Regulating Entrepreneurship: The Case of Capital Requirements*

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Abstract

Governments have a long history of imposing minimum equity requirements on new corporations. While opponents argue that capital requirements pose a detrimental barrier to entry, proponents maintain that they protect stakeholders from financially unviable entrepreneurship. Despite this controversy, there is little evidence to inform policymakers. We use a Norwegian reform and comprehensive data on entrepreneurs and their firms to study this quantity-quality trade-off. Reducing the capital requirement by 70% nearly doubled entrepreneurial entry, without affecting survival rates, profitability, productivity, or financial leverage. We further find no evidence that new entrepreneurs differ in terms of ex-ante income, liquidity, or ability measures. Our findings thus indicate that capital requirements restrict entrepreneurship without screening on quality, which has policy implications for the many countries debating these requirements. More broadly, our model and data indicate that returns-to-scale heterogeneity, rather than liquidity or productivity differences, is critical in modeling entry responses to regulation.

Keywords: Entrepreneurship, incorporation, capital requirements, selection

JEL codes: G50, G38, G31, J24

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1 Introduction

Regulatory barriers to entrepreneurship have been under intense scrutiny over the past twenty years (World Bank, 2020). In response to evidence that entry regulation is associated with a host of adverse economic outcomes (Djankov, La Porta, Lopez-de Silanes, and Shleifer 2002; Bertrand and Kramarz 2002; Aghion, Burgess, Redding, and Zilibotti 2008), governments around the world have implemented a wide range of business deregulation reforms. One of the more persistent types of entry regulation, however, is minimum capital requirements. These century-old requirements are motivated by a quantity-quality trade-off, in which capital requirements screen out financially unviable or unproductive entrepreneurship. Since not all entrepreneurship is necessarily beneficial (Baumol, 1996) and financial constraints likely select on ability (Evans and Jovanovic, 1989), capital requirements might offer advantages compared to other entry barriers. Unlike bureaucratic red tape, capital requirements may be particularly suited to screen out illiquid entrepreneurs who would start financially unviable businesses. A desire to reduce the leverage of non-financial firms may also directly motivate capital requirements, which mandate a minimum amount of equity. Recent research documents how highly levered firms are more susceptible to economic shocks (e.g., Giroud and Mueller 2017, Crouzet and Mehrotra 2020) and generally underperform (De Haas, Sterk, and Van Horen, 2022). Hence, the existing empirical evidence on entry barriers, which lumps several types of barriers together, is insufficient for informing one of the key remaining decisions facing policymakers: whether to roll back capital requirements.

We perform a comprehensive assessment of the quality-quantity trade-off implied by capital requirements. Specifically, we study how a decrease in capital requirements affects both the quantity and quality of new entrepreneurs. Our evidence comes from a Norwegian reform in 2012 that reduced the equity requirement from \$17,000 to \$5,000. The Norwegian setting has several features that allow us to overcome central empirical challenges. First, the reform did not coincide with other major deregulation events, which allows us to isolate the effects of capital requirements. Second, insights from the Norwegian reform likely generalize to several other countries that still have capital requirements in place, as Norway has a business-friendly regulatory regime, modest pre-reform capital requirements, and developed financial markets. Finally, the Norwegian administrative data include comprehensive data on firms and individuals that we can link through both ownership and executive registers. While the firm-level data are crucial, they offer an incomplete picture. Firm-level outcomes may be affected by capital requirements even if the composition of entrepreneurs remains constant. Detailed ex-ante characteristics of the entrepreneurs themselves allow us to isolate selection effects and inform the theory underlying the quality-quantity trade-off. In particular, data on ex-ante liquid wealth allow us to examine whether capital requirements exacerbate financial frictions, and detailed educational records, including proxies for illicit traits and grades across different subjects, allow us to thoroughly investigate how capital requirements affect the human capital composition of entrepreneurs.

We first study the effect of the reform on business creation. Whether there should be a large

effect is not obvious. Capital requirements only limit entry if limited liability is essential to entrepreneurship (as claimed by Levine and Rubinstein 2017) and at least one of two conditions is met: either liquidity constraints bind for a significant number of entrepreneurs, or the optimal scale of their business is too small to profitably satisfy the capital requirement. Interestingly, we find a substantial effect of the reform on business creation. Immediately following the reform, the annual number of incorporations nearly doubles and remains at this higher level for the duration of our sample. This large effect on business creation is not driven by expanding conglomerates. Incorporation rates double even among individuals who were not already entrepreneurs. We further find no evidence that new entrants substitute away from unincorporated entrepreneurship, nor do we find any evidence that the effect is driven by individuals simply reorganizing their existing economic activity. A battery of robustness checks supports the main result that reduced capital requirements create new entrepreneurship. Our findings thus indicate that there was a substantial mass of potential entrepreneurs sensitive to moderate reductions in entry barriers.

We proceed by studying whether this increase in entrepreneurial activity coincided with a change in the characteristics of new firms. Not surprisingly, firms that incorporate under the low-requirement regime are considerably smaller. This result is clearly visible in the raw data by plotting firm-level characteristics against the date of incorporation. We confirm the findings using a formal regression discontinuity (RD) approach, which identifies sharp differences in firm outcomes based on whether they incorporated after the reform. Firms that incorporate after the reform are not only \$100,000 smaller in terms of book assets, they also have \$140,000 less in revenues. This reduction in average revenues, however, is not large enough to cancel out the effect of increased entry. Total revenues from the post-2012 cohorts are about 40% larger than the pre-reform cohorts. Although post-reform entrants are smaller, they are subject to similar growth rates in terms of assets and revenues.

Importantly from a policy perspective, we find no evidence that post-reform entrants are less financially viable. They are not more likely to fail or be subject to debt forgiveness at creditors' detriment. Nor do we find any evidence that post-reform entrants are less profitable or less productive. Nevertheless, by being able to incorporate with less equity, post-reform entrants are possibly more levered and thus more susceptible to economic shocks (Crouzet and Mehrotra 2020, Giroud and Mueller 2021, Alfaro, Bloom, and Lin 2024). While we do find a slightly higher leverage ratio (total debt to book assets) for post-reform entrants, this is entirely driven by non-interest-bearing liabilities such as value-added taxes. The ratios of outstanding bonds and bank debt to assets or long-term debt to assets remain unchanged.

We next investigate the potential screening effects of capital requirements by considering changes to the ex-ante characteristics of entrepreneurs. Our model in Section 5 shows that relaxing liquidity constraints is one channel through which reducing capital requirements may increase entry. Essentially, entrepreneurs who did not have enough liquidity to satisfy the previous capital requirement may now enter. The intuitive and testable implication is that post-reform entrants

on average have lower ex-ante liquidity. However, we find no indication of this in the data. We subject this result to several robustness checks, where our main check is theoretically motivated. If new entrants were ex-ante constrained, we would expect to see that the increase in entry disproportionately occurs among low-liquidity individuals. We find no evidence of this.

Another important question is whether the reform permanently increased entry rates or simply caused accelerated entry. If liquidity constraints were relaxed by the reform, potential entrepreneurs could reduce the time needed to accumulate self-financing (Moll, 2014). It is also possible that the reform reduced the amount of experience needed to profitably operate a business of the scale implied by the capital requirement. If so, new entrants may need less time to accumulate the relevant human capital. Whether the acceleration effect dominates is empirically challenging to establish. Even if entry rates remain high for several years, this could be affected by long-run trends unrelated to the reform. Our innovation is to consider the clear implication that new entrepreneurs would be younger. By documenting that there is no change in the average age of entrants, we provide compelling evidence that reducing capital requirements permanently increased entry rates.

Our next step is to inform the quantity-quality trade-off by considering several ex-ante proxies for entrepreneurial ability. Two natural proxies are past income (Evans and Jovanovic, 1989) and educational attainment (Levine and Rubinstein, 2017). Neither of these differs for post-reform entrants. Given the importance of entrepreneur's human capital (Lucas 1978, Murphy, Shleifer, and Vishny 1991, Gennaioli et al. 2013), we use the granularity of the education data to study their high-school educational background in multiple dimensions. As a proxy for quantitative ability, we use mathematics grades. For non-quantitative, language-based ability, we consider Norwegian grades. As an overall academic achievement measure, we use their GPA. We observe no changes along any of these dimensions. We also consider non-cognitive traits since these are shown to affect labor market outcomes (e.g., Deming 2017 and Fredriksson, Öckert, and Oosterbeek 2013). Our measures relate to the notion of "illicit traits" emphasized by Levine and Rubinstein (2017). The first measure is the number of skipped classes, and the second is their comportment grade, where a high grade is indicative of prosocial behavior and punctuality. Again, we find no change in these traits around the reform.

While our analyses have covered most of the outcomes discussed by policymakers, we also explore whether post-reform entrants engage in less financially rewarding entrepreneurship from the perspective of the individual. We implement an event study on a comprehensive income measure around incorporation that includes wage and salary income, dividends, and any retained earnings in private firms that are apportioned by ownership shares. Our analysis reveals no indication that entering into entrepreneurship after the reform is less financially rewarding. We also use the event-study framework to assess whether post-reform incorporations are more likely to be tax-driven (Tazhitdinova, 2020). However, there is no indication that incorporating reduces effective tax rates more for post-reform entrants.

Our empirical findings suggest that marginal entrepreneurs are not of lower ability. Nor do they create less profitable or less productive firms. They simply create smaller firms. We show that our findings can be rationalized by a simple enrichment of the canonical selection model of Evans and Jovanovic (1989). In the model, entrepreneurial profits are a concave function of capital and linear in ability. We enrich the model by introducing a capital requirement and heterogeneity not only in ability and outside options, but also in returns to scale, i.e., in the concavity of the production function. Entrepreneurs with more concave production functions are optimally smaller, regardless of their entrepreneurial ability or liquidity. In this enriched environment, a capital requirement creates two sets of constrained entrepreneurs. Liquidity-constrained individuals lack the funds needed to meet the capital requirement and size-constrained individuals want to start smaller firms than allowed by the minimum capital requirement. Reducing capital requirements may thus increase entry both by relaxing liquidity constraints and size constraints.

The liquidity constraint channel implies a reduction in average ex-ante liquidity, which is inconsistent with our empirical findings. We thus infer that size constraints are important. Although low-ability or high-outside-option individuals may also be size-constrained, our proxies for ability or outside options (e.g., past incomes) do not change around the reform. Hence, the residual explanation is that post-reform entrants have lower returns-to-scale production functions. We empirically test this explanation using the production function estimation framework of Ackerberg, Caves, and Frazer (2015). The results reveal significantly lower capital sensitivities and returns-to-scale parameters for post-reform entrants. At the same time, there is no indication that post-reform entrants have lower productivity parameters.

Literature. We contribute to a growing literature on how government policy affects entrepreneurship. This diverse literature consider policies such as taxation (e.g. Gentry and Hubbard 2000, Djankov et al. 2010, Giroud and Rauh 2019, Holter, Stepanchuk, and Wang 2023, Guo and Wallskog 2024), patent rights (e.g., Hvide and Jones 2018), and unemployment policy (e.g., Hombert, Schoar, Sraer, and Thesmar 2020, Hou, Jonsson, Li, and Ouyang 2025). Our paper is most closely related to the branch that studies policies aimed at regulating entry, such as registration costs, wait times, licensing, and capital requirements (e.g., Djankov, La Porta, Lopez-de Silanes, and Shleifer 2002, Bertrand and Kramarz 2002, Djankov, McLiesh, and Ramalho 2006, Klapper, Laeven, and Rajan 2006, Djankov, McLiesh, and Ramalho 2006, Ciccone and Papaioannou 2007, Fisman and Allende 2010, Bruhn 2011, Kaplan, Piedra, and Seira 2011, Tazhitdinova 2020, Barwick, Chen, Li, and Zhang 2022 and Fang, Li, Wu, and Zhang 2023). The general consensus is that entry regulation adversely affects the economy by restraining the creation of new businesses. However, some work emphasizes an important trade-off where deregulation produces low-quality entrepreneurship (Branstetter, Lima, Taylor, and Venâncio, 2014).

We make three main contributions to this literature. Our focal contribution is to isolate the impact of capital requirements from other types of entry regulation. Crucially, there is no intuitive reason why reducing capital requirements should have identical effects on the economy to cutting

red tape or reducing registration fees. Considering capital requirements in isolation is therefore necessary to evaluate exactly how they affect the quantity and characteristics of new entrepreneurs, which is needed for informed policy decisions. To our knowledge, the only other studies that isolate the impact of capital requirements do so in an emerging market setting (see, Cui and Wei 2022 and Cheng, Ding, and Liu 2024 who study a 2013 reform in China.) We view our findings as complementary. While the emerging market setting is independently important to study, it is unlikely to generalize to developed countries, where ex-ante capital constraints and other barriers to entrepreneurship are much lower. To this point, our findings are qualitatively different from the Chinese setting in which entry effects are more modest and liquidity plays a central role.[1]

Our second contribution is to provide a particularly rich picture of how barriers to entry affect the composition of entrepreneurs. Data on ex-ante characteristics are needed to isolate these selection effects since ex-post outcomes may be affected by deregulation reforms without affecting who chooses to become an entrepreneur. Beyond being crucial to inform the economic mechanism behind the increase in entry (i.e., ex-ante liquidity) and whether the entry effect is permanent (i.e., birth year), studying a broad set of characteristics (e.g., past incomes, cognitive and non-cognitive traits) addresses the concern that entrepreneurial quality is an elusive, hard-to-measure characteristic. The fact that we find no differences between pre- and post-reform entrants across such a wide range of characteristics suggests that our finding of no quality-quantity trade-off is robust.

Our third contribution is to emphasize returns-to-scale heterogeneity as an important channel through which entry barriers affect selection into entrepreneurship. Our combined empirical findings present a puzzle in a standard Evans and Jovanovic (1989) selection model.

Introducing heterogeneity in returns to scale (i.e., in how concave the production function is) provides a simple and intuitive resolution. If there are many potential entrepreneurs with low returns-to-scale production technologies, even modest reductions can have large effects on entrepreneurship. By emphasizing the importance of returns-to-scale heterogeneity in a business regulation setting, we provide supporting evidence for recent studies that incorporate this heterogeneity in other settings (e.g., Gavazza, Mongey, and Violante 2018 and Clymo and Rozsypal 2023). In particular, returns-to-scale heterogeneity, as opposed to just productivity heterogeneity (Hopenhayn, 1992), may be important in determining entry responses to policies that impose fixed costs on entrepreneurs.

Finally, our paper is related to the literature that studies the relationship between access to finance and entrepreneurship (see, e.g., Hurst and Lusardi 2004, Hvide and Møen 2010, Andersen and Nielsen 2012, Adelino, Schoar, and Severino 2015, Corradin and Popov 2015, Kerr, Kerr, and

[1] Cui and Wei (2022) and Cheng, Ding, and Liu (2024) both find evidence indicative of a binding liquidity constraint, while we do not. This discrepancy is not surprising, as the Chinese capital requirement equaled 200% of GDP per capita, while the Norwegian capital requirement equaled only 16% of GDP per capita, which is similar to other OECD countries. See also Barwick, Chen, Li, and Zhang (2022) who studies a broader set of policies in a Chinese setting.

Nanda 2015, Fracassi, Garmaise, Kogan, and Natividad 2016, Schmalz, Sraer, and Thesmar 2017, Cespedes, Huang, and Parra 2019, Herkenhoff, Phillips, and Cohen-Cole 2021, Bellon, Cookson, Gilje, and Heimer 2021, Jensen, Leth-Petersen, and Nanda 2022, Chodorow-Reich, Nenov, Santos, and Simsek 2023, Ring 2023). Several papers in this literature carefully document significant causal effects of liquidity shocks on entry into entrepreneurship. Our findings complement this literature. While potential entrepreneurs may be hindered by an inability to access finance, some entrepreneurs may want to start optimally small firms for which access to finance is not the main barrier. For these entrepreneurs, alleviating "size constraints" caused by capital requirements or fixed costs may be more important than alleviating financial frictions. Importantly, these size-constrained entrepreneurs may have very different characteristics from financially constrained ones, implying that policies aimed at alleviating size versus financial constraints have different implications for the composition of new entrants.

The next section describes the institutional setting and the data. Sections 3 and 4 present our empirical findings. Section 5 interprets our findings through the lens of an enriched Evans-Jovanovic model and provides production function estimation results. Section 6 concludes.

2 Data and empirical setting

2.1 Institutional setting

Since the introduction of free incorporation in the late 1800s, legal minimum capital requirements have been commonplace across the world. These requirements typically mandate a minimum amount of paid-in shareholder capital to provide some balance to the limited liability enjoyed by shareholders. These requirements were prevalent across U.S. states throughout the 1920s but eventually disappeared. The removal of these requirements was likely driven by states competing to attract new businesses (Booth et al., 2005). In other countries, particularly in Europe, minimum capital requirements are more persistent. Despite a wave of deregulation reforms over the past twenty years, about one third of World Bank member countries currently impose minimum capital requirements (World Bank, 2020). These requirements range from €3,000 in Spain and €10,000 in Italy to €25,000 in Germany and €35,000 in Austria (DLAPiper, 2023).[2] Whether to still impose capital requirements is subject to continued debate, with recent policy proposals in the EU including a union-wide removal to facilitate more entrepreneurship (European Commission, 2025).

Norway, which is the focus of our study, has imposed minimum capital requirements since the first limited liability law in 1910. The requirement stipulates that a minimum amount of equity must be injected into the company at incorporation and kept thereafter.[3] The original purpose was

[2]These requirements refer to incorporating standard limited liability companies. In some countries, there are alternative corporate forms that have different requirements.

[3]There are no specific restrictions on the source of the equity, which may come from the entrepreneurs' own assets or from outside investors. There are no rules against entrepreneurs financing their equity injection with personal

to protect creditors and other stakeholders (GOV, 2011). Between 1997 and 2011, the Norwegian equity requirement was NOK 100,000 ($17,000 using the 2012 exchange rate). In September 2011, the ministry of justice formally proposed reducing the requirement to NOK 30,000 ($5,000). The ministry argued, without referencing empirical evidence, that the existing requirement was unlikely to be effective in protecting creditors' interests and likely constituted a barrier to entry into sectors where limited liability is important. The government also wished to offer competitive economic conditions relative to countries that did not have capital requirements, such as the U.K.[4] The reduction was subsequently legislated by the parliament, and became effective on January 1st 2012.

To our knowledge, there were no other changes to economic conditions affecting business creation in 2012. The Norwegian setting, with comprehensive data on entrepreneurs and their firms, thus provides a compelling laboratory to understand the effects of capital requirements. The most relevant policy change in the surrounding period was the removal of an auditing requirement for small firms in early 2011. To address the concern that this reform may affect our results, we examine changes in entry around the capital requirement reform at the quarterly level, effectively separating the two reforms in the data.

2.2 Data

A central benefit of the Norwegian administrative data is the ability to link comprehensive data on firms and individuals through shareholder, employment, and executive registers. While all the data are de-identified by Statistics Norway, they can be linked through firm and person identifiers that are consistent across all the administrative registers. On the firm side, data from the business register ("VOF") provide a panel of firm characteristics such as creation date and industry.[5] Data from firms' tax returns ("Næringsoppgave 2") provide a comprehensive view of a corporations' financial situation. These firm-level data primarily cover the years 2004–2018.

Data from the role and executive register ("Rolleregisteret") contain the CEO and board members for all incorporated firms as well as the proprietor behind sole-proprietorships. Data on sole-proprietors allow us to make use of these unincorporated entrepreneurs for placebo checks. The Norwegian Tax Authorities also maintain a comprehensive shareholder register ("Aksjonærregisteret") that serves a central role in our analysis. We obtain the 2004 through 2018 vintages of this register. All firms incorporated in Norway (both public and private) must provide a list

debt. To our knowledge, the authorities also do not enforce any rules that prohibit entrepreneurs from satisfying the equity requirement by shifting savings inside their firm. However, as we discuss in Section 5, this effectively implies reduced limited liability and there are tax-related disadvantages from saving inside the firm.

[4] Following new EU rules in the early 2000s, firms in EU–EEA countries were free to incorporate in other EU–EEA countries. Becht, Mayer, and Wagner (2008) show that this led to a substantial increase in U.K. incorporations originating from high-capital-requirement countries.

[5] We use the variable "orgnr_dat" which provides the date at which the organization ID was assigned. For industry codes, we rely on the "SN07" designation, valid from 2007. For all companies, we use the most recent industry code available as of 2018.

of their shareholders and the number of shares they own each year. Shareholders may be individuals or other corporations, and we untangle indirect ownership by iterating on ownership links. Finally, we also link individuals and firms through employment registers that provide dates of employment and earnings at the firm-person-year level.

On the individual side, we obtain demographic characteristics such as year of birth from the central population register. We obtain data on educational attainment and achievement from the national education database. These include information on whether an individual has obtained a college degree by 2010, as well as detailed data on their academic achievements in high school. Course-level grades allow us to separate academic achievement into several categories, such as Mathematics, Norwegian, and Physical Education, that may proxy for different kinds of abilities. The high school data further contain behavioral attributes, such as the number of missed classes and their comportment score. These granular education records cover the years 2001 and onward, implying that the related analyses are restricted to younger entrants.[6] We further obtain panel data on individuals' financial situation from several registers derived from individuals' tax returns. These data include detailed third-party reported information on incomes, wealth, and tax liabilities.

2.3 Definitions and sample restrictions

To be classified as the entrepreneur behind an incorporated firm, a person must be the CEO and own more than 1% of the shares. Considering only CEO's ensures that the individual has an active role in the firm. Although we impose a low ownership requirement to avoid omitting entrepreneurs with material outside financing, the majority of those defined as entrepreneurs own 100% of their firm. Our ownership definition allows for indirect ownership through both spouses and other firms (see Appendix A.1). In some of our analyses, we use the entrepreneurs behind sole-proprietorships, partnerships, and foreign-incorporated firms as comparison groups. We expand on the entrepreneurship definitions for these alternative legal forms in Appendix A.2.

Our data consist of all incorporation events during 2004–2018. Since we are interested in potentially economically active firms, we drop (i) incorporation events of firms that belong to industry codes typically used by financial holding companies. We further drop (ii) incorporation events for which we cannot assign a domestic individual as the entrepreneur, which is largely due to a separation of ownership and control. This leaves 132,052 incorporation events. In our main analyses, where we focus on entry into entrepreneurship, we further restrict our sample to (iii) the 47,566 events in which the incorporating entrepreneur was neither owner-CEO of an incorporated firm, a sole-proprietor, a CEO or board-member partner in a partnership, nor the CEO of a foreign-incorporated firm in the year prior to incorporation. We provide additional details on the

[6] More specifically, the data on subject specific grades has effectively full coverage for grades assigned in 2001 and later. That is, when studying, e.g., mathematics grades, we are restricted to the sample of individuals who took a mathematics course in high school in 2001 or later. The data on comportment scores cover the 2001–2005 graduation-year cohorts. The data on absenteeism cover the 2001–2011 cohorts.

sample restrictions in Appendix A.3.

To limit the impact of outliers when we consider firm-level data in levels, we winsorize revenues, wage costs, and balance-sheet components to be non-negative and below their 95th percentiles.[7] Profits are winsorized at the 5th and 95th percentiles. We discuss further approaches to limiting outliers, such as using symmetric growth rates, when presenting our results.

3 Reduced-form results

In this section, we assess whether the 2012 capital requirement reduction affected (i) the number of firm creations, (ii) the characteristics and performance of new firms, and (iii) the composition of entrepreneurs in terms of their ex-ante characteristics. The analyses in this section stay close to the raw data by effectively comparing how the number and characteristics of firms and entrepreneurs change around the reform. Later, in Section 4, we provide more formal estimates based on a regression discontinuity design. We use the results from Section 4 to identify the difference between marginal entrepreneurs (those who only entered due to the reform) and always-entrepreneurs (those who would have entered regardless).

3.1 The effect on firm creations

Whether capital requirements have a material effect on the number of new firms is not obvious. From a simple theoretical perspective (e.g., our model in Section 5), capital requirements only limit entry if at least one of two conditions are met. First, there needs to be a meaningful presence of binding liquidity constraints such that a significant number of entrepreneurs cannot furnish enough capital to satisfy the requirement. Alternatively, there needs to be a material presence of low-returns-to-scale entrepreneurs for whom it would be unprofitable to operate at the scale implied by the capital requirement. When ex-ante capital requirements are modest, as in our case, it is not obvious that either of these conditions have to be met.

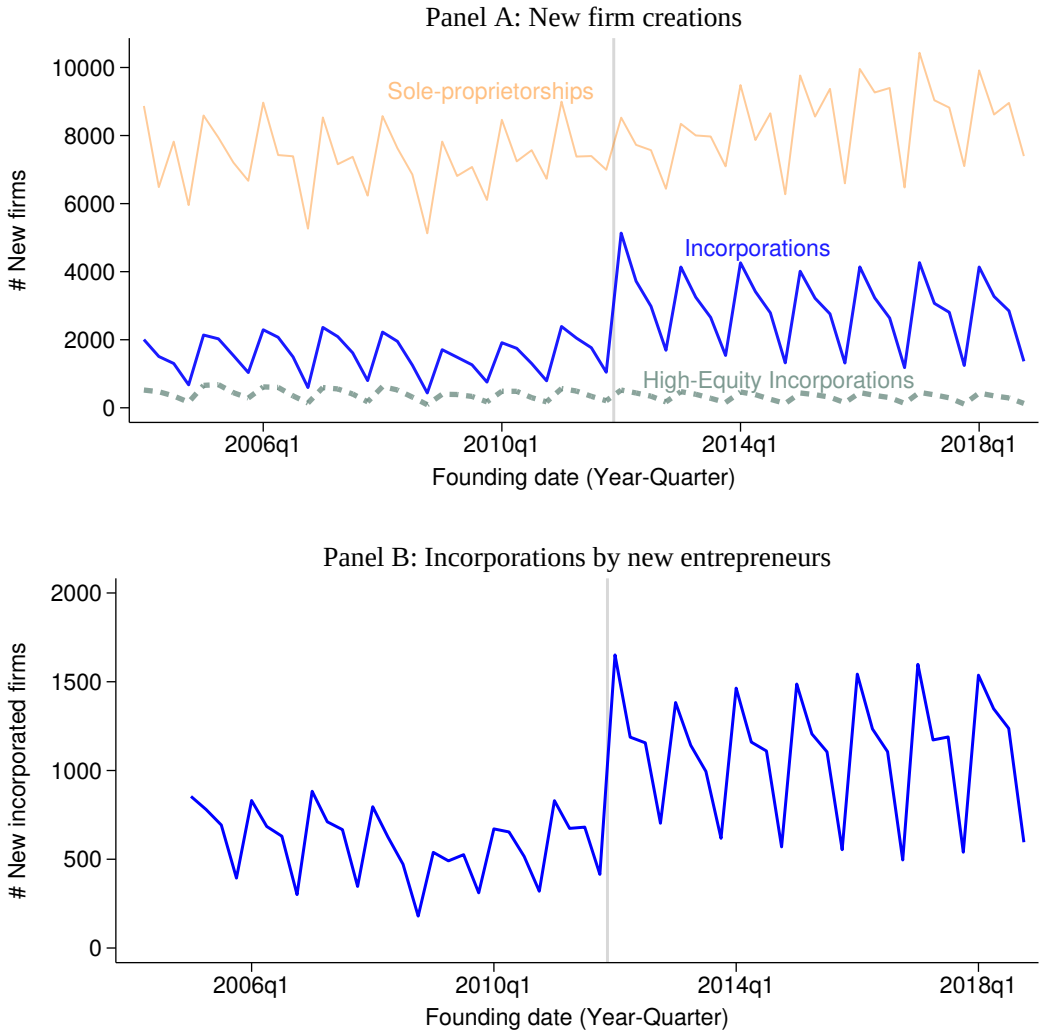
Panel A of Figure 1 shows the number of firm creations over time, regardless of whether the firms were created by *new* entrepreneurs or existing entrepreneurs.[8] Directly after the reform, the number of incorporations doubles and stays at this higher level for the duration of our sample. The immediate response is reasonable, as entrepreneurs who are building a new business will want to incorporate in order to expense start-up costs for tax purposes. That is, incorporating is likely one of the first steps in the process of establishing a new business. Reassuringly, the dashed teal line shows that there is no effect on the number of high-capital incorporations, which we define as

[7] In our setting, winsorizing is particularly appealing (beyond improving precision): capital requirements should be irrelevant for the very largest firms (see Appendix Figure OA.1), hence we are not muting theoretically-relevant variation by winsorizing.

[8] That is, in Panel A, we consider firm creations of individuals irrespectively of whether they engaged in entrepreneurial activity in the previous year. That is, we implement filters (i) and (ii) described in Section 2.3, but not filter (iii).

firms with paid-in-capital in excess of NOK 100,000. Moreover, we find a sharp increase exactly when the capital requirement was reduced (first quarter of 2012) but no noticeable increase at the start of 2011, when small firms no longer needed to engage an auditor. These patterns suggest that the increase in firm entry at the time of the reform is not driven by other changes to the economic environment.

Figure 1: Firm Creation Around the Capital Requirement Reform



Notes: In Panel A, we condition on being able to assign an entrepreneur to the firm creation (excluding, e.g., subsidiaries of listed companies). That is, we implement filters (i) and (ii) described in Section 2.3. In Panel B, the solid blue line considers only incorporations done by individuals who were not previously entrepreneurs: neither incorporated (AS), sole-proprietor (ENK), CEO-partner of a partnership (ANS, DA), or CEO of a foreign-incorporated firm (NUF). That is, Panel B implements sample filters (i)–(iii) in Section 2.3.

Since the reform only affected requirements for incorporation, and not for establishing a sole-proprietorship, one might expect substitution away from sole-proprietorships. However, Panel A shows that, while incorporation rates double, there is no discernible reduction in the amount of

new sole-proprietorships. This result is in line with Levine and Rubinstein (2017) who hypothesize that "true" entrepreneurs either incorporate or do not become entrepreneurs. Consistent with this hypothesis, we further find no effect on partnerships (Appendix Figure OA.4), which also do not benefit from limited liability.

The focus of our study is how capital requirements affect entry into entrepreneurship. The increase in incorporations documented in Panel A could be driven by entrepreneurs who are simply expanding their conglomerates by incorporating new subsidiaries. To understand whether there was in fact an increase in *entry* into incorporated entrepreneurship, Panel B focuses on firms started by individuals who were not already entrepreneurs in the previous year, that is, they were neither incorporated entrepreneurs (AS), sole-proprietors (ENK), CEO-partner of a partnership (ANS, DA), or CEO of a foreign-incorporated firm (NUF). While this sample restriction reduces the overall number of incorporations, we still find that incorporation rates increase substantially. In 2012, we see 75% more entries than in 2011, indicating a substantial effect on entrepreneurial entry.

The increase in entry occurs across industries. Appendix Figure OA.2 decomposes the increase in incorporations into different four-digit NACE-code industries. The top contributor to the increase is engineering and technical consulting, followed by management consulting. Beyond these industries, construction and related industries (plumbing, joinery) play a central role. This heterogeneity is largely intuitive, with incorporations in less capital-intensive industries being more sensitive to capital requirement reductions. This emphasizes the difference between relaxing capital requirements and alleviating financial constraints. Relaxed financial constraints tend to have a larger effect on entry in more capital-intensive industries (Kerr and Nanda 2009, Midrigan and Xu 2014, Schmalz, Sraer, and Thesmar 2017, Ahnert, Doerr, Pierri, and Timmer 2024).

Robustness and extensions. We consider several robustness checks to confirm that the increase in firm entry rates represents new entrepreneurship, and is not just an expansion of existing firms or a relabeling of existing economic activity.

Because we want to identify entry into entrepreneurship, Appendix Figure OA.5 confirms that our results are robust to also dropping incorporations done by individuals who were previously *non-CEO* owners in a limited liability company (i.e., non-CEOs in the previous year who own $\geq 1\%$ of the shares). Our results are also robust to only considering firms that were economically active, indicated by positive revenues or wage bills in the year of incorporation (see Appendix Figure OA.6). Further, since our data is at the firm level, we verify that our findings are robust to only counting one incorporation per entrepreneur (see Appendix Figure OA.7). Relatedly, Appendix Figure OA.8 shows that entry rates remain virtually the same when we also exclude individuals with any business income on their prior year's tax return. This addresses the concern that some de-facto sole-proprietors may not be registered as sole-proprietors, leading us to overstate the true

entrepreneurial entry impact of the reform.[9] This is reassuring given our evidence that the reform did have a large effect on entry into incorporated entrepreneurship among ex-ante sole-proprietors (see Appendix Figure OA.3).

Appendix Figure OA.4 shows that there is a reduction in the registration rates of foreign-incorporated firms. Prior to 2012, one way to achieve the benefits of limited liability without furnishing the required amount of equity was to incorporate in another EU-EEA country (typically the U.K.) without a capital requirement.[10] Accordingly, as the capital requirement is lowered in 2012, we see reduced entry of foreign-incorporated firms. While it is possible that some of the increase in (domestic) incorporation rates is driven by substitution away from starting foreign-incorporated firms, the reduction in foreign-incorporated firms (documented in Appendix Figure OA.4) is far too small and arises too early to be a main driver of the increase in (regular domestic) incorporation rates.

Reducing the capital requirement could lead to more entrepreneurs choosing to fully own their own firm instead of co-founding a firm with another entrepreneur. To the extent that the reform reduced co-founding, the increase in firm entry could reflect that what would have been a single firm before the reform, appears as two firms after the reform. However, defining co-founding as owning exactly 50% of the shares, we do not see any material decrease in co-founding. While there is a decrease of about 2 percentage points, this decrease roughly follows a trend that starts several years earlier (see Appendix Figure OA.9, Panel B). However, we do see a sharp increase in the share of entrepreneurs with 100% ownership. The share of firms that are fully owned by a single entrepreneur increases by about 10 percentage points (Appendix Figure OA.9, Panel A), suggesting that prior to the reform, some entrepreneurs diluted their ownership stakes to satisfy the capital requirement.

We interpret the increase in entry as reflecting new economic activity. One potential concern is that tax incentives may cause some individuals to leave existing jobs only to return as subcontractors through newly formed limited liability companies, leaving aggregate activity unchanged.[11] While we cannot entirely rule out this possibility, Appendix E shows no increase in the likelihood of starting a firm in the same sector as one's previous employer. Moreover, if relabeling was the primary driver of the increase in entry, we would expect a short-lived spike in incorporations

[9] Individuals are only required to register if they engage in recurring and potentially profitable business activities. Although there is no quantitative registration requirement cut-off, anyone with business income above NOK 50,000 ($8,000) must register to pay value-added taxes, which requires prior registration as a sole-proprietor. Our baseline approach only excludes registered sole-proprietors to avoid dropping those with very small prior business incomes due to, e.g., journal referee payments.

[10] These firms would register as foreign-incorporated companies ("NUF") in Norway to get an organization ID number, which is required for many business purposes. There were no rules prohibiting firms from taking this approach, even if their business activity was solely based in Norway.

[11] The main benefit of such relabeling is that it would allow the (prior) employee to retain earnings within the firm, which could be reinvested without capital gains tax, and delay any taxation until the business is sold or dividends are paid out. While the incorporated contractor would pay corporate income tax, this tax is roughly half the top marginal income tax rate. Another tax incentive is the ability to deduct expenses.

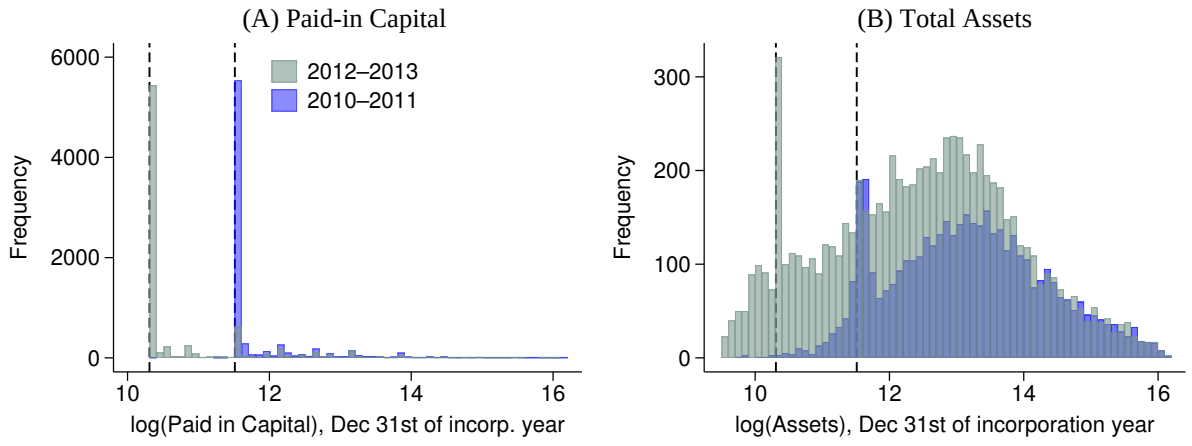
around the time of the reform, rather than the sustained rise documented in Figure 1. Section 3.4 also does not find any evidence that post-reform entries are more likely to be tax motivated.

Finally, we note that the near doubling in entry rates observed in our setting is considerably larger than those found from the 2013 Chinese reform. Cui and Wei (2022) find an increase of 33% and Cheng, Ding, and Liu (2024) find an increase of 39%. In emerged market settings, however, the sensitivity of entry to capital requirements is likely similar to what we document in Norway. Using publicly available data from Sweden, we document roughly a doubling there as well (see Appendix Figure OA.10). Our results are also consistent with a time series plot of incorporation rates in Norway as portrayed by Berzins and Stacescu (2025).[12]

3.2 Firm-level outcomes

Size distribution of firms. An intuitive implication of the reform is that new firms are smaller. In particular, we would expect that the increase in entry is driven by low paid-in-capital incorporations. This is exactly what we find in Panel A of Figure 2. Interestingly, even after the capital requirement is reduced, most entrepreneurs enter with the minimum amount of paid-in-capital (demarked by the left-most dashed line). The fact that there is still bunching at the new lower requirement suggests that there still exists a meaningful mass of entrepreneurs that are constrained, and that additional reductions may further increase entry rates.

Figure 2: Distribution of equity and assets at incorporation



Notes: The vertical lines indicate the capital requirements for 2011 (NOK 100,000 = 11.5 log points) and 2012 (NOK 30,000 = 10.3 log points), respectively. Variables are measured at the end of the incorporation year. It is possible to have less assets than (paid-in-capital) equity in the incorporation year, due to, e.g., negative retained earnings. For readability, observations outside the visible range are dropped.

Panel B of Figure 2 plots the distribution of total book assets in the year of incorporation. The

[12]See also Ruohonen, Vahtera, Jaakkola, and Saukkola (2022) who discuss capital requirements from a legal perspective and provide a plot of incorporations in Finland around the Finnish 2019 capital requirement reduction.

increase in entry occurs only on the left-hand-side of the asset distribution. There is no change in the entry rates of large firms, consistent with the increase in entry being driven by the reform as opposed to a secular rise in entrepreneurship. That the increase is driven by small firms is also consistent with our notion that *size* constraints are important. It is also not ex-ante obvious that new entrants have lower assets. It could be that potential entrepreneurs were *leverage* constrained. That is, they would have entered if they were allowed to substitute more equity for debt.[13] We consider leverage as a distinct characteristic later in this section.

We further observe that a visible mass of firms have assets equal to the minimum capital requirement, implying that these firms have no debt financing and are yet to accrue any other liabilities. We also see some firms that have book assets below the minimum capital requirement, which is possible due to negative retained earnings during the incorporation year.

Firm performance. We proceed by examining whether post-2012 incorporated firms differ in terms of financial characteristics measured in 2018, the end of our sample period. Comparing firm outcomes in 2018 ensures that all firms face the same macroeconomic conditions.

To provide confidence intervals on these firm performance measures, we estimate the following regression equation:

$$y_{f,2018} = \alpha_t + \varepsilon_f, \tag{1}$$

where $y_{f,2018}$ is the outcome variable of interest measured in 2018, α_t are incorporation-year fixed effects, and ε_f is the error term. We restrict the sample to new entrepreneurs (as in Panel B of Figure 1). We further omit firms incorporated in 2018 to ensure that all firms were active for the entire year that the outcome variable is recorded.

Note that regression equation (1) essentially removes time fixed effects but allows age effects to affect the point estimates for α_t. Nevertheless, under the assumption that age effects are smooth,[14] we should be able to infer any effects of the reform from a sharp difference in the estimated α_ts around the reform. We formalize this intuition in our RD framework in Section 4. Nevertheless, we show that our visual evidence is qualitatively similar when measuring outcomes three years after incorporation (see Appendix Figure OA.11), which effectively removes age fixed effects.

The estimated incorporation-year fixed effects (conditional means) are depicted in Figure 3. Given the sharp and large increase in entry rates, any differences between pre- and post-reform entrants should show up as sharp discontinuities in 2012.

[13] Due to the tax-deductibility of interest expenses, increasing leverage increases the expected return from each dollar of equity investment. This is of course subject to a trade-off, where more leverage increases the risk of default and thus the expected costs of financial distress (Graham, 2000).

[14] Age effects only need to be smooth at the age-cutoff implied by the reform (2011–2012) and the time of measurement (2018) which is between firm ages of 6 and 7.

Consider first Panel A, which measures whether a firm is active in 2018, that is, whether it has non-missing accounting data. We see a clear trend that later incorporations are more likely to be active as of 2018. This is not surprising given that later incorporations constitute younger firms as of 2018, and they have thus had fewer opportunities to experience adverse shocks leading to exits. What is more informative, is the lack of a discontinuity. There is no sharp difference in the survival rates of firms occurring at the time of the reform. This indicates that the reform did not cause an influx of short-lived firms. Appendix Figure OA.14 shows that this conclusion is robust to refining how we classify a firm as being active, by also conditioning on having strictly positive revenues.

Panel B of Figure 3 considers total book assets. Here, we find a sharp difference between pre- and post-reform entrants. Firms that incorporated after 2012 have about $200,000 (NOK 1,250,000) less assets. This difference is considerably larger than the reduction in the equity requirement from $17,000 to $5,000, which reflects a substantial multiplier effect: If the equity to book assets ratio is greater than one, due to liabilities such as bank debt or trade credit, the reduction in assets should exceed the capital requirement reduction.

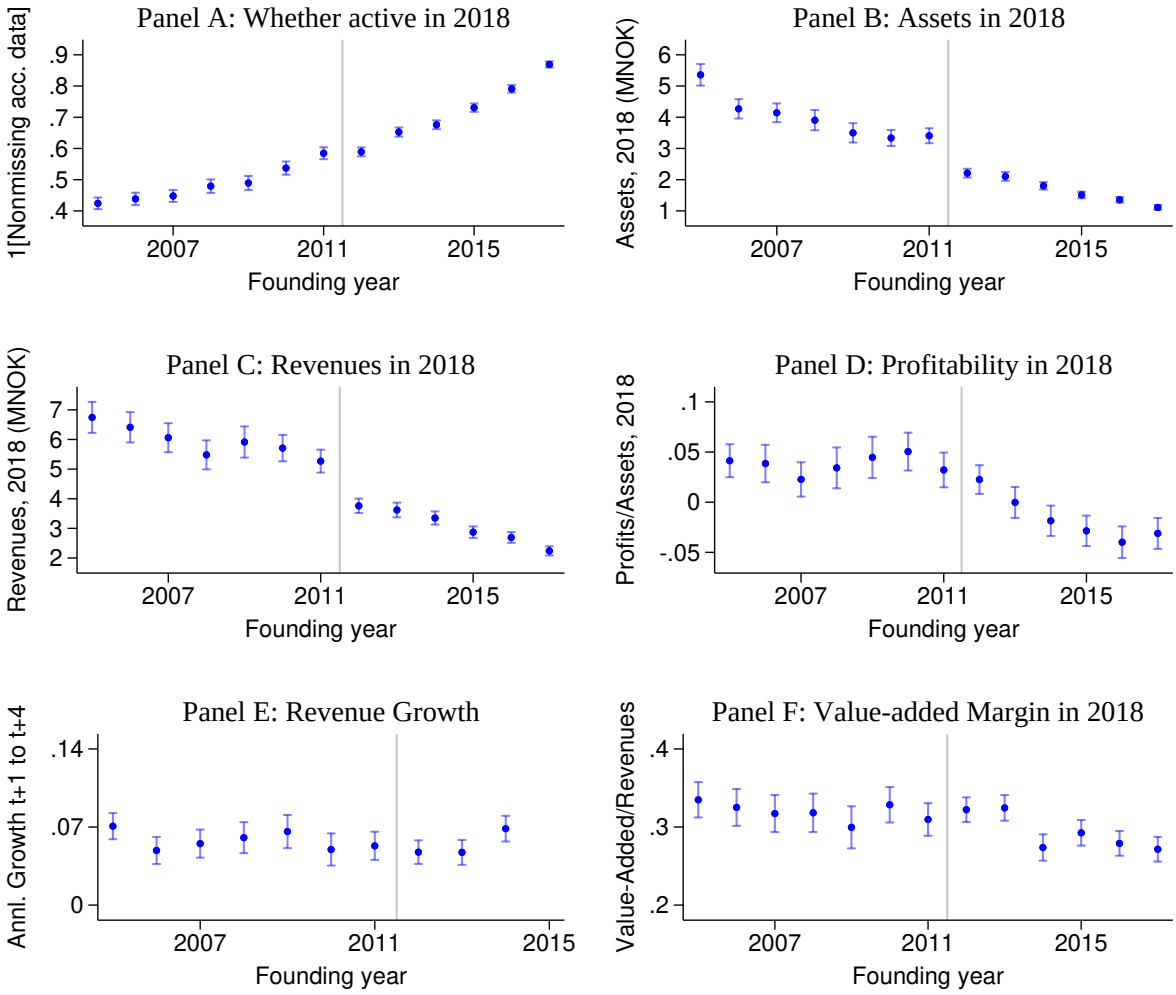
Appendix Figure OA.12 verifies that the observed size difference occurs at incorporation, by redoing the analysis on assets in the year of incorporation, in line with the histogram presented in Figure 2. At the end of the incorporation year, post-reform firms are about $100,000 (NOK 600,000) smaller in terms of assets.

We next consider whether post-reform firms are smaller in terms of revenues. This need not be the case if the increase in entry is driven by particularly low-capital-intensity firms. For such firms, capital requirements may be particularly burdensome, as capital plays a minor role in generating revenues. Panel C shows that revenues as of 2018 generally decrease with incorporation year. This intuitive trend may be explained by later incorporations being younger and thus having had less time to expand their economic activity. On top of the roughly linear relationship between firm age and revenues, we see a clear and sharp decrease for firms incorporated in 2012 and later. Since there is no intuitive reason why age effects should materialize as discontinuities between 2011 and 2012 (i.e., between firm ages 6 and 7), we are comfortable attributing this to being caused by the 2012 reform. The difference between pre- and post-reform entrants is approximately NOK 1,000,000 ($170,000). Consistent with post-reform firms being smaller in terms of assets and revenues, they are also smaller in terms of employment. Appendix Figure OA.13 shows that post-reform entrants have about NOK 350,000 ($60,000) lower wage bills.

We note that the decrease in revenues (20% relative to the 2011 average) is not enough to balance the increase in entry (75%), leading to an increase in the aggregate revenues of post-reform cohorts of 40%.[15]

[15] Table 1 shows a 0.97 MNOK reduction in revenues from a 2011 mean of 5.27 MNOK. The relative decrease is 19%. At the same time, the number of entrants increased by 75% (a reverse growth rate of 43% as in Table 1 implies a normal growth rate of 1/(1-0.43) = 75%). Hence the aggregate change in revenues is 1.75 times 0.8

Figure 3: Firm outcomes, contrasting pre- and post-reform entrants



Notes: All panels condition on firms incorporated by individuals who were not entrepreneurs in the prior year. Panel A considers whether the firm has nonmissing accounting data in 2018. Panel B considers total book assets (winsorized at the 95th percentile), panel C considers total revenues (also winsorized at the 95th percentile), and panel D considers profitability. Profitability is measured as the ratio of operating income to assets, censored to be in $[-1, 1]$. Revenue Growth is the growth in revenues between $t+1$ to $t+4$, censored to lie in $[-1, 1]$ and annualized by dividing by 3. Value-added Margin is the ratio of of operating income plus wage bill to revenues, censored to lie in $[-1, 1]$. Standard errors underlying the 95% confidence bands are clustered at the person (entrepreneur) level.

Panel D of Figure 3 considers profitability (operating income divided by book assets) in 2018. We find no indication that firms who entered after the capital requirement reduction are less profitable. While there is a gradual decline in profitability for the post-reform cohorts, the lack of a sharp difference indicates that this decline is not attributable to the reform. We also find that this decline in profitability is present for high paid-in-capital firms (see Appendix Figure OA.16), indicating that the gradual decrease is attributable to age or macroeconomic effects rather than the capital requirement reduction.

which equals 1.4.

Panel E considers the revenue growth rates in the three years following incorporation.[16] Post-reform entrants do not expand at lower rates. Appendix Figure OA.15 shows that the same pattern applies to the growth rate of book assets.

Panel F of Figure 3 considers the value-added margin, measured as the ratio of operating income plus the wage bill to revenues, as a proxy for firm-level productivity (Hombert, Schoar, Sraer, and Thesmar, 2020). We find no evidence of a lower value-added margin among post-reform entrants. As an alternative measure of productivity, we follow Lichtenberg and Siegel (1990), Bertrand and Mullainathan (2003), and Giroud and Mueller (2015), and estimate the amount of revenue that cannot be explained by firm inputs. These results again indicate that post-reform entrants are not less productive (see Appendix D.1 for details). Our findings from employing the Ackerberg, Caves, and Frazer (2015) estimation framework confirm these results (see Figure 9).

Finally, we address the concern that relaxing capital requirements may have externalities on creditors even if the firm remains economically active. We focus on debt-forgiveness events that are reported to the tax authorities. Appendix Figure OA.17 shows that there is no difference in debt restructuring between pre- and post-reform entrants. The share of firms that receive debt forgiveness within three years of incorporation remains stable at about 0.8% around the time of the reform.

Leverage. Although we find no higher propensity for debt restructuring or failure among post-reform entrants, this does not fully rule out that post-reform entrants are inherently riskier. The 2012–2018 period did not see significant economic turmoil or crises. Hence, we also consider differences in leverage across cohorts, since more levered firms may be more susceptible to economic shocks (Opler and Titman 1994, Giroud and Mueller 2017, Crouzet and Mehrotra 2020, Giroud and Mueller 2021, Alfaro, Bloom, and Lin 2024). Recent evidence from Europe also finds that high-leverage startups are less productive and exit at higher rates (De Haas, Sterk, and Van Horen, 2022). Rather surprisingly, we find very little evidence that lowering the minimum capital requirement, which puts a lower bound on initial equity, affects leverage. There is a slight uptick for firms incorporating in 2012, but we find this to be caused by revenue-driven tax liabilities, such as value-added taxes. Post-reform firms have a tax liability to book assets ratio that is about 3 percentage points higher, but there is no difference in the long-term debt to asset ratio. We also find no differences in leverage when limiting the denominator to credit in the form of outstanding bonds and bank debt.

[16] We define revenue growth as one third of the three-year symmetric growth rate. $\frac{1}{3} \times \frac{Revenues_{t+4} - Revenues_{t+1}}{0.5 Revenues_{t+1} + 0.5 Revenues_{t+4}}$, where we condition on strictly positive revenues at both $t+1$ and $t+3$. We view growth rates as an intuitive proxy for ability (Hussam, Rigol, and Roth 2022, Azoulay, Jones, Kim, and Miranda 2020) and contribution to economic growth (Autor, Dorn, Katz, Patterson, and Van Reenen 2020, Decker, Haltiwanger, Jarmin, and Miranda 2020, Aragoneses 2023). Appendix Figure OA.14 shows that pre- and post-reform entrants do not differ in their propensity to have strictly positive revenues.

Robustness and additional analyses. Our results could be influenced by endogenous changes to new firms' industry composition. Appendix Figure OA.18 therefore repeats the main analyses while taking out 5-digit NACE industry-code fixed effects (i.e., adding industry-year fixed effects to equation (1)). The results are similar, with only modestly smaller declines in assets and revenues. We infer from this comparison that the reduction in firm size is not primarily driven by post-reform firms selecting into different industries.

Related to the notion that large "superstar" firms play an important role in the economy (Autor, Dorn, Katz, Patterson, and Van Reenen, 2020), we investigate whether post-reform entrants are equally likely to become large firms. Our baseline finding is that post-reform firms start out smaller but grow at similar rates as pre-reform entrants, which is consistent with path-dependence in startups' trajectories (Hvide and Meling, 2023). However, these findings, based on averages (and symmetric growth rates in particular),[17] may mask that some of these smaller firms grow substantially and are on track to become superstar firms. Appendix Figure OA.19 therefore considers the propensity to become a large firm, defined as having revenues in excess of 50 MNOK five years after incorporation. We find that pre- and post-reform entrants are equally likely to become large, possibly through an experimentation channel (see, e.g., Kerr, Nanda, and Rhodes-Kropf 2014; Manso 2016; Nanda 2024).

3.3 The ex-ante characteristics of new entrepreneurs

The ex-ante characteristics of entrepreneurs play a key role in determining long-run outcomes (Cooper, Gimeno-Gascon, and Woo 1994, Dunn and Holtz-Eakin 2000, Sterk, Sedláček, and Pugsley 2021). In our setting, examining ex-ante characteristics serves two roles. Firstly, for the purpose of identifying how business regulation affects *who* becomes an entrepreneur, ex-ante characteristics have the advantage of not being affected by the reform itself. To illustrate the identification issue that ex-ante characteristics circumvent, consider the case with risk-averse entrepreneurs. When the capital requirement is high, some entrepreneurs still enter, but reduce their overall income risk by undertaking less risky projects. When the capital requirement is lowered, they take on more risky projects and balance this by reducing their equity stake. Taking on more risky projects increases average profitability, potentially masking the fact that post-reform entrants are of lower entrepreneurial ability. Secondly, as we return to later in this section, some ex-ante characteristics are particularly useful in determining the mechanisms behind the increase in entrepreneurial entry.

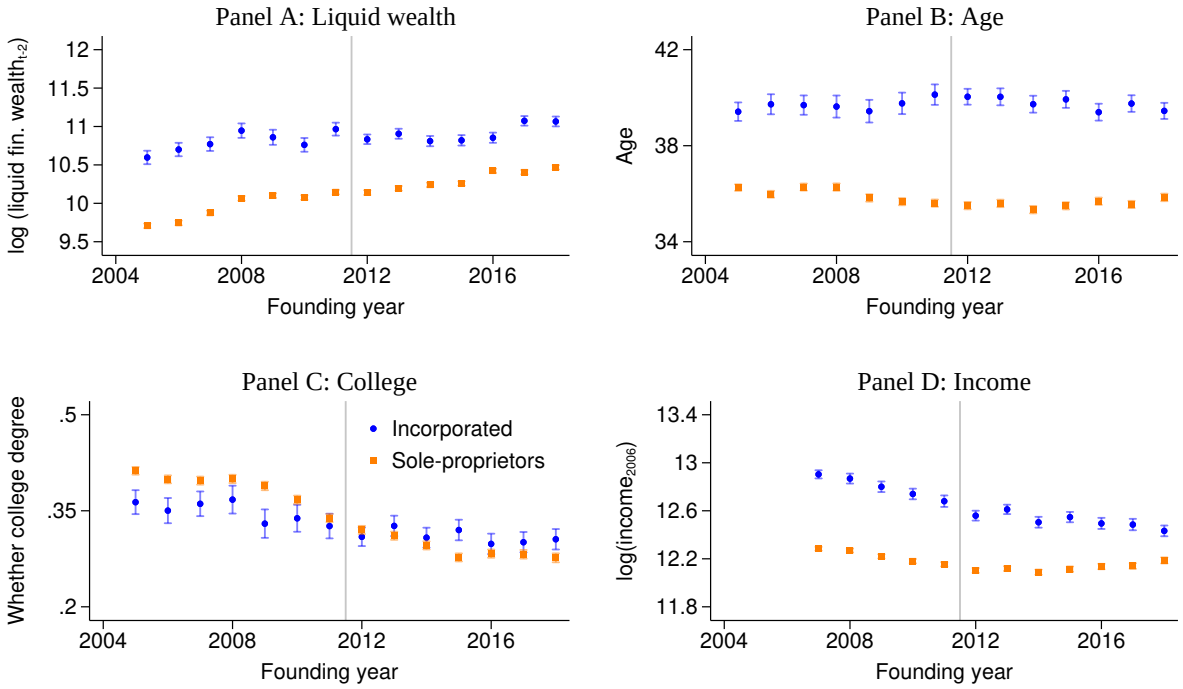
We provide evidence on how a wide range of ex-ante characteristics differ across pre and post-reform incorporations. We plot the mean characteristics of entrepreneurs by estimating the following regression equation:

[17] Symmetric growth rates have the attractive property of binding growth rates to lie in [-2,2], which limits the impact of extreme outliers. Hence, if a handful of firms become very large (have very large relative growth rates), then this would have only a limited impact on the average symmetric growth rate.

$$y_{i,s} = \alpha_{t,n} + \varepsilon_i, \tag{2}$$

where $y_{i,s}$ is some characteristic of person i, measured in year s, who is not an entrepreneur in year $t-1$ but is an entrepreneur in year t. $\alpha_{t,n}$ are founding year (t) $\times$ firm-type (corporation or sole-proprietorship) fixed effects. ε_i is the error term. When studying ex-ante characteristics, we may include sole-proprietors in the sample as a placebo group. Since the change in the capital requirements does not apply to unincorporated entrepreneurs and there was no discernible effect on sole-proprietorship entry (Figure 1), sole proprietors provide a useful benchmark.[18]

Figure 4: (No) Differences in the Ex-ante Characteristics of Pre- and Post-Reform Entrants



Notes: All panels condition on firms created by individuals who were not entrepreneurs in the prior year. That is, for both sole-proprietors and incorporated entrepreneurs, we require that they were neither sole-proprietors, incorporated, foreign-incorporated, or partnership entrepreneurs in the prior year. Panel A considers liquid financial wealth (stocks, mutual funds, bonds, deposits) of the entrepreneur two years prior. Panel B considers age at the year of incorporation. Panel C considers a dummy for whether an individual has obtained at least a college degree as of 2010. Panel D considers income, defined as personal taxable personal income measured in 2006. Standard errors underlying the 95% confidence bands are clustered at the person (entrepreneur) level.

Figure 4 shows how the characteristics of new entrepreneurs changed around the time of the reform by plotting the estimated founding year fixed effects from equation (2). Panel A considers liquid financial wealth, which includes bank savings, listed stocks, bonds, and mutual fund holdings. We measure liquid financial wealth two years prior to the creation year. This balances the need to have a recent and accurate measure of liquidity with avoiding that the amount of liquid

[18] Including sole-proprietors was not possible in the previous section, as we only have accounting statements for corporations that are distinct legal entities from their owners.

wealth is affected by the incorporation itself due to, e.g., acquiring physical assets. We see that liquid wealth is generally higher for later entrants. This trend is not surprising, given that wealth tends to experience positive returns and grow over time. The lack of a clear discontinuity around the time of the reform is more informative and indicates that post-reform entrants have similar personal liquidity to pre-reform entrants. Although there is a modest decline in the year of the reform, the decline is no bigger than the year-to-year variation during the 2004–2018 period.

Given the centrality of this finding in understanding the mechanism behind the increase in entry, we perform an additional test that is more closely informed by the theoretical predictions of binding liquidity constraints. If the reform facilitated entry of liquidity-constrained individuals, we should see that the lowest-liquidity entrants have less liquidity after the reform. Hence, in Panel A of Appendix Figure OA.21, we plot the distribution of ex-ante liquidity of entrants around the reform. While there is a slight reduction in the liquidity of the most liquid entrants, there is clearly no change in the liquidity of the least liquid. In the same spirit, Appendix Figure OA.20 plots the distribution of entrants' liquid wealth before and after the reform and shows that post-reform entrants are not more likely to have particularly low levels of ex-ante liquidity. Overall, these results indicate that the sharp increase in entry rates following the reform was not caused by relaxed liquidity constraints.

Panel B of Figure 4 shows that there is no change in the average age of new entrepreneurs after the reform. This finding is important because it is inconsistent with the hypothesis that the reform primarily accelerated rather than caused entrepreneurship. This acceleration hypothesis is related to the liquidity constraints channel. If liquidity constraints were less likely to bind following the reform, individuals would have to save for a shorter period to satisfy the capital requirement and thus be able to incorporate sooner. This hypothesis is challenging to test using only firm-level data. However, it carries the clear implication that post-reform entrants will be younger on average, which is inconsistent with our findings. Considering age is also interesting as previous studies have shown that it may correlate with entrepreneurial ability.[19] When considering how the age distribution at incorporation changes over time (Appendix Figure OA.21, Panel D), we also find no evidence of a downward shift. However, there is some indication that the age distribution widens.

Panel C of Figure 4 considers educational attainment, which is shown to be an important predictor of entrepreneurial success (Bates 1990, Queiró 2022). We define educational attainment as having obtained a college degree by 2010. While there is a decline in the educational attainment of new entrants over time, there is no evidence of a sharp change around the reform.

Panel D of Figure 4 considers ex-ante personal income in 2006. We choose a fixed year to

[19] Using U.S. data, Azoulay, Jones, Kim, and Miranda (2020) show that the subsequently most successful startups were created by older individuals. In contrast, findings from Ouimet and Zarutskie (2014) suggest the opposite relationship.

keep macroeconomic factors that affect income levels constant across cohorts.[20] Personal income may proxy for ability (as in, e.g., Hacamo and Kleiner 2022, Evans and Jovanovic 1989) or it can be viewed as a measure of the outside option of entrepreneurs. While we observe a general trend of declining ex-ante incomes over time, we find no evidence of discontinuity around the reform. Although there is a modest decline from 2011 to 2012, we find a similar reduction for sole-proprietors who were not affected by the capital requirement reduction.

Entrepreneurial human capital. How business regulation affects the quality of entrepreneurs is a central concern of policymakers. This concern is not unfounded. A broad economics literature emphasizes the importance of human capital in determining economic growth (see, e.g., Baumol 1996, Gennaioli, La Porta, Lopez-de Silanes, and Shleifer 2013). The human capital of entrepreneurs is considered to be particularly important (Murphy, Shleifer, and Vishny, 1991). Our preceding analyses find no effect of the reform on the educational attainment of new entrepreneurs. However, whether someone has a college degree is a rather coarse measure of human capital. We therefore exploit the granularity of the education databases to consider human capital in multiple dimensions, both cognitive, non-cognitive, as well as physical ability (which is typically considered distinct from non-cognitive ability, see Cunha and Heckman 2007).

We provide our findings in Figure 5. The first four panels consider grades. We remove variation that can be explained by school by subject fixed effects to account for variation in difficulty across schools or tracks (e.g., academic versus vocational track).

Panel A considers the average grade across mathematics subjects, a natural proxy for quantitative cognitive ability. Panel B considers Norwegian grades, perhaps the closest proxy for communication skills. Panel C considers physical education, a compelling proxy for physical ability or general manual skills. Panel D considers the average grade across all subjects as a broader measure of academic cognitive ability. For none of these measures do we find any evidence that post-reform entrants are different.

We continue by considering non-cognitive traits, which are shown to be important for determining labor market outcomes (see, e.g., Heckman and Rubinstein 2001, Heckman, Stixrud, and Urzua 2006, Deming 2017, Alan, Boneva, and Ertac 2019). Our proxies for non-cognitive skills are closely related to "illicit traits", considered by Levine and Rubinstein (2017) to be an important characteristic of successful entrepreneurs. Our first measure is the number of missed classes (Panel E of Figure 5). Missed classes that are excused due to documented illness or doctor's visits are excluded from the raw data.[21] Our second measure is a dummy variable for whether the individual received the highest comportment grade. Most students receive the highest comportment grade, which is indicative of the student generally submitting assignments on time and behaving

[20] In contrast, when considering liquidity, the goal was to have an accurate measure of liquidity prior to entry, hence the choice of using (two-year) lagged liquidity as opposed to liquidity in, e.g., 2006.

[21] Nevertheless, we consider individual missed classes as opposed to missed days, since missed days intuitively proxy for health status to a greater extent than whether individual classes are skipped.

well while at school. Appendix Table OA.1 establishes that both the number of missed classes and the comportment grade are strong predictors of entrepreneurial outcomes. Profitability is 3.54 percentage points (pp.) higher for those with a high comportment grade and 0.12 percentage points lower for *each* missed class. While the Norwegian government emphasizes capital requirements as an important tool in weeding out entrepreneurs with illicit traits,[22] we find no evidence of any change around the time of the reform.

Given an increase in the number of entries into incorporated entrepreneurship of a sizable 75%, the lack of differences across ex-ante characteristics is puzzling. It clearly suggests that post-reform entrants are not of lower entrepreneurial quality than pre-reform entrants. The findings of no differences in ex-ante liquidity indicates an immaterial role for liquidity constraints in our setting. Our findings thus beg the question of what the economic mechanism is that drives this stark increase in entrepreneurial entry. We return to this question in Section 5, where we construct a simple model that allows for heterogeneity not only in entrepreneurial ability but also in returns-to-scale of capital.

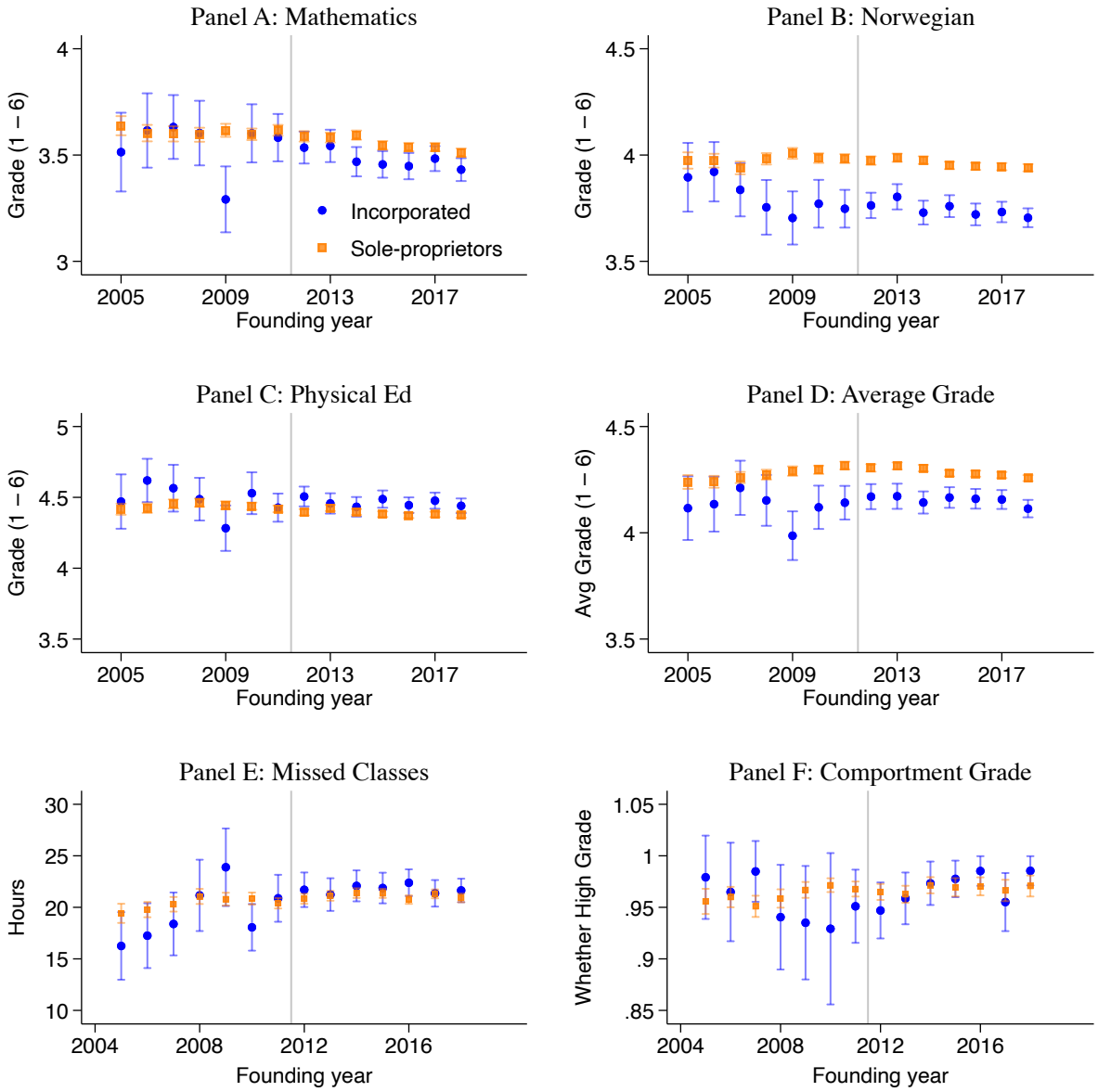
Portfolio allocation. Appendix Figure OA.26 plots the portfolio allocation (stock market participation rate and conditional risky share) of new entrants over time. The equity share of financial wealth may proxy for two relevant entrepreneurial characteristics: financial sophistication and risk aversion (Choukhmane and de Silva 2024, Fagereng, Guiso, and Ring 2023). Panel A shows no evidence that post-reform entrants are less likely to be invested in the stock market prior to incorporating. While there is a downward trend following the reform, the decreasing pattern is not consistent with the sharp increase in incorporations that we document in Figure 1. Moreover, we find that incorporated entrepreneurs are substantially more likely than sole-proprietors to be stock market participants prior to entry. Panel B considers the conditional risky share which may be a better proxy for risk aversion than the participation margin or the unconditional equity share. We find no evidence of a change in the ex-ante conditional risky share after the reform, which suggests that pre- and post-reform entrants do not differ on this proxy for risk aversion.

Characteristics of prior employers. We also consider potential welfare costs that may arise if post-reform entrants were previously employed at more productive firms. In this case, reducing the capital requirement could lead to some form of labor misallocation. Appendix Figure OA.25 compares the characteristics of prior employers for both groups. We find no discernible differences in terms of profitability, value-added margins, proxies for total factor productivity, or revenue growth rates.

We also consider prior employer size in terms of total wage bill and book assets. Hvide (2009) shows theoretically and empirically, using Norwegian data, that the size of current employers is

[22] The Norwegian Justice Department notes the desire to limit the entry of "unserious" entrepreneurs, which in this context is closely connected to the notion of illicit traits GOV (2011).

Figure 5: The Cognitive and Non-Cognitive Traits of Entrants: High School Grades and Behavior



Notes: This figure considers high school grades, absences, and comportment scores. Panels A through C consider mathematics, physical education, and Norwegian. When multiple courses for one of these subjects appear, we take the average for each person. Panel D considers average class grade (GPA). All grades are residualized with respect to the subject code ("fagkode") prior to averaging. Panel E considers hours of missed classes. This measure does not include whole days of missed classes (see Appendix Figure OA.27, Panel C, for a plot of the number of missed days). Panel F considers whether the student received a top comportment score ("Good behavior") as opposed to a lower score. Grade data cover high-school subjects taken during 2002 and later.

an important determinant of entrepreneurial quality. Panels E and F of Appendix Figure OA.25 demonstrate that post-reform entrepreneurs do not come from smaller employers.[23]

[23]While the total wage bill of post-reform entrants is somewhat higher (suggesting higher quality per Hvide (2009)),

Robustness and extensions. When considering the changing composition of those who enter entrepreneurship, sample-composition effects may affect the results. Once someone becomes an entrepreneur in year t, they are no longer in the pool of individuals who could become entrepreneurs in year $t+1$. Entrepreneurs are therefore selected without replacement, which may affect our estimates. Since we do not find differences in the composition of entrepreneurs, this is unlikely to play a role in our setting. Nevertheless, we perform a robustness check that instead defines entrants as those who incorporate a firm in year t and were not an entrepreneur in 2006. This keeps the sample selection criteria constant over time and thus removes any dynamic sample selection effects. Appendix Figure OA.22 demonstrates that this does not affect our results.

Appendix Figure OA.3 shows that the increase in total incorporation rates is partly explained by individuals who transition from being sole-proprietors to incorporated entrepreneurs. This raises the question whether there were compositional effects in terms of the characteristics of those who transition. Appendix Figure OA.23 therefore repeats the analyses in Figure 4 on the sample of transitioning entrepreneurs. Overall, the results remain comparable.

3.4 Entrepreneurial income premium

The main argument in favor of capital requirements is to screen out low-quality firms. While we find no support for this argument, there might be other unintended consequences of lowering the capital requirement. In particular, by lowering entry barriers, the reform may have facilitated less rewarding entrepreneurship or tax-motivated incorporations that lower total tax revenues.

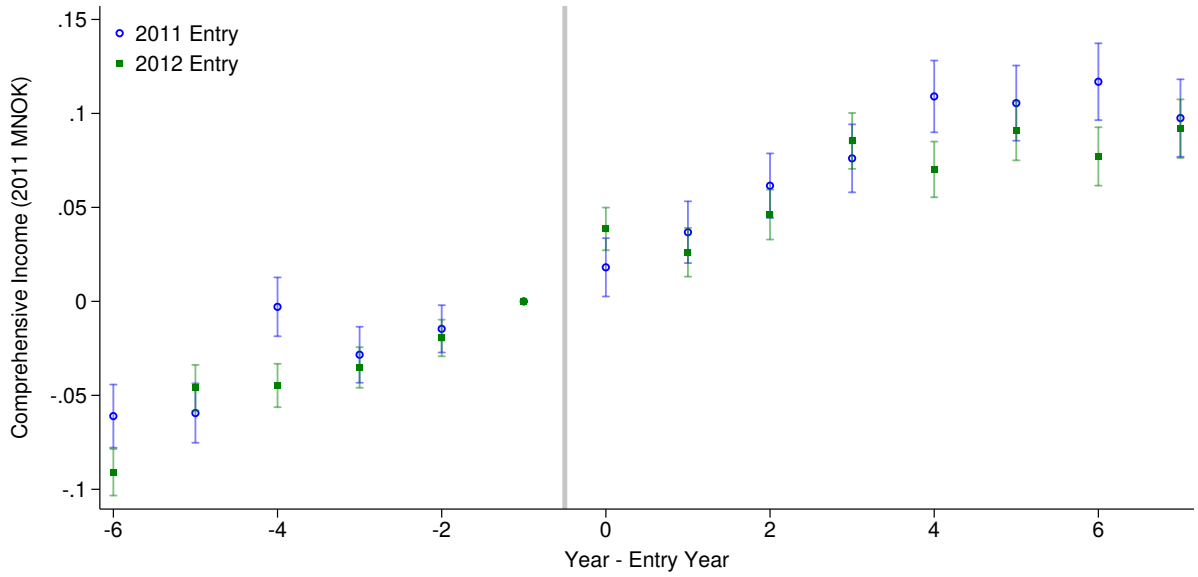
While our analyses show that post-reform entrants do not differ in terms of profitability or productivity, the entrepreneurs themselves might be worse or even better off. For example, in closely-held firms, there is considerable leeway in shifting income between dividends and labor earnings (Aarbu and Thoresen 2001, Thoresen and Alstadsæter 2010, Berg and Thoresen 2020). If post-reform entrepreneurs tended to pay themselves less labor income, then traditional profitability measures would overstate the economic performance of these new firms. We tackle this measurement issue by analyzing the entrepreneurial income premium, i.e., the comprehensive financial benefit of entrepreneurship from the individual's viewpoint.

We perform an event study around incorporation, comparing individuals who incorporated right before and right after the reform. Our entrepreneurial income measure consists of *comprehensive* personal taxable income, that is, salary, wage earnings, dividends, and sole-proprietor income. Importantly, we also include unrealized gains by allocating retained earnings according to ownership shares.[24] This income measure accounts for the fact that some incorporated entrepreneurs become serial entrepreneurs.

we see the same pattern for sole-proprietors. There is also a noticeable uptick in book assets for 2012 entrants.

[24] We allocate retained earnings from all firms in which the entrepreneur or the spouse has an ownership share. Firm-level retained earnings are proportioned according to the household's ownership share and then allocated to the entrepreneur. We allow for indirect ownership through other LLCs.

Figure 6: Event Study of Entrepreneurs' Income Around Entry
Contrasting Pre and Post-reform Entrants



Notes: This figure provides comprehensive income dynamics around the time of entry into incorporated entrepreneurship. The blue circles consider pre-reform (2011) entrants and the green squares consider post-reform (2012) entrants. Point estimates stem from regressing comprehensive income on event-time (years since entry) fixed effects interacted with entry-year fixed effects. We then provide the estimated event-time fixed effects for the two different entry years (2011, 2012).

We report our findings in Figure 6. Both pre-reform and post-reform entrants are initially on positive income trajectories that continue following incorporation. While this within-person event-study does not indicate a causal effect of entrepreneurship on income, it certainly does not suggest that entrepreneurial entry implies an income reduction (Hamilton, 2000). Our findings are thus qualitatively consistent with earlier work on the returns to entrepreneurship in Norway that relies on cross-sectional analyses (Berglann, Moen, Røed, and Skogstrøm, 2011). More importantly for the purpose of studying the impact of reducing capital requirements, there is no evidence that post-reform entrants engage in less rewarding entrepreneurship. Seven years after entry (the last year we observe in our data for the 2012 entrants), the two cohorts have experienced virtually identical cumulative income changes.

Incorporation entails several tax benefits (Tazhitdinova, 2020), particularly the ability to defer income taxation by accumulating retained earnings rather than paying out dividends. The effect of this avoidance behavior primarily affects (personal) income-tax revenues, thus this effect would be missed if one only considered taxes paid by corporations. To evaluate the extent of this avoidance channel, Appendix Figure OA.24 repeats the same event study as in Figure 6, but considers the comprehensive average tax rate (ATR) as the outcome variable. This analysis does reveal some tax benefit to incorporation as ATRs drop following entry. Importantly, however, there is no differential effect between pre-reform and post-reform entrants, indicating that post-reform

entries are not more tax-motivated than pre-reform entries.

4 Comparing marginal entrepreneurs to always-entrepreneurs

Section 3 provides evidence on how post-reform entrants differ from pre-reform entrants. However, the sample of post-reform entrants contains both *always*-entrepreneurs (who would have entered regardless of the reform) and *marginal* entrepreneurs (who only enter due to the reform). Hence, comparing characteristics before and after 2012 understates the gap between marginal entrepreneurs and always-entrepreneurs. In this section, we impose more structure to our econometric framework to identify the magnitudes of this gap. Importantly, for our approach to yield unbiased estimates, we need to assume that (i) the post-reform increase in entrepreneurship rates is entirely caused by the entry of marginal entrepreneurs and (ii) any change in the average characteristic of entrants from before to after the reform is fully attributable to the entry of marginal entrepreneurs. While the former assumption is strongly supported by the findings and discussion in Section 3.1, the latter assumption may fail when considering ex-post firm outcomes.

4.1 Empirical framework to identify marginal entrepreneurs' characteristics

We assume that there are two types of entrepreneurs: always entrepreneurs, A, who enter regardless of the capital requirement, and marginal entrepreneurs, B, who only enter after the reform. Post-reform, there are $N_{post} = N_A + N_B$ entrepreneurs. Pre-reform, there are $N_{pre} = N_A$ entrepreneurs. We only consider *entrants*, not existing entrepreneurs. Pre-reform, the average entrepreneur characteristic is given by

$$\overline{Y}^{pre} = \frac{1}{N_A} \sum_{i \in A} Y_i. \tag{3}$$

Post-reform, the average characteristic is given by

$$\overline{Y}^{post} = \frac{1}{N_A + N_B} \left(\sum_{i \in A} Y_i + \sum_{i \in B} Y_i \right). \tag{4}$$

This relation implies (see Online Appendix C for a derivation) that the difference in average characteristics is given by

$$\frac{1}{N_B} \sum_{i \in B} Y_i - \frac{1}{N_A} \sum_{i \in A} Y_i = \frac{\overline{Y}^{post} - \overline{Y}^{pre}}{\frac{N_{post} - N_{pre}}{N_{post}}}. \tag{5}$$

Equation (5) states that the difference in means between marginal entrepreneurs and always-entrepreneurs is given by the post-reform average less the pre-reform average, divided by the *reverse* growth rate in the number of entries.

The estimator (5) can be applied to our reduced-form findings by simply dividing pre-post

differences by the reverse growth rate. In this section, we more formally estimate the difference in means, $\bar{Y}^{post} - \bar{Y}^{pre}$, using a regression discontinuity design (RDD). The RDD approach essentially formalizes and quantifies the graphical evidence in Section 3. Because we only want to assign causality in the case of sharp differences that is not driven by general time trends, we take out linear time trends separately for the pre- and post-reform periods, as is standard when using RDD approaches. Specifically, our estimate of $\overline{Y}^{post} - \overline{Y}^{pre}$ is $\hat{\beta}^Y$, which we obtain by estimating the regression equation

$$Y_{i,h} = \alpha + \beta^Y \mathbb{1}[s \geq 0] + \gamma^- \times s \times \mathbb{1}[s < 0] + \gamma^+ \times s \times \mathbb{1}[s \geq 0] + \varepsilon_i, \tag{6}$$

where $Y_{i,h}$ is a characteristic measured in year h, and s is the founding year, normalized to be zero in 2012. The term $\gamma^- \times s \times \mathbb{1}[s < 0]$ captures a linear time trend in the pre-reform period and the term $\gamma^+ \times s \times \mathbb{1}[s \geq 0]$ captures a linear time trend in the post-reform period. Consequently, the estimator for β identifies the discrete change in Y that occurs in 2012. To limit the influence of nonlinear long-run time trends, we restrict the sample to incorporations that occur within three years of the reform, that is, during 2009–2014.

The reverse entry growth rate, i.e. the denominator on the right-hand side of equation (5) is simply $\frac{N^Y_{2012} - N^Y_{2011}}{N^Y_{2012}}$, where Y denotes the given characteristic and reflects that growth rates are based only on incorporation events for which Y is observable. For instance, if Y is firm profits in 2018, firms that exit before 2018 are not included. The choice of a simple estimator for the increase in entry is due to the graphical evidence in Figure 1, which shows no indication of the 2011–2012 jump being related to general time trends. Our estimator of how marginal entrepreneurs differ from always entrepreneurs is thus

$$\widehat{\Delta Y_h} = \frac{\hat{\beta}^Y}{\frac{N^Y_{2012} - N^Y_{2011}}{N^Y_{2012}}}, \tag{7}$$

where we obtain standard errors from a 200-repetition bootstrap procedure.

4.2 Estimated differences between marginal and always-entrepreneurs

Table 1 provides our estimates based on equation (7). Panel A considers ex-post firm outcomes in 2018. Consider first the upper row, which reports the coefficient estimates for β^Y from equation (6). As seen from the first two columns, there is no significant differences in profitability or survival rates. Columns (3) to (5) report significant differences in terms of firm size, measured in terms of book assets, revenues, and the total wage bill, which is consistent with the graphical evidence from Section 3. The second row provides the reverse growth rates in the number of entries. This number lies around 43%, which is equivalent to a (regular) growth rate of about 75%.

The third row captures our estimated difference between always-entrepreneurs and marginal entrepreneurs. We find that marginal firms have NOK 2,900,000 (about $490,000) less in assets,

Table 1: How Marginal and Always Entrepreneurs Differ

	Panel A: Ex-post firm outcomes, 2018				
	(1) Profitability	(2) 1[Nonmissing Accounting]	(3) Assets (MNOK)	(4) Revenues (MNOK)	(5) Wage bill (MNOK)
$\mathbb{1}[s \geq 0]$	0.00	-0.02	-1.24***	-0.97***	-0.27***
	(0.01)	(0.01)	(0.19)	(0.28)	(0.08)
$\frac{N_{2012}-N_{2011}}{N_{2012}}$	0.43***	0.42***	0.43***	0.43***	0.43***
	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
$\widehat{\Delta Y}$	0.00	-0.04	-2.86***	-2.24***	-0.62***
	(0.03)	(0.04)	(0.45)	(0.66)	(0.18)
N	13739	23798	13877	13877	13877
$\overline{Y}_{2011}$	0.03	0.58	3.41	5.27	1.40

	Panel B: Ex-ante entrepreneur characteristics			
	(1) log(Personal Income)	(2) LFW (NOK)	(3) College	(4) Age
$\overline{Y}^{post} - \overline{Y}^{pre}$	-0.037	-15197	-0.020	0.218
	(0.034)	(11528)	(0.015)	(0.309)
$\frac{N_{2012}-N_{2011}}{N_{2012}}$	0.383***	0.408***	0.392***	0.412***
	(0.014)	(0.015)	(0.015)	(0.014)
$\widehat{\Delta Y}$	-0.096	-37252	-0.052	0.528
	(0.090)	(28449)	(0.038)	(0.751)
N	20567	22784	21239	23414

Notes: This table provides estimates of how marginal entrepreneurs differ from always-entrepreneurs. The first row is the (discontinuous) difference that occurs for post-2012 incorporations, i.e., the estimated coefficients β^Y from equation (6). The second row is the growth rate in incorporations in the sample where the outcome variable is observed. The third row provides the estimated ΔY_h, which is our main estimate of how marginal and always entrepreneurs differ. $\overline{Y}_{2011}$ is the outcome-variable sample mean for 2011. Panel A considers ex-post outcomes measured in 2018. Wages are the total wage bill (labor costs) for the firm. Panel B considers ex-ante traits of entrepreneurs: total personal income in 2006, liquid financial wealth prior to incorporation, whether they have a college degree in 2010, and age. Standard errors are obtained from a 200-repetition bootstrap procedure.

NOK 2,230,000 ($380,00) less in revenues, and NOK 600,000 ($100,000) less in wage costs. Appendix E.1 presents results on balance sheets of new firms and shows that the reduction in assets is broad-based and not driven by individual asset classes.

These magnitudes imply large reductions in average firm size after the reform. However, the underlying assumption that always-entrepreneurs are unaffected by the reform might not hold when considering ex-post firm outcomes. Specifically, Figure 2 suggests that (some) always-entrepreneurs respond to the reform by reducing firm size at incorporation, which would lead our estimates of $\widehat{\Delta Y}$ to overstate the difference in firm size between marginal entrepreneurs and

always-entrepreneurs.

Panel B considers ex-ante entrepreneur characteristics. These characteristics are determined prior to the reform, and cannot be impacted by the reform itself. As a result, the $\widehat{\Delta Y}$ estimates will be unbiased. As reported in the third row, we find no significant difference in prior personal income, liquidity, educational attainment, or age, consistent with the graphical evidence in Figure 4. Hence, our findings suggest that marginal entrepreneurs are not different from always-entrepreneurs.

5 Understanding the mechanisms behind the increase in entry

Our empirical analysis shows that reducing the capital requirement caused a large increase in firm entry, without any reduction in firm quality. One natural explanation for this is that the reform allowed low-liquidity entrepreneurs to satisfy the requirement and thus enter. However, as our empirical evidence indicates, there is no evidence that such a liquidity channel plays a significant role. This raises the question of what the mechanism is that underlies this large effect on firm creation. This section shows that a simple extension of a standard model of entrepreneurial entry offers a plausible mechanism that rationalizes the entry effect. Namely, the reform facilitated the entry of low returns-to-scale entrepreneurs. The second part of this section empirically tests this mechanism by employing the production function estimation framework of Ackerberg, Caves, and Frazer (2015) to our empirical setting.

5.1 Conceptual framework

Our model extends Evans and Jovanovic (1989) to allow for heterogeneity in returns to scale in production across entrepreneurs. In this extended model, capital requirements create two separate groups of marginal entrepreneurs. The first group consists of low-liquidity individuals who do not become entrepreneurs because they have insufficient liquidity to satisfy the minimum capital requirement. The second group consists of individuals with low returns-to-scale production technologies. These individuals want to start optimally small firms, but they choose not to become entrepreneurs if the capital requirement forces them to operate at an unprofitably large scale. The model thus explains how capital requirements can have large impacts on firm entry, also in a setting where the liquidity constraint does not bind. We conclude by providing empirical evidence in support of the notion that post-reform entrants operate with lower returns-to-scale production technologies.

The idea that entry regulation may be beneficial is rooted in the public interest theory of regulation (Pigou 1938, Musgrave 1959, Stigler 1971). For capital requirements, in particular, potential micro-foundations are information asymmetries or bankruptcy externalities. However, since the purpose of our framework is to model selection into entrepreneurship, as opposed to welfare implications, we do not micro-found the capital requirement. Instead, we impose capital

requirements as an exogenous constraint similar to how Evans and Jovanovic (1989) impose the liquidity constraint.

Model. An individual, i, who chooses to become an entrepreneur earns profits according to

$$f_i(k_i) = \theta_i k_i^{\alpha_i} - rk_i, \tag{8}$$

where k_i is the amount of capital, $\theta_i > 0$ is their entrepreneurial ability, and $\alpha_i \in (0, 1)$ is their returns-to-scale parameter, which governs the concavity of the profit function. r is the (opportunity) cost of capital. Individuals choose entrepreneurship if three conditions are satisfied.[25]

(i) Capital requirement. The amount of capital must exceed the minimum equity requirement, that is,

$$\underline{k} \quad \leq \quad k_i \ . \tag{9}$$

For simplicity, we assume that individuals can only invest in the form of equity. We also assume that there is no personal saving inside the firm. In other words, potential entrepreneurs (that are not financially constrained) cannot *profitably* bypass the capital requirement by moving their non-entrepreneurial assets into the firm. By profitably, we mean that entrepreneurs cannot invest, through the firm, in assets that earn a return of at least r. In Section 5.4, we argue that this is a reasonable assumption given limited liability and tax disincentives for holding diversified or risk-free securities through a LLC.

(ii) Participation constraint. An individual with sufficient liquidity *chooses* to become an entrepreneur only if entrepreneurial profits exceed some opportunity cost, s_i, such as income from salaried employment:

$$\theta_i k_i^{\alpha_i} - rk_i \geq s_i. \tag{10}$$

The participation constraint can be violated both for small k_i as well as for large k_i. This is due to the concavity of the revenue term, $\theta_i k_i^{\alpha_i}$, when $\alpha_i < 1$. For low levels of capital, entrepreneurial profit is low but increasing because marginal revenues are high. As $k_i \to \infty$, marginal revenues approach zero while the marginal cost of capital r remains constant, giving rise to decreasing profits, as illustrated by the concave and non-monotonic profit functions in Figure 7. As long as the outside option is not too high, there exists some minimum capital level k_{min}, which is the lowest amount of capital for which entrepreneurial profits exceed the outside option s_i. If this k_{min} exists, then there also exists some maximum amount of capital, k_{max}, which is the highest

[25] Note that our static model (as, e.g., Evans and Jovanovic 1989) is best viewed as modeling a per-period choice of whether to be an entrepreneur. Since all the parameters in our model are static, and there are no one-time entry or exit costs, considering entry as a per-period choice is without loss of generality. However, in general, the length of a period can be arbitrary. When calibrating such a model, however, it is important to have the same horizon for the cost of capital, r, and profits, $f_i(k_i)$. If the cost of capital is annual, one should also consider annual profits, where annual profits intuitively should correspond to the *average* present-value profits over time.

amount of capital for which entrepreneurial profits exceed the outside option.[26]

We can thus re-write the participation constraint as

$$\underbrace{k_{min}(\theta_i, \alpha_i, s_i)}_{\substack{\text{Minimum capital that} \\ \text{satisfies participation constraint}}} \leq k_i \leq \underbrace{k_{max}(\theta_i, \alpha_i, s_i).}_{\substack{\text{Maximum capital that} \\ \text{satisfies participation constraint}}} \tag{11}$$

The thresholds k_{min} and k_{max} depend on ability θ_i, returns to scale α_i, and outside options s_i. Both thresholds are characterized by an indifference condition $\theta_i k(\theta_i, \alpha_i, s_i)^{\alpha_i} - rk_i = s_i$. In addition, k_{min} is characterized by a positive marginal return condition $f_i'(k_{min}(\theta_i, \alpha_i, s_i)) > 0$, while k_{max} is characterized by a negative marginal return condition $f_i'(k_{max}(\theta_i, \alpha_i, s_i)) < 0$.

(iii) Liquidity constraint. Individuals are endowed with some liquidity ℓ_i. Individuals who enter entrepreneurship must choose

$$k_i \leq \ell_i \ . \tag{12}$$

Liquidity constraints may thus render the entrepreneur unable to satisfy the capital requirement if $\ell_i < \underline{k}$.

Constrained entrepreneurs. The model produces three distinct sets of constrained entrepreneurs:

1. Regulatory liquidity constrained individuals, for which $\ell_i < \underline{k}$.
2. Non-regulatory liquidity constrained individuals, for which $\ell_i \geq \underline{k}$, but $\ell_i < k_{min}$.
3. Size-constrained individuals, for which $l_i \geq \underline{k}$, but $\underline{k} > k_{max}$.

Regulatory liquidity constrained individuals (1.) do not have sufficient liquidity to meet the capital requirement. Reducing the capital requirement may allow agents from this group to enter.

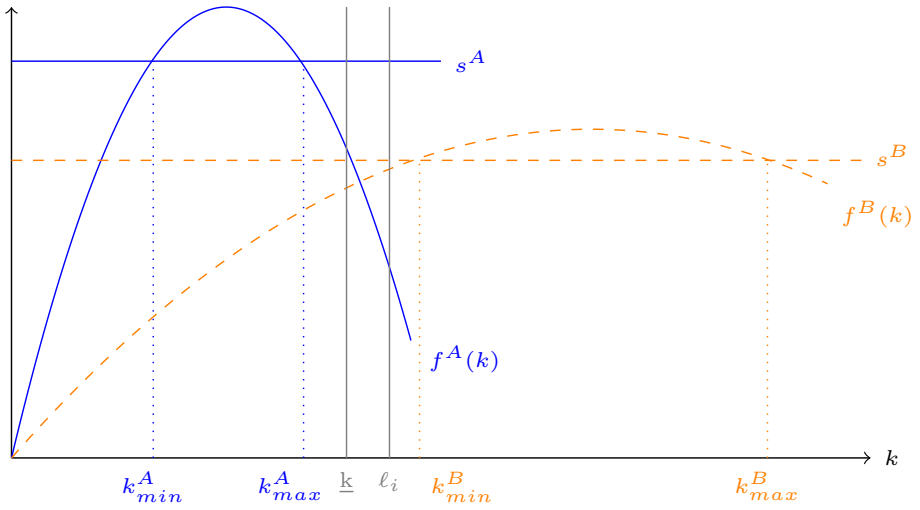
The second group of constrained individuals has sufficient liquidity to meet the requirement, as $\ell_i \geq \underline{k}$. However, they do not have sufficient liquidity to produce at a surplus, i.e. $\ell_i < k_{min}$, due to for example a high outside option. We call these individuals non-regulatory liquidity constrained individuals (2.), as they too face a liquidity constraint, but this constraint does not arise due to regulation. In fact, lowering the capital requirement will not affect the entry decision of this group.

The size-constrained individuals (3.) again have sufficient liquidity to meet the regulatory requirement, i.e. $\ell_i \geq \underline{k}$. However, the capital requirement forces them to produce at a scale too large for profitability. That is, $\underline{k} > k_{max}$. The capital requirement prevents them from starting an

[26] We focus on the case where there exists some capital level for which entrepreneurial profits exceed outside options, meaning k_{min} and k_{max} are defined. However, for some agents, entrepreneurial profits may never exceed the outside option. Such agents would not be affected by (changes to) the capital requirement.

optimally small firm that produces at a surplus. Consequently, lowering the capital requirement may allow agents from this group to become entrepreneurs.

Figure 7: Selection into Entrepreneurship



Notes: This figure illustrates two entrepreneurial profit functions and their corresponding participation constraint from equation (10). Individual A satisfies the liquidity constraint, as $l > \underline{k}$, but does not satisfy the participation constraint, as $k^A_{max} < \underline{k}$, i.e. individual A is size-constrained (3.). Individual B again satisfies the liquidity constraint, as $l > \underline{k}$, but does not satisfy the participation constraint, as $k^B_{min} > l$, i.e. individual B is non-regulatory liquidity constrained (2.).

Figure 7 illustrates the difference between non-regulatory liquidity constrained (2.) and size constrained (3.) individuals. In the figure, neither individual is liquidity constrained, as liquidity ℓ exceeds the capital requirement $\underline{k}$ for both individual A and B. For individual A (solid, blue lines), $k^A_{max} < \underline{k}$, meaning that producing at the minimum regulatory size would result in a negative surplus. Individual A is therefore *size-constrained*, and does not become an entrepreneur. For individual B (dashed, orange lines), $\ell < k^B_{min}$, meaning that her liquidity is too low to produce at a scale sufficiently large for profitability. Individual B is therefore *non-regulatory liquidity constrained*, and does not become an entrepreneur. As a result, neither individual A nor B enter, albeit for different reasons.

We note that our model is not constructed to capture all aspects of entrepreneurial entry. We discuss the limitations of our conceptual framework in Section 5.4.

5.2 Theoretical model predictions and the data

Our model features two channels through which lowering the capital requirement may increase entry: by allowing the regulatory liquidity-constrained (1.) and the size-constrained (3.) individuals to enter. We now discuss these two channels in turn, evaluating how the predictions of these channels align with our empirical results.

First, a lower capital requirement loosens the regulatory liquidity constraint and allows more low-liquidity individuals to enter. The marginal entrant in this case will have lower liquidity than the the entrepreneurs who would enter regardless of the reform ("always-entrepreneurs"). Mapping this to our reduced-form findings, we can think of pre-reform entrants as being always-entrepreneurs. Post-reform entrants consist of both marginal and always entrepreneurs. Given the large increase in entry of 75%, a sizable share (43%) of post-reform entrants are marginal entrepreneurs (see Section 4.1). Hence, we would expect that post-reform entrants have lower average liquidity than pre-reform entrants, which we find no evidence of (Figure 4). More specifically, our model implies that average liquidity decreases due to new entrants with $\ell_i < \bar{k}_{pre}$. In other words, if the liquidity channel is important, we should see an increase in entry among particularly low ℓ_i agents. This offers an alternative test that is more robust to aggregate conditions affecting the ex-ante liquid wealth of all entrants. However, we find no evidence that the increase is driven by low-liquidity entrants in Appendix Figure OA.20.

Second, a lower capital requirement loosens the size constraint and allows more low-k_{max} individuals to become entrepreneurs. For instance, individual A in Figure 7 will enter through this channel if $\underline{k}$ is lowered to the point that $\underline{k} \leq k^A_{max}$. One clear implication of the size-constraint channel is that new firms will be smaller on average, both in terms of capital and revenues. This is strongly supported by the data (see, e.g., Figure 3).

The next step is to disentangle which type of size constraint matters. In our model, size-constrained individuals have low optimal capital amounts, k_{max}. Appendices B.1-B.3 show that a low k_{max} may be caused by low ability (θ), a high outside option (s), or a low returns-to-scale parameter (α).

Our evidence does not indicate any differences in ability or outside options. For example, pre- and post-reform entrants have similar past incomes, educational attainment, grades and characteristics of past employers (see Figures 4, 5, and OA.25), which proxy for both θ and s. In addition, the fact that we find no differences in firm performance, ranging from survival and growth rates to profitability constitutes intuitive evidence that pre- and post-reform entrants are of similar entrepreneurial ability. In our view, the evidence thus clearly points towards differences in the returns-to-scale parameter as the most likely explanation. That is, if liquidity constraints are not important, and entrepreneurs do not differ on any plausible proxies for entrepreneurial ability or outside options, the residual explanation must be that post-reform entrants have an ex-ante optimal size that was too small to be compatible with the previous capital requirement. In the next subsection, we provide more direct evidence that returns-to-scale heterogeneity is important in our setting.

Finally, we note that the model also illustrates the difference between lowering the capital requirement $\underline{k}$ and increasing individual liquidity ℓ_i, as discussed in the introduction. Increasing personal liquidity allows individuals from both the regulatory liquidity constrained (1.) and the

non-regulatory constrained (2.) group to enter. As an example of the non-regulatory constrained, consider individual B in Figure 7 who will enter if her liquidity is increased sufficiently such that $\ell_i > k^B_{min}$. In our setting, where the regulatory liquidity constraint did not bind before the reform, the marginal entrepreneur from lowering the capital requirement (the size-constrained) is thus entirely different from the marginal entrepreneur that arises from increasing individual liquidity (the non-regulatory liquidity constrained).

5.3 Estimated returns to scale around the reform

To empirically assess whether the reform facilitated the entry of low returns-to-scale entrepreneurs, we employ the methodology developed by Ackerberg, Caves, and Frazer (2015) (henceforth ACF), which relaxes some of the identifying assumptions in the ubiquitous Olley and Pakes (1996) and Levinsohn and Petrin (2003) frameworks. Similarly to other papers in the literature on production function estimation (e.g., De Loecker and Warzynski 2012, Garcia-Marin and Voigtländer 2019), we estimate an accounting rather than quantity-based version of the Cobb-Douglas function:

$$\log(R_{i,t}) = \omega_{i,t} + \beta_k \log(K_{i,t}) + \beta_l \log(L_{i,t}) + \beta_m \log(M_{i,t}) + \varepsilon_{i,t}, \tag{13}$$

where revenues (R), capital in the form of plant property and equipment (PPE or K), labor costs (L), and intermediate input costs (M) are all deflated using separate industry-level price indices from the Norwegian National Accounts. We describe the data construction and the three-stage ACF estimation approach in more detail in Appendix D.2. The main items to note are that we allow the input elasticities, β_k, β_l, and β_m to vary by incorporation year. We also include calendar year (t) fixed effects and a linear firm age control in the first estimation step to account for macroeconomic shocks or age-dependence in both revenues and the capital stock. To obtain standard errors on the coefficients (and the returns to scale) that are estimated in different stages, we perform a clustered bootstrap procedure.

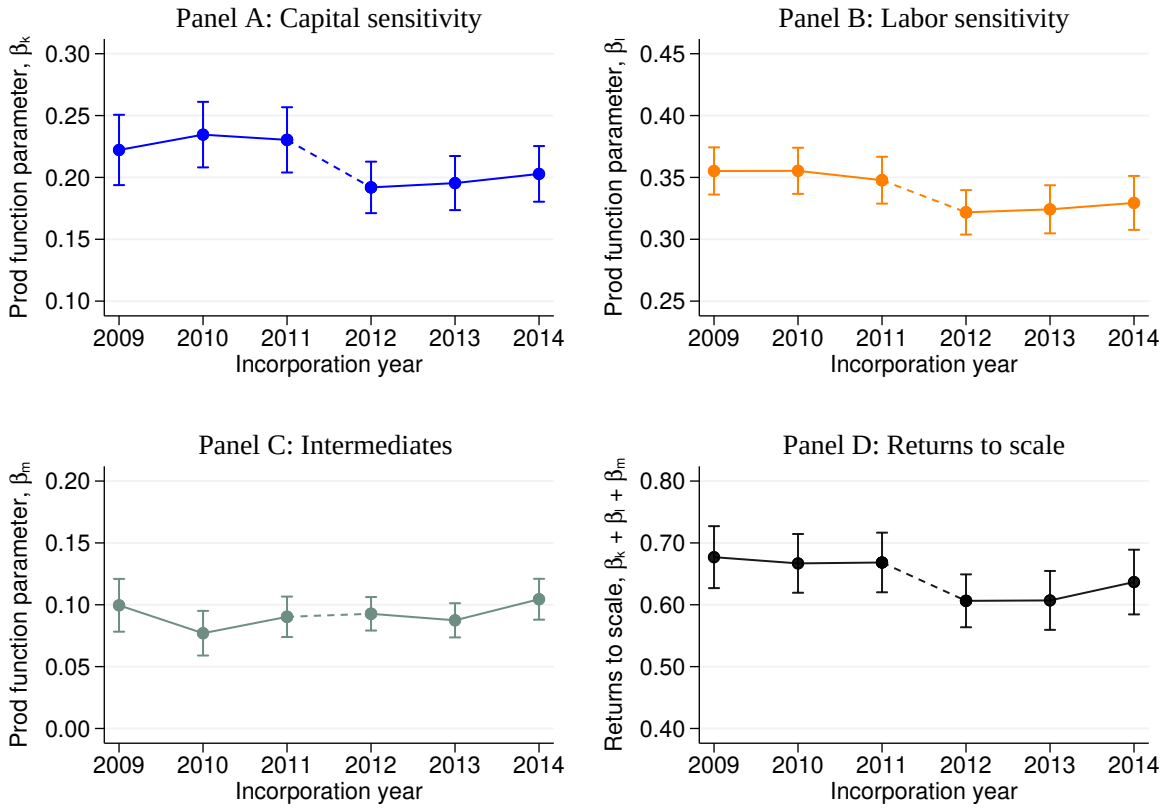
Since we are estimating production functions for a large sample of firms, many of which have no PPE, we shift the log arguments by unity such that equation (13) is always well defined. We then rely on the following insight. A firm with the general Coubb-Douglas production function implied by equation (13) will only choose $K = 0$ if $\beta_k = 0$.[27] Coincidentally, a simple way to account for this is to employ a standard elasticity transformation. That is, the elasticity of R with respect to K is equal to $K/(1+K)$ times the elasticity of R with respect to $1+K$.[28] This transformation implicitly (but correctly) assumes that $\beta_k = 0$ when $K = 0$. Appendix D.2 provides additional detail and the statistics that are used for the transformation.

[27] If $\beta_k > 0$, then $K = 0$ implies $R = 0$. If $\beta \in (0, 1)$, the limit of dR/dK as K approaches 0 from above is infinite.

[28] Note that we do not account for the fact that log-log relationships differ from traditional elasticities, we are only accounting for the fact that the elasticity of R with respect to $1+K$ differs from the elasticity of R with respect to K.

We present the main estimates on the input elasticities in Figure 8. Panel A shows that the capital sensitivity decreases from 0.23 to 0.19 after the reform. This is a material decrease, in line with our prediction based on the previous results and the conceptual framework. Interestingly, we also find a modest decrease in the labor sensitivity in Panel B. This finding aligns with our broader notion that the reform facilitated the entry of smaller firms, both in terms of capital and in terms of labor. We find no differences in the sensitivity to intermediate inputs (e.g., COGS and electricity). These finding map into a clear reduction in the overall returns to scale, the sum of the input elasticities, in Panel D. Appendix Table OA.2 provides point estimates and standard errors, and verifies that the reductions in the capital sensitivity, labor sensitivity, and the returns to scale are statistically significant.

Figure 8: Returns-to-Scale for Firms Incorporated Around The Reform

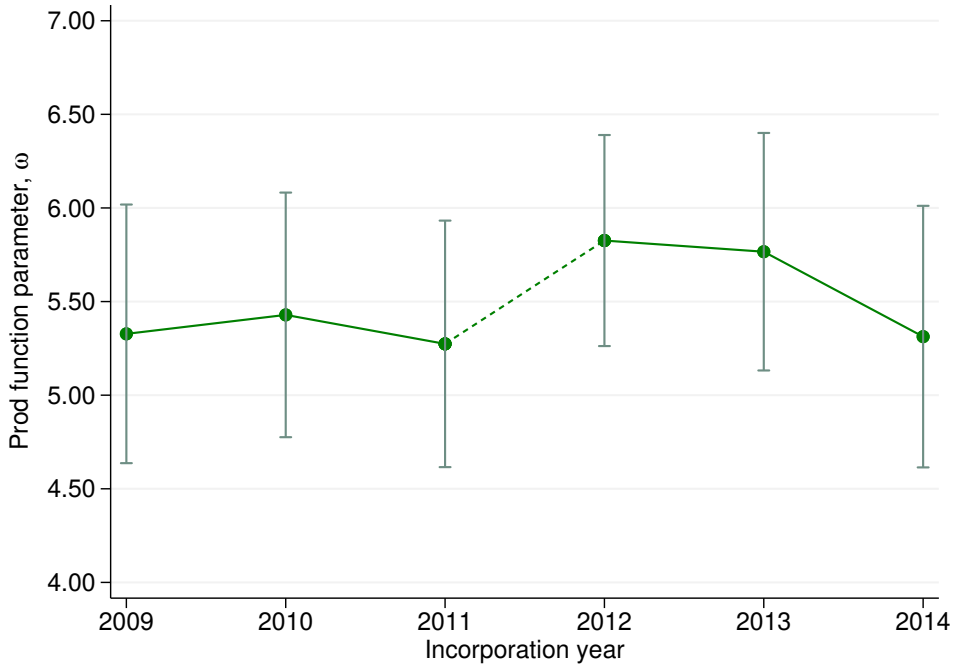


Notes: This figure provides the results from estimating the production function, $\log(Revenue_{i,t}) = \omega_{i,t} + \beta_{k,s}\log(Productive\ Capital_{i,t}) + \beta_{l,s}\log(LaborCosts_{i,t}) + \beta_{m,s}\log(Intermediate\ costs_{i,t}) + \varepsilon_{i,t}$, using the ACF methodology. Panel A provides the estimated capital sensitivity, β_k for each cohort $s = 2009, ..., 2014$. Panel B considers the labor cost sensitivity, β_l. Panel C considers the sensitivity to intermediate input costs (e.g., COGS, electricity), β_m. Panel D provides the estimated returns to scale, which is the sum of the three β coefficients. All cofficients are adjusted for log-shifting and the presence of zero-K firms (see Appendix D.2 for further details.) Standard errors are obtained from a 200-repetition firm-clustered bootstrap procedure. Appendix Table OA.2 provides ACF point estimates, adjustment factors, and standard errors.

We also examine productivity by plotting how productivity, $\omega_{i,t}$, varies across cohorts in Figure 9. Consistent with our previous evidence, there is no indication that post-reform entrants are less

productive. In fact, those who incorporated in 2012 have higher average productivity than those who incorporated in 2011. Our bootstrap procedure reveals that this difference is statistically significant at the 5% level (see Appendix Table OA.2).

Figure 9: Estimated Productivity Using The ACF Method



Notes: This figure provides the incorporation-cohort average of the productivity parameter, $\omega_{i,t}$, from estimating the production function, $\log(Revenue_{i,t}) = \omega_{i,t} + \beta_{k,s}\log(Productive\ Capital_{i,t}) + \beta_{l,s}\log(LaborCosts_{i,t}) + \beta_{m,s}\log(Intermediate\ costs_{i,t}) + \varepsilon_{i,t}$, using the ACF methodology. Standard errors are obtained from a 200-repetition firm-clustered bootstrap procedure. Appendix D.2 provides further details and Appendix Table OA.2 provides point estimates and standard errors.

Identification discussion. We note that revenue-based estimation of production function parameters and productivity is subject to caveats, particularly when there is heterogeneity in price levels (see, e.g., Garcia-Marin and Voigtländer 2019). We address this to some extent by using industry-level price deflators, but there may still be heterogeneity within industries. If for example, post-reform entrants face higher prices for capital goods, the estimated relationship relationship between capital and revenues (and thus β_k) will be attenuated. However, there is no clear reason why such differences should exist only as a discontinuity around the reform. Hence, our finding that the capital sensitivity drops from 2011 to 2012, but there is virtually no change in other periods is reassuring.

Absent price data, we cannot conclusively rule out that, for unknown reasons, post-reform entrants faced discontinuously higher prices. However, the rich data do allow us to rule out discontinuities in a range of financial ratios (e.g., profitability, value-added margin) that would be affected by price differences. It is also reassuring that we find that pre- and post-reform entrants are similar on ex-ante characteristics. For example, one might suspect that ability affects

bargaining (Bandiera, Prat, and Valletti, 2009) or that liquidity constraints cause worse prices through poor transaction timing (Burke, Bergquist, and Miguel, 2019).

5.4 Discussion of conceptual model assumptions

Our conceptual framework does not capture all aspects relevant for the entrepreneur entry decision. Here we discuss two simplifying assumptions.

Risk. Our model abstracts from risk or heterogeneity in risk-aversion across entrepreneurs. However, a growing body of research emphasizes how reductions in entrepreneurial earnings risk promote entry (Gottlieb, Townsend, and Xu 2022; Barrios, Hochberg, and Yi 2022; Hou, Jonsson, Li, and Ouyang 2025). An supplementary interpretation of our results, motivated by this literature, could be that lower capital requirements allow more risk-averse individuals to enter, i.e., individuals who were unwilling to commit the previously requested amount of personal wealth to their entrepreneurial venture. While we cannot entirely rule out this alternative mechanism, we argue that it is unlikely to be the main factor driving our results. Most importantly, we find no evidence that the composition of entrepreneurs, in terms of their ex-ante financial risk-taking, changed around the reform. Appendix Figure OA.26 shows that pre- and post-reform entrants are equally likely to invest in the stock market and, conditional on investing, have similar risky shares. If our findings were driven by an inflow of more risk-averse entrepreneurs, we would expect to see changes to their ex-ante portfolio characteristics. More generally, risk tolerance is not only determined by structural risk preferences—but also by wealth, income, and education, and for none of these characteristics do we find any differences around the reform.

No saving-inside-firm. Our model does not allow the entrepreneur to move its personal savings (e.g., deposits, bonds, mutual funds) inside the firm. If this were costless, entrepreneurs who are not liquidity constrained and keep some personal savings outside of the firm could easily satisfy the capital requirement by moving their savings inside the corporation. We argue that there are several frictions preventing most new entrepreneurs from doing so.

Firstly, moving savings inside the firm would entail a double tax burden for many of the asset classes relevant to small-scale entrepreneurs. While it is certainly beneficial to own business assets inside a corporation as it allows entrepreneurs to defer income taxation, this is not the case for other asset classes. Income from low-risk holdings such as money market funds, bonds, or bank accounts are subject to the corporate income tax. Dividends or capital gains from non–EU–EEA stock holdings where the ownership stake is less than 10% are also included in the corporate income tax base. Hence, incomes from low-risk (e.g., savings accounts) or highly diversified (e.g., global mutual funds) would be taxed twice: first subject to the corporate income tax and then subject to a dividend tax upon payout. For someone whose personal savings mainly consists of stocks in another private firm, however, it may be optimal to move the ownership of this firm

inside another corporation. However, these individuals are not the entrepreneurial *entrants* that we consider empirically.[29]

Secondly, saving inside the firm would involve material coordination issues when there are other equity holders who would also have a claim to the corporation's assets. Thirdly, saving inside the firm would erode one of the main benefits of incorporating, namely limited liability. Thus, while there is some room for circumventing the capital requirement by saving inside the firm, the extent of this in our sample is likely limited. Finally, we note that if the liquidity constraint does not bind, as our reduced form results strongly suggest, *and* it is costless to move individual savings inside the firm, then the capital constraint should not matter. As such, the large observed increase in firm entry suggests that moving private savings inside the firm is *not* an attractive option from the viewpoint of potential entrants.

6 Conclusion

Capital requirements are a common tool for regulating the use of limited liability, which is a key feature of modern entrepreneurship. Although the past decades have seen considerable deregulation across the world, particularly in the form of easier and less burdensome incorporation procedures, capital requirements remain one of the main regulatory barriers to entry faced by entrepreneurs.

We study a Norwegian reform in which the capital requirement was reduced from $17,000 to $5,000. The baseline of $17,000 is close to the level in several other OECD countries that still require a minimum amount of paid-in equity from entrepreneurs who wish to incorporate. Nevertheless, this is a relatively modest amount. Thus, the extent to which these capital requirements limit entrepreneurial entry may not be obvious to policymakers. The finding that reducing the capital requirement from a (modest) $17,000 to $5,000 nearly doubles the rate at which individuals become entrepreneurs may therefore be material information for policymakers considering further changes to entry regulation.

Beyond the large entry effect, we provide a broad range of additional results useful in assessing the quality-quantity trade-off associated with capital requirements. On the quantity side, our results indicate that reducing capital requirements have persistent effects on entry. Entry rates remain high for several years after the reform, and our finding that the average age of entrepreneurs did not change indicates that these entry effects will persist. On the quality side, beyond being smaller, we find no evidence that post-reform entrants are different. Ex-post firm outcomes such as survival rates, leverage, and profitability remain unchanged, as do ex-ante entrepreneur characteristics such as prior income, as well as several proxies for cognitive and non-cognitive skills derived from administrative education records.

[29] For example, we drop incorporations of firms in industry codes typically associated with holding companies and we focus our sample on ex-ante non-entrepreneurs.

In terms of mechanisms, we find that post-reform entrants do not have lower ex-ante liquidity on average, nor do we find that the increase is driven by entry of individuals with particularly low liquidity. These findings indicate that liquidity constraints do not shape the way capital requirements affect entry in our setting. We believe that this non-importance of liquidity constraints likely applies to other emerged economies as well.

To rationalize our findings, we set up a theoretical framework with heterogeneity in returns to scale in the entrepreneurial profit function. This creates a "size constraint." Lowering the capital constraint relaxes the size constraint and allows optimally small firms to enter and produce at a scale compatible with satisfying the entrepreneur's participation constraint (i.e., payoff from entrepreneurship exceeds the outside option). In line with the model's prediction, we find that the estimated production functions of post-reform entrants feature lower returns to scale, driven largely by lower sensitivities of revenues to capital.

This modeling exercise emphasizes another contribution of our paper: Namely, the emphasis on production-function heterogeneity beyond pure productivity differences. While the standard frameworks feature productivity heterogeneity (Hopenhayn 1992, Olley and Pakes 1992), these frameworks lack the returns-to-scale heterogeneity needed to rationalize our findings. Returns-to-scale heterogeneity implies variation in the optimal size of firms, which may be an important feature to include in other models with entrepreneurial entry decisions. One promising application is modeling entry when there are fixed entry costs. Although fixed costs may discourage low-productivity entrants (Hopenhayn, 1992), they may also discourage otherwise productive low-return-to-scale entrepreneurs.

Overall, our findings imply limited support for minimum capital requirements. The main argument in favor of these requirements is to protect creditors and customers. However, we do not see any indication that the firms (or their entrepreneurs) entering after the reduction of the requirement are riskier or of lower quality. Nor do we find any indication that individuals starting firms during the post-reform period have less to gain from entrepreneurship in terms of total income, lower taxes, or being sourced from more productive firms. What we do see is that capital requirements hinder the establishment of small firms. Intuitively, not all firms require large amounts of capital to start their business. For instance, service-based businesses or technical consultancy firms might not need much more than a computer. Imposing a minimum capital requirement means that these individuals must either operate their firm at a non-optimally large scale, or choose not to enter in the first place.

References

Aarbu, K. O. and T. O. Thoresen (2001): "Income responses to tax changes—evidence from the Norwegian tax reform," *National Tax Journal*, 54, 319–335.

Ackerberg, D. A., K. Caves, and G. Frazer (2015): "Identification properties of recent production function estimators," *Econometrica*, 83, 2411–2451.

Adelino, M., A. Schoar, and F. Severino (2015): "House prices, collateral, and self-employment," *Journal of Financial Economics*, 117, 288–306.

Aghion, P., R. Burgess, S. J. Redding, and F. Zilibotti (2008): "The unequal effects of liberalization: Evidence from dismantling the License Raj in India," *American Economic Review*, 98, 1397–1412.

Ahnert, T., S. Doerr, N. Pierri, and Y. Timmer (2024): "Information technology in banking and entrepreneurship," .

Alan, S., T. Boneva, and S. Ertac (2019): "Ever failed, try again, succeed better: Results from a randomized educational intervention on grit," *The Quarterly Journal of Economics*, 134, 1121–1162.

Alfaro, I., N. Bloom, and X. Lin (2024): "The finance uncertainty multiplier," *Journal of Political Economy*, 132, 577–615.

Andersen, S. and K. M. Nielsen (2012): "Ability or finances as constraints on entrepreneurship? evidence from survival rates in a natural experiment," *The Review of Financial Studies*, 25, 3684–3710.

Aragoneses, M. (2023): "The Firm Life Cycle Origins of the Aggregate Investment Puzzle," *Available at SSRN 4863038*.

Autor, D., D. Dorn, L. F. Katz, C. Patterson, and J. Van Reenen (2020): "The fall of the labor share and the rise of superstar firms," *The Quarterly Journal of Economics*, 135, 645–709.

Azoulay, P., B. F. Jones, J. D. Kim, and J. Miranda (2020): "Age and high-growth entrepreneurship," *American Economic Review: Insights*, 2, 65–82.

Bandiera, O., A. Prat, and T. Valletti (2009): "Active and Passive Waste in Government Spending: Evidence from a Policy Experiment," *American Economic Review*, 99, 1278–1308.

Barrios, J. M., Y. V. Hochberg, and H. Yi (2022): "Launching with a parachute: The gig economy and new business formation," *Journal of Financial Economics*, 144, 22–43.

Barwick, P. J., L. Chen, S. Li, and X. Zhang (2022): "Entry deregulation, market turnover, and efficiency: China's business registration reform," *Market Turnover, and Efficiency: China's Business Registration Reform (October 6, 2022)*.

Bates, T. (1990): "Entrepreneur human capital inputs and small business longevity," *The Review of Economics and Statistics*, 551–559.

Baumol, W. J. (1996): "Entrepreneurship: Productive, unproductive, and destructive," *Journal of business venturing*, 11, 3–22.

Becht, M., C. Mayer, and H. F. Wagner (2008): "Where do firms incorporate? Deregulation and the cost of entry," *Journal of Corporate Finance*, 14, 241–256.

Bellon, A., J. A. Cookson, E. P. Gilje, and R. Z. Heimer (2021): "Personal wealth, self-employment, and business ownership," *The Review of Financial Studies*, 34, 3935–3975.

Berg, K. and T. O. Thoresen (2020): "Problematic response margins in the estimation of the elasticity of taxable income," *International Tax and Public Finance*, 27, 721–752.

Berglann, H., E. R. Moen, K. Røed, and J. F. Skogstrøm (2011): "Entrepreneurship: Origins and returns," *Labour Economics*, 18, 180–193.

Bertrand, M. and F. Kramarz (2002): "Does entry regulation hinder job creation? Evidence from the French retail industry," *The Quarterly Journal of Economics*, 117, 1369–1413.

Bertrand, M. and S. Mullainathan (2003): "Enjoying the quiet life? Corporate governance and managerial preferences," *Journal of Political Economy*, 111, 1043–1075.

Berzins, J. and B. Stacescu (2025): "An overview of Norwegian firms," Tech. rep., CCGR Research Report No. 1/2025.

Booth, R. A. et al. (2005): "Capital requirements in United States corporation law," *University of Maryland Legal Studies Research Paper*, 64.

Branstetter, L., F. Lima, L. J. Taylor, and A. Venâncio (2014): "Do entry regulations deter entrepreneurship and job creation? Evidence from recent reforms in Portugal," *The Economic Journal*, 124, 805–832.

Bruhn, M. (2011): "License to sell: the effect of business registration reform on entrepreneurial activity in Mexico," *The Review of Economics and Statistics*, 93, 382–386.

Burke, M., L. F. Bergquist, and E. Miguel (2019): "Sell low and buy high: arbitrage and local price effects in Kenyan markets," *The Quarterly Journal of Economics*, 134, 785–842.

Cespedes, J., X. Huang, and C. Parra (2019): "More cash flows, more options? the effect of cash windfalls on small firms," Tech. rep., Working paper.

Cheng, H., S. Ding, and Y. Liu (2024): "The effectiveness of entry deregulation: Novel evidence from removing minimum capital requirements," *Journal of Development Economics*, 170, 103304.

Chodorow-Reich, G., P. Nenov, V. Santos, and A. Simsek (2023): "Stock Market Wealth and Entrepreneurship," *Available at SSRN 4530644*.

Choukhmane, T. and T. de Silva (2024): "What Drives Investors' Portfolio Choices? Separating Risk Preferences from Frictions," Tech. rep., National Bureau of Economic Research.

Ciccone, A. and E. Papaioannou (2007): "Red tape and delayed entry," *Journal of the European Economic Association*, 5, 444–458.

Clymo, A. and F. Rozsypal (2023): "Firm cyclicality and financial frictions," Tech. rep., Danmarks Nationalbank Working Papers.

Cooper, A. C., F. J. Gimeno-Gascon, and C. Y. Woo (1994): "Initial human and financial capital as predictors of new venture performance," *Journal of business venturing*, 9, 371–395.

Corradin, S. and A. Popov (2015): "House prices, home equity borrowing, and entrepreneurship," *The Review of Financial Studies*, 28, 2399–2428.

Crouzet, N. and N. R. Mehrotra (2020): "Small and large firms over the business cycle," *American Economic Review*, 110, 3549–3601.

Cui, W. and M. Wei (2022): "Unleashing Mass Entrepreneurship: Firm-Level Evidence on the Impact of China's Registered Capital Reform," *Available at SSRN 3914483*.

Cunha, F. and J. Heckman (2007): "The technology of skill formation," *American economic review*, 97, 31–47.

De Haas, R., V. Sterk, and N. Van Horen (2022): "Start-up types and macroeconomic performance in Europe," .

De Loecker, J. and F. Warzynski (2012): "Markups and Firm-Level Export Status," *American Economic Review*, 102, 2437–2471.

Decker, R. A., J. Haltiwanger, R. S. Jarmin, and J. Miranda (2020): "Changing business dynamism and productivity: Shocks versus responsiveness," *American Economic Review*, 110, 3952–3990.

Deming, D. J. (2017): "The growing importance of social skills in the labor market," *The Quarterly Journal of Economics*, 132, 1593–1640.

Djankov, S., T. Ganser, C. McLiesh, R. Ramalho, and A. Shleifer (2010): "The effect of corporate taxes on investment and entrepreneurship," *American Economic Journal: Macroeconomics*, 2, 31–64.

Djankov, S., R. La Porta, F. Lopez-de Silanes, and A. Shleifer (2002): "The regulation of entry," *The Quarterly Journal of Economics*, 117, 1–37.

Djankov, S., C. McLiesh, and R. M. Ramalho (2006): "Regulation and growth," *Economics letters*, 92, 395–401.

DLAPiper (2023): "Minimum Capital: What is the minimum capital required to set up each type of corporate vehicle used to invest in real estate?" Tech. rep., DLA Piper. Website accessed 2024.06.04.

Dunn, T. and D. Holtz-Eakin (2000): "Financial capital, human capital, and the transition to self-employment: Evidence from intergenerational links," *Journal of labor economics*, 18, 282–305.

European Commission (2025): "The EU Startup and Scaleup Strategy: Choose Europe to Start and Scale," Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions COM(2025) 270 final, European Commission, Brussels, accompanied by SWD(2025) 138 final (Staff Working Document).

Evans, D. S. and B. Jovanovic (1989): "An estimated model of entrepreneurial choice under liquidity constraints," *Journal of Political Economy*, 97, 808–827.

Fagereng, A., L. Guiso, and M. Ring (2023): *How Much and how Fast Do Investors Respond to Equity Premium Changes?: Evidence from Wealth Taxation*, Centre for Economic Policy Research.

Fang, H., M. Li, Z. Wu, and Y. Zhang (2023): "Reluctant entrepreneurs: Evidence from china's soe reform," Tech. rep., National Bureau of Economic Research.

Fisman, R. and V. S. Allende (2010): "Regulation of entry and the distortion of industrial organization," *Journal of Applied Economics*, 13, 91–111.

Fracassi, C., M. J. Garmaise, S. Kogan, and G. Natividad (2016): "Business microloans for US subprime borrowers," *Journal of Financial and Quantitative Analysis*, 55–83.

Fredriksson, P., B. Öckert, and H. Oosterbeek (2013): "Long-term effects of class size," *The Quarterly Journal of Economics*, 128, 249–285.

Garcia-Marin, A. and N. Voigtländer (2019): "Exporting and plant-level efficiency gains: It's in the measure," *Journal of Political Economy*, 127, 1777–1825.

Gavazza, A., S. Mongey, and G. L. Violante (2018): "Aggregate recruiting intensity," *American Economic Review*, 108, 2088–2127.

Gennaioli, N., R. La Porta, F. Lopez-de Silanes, and A. Shleifer (2013): "Human capital and regional development," *The Quarterly Journal of Economics*, 128, 105–164.

Gentry, W. M. and R. G. Hubbard (2000): "Tax policy and entrepreneurial entry," *American Economic Review*, 90, 283–287.

Giroud, X. and H. M. Mueller (2015): "Capital and labor reallocation within firms," *The Journal of Finance*, 70, 1767–1804.

——— (2017): "Firm leverage, consumer demand, and employment losses during the great recession," *The Quarterly Journal of Economics*, 132, 271–316.

——— (2021): "Firm leverage and employment dynamics," *Journal of Financial Economics*, 142, 1381–1394.

Giroud, X. and J. Rauh (2019): "State taxation and the reallocation of business activity: Evidence from establishment-level data," *Journal of Political Economy*, 127, 1262–1316.

Gottlieb, J. D., R. R. Townsend, and T. Xu (2022): "Does career risk deter potential entrepreneurs?" *The Review of Financial Studies*, 35, 3973–4015.

GOV (2011): "Endringer i aksjeloven mv. (nedsettelse av kravet til minste aksjekapital)," *Ministry of Justice (Det kongelige justis- og politidepartement)*, Prop. 148 L.

Graham, J. R. (2000): "How big are the tax benefits of debt?" *The journal of finance*, 55, 1901–1941.

Guo, A. and M. Wallskog (2024): "New Employer Payroll Taxes and Entrepreneurship," *Available at SSRN 5053485*.

Hacamo, I. and K. Kleiner (2022): "Forced entrepreneurs," *The Journal of Finance*, 77, 49–83.

Hamilton, B. H. (2000): "Does entrepreneurship pay? An empirical analysis of the returns to self-employment," *Journal of Political economy*, 108, 604–631.

Heckman, J. J. and Y. Rubinstein (2001): "The importance of noncognitive skills: Lessons from the GED testing program," *American economic review*, 91, 145–149.

Heckman, J. J., J. Stixrud, and S. Urzua (2006): "The effects of cognitive and noncognitive abilities on labor market outcomes and social behavior," *Journal of Labor economics*, 24, 411–482.

Herkenhoff, K., G. M. Phillips, and E. Cohen-Cole (2021): "The impact of consumer credit access on self-employment and entrepreneurship," *Journal of Financial Economics*, 141, 345–371.

Holter, H. A., S. Stepanchuk, and Y. Wang (2023): "Taxation and entrepreneurship in the united states," Tech. rep., Memorandum.

Hombert, J., A. Schoar, D. Sraer, and D. Thesmar (2020): "Can unemployment insurance spur entrepreneurial activity? Evidence from France," *The Journal of Finance*, 75, 1247–1285.

Hopenhayn, H. A. (1992): "Entry, exit, and firm dynamics in long run equilibrium," *Econometrica: Journal of the Econometric Society*, 1127–1150.

Hou, A. J., S. Jonsson, X. Li, and Q. Ouyang (2025): "From employee to entrepreneur: The role of unemployment risk," *Journal of Financial Economics*, 163, 103966.

Hurst, E. and A. Lusardi (2004): "Liquidity constraints, household wealth, and entrepreneurship," *Journal of Political Economy*, 112, 319–347.

Hussam, R., N. Rigol, and B. N. Roth (2022): "Targeting high ability entrepreneurs using community information: Mechanism design in the field," *American Economic Review*, 112, 861–898.

Hvide, H. K. (2009): "The quality of entrepreneurs," *The Economic Journal*, 119, 1010–1035.

Hvide, H. K. and B. F. Jones (2018): "University innovation and the professor's privilege," *American Economic Review*, 108, 1860–1898.

Hvide, H. K. and T. G. Meling (2023): "Do Temporary Demand Shocks Have Long-Term Effects for Startups?" *The Review of Financial Studies*, 36, 317–350.

Hvide, H. K. and J. Møen (2010): "Lean and hungry or fat and content? Entrepreneurs' wealth and start-up performance," *Management Science*, 56, 1242–1258.

Jensen, T. L., S. Leth-Petersen, and R. Nanda (2022): "Financing constraints, home equity and selection into entrepreneurship," *Journal of Financial Economics*, 145, 318–337.

Kaplan, D. S., E. Piedra, and E. Seira (2011): "Entry regulation and business start-ups: Evidence from Mexico," *Journal of Public Economics*, 95, 1501–1515.

Kerr, S. P., W. R. Kerr, and R. Nanda (2015): "House money and entrepreneurship," *Harvard Business School Entrepreneurial Management Working Paper*.

Kerr, W. R. and R. Nanda (2009): "Democratizing entry: Banking deregulations, financing constraints, and entrepreneurship," *Journal of Financial Economics*, 94, 124–149.

Kerr, W. R., R. Nanda, and M. Rhodes-Kropf (2014): "Entrepreneurship as experimentation," *Journal of Economic Perspectives*, 28, 25–48.

Klapper, L., L. Laeven, and R. Rajan (2006): "Entry regulation as a barrier to entrepreneurship," *Journal of Financial Economics*, 82, 591–629.

Levine, R. and Y. Rubinstein (2017): "Smart and illicit: who becomes an entrepreneur and do they earn more?" *The Quarterly Journal of Economics*, 132, 963–1018.

Levinsohn, J. and A. Petrin (2003): "Estimating production functions using inputs to control for unobservables," *The review of economic studies*, 70, 317–341.

Lichtenberg, F. R. and D. Siegel (1990): "The effects of leveraged buyouts on productivity and related aspects of firm behavior," *Journal of Financial Economics*, 27, 165–194.

Lucas, R. E. (1978): "On the size distribution of business firms," *The Bell Journal of Economics*, 508–523.

Manso, G. (2016): "Experimentation and the Returns to Entrepreneurship," *The Review of Financial Studies*, 29, 2319–2340.

Midrigan, V. and D. Y. Xu (2014): "Finance and misallocation: Evidence from plant-level data," *American economic review*, 104, 422–458.

Moll, B. (2014): "Productivity losses from financial frictions: Can self-financing undo capital misallocation?" *American Economic Review*, 104, 3186–3221.

Murphy, K. M., A. Shleifer, and R. W. Vishny (1991): "The allocation of talent: Implications for growth," *The Quarterly Journal of Economics*, 106, 503–530.

Musgrave, R. A. (1959): *The theory of public finance: a study in public economy*, vol. 658, McGraw-Hill New York.

Nanda, R. (2024): "Priors, Experiments, Learning and Persuasion in (Bayesian) Entrepreneurial Finance," .

Olley, G. S. and A. Pakes (1996): "The Dynamics of Productivity in the Telecommunications Equipment Industry," *Econometrica*, 64, 1263–1297.

Olley, S. and A. Pakes (1992): "The dynamics of productivity in the telecommunications equipment industry," .

Opler, T. C. and S. Titman (1994): "Financial distress and corporate performance," *The Journal of finance*, 49, 1015–1040.

Ouimet, P. and R. Zarutskie (2014): "Who works for startups? The relation between firm age, employee age, and growth," *Journal of Financial Economics*, 112, 386–407.

Pigou, A. (1938): *The economics of welfare*, Macmillan and Co.

Queiró, F. (2022): "Entrepreneurial human capital and firm dynamics," *The Review of Economic Studies*, 89, 2061–2100.

Ring, M. A. (2023): "Entrepreneurial wealth and employment: Tracing out the effects of a stock market crash," *The Journal of Finance*, 78, 3343–3386.

Ruohonen, J., V. Vahtera, A. Jaakkola, and L. Saukkola (2022): "The abolishment of the minimum share capital requirement for private limited liability companies in Finland," *Nordisk Tidsskrift for Selskabsret*, 2022, 35–49.

Schmalz, M. C., D. A. Sraer, and D. Thesmar (2017): "Housing collateral and entrepreneurship," *The Journal of Finance*, 72, 99–132.

Sterk, V., P. Sedláček, and B. Pugsley (2021): "The nature of firm growth," *American Economic Review*, 111, 547–579.

Stigler, G. J. (1971): "The theory of economic regulation," *Bell Journal of Economics and Management Science*, 3–21.

Tazhitdinova, A. (2020): "Are changes of organizational form costly? Income shifting and business entry responses to taxes," *Journal of Public Economics*, 186, 104187.

Thoresen, T. O. and A. Alstadsæter (2010): "Shifts in organizational form under a dual income tax system," *FinanzArchiv/Public Finance Analysis*, 384–418.

World Bank (2020): "Comparing business regulation in 190 economies," *Doing Business. International Bank for Reconstruction and Development. The World Bank. Washington*, 135.

Online Appendix

A Data Appendix

A.1 Accounting for indirect ownership

We follow Berglann, Moen, Røed, and Skogstrøm (2011) in linking individuals with firms through both direct and indirect ownership.[30] For indirect ownership, we take the following approach. We first limit our data to primary shares (often called class A shares), and then keep ownership links of at least 1% of total shares. For shares owned by a second firm, we rank the owners in that second firm, keep the top 10 owners, remove ownership links $< 10\%$, and assign iterated ownership shares to the individuals who own shares in the second firm. That is, if a person owns 10% of firm A which owns 10% of firm B, then that person owns 1% of firm B. We then aggregate ownership shares at the firm-person-year level, allowing for both direct and indirect ownership. We further aggregate ownership shares at the household (spouses) level.

A.2 Unincorporated entrepreneurs

In some of our analyses, we also consider sole-proprietorships ("enkeltmannsforetak"), partnerships ("DA" and "ANS"), and foreign-incorporated firms to compare to limited liability companies.

For these organizational forms, we define the entrepreneur either as the proprietor ("innehaver") or we select the partner that is also the CEO. If there is no partner-CEO, we select the chair of the board or, alternatively, the vice chair. For foreign-incorporated firms, we do not observe ownership, but assign the registered CEO as the entrepreneur. Note that these relaxing the ownership requirement will exaggerate the number of entry events into foreign-incorporated entrepreneurship. To ensure a nominal connection between the foreign-incorporated firm and Norway, we require that the firm reports basic data (employment levels, possibly zero) and a Norwegian business address to the business register.

When, e.g., plotting the number of new foreign-incorporated firms or partnerships, we restrict the sample to those operating in non-holding company industry codes (as we do for incorporated firms) and make no additional restrictions regarding, e.g., whether they have employees.

A.3 Sample restrictions

For firm creation events, we (i) drop events where industry codes belong to those typically used by holding companies. These are two-digit NACE 64 and 66 (financial and financial services),

[30] In 2006, Norway introduced a dividend tax for dividends paid from corporations to private shareholders. This reform created an incentive to own economically active firms through another LLC in order to postpone realizing dividends.

three digit NACE 681, 682, and 701 (real-estate investments, real estate leasing and rental, and headquarter services).

We also (ii) drop incorporations where we cannot assign a domestic individual as the entrepreneur.

In our main analyses, we focus on entrepreneurial entry events. We thus (iii) drop observation for which the incorporating entrepreneur was already an entrepreneur in the prior year. That is, she was either a CEO that owned more than 1% of shares, a sole-proprietor, a partner and CEO (or board-chair or vice-chair) in a partnership (DA or ANS), or the CEO of a foreign-incorporated firm (NUF).

For incorporation events, our sample starts with 327,125 events. (i) Dropping holding-company industry codes reduces the sample to 232,116 incorporations.

(ii) Dropping events for which we cannot assign a domestic individual as the entrepreneur leaves 132,052 events. The 100,064 observations that we drop can be sorted into four groups: (a) 9,905 firms that do not have a domestic CEO, and is either not in the stock register or is owned directly by foreigners; (b) 53,541 firms that do not have a CEO but are in the stock register and has no direct foreign owners; (c) 11,083 firms that have a CEO but are not in the stock register; (d) 25,526 firms do have a CEO and are in the stock register but the CEO does not satisfy the $\geq 1\%$ ownership criteria.

(iii) In most of our analyses, we also restrict our sample to entrepreneurial entry events. Dropping incorporations for which the incorporated entrepreneur (CEO that owns $\geq 1\%$ of the shares) was an entrepreneur (of any kind: incorporated, sole-proprietor, partnership, or foreign-incorporated) in the prior year reduces the sample to 47,566 *entry* events.

For sole-proprietors, our sample starts with 488,013 sole-proprietorship registration events. Retaining only sole-proprietors for which we observe their identity reduces the sample to 475,042 events. Dropping holding-company industry codes reduces the sample slightly to 468,302 events. Further requiring that the sole-proprietor is not already an entrepreneur reduces the sample to 381,344 events.

Figure 1, Panel A, considers firm creation regardless of whether the entrepreneur was an entrepreneur in the prior year. That is, we implement filters (i) and (ii). We implement filter (i) for sole-proprietors as well. That is, we require that the sole-proprietors were not assigned to holding-company NACE codes. Filter (ii) also implemented, but this filter now just requires that the sole-proprietor is a domestic individual (that is, a person with a person identifier).

Appendix Figure OA.4 also shows establishments of foreign-incorporated firms (NUF) and partnerships (ANS, DA). We also impose sample restriction (i)-(ii) to the foreign-incorporated and partnership events: That is, the firm is not in a holding-company industry code and we can assign an individual as the entrepreneur.

B Derivations for conceptual framework

B.1 k_{max} that satisfies participation constraint increases in θ

$k_{max}(\theta_i, \alpha_i, s_i)$ is increasing in θ_i. k_{max} is defined by $\theta_i k_{max}^{\alpha_i} - r k_{max} - s = 0$. If we differentiate this with respect to θ_i, we obtain

$$\frac{dk_{max}}{d\theta_i} = \frac{-k_{max}^{\alpha_i}}{\theta_i \alpha_i k^{max,\alpha_i - 1} - r} = \frac{-k_{max}^{\alpha_i}}{f'(k_{max}^{\alpha_i})}, \tag{14}$$

which is positive since $f'(k_{max}^{\alpha_i})$ must be negative. Otherwise, we would want to increase capital above $k_{max}^{\alpha_i}$.

B.2 k_{max} that satisfies participation constraint increases in α

$k_{max}(\theta_i, \alpha_i, s_i)$ is increasing in α_i: k_{max} is defined by $\theta_i k_{max}^{\alpha_i} - r k_{max} - s_i = 0$. If we differentiate this with respect to α_i, we obtain

$$\theta_i k_{max}^{\alpha_i} \left[\frac{\alpha_i}{k_{max}} \frac{dk_{max}}{d\alpha_i} + \log(k_{max}) \right] - r \frac{dk_{max}}{d\alpha_i} = 0. \tag{15}$$

We reorganize and get

$$\frac{dk_{max}}{d\alpha_i} = \frac{\theta_i k_{max}^{\alpha_i} \log(k_{max})}{r - \theta_i k_{max}^{\alpha_i - 1} \alpha_i} \tag{16}$$

$$= \frac{\theta_i k_{max}^{\alpha_i} \log(k_{max})}{-f'(k_{max})}, \tag{17}$$

which is strictly positive as long as $k_{max} > 1$ due to the fact that $f'(k_{max})$ must be negative (otherwise, k_{max} does not exist).

B.3 k_{max} that satisfies participation constraint decreases in s

$k_{max}(\theta_i, \alpha_i, s_i)$ is decreasing in s_i: k_{max} is defined by $\theta_i k_{max}^{\alpha_i} - r k_{max} - s_i = 0$. If we differentiate this with respect to s_i, we obtain

$$\alpha_i \theta_i k_{max}^{\alpha_i - 1} \frac{dk_{max}}{ds_i} - r \frac{dk_{max}}{ds_i} - 1 = 0 \tag{18}$$

We reorganize and get

$$\frac{dk_{max}}{ds_i} = \frac{1}{\alpha_i \theta_i k_{max}^{\alpha_i - 1} - r} \tag{19}$$

$$= \frac{1}{f'(k_{max})}, \tag{20}$$

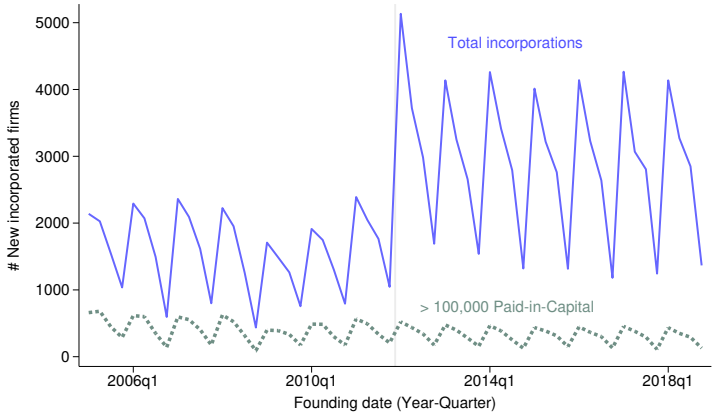
which is negative due to the fact that $f'(k_{max})$ must be negative (otherwise, k_{max} does not exist).

C Derivations for empirical specification

$$
\begin{aligned}
\frac{1}{N_B}\sum_{i\in B} Y_i - \frac{1}{N_A}\sum_{i\in A} Y_i &= \frac{1}{N_B}\left(\overline{Y}^{post}(N_A+N_B) - N_A\overline{Y}^{pre}\right) - \frac{1}{N_A}\sum_{i\in A} Y_i \\
&= \frac{N_A}{N_B}\left(\overline{Y}^{post}\frac{N_A+N_B}{N_A} - \overline{Y}^{pre}\right) - \overline{Y}^{pre} \\
&= \frac{N_A}{N_B}\left(\overline{Y}^{post}\frac{N_A+N_B}{N_A} - \overline{Y}^{pre}\left[1+\frac{N_B}{N_A}\right]\right) \\
&= \frac{N_A}{N_B}\left(\overline{Y}^{post}\frac{N_A+N_B}{N_A} - \overline{Y}^{pre}\left[\frac{N_A+N_B}{N_A}\right]\right) \\
&= \frac{N_A}{N_B}\left(\overline{Y}^{post} - \overline{Y}^{pre}\right)\frac{N_A+N_B}{N_A} \\
&= \frac{\overline{Y}^{post} - \overline{Y}^{pre}}{\frac{N_B}{N_A+N_B}} \\
&= \frac{\overline{Y}^{post} - \overline{Y}^{pre}}{\frac{N_{post}-N_{pre}}{N_{post}}}.
\end{aligned} \tag{21}
$$

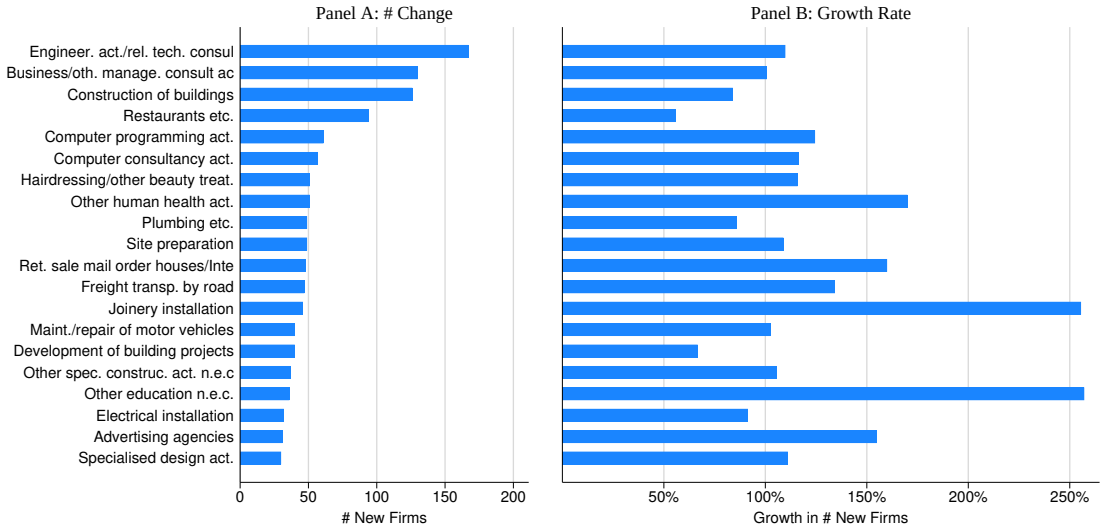
D Supplementary figures

Figure OA.1: Firm Creation Before and After the Reform: No Effect on High-Capital Firm Creations



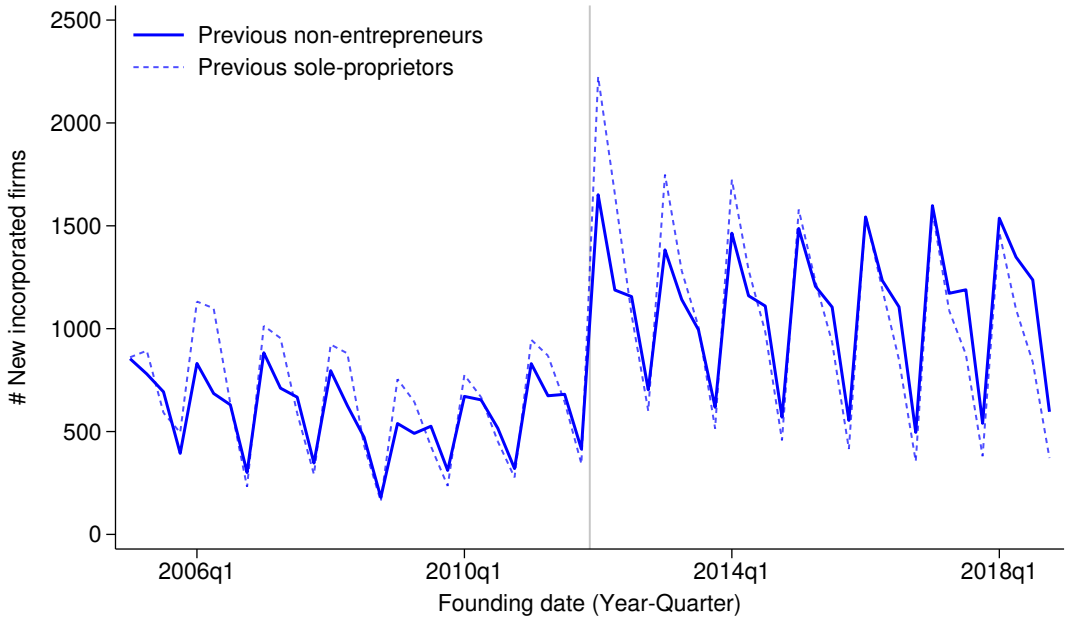
Notes: The solid blue line shows the total number of incorporations (as in Panel B of main-text Figure 1). The dashed teal line shows the total number of incorporations of firms with strictly more than NOK 100,000 in paid-in-capital (measured at the end of the incorporation year).

Figure OA.2: Industry Decomposition of the Increase in Incorporations From 2011 to 2012



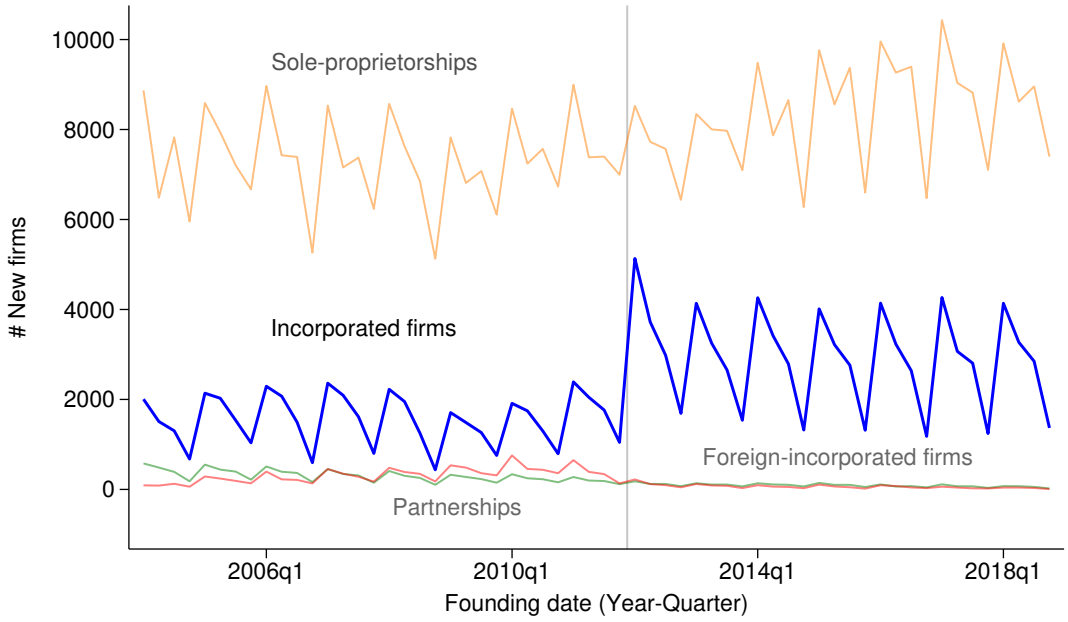
Notes: This figure considers the change (Panel A) and relative change (Panel B) in incorporations from 2011 to 2012. This is done separately for different four-digit NACE-code industries. The figure only includes data for four-digit NACE codes for which there were at least 30 more incorporations in 2012 than in 2011. "Education n.e.c" only consists of five-digit NACE code 85.599, which is titled "Other education." "Construction of buildings" only consists of NACE code 41.200, also titled "Construction of buildings."

Figure OA.3: Incorporations by ex-ante non-entrepreneurs and ex-ante sole-proprietors



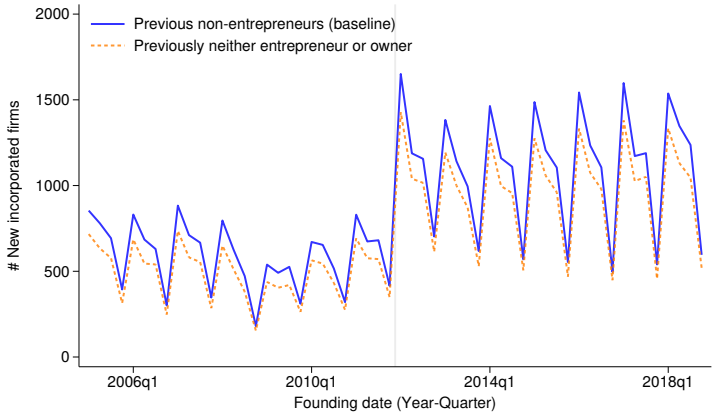
Notes: This figure plots the number of incorporations by year, where the solid line implements sample filters (i)–(iii) in Section 2.3. That is, the solid line provides incorporations by ex-ante non-entrepreneurs (which excludes ex-ante sole-proprietors). The dashed blue line instead considers incorporations done by individuals who were (solely) sole-proprietor entrepreneurs in the previous year (which is a strictly weaker filter than (iii)).

Figure OA.4: Additional firm establishments: foreign-incorporated and partnerships



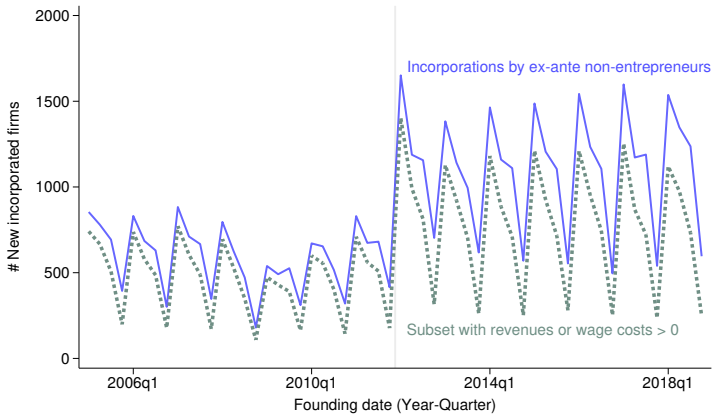
Notes: This figure adds additional legal forms to Panel A of Figure 1: foreign-incorporated but domestically registered firms (NUF) and partnerships (ANS, DA). The number of foreign-incorporated firms is the annual number of NUF registrations where we observe a domestic individual as the CEO. The number of partnerships is equal to all partnership registrations where we observe a domestic individual as the "entrepreneur" (partner-CEO, partner and chair of the board, or partner and vice chair of the board.)

Figure OA.5: Firm Creation Before and After the Reform: Excluding Entrepreneurs Who Owned Any Private Equity



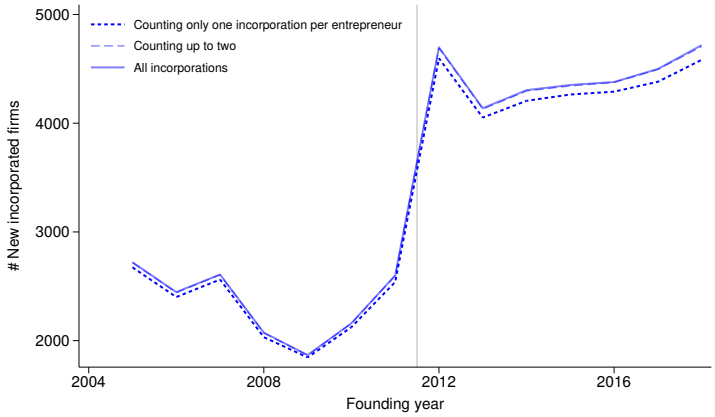
Notes: The solid blue line considers only incorporations done by individuals who were not previously entrepreneurs: neither incorporated (AS), sole-proprietor (ENK), CEO-partner of a partnership (ANS, DA), or CEO of a foreign-incorporated firm (NUF). The dashed orange line restricts the sample to incorporations done by individuals who were not entrepreneurs *nor did they own* $\geq 1\%$ of the shares in any limited liability firm (AS).

Figure OA.6: Incorporations of firms with strictly positive revenues or labor costs



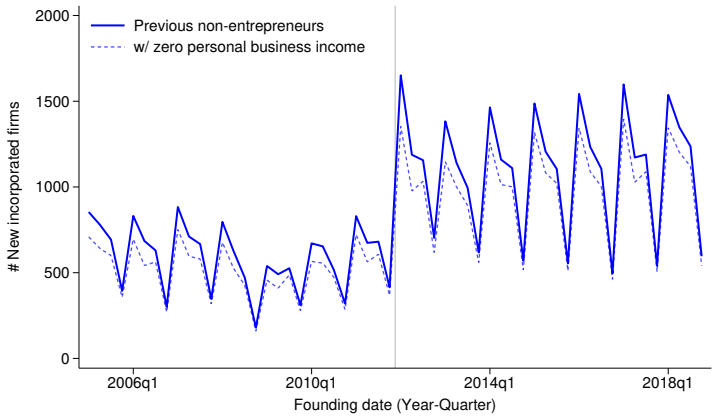
Notes: The solid blue line shows the total number of incorporations by ex-ante non-entrepreneurs (as in Panel B of Figure 1). The dashed teal line shows the subset of these incorporations where the firms had strictly positive revenues or wage bills in the year of incorporation as an indication of (immediate) economic activity.

Figure OA.7: How the change in incorporation rates (does not) depend on multiple incorporations by individual entrepreneurs



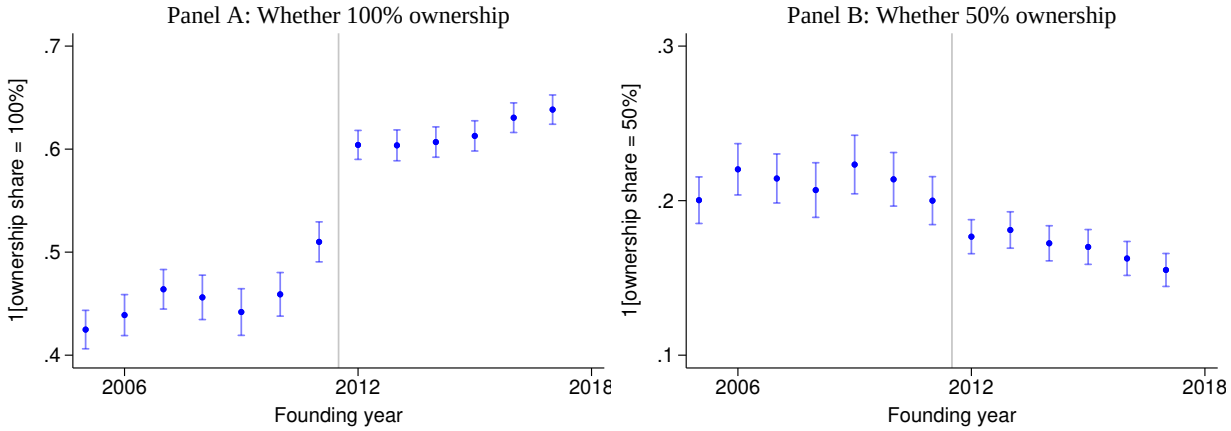
Notes: The solid blue line shows the total number of incorporations by ex-ante non-entrepreneurs (as in Panel B of Figure 1) aggregated to a yearly frequency. The long-dashed blue line shows the number of new incorporations when we count at most two incorporations per entrepreneur (per year). The short-dashed blue line shows the number of incorporations when we only count one incorporation per entrepreneur.

Figure OA.8: Firm Creation Before and After the Reform: Excluding Entrepreneurs Who Had Any Business Income



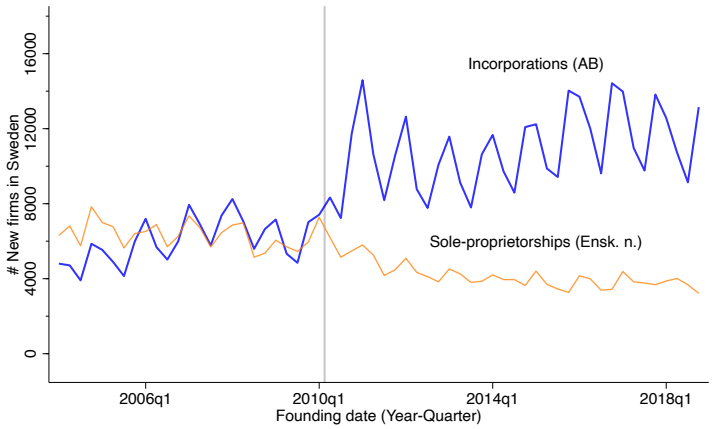
Notes: The solid blue line considers only incorporations done by individuals who were not previously entrepreneurs: neither incorporated (AS), sole-proprietor (ENK), CEO-partner of a partnership (ANS, DA), or CEO of a foreign-incorporated firm (NUF). The dashed blue line restricts the sample further to incorporations done by individuals who did not have any taxable business income on their personal tax returns in the prior year.

Figure OA.9: Ownership shares at incorporation



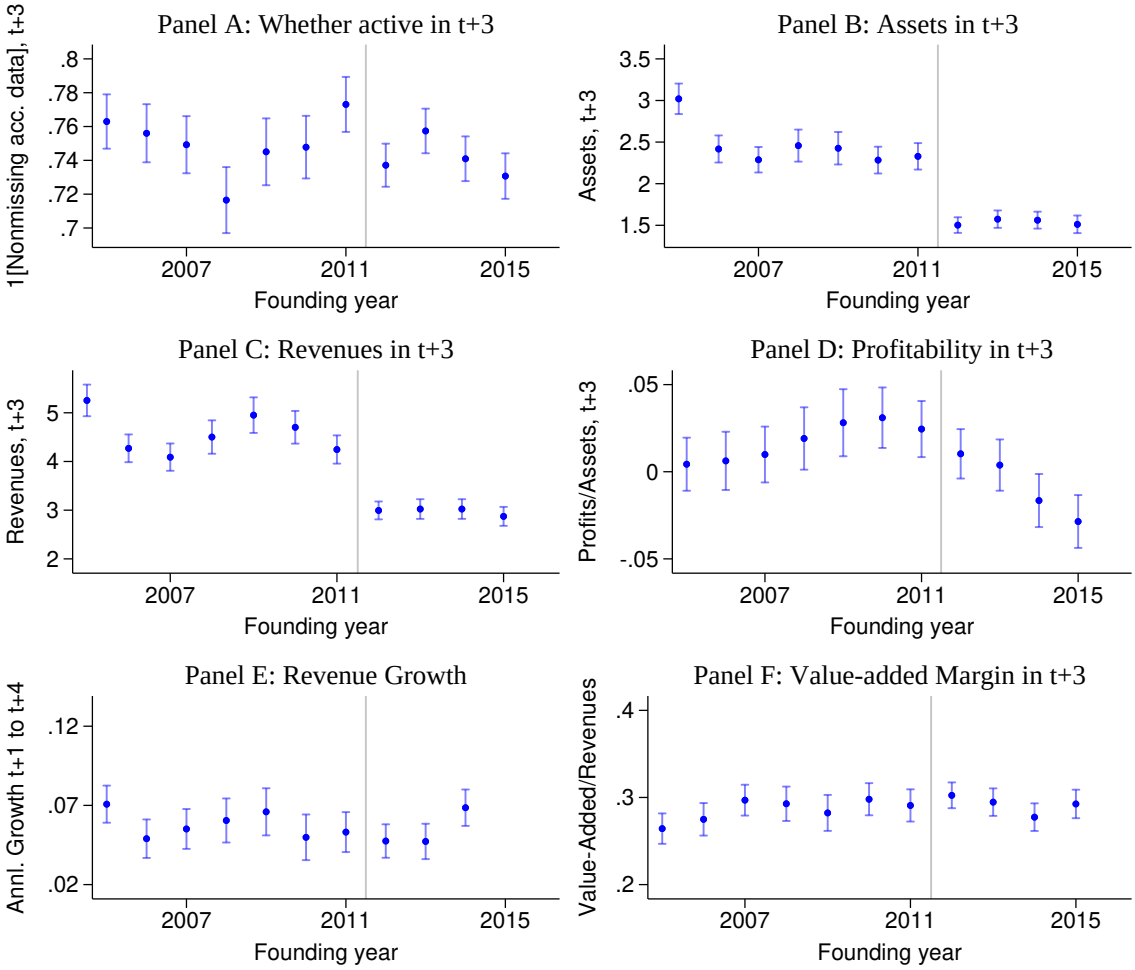
Notes: All panels condition on firms created by individuals who were not entrepreneurs in the prior year. This figure considers whether the entrepreneur either (A) fully owned or (B) owned exactly one half of the firm at the end of the incorporation year.

Figure OA.10: Firm Creation Around the 2010 Swedish Reform



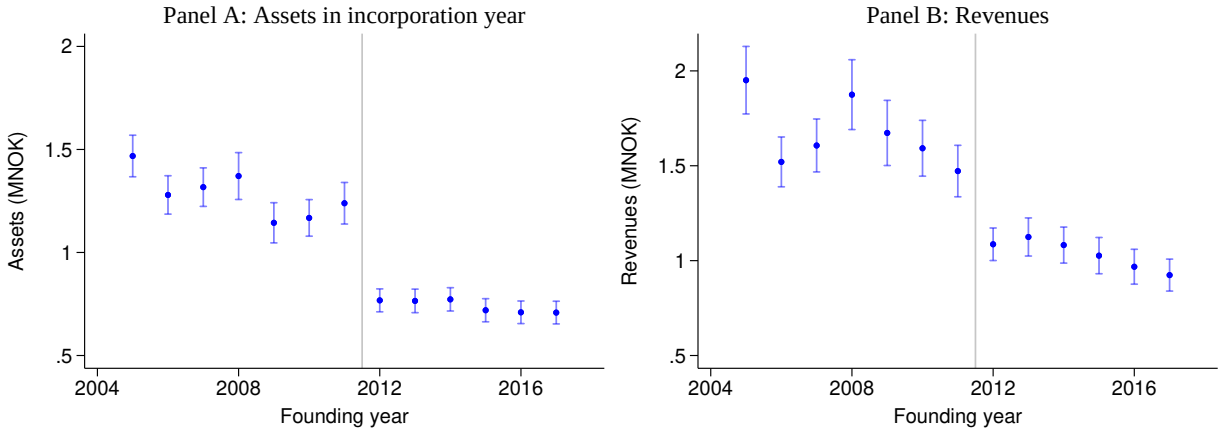
Notes: This figure plots firm creations by type and quarter using data from the Swedish business register (bolagsverket.se). The raw data is at the municipality-month-corporate form level, which we aggregate to the quarterly level for aktiebolag ("AB", which are private LLCs) and enskilda näringsidkare ("E", which are sole-proprietors).

Figure OA.11: Firm outcomes measured three years later, contrasting pre- and post-reform entrants



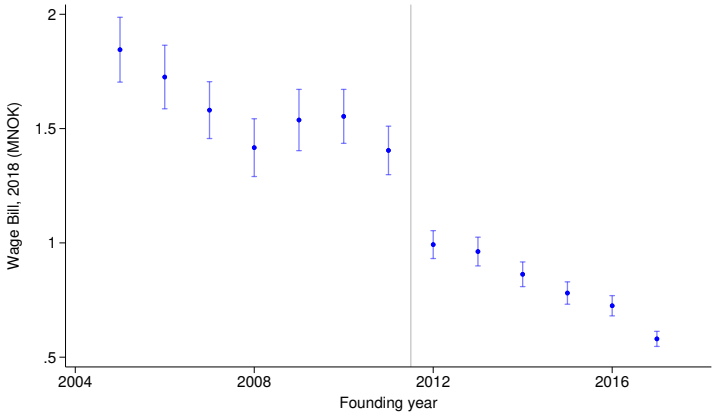
Notes: All panels condition on firms incorporated by individuals who were not entrepreneurs in the prior year. Panel A considers whether the firm has nonmissing accounting data at $t+3$, where t denotes the year of incorporation. Panel B considers the total book assets (winsorized at the 95th percentile) and panel C considers the total revenues (also winsorized at the 95th percentile), and panel D considers profitability. Profitability is measured as the ratio of operating income to assets, censored to be in $[-1, 1]$. Revenue growth is the symmetric growth rate in revenues between $t+1$ to $t+4$, naturally censored to lie in $[-2, 2]$. The growth rate is defined for firms with positive revenues in $t+1$ and $t+4$. and annualized by dividing by 3. Value-added Margin is the ratio of operating income plus wage bill to revenues, censored to lie in $[-1, 1]$. Standard errors underlying the 95% confidence bands are clustered at the person (entrepreneur) level. See main-text Figure OA.11 for results when all panels (except E) use 2018 instead of $t+3$ data.

Figure OA.12: Assets and Revenues Right After Incorporation



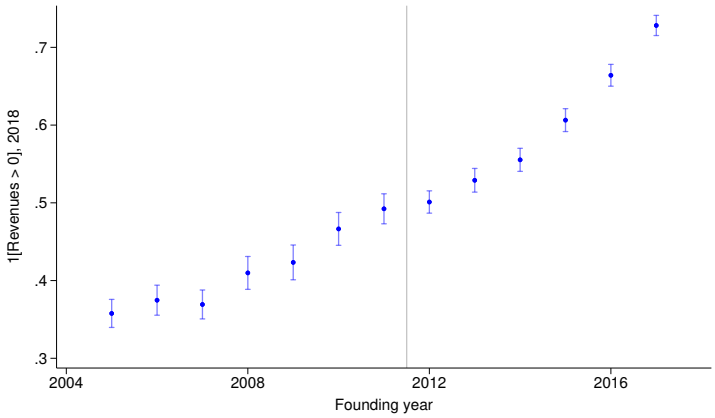
Notes: This figure plots how assets and revenues, measured at the end of the incorporation year, varies with the incorporation year.

Figure OA.13: Total wage bill



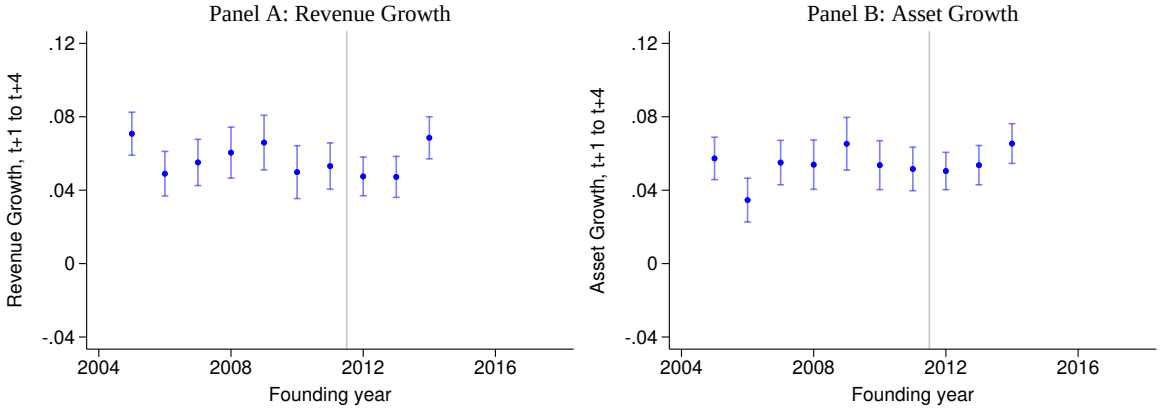
Notes: We supplement Figure 3 by also considering the total labor cost (wage bill, winsorized at 95th percentile) of the firms measured in 2018.

Figure OA.14: Whether active with positive revenues in 2018



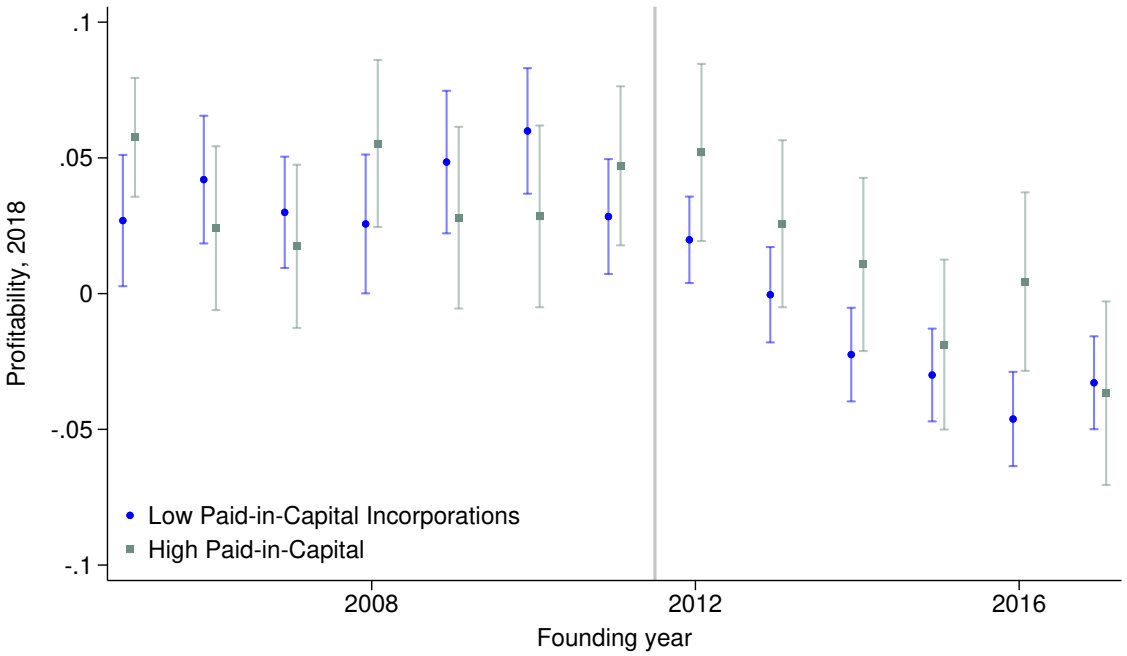
Notes: We supplement Figure 3, Panel A, by also requiring that firms have strictly positive revenues in 2018.

Figure OA.15: Firms' Ex-post Outcomes: Revenue and Asset Growth in the Three Years Following Incorporation



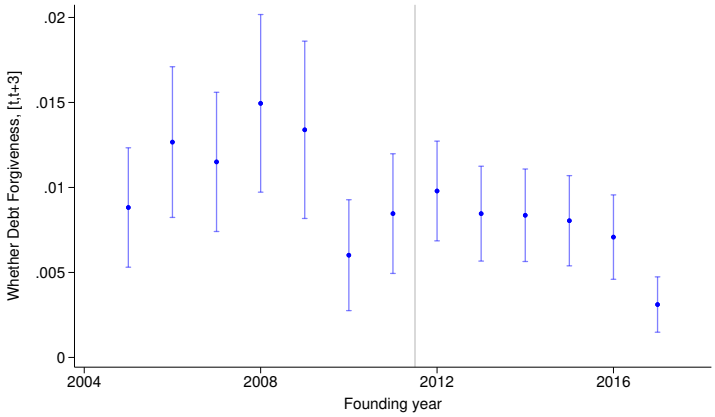
Notes: This figure considers revenue and asset growth in the three-year period after incorporation (from $t+1$ to $t+4$). Revenue growth is measured as the symmetric growth rate and is annualized by dividing the growth rate by 3. We drop observations where the $t+1$ or $t+4$ value is missing or weakly negative. See main text and Figure 3 for further details.

Figure OA.16: Profitability: Comparing Low and High Paid-in-Capital Incorporations



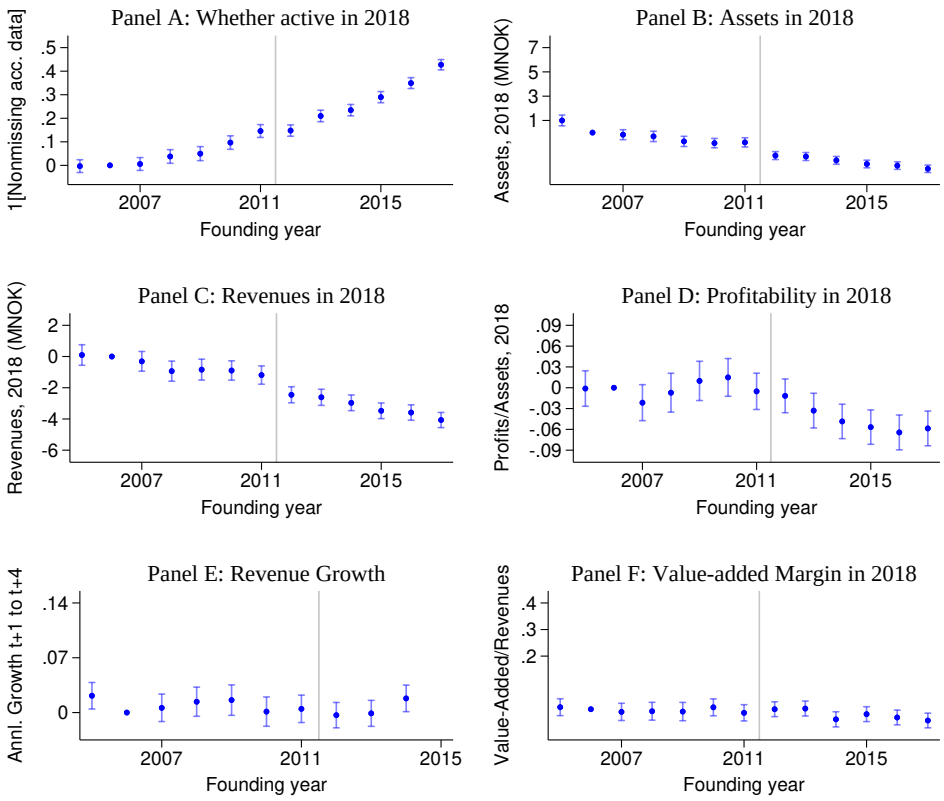
Notes: This figure repeats the analysis in Panel (D) of Figure 3 separately for low-PIC ($\leq 100,000$) and high-PIC ($> 100,000$) incorporations.

Figure OA.17: Debt forgiveness



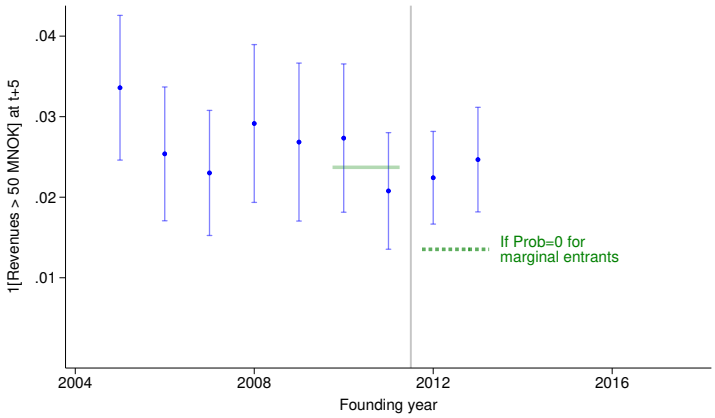
Notes: This figure plots whether debt forgiveness has occurred in a three-year period after incorporation (from t to $t+3$) by year of incorporation.

Figure OA.18: Firm outcomes, contrasting pre- and post-reform entrants while controlling for industry fixed effects.



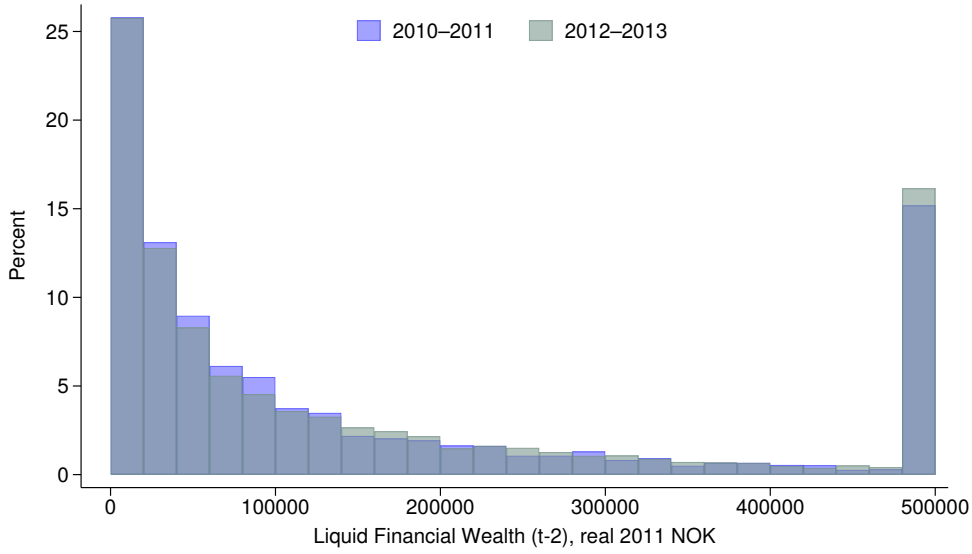
Notes: In contrast to Figure 3, the following regression estimates are the result of also controlling for the incorporated firms' 5-digit NACE industry codes. All panels condition on firms incorporated by individuals who were not entrepreneurs in the prior year. All variables are measured, except revenue growth, are measured in 2018. Standard errors underlying the 95% confidence bands are clustered at the person (entrepreneur) level.

Figure OA.19: Propensity to become a large firm



Notes: This figure is plots the propensity to become a large firm, defined as having revenues above NOK 50,000,000 ($8,300,000) within five years of incorporation. The horizontal green line is the average propensity to become a large firm for incorporations done in 2010 and 2011. The dashed horizontal line is the counterfactual propensity that would arise if marginal entrants do not become large. We perform this calculation the following way. Suppose $P_{2011–2012}$ is the propensity among 2011–2012 entrants. If there are N entrants during 2010–2011 and M entrants during 2012–2013, there are $M - N$ marginal entrants and the 2012–2013 counterfactual probability equals $\frac{M \times P_{2011–2012}}{M+N}$. The propensities were 2.73%, 2.08%, 2.24%, and 2.47% for 2011, 2012, 2013, and 2014, respectively. For the general discussion of sample construction see main text and Figure 3.

Figure OA.20: The Distribution of Entrants' Liquidity Before and After the Reform

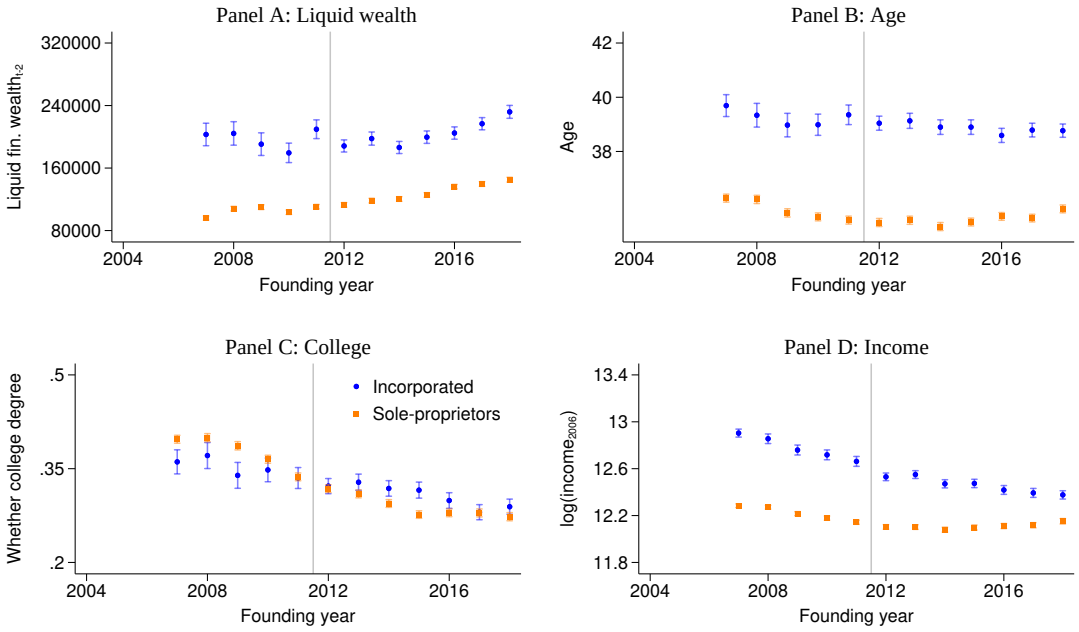


Notes: We plot the distribution of liquid financial wealth (in real 2011 NOK) for two entry periods: 2010–2011 (blue bars) and 2012–2013 (green bars). The rightmost bin contains all entries with real LFW in excess of NOK 500,000.

Figure OA.21: Distribution of ex-ante Characteristics of Entrepreneurs Around the Reform

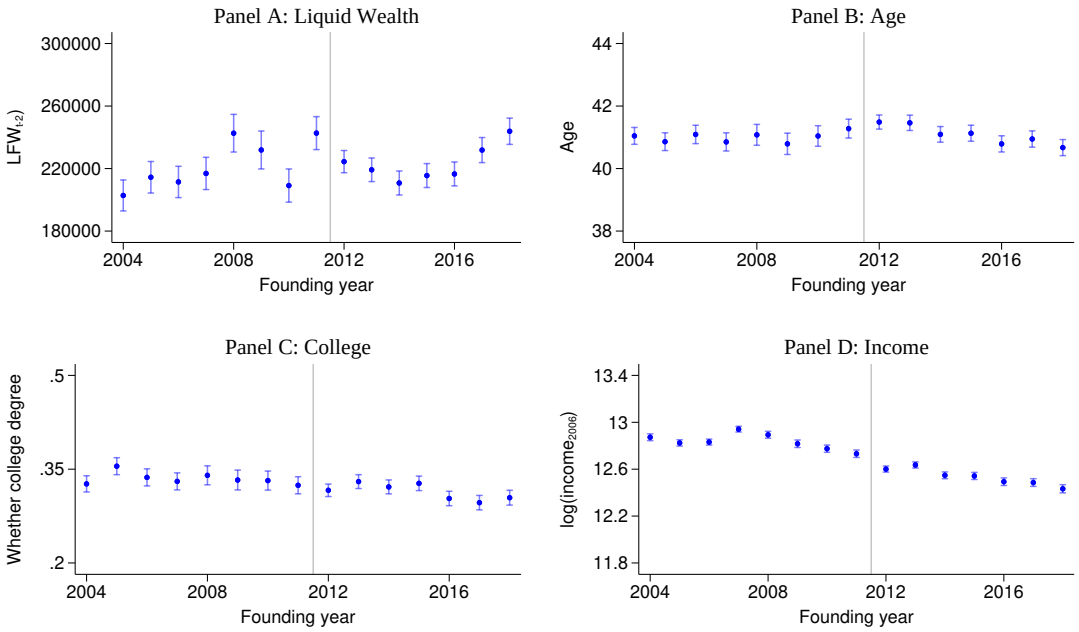
Notes: In contrast to Figure 4 that considers mean characteristics, this figure considers the 10th, 25th, 50th, 75th, and 90th percentiles of the characteristics. We omit the indicator variable for a college education since it is a binary variable. We do not estimate a regression equation but rather provide the relevant summary statistics for each subsample of incorporated entrepreneurs (split by the year of incorporation). The combined sample is the same as the one used to provide the estimates in Figure 4.

Figure OA.22: Characteristics of Entrepreneurs Conditioning on Not Being an Entrepreneur in 2006



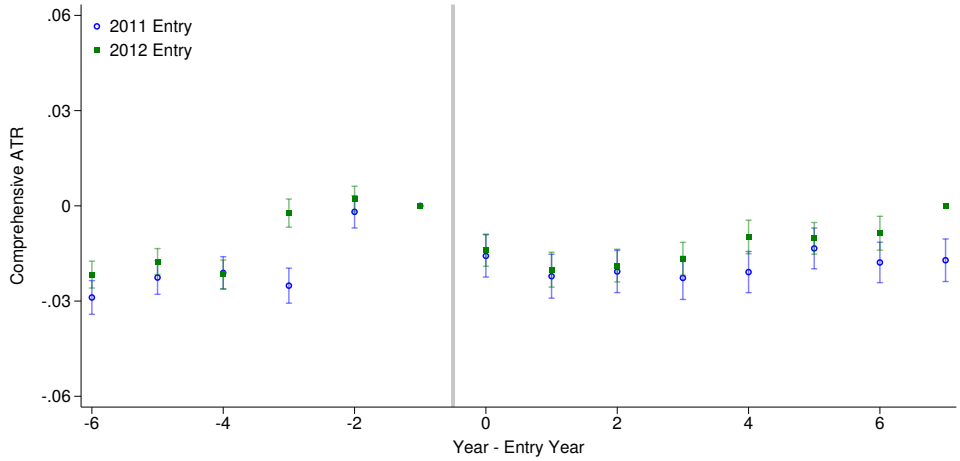
Notes: We modify the definition of new entrants relative to main Figure 4 to be those who create new firms and *were not entrepreneurs as of 2006*. The baseline criteria is that those who start new firms were not already entrepreneurs as of $t-1$.

Figure OA.23: Characteristics of Entrepreneurs Who Transition from Sole-proprietorship to Incorporated Entrepreneurship



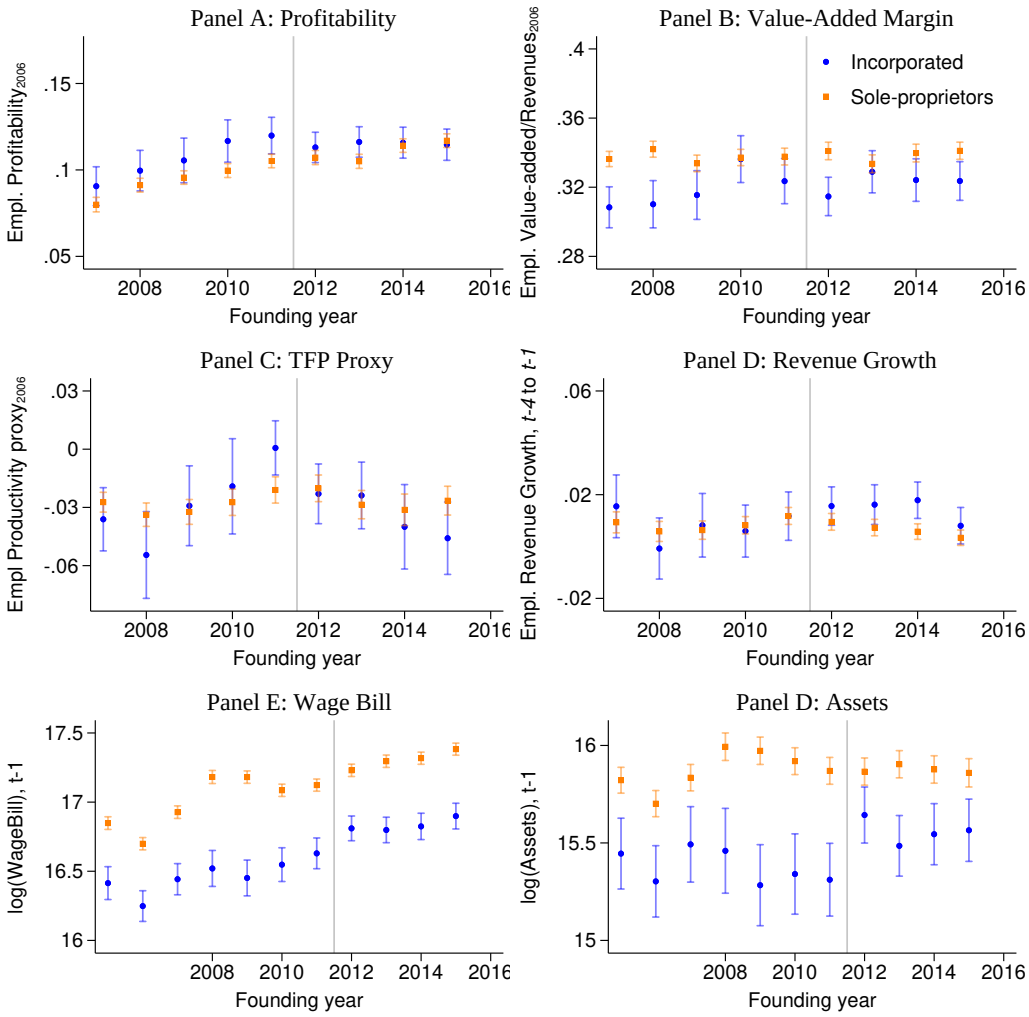
Notes: All panels condition on firms created by individuals who were sole-proprietors but otherwise not entrepreneurs. Standard errors underlying the 95% confidence bands are clustered at the person (entrepreneur) level.

Figure OA.24: Event Study of Entrepreneurs' Comprehensive Tax Rates Contrasting Pre and Post-reform Entrants



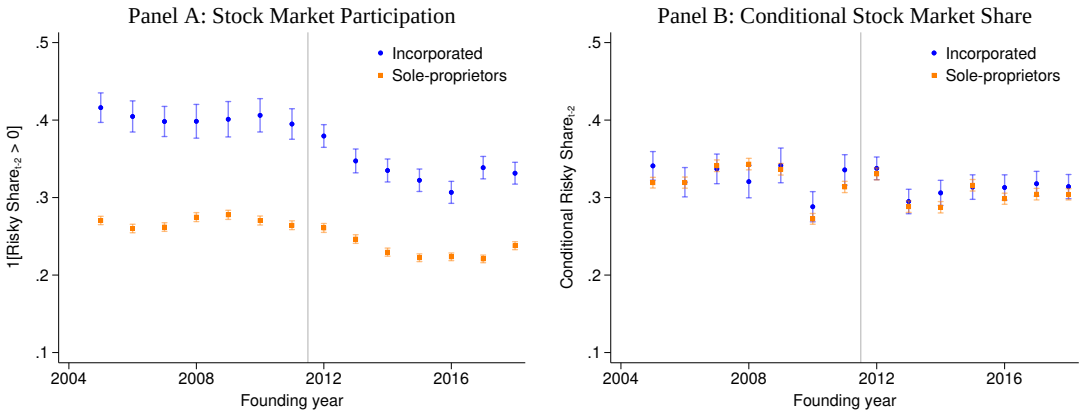
Notes: This figure provides comprehensive average tax rate (ATR) dynamics around the time of entry into incorporated entrepreneurship. The comprehensive ATR is the ratio of personal income and wealth taxes plus corporate taxes allocated via ownership links to comprehensive income. The blue circles consider pre-reform (2011) entrants and the green squares consider post-reform (2012) entrants. Point estimates stem from regressing comprehensive income on event-time (years since entry) fixed effects interacted with entry-year fixed effects. We then provide the estimated event-time fixed effects for the two different entry years (2011, 2011).

Figure OA.25: Characteristics of Entrants' Prior Employers



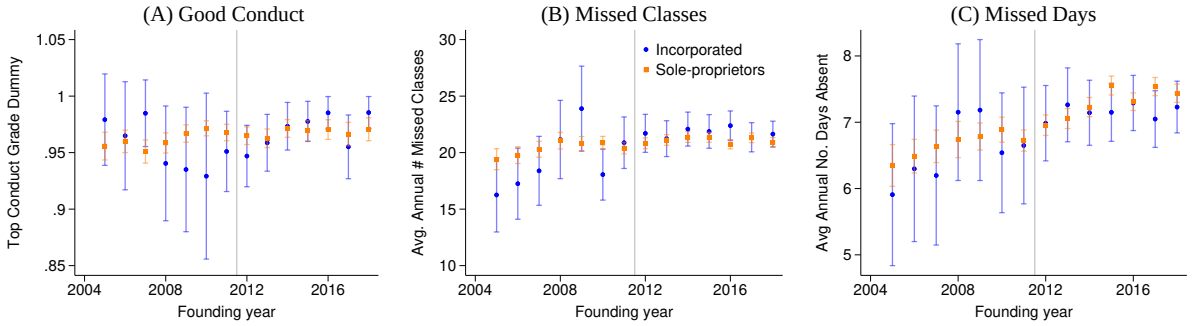
Notes: This figure plots the characteristics of new entrants' ex-ante employers. Panel A considers Profitability (operating income divided by assets). Panel B considers the value-added margin (operating income plus wage bill divided by revenues. Panel C considers the reduced-form TFP proxy described in Appendix D.1. Panel D considers revenue growth from $t-4$ to $t-1$. Panel E considers the log total wage bill. Panel F considers log total book assets. These characteristics are all assigned using the main (highest-paying) employer of the entrepreneur as of the year prior to entry $(t-1)$. Profitability, the value-added margin, and revenue growth rates are all measured (at the firm level) at the start of the sample in 2006.

Figure OA.26: Portfolio Allocation of Pre- and Post-reform Entrepreneurs



Notes: This figure considers the portfolio allocation of entrepreneurs. We use the same approach as in Figure 4 for different left-hand-side variables. Panel A considers stock market participation. That is, whether an individual owns listed stocks or mutual funds. Panel B considers the conditional stock market share: the ratio of listed stocks plus mutual fund holdings divided by listed stocks, mutual fund holdings, deposits, and bond holdings, which is only defined for those who participate in the stock market. For both Panels A and B we measure the outcome variable two years prior to the founding date.

Figure OA.27: Behavioral Differences — High School Comportment and Absenteeism, including Missed Days



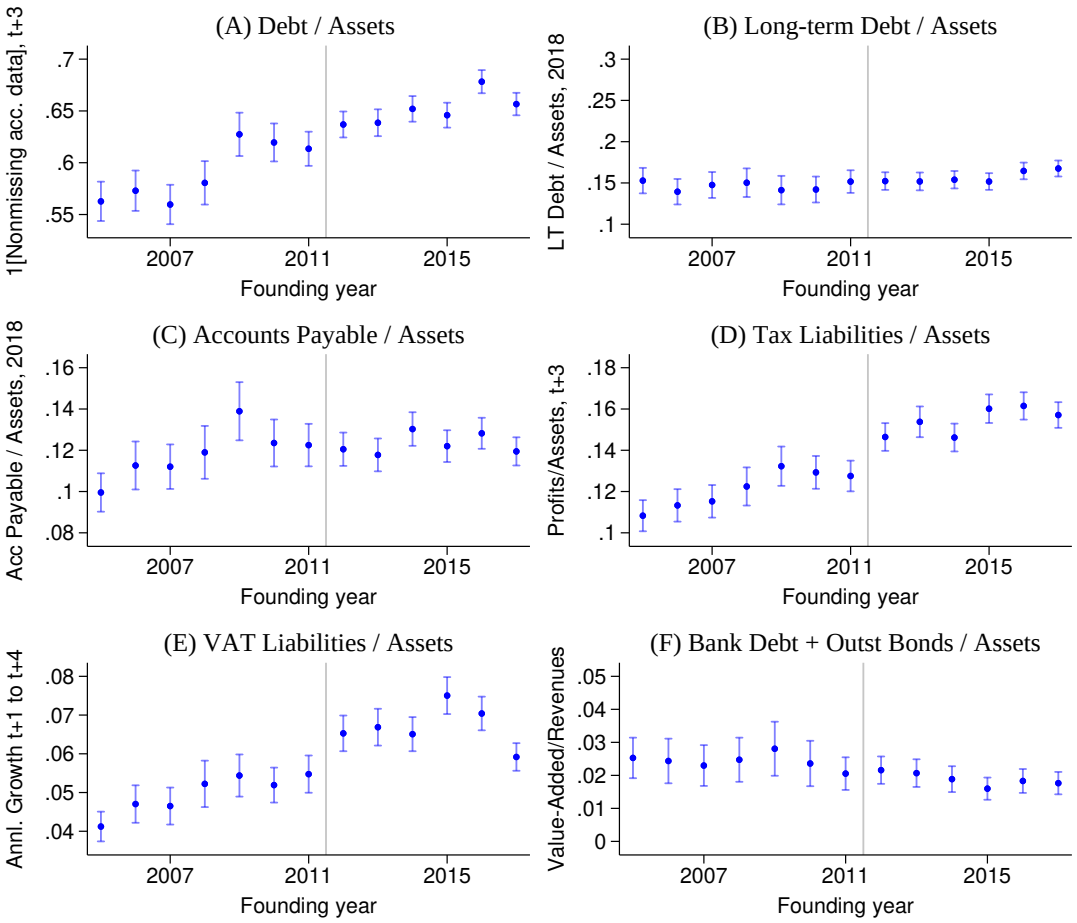
Notes: This figure considers high school comportment (conduct) grades and absenteeism for the subset of entrepreneurs who received a high school diploma during 2001–2005 (Panel A) and 2001–2010 (Panels B and C). We use the same approach as in Figure 4 for different left-hand-side variables. Panel A considers an indicator variable for whether the entrepreneur received the top comportment grade out of three possible grades. Panel B considers the average annual number of missed classes. Panel C considers the average annual number of missed days.

Table OA.1: Predictors of Firm Outcomes

Notes: This table provides the regression coefficients from regressing profitability, value-added margin, and revenues (in MNOK) on different individual characteristics. Sample sizes vary with the coverage of the right-hand-side variables. In columns (3), (6), and (9), where personal income in 2006 is a left-hand-side variable, the sample is restricted to observations after 2006. All regressions include year fixed effects and standard errors are clustered at the person (entrepreneur) level. Stars indicate significance at the 10%, 5%, and 1% levels.

	Profitability			VA Margin			Revenues		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Good Conduct Grade	0.0354**			0.0521*			-0.2373		
	(0.0169)			(0.0281)			(0.5135)		
Missed Classes		-0.0012***			-0.0011***			-0.0073**	
		(0.0002)			(0.0002)			(0.0035)	
Missed Days		-0.0009*			-0.0013**			0.0068	
		(0.0005)			(0.0006)			(0.0091)	
College			0.0040***			0.0409***			-1.4371***
			(0.0010)			(0.0017)			(0.0326)
$\log(\text{income}_{2006})$			0.0217***			0.0279***			0.8210***
			(0.0006)			(0.0010)			(0.0181)
Age			0.0002***			-0.0000			-0.0377***
			(0.0000)			(0.0001)			(0.0013)
N	23929	47092	1475386	18829	37288	1194363	24013	47358	1479768

Figure OA.28: Leverage



Notes: This figure considers the different leverage ratios measured in 2018. Panel A considers total book leverage: the the ratio of total debt (liabilities) to book assets. Panel B includes only long-term dent in the denominator. Panel C includes only accounts payable (a short-term liability), Panel D includes only tax liabilities (VAT, corporate income tax, payroll tax, other taxes and fees to local or central government), and Panel D only includes VAT liabilities. Finally, Panel F includes only "credit" in the denominator: short and long-term outstanding bonds or convertible loans, revolving credit, and debt to financial institutions. All ratios are censored to lie in [0,1].

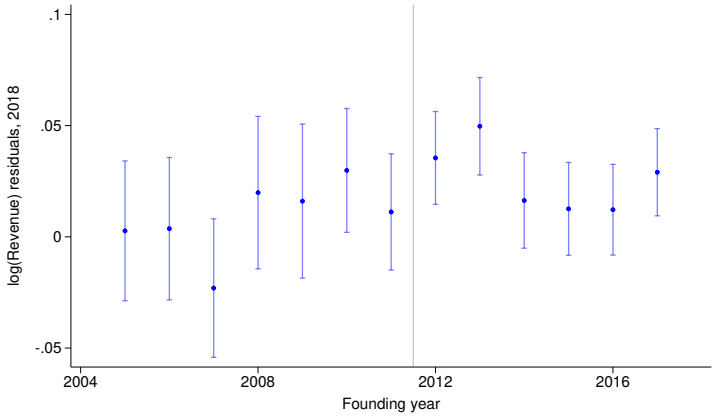
D.1 Alternative productivity measure

Following Lichtenberg and Siegel (1990), Bertrand and Mullainathan (2003), and Giroud and Mueller (2015), we use the residuals from regressions of log revenues on log inputs as a proxy for productivity. More formally, for each year and four-digit NACE industry, we estimate

$$\begin{aligned} \log(\text{Revenues}_{f,t}) &= \beta_0 + \beta_1 \log(\text{Assets}_{f,t}) \\ &+ \beta_2 \log(\text{Wage bill}_{f,t}) \\ &+ \beta_3 \log(\text{Operating costs minus payroll tax, depr., and write-downs}_{f,t}) + \varepsilon_{f,t}, \end{aligned} \tag{22}$$

and use the estimated $\hat{\varepsilon}_{f,2018}$ as our productivity measure. To allow for zero-wage-bill firms, we shift the log-argument by an inflation-adjusted NOK 10,000.[31] All operating cost components are truncated below at zero. We residualize the productivity measure at the 1st and 99th percentile of the 2018 distribution. Note that the year fixed effects in the regression above does not produce a bias in favor of finding no differences in productivity because we consider revenue residuals as of 2018 and compare firms based on their incorporation year (not the year in which productivity is measured). Figure OA.29 reports our findings on how this proxy for productivity in 2018 varies with the year of incorporation.

Figure OA.29: Firms' Ex-post Outcomes: Productivity Measured as a log(Revenue) Residual



Notes: This figure considers the 2018 residuals from a regression of log revenues on the log of input factors as the dependent variable. See Appendix D.1 for details on constructing the productivity measure and the main- text and Figure 3 for further details on methodology.

D.2 ACF Production Function Estimation

Defining R, K, L, M. Revenue R is firm non-financial revenues (P3000, P31000, P3200, P3700, plus P3900, from the firm tax returns). Intermediates, M, consists of COGS (P4005), subcontracting (P4500), and energy (P6200). Labor, L, consists of wage costs (P5000), payroll taxes (P5400), pension costs (P5420), and other personell costs (P5900).

The book capital stock, K^{book}, includes fixed assets: structures and fittings (P1105, P1115, P1117, P1120, P1130), vehicles (P1205, P1221, P1225, P1239), office machinery (P1280), other fixed assets (P1290), and capitalized lease costs. Lease costs include office/real-estate rent costs (P6300) and rent of machinery and other equipment (P6400). We capitalize by multiplying min(lease costs, nominal revenues) by 7.5. This multiplier is in the mid range of financial industry practice.[32] Investment is the change in K^{book} plus depreciation (P6000) and writedowns (P6050).

[31] Inflation adjustment assumes a constant rate of inflation of 2%.

[32] Moody's uses multiples ranging from 5 to 10: https://www.moodys.com/sites/products/ProductAttachments/EMEA%20Financial%20Statement%20Adjustments%20and%20ratios.pdf

Beginning of period capital. We use the standard beginning-of-period capital convention and thus lag (by one year) capital (K^{book}) and investment (I) variables. Hence, $K_{i,t}^{book}$ to the book value of capital (defined as above) at the end of year $t-1$.

Deflators. We next deflate all variables. We compute industry-level deflators and depreciation rates using data from Statistics Norway's national accounts tables. We use A–U "main industry" decomposition (e.g.: Agriculture; Manufacturing; Information and Communication) as this is the most granular decomposition available for all the statistics tables we use. To compute output (R) and intermediates (M) deflators, we use Table 09170. For labor costs (L), we use index of total labor costs from Table 07251. For capital (K, I) we use gross fixed capital formation from Table 11189. To calculate depreciation rates, we use the ratio of consumption of fixed capital to fixed assets in Table 09181. We then average the depreciation rate over the 2000–2020 period and use the geometric average depreciation rate when constructing our deflated (real) variables.

Perpetual Inventory Method (PIM) for the capital stock.

$$K_{i,t} \equiv K_t^{book}, \text{ for } t = t_0$$

$$K_{i,t} \equiv K_{i,t-1} * (1-\delta) + I_t, \text{ for } t > t_0,$$

where t_0 is the first year the firm is observed with nonmissing K^{book}, and δ is the (geometric-average) depreciation rate calculated from the national accounts.

Logs and zeros. For all accounting variables mentioned, we censor below at zero. When taking logs of some variable, $X = K, L, M$, we shift the argument by 1. Hence, e.g., $\log(K) \equiv \log(1+K)$. We later account for this log-shifting when computing the inferred elasticities (described toward the end of this section).

ACF methodology. We use the Ackerberg, Caves, and Frazer (2015) approach, where productivity and input elasticities are allowed to vary by incorporation year. That is, in all three estimation stages, all (log) input variables are interacted with incorporation year indicator variables. As a result, the productivity parameter, ω, is estimated at the incorporation year level as well. The center of the analysis is the assumed (revenue-) production function,

$$R_{i,t} = e^{\omega_{i,t}+\varepsilon_{i,t}} K_{i,t}^{\beta_{k,s}} L_{i,t}^{\beta_{l,s}} M_{i,t}^{\beta_{m,s}}, \tag{23}$$

where $R_{i,t}$, $K_{i,t}$, $L_{i,t}$, and $M_{i,t}$ are revenues, productive capital, labor costs, and intermediate input costs for firm i at time t. The productivity parameter, $\omega_{i,t}$, and the input elasticities are allowed to vary by firm i's incorporation-year cohort, s. $\varepsilon_{i,t}$ is measurement error or an unanticipated productivity shock.

First-stage, control function estimation. In the first stage, the following is estimated via

OLS:

$$\log(R_{i,t}) = \sum_{s=2009}^{2014} \gamma_s^{FS\prime} \mathbb{X}_{i,t} \cdot \mathbb{1}(s_i = s) + \gamma^{age} \text{FirmAge}_{i,t} + \gamma_t^{year} + \epsilon_{i,t}, \tag{24}$$

where $\mathbb{X}_{i,t}$ is a vector containing $\log(K_{i,t})$, $\log(K_{i,t})^2$, $\log(K_{i,t})^3$, $\log(M_{i,t})$, $\log(M_{i,t})^2$, $\log(M_{i,t})^3$, $\log(M_{i,t})\log(K_{i,t})$, $\log(M_{i,t})^2\log(K_{i,t})$, and $\log(M_{i,t})\log(K_{i,t})^2$; γ_s^{FS} is the associated vector of coefficients; and $\mathbb{1}(s_i = s)$ is an indicator for firm i being founded in year s. The predicted values from this regression are stored as

$$\hat{\phi}_{i,t} = \widehat{\log(R_{i,t})}, \tag{25}$$

which serves as a nonparametric proxy for $\beta_{k,s}\log(K_{i,t}) + \beta_{l,s}\log(L_{i,t}) + \beta_{m,s}\log(M_{i,t}) + \omega_{i,t}$ in subsequent stages.

Second-stage, GMM for labor coefficients. Following ACF, labor is assumed to be chosen after capital but potentially simultaneously with materials. Six labor coefficients $\{\beta_{l,2009}, \beta_{l,2010}, ..., \beta_{l,2014}\}$ are identified using GMM. For each candidate vector of labor coefficients $\boldsymbol{\beta}_l$, the following steps are performed:

1. Compute productivity for each firm-year observation:

$$\omega_{i,t}(\boldsymbol{\beta}_l) = \hat{\phi}_{i,t} - \sum_{s=2009}^{2014} \beta_{l,s}\log(L_{i,t}) \cdot \mathbb{1}(s_i = s) \tag{26}$$

2. Similarly compute lagged productivity $\omega_{i,t-1}(\boldsymbol{\beta}_l)$ using $\hat{\phi}_{i,t-1}$ and $\log(L_{i,t-1})$.

3. Estimate the productivity evolution process by regressing:

$$\omega_{i,t} = \alpha_0 + \alpha_1\omega_{i,t-1} + \alpha_2\omega_{i,t-1}^2 + \alpha_3\omega_{i,t-1}^3 + \xi_{i,t} \tag{27}$$

4. Compute the innovation $\hat{\xi}_{i,t}(\boldsymbol{\beta}_l) = \omega_{i,t} - \hat{\omega}_{i,t}$ where $\hat{\omega}_{i,t}$ is the predicted value from step 3.

The GMM objective function minimizes:

$$Q(\boldsymbol{\beta}_l) = \left[\frac{1}{N}\sum_{i,t} \hat{\xi}_{i,t}(\boldsymbol{\beta}_l) \cdot Z_{i,t}\right]' \left[\frac{1}{N}\sum_{i,t} \hat{\xi}_{i,t}(\boldsymbol{\beta}_l) \cdot Z_{i,t}\right], \tag{28}$$

where instruments $Z_{i,t}$ include $\{\log(K_{i,t-1}), \log(L_{i,t-1}), \log(M_{i,t-1})\} \times \{\mathbb{1}(s_i = 2009), ..., \mathbb{1}(s_i = 2014)\}$ (18 instruments total). Starting values are set to 0.65 for all six labor coefficients.

Third-stage, recovering capital and materials coefficients. Given the labor coefficients from the

second stage, productivity is computed as

$$\hat{\omega}_{i,t} = \hat{\phi}_{i,t} - \sum_{s=2009}^{2014} \hat{\beta}_{l,s} \log(L_{i,t}) \cdot \mathbb{1}(s_i = s). \tag{29}$$

Capital and materials coefficients are then recovered via the regression

$$\hat{\phi}_{i,t} = \sum_{s=2009}^{2014} [\beta_{k,s} \log(K_{i,t}) + \beta_{m,s} \log(M_{i,t}) + \rho_s \hat{\omega}_{i,t}] \cdot \mathbb{1}(s_i = s) + \nu_{i,t}, \tag{30}$$

where ρ_s is the persistence parameter for cohort s.

Inference. Standard errors are obtained via clustered bootstrap at the firm level with 200 replications. This accounts for both the multi-stage nature of the estimation and the within-firm correlation of errors.

Sample restrictions. For the estimation, we consider firm-year observations for which the firm is at least one year old; the entrepreneur was not an entrepreneur in the year prior to incorporation; and the firm does not have a holding-company-related industry code. We focus on incorporation cohorts 2009–2014.

Accounting for log-shifting and zero-capital firms. The log arguments are shifted by NOK 1 for all inputs. Hence, we scale the estimated elasticities from the ACF procedure by (multiplying it with) $\mathbb{E}\left[\frac{X}{1+X}\right]$ for $X = K, L, M$, and report the scaled coefficients in the figures and tables (as well as the scaling factors). This adjustment comes from the fact that the elasticity of some variable a with respect to some other variable b is $b/(1+b)$ times the elasticity of a with respect to $1+b$. This transformation matters quantitatively in our setting due to the presence of many zero-(PPE)-capital firms. With many zero capital firms $\mathbb{E}\left[\frac{X}{1+X}\right] \approx 1 - \mathbb{P}[K = 0]$. We are thus asserting that $K_i = 0$ implies that $\beta_k^i = 0$. This is a natural consequence of the structure assumed by the estimation framework. Under Cobb-Douglas production technology, there cannot exist firms with $\beta_k > 0$, $K = 0$, and at the same $R > 0$. Hence, the only way for K to be equal to zero is if $\beta_k = 0$.

Table OA.2: Production Function Estimates

Notes: The first three rows provide the adjusted estimated input elasticities, adjusted for log shifting. The fourth row provides the returns to scale, which is the sum of the input elasticities. Next, we report the in-sample cohort-specific average $\omega_{i,t}$. Below, we report scaling factors used to adjust the input elasticities. The final part of the table provides pre-post differences (2012 minus 2011) and their standard errors. Standard errors come from a 200-repetition firm-clustered bootstrap procedure. See Appendix D.2 for details on the estimation methodology.

	Incorporation year cohorts					
	2009	2010	2011	2012	2013	2014
$\beta_{k,s}$	0.222	0.235	0.230	0.192	0.195	0.203
	(0.015)	(0.014)	(0.013)	(0.011)	(0.011)	(0.011)
$\beta_{k,s}$	0.355	0.355	0.348	0.322	0.324	0.329
	(0.010)	(0.010)	(0.010)	(0.009)	(0.010)	(0.011)
$\beta_{m,s}$	0.100	0.077	0.090	0.093	0.087	0.104
	(0.011)	(0.009)	(0.008)	(0.007)	(0.007)	(0.008)
$RTS_s = \sum_{x=k,l,m} \beta_{x,s}$	0.677	0.667	0.668	0.606	0.607	0.637
	(0.026)	(0.024)	(0.025)	(0.022)	(0.024)	(0.027)
$\mathbb{E}[\omega]$	5.328	5.429	5.274	5.826	5.766	5.313
	(0.352)	(0.333)	(0.336)	(0.288)	(0.324)	(0.356)
$\mathbb{E}[K/(1+K)]$	0.871	0.872	0.852	0.788	0.776	0.769
	(0.007)	(0.007)	(0.007)	(0.006)	(0.007)	(0.007)
$\mathbb{E}[L/(1+L)]$	0.898	0.897	0.873	0.824	0.820	0.813
	(0.007)	(0.007)	(0.006)	(0.006)	(0.006)	(0.007)
$\mathbb{E}[M/(1+M)]$	0.832	0.811	0.801	0.767	0.758	0.769
	(0.009)	(0.010)	(0.008)	(0.007)	(0.007)	(0.007)
Pre-post Differences						
$\beta_{k,2012} - \beta_{k,2011}$	-0.038					
	(0.014)					
$\beta_{k,2012} - \beta_{k,2011}$	-0.026					
	(0.007)					
$\beta_{m,2012} - \beta_{m,2011}$	0.002					
	(0.010)					
$RTS_{2012} - RTS_{2011}$	-0.062					
	(0.021)					
$\omega_{2012} - \omega_{2011}$	0.552					
	(0.276)					

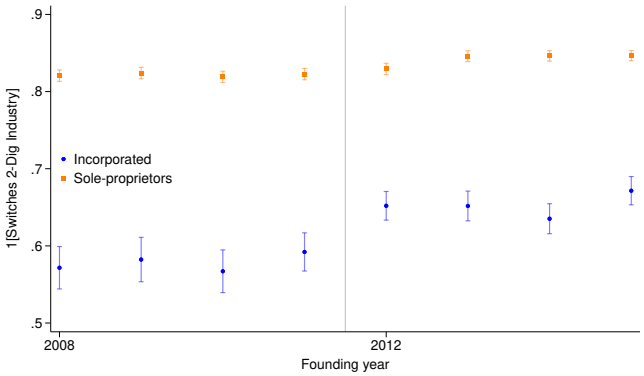
E Industry-to-industry flows

We define industry switching to occur when the new business is registered with a different NACE industry code than the entrepreneur's prior $(t-1)$ employer. Figures OA.30 and OA.31 consider the propensity to switch two and three-digit NACE codes, respectively.

These exercises reveal quite high baseline switch rates of 65% to 70%. To validate the data, we therefore tabulate (2-digit NACE) industry-industry flows in Table OA.3. The modal entrant in 2012 enters in the same industry as their employer, and a large share of the switching is to closely related industries. One example is from "Construction of buildings" to "specialized construction activities." Hence, the high baseline switch rates do not imply that most entrepreneurs create

businesses unrelated to their prior occupation.

Figure OA.30: Propensity to Switch Industries:
Whether Business is in Same Industry as Prior Employer



Notes: This figure considers the the propensity to switch industries. We consider 2-digit NACE codes, and see if the industry code of the employer at $t-1$ differs from the industry code of the business (either the incorporated firm or the sole-proprietorship). We only consider entry events after 2008 due to the implementation of a new NACE code system in 2008. We only consider entry events prior to 2015 due to the switch to a new employer-employee reporting system in 2014.

Table OA.3: Industry-to-Industry flows

Notes: We look at the number of entrants into given 2-digit NACE industry (rows) based on the 2-digit NACE code of their 2011 employer. We consider entry as of 2012. If there are < 10 entrants in a NACE-NACE cell, we report and count zero entries (only) or the purpose of this tabulation. We only consider source (rows) industries with at least 500 entrants.

	Constr. Bldngs	Spec. Cnstr	Wholes Trade	Retail Trade	Food, Bev	Empl Activ	Tot
Crop and animal production, hunting	58	77	36	35	0	13	219
Forestry and logging	22	26	13	0	0	0	61
Wearing apparel	0	0	0	11	0	0	11
Repair, installation of machinery	0	0	22	13	0	0	35
Construction of buildings	**337**	73	23	18	0	45	496
Specialised construction activities	162	**462**	55	46	0	67	792
Motor vehicles, trade and repair	0	11	21	22	12	0	66
Wholesale trade	0	13	**101**	50	15	0	179
Retail trade	13	35	77	**350**	31	44	550
Land transport, pipeline transport	0	20	19	30	0	31	100
Postal and courier activities	0	0	0	22	10	10	42
Food and beverage service act.	0	0	14	55	**109**	0	178
Motion picture, TV, music prod.	0	0	0	60	11	0	71
Computer programming, consultancy	0	17	46	76	0	44	183
Information service activities	0	0	0	11	0	0	11
Head offices, management consult.	0	0	50	45	0	25	120
Architecture, engineering act.	42	31	27	13	0	29	142
Advertising and market research	0	0	16	41	0	0	57
Other prof., scientific, techn. act.	13	20	58	204	47	54	396
Rental and leasing activities	0	14	12	0	0	0	26
Employment activities	0	0	0	0	0	**19**	19
Travel agency, tour operators	0	0	0	13	0	0	13
Buildings, landscape service act.	13	47	25	40	19	22	166
Business support activities	0	0	0	24	0	10	34
Education	0	16	40	123	28	28	235
Human health activities	0	0	20	60	16	17	113
Social work without accommodation	0	0	0	13	0	0	13
Arts and entertainment activities	12	54	46	252	79	49	492
Repair, personal, household goods	0	11	11	14	0	0	36
Other personal service activities	0	0	26	109	34	39	208
Total	672	927	758	1750	411	546	5064

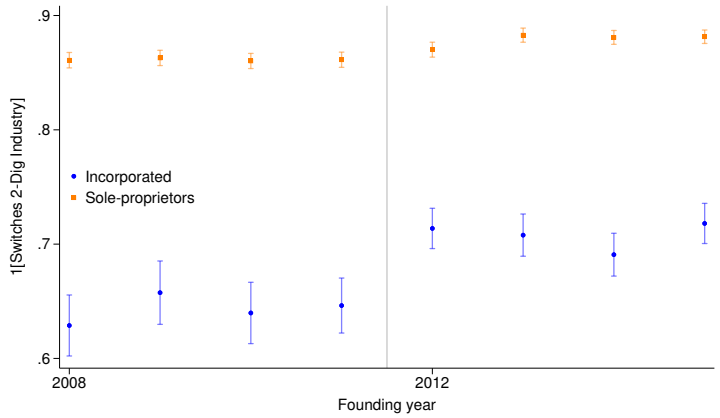
E.1 Balance Sheets at incorporation

We find that post-reform firms are considerably smaller than pre-reform firms in terms of assets. Table OA.4 decomposes this effect by considering different types of assets as well as liabilities in the year of incorporation. Note that $\widehat{\Delta Y}$, in this setting, will also contain differences driven by the fact that always-entrepreneurs (type A) may respond to the reform by choosing a more levered capital structure.[33] To the extent that this occurs (particularly for the liability side of the balance sheet), ΔY does not identify pure differences between always-entrepreneurs and marginal entrepreneurs. With this caveat in mind, we focus our discussion on the simple pre-post reform difference.

Panel A considers the asset side of the balance sheet. Pre and post-reform firms differ on all

[33] All post-reform entrants may now choose to inject less equity at incorporation. If we attribute this entire effect to the new type of entrants, this will lead to an upward bias on the point estimates for the debt components and a negative bias for equity.

Figure OA.31: Propensity to Switch 3-Digit NACE Industries: Whether Business is in Same Industry as Prior Employer



Notes: This figure considers the the propensity to switch industries. We consider 3-digit NACE codes, and see if the industry code of the employer at $t-1$ differs from the industry code of the business (either the incorporated firm or the sole-proprietorship). We only consider entry events after 2008 due to the implementation of a new NACE code system in 2008. We only consider entry events prior to 2015 due to the switch to a new employer-employee reporting system in 2014.

types of assets. The largest difference occurs for property, plant, equipment, and vehicles, which explains 20% of the total difference.

Panel B considers the liability side of the balance sheet. Post-reform entrants have $18,000 (NOK 110,000) less in paid in capital (PIC), with the statutory change of $9,000 being included in the 95% confidence interval. We also find that post-reform entrants have about $30,000 less in financial debt (banks, bonds, etc). Dividing the difference in financial debt by the difference in PIC gives a sizable multiplier of 1.7.[34]

Column (8) of Panel B provides differences in debt to affiliated parties (such as firms in the same conglomerate or equity holders). Hence, it does not seem that the reduction in PIC is driven by owners financing their firms with more debt instead of equity.

[34]Note that this multiplier is likely downward biased because many "always-entrepreneurs" may have wanted to choose a higher debt to equity ratio before 2012 but were only able to do so after the equity requirement was lowered in 2012.

Table OA.4: The Balance Sheets of Marginal Entrepreneurs at incorporation

Notes: This table provides estimates of how marginal entrepreneurs differ from average entrepreneurs:
The first row contains the estimated coefficients from equation (6), the second row is the growth rate in incorporations in the sample where the outcome variable is observed, the third row provides the estimated ΔY_h, which is the main estimate. All variables are measured at the end of the year of incorporation. Intangible assets consists of R&D assets, patents, goodwill and similar. PPEV is plant, property, equipment, and vehicles. REI is real-estate investments, Subsid is equity and debt in subsidiaries or affiliated companies. FA Secur is unlisted and listed securities. AR is accounts payable. CA Secur consists of listed securities. Cash is cash and bank deposits. On the liability side, taxes consist of unpaid VAT and income tax liabilities. Bank/bonds consist of bonds, debt to banks and other traded debt securities. Affil consists of debt to affiliated or parent companies. We address outliers by first winsorizing total book assets (A) at the 95% level, an individual balance sheet component (C) is then set to [Winsorized C] $\equiv$ max(min(C/A,1),0)*[Winsorized A]. Hence, we primarily winsorize the size of the firms, keeping the decomposition relatively impact except for odd cases (e.g., negative equity or debt exceeding book assets). Standard errors are obtained from a 200-repetition bootstrap procedure.

Panel A: Assets in year of incorporation, Million NOK

		Fixed Assets						Current Assets		
	Total	Intang	PPEV	REI	Subsid	Secur	Other	AR	Secur	Cash
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\mathbb{1}[s \geq 2012]$	-0.60***	-0.03***	-0.12***	-0.06***	-0.06**	-0.05***	-0.02	-0.10***	0.00	-0.09***
	(0.08)	(0.01)	(0.04)	(0.02)	(0.03)	(0.02)	(0.01)	(0.03)	(0.01)	(0.03)
$\widehat{\Delta Y}$	-1.41***	-0.08***	-0.28***	-0.14***	-0.13**	-0.13***	-0.04	-0.25***	0.01	-0.20***
	(0.20)	(0.03)	(0.09)	(0.05)	(0.06)	(0.04)	(0.03)	(0.07)	(0.03)	(0.06)
N	20968	20968	20968	20968	20968	20968	20968	20968	20968	20968

Panel B: Liabilities in year of incorporation, Million NOK

		Equity		Debt					
	Total	Paid-in	Retained	Taxes	Banks/Bonds	Suppliers	Wages	Affil	Other
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\mathbb{1}[s \geq 2012]$	-0.60***	-0.11***	-0.04	-0.03***	-0.18***	-0.06***	-0.01**	-0.06***	-0.12***
	(0.08)	(0.03)	(0.03)	(0.01)	(0.00)	(0.02)	(0.03)	(0.02)	(0.03)
$\widehat{\Delta Y}$	-1.41***	-0.27***	-0.08	-0.06***	-0.43***	-0.15***	-0.02**	-0.15***	-0.29***
	(0.20)	(0.06)	(0.06)	(0.02)	(0.08)	(0.06)	(0.01)	(0.05)	(0.08)
N	20968	20968	20968	20968	20968	20968	20968	20968	20968