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The Impact of Firm Entry Deregulation on Hybrid Entrepreneurship

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ABSTRACT

Hybrid entrepreneurs are entrepreneurs who simultaneously work as wage earners. Though they constitute a systematic and large part of new firm creation, their specific role in public policy has not yet been addressed. Arguing for the relevance of considering hybrid entrepreneurs for entrepreneurship policy, we analyze an often encouraged and implemented firm entry deregulation reform between 2009 and 2013 in Mexico. We find that hybrid entrepreneurs are more responsive to changes in entry regulation than full-time entrepreneurs. While both most and least educated people respond to the reform, the effect is most pronounced for highly educated hybrid entrepreneurs.

Keywords: Hybrid Entrepreneurship, Full-time Entrepreneurship, Public Policy, Firm Entry Regulation

JEL classification: L26, L51, M13

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1. INTRODUCTION

Entrepreneurs' decisions on starting their venture full-time or next to a paid job, that is, hybrid entrepreneurship, is a widely spread phenomenon that should receive considerable attention from policy makers and researchers (Folta, Delmar, Wennberg, 2010). First, in many countries and regardless of per capita income, most people starting a venture simultaneously hold other jobs (Minniti, 2010). Second, among new entrants in high-tech industries, which receive particular attention by policy makers, their share is estimated to amount to 60% in Sweden (Folta et al., 2010) and 42% among R&D pursuing high-tech start-ups in Germany (Bretz et al., 2015). Third, as hybrid entrepreneurs are often more educated than full-time entrepreneurs, their business ideas could result in more innovative ventures (Folta et al., 2010). Fourth, businesses started through hybrid rather than full-time entrepreneurship have been shown to survive longer, on average (Raffiee and Feng, 2014). Fifth, regardless of whether or not hybrid entrepreneurs generate a higher economic impact than full-time entrepreneurs, the relevance of hybrid entrepreneurs emerges from their potential to evolve into valuable full-time businesses that otherwise would not have been started (Folta et al. 2010, Raffiee and Feng, 2014).

Despite the prevalence of hybrid entrepreneurship and its potential relevance for policy makers, previous research on entrepreneurship policy either neglected entry by hybrid entrepreneurs or did not distinguish hybrid from full-time entrepreneurship (e.g., Bruhn, 2011, Kaplan et al., 2011, Branstetter et al., 2014). Focusing on entry from full-time entrepreneurship only, however, leads to a severe underestimation of firm creation (Dennis, 1997), which largely biases the proper assessment of the success of entrepreneurship policy reforms. Instead, treating hybrid and full-time entrepreneurs alike might misguide policy-making. As the determinants of hybrid entrepreneurship have been shown to differ substantially from the determinants of full-

time entrepreneurship (Folta et al., 2010; Raffiee and Feng, 2014), policy makers might need to develop instruments that differently address hybrid entrepreneurship to fully exploit a society's entrepreneurial potential. However, before policy makers develop such instruments, policy evaluations should investigate how hybrid entrepreneurs respond to current policy instruments and whether their responses differ from those by full-time entrepreneurs.

In order to demonstrate differential effects of entrepreneurship policy on hybrid versus full-time entrepreneurship, we focus on firm entry deregulation. We analyze the impact of the introduction of “one-stop shops”, a reform which is strongly promoted by the World Bank and OECD and which has been adopted, so far, by a total of 96 countries (World Bank, 2013). The economic effects of such reforms have been subject to substantial academic research (Branstetter, Lima, Taylor, Venâncio, 2014; Bruhn, 2011; Bruhn, McKenzie, 2013; Kaplan, Piedra, Seira, 2011); however, the possibly distinct response of hybrid entrepreneurs has not been addressed, yet. Using recent data from a Mexican household panel, we evaluate the impact of the policy program “System for Rapid Opening of Enterprises” (SARE) in Mexico. There are three advantages of using SARE as benchmark for the impact of the introduction of one-stop shops on hybrid entrepreneurship: First, the policy's timely staggered implementation across different municipalities provides a methodological advantage. Second and as a consequence, this policy reform has already been positively evaluated based on different datasets and timeframes (Bruhn, 2011; Kaplan et al., 2011). Third, for this reform, we are able to differentiate between full-time and hybrid entrepreneurs and, thus, can provide a more fine-grained analysis of entrepreneurial activity arising due to firm entry deregulation.

This paper contributes, first, to the growing research on hybrid entrepreneurship (e.g. (Burmeister-Lamp et al., 2012; Folta et al., 2010; Raffiee and Feng, 2014) by explicitly

analyzing hybrid entrepreneurs' responses to firm entry deregulation. We combine theorizing on hybrid entrepreneurs expecting lower earnings increases by entering entrepreneurship (Parker, 1996) with the proposition that these entrepreneurs with lower earnings increases are more affected by firm entry deregulation (Branstetter et al., 2014). We therefore hypothesize that hybrid entrepreneurs are more likely to be affected by entry deregulation than their full-time counterparts. Our empirical analysis of deregulation through SARE supports our hypothesis: The share of hybrid entrepreneurs whose entry was discouraged by regulation and, thus, triggered by the deregulation is about three times as high as the corresponding share of full-time entrepreneurs. We, therefore, reinforce recent calls (Folta et al., 2010; Raffiee and Feng, 2014) to separately evaluate hybrid and full-time entrepreneurs. Hybrid entrepreneurship should not be marginalized, neither in research nor in applied policy evaluations.

Second, we contribute to the empirical literature on evaluations of firm entry deregulation (e.g. Branstetter et al., 2014; Bruhn, 2011; Kaplan et al., 2011). We stress that neglecting hybrid entrepreneurship may hide substantial parts of the effect of firm entry deregulation on entrepreneurial activity and, thus, causes an underestimation of the full impact of deregulation (e.g. Bruhn, 2011). Furthermore, we find that both low and high educated potential entrepreneurs are affected by entry deregulation, the high educated hybrid entrepreneurs being most responsive. Thus, these reforms encourage possibly lower-quality entrepreneurship by less educated people as found by Branstetter et al. (2014), but also and to a larger extent possibly high-quality entrepreneurship by highly educated hybrid entrepreneurs.

The paper is organized as follows: Section 2 starts by discussing the importance of hybrid entrepreneurs in policy evaluations, develops a rationale of why individuals become either hybrid or full-time entrepreneurs, and explains why hybrid entrepreneurs are more responsive to firm

entry regulation than full-time entrepreneurs. Section 3 describes our data and our empirical approach. Section 4 presents results and selected robustness checks. Theoretical and practical implications of our findings are discussed in Section 5. Section 6 concludes.

2. THEORETICAL BACKGROUND

Our theoretical analysis of the differential responses of potential hybrid versus potential full-time entrepreneurs to entry deregulation builds on Parker's (1996) analysis of entry determinants as well as on Branstetter and colleague's (2014) analysis of the effects of entry deregulation on entrepreneurial activities. Parker's theoretical model focuses on individuals who engage in self-employment and paid employment at the same time, which we—as do Raffiee and Feng (2014)—take as a defining characteristic of *hybrid entrepreneurship*. To simplify our theorizing and without lack of generalizability, we develop our theory on potential hybrid and potential full-time entrepreneurs' responsiveness to entry deregulation based on discussing the case of firm entry *regulation*. In fact, entry deregulation is considered as reversing the effects of entry regulation, such that potential entrepreneurs' responses to deregulation are the inverse of entrepreneurs' responses to regulation. The *responsiveness* of hybrid respectively full-time entrepreneurs to entry regulation is defined as the probability to suspend plans of hybrid respectively full-time entrepreneurship due to entry barriers.

2.1 The Problem of neglecting Hybrid Entrepreneurship in Evaluations of Entry Policies

In the evaluations of entrepreneurship policies, several problems arise when hybrid entrepreneurs are neglected or wrongly classified. First, if hybrid entrepreneurs are treated as wage earners, an evaluation of firm entry deregulation underestimates the true impact of the reform, because the possible increase in hybrid entrepreneurship is ignored (which is the case, for example, in Bruhn (2011)). The corresponding distortion can be substantial; for example,

hybrid entrepreneurship amounts up to 64% of all firm entries in Germany in 2013 (Metzger, 2014) and, irrespective of per capita income, in many countries most people start a venture while holding another job (Minniti, 2010). The large number of hybrid entrepreneurs implies that including them into the analysis is of paramount importance when evaluating the overall impact of entrepreneurship policies.

Second, hybrid entrepreneurs share characteristics that make them particularly relevant for policy makers who seek to encourage entrepreneurship. Hybrid entrepreneurship might be triggered by the need to increase an otherwise too low income (Gruenert, 1999), which is more likely to be the case for individuals with low education and resulting in lower quality businesses. However, hybrid entrepreneurs are found to be more capable and better educated (Folta et al., 2010, Raffiee and Feng, 2014), to survive longer on average (Raffiee and Feng (2014)), and have been argued to start more high-growth businesses than the full-time entrepreneurs (Folta et al., 2010). Furthermore, the share of hybrid entrepreneurs employing other people is not much below the corresponding number of full-time entrepreneurs (Melillo et al., 2013). As these characteristics are of particular relevance to entrepreneurship policy (Shane, 2009), the group of hybrid entrepreneurs should not be disregarded from the analysis of entrepreneurship policy reforms.

Third, treating hybrid entrepreneurs like their full-time equivalents (e.g. (Branstetter et al., 2014; Kaplan et al., 2011)) may mask relevant heterogeneity in underlying characteristics, motives, and entrepreneurial outcomes (Folta et al., 2010; Raffiee and Feng, 2014). Knowing who and how individuals respond to policy reforms is highly relevant for designing well-targeted policies and predicting their impact (Parker, 2009). For example, if hybrid entrepreneurs are especially hampered by entry regulation and if they differ substantially from full-time

entrepreneurs, their needs and characteristics should be considered in order to meet aspired policy goals. Thus, being able to estimate the impact of entry deregulation on full-time and hybrid entrepreneurship, respectively, can help to better target entrepreneurship policies.

2.2 Entry into Hybrid Entrepreneurship

We build our theorizing on Parker's (1996) model of balancing paid employment and self-employment.¹ In Parker's model, individuals' occupational choices depend on whether or not the (expected) income in entrepreneurship is higher than income in paid employment. Parker (1996) introduces income-related risks as a distinctive feature of entrepreneurship compared to the risk-free wage in paid employment. Starting a venture and investing more time into entrepreneurship increases not only the expected income, but also income-related risk. By partly keeping the risk-free wage job, entrepreneurs can mitigate these increases in income-related risks. Risk-averse individuals only invest more time into entrepreneurship if their expected increases in income are high enough to compensate for their disutility from the increase in risk. There are situations where expected increases in income, indeed, may not compensate for the related disutility from the increase in risk; for example, when there are either not very promising entrepreneurial ventures or very high wages in paid employment or, more generally, higher opportunity costs. However, if the increase in income from investing more time in entrepreneurship is never offset by the disutility from increases in income-related risks, then individuals do not restrict their time in entrepreneurship as hybrid entrepreneurs, but invest all their time and, thus, become full-time entrepreneurs. Thus, the decision on the amount of time spent in entrepreneurship and wage employment depends on earnings in these two occupations, the entrepreneurship-specific income risk, and an individual's risk aversion.

¹ Note that Burmeister-Lamp et al. (2012) present another model of hybrid entrepreneurship, which yields comparable predictions as Parker's (1996).

Two predictions that can be derived from Parker's model are well confirmed by empirical studies. First, individual's risk aversion increases the likelihood of hybrid entrepreneurship (Elston and Audretsch, 2010; Raffiee and Feng, 2014). Second, income prospects in paid employment, which is, higher opportunity costs to entrepreneurship, *ceteris paribus* increase the likelihood of hybrid entrepreneurship. A common indicator of such opportunity costs is education, as higher education is associated with higher earnings in wage employment (Card, 1999). This would explain why hybrid entrepreneurs are *ceteris paribus* found to be more educated than full-time entrepreneurs (Folta et al., 2010; Lofstrom et al., 2014).

The interplay of opportunity costs and prospective earnings in entrepreneurship might also explain the fact that hybrid entrepreneurs are found to represent a substantial share of entry into high-tech industries in Sweden (Folta et al., 2010) as well as among R&D pursuing high-tech start-ups in Germany (Bretz et al., 2015). Though start-ups in these industries are associated with comparably higher growth prospects (inducing full-time entrepreneurship), they also require a considerable degree of education, which in turn increase prospective entrepreneurs' opportunity costs due to their expected earnings in paid employments and, consequently, the likelihood of starting a business as hybrid entrepreneur.

Key to our further theory development, which addresses the impact of entry regulation on hybrid and full-time entrepreneurs' entry decision, is the observation that for hybrid entrepreneurs the expected increase in income from expanding the time invested into entrepreneurship cannot compensate them for the increase in income-related risk. Thus, hybrid entrepreneurs have benefited less from their switch from paid employment to entrepreneurship than full-time entrepreneurs, either due to lower expected income from entrepreneurship or—what should not be missed—due to higher opportunity costs.

2.3 The impact of entry regulation on hybrid entrepreneurship

We focus on firm entry regulation that is reflected in an increase of registration costs, that is, a lump sum costs for the establishment of a new venture. We assume that registration costs are the same for entry into both hybrid and full-time entrepreneurship. The increase of registration costs directly reduces expected income from both hybrid and full-time entrepreneurship, which is one of the key elements affecting individuals' entry decisions (see Section 2.2). An increase of registration costs, however, is unlikely to directly affect other elements of our model, which are, income from paid employment, individuals' risk aversion, and income-related risks.

To simplify our analysis, we first argue that individuals who initially envisage entering either as full-time entrepreneurs or as hybrid entrepreneurs do not change their plans and prefer the other type of entrepreneurship instead, once they are required to pay registration costs upon entry. As registration cost do not varying with the time spent in entrepreneurship, registration costs do not affect the optimal level of time allocated to entrepreneurship, which includes the decision between hybrid and full-time entrepreneurship. Thus, when analyzing the effects of registration costs on hybrid and full-time entrepreneurs we can focus on whether or not hybrid and full-time entrepreneurs abandon their plans to enter entrepreneurship.

To analyze how registration cost affect hybrid entrepreneurs' respectively full-time entrepreneurs' probability to abandon their plans to enter entrepreneurship, we build on Branstetter and colleagues' (2014) analysis of how entrepreneurs, in general, are affected by entry regulation. In Branstetter and colleagues' model, a rational entrepreneur compares her expected earnings in entrepreneurship and in paid employment and chooses the occupation with higher earnings. If, because of the introduction of registration costs, the discounted future

earnings from entrepreneurship decrease as much as to make the individual better off by staying in paid employment, the individual refrains from starting the venture. This is only the case, if the increase in registration cost is higher than the expected income increase from entering entrepreneurship compared to staying in paid employment. Thus, only individuals with comparably lower marginal returns from entrepreneurship (called “marginal entrepreneurs”) refrain from entering entrepreneurship (Branstetter et al., 2014).

Combining our discussion of who enters as hybrid or full-time entrepreneur (Parker, 1996) with the discussion of what entrepreneurs are more likely to be affected by increasing registration costs (Branstetter et al., 2014), we can derive our hypothesis on the different effects of registration costs on hybrid and full-time entrepreneurs, respectively. As hybrid entrepreneurship is chosen if the profit from entrepreneurship is not high enough to compensate the disutility of entrepreneurship-specific risks, hybrid entrepreneurs expect a ceteris paribus lower increase in income due to entering entrepreneurship than full-time entrepreneurs. Thus, hybrid entrepreneurs are more likely to be “marginal entrepreneurs”. Therefore, hybrid entrepreneurs are more likely to be affected by entry regulation and, hence, can be expected to be more responsive to such policy measures than their full-time counterparts. Summing up our arguments, we can formulate our proposition as follows:

Hypothesis: *Prospective hybrid entrepreneurs are more responsive to entry regulation than full-time entrepreneurs, such that entry deregulation leads to a stronger relative increase of hybrid entrepreneurship compared to the relative increase of full-time entrepreneurship.*

3. METHOD

In order to empirically assess the impact of firm entry deregulation on hybrid as well as full-time entrepreneurship, we focus on the introduction of one-stop shops, a reform that is

highly encouraged by World Bank and OECD and very popular worldwide (World Bank, 2013). One-stop shops are special offices where prospective entrepreneurs can register a firm within a single visit. Simplified procedures decrease the complexity and duration of the business registration process. To determine the impact of these one-stop shops on firm creation, the Mexican reform SARE has received researchers' particular attention. SARE's staggered implementation provides an interesting setting for reliable empirical estimations (Bruhn, 2011; Kaplan et al., 2011). The reform was adopted in 2002 and sequentially introduced among municipalities throughout the whole country.

SARE aims to make firm registration faster, more transparent and cost-efficient for the subset of industries that are considered to be of low risk to the society. This applies, for instance, to the production of food, textile, IT equipment as well as trade commerce and services, but not to chemical and plastic production or important infrastructure and utility providers such as electricity, water and gas (Bruhn, 2008). By gathering several administrative agencies and guaranteeing a response for an application within 72 hours (conditional on complying with all remaining administrative requirements and paperwork within the next three months (OECD, 2014)), the SARE reform streamlined the administrative procedures and tremendously shortened the registration period: The average time necessary to start a business in Mexico decreased from 58 days in 2003 to 6 days in 2013. The average cost incurred by a prospective entrepreneur dropped from 29.5% to 19.7% in terms of income per capita (World Bank, 2014). Based on Bruhn's (2011) results, the SARE reform is responsible for up to 251 newly registered firms per municipality and quarter in targeted industries between 2002 and 2004 (Kaplan et al., 2011). Using a different data source, which in contrast to Bruhn (2011) only captures firms with employees, Kaplan et al. (2011) find the effect to amount to 15 newly registered firms per

municipality and quarter between 2002 and 2006. No impact on non-targeted industries has been observed (Bruhn, 2011).

Our analysis is based on newly available data from the Mexican National Survey for Occupation and Employment (ENOE). ENOE is a household panel conducted quarterly since its inauguration in 2005 by the Mexican Statistical Office (INEGI). ENOE was designed in cooperation with the OECD and covers 120,260 Mexican households per quarter. All household members aged 12 years or older are interviewed for five consecutive quarters. ENOE operates as a rotating panel so that in every quarter 20% of the interviewed households are replaced by a new batch. The data comes with the advantage that it is representative at the national and regional level (Instituto Nacional de Estadística, Geografía e Informática, 2007). However, as each person is only tracked for five quarters, long-run outcomes of individuals cannot be observed. ENOE includes people's employment status in their primary and secondary job, thus enabling us to identify hybrid entrepreneurs. Moreover, ENOE also incorporates entrepreneurs without employees.

In order to avoid disturbances by the financial crisis in 2008/2009,² we only include households observed between the 4th quarter of 2009 and the 4th quarter of 2013. Following Bruhn (2011), we restrict our sample to municipalities for which we can observe a SARE implementation in our timeframe with information being available at least one quarter before and one quarter after the introduction of the reform. SARE implementation dates as well as the list of affected industries are taken from the website of the Mexican Commission for the Improvement of Regulation (COFEMER). Our final dataset contains 230,889 individuals in the labor force aged between 20 and 65.

As in former evaluations of one-stop shops (Branstetter et al., 2014; Bruhn, 2011; Kaplan

² In Mexico, the crisis led to a negative GDP growth rate from the 3rd quarter of 2008 until the 2nd quarter of 2009.

et al., 2011), the variable of interest (i.e., SARE) is a dummy that is zero for all quarters before the implementation, turns one once SARE is implemented in a municipality, and remains one in all subsequent quarters. As dependent variable we use an individual's classification as hybrid (=1) or full-time entrepreneur (=2) in industries eligible for the facilitated SARE-registration, or not being an entrepreneur in these industries (=0). We define an individual as *full-time entrepreneur* if a person reports to be self-employed in the primary job and does not work as wage earner in a second job.³ If a person reports to work as wage earner in her primary job and is self-employed in a secondary job (or vice versa), she is classified as *hybrid entrepreneur*.⁴

We additionally employ dummy variables to control for *gender* and *marital status*, because literature on multiple jobholding suggests gender- and marital status-related differences between employees in dual-jobs and those in single jobs (Kimmel and Powell, 1999; Panos, Pouliakas, Zangelidis, 2014), which might equally apply to differences between hybrid and full-time entrepreneurs.

Given the above-discussed determinants for hybrid entrepreneurship, we expect people with higher education to be more likely to be hybrid entrepreneurs. We use a set of educational attainment dummies for people with *no education*, *low education* (referring to a primary or secondary school degree), *middle education* (Bachelor degree or Normal degree, which is a special career permitting to work as a teacher), *technical education* (referring to the vocational

³ Due to the nature of our data, we identify people as self-employed according to their self-reported occupation in the household panel. If individuals hide information on informal self-employment, this would imply that a switch from informal to formal self-employment is treated as increase in self-employment. However, as such a switch might increase tax participation as well as growth prospects of previously informal businesses (McKenzie and Seynabou Sakho 2010). These effects are likewise important for the development of an economy in general and entrepreneurship policy, in particular.

⁴ While some other empirical studies on hybrid entrepreneurship only focus on second-job entrepreneurs (e.g., Gruenert, 1999; Folta et al., 2010), our theoretical framework based on Parker (1996) does not require any assumption regarding whether self-employment or wage employment is indicated as "main job". Thus, we do not make a difference between individuals who spend more time in one occupation or the other, but only require that time is spent in both self-employment and paid employment.

degree “Carrera Tecnica” in the Mexican education system) and *high education* (Master degree or Ph.D.).⁵

We further include an individual’s *age* and *age squared* to account for an inverse u-shaped relationship between age and the probability to start a venture (e.g. Bönnte, Falck, Heblich, 2009).

While our dataset comes with the disadvantage of not observing the whole working history of individuals, which would allow focusing on former employees (e.g., Raffiee and Feng, (2014); Folta et al., (2010)), our data allows including information on previously neglected but important determinants of hybrid entrepreneurship. Specifically, we control for the number of *dependent people* in the potential entrepreneurs’ household, i.e. children aged below 20 and elderly people above 65. On the one hand, individuals might be less willing to take risk and enter full-time entrepreneurship the larger the number of dependent people. On the other hand, a higher number of dependent people might induce a higher need for supplementary income obtained by working in a business on the side. This effect could be offset by the number of *working people* living in the same household aged 20-65, who can provide additional sources of income while another member of the household starts a venture.

Moreover, as urban areas offer a better infrastructure and supply of human capital than rural areas (Eliasson and Westlund, 2013), they reduce costs and risks of entrepreneurship and might therefore affect the decision to enter as either hybrid or full-time entrepreneur. We include two dummy variables indicating if an individual is living in a city with more than 100,000 inhabitants (*city*) or less than 2,500 inhabitants (*rural*), respectively, with the base group reflecting the intermediate environments (*town*). To control for economic development in general, we merge ENOE data with data from INEGI, from which we draw a quarterly index of

⁵ 79 individuals who report to have pre-school education are classified as having no degree.

economic activity at the state level.

Table 1 provides descriptive statistics for the 4th quarter of 2009, in which none of the municipalities has received treatment, i.e. introduced SARE, yet. Respondents are on average 38 years old and primarily low-educated (67%). Full-time and hybrid entrepreneurs account for 21% and 2.7% in our sample, respectively.⁶ Among the entrepreneurs, 85% are active in industries that are eligible for the SARE reform. Table 2 gives more details on the characteristics of hybrid and full-time entrepreneurs in SARE-eligible industries. Hybrid entrepreneurs are younger and more educated than full-time entrepreneurs. Furthermore, hybrid and full-time entrepreneurs operate their business mainly in the service and trade sector, but hybrid entrepreneurs are more often engaged in the agriculture than full-time entrepreneurs.

Insert Tables 1 and 2 about here.

To compare how hybrid and full-time entrepreneurs, respectively, respond to SARE, we employ a multinomial model with three outcomes: Hybrid entrepreneurship in SARE-industries, full-time entrepreneurship in SARE-industries, and being in the labor force (base group). The relative strength of responsiveness to SARE is provided by comparing the corresponding relative risk ratios from a multinomial logit model. Relative risk ratios are the exponentiated coefficients and sometimes also referred to as odds ratios (Cameron and Trivedi, 2010). In order to verify that the estimations of the multinomial logit are not biased by a possible violation of the independence of irrelevant alternatives (IIA) assumption, we also ran our regressions using a

⁶ Note that hybrid entrepreneurs represent 13 % of all entrepreneurs in our sample, which is lower than in other studies (e.g. Folta et al., 2010). One reason is that we observe stocks of hybrid and full-time entrepreneurs and not individual switching between occupations. People might enter entrepreneurship in a hybrid mode and subsequently switch to full-time entrepreneurship, which affects the stock of both hybrid and full-time entrepreneurship, but does not affect the entry mode of hybrid entrepreneurs, as observed in Folta and colleagues' data.

multinomial probit model, which is not subject to the IIA-assumption (Hausman and McFadden, 1984), but does not deliver relative risk ratios. We then compared the marginal effects of the multinomial probit model with those of the multinomial logit model. The results did not show relevant differences between the marginal effects of both models (the two models are provided in Appendix A).⁷ Given this equivalence, we opted for the multinomial logit model as its estimates, formulated as odds ratios, best suit our test of the responsiveness of hybrid and full-time entrepreneurship towards SARE, respectively. As individuals are observed for multiple quarters, standard errors are clustered at the individual level.

We incorporate measures to reduce the likelihood that our results are driven by unobserved events. First, we include two sets of fixed effects and trends. Quarter fixed effects capture macroeconomic patterns whereas municipality fixed effects control for unobserved heterogeneity between municipalities. Likewise, linear time trends for each municipality control for the possibility that municipalities experience different trends in entrepreneurship rates unrelated to the SARE reform. Second, we take advantage of the staggered implementation of SARE in the observed municipalities. In our data, 43% of the SARE implementations take place in 2010, 38% in 2011, 12% in 2012 and 7% in 2013. The identification of the impact of SARE therefore stems from temporarily separated implementations, further reducing the likelihood that unobserved events influence our results.

4. RESULTS

Table 3 reports the results of the multinomial logit estimation. The two outcomes refer to hybrid entrepreneurship (column 1) and full-time entrepreneurship (column 2) in SARE-industries compared to the base outcome of not being self-employed in a SARE-industry.

⁷ The marginal effects of the SARE-Dummy, which is our main variable of interest, differ by negligible 0.00015 for full-time entrepreneurship and 0.00008 for hybrid entrepreneurship, respectively.

Overall, significant differences in the control variables for hybrid and full-time entrepreneurs are discernible (column 3). For example, women are more likely to be full-time entrepreneurs than hybrid entrepreneurs and being married increases the odds to be a full-time entrepreneur by 20% but has no statistically significant influence on the propensity to be a hybrid entrepreneur. Further differences can be noted concerning education: The odds for hybrid entrepreneurship increase by 53 percent if a person has middle level of education and by 146 percent when being highly educated. They decrease for full-time entrepreneurship by 29 and 54 percent, respectively. Thus, our data is consistent with previous research indicating that more educated people favor hybrid entrepreneurship (Folta et al., 2010; Lofstrom et al., 2014).⁸ This is of particular interest, as the characteristics of hybrid entrepreneurs seem to hold not only in industrialized countries, which have been in the focus on research in hybrid entrepreneurship so far, (e.g. Sweden (Folta et al., 2010) and USA (Raffiee and Feng, 2014)), but also in developing countries such as Mexico.

The household-composition provides new interesting insights on the determinants of hybrid entrepreneurship: The number of children and elderly people does not change the optimal time spent in the venture, as it neither alters the propensity for full-time, nor hybrid entrepreneurship. In contrast, the number of household members providing additional household income slightly decreases the propensity to be a hybrid entrepreneur but has no impact on full-time entrepreneurship. This indicates that indeed part of the hybrid entrepreneurs are driven by the need of providing income if there are relatively few other household members working. Furthermore, hybrid entrepreneurship is more common in rural regions. Though this result also holds for full-time entrepreneurship, the effect is stronger for hybrid entrepreneurship, probably

⁸ The coefficients as well as significance levels of control variables barely change when omitting the SARE-dummy (this regression is not reported here for reasons of brevity). Therefore, these results can be compared to earlier studies on the general determinants of hybrid entrepreneurship (Folta et al. 2010; Raffiee and Feng 2014).

due to the higher probability of hybrid entrepreneurs being engaged in agriculture (see Table 2).

Insert Table 3 about here.

Turning to the impact of SARE in targeted industries, the results reported in Table 3 suggest a significant positive impact on entrepreneurship. Even though an exact comparison with studies excluding hybrid entrepreneurship or firms without employees is not possible (due to different data sources and timeframes), our results support earlier country analyses suggesting a positive impact of entry deregulation on firm creation (Aghion et al., 2008; Branstetter et al., 2014; Bruhn, 2011; Kaplan et al., 2011).

Going beyond previous research, our findings demonstrate that the impact of SARE is stronger for hybrid than for full-time entrepreneurship. The odds of being a hybrid entrepreneur increase by 18% after SARE, whereas the odds of being a full-time entrepreneur only increase by 5%. Employing a χ^2 -test, the null-hypothesis that these coefficients are equal is rejected at the 10%-level. Thus, SARE is found to stimulate especially hybrid entrepreneurship, which is in line with our hypothesis. This finding does not only highlight the success of SARE in fostering entrepreneurship in general, it also indicates that hybrid entrepreneurs are even more responsive to entry regulation than their full-time counterparts.

To better assess the economic impact of the SARE reform, we approximate the magnitude of our estimated effect of SARE on hybrid and full-time entrepreneurship using data from the Demographic Census, conducted by INEGI. In 2010, a total of 3,035,985 people aged between 20 and 64 lived in the observed municipalities, which approximates to 69,827 hybrid entrepreneurs in SARE-eligible industries according to our data (equivalent to the 2.3% in Table

1). Based on our results, we can calculate the increase of hybrid entrepreneurship due to SARE between 2010 and 2013 to consist of approximately 10,930 people that registered their business. Equivalently, the increase in full-time entrepreneurship based on a total of 543,441 entrepreneurs (17.9% of all inhabitants according to Table 1) amounts to approximately 16,698 new full-time entrepreneurs due to SARE. Even though we observe a stronger relative increase in hybrid than full-time entrepreneurs, the absolute number of new firms is much higher for full-time entrepreneurs because of their higher overall occurrence.

Gruenert (1999) noted that large parts of hybrid entrepreneurship, especially by people with low level of education, can be attributed to agriculture. This sort of entrepreneurship, however, is unlikely to have a substantial economic impact. Given that also in our data, hybrid entrepreneurship – in contrast to full-time entrepreneurship – is very prominent in agriculture (see Table 2), our results could be driven by agriculture-related entrepreneurship. To test the extent to which our results might depend on agricultural entrepreneurship, we re-run our analysis, now dropping self-employed people in the agriculture sector (see Table 4). The difference between hybrid and full-time entrepreneurs with respect to education is even more pronounced than in our previous analyses; that is, hybrid entrepreneurship is favored by the more educated people, but full-time entrepreneurship is relatively more favored by the less educated people. The change in the odds ratio due to SARE is now slightly higher for hybrid entrepreneurship compared to the previous analysis (1.25 vs. 1.18); the difference to full-time entrepreneurship (1.25 vs. 1.05) is statistically significant at the 5%-level. These results indicate that our previous conclusions are not driven by effects related to agriculture.

Insert Table 4 about here.

Given that education is found to enhance successful entrepreneurship (van Praag and Cramer, 2001) as well as a firm's chance of survival (Cooper et al., 1994; Parker, 2009; Robinson and Sexton, 1994), we test whether the entrepreneurs who founded their ventures as a response to SARE are rather high or low educated. We, therefore, interact the SARE-dummy with educational degrees as moderators and present the results in Table 5. To simplify interpretation, Table 6 summarizes the estimates of the SARE effect calculated for each educational level. Interestingly, we observe the largest effects for very low and very high educational attainment levels and the effects tend to be larger for hybrid compared to full-time entrepreneurs across all educational levels.⁹ The group that benefits most from SARE and increases its odd by 88 percent after SARE are the hybrid entrepreneurs with a Master degree or Ph.D.

Insert Tables 5 and 6 about here.

Having shown that SARE has a positive but different impact on hybrid and full-time entrepreneurship in targeted industries, we now to consider possible externalities on hybrid and full-time entrepreneurship in industries that where not directly targeted by SARE. Negative externalities could arise from an increase in relative attractiveness of SARE-industries compared to non-SARE industries for prospective entrepreneurs who take entry barriers into account when deciding on which industry to enter (Shane, 2009). Positive externalities could arise from general publicity effects associated with the introduction of the reform, making entrepreneurship more

⁹ Note that the significance levels strongly depend on the number of observed people within an educational level and that some of these groups are quite small, e.g. *no education* for hybrid entrepreneurs and *high education* for full-time entrepreneurs.

salient to people and, thus, also increasing the likelihood of entering industries not available for SARE. The latter effect could confound our results regarding cost reductions. We explore these effects by extending our analysis and estimating SARE-related effects for full-time entrepreneurship and hybrid entrepreneurship in non-SARE industries as third and fourth outcome (see Table 7). The effect of SARE is close to one, implying no change in the odds of being hybrid or full-time entrepreneur, and is neither statistically significant for hybrid nor for full-time entrepreneurship in non-SARE industries (columns 3 and 4). We therefore cannot detect any substantial externality from the SARE reform to non-SARE industries. This observation is in line with the results of Bruhn (2011), who does not find any impact of SARE on entrepreneurship in non-targeted industries. Not observing externalities suggests that the effects observed in SARE industries are less likely to be spurious.

Insert Table 7 about here.

5. DISCUSSION AND LIMITATIONS

5.1 Discussion

Firm entry deregulation represents a widely used tool to facilitate entrepreneurship and innovation. Using recent data available from a Mexican entry deregulation reform (2010-2013), our results confirm prior research on the positive impact of SARE and impact of entry regulation in general (Aghion et al., 2008; Branstetter et al., 2014; Bruhn, 2011; Kaplan et al., 2011; Klapper et al., 2006). Consistent with an earlier analysis of the same reform (Bruhn, 2011), we

do not observe externalities with respect to entrepreneurship in non-targeted industries. Our research, however, is first to explicitly differentiate between full-time and hybrid entrepreneurship when evaluating effects of a firm entry deregulation reform. We demonstrate that the previously neglected group of hybrid entrepreneurs is particularly responsive to the entry deregulation reform SARE in Mexico. The effect is largest for highly educated hybrid entrepreneurs.

Our study extends research on differences between hybrid and full-time entrepreneurs with respect to demographic and psychological variables, e.g. education (Folta et al., 2010) and risk aversion (Raffiee and Feng, 2014). Our study suggests that these two groups of entrepreneurs additionally differ in their entry decision. Such differences might also exist for other decisions. For example, hybrid entrepreneurs might also differ in their decision to exit their venture. On the one hand they could be expected to exit more quickly if the venture turns out to be unsuccessful, because—due to already holding a wage job—they have less or no search costs for an alternative employment. A faster exit might also result from the fact that hybrids tend to have a lower relative benefit from entrepreneurship, such that already small crises might trigger their exit. On the other hand, hybrids might be able to survive longer in a market despite losses, subsidizing the venture with income from their paid employment (Petrova, 2012). More research is needed to explore and test such differences in decision-making between hybrid and full-time entrepreneurship.

Furthermore, our findings contribute to research on entry deregulation (Branstetter et al., 2014; Bruhn, 2011; Kaplan et al., 2011). First, our results highlight the need to consider hybrid entry when evaluating the impact of firm entry deregulation. The estimated number of roughly 11,000 new hybrid entrepreneurs in the years 2010 to 2013 among the analyzed municipalities

represents a significant share of the overall increase in entrepreneurship due to the introduction of one-stop shops. Studies not accounting for hybrid entrepreneurship do not only severely underestimate entrepreneurial activity, but might also omit one of the most exploratory parts of a society's entrepreneurial activities. As hybrid entrepreneurship mitigates income risks and allows for exploration at lower opportunity costs, it enables more exploration in a society. Given that the high educated have a preference to select into hybrid entrepreneurship, this exploration might lead to the discovery of rather valuable business opportunities that would have been disregarded by full-time entrepreneurs. Furthermore, even though hybrid entrepreneurship—due to triggering more exploration—possibly also triggers higher exit and failure rates, at a societal level it can, nevertheless, create positive spillovers, such as diffusion of knowledge about the otherwise unexplored opportunities (Bernardo and Welch, 2001) as well as entrepreneurially experienced employees and related know-how (Audretsch, 2009).

Contributing to the literature on entrepreneurship policy, our theoretical considerations as well as empirical results demonstrate that differences between hybrid and full-time entrepreneurs matter for the design and evaluation of entrepreneurship policies. As hybrid entrepreneurship seems to be more impeded by entry regulation than full-time entrepreneurship, policy makers might consider policies that specifically target hybrid entrepreneurs. This, however, stands in contrast to current policy making, which hampers rather than encourages hybrid entrepreneurship (Folta et al., 2010). For example, in Germany, most instruments stimulating entrepreneurship (e.g. public credit programs) are unavailable for hybrid entrepreneurs and require full-time entrepreneurship (Welter, 2004). These regulations might impede entrepreneurship of those who strive for launching and testing an innovation in the market (Panos et al., 2014) and possibly start ventures with high growth prospects (Folta et al., 2010). For Mexico, Fabre and Smith (2003)

report that 65% of all start-ups fail due to the founders' lack of adequate education and argue that “young well-educated people in technical fields (those with high opportunity costs) are more likely to initiate high-value-added, high-growth ventures [...]. However, these individuals also are the most likely [...] to reject entrepreneurship to remain in current employment” (p. 18). An emphasis of entrepreneurship policy on reducing entry barriers especially for hybrid entrepreneurship might enable such testing of business opportunities by highly educated individuals.

In sum, we urge policy makers to change existing regulations and to proactively take hybrid entrepreneurship into account when crafting policies that aim to foster entrepreneurship. While the World Bank and OECD strongly support entry deregulation, which—as our analysis demonstrates—most strongly affects hybrid entrepreneurs, it is noteworthy that these hybrid entrepreneurs are often neglected in related policy analyses. Ignoring or trivializing hybrid entrepreneurship in policy instruments and evaluations is likely to lead to blurred if not distorted conclusions, rendering the development of an entrepreneurial society, an important pillar for economic growth, less effective.

5.2 Limitations

Although our study on hybrid entrepreneurship has profound implications for policy makers and researchers, it does not come without limitations. We use household data from a rotating panel to determine the distinct response of hybrid entrepreneurs to entry deregulation. As such, we cannot evaluate data on detailed characteristics of the newly created firms to identify, for instance, their long-run economic performance. One could extrapolate the economic importance based on prior studies (e.g. van Praag and Cramer, 2001) suggesting that highly

qualified individuals, who are the most affected by the deregulation reform, also tend to start businesses that are economically highly relevant. Further research should consider the type and economic impact of companies founded by hybrid entrepreneurs, possibly in comparison to companies founded by full-time entrepreneurs. These analyses, however, should take into account that the relative performance of hybrid entrepreneurship does not only depend on whether the selection into hybrid vis-à-vis full-time entrepreneurship improves the quality of resulting ventures (i.e., a causal effect), but also depends on the quality of individuals selecting into hybrid entrepreneurship (i.e., a selection effect).

Implementations of policy reforms like SARE usually do not mirror a fully randomized and controlled experimental setting. We cannot rule out hidden political considerations, but previous research suggests that the implementation of SARE provides a reliable setting for estimating the impact of firm entry deregulation (Bruhn, 2011; Kaplan et al., 2011). We further assured reliability of our results by employing fixed effects and time trends for each municipality. The latter capture possible limiting biases, for example a tendency to implement SARE in municipalities experiencing an economic growth or decline.

We acknowledge that the motives for hybrid entrepreneurship and the response of hybrid entrepreneurs to entry deregulation might differ between Mexico and more industrialized countries. Following Bruhn (2011) and Kaplan et al. (2011), we chose the SARE reform in Mexico due to its appealing setup for a reliable empirical estimation. Studying hybrid entrepreneurs' response to entry deregulation in more industrialized countries would, thus, represent an interesting avenue for future research, which is needed to validate the generalization of our findings. With respect to the characteristics of hybrid entrepreneurs, however, we can add to the generalizability of results: Individuals' high education as driver for hybrid

entrepreneurship has so far only been tested in industrialized countries such as Sweden (Folta et al., 2010) and the United States (Raffiee and Feng, 2014). Our research suggests that this relationship also holds for an emerging market like Mexico.

Furthermore, our empirical study is limited to a very specific type of reform. Nevertheless, we believe that the relatively higher responsiveness of hybrid entrepreneurs to entry deregulation is likely to hold for a much broader range of policy measures. For instance, overloaded insolvency laws might discourage risk-averse people to test a business opportunity, which could mainly apply to prospective hybrid entrepreneurs. The same might hold for tax laws that complicate combining two different income streams, which affects hybrid more than full-time entrepreneurs (Lougui and Nyström (2014)). Apart from institutional conditions, other environmental conditions, such as strikes or demand shocks, might also trigger different responses by hybrid and full-time entrepreneurs, respectively. Given the high number of hybrid entrants around the world (Minniti, 2010), future research should further explore the responsiveness of hybrid entrepreneurs towards other types of institutional and environmental changes. This is likely to enhance our knowledge of the opportunities for policy makers to further enable and leverage entrepreneurial activities in a society.

6 CONCLUSION

Treating entrepreneurship as an “all or none” decision between entrepreneurship and employment has been shown to severely bias our understanding of the determinants of entrepreneurship (Folta et al., 2010; Raffiee and Feng, 2014). Furthermore, we theoretically argue and empirically show that hybrid entrepreneurs are especially responsive to the frequently encouraged and implemented entrepreneurship policy of firm entry deregulation. We hope that our research encourages researchers as well as policy makers to better address the case of hybrid

entrepreneurship in order to continue building a sound base of knowledge on this type of entrepreneurship and to adjust policy measures, accordingly.

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FIGURES AND TABLES

Table 1

Pre-treatment sample summary statistics

	<i>N</i>	<i>Mean</i>	<i>S.D.</i>	<i>Min</i>	<i>Max</i>
Full-time entrepreneur					
- In industries eligible for SARE	13,330	0.179	0.384	0	1
- In industries not eligible for SARE	13,330	0.031	0.173	0	1
Hybrid entrepreneur					
- In industries eligible for SARE	13,330	0.023	0.150	0	1
- In industries not eligible for SARE	13,330	0.004	0.062	0	1
Employee	13,330	0.798	0.402	0	1
Female	13,330	0.431	0.495	0	1
Married	13,330	0.485	0.500	0	1
No education	13,330	0.033	0.179	0	1
Low education	13,330	0.673	0.469	0	1
Technical education	13,330	0.070	0.255	0	1
Middle education	13,330	0.211	0.408	0	1
High education	13,330	0.014	0.116	0	1
Age	13,330	37.66	11.76	20	65
No. dependents in household	13,330	1.796	1.528	0	12
No. working in household	13,330	1.078	1.000	0	7
City	13,330	0.599	0.490	0	1
Town	13,330	0.308	0.462	0	1
Rural	13,330	0.092	0.290	0	1
Economic index at state-level	13,330	97.123	2.309	94.87	104.73

Note: The summary statistics refer to the 4th quarter of 2009. N= number of observation, S.D. = standard deviation.

Table 2**Summary statistics of entrepreneurs in SARE-eligible industries**

	<i>Hybrid SARE entrepreneur</i>		<i>Full-time SARE entrepreneur</i>		<i>Difference</i>
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>	
Female	0.32	(0.47)	0.44	(0.50)	-0.12***
Married	0.60	(0.49)	0.58	(0.49)	0.01
No education	0.02	(0.14)	0.04	(0.20)	-0.02*
Low education	0.61	(0.49)	0.72	(0.45)	-0.11***
Technical education	0.08	(0.27)	0.07	(0.25)	0.01
Middle education	0.27	(0.44)	0.16	(0.37)	0.11***
High education	0.02	(0.14)	0.01	(0.09)	0.01*
Age	40.45	(10.24)	43.05	(10.94)	-2.60***
No. dependents in household	1.74	(1.37)	1.82	(1.56)	-0.09
No. working in household	0.97	(0.87)	1.00	(0.96)	-0.03
City	0.56	(0.50)	0.55	(0.50)	0.01
Town	0.33	(0.47)	0.33	(0.47)	0.00
Rural	0.11	(0.32)	0.12	(0.33)	-0.01
Agriculture	0.21	(0.41)	0.11	(0.31)	0.10***
Construction	0.04	(0.19)	0.06	(0.23)	-0.02
Manufacturing	0.09	(0.28)	0.12	(0.33)	-0.04*
Trade	0.32	(0.47)	0.39	(0.49)	-0.07**
Service	0.34	(0.48)	0.32	(0.47)	0.03
No. Observations	306		2,389		

Note: The summary statistics refer to the 4th quarter of 2009. For the comparison of binary variables, we used a two-sample test of proportions. For other variables, a t-test was employed.

Table 3

Impact of SARE on hybrid and full-time entrepreneurship in SARE industries

	<i>Hybrid SARE entrepreneur (1)</i>	<i>Full-time SARE entrepreneur (2)</i>	<i>Difference (3)</i>
SARE	1.18*** (0.07)	1.05* (0.03)	*
Female	0.77*** (0.03)	1.16*** (0.02)	***
Married	1.05 (0.04)	1.20*** (0.02)	***
No education	0.89 (0.08)	0.86*** (0.04)	
Technical education	1.13 (0.09)	0.83*** (0.03)	***
Middle education	1.54*** (0.07)	0.71*** (0.02)	***
High education	2.46*** (0.28)	0.46*** (0.05)	***
Age	1.19*** (0.01)	1.14*** (0.01)	***
Age ²	1.00*** (0.00)	1.00*** (0.00)	***
No. dependents in household	1.01 (0.01)	0.99 (0.01)	
No. working in household	0.90*** (0.02)	1.00 (0.01)	***
City	1.10 (0.11)	1.10** (0.05)	
Rural	1.80*** (0.13)	1.27*** (0.05)	***
Economic index	0.99 (0.01)	1.00 (0.00)	
Constant	0.00*** (0.00)	0.01*** (0.00)	
Quarter fixed effects		Yes	
Municipality fixed effects		Yes	
Municipality linear time trends		Yes	
Pseudo R-squared		0.072	
Log-pseudo-likelihood		-122,546.21	
Observations		230,889	

Notes: Multinomial logit model reporting exponentiated coefficients and clustered standard errors in parentheses (clustered at the individual level). Base group of the dependent variable is formed by people in the labor force who are not engaged in entrepreneurship in a SARE-industry. We report two-tailed significance tests, even though the hypothesis on SARE is a directional hypothesis; a one-tailed test would further increase the statistical significance of the SARE-dummy.

Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4

**Impact of SARE on hybrid and full-time entrepreneurship in SARE industries when
excluding agricultural entrepreneurship**

	<i>Hybrid SARE entrepreneur</i> (1)		<i>Full-time SARE entrepreneur</i> (2)	
SARE	1.25***	(0.09)	1.05*	(0.03)
Female	1.03	(0.04)	1.34***	(0.03)
Married	0.97	(0.04)	1.22***	(0.03)
No education	0.83	(0.10)	0.84***	(0.04)
Technical education	1.20**	(0.10)	0.82***	(0.03)
Middle education	1.67***	(0.08)	0.72***	(0.02)
High education	2.81***	(0.33)	0.47***	(0.05)
Age	1.20***	(0.02)	1.14***	(0.01)
Age ²	1.00***	(0.00)	1.00***	(0.00)
No. dependents in household	0.99	(0.01)	0.99	(0.01)
No. working in household	0.93***	(0.02)	1.02*	(0.01)
City	1.04	(0.11)	1.10**	(0.05)
Rural	1.01	(0.09)	0.87***	(0.04)
Economic index	1.00	(0.01)	1.00	(0.00)
Constant	0.00***	(0.00)	0.00***	(0.00)
Quarter fixed effects			Yes	
Municipality fixed effects			Yes	
Municipality linear time trends			Yes	
Pseudo R-squared			0.056	
Log-pseudo-likelihood			-113,456.93	
Observations			225,573	

Notes: Multinomial logit model reporting exponentiated coefficients and clustered standard errors in parentheses (clustered at the individual level). Base group is formed by people in the labor force who are not engaged in entrepreneurship in a SARE-industry. Entrepreneurship in agriculture is dropped from the sample. We report two-tailed significance tests, even though the hypothesis on SARE is a directional hypothesis; a one-tailed test would further increase the statistical significance of the SARE-dummy.

Significance levels: * p < 0.10, ** p < 0.05, *** p < 0.01

Table 5

Impact of SARE interacted with educational degrees on hybrid and full-time entrepreneurship in SARE industries

	<i>Hybrid SARE entrepreneur</i> (1)		<i>Full-time SARE entrepreneur</i> (2)	
SARE	1.14*	(0.08)	0.99	(0.03)
SARE*No education	1.19	(0.22)	1.31***	(0.12)
SARE*Technical education	1.07	(0.16)	1.13	(0.09)
SARE*Middle Education	1.04	(0.09)	1.22***	(0.06)
SARE*High Education	1.64**	(0.36)	1.28	(0.23)
Female	0.77***	(0.03)	1.16***	(0.02)
Married	1.04	(0.04)	1.20***	(0.02)
No education	0.80	(0.12)	0.71***	(0.06)
Technical education	1.09	(0.13)	0.77***	(0.05)
Middle education	1.50***	(0.10)	0.63***	(0.03)
High education	1.81***	(0.34)	0.40***	(0.06)
Age	1.19***	(0.01)	1.14***	(0.01)
Age ²	1.00***	(0.00)	1.00***	(0.00)
No. dependents in household	1.01	(0.01)	0.99	(0.01)
No. working in household	0.90***	(0.02)	1.00	(0.01)
City	1.09	(0.11)	1.10**	(0.05)
Rural	1.80***	(0.13)	1.27***	(0.05)
Economic index	0.99	(0.01)	1.00	(0.00)
Constant	0.00***	(0.00)	0.01***	(0.00)
Quarter fixed effects			Yes	
Municipality fixed effects			Yes	
Municipality linear time trends			Yes	
Pseudo R-squared			0.072	
Log-pseudo-likelihood			-122,513.24	
Observations			230,889	

Notes: Multinomial logit model reporting exponentiated coefficients and clustered standard errors in parentheses (clustered at the individual level). Base group of the dependent variable is formed by people in the labor force who are not engaged in entrepreneurship in a SARE-industry. *Low education* forms the educational base group. We report two-tailed significance tests, even though the hypothesis on SARE is a directional hypothesis; a one-tailed test would further increase the statistical significance of the SARE-dummy.

Significance levels: * p < 0.10, ** p < 0.05, *** p < 0.01

Table 6

**Education-specific effect of SARE on hybrid and full-time entrepreneurship
(in SARE industries)**

	<i>Calculation of education-specific relative risk ratio of the SARE effect</i>	<i>Hybrid SARE entrepreneur (1)</i>	<i>Full-time SARE entrepreneur (2)</i>
No education	$\exp(\beta_{\text{SARE}} + \beta_{\text{SARE} * \text{No edu.}}) =$	1.36 (0.19)	1.30*** (0.09)
Low education	$\exp(\beta_{\text{SARE}}) =$	1.14* (0.07)	0.99 (0.03)
Technical education	$\exp(\beta_{\text{SARE}} + \beta_{\text{SARE} * \text{Techn. edu.}}) =$	1.22 (0.16)	1.12 (0.08)
Middle education	$\exp(\beta_{\text{SARE}} + \beta_{\text{SARE} * \text{Middle edu.}}) =$	1.19* (0.09)	1.21*** (0.05)
High education	$\exp(\beta_{\text{SARE}} + \beta_{\text{SARE} * \text{High edu.}}) =$	1.88*** (0.22)	1.27 (0.18)

Notes: Calculations based on multinomial logit model reported in Table 4, with *Low education* being the base group of the education dummies. Standard errors are approximated through the delta method. We report two-tailed significance tests, even though the hypothesis on SARE is a directional hypothesis; a one-tailed test would further increase the statistical significance of the SARE-dummy.

Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7

Impact of SARE on hybrid and full-time entrepreneurship in SARE and non-SARE industries

	<i>Hybrid SARE entrepreneur (1)</i>	<i>Full-time SARE entrepreneur (2)</i>	<i>Hybrid non-SARE entrepreneur (3)</i>	<i>Full-time non-SARE entrepreneur (4)</i>
SARE	1.18*** (0.07)	1.05* (0.03)	1.00 (0.16)	1.02 (0.06)
Female	0.73*** (0.03)	1.08*** (0.02)	0.17*** (0.02)	0.24*** (0.01)
Married	1.05 (0.04)	1.21*** (0.02)	1.28*** (0.11)	1.03 (0.04)
No education	0.90 (0.09)	0.86*** (0.04)	1.18 (0.28)	1.15 (0.10)
Technical education	1.11 (0.09)	0.82*** (0.03)	1.16 (0.21)	0.72*** (0.07)
Middle education	1.48*** (0.07)	0.68*** (0.02)	0.63*** (0.07)	0.39*** (0.02)
High education	2.29*** (0.27)	0.43*** (0.04)	0.42** (0.16)	0.11*** (0.03)
Age	1.20*** (0.01)	1.15*** (0.01)	1.25*** (0.03)	1.19*** (0.01)
Age ²	1.00*** (0.00)	1.00*** (0.00)	1.00*** (0.00)	1.00*** (0.00)
No. dependents in household	1.01 (0.02)	1.00 (0.01)	0.98 (0.03)	1.04*** (0.01)
No. working in household	0.90*** (0.02)	1.00 (0.01)	0.87*** (0.04)	1.01 (0.02)
City	1.10 (0.11)	1.11** (0.05)	1.18 (0.22)	1.14* (0.09)
Rural	1.78*** (0.13)	1.25*** (0.05)	1.09 (0.19)	0.76*** (0.06)
Economic index	0.99 (0.01)	1.00 (0.00)	0.98 (0.02)	1.01 (0.01)
Constant	0.00*** (0.00)	0.01*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
Quarter fixed effects	Yes			
Municipality fixed effects	Yes			
Municipality linear time trends	Yes			
Pseudo R-squared	0.083			
Log-pseudo-likelihood	-155,853.39			
Observations	230,889			

Notes: Multinomial logit model reporting exponentiated coefficients and clustered standard errors in parentheses (clustered at the individual level). Base group is formed by people in the labor force who are not engaged in entrepreneurship neither in a SARE-industry nor in a non-SARE industry. We report two-tailed significance tests, even though the hypothesis on SARE is a directional hypothesis; a one-tailed test would further increase the statistical significance of the SARE-dummy. Significance levels: * p < 0.10 ** p < 0.05*** p < 0.01

APPENDIX A

Impact of SARE: Marginal Effects of multinomial logit and multinomial probit model

	<i>Multinomial Logit Model</i>				<i>Multinomial Probit Model</i>			
	<i>Hybrid SARE entrepreneur</i>		<i>Full-time SARE entrepreneur</i>		<i>Hybrid SARE entrepreneur</i>		<i>Full-time SARE entrepreneur</i>	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
SARE	0.0036** (0.0014)	0.0055 (0.0037)	0.0034** (0.0014)	0.0055 (0.0037)	0.0034** (0.0014)	0.0055 (0.0037)	0.0034** (0.0014)	0.0055 (0.0037)
Female	-0.0066*** (0.0009)	0.0210*** (0.0026)	-0.0060*** (0.0008)	0.0210*** (0.0026)	-0.0060*** (0.0008)	0.0210*** (0.0026)	-0.0060*** (0.0008)	0.0210*** (0.0026)
Married	0.0001 (0.0009)	0.0247*** (0.0027)	0.0000 (0.0009)	0.0247*** (0.0027)	0.0000 (0.0009)	0.0247*** (0.0027)	0.0000 (0.0009)	0.0247*** (0.0027)
No education	-0.0018 (0.0021)	-0.0201*** (0.0063)	-0.0022 (0.0021)	-0.0184*** (0.0065)	-0.0022 (0.0021)	-0.0184*** (0.0065)	-0.0022 (0.0021)	-0.0184*** (0.0065)
Technical education	0.0037* (0.0019)	-0.0254*** (0.0055)	0.0034* (0.0018)	-0.0247*** (0.0055)	0.0034* (0.0018)	-0.0247*** (0.0055)	0.0034* (0.0018)	-0.0247*** (0.0055)
Middle education	0.0115*** (0.0010)	-0.0476*** (0.0036)	0.0114*** (0.0010)	-0.0451*** (0.0034)	0.0114*** (0.0010)	-0.0451*** (0.0034)	0.0114*** (0.0010)	-0.0451*** (0.0034)
High education	0.0243*** (0.0027)	-0.1075*** (0.0130)	0.0255*** (0.0029)	-0.1010*** (0.0120)	0.0255*** (0.0029)	-0.1010*** (0.0120)	0.0255*** (0.0029)	-0.1010*** (0.0120)
Age	0.0034*** (0.0003)	0.0171*** (0.0008)	0.0033*** (0.0003)	0.0158*** (0.0007)	0.0033*** (0.0003)	0.0158*** (0.0007)	0.0033*** (0.0003)	0.0158*** (0.0007)
Age ²	0.0000*** (0.0000)	-0.0001*** (0.0000)	0.0000*** (0.0000)	-0.0001*** (0.0000)	0.0000*** (0.0000)	-0.0001*** (0.0000)	0.0000*** (0.0000)	-0.0001*** (0.0000)
No. dependents in household	0.0003 (0.0003)	-0.0008 (0.0008)	0.0003 (0.0003)	-0.0009 (0.0008)	0.0003 (0.0003)	-0.0009 (0.0008)	0.0003 (0.0003)	-0.0009 (0.0008)
No. working in household	-0.0024*** (0.0004)	0.0005 (0.0012)	-0.0024*** (0.0004)	0.0006 (0.0012)	-0.0024*** (0.0004)	0.0006 (0.0012)	-0.0024*** (0.0004)	0.0006 (0.0012)
City	0.0017 (0.0022)	0.0123** (0.0058)	0.0014 (0.0021)	0.0124** (0.0057)	0.0014 (0.0021)	0.0124** (0.0057)	0.0014 (0.0021)	0.0124** (0.0057)
Rural	0.0123*** (0.0016)	0.0290*** (0.0051)	0.0124*** (0.0016)	0.0286*** (0.0052)	0.0124*** (0.0016)	0.0286*** (0.0052)	0.0124*** (0.0016)	0.0286*** (0.0052)
Economic index	-0.0003 (0.0002)	-0.0002 (0.0005)	-0.0003 (0.0002)	-0.0002 (0.0006)	-0.0003 (0.0002)	-0.0002 (0.0006)	-0.0003 (0.0002)	-0.0002 (0.0006)
Constant	0.0238*** (0.0004)	0.1752*** (0.0013)	0.0238*** (0.0004)	0.1753*** (0.0013)	0.0238*** (0.0004)	0.1753*** (0.0013)	0.0238*** (0.0004)	0.1753*** (0.0013)
Quarter fixed effects		Yes		Yes		Yes		Yes
Municipality fixed effects		Yes		Yes		Yes		Yes
Municipality linear time trends		Yes		Yes		Yes		Yes
Observations		230,889		230,889		230,889		230,889

Notes: Marginal effects of multinomial logit and multinomial probit model and clustered standard errors in parentheses (clustered at the individual level). Base group is formed by people in the labor force who are not engaged in entrepreneurship in a SARE-industry. We report two-tailed significance tests, even though the hypothesis on SARE is a directional hypothesis; a one-tailed test would further increase the statistical significance of the SARE-dummy.

Significance levels: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$