribute of organizations or sub-units thereof rather than of individuals.

Within an organization, different dimensions or sub-dimensions of a generalized climate can exist. Schneider and Reichers (1983) argue that the concept of climate needs to have a specific reference; otherwise, it is meaningless. Therefore, research usually analyses specific organizational climates, e.g. climate for service (Wu et al., 2008), justice (Walumbwa et al., 2008), innovation (Lee et al., 2011), or safety (Wu et al., 2007; Zohar and Luria, 2005). Differences in the characteristics of the work environment among organizational units can lead to different climate manifestations within the same organization. In such a case, the climate at work units or departments rather than the whole organization is the appropriate level of analysis (Zohar and Luria, 2005).

Studying psychological and organizational climate is important for our understanding of motivational and behavioral outcomes at the individual as well as the organizational level, for example concerning organizational performance (Riordan et al., 2005), satisfaction (Lee et al., 2011), quality perception (Schneider et al., 1998), and entrepreneurial intentions (Huyghe and Knockaert, 2015). While the concepts of psychological and organizational climate are typically applied to employees in firms, they have also been used to study students at schools or universities (Ancis et al., 2000; Anderson, 1982; Cureton, 2003; Lüdtke et al., 2006; Pfeifer and Schneider, 1974; Thapa et al., 2013).

Organizational culture is the second important concept which is frequently used to study and explain the organization's impact on its members (Schneider et al., 2017). Climate and culture possess a conceptual and definitional overlap since both relate to individuals'