Sexual Orientation, Entrepreneurship, and Firm Survival

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We provide new evidence on sexual orientation, entrepreneurship, and firm survival using Swedish population register data linked to business registry data from 1995-2020. Over this period, we study over 19,000 individuals who ever entered a legal same-sex union and compare their entrepreneurship and firm level outcomes with individuals exclusively in different-sex unions. We find that sexual minority men are 7.8 percent *less* likely than comparable heterosexual men to be entrepreneurs, while sexual minority women are 4.8 percent *more* likely than comparable heterosexual women to be entrepreneurs. Both differences are statistically significant. We also provide the first evidence regarding the survival of sexual minority founded firms compared to firms founded by heterosexual individuals. Our results show that firms founded by sexual minority women fail more quickly than observably similar firms founded by heterosexual women, with no significant survival difference observed for sexual minority men. We explore the role of several external and internal factors that may explain these underlying patterns and find that lack of a 'trapped market' may contribute to the higher failure rate of firms founded by sexual minority women. We also find suggestive support for a role of romantic partners in explaining differences in firm survival experienced by sexual minority women compared to heterosexual women.

JEL Codes: J15, J22

Keywords: sexual orientation, entrepreneurship, firm survival, Sweden, administrative population register data, administrative firm survival data, internal and external factors

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1. Introduction

Individuals who belong to marginalized groups face discrimination, lack of access to key resources (e.g., capital, networks, education), and cultural ostracization, such that entrepreneurship may offer opportunities to advance and create wealth and value by acting as an alternative to traditional employment (Bradford, 2014). A large empirical economics literature examines gender and race/ethnicity differences in entrepreneurship and firm success (Fairlie & Robb, 2009; Loscocco et al., 1991; Robb, 2002). Sexual minorities, including lesbian, gay, and bisexual (LGB) people, have also been shown to face significant discrimination in labor, housing, financial, credit, and other markets (Badgett et al., 2024), yet there is little research from any discipline that has examined relationships among sexual orientation, entrepreneurship, and firm survival.[1]

In this study we provide new evidence on these relationships using novel data that allows us to provide an important contextual comparison to prior research as well as to fill gaps that exist in the literature. For example, we are the first study to examine differences in firm survival for ventures started by sexual minority individuals compared to those started by heterosexual people. We are also able to examine heterogeneity margins that help shed light on the external factors (such as customer discrimination or the presence of 'trapped markets' of sexual minority customers) and internal factors (such as those related to childrearing or the presence of a romantic partner in the household) in the association between sexual orientation and firm survival.

[1] Sexual and gender minority populations can include lesbian women, gay men, bisexual individuals, transgender people, queer/questioning individuals, intersex individuals, asexual and aromantic individuals, and other non-heterosexual and non-cisgender groups. Sometimes the acronym LGBTQIA+ is used to describe these populations, although the use of specific acronyms varies widely. As we describe below, the data we use in this paper only permit analysis of likely sexual minorities, so we sometimes refer to our sample as including LGB people. Where other research or data sources reference or encompass different sets of the LGBTQIA+ community we use the terminology specific to each study or dataset.

Our specific context is Sweden which provides access to population register data linked to the country's business register data. The population registers allow us to examine every individual who was ever in a registered same-sex relationship in Sweden from 1995-2020, and we compare these individuals with individuals who were only ever observed in different-sex registered relationships. To study entrepreneurs, we use business register data to measure whether the individuals own a firm, following Parker (2018) and Lux et al. (2020). Among entrepreneurs who owned firms at the time the firm was founded, we also observe firm survival.

We present several key findings. First, we demonstrate that, among our sample of individuals ever observed in relationships, sexual minorities are significantly less likely to be entrepreneurs. We estimate about a 3.4 percentage point difference for men and a 1.3 percentage point difference for women. Second, controlling for observable demographics and geographic location reduces the differential between sexual minority men and heterosexual men to about 1 percentage point, though the difference remains statistically significant (about 7.8 percent relative to the sample mean). In contrast, we estimate that sexual minority women are 0.3 percentage points *more* likely than otherwise comparable heterosexual women to be entrepreneurs, which translates to around a 4.8 percent higher likelihood. These patterns broadly mirror results from prior survey-based evidence on a closely related outcome, self-employment. When we study firm survival, however, we find that firms founded by sexual minority women are significantly more likely to fail than otherwise similar firms founded by heterosexual women. We do not find significant differences in firm survival for firms founded by sexual minority men compared to those founded by heterosexual men. When we explore reasons behind differential firm survival

results, we find some evidence that external factors related to likely 'trapped markets' may contribute to the differential success of firms founded by sexual minority women. Further research is needed to disentangle the roles of external and internal factors.

We contribute to an extant literature on entrepreneurship of sexual minorities in several ways. First, to our knowledge, we are the first study to directly examine the differential success of entrepreneurial ventures by sexual orientation as measured by firm survival. Our focus on firm survival further extends previous literature on the link between sexual orientation and entrepreneurial outcomes. Second, we are able to investigate internal and external factors that contextualize the differential rate of success of entrepreneurial ventures started by sexual minorities as compared to heterosexual individuals. For example, we explore the roles of LGBTQ+ attitudes and acceptance, density of same-sex couples in a local market, and changes in outcomes over time to investigate external factors. We also examine heterogeneity related to the presence of children and the presence of a romantic partner to investigate internal factors. Finally, we are the first study to use linked administrative data from population registers and business registers to study how sexual orientation is related to entrepreneurship. Our use of administrative data offers a complement to a literature in economics that has used survey data and a literature in management and entrepreneurship that has used qualitative methods to study sexual orientation and entrepreneurship. Relative to the survey data, the administrative data allow us to sidestep biases associated with which sexual minorities self-identify as such on surveys (Coffman et al., 2017). While a handful of studies in economics have examined sexual minority entrepreneurship through the lens of self-reported self-employment (Jepsen & Jepsen, 2017; Leppel, 2016; Marlow et al., 2018; Waite & Denier, 2016), we

directly observe entrepreneurship and firm survival from administrative business registry data which are likely to have higher fidelity.

2. Literature Review

2.1 LGBTQ+ Economics Literature and Evidence on Self-Employment from Survey Data

Since Badgett's (1995) seminal article on the wage differential between heterosexuals and sexual minorities in the US, the literature on the economics of sexual orientation has grown rapidly (see Badgett et al., 2021 and Badgett et al., 2024 for reviews). Few studies in this literature have examined entrepreneurship, and the studies that do exist have often used self-employment as a proxy for entrepreneurship. From a theoretical standpoint, there are several reasons to expect that self-employment may differ across sexual orientations. According to Moore (1983), marginalized groups may be particularly attracted to self-employment. These differential attractions to self-employment (as opposed to traditional employment for wages) may be due to minorities being either 'pulled' into self-employment or 'pushed' into it (Clark & Drinkwater, 2000). For example, individuals may be pushed into self-employment due to career discrimination or harassment in the workplace. Alternatively, individuals may be pulled into self-employment due to factors such as the ability to pursue career interests, the ability to pursue social or political ideologies (for example through the development of LGBTQ+ communities/initiatives), anticipated greater flexibility and work-life balance, or anticipated greater earnings (Fairlie & Meyer, 1996; Galloway, 2007).

All of these costs and benefits of self-employment may plausibly vary between sexual minorities and heterosexual individuals. For example, several correspondence studies demonstrate the presence of differential treatment in the labor market experienced by sexual minorities (Ahmed et al., 2013; Ahmed & Hammarstedt, 2022; Hammarstedt et al., 2015; Tilcsik, 2011; Tilcsik et al., 2015; Weichselbaumer, 2003). Other research suggests that sexual minorities also report more harassment at work than heterosexual individuals (Sears et al., 2021). These factors may differentially push sexual minorities to consider entrepreneurship. Regarding 'pull' factors, it is well documented that sexual minorities are less likely to have children in the household than heterosexuals (Black et al., 2000), and sexual minority men are also much less likely to be in romantic partnerships than heterosexual men (Carpenter & Gates, 2008). Research has also demonstrated that sexual minority men earn significantly less in the paid labor market than similarly situated heterosexual men (see Badgett et al., 2024 for a review), while lesbian women earn significantly more than comparable heterosexual women. These patterns would tend to provide differential relative incentives for entrepreneurship: lower earnings in paid labor would tend to pull gay men into entrepreneurship, while higher earnings for lesbians would work in the opposite direction. Another 'pull' factor may be related to differences in competitiveness: Aksoy & Chadd (2023) demonstrate that sexual minorities display less competitiveness in an experimental setting, while Buser et al. (2018) also find that gay men compete less than heterosexual men in the context of a Dutch online experiment.

Entrepreneurship can be financially burdensome. Entrepreneurs require capital investment to be able to start a business, and this may be a barrier for sexual minorities when deciding whether to start a firm. Access to capital is a key driver of entrepreneurial

activity, and many entrepreneurs turn to credit markets to access the capital required to start businesses (Sauer & Wilson, 2016). But credit markets, like labor markets, can be discriminatory, and there is evidence of the existence of credit market discrimination towards sexual minorities (Asiedu et al., 2012; Sun & Gao, 2019) which may exacerbate barriers faced by sexual minority entrepreneurs.[2] Given the existence of credit market discrimination, it is likely that resource pooling plays a significant role in the decision to start a business. Indeed, prior research has documented that marriage is associated with increased entrepreneurial activity among women due to resource pooling (Patrick et al., 2016), though it should be noted that in line with flexibility theory, self-employment may be particularly attractive to married women as it offers greater flexibility to balance work and home activities (Gurley-Calvez et al., 2009; Wellington, 2006).

Given the two above points, resource pooling and flexibility, the reasons underlying same-sex couple union formation are likely key to understanding differential entrepreneurial activity across sexual orientations. Aldén et al. (2015) analyzed the labor and fertility effects of registered partnerships for gay men and lesbians, finding that while gay men seem to enter partnerships for resource pooling reasons, lesbians enter partnerships to create families and have children.

There is relatively little research documenting the differential rates of entrepreneurial activity across sexual orientation and the ones that exist show ambiguous results. Using data on same-sex couples from the American Community Survey, Leppel (2016) documented that gay men were less likely to be self-employed than heterosexual

[2] For example, Hagendorff et al. (2022) find that legal access to same-sex marriage increased the denial gap between same-sex and different-sex mortgage applicants. Their explanation is that loan officers started relying more on 'soft' information about whether new same-sex relationships were likely to last.

men while lesbians were more likely to be self-employed than heterosexual women, a finding that was replicated by Waite & Denier (2016) in their analysis of Canadian data. However, Pajovic et al. (2023) found that sexual minority men and women were less likely to be self-employed in their analysis of different Canadian survey data. Using US data Jepsen & Jepsen (2017) found that gay men were less likely to be self-employed than heterosexual men but sexual minority women did not significantly differ from heterosexual women in terms of entrepreneurship propensity. Marlow et al.'s (2018) analysis of UK data documented similar entrepreneurial propensities between sexual minorities and heterosexuals for both men and women. The mixed results in previous studies give leeway to further extend the literature.

Among those individuals who do become self-employed, there may be differential rates of firm success, and this is likely linked to the dynamics of entrepreneurial activity. Prior research has demonstrated that business success differs across race and gender (Bapna & Ganco, 2021; Fairlie & Robb, 2009; Gafni et al., 2021; Loscocco et al., 1991; Robb, 2002) with most research documenting that minority-owned firms perform worse. Some sexual minorities, like other minority populations, are also likely to lack management experience and capital compared to their heterosexual counterparts. Ahmed et al. (2011) for example find that gay men are less likely to hold managerial positions than their heterosexual counterparts while the opposite is true for lesbians. Aksoy et al. (2019) find that gay men in the United Kingdom were significantly more likely to have managerial authority in the workplace but that there was also evidence of a 'gay glass ceiling' whereby gay men were significantly less likely to achieve the very highest managerial ranks within private companies. In terms of capital, sexual minorities hold less housing wealth than their

heterosexual counterparts (Jepsen & Jepsen, 2009), are less likely to hold money in joint accounts than their heterosexual counterparts (Klawitter, 2008), and are more likely to be in poverty (Schneebaum & Badgett, 2019; Uhrig, 2015).

2.2 Management and Entrepreneurship Literature on LGBTQ+ Ventures from Quantitative Surveys and Qualitative Interviews

Our study is also related to a body of research examining differences in entrepreneurial intention and management practices adopted by sexual minority entrepreneurs in comparison to heterosexual entrepreneurs. For example, Germon et al. (2019) recruited a sample of young adults, including students affiliated with LGBT student groups, from Parisian universities. Their sample of 266 LGB people indicated that sexual minorities have higher entrepreneurial intentions than non-LGB people. Another quantitative study used a survey of over 300 entrepreneurs who identified as sexual minorities drawn from companies in the Gay Yellow Pages (Schindehutte et al., 2005). Their research describes and documents the motives, attitudes, perceptions, and management practices of sexual minority entrepreneurs.

Several studies use qualitative methods to investigate entrepreneurship among sexual minority business owners. For example, Rumens and Ozturk (2019) used in-depth qualitative interviews with 21 gay men who are small business owners in the United Kingdom to explore and document the role of heteronormativity in the entrepreneurial development of their business ventures. Essers et al. (2023) use semi-structured interviews with 11 LGBT entrepreneurs in the Netherlands. Their analysis focuses on the intersection of gender and sexuality, also in the context of the prevailing social construct of entrepreneurs as masculine heterosexual men. The results of their qualitative interviews

revealed substantial heterogeneity in LGBT entrepreneurs' reactions to the structural constraints of heteronormative perceptions of entrepreneurship. Cunningham and Flanagan (2017) interviewed ten gay men who are entrepreneurs in Amsterdam, Netherlands to understand how sexual minority status worked as a strength as opposed to a weakness for their sample.

Our study examining sexual orientation and entrepreneurship is also related to recent work linking the policy environment for sexual minorities with entrepreneurial ventures. Specifically, Conti et al. (2022) examine the effects on entrepreneurship outcomes of state laws outlawing discrimination on the basis of sexual orientation and gender identity using a difference-in-differences design based on variation across states in the US in the timing of antidiscrimination law adoption. They find these LGBT-related nondiscrimination laws reduce entrepreneurship – presumably by increasing the attractiveness of paid labor – and increase the quality of new ventures by increasing the threshold to leave paid work. Although they do not directly observe the sexual orientation of entrepreneurs, in a companion analysis they show that these effects are larger in occupations with a higher share of LGBT workers, though they also acknowledge that other non-LGBT minority groups may be affected via spillovers.

2.3 Gender, Motherhood, and Entrepreneurship

Our study is also related to a large literature in economics, sociology, and management on the role of gender in the workplace, including self-employment and entrepreneurship, especially as it relates to motherhood and the phenomenon of 'mompreneurs'. Blau and Kahn (2017) comprehensively review the evidence on the gender wage gap, including its magnitude and explanations. In particular, a motherhood wage penalty has been

documented for heterosexual women (Budig & England, 2001) as well as for sexual minority women (Andresen & Nix, 2022). As our data indicate (and as we discuss below), women in different-sex couples are much more likely to have children in the household compared to women in same-sex couples.

Multiple studies have considered motherhood in the context of entrepreneurship. For example, Brush et al. (2009) use institutional theory to explain the household and family context of women entrepreneurs as well as the meso/macro environment, including the expectations of society and cultural norms, intermediate structures, and institutions. They propose extending the '3M' framework typically used to study entrepreneurship – market, money, and management – to a '5M' model that includes motherhood and meso/macro environments. Their gender-aware framework highlights the ways in which household and family contexts disproportionately affect entrepreneurship of women compared to men. One study that is particularly closely related to ours is Yang et al. (2023) who also use Swedish administrative data to study motherhood and entrepreneurship. The authors find that demand side employer discrimination – in their context due to the motherhood wage penalty – may motivate minoritized workers to leave traditional paid labor and become entrepreneurs. Our study allows us to examine whether the findings in Yang et al. (2023) translate to a different group of minoritized workers who face discrimination in traditional labor markets: sexual minorities.

3. Institutional Context of Sweden

Our study makes use of administrative data from Sweden. This section motivates why studying Sweden is interesting for our research question and describes the geographic

distribution of Sweden's sexual minority population. It also describes factors affecting its business climate and entrepreneurship.

3.1 LGBTQ+ Acceptance and the Demographics of Sexual Minorities in Sweden

Using data from 175 countries, Sweden was recently ranked as the fourth most LGBTI-accepting country (Flores, 2021), reflecting its long-standing openness towards sexual minorities. For comparison, Sweden was ranked as more LGBTI-accepting than countries such as Canada (ranked 5th), France (ranked 19th), and the United States (ranked 23rd). The relatively positive attitudes toward LGBTI people in Sweden mean that differences in entrepreneurship and firm survival outcomes documented here may likely underestimate differences worldwide since factors such as customer discrimination against sexual minority entrepreneurs are likely to be significantly worse in other country contexts.

Sweden was one of the pioneers in legalizing registered partnerships for same-sex couples in 1995 and further embraced same-sex marriage in 2009 (Kolk & Andersson, 2020). Registered partnership granted similar rights to traditional marriages, with historical restrictions on child adoption until 2003 and medically assisted insemination until 2005 (Kolk & Andersson, 2020; Rydström, 2011). Post-legalization of same-sex marriage, new registrations for partnerships ceased, but existing ones had the option to convert to marriages. In our study, we refer to both registered partnerships and marriages as legal unions. Figures 1 and 2 show the geographic distribution of Sweden's population and the geographic density of individuals in same-sex unions as a share of the population within each area, respectively. Together, these figures indicate that same-sex couples are more likely to be observed in the more densely populated urban areas of the country.

3.2 Sweden's Labor Market and Environment for Firms

The Swedish labor market, while sharing traits with other Nordic systems, distinguishes itself from those in the rest of the EU and the US through the prominent role of trade unions and employer organizations. The labor market in Sweden is thus built on legislation and collective agreements rather than statutory laws, allowing for flexibility within predefined parameters. Notably, wages are determined by collective bargaining, reflecting the strong organizational representation, with about 70% of employees belonging to employee organizations and nearly 90% working in affiliated firms. This setup mandates equal treatment for all employees in a firm under a collective agreement (Forslund & Skans, 2007).

In comparison to other European nations, Sweden's firm formation rate is lower (Schrör, 2008), attributed to its institutional framework which influences the rate and the type of entrepreneurship that emerge, i.e. productive, unproductive, or destructive (Baumol, 1990; North, 1990). The tax and welfare systems, characterized by complexity and generous transfers, deter business creation by diminishing entrepreneurial returns. Furthermore, the entrepreneurial culture clashes with the welfare state's principles, posing additional challenges for new firm creation (Henrekson, 2005).

Analyzing firm formation within Sweden reveals disparities across urban-rural divisions. Urban areas, especially around major cities like Stockholm, Gothenburg, and Malmö, exhibit the highest startup rates. Though the gap narrows when comparing the ratio of new firms to the labor force, the sectoral focus differs by region, with agriculture, fishery, and forestry startups prevailing in rural areas and service sector firms predominating in urban settings.

4. Expected Associations

Arising out of the economics literature on LGBTQ+ self-employment and the management and entrepreneurship studies on LGBTQ+ founded ventures, we identify several key expected associations that we can test with our administrative data from Sweden. Importantly, all of the associations we discuss here pertain primarily to entrepreneurship likelihood differences associated with sexual orientation; no prior quantitative work to our knowledge has tested for differences in firm survival for sexual minority-founded ventures compared to other ventures.

Many studies using survey evidence from the US and Canada indicate that sexual minority men are less likely to be self-employed while sexual minority women are more likely to be self-employed than otherwise similar heterosexual individuals (Jepsen & Jepsen, 2017; Leppel, 2016; Waite & Denier, 2016). Combined with the qualitative evidence summarized above regarding higher entrepreneurial intention and motivation among sexual minorities as well as the lower likelihood of childrearing responsibilities for sexual minority women compared to heterosexual women, we expect that sexual minority women in Sweden will be more likely to be entrepreneurs compared to otherwise similar heterosexual women. For men, we expect that – despite the qualitative evidence documenting higher entrepreneurial intention – institutional discrimination and more limited resource pooling will result in sexual minority men in Sweden having a lower likelihood of being entrepreneurs than their heterosexual counterparts. It is unclear whether sexual minorities will differ from heterosexuals in terms of firm survival given a lack of prior evidence relating to sexual orientation based firm survival disparities, though in our heterogeneity analyses below we explore the roles of external and internal factors in

contributing to firm survival gaps by sexual orientation. Our work provides the first empirical evidence regarding this question.

5. Data

5.1 Individual Data

Our principal data come from Swedish population registers covering the period of 1995 to 2020. We start with 1995 as this was the first year that individuals could register a same-sex relationship in Sweden. For every individual (older than 18) who legally resides in Sweden, we can determine whether they have ever entered into a legal same-sex union (either a registered partnership or a marriage) and whether they have ever entered into a legal different-sex union. As individuals can be followed across time, the data generate an extensive individual longitudinal dataset. Because our only measure of minority sexual orientation is related to being in a relationship, we exclude individuals who have never entered a legal union of any type. Individuals who have ever entered a legal same-sex union are labeled 'likely sexual minorities' or are simply referred to as 'sexual minorities'. People who have entered exclusively different sex legal unions are referred to as 'likely heterosexuals', or simply as 'heterosexuals'. This approach is similar to other Swedish registry data studies (see: Aldén et al., 2015; Andersson, Noack, Seierstad, & Weedon-Fekjær, 2006). Additionally, the extant research has demonstrated the credibility of this couples-based approach. For example, prior work has shown that most individuals in same-sex romantic relationships refer to themselves as gay, lesbian, or bisexual or use other non-heterosexual terms to describe their sexual orientation (Badgett et al., 2021).

5.2 Entrepreneurship Outcomes and Firm Survival

For entrepreneurship outcomes, we follow Yang et al. (2023) and use the individual administrative data that contain confidential information on each person's occupation and whether they own a firm. We restrict our sample to working-age individuals between 18 and 65 years old. For the likelihood estimations, we define an outcome as one if the individual is an owner of at least one firm and 0 otherwise.

Our survival analysis uses the Swedish business registry data, which are administrative data maintained on all new and existing businesses in Sweden.[3] Using individual administrative data, each business[4] is linked to its owner. Our survival estimations have several limitations. First, we restrict our analysis to firms that were created after 1995 and had founders who were aged 18-65 years old during the founding year. Second, we truncate 6.7% of the businesses that have exited the market by splitting or merging with another firm. Third, to reinforce our examination of the demographic and geographical characteristics of the founders, we limit our sample to firms with a single owner. Most Swedish firms created after 1995 were owned by only one entrepreneur and only 7.5% had multiple owners. Fourth, less than 2.7% of the firms do not include information on owners or industries in the founding year (year 0) but did have owner and industry information in the consecutive year (year 1). In these cases, we use the information from year 1 under the assumption that the owner in year 1 is the founder of the firm and that the industry characteristics are constant across years 1 and 0.[5]

[3] This includes firms in Sweden that are owned by foreigners who are Swedish residents.
[4] One individual can have several firms. For the survival estimations, we match every firm with the entrepreneur. Thus, several firms can have identical owners.
[5] In a sensitivity analysis the same estimation has been performed removing these owners, with consistent results.

6. Empirical Approach

We estimate linear probability regression models of the likelihood of entrepreneurship as a function of sexual minority status and other observed demographic characteristics:

$$Y_{irt} = \alpha + \beta_1(EVER\ IN\ A\ LEGAL\ SAME-SEX\ UNION)_i + \gamma X_{irt} + \delta T_t + \varepsilon_{irt} \quad (1)$$

where Y_{irt} is the entrepreneurial outcome for individual *i* in regional category *r* at time *t,* captured by a binary variable that is equal to 1 if the individual is an entrepreneur and 0 otherwise. EVER IN A LEGAL SAME-SEX UNION is an indicator that is equal to one for individuals who have ever been observed in a legal same-sex union (i.e., registered partnership or same-sex marriage).[6] *X* is a vector of individual demographic characteristics per the population register data which include age and age squared, education (dummy variables are used for the following education groups: less than primary education; primary education; completed secondary education; more than secondary education, but less than a bachelor's degree; bachelor's degree; advanced degree; and other/unknown educational background; with the excluded category being uncompleted secondary school education), a dummy reflecting foreign born status, a dummy reflecting immigration background,[7] a dummy reflecting legal union (married or in a registered partnership), a dummy reflecting having been divorced,[8] and a dummy reflecting the presence of children in the household.[9]

[6] Note that because we drop individuals who were never in a legal union of any kind, the excluded comparison group is composed of individuals who were ever observed to be in at least one legal different-sex union and never observed to be in a same-sex relationship. If an individual was observed to be in both a same-sex and a different-sex relationship at different points of their life, we include them in the EVER IN A LEGAL SAME-SEX UNION variable.

[7] Immigration background is a dummy variable that is equal to one if both parents of a Swedish born individual are immigrants and zero otherwise..

[8] While we exclude individuals who were never in any kind of legal partnership, our sample includes individuals who were in a legal partnership for at least one year, such as people who are currently separated, divorced, or widowed.

[9] A limitation of the data is that we do not observe working hours.

The X vector also includes detailed controls for geography that are designed to capture urban/rural differences.[10] T_t are the year dummies. The error term ε_{irt} in equation (1) is assumed to be iid. β_1 is our coefficient of interest, and it represents the relative association between sexual minority status and entrepreneurship. We estimate standard errors clustered at the level of the observation (here, the individual level for likelihood of entrepreneurship) (Cameron & Miller, 2015; Wooldridge, 2010).

For our firm survival results, we estimate Cox proportional hazards models (Cox, 1972) with the same sets of control variables as those used in equation (1). The Cox model relies on the assumption of a common baseline hazard across the unit of observation, which implies that there is no restriction on the distribution of survival times. The baseline hazard function is not required to be a priori specified and is based on a partial likelihood function, which provides benefits relative to the parametric version (Breslow, 1974; Kalbfleisch & Prentice, 2002). The proportional hazard model is:

$$h(t) = h_0(t)exp(x\beta) \quad (2)$$

where $h(t)$ is the hazard function at time *t*, the instantaneous failure rate (exit) is conditional on a firm surviving until then, $h_0(t)$ denotes the baseline hazard function, and *x* is a vector representing the founding owner and geographic-specific covariates. β is a vector of the parameters to be estimated. As discussed by Wennberg and DeTienne (2014) firm exit is a multifaceted concept that captures both successful and unsuccessful

[10] Specifically, we include the log of the municipality population and dummy variables for living in an urban area with high access to a city with at least 50,000 residents, living in an urban area with low access to a city with at least 50,000 residents, living in a rural area with high access to a city with at least 50,000 residents, living in a rural area with low access to a city with at least 50,000 residents, and living in a rural area with very low access to a city with at least 50,000 residents, with living in a metropolitan region (total population of at least 500,000 residents) is used as the base category (Appendix Table A1 contains detailed descriptions of each category).

outcomes. Our measure of firm failure excludes mergers and acquisitions and captures 'true' failure, which, following Weterings and Marsili (2015) and Backman and Kohlhase (2020), is defined as a firm becoming inactive by neither having any employees nor paying any taxes. We also include industry dummies reflecting the sectoral industry of the firm (such as agriculture, manufacturing, construction, service, healthcare, or public administration) and a dummy capturing firm ownership, which is used to control for whether the venture is a limited liability company (LLC). We cluster standard errors at the firm level for the firm survival analyses.

7. Results

7.1 Descriptive Statistics

Table 1 provides descriptive statistics of our main sample from the population register data. We present sample averages for women who were ever in a different-sex legal union and never in a same-sex legal union (i.e., likely heterosexual women) in column 1; women who were ever in a same-sex legal union (i.e., likely sexual minority women) in column 2; men who were ever in a different-sex legal union and never in a same-sex legal union (i.e., likely heterosexual men) in column 3; and men who were ever in a same-sex legal union (i.e., likely sexual minority men) in column 4. Again, recall that we exclude from the sample any individual who is never observed to be in any kind of partnership because our method for identifying likely sexual minorities relies on ever having been in a legal union. We present information on demographic characteristics including age, immigration background, marital status, divorcee status, and educational attainment, as well as information on the presence of children in the household, geographical characteristics and

our key entrepreneurship measure. Given our large sample sizes, most mean differences across likely sexual orientation groups are statistically significant at the one percent level.

[Table 1 here]

The demographic patterns in Table 1 largely confirm results from prior studies in economics and demography that rely on the same underlying data (e.g., Aldén et al., 2015; Andersson et al., 2006). We find that likely sexual minority men and women are both younger and more highly educated than their likely heterosexual counterparts. Sexual minorities are also much less likely to have children present in the household than likely heterosexual individuals, though 28.4 percent of women ever in same-sex couples have children present in the household. Table 1 also confirms that sexual minority individuals live in more highly populated places (e.g., metropolitan and cities) which likely have more positive attitudes toward sexual minorities. The raw data suggest that sexual minority men and women are both less likely to be entrepreneurs on average than their likely heterosexual counterparts.

Table 2 presents descriptive statistics for the much smaller sample of founders. Most of the patterns remain true: likely sexual minority men and women are younger and more highly educated than their likely heterosexual counterparts in the sample of founders, and they are also much less likely to have children present. As in Table 1, sexual minorities who have founded firms live in much more densely populated places. Regarding the sectors of their new ventures, Table 2 reveals some interesting differences relative to the overall industrial distribution of the population in Table 1. Specifically, while sexual minorities were significantly more likely to be observed in the service sector in the population in Table 1, there is no significant difference in the likelihood of having a service-related venture that

is related to sexual orientation among founders in Table 2. Instead, Table 2 shows that firms founded by sexual minorities are much more likely to be in public sectors and administration than firms founded by heterosexual people. These entrepreneurial ventures in the public and administration sectors may be more likely to be consistent with civic orientation or other LGBTQ+ themed interests. We also see in Table 2 that agricultural firms are significantly less prevalent among sexual minority founders than among heterosexual founders.

[Table 2 here]

7.2 Sexual Orientation and the Likelihood of Entrepreneurship

Table 3 presents our main estimates on sexual orientation and entrepreneurship likelihood. Results for women are presented in the top panel; results for men are presented in the bottom panel. We present unadjusted estimates in column 1, and we sequentially add controls for observable individual-level covariates (column 2); time fixed effects (column 3); and geographical characteristics (column 4).[11] Each entry is the coefficient estimate on 'ever in a legal same-sex union'; we provide an expanded set of regression coefficients in Appendix Table A2.

Table 3 indicates that demographic differences are strongly related to differential entrepreneurship likelihood across sexual minorities and heterosexual individuals. Column 1 presents estimates without controls and confirms the raw sample patterns from Table 1: sexual minority men and women are significantly less likely to be entrepreneurs than heterosexual men and women. Including controls for observable characteristics results in differential patterns across gender. For women, we observe that including basic

[11] Including municipality fixed effects rather than geographic characteristics does not change qualitative or quantitative patterns.

demographic controls returns significant estimated *premia* for sexual minority women compared to heterosexual women with similar observables. Adding time dummies in column 3 and geographic controls in column 4 renders the sexual orientation differences smaller, but a statistically significant positive disparity remains. We estimate that sexual minority women are 0.3 percentage points more likely than otherwise comparable heterosexual women to be entrepreneurs. This is approximately 4-5% higher than the sample mean.[12] Our findings for women are in line with those discussed in Section 2.3.

For men, a different pattern emerges in Table 3: including controls for observable characteristics results in a smaller though still statistically significant entrepreneurship penalty for sexual minority men compared to comparable heterosexual men. This remains true after including controls for year fixed effects and geographic characteristics. We estimate that sexual minority men are around one percentage point less likely to be entrepreneurs than otherwise comparable heterosexual men, which is approximately 7-8% relative to the sample mean.[13] This pattern is in line with our expected associations presented in Section 2.3.

[Table 3 here]

Overall these regression-adjusted patterns of entrepreneurship likelihood broadly match other labor market patterns of wages in Sweden: sexual minority men have worse labor market outcomes than comparable heterosexual men, while sexual minority women

[12] In additional results (available upon request) we tested for heterogenous effects by re-estimating our model for various subgroups (such as restricting the sample to those that are currently in legal unions, those that are childless, and those above or below the median age). In all cases we continue to document a positive entrepreneurship premium for sexual minority women compared to comparable heterosexual women.

[13] In additional results (available upon request) we re-estimate our models restricting our sample in several ways. These results indicate that the significant penalty documented for sexual minority men remains when restricting the sample to childless men, prime-working age men, and men currently in or not in a legal union. We also estimated models using entropy weighting (Hainmueller, 2012); these results were qualitatively identical to those presented in Table 1 and are available upon request.

have better labor market outcomes than comparable heterosexual women. It could be that the greater managerial experience enjoyed by sexual minority women makes them particularly well suited to start an entrepreneurial venture, partially explaining their higher likelihood of being an entrepreneur compared to heterosexual women.

7.3 Sexual Orientation and Firm Survival

Having documented that sexual minority women (men) are significantly more (less) likely to be entrepreneurs than comparable heterosexual women (men), we now turn to whether the firms they founded have differential survival probabilities than firms founded by otherwise similar heterosexual individuals. Table 4 presents these results, with results for women in column 1 and men in column 2.[14] All models control for individual demographics, year fixed effects, and geographic controls. The estimate in column 1 of Table 4 indicates that firms founded by sexual minority women are significantly more likely to fail/not survive to the next period than otherwise comparable firms founded by heterosexual women. This pattern is in line with Ahmed and Hammarstedt (2022) who documented worker and customer discrimination against lesbian business owners. For men in column 2 of Table 4, the Cox proportional hazard model coefficient for sexual minorities is statistically indistinguishable from zero.[15]

[Table 4 here]

7.4 Heterogeneity and Mechanisms in the Firm Survival Relationship: External vs. Internal Factors

[14] We provide an expanded set of regression coefficients in Appendix Table A3.

[15] We considered using other measures of firm performance (such as firm level sales) but these measures of firm performance rely on the reporting of these data by firms, and many firms have missing data. This leads to large amount of missingness and further exploration demonstrated differential missingness related to sexual orientation which would likely bias analyses of these outcomes and complicate interpretation.

Having demonstrated that ventures founded by sexual minority women are more likely to fail we next explore underlying reasons for these firm survival disparities. In what follows we explore whether external or internal factors can explain the firm survival gap for sexual minority women (and we present results for sexual minority men for completeness). It is worth stressing that prior literature does not provide guidance or predictions on this question, as to our knowledge there is no quantitative work on sexual orientation and firm survival. However, using theoretical contributions from across the social sciences combined with qualitative insights, we have identified several expected associations below that emerged through the development of the paper. These analyses allow us to further explore the contributions of external and internal factors to firm survival.

To test these expected associations, we estimate Cox proportional hazards models on split samples that can help shed light on the relative importance of external and internal factors, and we report these results in Table 5. We also estimate models with interactions between the EVER IN A LEGAL SAME_SEX UNION indicator and relevant subgroup indicator to directly test whether differences across groups are statistically significant. We present results for women in the top panel and for men in the bottom panel. In each pair of rows we explore the range of external and internal factors that may be associated with differential firm survival.

[Table 5 here]

First, we test for the role of a key external factor: customer discrimination. Specifically, we ask whether areas with more positive LGB attitudes will be associated with relative improvements in firm survival for firms founded by sexual minorities, given that more positive LGB attitudes are likely associated with lower levels of customer

discrimination.[16] Table 5 shows that the sexual minority penalty to firm survival for women in the top panel is estimated to be slightly larger in places with more negative LGB attitudes, though as we see in Appendix Table A4 when we estimate an interaction model these differences across groups are not statistically significant. For men, neither split sample estimate is statistically significant, and neither is the relevant interaction term in Appendix Table A4. Thus, there is only a limited role for customer discrimination as proxied by LGB attitudes in explaining firm survival gaps.

Second, we examine whether areas with a higher density of sexual minority couples will have relatively better firm survival for ventures owned by sexual minority individuals due to being able to capitalize on 'trapped markets'. The relevant pairs of rows of Table 5 show that the higher likelihood of failure for ventures started by sexual minority women is driven by places with below median density of same-sex couples in Sweden, and associated interaction estimate in Appendix Table A4 is also statistically significant. This is consistent with the possibility that failure to find a 'trapped market' of sexual minorities might contribute to the lower success rate of firms founded by sexual minority women. For men in the bottom panel of Table 5, neither split sample estimate is statistically significant, and the associated interaction estimate in Appendix Table A4 is similarly not statistically significant.

Finally, regarding external factors, we expected that sexual minority ventures will be relatively more successful in more recent years. Much has changed with regard to sexual

[16] Admittedly, improved attitudes may also positively associate with good mental health and wellbeing for sexual minorities which may independently contribute to better entrepreneurial outcomes. Improved attitudes toward sexual minorities may also be associated with reduced discrimination from formal institutions such as banks and lenders, allowing LGB entrepreneurs to 'weather the storm'. Here we discuss customer discrimination as one other factor that is likely to be correlated with LGB attitudes, but others surely exist as well.

minority rights over our full sample window (1995-2020). Most obviously, same-sex marriage was legalized in 2009 – enabling easier resource pooling for sexual minorities, providing legislative rights to sexual minorities and according to prior literature, improving attitudes towards sexual minorities. Firm survival for sexual minorities should be relatively stronger in the later period than in the earlier period because both increased resource pooling and improved attitudes should improve firm survival conditional on firm founding if external factors are important. Thus, we expect that sexual minority ventures will be relatively more successful in more recent periods than in more distant periods.

The evidence on the early versus late sample period in Table 5 provides suggestive evidence consistent with our expectations and a role for external factors, in that the differential failure result is larger and statistically significant in the earlier period for sexual minority women rather than in the later period when LGB attitudes have continued to improve. One piece of caution, however, is that the interaction estimate in Appendix Table A4 comparing the early and late period for sexual minority women is not itself statistically significant. For men we see the opposite pattern – we estimate a significant differential likelihood of firm failure for ventures of sexual minority men in the more recent period but not in the earlier period, and these differences across time are statistically significant in the interacted model in the bottom panel of Appendix Table A4. This counterintuitive result for men may be related to the changing nature of selection into entrepreneurship for sexual minority men, and it is a finding that is highly worthy of further research.

Regarding internal factors, differential childrearing responsibilities between sexual minority and heterosexual people may be related to ability to invest time in one's firm,

especially for women (as the childrearing rates for sexual minority men are quite low).[17] We therefore expect that the survival gap will be smaller among samples of entrepreneurs that have children in the household, relative to those that do not have children in the household. Our findings in Table 5 indicate that the differential rate of survival among firms founded by sexual minority women is relatively similar regardless of whether children are present in the household: both split sample estimates are statistically significant, and the relevant interaction estimate in Appendix Table A4 is not itself statistically significant. This is broadly inconsistent with a role for childrearing responsibilities in explaining the differential firm survival gap for sexual minority women-led ventures. For men in Table 5 we do estimate that differential firm failure for sexual minority men is statistically significant in the sample of individuals without children (which, again, is most sexual minority men in our sample), though the relevant interaction estimate in Appendix Table A4 is not itself statistically significant.

Another internal factor that may be relevant is access to a partner's resources, which likely impacts an entrepreneur's ability to infuse additional capital. Given that sexual minority women's partners are women while heterosexual women's partners are men, and there is a well-documented gender advantage in income and other financial resources, we expect that the survival gap will be greater among women that are currently in a legal union (relative to those not currently in a legal union), given that conditional on partnership, heterosexual women likely have greater resource access as their partners likely have greater financial resources. Interestingly, we see that the higher failure rate of firms founded by

[17] Multiple studies in the LGBTQ+ economics literature demonstrate that women in same-sex couples split housework and childcare more equally across partners than in different-sex couples (Martell & Roncolato, 2016; Schneebaum, 2013). Other studies demonstrate that birth mothers in same-sex couples take less parental leave than birth mothers in different-sex couples (Evertsson & Boye, 2018).

sexual minority women is driven by people with romantic partners in the top panel of Table 5. The result for romantic partners is notable because sexual minority women's partners are women while heterosexual women's partners are men, and there is a well-documented gender advantage in income and other financial resources. Thus, this evidence is consistent with a role of at least one internal factor in contributing to the higher likelihood of firm failure for ventures founded by sexual minority women, though we note that these differences are not statistically significant in the relevant interacted model shown in Appendix Table A4. For men, we estimate differential firm failure for ventures of sexual minority men within the sample that has a romantic partner, though the associated interaction estimate in Appendix Table A4 is not statistically significant.

8. Discussion

8.1 Findings

Our results document that sexual minorities are significantly less likely to be entrepreneurs than heterosexual individuals in the full population. Once we control for observable characteristics, these differences are substantially reduced for men, though they remain significant. In contrast, we estimate that sexual minority women are significantly *more* likely to be entrepreneurs than their similarly situated heterosexual women counterparts. Regarding firm survival, there are no significant differences associated with minority sexual orientation for men in the full sample, though firms founded by sexual minority women fail significantly more quickly than comparable firms founded by heterosexual women. When we explore the roles of external factors (e.g., social attitudes, resource pooling, trapped markets) and internal factors (e.g., family structure, partner resources), we

find some suggestive evidence that partner resources may contribute to the higher failure rate for ventures founded by sexual minority women and stronger evidence that the ability to cater to 'trapped markets' may play a role as well. For men, few of the tested interactions are statistically significant and more research is warranted.

8.2 Contributions

Our results on entrepreneurship likelihood and firm level outcomes from Swedish administrative data offer important insights that build on prior theoretical, qualitative, and quantitative studies in economics, management, and entrepreneurship. Prior theoretical studies indicate that marginalized populations may be more likely to be entrepreneurs due to a greater likelihood of being pushed or pulled into entrepreneurship compared to heterosexuals. Further, theoretical studies and quantitative analyses suggest that sexual orientation-based entrepreneurship likelihood and firm level disparities may differ across gender, given then important role of gender for entrepreneurship and broader labor market outcomes.

Our findings related to entrepreneurship likelihood match prior survey evidence from the US and Canada that rely on survey data (Jepsen & Jepsen, 2017; Leppel, 2016; Waite & Denier, 2016) but differ from a prior analysis of the UK (Marlow et al., 2018), adding context to a small but growing literature. Notably, Sweden is a relatively more progressive country on LGBTQ+ issues than the US, Canada, and the UK (Flores, 2021). This may mean that the paid labor market is more welcoming to sexual minorities, and thus their need to seek entrepreneurial activities to avoid discrimination is lower, in line with prior theoretical studies related to the role of discrimination in pushing minorities into

entrepreneurship, though this of course makes the finding for sexual minority women all the more surprising.

Relative to the qualitative management and entrepreneurship literature, our results are broadly different from those which have shown that gay men's entrepreneurial intentions and motivations are stronger than those of heterosexual men. Our findings contribute to this literature and highlight the need to explore why self-reported intentions and motivations do not translate to behaviors and outcomes. Here it could be that the differences in ours and others findings are related to Sweden being a relatively more accepting place with respect to LGB people, including compared to where other qualitative studies have taken place, which may make the push to entrepreneurship weaker for gay men than in other countries such as France, as studied in Germon et al. (2019). Nonetheless, more work is needed to understand the underlying differences in our findings and existing qualitative evidence.

Understanding the specific role of geographic differences is beyond the scope of our paper due to having data on only one country, though we note that in Table 5 exploring differences in company survival gaps across areas with relatively more and less progressive attitudes within Sweden revealed suggestive evidence consistent with customer discrimination against sexual minorities playing a role, as sexual minority founded ventures were estimated to fail more quickly in areas with relatively worse attitudes toward sexual minorities within Sweden. This result – and the main finding that ventures of sexual minority women fail more quickly than ventures of heterosexual women – is consistent with prior work from Sweden showing that lesbian-started ventures face both customer and worker discrimination (Ahmed & Hammarstedt, 2022). Future cross-country studies might

shed important direct evidence on the role of regional attitudes and context in the relationships among sexual orientation, entrepreneurship, and firm survival, though we note that the existence of some gaps in these outcomes favoring heterosexual individuals is notable given that Sweden is the fourth most accepting country to LGBTI people according to Flores (2021). This may suggest that the size of the sexual minority gaps in these outcomes for individuals in other less accepting places may be even larger.

Relative to prior studies, we are able to offer important insights with regards to firm survival; none of the existing survey-based evidence on self-employment of sexual minorities study firm survival, and our samples are much larger than qualitative studies from management and entrepreneurship literatures allowing us to investigate key predictions following from that literature. Our findings therefore offer an important complementary set of evidence on sexual orientation and entrepreneurship, including allowing new evidence on the role of both external and internal factors which prior theoretical, quantitative, and qualitative studies have hypothesized as playing a key role. Interestingly, we find that few of the factors suggested in prior studies are important drivers of sexual orientation based disparities, providing important context for further theoretical development and refinement.

8.3 Limitations

Our study is subject to some limitations, many owing to the data. First, we note that our study is conducted in Sweden – a progressive country that was among the first in the world to legally recognize same-sex relationships and grant sexual minorities significant rights. Second, although the population registers provide us with very large samples and high confidence in the individuals we study as sexual minorities, a consequence of our use of

entrance into legal same-sex unions to determine sexual minority status is that we cannot examine sexual minorities who are never observed to enter legal same-sex unions. Our definition also prevents us from being able to study sexual minority individuals in same-sex couples who choose not to register their relationships with the Swedish government. Since we know from other research that bisexual individuals are disproportionately likely to enter different-sex relationships if they enter relationships at all, this means that our data are also very likely not capturing a large share of partnered bisexual individuals. We encourage future studies to further advance our understanding regarding these groups.

Unfortunately, we cannot explore intriguing patterns from prior work on sexual orientation and entrepreneurial motivations, intentions, and cognition because we do not have qualitative evidence or survey data with these measures. This is a limitation of our work relative to prior work. For example, Germon et al. (2019) show that sexual minority entrepreneurs exhibit greater entrepreneurial intention. Schindehutte (2005) discusses how sexual minority entrepreneurs are motivated by the freedom it brings and that more knowledge about the sexual minority consumer and the relevant market increases their entrepreneurial success. These are very interesting channels that we cannot explore with our data but that are worthy of more research.

9. Conclusion

Our findings expand the scarce literature on sexual orientation, entrepreneurship, and firm survival using population-based registry data linked to business register data from Sweden. Our unusually detailed and high-quality administrative data linkages allow us to provide complementary evidence to the handful of related survey-based studies that exist in the

literature, as well as several qualitative studies of the relationship between sexual orientation and entrepreneurship. Future work should explore opportunities to understand the relationship between minority sexual orientation and entrepreneurship from other contexts.

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Table 1: Descriptive Statistics for the Full Sample

	(1) Heterosexual women (i.e., women have only ever been in different-sex unions)	(2) Sexual minority women (i.e., women who have ever been in a legal same-sex union)	(3) Heterosexual men (i.e., men who only ever been in different-sex unions)	(4) Sexual minority men (i.e., men who have ever been in a legal same-sex union)
Entrepreneurship	0.063	0.050***	0.128	0.094***
Age	43.694	35.031***	44.475	40.649***
Immigration background	0.026	0.031***	0.024	0.027***
Foreign born	0.202	0.133***	0.189	0.237***
Currently in legal union	0.684	0.365***	0.666	0.398***
Childrearing	0.459	0.284***	0.440	0.050***
Less than primary education	0.062	0.005***	0.070	0.015***
Primary education	0.091	0.092	0.111	0.085***
Uncompleted secondary school education	0.260	0.142***	0.268	0.184***
Completed secondary education	0.180	0.239***	0.197	0.197
More than secondary education, but less than a bachelor's degree	0.158	0.194***	0.147	0.171***
Bachelor's degree	0.229	0.305***	0.179	0.306***
Advanced degree	0.008	0.015***	0.016	0.025***
Other/unknown education	0.013	0.008***	0.012	0.017***
Already divorced	0.149	0.179***	0.143	0.151***
Population, municipality	128,396	225,971***	128,553	321,990***
Agricultural	0.007	0.005***	0.022	0.005***
Manufacturing	0.066	0.059***	0.188	0.053***
Construction	0.010	0.012***	0.093	0.011***
Service	0.263	0.308***	0.379	0.410***
Healthcare	0.195	0.187***	0.041	0.139***
Public sectors and administration	0.261	0.270***	0.121	0.202***
Other sectors	0.197	0.158***	0.156	0.179***
Metropolitan	0.308	0.474***	0.310	0.634***
Cities, high access	0.402	0.353***	0.402	0.236***
Cities, low access	0.078	0.043***	0.077	0.030***
Rural, high access	0.123	0.082***	0.123	0.064***
Rural, low access	0.081	0.044***	0.081	0.033***
Rural, very low access	0.008	0.004***	0.008	0.002***
Number of unique individuals	2,512,186	11,089	2,400,726	8,547

Number of individual-year observations	45,019,382	223,006	42,908,392	160,062

Author calculations from the Sweden population register. *** p<0.01, ** p<0.05, * p<0.1 indicate the statistical significance of the difference in means between columns 1 and 2 or that between columns 3 and 4.

Table 2: Summary Statistics, Founders Only

	(1) Heterosexual women	(2) Sexual minority women	(3) Heterosexual men	(4) Sexual minority men
Limited liability company (LLC)	0.120	0.135	0.217	0.202
Age	42.970	36.946***	44.051	39.714***
Immigration background	0.027	0.029	0.025	0.023
Foreign born	0.233	0.186***	0.234	0.291***
Currently in legal union	0.698	0.393***	0.661	0.391***
Childrearing	0.513	0.241***	0.460	0.056***
Less than primary education	0.043	0.005***	0.061	0.011***
Primary education	0.081	0.054**	0.113	0.095*
Uncompleted secondary school education	0.225	0.133***	0.256	0.160***
Completed secondary education	0.209	0.193	0.200	0.187
More than secondary education, but less than a bachelor's degree	0.175	0.243***	0.153	0.194***
Bachelor's degree	0.246	0.341***	0.187	0.315***
Advanced degree	0.008	0.020***	0.012	0.019*
Other/unknown education	0.013	0.011	0.017	0.018
Already divorced	0.163	0.174	0.157	0.137
Population, municipality	148,033	301,224***	144,260	338,709***
Agricultural	0.077	0.037***	0.102	0.036***
Manufacturing	0.032	0.031	0.042	0.027*
Construction	0.012	0.021*	0.142	0.016***
Service	0.473	0.473	0.526	0.546
Healthcare	0.059	0.068	0.016	0.045***
Public sectors and administration	0.076	0.188***	0.044	0.132***
Other sectors	0.271	0.184***	0.129	0.199***
Metropolitan	0.352	0.615***	0.352	0.637***
Cities, high access	0.345	0.213***	0.354	0.211***
Cities, low access	0.066	0.029***	0.066	0.030***
Rural, high access	0.139	0.094***	0.131	0.081***
Rural, low access	0.088	0.037***	0.087	0.037***
Rural, very low access	0.010	0.012	0.010	0.003*
Number of founders	187,851	1,066	314,606	1,153

Author calculations from the Sweden business registry data linked to the Sweden population register. *** p<0.01, ** p<0.05, * p<0.1 indicate the statistical significance of the difference in means between columns 1 and 2 or that between columns 3 and 4.

Table 3: Sexual Minority Status and the Likelihood of Entrepreneurship

	(1) No controls	(2) With demographic controls	(3) With year fixed effects	(4) With geographic characteristics
Women				
Ever in a legal same-sex union	-0.013***	0.005***	0.004**	0.003**
	(0.002)	(0.001)	(0.001)	(0.001)
Sample mean	0.063	0.063	0.063	0.063
R-squared	0.000	0.013	0.013	0.014
Number of individual-year observations	45,242,388	45,242,388	45,242,388	45,242,388
Men				
Ever in a legal same-sex union	-0.034***	-0.007***	-0.009***	-0.010***
	(0.002)	(0.002)	(0.002)	(0.002)
Sample mean	0.128	0.128	0.128	0.128
R-squared	0.000	0.022	0.024	0.026
Number of individual-year observations	43,068,454	43,068,454	43,068,454	43,068,454
Demographic characteristics?		**X**	**X**	**X**
Year fixed effects?			**X**	**X**
Geographic characteristics?				**X**

Author calculations from the Sweden population register linked to the Sweden business registry data, 1995-2020. Linear probability models. Robust standards errors clustered at the individual level are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Demographic characteristics include age, age squared, foreign born, immigration background, union and marital status, childrearing, and education levels. Geographical characteristics are ln(municipality population) and regional categories.

Table 4: Sexual Minority Status and Firm Survival, Cox Proportional Hazards Models

	(1) Women	(2) Men
Ever in a legal same-sex union	1.094*** (0.034)	1.093 (0.061)
Number of founders	188,917	315,759
Demographic characteristics?	**X**	**X**
Year fixed effects?	**X**	**X**
Industry categories?	**X**	**X**
Geographic characteristics?	**X**	**X**

See Table 1 for a listing of the control variables. Robust standards errors clustered at the firm level are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Author calculations are from the Sweden Business registry data linked to the Sweden population register data, 1995-2020. Models further include an LLC status dummy.

Table 5: Investigating the Heterogeneity in and Mechanisms of the Relationship between Sexual Minority Status and Firm Survival for Founders

	(1) Hazard ratio	(2) Standard error	(3) Number of founders
Women			
Full sample estimate	1.094***	(0.034)	188,917
External factors:			
Areas with more positive LGB attitudes	1.100*	(0.058)	60,110
Areas with less positive LGB attitudes	1.114**	(0.055)	77,046
Areas with above median density of same-sex couples	1.058	(0.040)	102,271
Areas with below median density of same-sex couples	1.230***	(0.069)	86,646
Earlier period, 1995-2009	1.141***	(0.048)	106,917
Later period, 2010-2020	1.027	(0.049)	82,000
Internal factors:			
People without children in the household	1.093**	(0.041)	92,243
People with children in the household	1.138**	(0.071)	96,674
People with romantic partners at time of founding	1.144**	(0.060)	131,446
People without romantic partners at time of founding	1.062	(0.041)	57,471
Men			
Full sample estimate	1.093	(0.061)	315,759
External factors:			
Areas with more positive LGB attitudes	1.065	(0.093)	96,609
Areas with less positive LGB attitudes	1.080	(0.102)	121,956
Areas with above median density of same-sex couples	1.085	(0.068)	171,160
Areas with below median density of same-sex couples	1.113	(0.141)	144,599
Earlier period, 1995-2009	1.027	(0.078)	189,791
Later period, 2010-2020	1.177**	(0.096)	125,968
Internal factors:			
People without children in the household	1.124**	(0.066)	171,080
People with children in the household	0.943	(0.214)	144,679
People with romantic partners at time of founding	1.161	(0.106)	208,392
People without romantic partners at time of founding	1.060	(0.075)	107,367

See notes to Table 1 for a listing of the control variables. Robust standards errors with firm level clustering are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Author calculations are from the Sweden Business registry data linked to the Sweden population register data, 1995-2020. Models further include an LLC status dummy.

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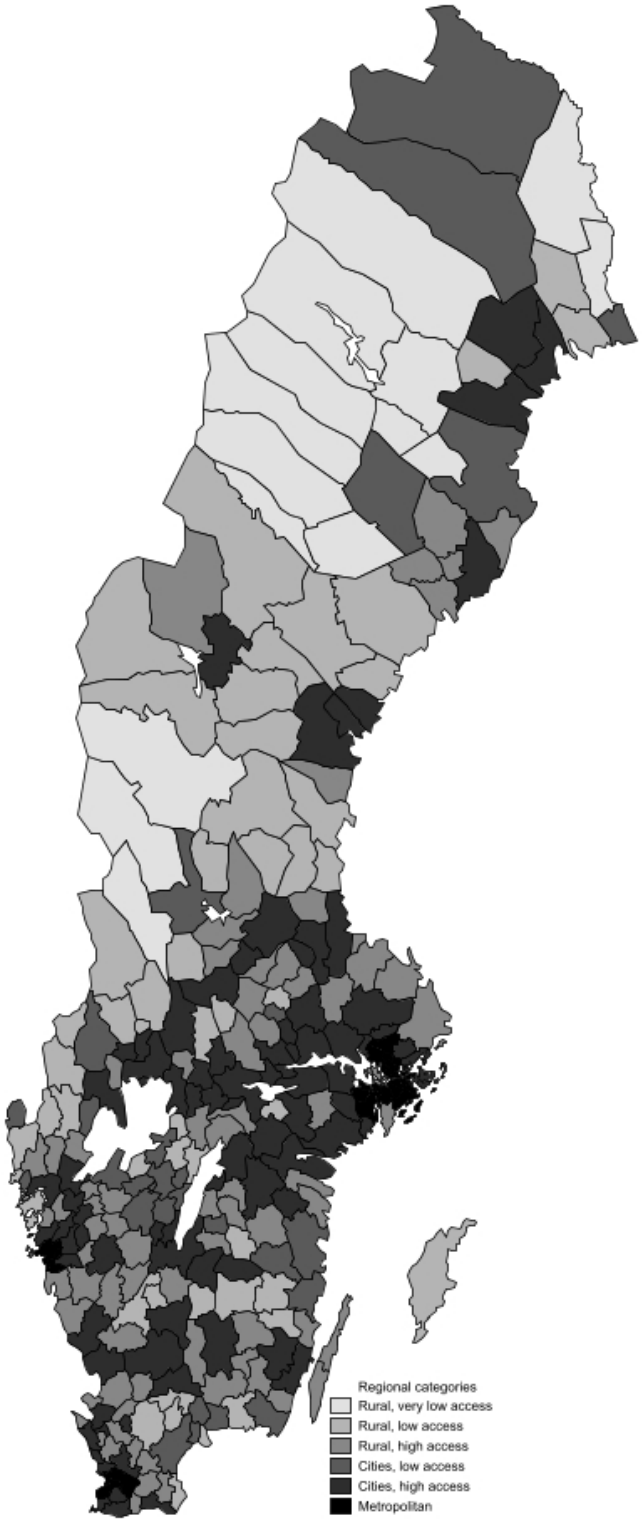

Figure 1: Population Areas in Sweden

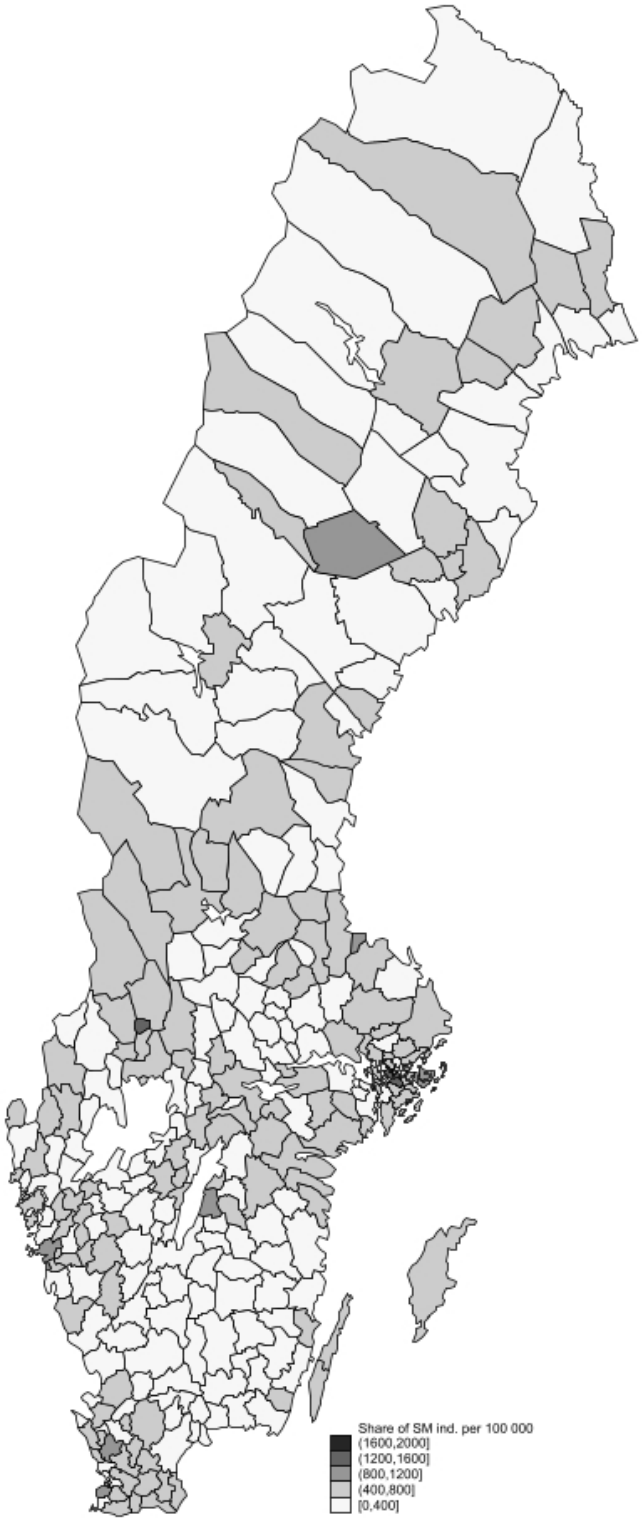

Figure 2: Sexual Minority Share (per 100,000) of the Total Population, by Municipalities in 2020

Notes: This figure illustrates the share of sexual minorities relative to all 18-65 years old individuals by municipality. The individuals whom we do not know sexual orientation are excluded from this sample.

Appendix

Appendix Table A1 presents each of the key variables used in the analysis.

Appendix Table A2 reports the expanded set of coefficient estimates from Table 1.

Appendix Table A3 reports the expanded set of coefficient estimates from Table 2.

Appendix Figure A1 reports maps illustrating the proportion of entrepreneurs that identify as a sexual minority by municipality, respectively.

Table A1: Variable descriptions

Variables	Description
Entrepreneurs	Dummy variable that is set to 1 if the individual is an entrepreneur and 0 otherwise.
Survival	Dummy variable that is set to 1 if the firm is active, has employees, revenues, sales, and profits and 0 otherwise.
Ever-in same-sex legal union	Dummy variable that is set to 1 if the individual has ever been in a same-sex legal union and 0 otherwise.
Age	Continuous variable that is equal to the individual age.
Childrearing	Dummy variable that is set to 1 if the individual has at least one child under 18 years old and 0 otherwise.
Currently in legal union	Dummy variable that is set to 1 if the individual is in legal union (married or in a registered partnership) at year t and 0 otherwise.
Divorced already	Dummy variable that is set to 1 if the individual has previously separated from a legal union (divorced or separated from registered partnership) and 0 otherwise.
Educational categories	Categorical variable that takes the value:
Less than primary education	Dummy variable that is set to 1 if the individual's highest educational achievement is less than primary education and 0 otherwise.
Primary education	Dummy variable that is set to 1 if the individual's highest educational achievement is primary education and 0 otherwise.
Uncompleted secondary school education	Dummy variable that is set to 1 if the individual's highest educational achievement is secondary education (less than 2 years) and 0 otherwise.
Completed secondary education	Dummy variable that is set to 1 if the individual's highest educational achievement is secondary education (3 years) and 0 otherwise.
More than secondary education, but less than a bachelor's degree	Dummy variable that is set to 1 if the individual's highest educational achievement is more than secondary education (less than 2 years) and 0 otherwise.
Bachelor's degree	Dummy variable that is set to 1 if the individual's highest educational achievement is bachelor level and 0 otherwise.
Advanced degree	Dummy variable that is set to 1 if the individual's highest educational achievement is doctoral or licentiate and 0 otherwise.
Other/unknown education	Dummy variable that is set to 1 if the individual's highest educational achievement is unknown and 0 otherwise.
Firms	Variable indicating the identification number of all firms created by entrepreneurs.
Immigration background	Dummy variable that is set to 1 if both parents of a Swedish born individual are immigrants and 0 otherwise.
Foreign born	Dummy variable that is set to 1 if the individual is not born in Sweden and 0 otherwise.
LLC	Dummy variable that is set to 1 if the firm is a limited liability company and 0 otherwise.
Industry	Categorical variable that takes the value:
Agriculture	Dummy variable that is set to 1 if the individual is mainly working in the agricultural industry and 0 otherwise.
Construction	Dummy variable that is set to 1 if the individual is mainly working in the construction industry and 0 otherwise.
Healthcare	Dummy variable that is set to 1 if the individual is mainly working in the healthcare industry and 0 otherwise.
Manufacturing	Dummy variable that is set to 1 if the individual is mainly working in the manufacturing industry and 0 otherwise.
Public sectors and administration	Dummy variable that is set to 1 if the individual is mainly working in the public sector or administration sector and 0 otherwise.
Service	Dummy variable that is set to 1 if the individual is mainly working in the service industry and 0 otherwise.

Other sectors	Dummy variable that is set to 1 if the individual is mainly not working in the agricultural, construction, healthcare, manufacturing, public administration, service industry and 0 otherwise.
Municipality population	Continuous variable representing the adult municipality population in which the individual is living.
Regional category	Categorical variable that takes the value:
Metropolitan	Dummy variable that is set to 1 if located in municipalities with less than 20% of their population in rural areas and a total population of at least 500,000 in adjacent municipalities and 0 otherwise.
Cities with high access	Dummy variable that is set to 1 if located in other municipalities outside metropolitan with less than 50% of their population in rural areas and at least 50% of their population having less than a 45-minute journey to an agglomeration with at least 50,000 inhabitants and 0 otherwise.
Cities with low access	Dummy variable that is set to 1 if located in other municipalities outside metropolitan with less than 50% of their population in rural areas and less than 50% of their population having less than a 45-minute journey to an agglomeration with at least 50,000 inhabitants and 0 otherwise.
Rural areas with high access	Dummy variable that is set to 1 if located in municipalities with at least 50% of their population in rural areas and at least 50% of their population having less than a 45-minute journey to an agglomeration with at least 50,000 inhabitants and 0 otherwise.
Rural areas with low access	Dummy variable that is set to 1 if located in municipalities with at least 50% of their population in rural areas and less than 50% of their population having less than a 45-minute journey to an agglomeration with at least 50,000 inhabitants and 0 otherwise.
Rural areas with very low access	Dummy variable that is set to 1 if located in municipalities with their entire population in rural areas and with at least an average 90-minute journey to an agglomeration with at least 50,000 inhabitants and 0 otherwise.

Table A2: Sexual Minority Status and the Likelihood of Entrepreneurship, Expanded Set of Coefficient Estimates

	(1) Women	(2) Men
Ever in a legal same-sex union	0.003**	-0.010***
	(0.001)	(0.002)
Age	0.007***	0.012***
	(0.000)	(0.000)
Age^2	-0.000***	-0.000***
	(0.000)	(0.000)
Immigration background	-0.007***	-0.008***
	(0.001)	(0.001)
Foreign born	-0.017***	-0.035***
	(0.000)	(0.000)
Currently in legal union	0.014***	0.013***
	(0.000)	(0.000)
Childrearing	0.002***	0.014***
	(0.000)	(0.000)
Less than primary education	-0.006***	0.006***
	(0.001)	(0.001)
Primary education	0.015***	0.025***
	(0.000)	(0.001)
Completed secondary education	0.026***	0.005***
	(0.000)	(0.001)
More than secondary education, but less than a bachelor's degree	0.009***	-0.015***
	(0.000)	(0.001)
Bachelor's degree	0.002***	-0.023***
	(0.000)	(0.001)
Advanced degree	0.007***	-0.036***
	(0.001)	(0.001)
Other/unknown education	-0.007***	-0.019***
	(0.001)	(0.001)
Already divorced	-0.003***	-0.008***
	(0.000)	(0.001)
Population, municipality (ln)	0.000**	-0.000**
	(0.000)	(0.000)
Cities, high access	-0.009***	-0.014***
	(0.000)	(0.000)
Cities, low access	-0.008***	-0.013***
	(0.001)	(0.001)
Rural, high access	0.011***	0.021***
	(0.001)	(0.001)
Rural, low access	0.006***	0.015***
	(0.001)	(0.001)
Rural, very low access	0.014***	0.033***
	(0.002)	(0.002)
Sample mean	0.063	0.128
R-squared	0.014	0.026
Number of individual-year observations	45,242,388	43,068,454
Demographic characteristics?	**X**	**X**
Year fixed effects?	**X**	**X**
Geographical characteristics?	**X**	**X**

Notes: Robust standard errors clustered at the individual level are presented in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Author calculations from Sweden population register linked to the Sweden business register. Education base: uncompleted secondary school education. Regional category base: Metropolitan.

Table A3: Sexual Minority Status and the Hazard of Success, Cox Model Estimates, and an Expanded Set of Coefficient Estimates

	(1) Women	(2) Men
Ever in a legal same-sex union	1.094***	1.093
	(0.034)	(0.061)
Age	0.939***	0.941***
	(0.002)	(0.002)
Age^2	1.001***	1.001***
	(0.000)	(0.000)
LLC	0.822***	0.929***
	(0.007)	(0.009)
Immigration background	1.051***	0.920***
	(0.015)	(0.020)
Foreign born	1.046***	0.690***
	(0.006)	(0.007)
Currently in legal union	1.010	1.024**
	(0.007)	(0.010)
Childrearing	1.110***	1.031***
	(0.007)	(0.009)
Less than primary education	1.130***	1.032*
	(0.013)	(0.018)
Primary education	1.004	0.914***
	(0.010)	(0.012)
Completed secondary education	0.887***	1.063***
	(0.007)	(0.011)
More than secondary education, but less than a bachelor's degree	1.044***	1.190***
	(0.008)	(0.014)
Bachelor's degree	1.088***	1.285***
	(0.008)	(0.014)
Advanced degree	1.182***	1.619***
	(0.031)	(0.046)
Other/unknown education	0.995	0.860***
	(0.020)	(0.030)
Already divorced	1.092***	0.993
	(0.008)	(0.012)
Population, municipality (ln)	1.001	1.000
	(0.002)	(0.004)
Cities, high access	1.005	0.977**
	(0.007)	(0.009)
Cities, low access	1.002	0.952***
	(0.011)	(0.016)
Rural, high access	0.991	0.926***
	(0.010)	(0.014)
Rural, low access	1.013	0.933***
	(0.011)	(0.015)
Rural, very low access	1.047*	0.951
	(0.028)	(0.037)
Number of founders	188,917	315,759
Demographic characteristics?	**X**	**X**
Year fixed effects?	**X**	**X**
Industry categories?	**X**	**X**
Geographical characteristics?	**X**	**X**

Notes: Robust standard errors clustered at the firm level are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Author calculations are from the Sweden business register linked to the Sweden population register. Education base: uncompleted secondary school education. Regional category base: Metropolitan.

Appendix Table A4: Interaction Estimates Between Sexual Minority Indicator and Heterogeneity Subgroups, Firm Survival Models, Founders

	(1) Hazard ratio on the interaction term	(2) Standard error on the interaction term
Women		
Ever in a legal same-sex union interacted with:		
External factors:		
Areas with more positive LGB attitudes	0.983	(0.071)
Areas with above median density of same-sex couples	0.856**	(0.057)
Later period, 2010-2020	1.023	(0.064)
Internal factors:		
People with children in the household	1.100	(0.080)
People with romantic partners at time of founding	1.066	(0.069)
Men		
Ever in a legal same-sex union interacted with:		
External factors:		
Areas with more positive LGB attitudes	0.951	(0.122)
Areas with above median density of same-sex couples	1.005	(0.142)
Later period, 2010-2020	1.330***	(0.146)
Internal factors:		
People with children in the household	0.869	(0.205)
People with romantic partners at time of founding	1.062	(0.122)

See notes to Table 1 for a listing of the control variables. All models also control for the single dummy variable EVER IN A LEGAL SAME-SEX UNION and the indicator for the relevant external or internal factor being tested. Robust standards errors with firm level clustering are displayed in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Author calculations are from the Sweden Business registry data linked to the Sweden population register data, 1995-2020.

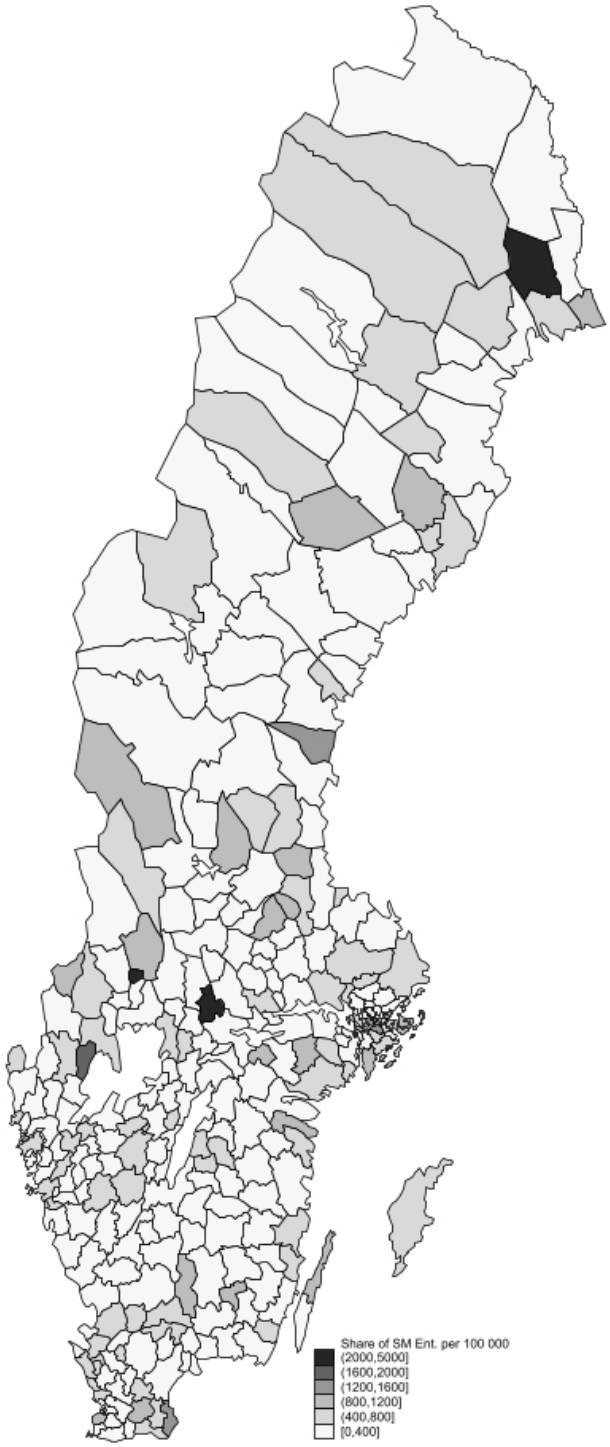

Figure A1: Share (per 100,000) of Identified 18–65 year-old Entrepreneurs with Sexual Minority Status by Municipality in 2020.

Notes: This figure illustrates the share of sexual minorities relative to all identified 18-65 year old entrepreneurs by municipality. The entrepreneurs for whom we did not know about sexual orientation were excluded from this sample.