Capital Requirements and Entry into Entrepreneurship*

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Abstract

We study how regulatory capital requirements for incorporating a business affect entry into entrepreneurship. We show that a Norwegian reform that lowered the paid-in-capital requirement from \$17,000 to \$5,000 roughly doubles the number of incorporations, even those done by ex-ante non-entrepreneurs, indicating that capital requirements pose a substantial barrier to entry. We further examine whether the large increase in entry into entrepreneurship is subject to a quantity-quality tradeoff. Exploiting administrative data that allow us to link detailed data on firms and entrepreneurs through ownership and executive registers, we contrast the characteristics of pre- and post-reform entrants. We find no evidence new entrants differ in terms of age, prior income, or educational achievement. Considering firm-level outcomes, we find that post-reform entrants have considerably less assets and lower revenues but are similar in terms of survival, profitability, growth rates, and proxies for productivity. Hence, while the reform doubled the quantity of new entrepreneurs, it did not lower their quality. Interpreted through the lens of a simple theoretical framework, our findings are most consistent with the reform enabling the creation of optimally small firms. We find no evidence that post-reform entrants had lower liquidity, suggesting a limited role for alleviated financial constraints being the main driver of the increase in entry.

Keywords: Entrepreneurship, business regulation, entrepreneurial ability, selection, incorporation
JEL codes: G50, G38, G31, J24

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1 Introduction

Entrepreneurship is considered to drive economic growth by both policy makers and economists. As a consequence, policies aimed at facilitating more entrepreneurial activity are ubiquitous across the developed world. Governments particularly strive to lessen the financial hurdles faced by potential entrepreneurs in order to facilitate more economic growth. However, there is looming uncertainty regarding whether the *marginal* entrepreneurial entries caused by these policies add any economic value due to a quality-quantity tradeoff (Schoar 2010, Hurst and Pugsley 2011, Guzman and Stern 2020, Bonelli, Liebersohn, and Lyonnet 2021).

We study the effects of a 2012 reform the minimum amount of equity required to incorporate a limited liability company in Norway. Startup capital requirements are common across the world. As of 2020, one third of World Bank member countries have legal requirements for the minimum capital at incorporation (World Bank, 2020), ranging from €2,500 in Lithuania to €10,000 in Italy, and €35,000 in Austria. While most governments recognize that capital requirements pose a barrier to entrepreneurship, some policymakers argue that capital requirements beneficially screen out financially unviable ventures and serve as a buffer protecting stakeholders in the event of bankruptcy. Prior to 2012, all Norwegian firms needed to incorporate with at least $17,000 of equity. To encourage more business creation, the government lowered this requirement to $5,000 in 2012. We find that this reform had a large effect on the number of incorporations. In the years following the capital requirement reduction, the annual number of newly incorporated firms is twice as high as in the pre-reform years. This large effect on business creation is not driven by expanding conglomerates. Incorporation rates double even among ex-ante non-entrepreneurs. We further find no evidence that new entrants substitute away from unincorporated entrepreneurship. These findings indicate that there was a substantial mass of "marginal" entrepreneurs sensitive to moderate reductions in financial barriers to incorporated entrepreneurship.

We proceed by studying whether the large increase in entrepreneurial entry is subject to a quality-quantity tradeoff. One challenge in studying how the reform affected selection into entrepreneurship is that firm-level observables, such as profitability, may be affected through other mechanisms. For example, reducing the equity requirement may allow some firms to optimally choose higher leverage and perform better regardless of whether the composition of entrepreneurs changed. Our solution is to exploit detailed administrative data that allow us to link new firms with individual entrepreneurs through both shareholder and employment registers. We can thus study selection into entrepreneurship in terms of the *ex-ante* characteristics of the entrepreneur. Our data contain information on past incomes and wealth from tax returns, educational attainment, and information on past employment.

We first document that there is no difference in the ex-ante liquidity of pre and post-reform

entrants. This result indicates a limited role for liquidity constraints. If the large effect of the reform on entry were driven by low-liquidity entrepreneurs now being able to enter, we should have found that post-reform entrants have lower average ex-ante liquidity. We further find no evidence that relaxing capital requirements selects on ex-ante characteristics such as past income or education. We also find no evidence that new entrepreneurs are younger. This result is consistent with the reform causing new entries rather than accelerating the entries of future entrepreneurs.

We next explore firm-level outcomes. The key finding is that post-reform entrants are considerably smaller. Post-reform entrants have about $100,000 less in total book assets at incorporation. This difference is driven by nearly all asset classes, including plant, property, and equipment as well as cash and accounts receivable. On the liability side, post-reform entrants do not only have less paid-in-capital, they also borrow less. Each $1 of lower paid-in-capital is associated with $1.7 less financing from banks or bondholders. Consistent with sharp differences in terms of asset size, post-reform entrants have considerably lower revenues. However, the *growth rates* of pre- and post-reform entrants are virtually identical. While post-reform entrants start out smaller, they do not grow their revenues or balance sheets at lower rates than pre-reform entrants. The finding that post-reform entrants differ in size but not growth rates is consistent with strong path dependence for startups (Hvide and Meling, 2023).

An important rationale behind capital requirements is to protect stakeholders, such as workers and creditors, from financially unviable firms. However, we document that post-reform entrants were no more likely to fail or be subject to debt forgiveness than pre-reform firms. We further find no evidence that pre- and post-reform firms differ in terms of profitability or different proxies for productivity. However, if post-reform entrants are sourced from the employee pool of more productive firms than pre-reform entrants, labor misallocation may be a welfare cost of the reform. We address this by contrasting the ex-ante characteristics of entrants' prior employers. This reveals no discernible differences in terms of profitability, value-added margins, proxies for total factor productivity, or growth rates.

We finally consider whether post-reform entrants engage in less financially rewarding entrepreneurship from the perspective of the entrepreneur. We consider the change in comprehensive income in the six year period around entry into entrepreneurship. Comprehensive income includes wage and salary income, dividends, and retained earnings in private firms that are proportioned by ownership shares. We document that the average entrepreneur experiences a positive change in income across all years, and there is no indication that post-reform entrants increase their incomes by less than pre-reform entrants.

In summary, our 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 this model, entrepreneurial profits are a concave function of capital and linear in ability. Entrepreneurs face liquidity constraints and only enter entrepreneurship if the payoff exceeds some outside option (from, e.g., continuing as an employee). We enrich the model by introducing a capital requirement and allowing for heterogeneity in the degree of production function concavity. Higher concavity implies that the business is less scalable, since the marginal return of an additional dollar of investment decreases more rapidly. Adding these features produces a model with two main channels through which lowering the equity requirement selects on entrepreneurial ability. First, by facilitating the entry of lower-liquidity entrepreneurs, we expect average ability to decrease if ability and liquidity are correlated. However, among low-liquidity entrepreneurs, only high-ability entrepreneurs are likely to satisfy the outside-option constraint (i.e., that becoming an entrepreneur dominates their outside option), creating a counteracting effect that increases average entrepreneurial ability. We call this channel the *liquidity channel*. Second, lowering the equity requirement selects on both ability and concavity through a *small-business channel*. Entrepreneurs who either have low ability or a very concave profit function are not able to satisfy the outside-option constraint if their capital amount is too large. These are entrepreneurs with an optimal capital amount well below the ex-ante capital requirement.

Interpreted through the lens of the model, our empirical results suggest that the *small-business channel* dominates in our setting. It primarily works by selecting "high-concavity" entrepreneurs who optimally start smaller firms but are not necessarily of lower ability. Thereby, "high-concavity" entrepreneurs are individuals who start businesses that cannot be as easily scaled and thus, are optimally small. More generally, our findings suggest that there is no quality-quantity trade-off in facilitating entrepreneurship through reducing capital requirements.

Literature. We contribute to a growing literature on business regulation and entrepreneurship (Djankov, La Porta, Lopez-de Silanes, and Shleifer 2002, Bertrand and Kramarz 2002, Klapper, Laeven, and Rajan 2006, Djankov 2006, Ciccone and Papaioannou 2007, Fisman and Allende 2010, Branstetter, Lima, Taylor, and Venâncio 2014, Kaplan, Piedra, and Seira 2011, Tazhitdinova 2020, Cui and Wei 2022, Barwick, Chen, Li, and Zhang 2022, Fang, Li, Wu, and Zhang 2023). While several papers document that entry regulation hampers business formation, there is no consensus on whether easing these regulations facilitate value-added entrepreneurship. While Djankov et al. (2002) argue that business regulation has negative economy-wide effects, Branstetter, Lima, Taylor, and Venâncio (2014) find that deregulating lowers the quality of new firms in terms of the founders' education levels and the firms' survival probabilities. Cui and Wei (2022) and Barwick et al. (2022), on the other hand, find that deregulation causes the entry of higher-productivity entrepreneurs. Closest to our paper are Cui and Wei (2022) and

Barwick et al. (2022) who exploit Chinese reforms that entirely or partially consisted of relaxing capital requirements for incorporating a firm. Our main contribution is to exploit detailed, third-party reported data on the entrepreneurs behind the incorporation that provides proxies for ability along several dimensions (e.g., education, age, and past incomes) along with data on on past entrepreneurial activities in income. Another central contribution (shared with Cui and Wei 2022) is to isolate the effects of a capital requirement reduction from other start-up friendly policies such as easier registration procedures. Further related to our work is Hombert, Schoar, Sraer, and Thesmar (2020) who find no reduction in proxies for entrepreneurial ability following a French reform that limited the downside risk to entrepreneurship. We view our findings as complementary in the sense that we study a reform that relaxes financial as opposed to risk-aversion barriers.

We further contribute to a large and growing literature on financial frictions and entrepreneurship (see, e.g., Herkenhoff, Phillips, and Cohen-Cole 2021, Hvide and Møen 2010, Fracassi, Garmaise, Kogan, and Natividad 2016, Cespedes, Huang, and Parra 2019, Andersen and Nielsen 2012, Adelino, Schoar, and Severino 2015, Ring 2023, Schmalz, Sraer, and Thesmar 2017, Hurst and Lusardi 2004, Kerr, Kerr, and Nanda 2015, Corradin and Popov 2015, Chodorow-Reich, Nenov, Santos, and Simsek 2023). In this literature, several papers present results at odds with whether financial frictions matter for entrepreneurship (see, e.g., Hurst and Lusardi 2004, Andersen and Nielsen 2012, Kerr, Kerr, and Nanda 2015, Bos, Breza, and Liberman 2018.) For example, Andersen and Nielsen (2012) find that sole-proprietors who enter entrepreneurship following a liquidity shock underperform. Our findings are not inconsistent with this result due to the potentially large difference between sole-proprietor entrepreneurs and incorporated entrepreneurs (see, e.g., Berglann et al. 2011, Levine and Rubinstein 2017, Bellon, Cookson, Gilje, and Heimer 2021). While several studies document that positive wealth shocks induce entrepreneurial entry, and often improve entrepreneurial outcomes conditional on entry (e.g., Schmalz, Sraer, and Thesmar 2017), these results do not allow us to draw inference on whether the marginal entrant is of high ability. These results could be consistent with lower-quality entrepreneurs entering due to reduced barriers and then, conditional on entry, being able to scale up their business more due to eased financing constraints.

Our paper proceeds as follows. Section 2 discusses the reform and the data. Section 3 provides the reduced-form results and Section 4 provides formal regression discontinuity design estimates on how the marginal entrepreneurs that entered following the reform differ from the existing entrepreneurs. Section 5 introduces a conceptual framework to rationalize our findings. Section 6 concludes.

2 Data and empirical setting

2.1 Institutional setting

Minimum capital requirements for incorporating firms are common across the developed world. Currently, one third of World Bank member countries specify a minimum amount of paid-in share capital that is required to incorporate a limited liability company. These requirements range from €1 in France, €3,000 in Spain, and €10,000 in Italy to €25,000 in Germany and €35,000 in Austria (DLAPiper, 2023).[1]

Since the first securities law in 1910, the Norwegian authorities require that a minimum amount of equity must be injected into any limited liability company upon incorporation.[2] The original purpose was to protect creditors' interests (GOV, 2011a). Between 1997 and 2011, the Norwegian equity requirement was NOK 100,000 ($17,000 using the 2012 exchange rate). This requirement was lowered to NOK 30,000 ($5,000) effective January 2012, and the change was formally proposed by the ministry of justice in September 2011 (GOV, 2011a). The government argued that the current requirement was unlikely to be effective in protecting creditors' interest and likely constituted a barrier to entry into sectors where limited liability is important. In addition, the government wished to offer competitive economic conditions relative to, e.g., the U.K. which did not have a capital requirement.[3]

To our knowledge, there are no other large changes to the economic conditions surrounding firm creation during 2012. The closest reform is the removal of an auditing requirement for small firms in 2011. To address the concern that it is this reform that drives our results, our initial analyses study entry rates at the quarterly level. We find a sharp increase exactly when the capital requirement was reduced (first quarter of 2012) but no noticeable increase during 2011 when small firms no longer needed to engage an auditor.[4]

2.2 Data

We draw on comprehensive Norwegian register data that allow us to link firm and entrepreneur characteristics. Data from the business registers ("Virksomhets- og foretaks register") provide a panel of firm characteristics such as the date when the unique organization number was assigned

[1] These requirements refer to incorporating standard limited liability companies. In some countries, similar or alternative corporate forms exist that have different requirements.

[2] 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 debt.

[3] 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 substantial increases in U.K. incorporation originating from high-capital-requirement countries.

[4] In 2007, the government announced the establishment of committee to evaluate whether the auditing requirement should be removed for small businesses (NOU, 2008). In June of 2008, the committee recommended removal. The law change was formally announced on December 17th, 2010 (GOV, 2011b), effective in 2011.

(i.e., when the firm was incorporated). Data from the role register ("Rolleregisteret") provide a panel of (de-identified) identifiers for a firm's proprietor, CEO, and board members. Using the stockholder register ("Aksjonærregisteret"), we see anonymized identifiers of all shareholders (both individuals and other firms) allowing us to link firms with their owners. We obtain data on incorporated firms' financial characteristics from their tax returns ("Næringsoppgave 2"). The firm data primarily cover the years 2004–2018. All data are de-identified by Statistics Norway but can be linked through anonymized firm and person identifiers.

We obtain individual characteristics, such as year of birth, from the central population register. We obtain information on educational attainment as of 2010 from the national education database. We also include data on, e.g., past incomes, from individuals' tax returns.

2.3 Definitions and sample selection

To be classified as the entrepreneur behind an incorporated firm, a person must be the CEO and own more than 1% of the shares. We allow for indirect ownership both through spouses and other firms (see Appendix A.1). In some parts of our analyses, we use the entrepreneurs behind sole-proprietorships, partnerships, and foreign-incorporated firms as comparison groups (see Appendix A.2).

We identify the founding date from when the organization was assigned a unique organization identifier in the business register ("virksomhets- og foretaksregister"). Our data contain 327,125 (domestic) 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,[5] leaving us with 232,116 incorporations. We then drop (ii) incorporation events for which we cannot assign an individual as the entrepreneur due to, e.g., separation of ownership and control. This leaves us with 132,052 incorporation events. However, several of these incorporations were done by ex-ante entrepreneurs. As our focus is on entry into entrepreneurship, we restrict (iii) our sample to the 47,566 events in which the incorporating entrepreneur was (in the prior year) neither owner-CEO of an incorporated firm, a sole-proprietor, a CEO or board-member partner in a partnership, or the CEO of a foreign-incorporated firm.

To limit the impact of outliers when we consider firm-level data in levels, we winsorize revenues, wage costs, and assets to be non-negative and below their 95th percentiles. Profits are winsorized at the 5th and 95th percentiles.

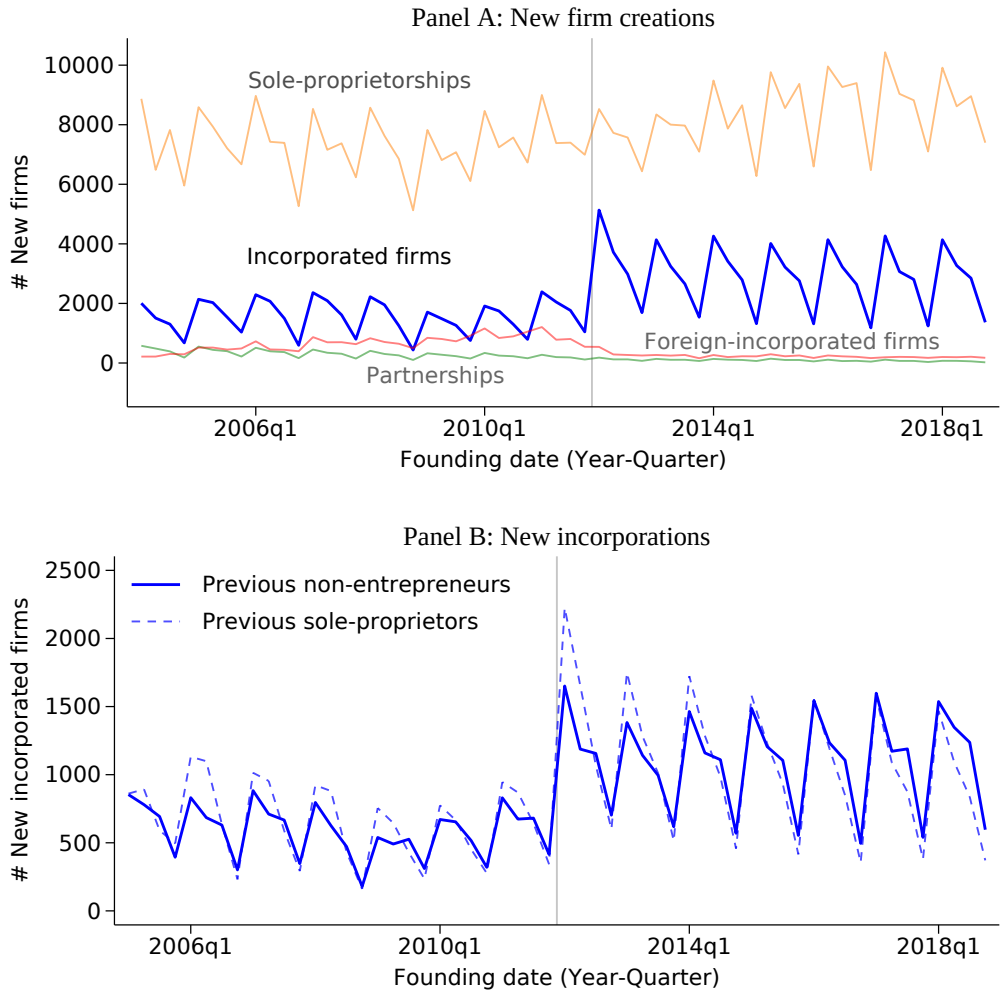
[5]Two-digit NACEs codes 64 and 66 (financial and financial services), three-digit nace codes 681, 682, and 701 (real estate investments, real estate leasing and rental, and headquarter services).

3 Reduced-form results

In this section, we provide empirical evidence on how the reform affected firm creations, as well as graphical reduced-form evidence whether pre and post reform entrepreneurs and firms differ. In Section 4, we introduce a simple regression-discontinuity design methodology that allows us to quantify the extent to which pre and post reform entrepreneurs are different.

3.1 The effect on firm creations

Figure 1: Firm Creation Before and After the 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. 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)).

Panel A of Figure 1 shows the number of firm creations over time. 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, since entrepreneurs who are building a new firm 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. Appendix Figure OA.2 shows that there is no effect on the amount of high-capital (Paid-in-Capital > NOK 100,000) incorporations. This additional evidence addresses concerns that other changes to the economic environment may have caused an increase in firm creation in the post-reform period.

Since the reform only affected incorporation requirements, and not requirements for establishing a sole-proprietorship, one question is whether the increased annual incorporation rates reflect a substitution away from sole-proprietorships. In principle, would-be entrepreneurs may trade off the costs and benefits of incorporated versus unincorporated entrepreneurship when selecting their preferred legal form. 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.

We further find no effect on partnerships that also do not benefit from limited liability. In contrast, we see a reduction in the registration rates of foreign-incorporated firms. Prior to 2012, one way to achieve the benefits of limited liability without having to put up the required amount of equity was to incorporate a limited liability company abroad (often in the U.K., where there were no capital requirements) and then register this company as a foreign-incorporated company ("NUF") in Norway. There were no rules prohibiting firms from taking this approach, even if their business activity was solely based in Norway. Accordingly, as the capital requirement is lowered in 2012, we see a reduced entry of foreign-incorporated firms. This reduction, however, is much too small and arises too early to explain the increase in incorporation rates. Hence, it seems that there were many marginal incorporated entrepreneurs for whom the foreign-incorporation route was not an option.

The increase in incorporations visible in Panel A may 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: 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 double after 2012, indicating a substantial effect on entrepreneurial entry. Our results are robust to dropping any incorporations by entrepreneurs who were non-CEO owners (i.e., non-CEOs who

own $\geq 1\%$ of the shares) in any limited liability company in the previous year (see Appendix Figure OA.1). The finding of a large increase in entry is also robust to only considering incorporations of firms that were economically active (indicated by positive revenues or wage bills) in the year of incorporation (see Appendix Figure OA.3). 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.4).

We also consider incorporations by individuals who were previously sole-proprietors but not incorporated (or partnership or foreign-incorporated) entrepreneurs. These findings (dashed blue line in Panel B) reveal an even stronger increase in incorporation rates. Thus, it appears that there is a large mass of marginal incorporated entrepreneurs also in the sole-proprietor population. Hence, while reducing frictions to incorporations does not reduce entry rates into sole-proprietorships, it does cause exits—in the sense that existing sole-proprietors choose to incorporate.

One possible effect of reducing the capital requirement is that more entrepreneurs fully own their own firm instead of obtaining outside equity investment or becoming cofounders. We find clear evidence that the propensity to own 100% of shares increases following the reform. The propensity to fully own the firm increases from about 50% to 60% after the 2012 reform (Panel A of Appendix Figure OA.8). This suggests that some pre-reform entrants financed the equity requirement with outside equity and thus diluted their ownership stakes. However, we do not find a material change in the propensity to cofound, which we measure as owning exactly 50% of a new firm. There is thus no indication that the increase in the number of new firms is driven by more entrepreneurs starting individual firms as opposed to jointly starting firms.

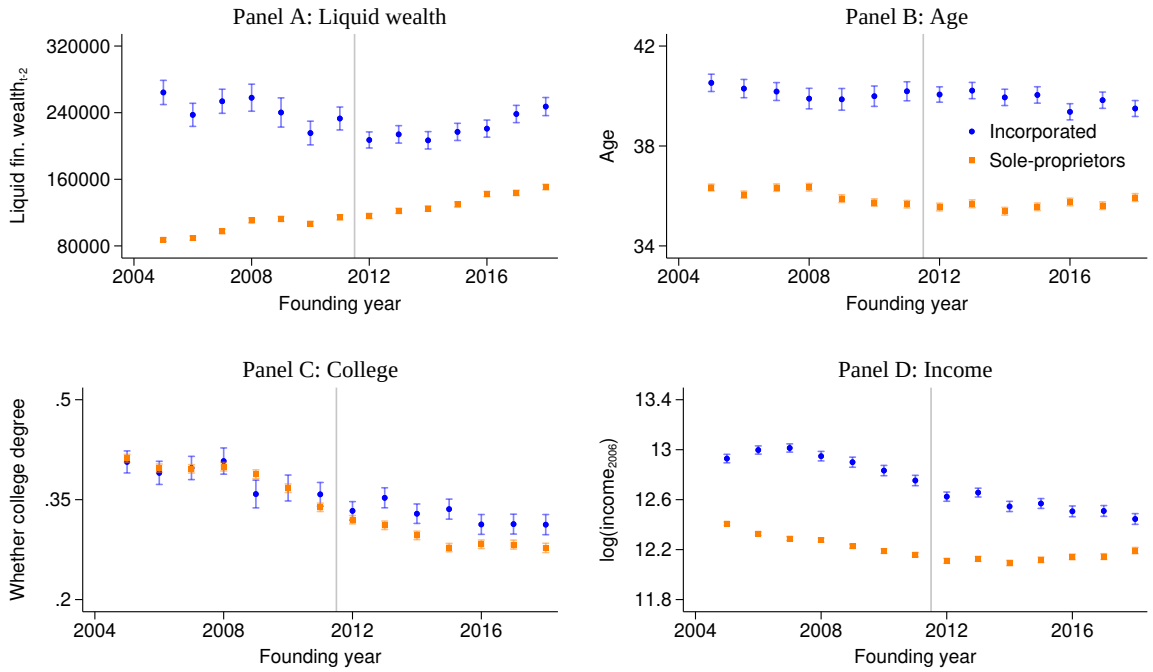
Appendix Figure OA.5 decomposes the increase in incorporations into different four-digit NACE-code industries. The top contributor to the increase in incorporations is engineering and technical consulting, followed by management consulting. Beyond these industries, construction and related industries (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.

3.2 The ex-ante characteristics of new entrepreneurs

In this section, we provide graphical reduced-form evidence on how the ex-ante characteristics differ across pre and post-reform incorporations. Studying ex-ante characteristics has two key advantages in identifying differences in entrepreneurs' characteristics relative to studying ex-post outcomes. First, ex-ante outcomes are not confounded by non-selection treatment effects. Relaxing capital requirements may affect ex-post outcomes (such as personal wealth) through

other channels than a pure selection channel. Second, ex-post outcomes are affected by the endogenous choice of firm size.

Figure 2: (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. 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 2 shows how the characteristics of new entrepreneurs changed around the time of the reform. We plot the mean characteristics of entrepreneurs by estimating the following regression equation:

$$y_{i,s} = \alpha_{t,n} + \varepsilon_i, \tag{1}$$

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. We include sole-proprietors in the sample as a placebo group since the change in the capital requirements does not apply to unincorporated entrepreneurship. ε_i is the error term. If marginal entrepreneurs are considerably different from the average entrepreneurs, we would expect to see a change in characteristics shortly after the 2012 reform, in particular given the large effect on entry rates we observed in the previous section. For example, if the marginal entrepreneur differs on some characteristic, y, by -1 and the reform

doubled the number of entrants, we would expect to see a drop in the average y by $\frac{1}{2}$ following the reform.[6]

Panel A of Figure 2 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. We find no indication that post-reform entrants have less personal liquidity on average. Moreover, in Appendix Figure OA.7, we show that post-reform entrants are not more likely to have particularly low levels of ex-ante liquidity.[7]

Recent evidence suggests that age may also proxy for ability.[8] Panel C shows that pre and post-reform entrants do not differ in their age at business creation. This finding is inconsistent with the hypothesis that the reform primarily *accelerated* entry into entrepreneurship, that is, that individuals simply started their business earlier than they would have absent the reform. Another pattern that is inconsistent with the acceleration channel is that the level of new incorporations remains high for the duration of our sample.[9] When considering how the distribution of age at incorporation changed over time (Appendix Figure OA.13, Panel D), we do see that the age distribution modestly *widened*. Both the 90th and 10th percentiles change by 1–2 years.

Panel C of Figure 2 considers educational attainment which has been found to be an important predictor of entrepreneurial success (Bates 1990, Queiró 2022). We define educational attainment as whether the individual has obtained at least a college degree by 2010. While the average new incorporated entrepreneur after 2012 appears to be less likely to have a college degree, we also see this tendency, and even more so, among unincorporated entrepreneurs. Hence, it does not appear that reducing barriers to incorporation lead to a in-flux of less-educated entrepreneurs.

Panel D of Figure 2 considers personal income measured in 2006. Personal income is a useful proxy to the extent that entrepreneurial ability and salary-earning ability are correlated (as in, e.g., Hacamo and Kleiner 2022, Evans and Jovanovic 1989). We see that incorporated entrepreneurs have significantly higher prior income than sole-proprietors, but we do not see any tendency that post-reform entrepreneurs have lower ex-ante income than pre-reform

[6] We formalize this logic more detailed in Section 4.

[7] Appendix Figure OA.7 shows no indication that those who incorporate after the reform are less likely to have liquid financial wealth above the 25th percentile. This percentile is measured in 2011 and equals NOK 22,400 or about $3,700.

[8] Using U.S. data, Azoulay, Jones, Kim, and Miranda (2020) show that the subsequently most successful startups were created by older individuals, suggesting that age may proxy for entrepreneurial ability. However, findings from Ouimet and Zarutskie (2014) suggest the opposite relationship.

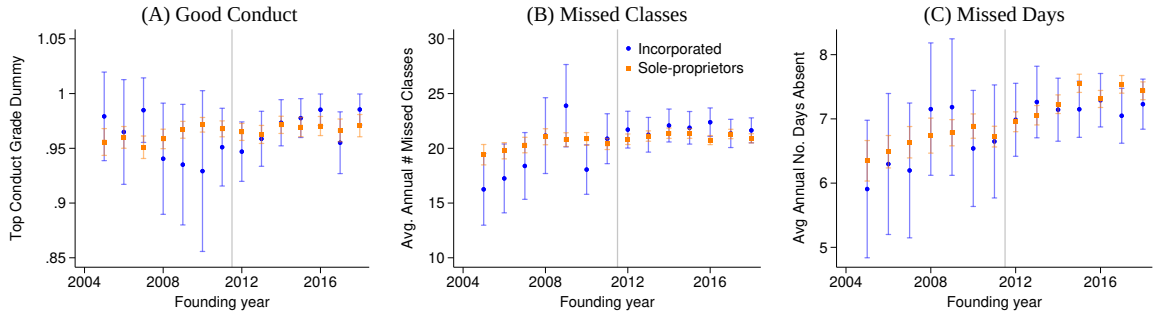
[9] During 2012–2018, the level of annual incorporations of large firms, for whom the ex-ante capital requirement would not bind, weakly decreased (see Appendix Figure OA.2). Hence, to the extent that this provides a valid counterfactual for overall incorporation rates, the fact that the observed overall incorporation rates remain high until the end of our sample suggests that the acceleration channel is not the main force behind the increase in post-reform incorporation rates.

entrepreneurs.

While it is difficult to measure the entrepreneurial ability of someone who is not already an entrepreneur, we make use of one novel proxy, namely the characteristics of ex-ante employers. Appendix Figure OA.15 shows no evidence that post-reform entrants are sourced from firms that differ in terms of profitability, value-added margins, productivity, or growth rates.

Levine and Rubinstein (2017) find that, relative to soleproprietors, incorporated entrepreneurs score higher on aptitude tests and are more likely to have engaged in illicit behaviors when young. However, this does not necessarily imply that rule-breaking is associated with more profitable entrepreneurship on average. Using data from high-school diplomas on comportment and absenteeism, we show that higher conduct grades and less absenteeism is strongly and positively correlated with profitability (see Appendix Table OA.1). Figure 3 therefore plots how these ex-ante characteristics vary with the year of entry. We find no evidence that post-reform entrepreneurs have lower comportment grades or missed more classes or days of school.

Figure 3: Behavioral Differences — High School Comportment and Absenteeism



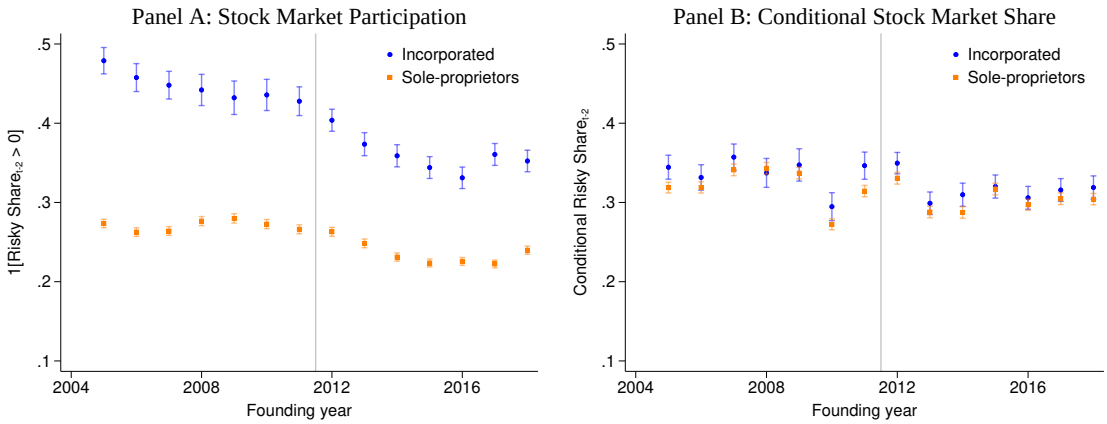
Notes: This figure considers high school comportment (conduct) grades and absenteeism for the subset of entrepreneurs who received a high school diploma during 2001–2005 (Panel A) and 2001–2010 (Pa and C). We use the same approach as in Figure 2 for different left-hand-side variables. Panel A considers 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.

Appendix Figure OA.13 considers the *distribution* of ex-ante characteristics of entrepreneurs that entered around the reform. These results are broadly consistent with the previous findings that post-reform entrants do not differ on liquidity, age, or ex-ante income levels. While we do not see any indication that the 10th through 75th percentiles of liquid financial wealth is lower among post-reform entrants, there seems to be a reduction in the 90th percentile. Since there is no visible change in the lower percentiles, we interpret the overall findings as being consistent with the notion that the reform facilitated the entry of smaller firms as opposed to alleviated liquidity constraints.

Appendix Figure OA.12 repeats the analysis from Figure 2 when restricting the sample to

founders who were not entrepreneurs as of 2006 (as opposed to $t-1$), because the pool of potential entrepreneurs changes over time in Figure 1 (for example, in 2013, new entrants are selected from those who did not respond to the reform already in 2012.). Our results remain qualitatively similar. Appendix Figure OA.11 repeats the analysis from Figure 2 on individuals who transition from sole-proprietorship to incorporated entrepreneurship. In this sample, there appears to be a minor fall in all four entrepreneurial traits for those who incorporated right after the reform.

Figure 4: 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 2 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.

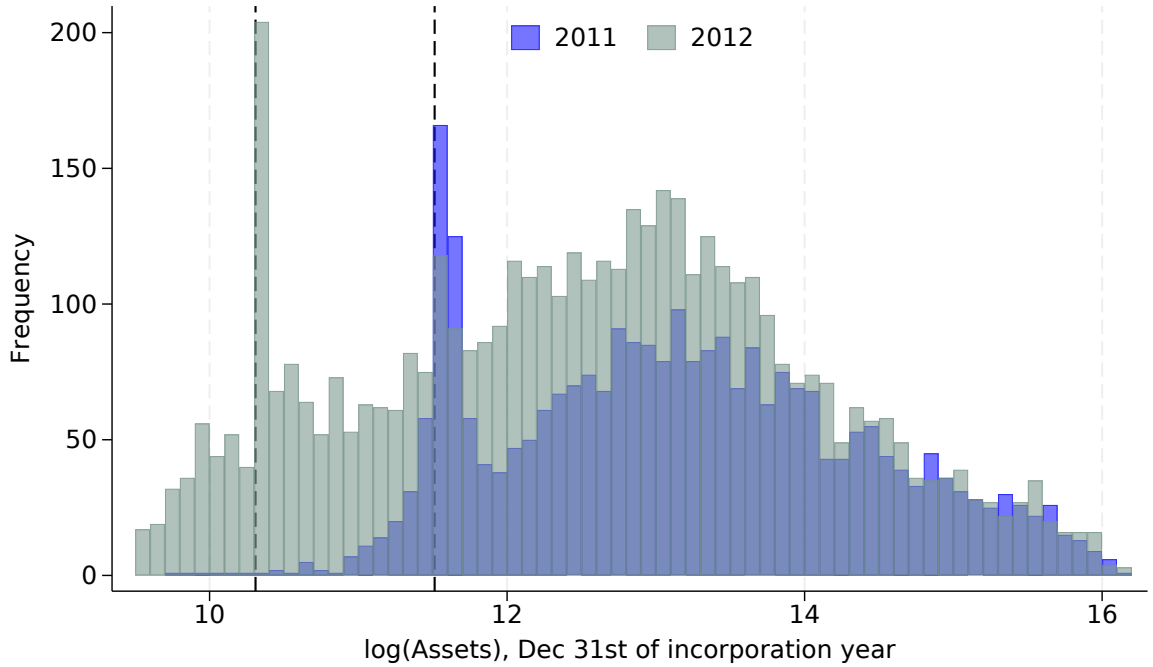
Finally, Figure 4 plots the portfolio allocation (stock market participation rate and conditional risky share) of new entrants over time. The equity share of financial wealth may proxy for two relevant entrepreneurial characteristics: financial sophistication and risk aversion. Panel A shows no evidence 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 we documented in Figure 1. Moreover, we find that incorporated entrepreneurs are substantially more likely than sole-proprietors to be stock market participants prior to entry.

In Panel B, we consider the conditional risky share which may be a better proxy for risk aversion than the participation-margin or unconditional equity share. In contrast to the participation margin, incorporated and sole-proprietor entrepreneurs have virtually identical stock market exposure conditional on participation. In addition, 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.

3.3 Firm-level outcomes

We now consider firm-level outcomes. We first consider asset size in the year of incorporation. Figure 5 plots the distribution of firm assets for firms that incorporated right before and right after the reform. We do not find any effect on the right tail of the asset distribution for whom the capital requirement never binds. However, we find a large change in the left tail of the distribution, including a substantial mass of very small firms with assets below NOK 100,000 ($17,000), i.e. below the initial minimum capital requirement. We also see more incorporations of firms with total assets above the pre-reform equity capital requirement.[10] This indicates a multiplier effect of equity capital requirements, due to, e.g., a complementarity between equity and other liabilities. We explore this further in section 4.3. In both periods, we see some firms below the capital requirements, which is possible due to negative retained earnings during the incorporation year.

Figure 5: Distribution of Assets at Incorporation Before and After the Reform



Notes: We plot the distribution of (log) total assets for 2011 and 2012, truncated to restrict the x-axis. The vertical lines indicate the capital requirements for 2012 and 2011, respectively. Note that it is possible to have less assets than (paid-in-capital) equity in the incorporation year, due to, e.g., negative retained earnings. The 2011 mean of log(Assets) is 13.24 and the mean for 2012 is 12.49.

We proceed by examining whether post-2012 incorporated firms differ in terms of financial

[10] This is not the case when we consider the distribution of paid-in-capital in Appendix Figure OA.19, which shows that the entire increase in incorporation levels occurs for firms with paid-in-capital below the pre-reform requirement.

characteristics, such as profitability, measured at the end of our sample period. We do this by estimating the following regression equation:

$$y_{f,2018} = \alpha_t + \varepsilon_f, \tag{2}$$

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 drop firms incorporated in 2018 from our regressions to ensure that all firms were active for the entire year that the outcome variable was recorded. We do not include sole-proprietors as a placebo group since there is no accounting data for sole-proprietors (they are not separate legal entities from the entrepreneur).

We choose to consider all firms in the same year to keep macroeconomic conditions constant. The alternative approach is to instead keep firm age constant by considering firm outcomes a fixed number of years after incorporation. Appendix Figure OA.9 shows that measuring outcomes at $t + 3$ yields similar results.

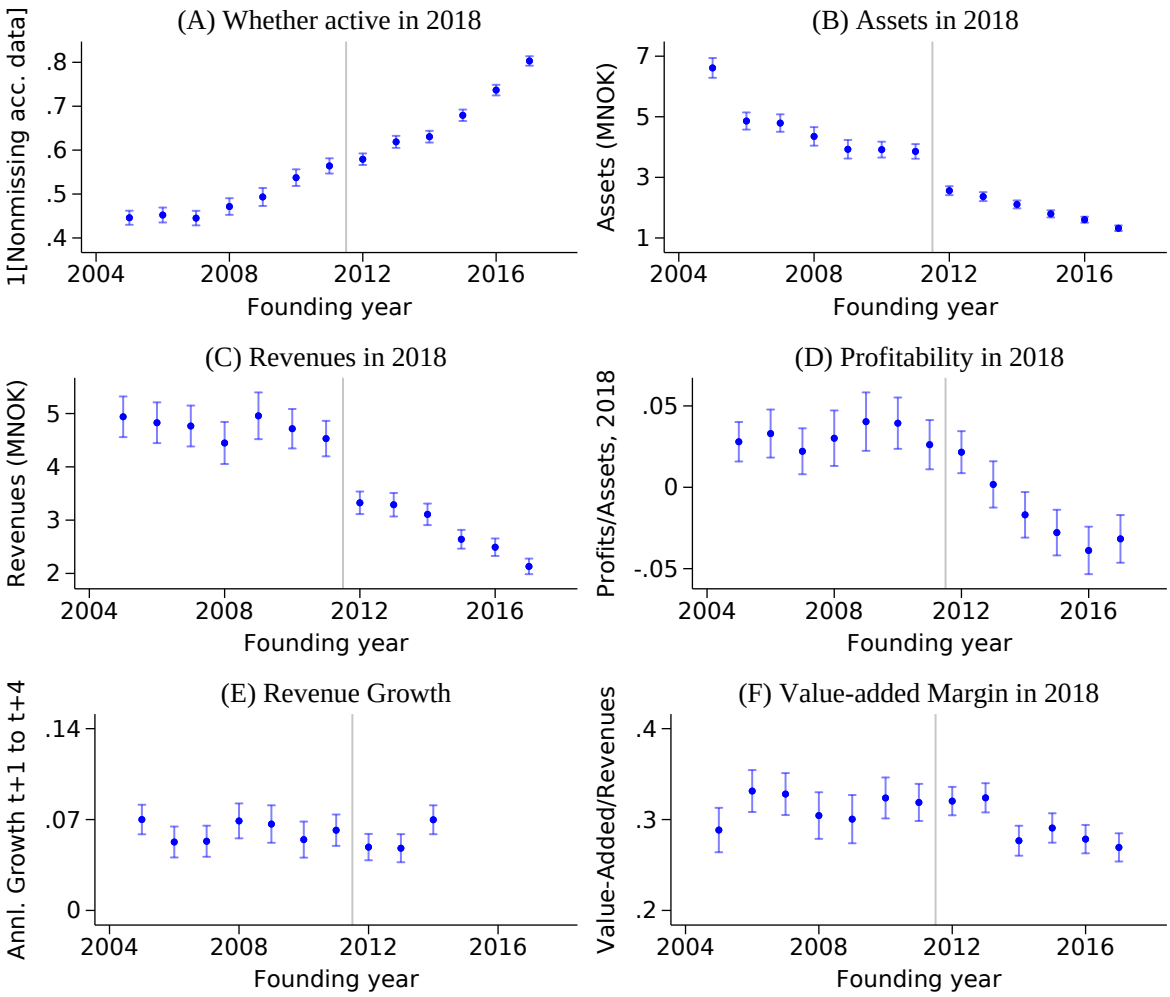
Figure 6 plots our results. Panel A considers whether a firm is active in 2018, measured by whether it has nonmissing accounting data in that year. We find no indication of post-2012 firms being less likely to be economically active in 2018. Panel B considers total book assets in 2018, and here we find a sharp difference between pre and post reform entrants. Firms that incorporated after 2012 have about $200,000 (MNOK 1.25) less assets. This difference is considerably larger than the reduction in the equity requirement from $17,000 to $5,000 and partially due to the reform not only reducing the required amount of equity in firms but also other liabilities. We decompose and discuss these balance sheet effects in more detail in section 4.3. However, this large effect is consistent with extensive-margin effects, where marginal entrepreneurs have smaller optimal firm sizes.[11] Appendix Figure OA.17 verifies that the observed size differences occur at incorporation. At the end of their founding year, post-reform firms are about $100,000 (NOK 600,000) smaller in terms of assets.

Panel C of Figure 6 shows that marginal firms are also smaller in terms of revenues, exhibiting a sharp reduction in revenues for firms incorporated in 2012 and onward. The difference between pre and post-reform entrants is approximately $170,000 (NOK 1,000,000).

Panel D of Figure 6 considers profitability (operating income divided by book assets) in 2018, which shows no indication that firms that entered after the capital requirement reduction are less profitable. Panel E considers the average revenue growth rate in the three years following

[11] Consider the case when there are only two potential entrepreneurs. One entrepreneur has a maximal capital amount of $5,000 (above which opportunity cost constraint cannot hold) and the other one has an optimal capital amount of $100,000. When the capital requirement is $17,000, the mean amount of capital among entrants is $100,000. When it is lowered to $5,000, the mean amount is $52,500. The reduction in mean capital amounts of $47,500 which is much larger than the reduction in the requirement of $12,000.

Figure 6: 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 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 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.

incorporation.[12] Post-reform entrants do not expand at smaller rates. Appendix Figure OA.10 shows that the same applies to the growth rate of total book assets.

Finally, Panel F of Figure 6 considers the value-added margin, measured as the ratio of operating income plus wage bill divided by revenues (as in Hombert, Schoar, Sraer, and Thesmar 2020). Once we account for revenues, we find no evidence of lower value added among post-reform entrants. Also when following Lichtenberg and Siegel (1990), Bertrand and Mul-

[12]This is $\frac{1}{3} \times \frac{Revenues_{t+4}}{Revenues_{t+1}}$, where the cumulative growth rate is censored to be in $[-1, 1]$.

lainathan (2003), and Giroud and Mueller (2015) in using the amount of revenue that cannot be explained by the use of inputs as a measure of productivity, we find no indication that post-reform entrants are less productive (see Appendix D.1).

Consistent with post-reform firms having lower levels of activity in terms of revenue, Appendix Figure OA.16 shows that these firms also have lower employment costs in 2018. Pre-reform firms have wage bills of about 1.2 MNOK ($200,000) on average, which drops sharply by about 0.35 MNOK ($60,000) once we consider firms incorporated after the reform.

One remaining question is whether the lower capital requirement caused increased entry into industries typically populated by smaller firms. To understand whether this is an important mechanism behind our findings, Online Appendix Figure OA.14 repeats the analyses in Figure 6 while including 5-digit NACE industry code fixed effects in the regression equations. This yields quantitatively similar results, implying that our findings cannot be explained by a change in the basket of industries that entrepreneurs enter.

Our results indicate that post-reform entrants create firms that are as profitable and productive as pre-reform entrants. However, if post-reform entrants are sourced from the employee pool of more productive firms than pre-reform entrants, labor misallocation may be a welfare cost of the reform. However, Appendix Figure OA.15 considers the characteristics of pre-entry employers. This analysis reveals no discernible differences in terms of profitability, value-added margins, proxies for total factor productivity, or revenue growth rates.

The purpose of our analyses on firm outcomes is to examine whether lower capital requirement facilitated the entry of different firms. However, one should keep in mind potential treatment effects of the reform. That is, by imposing less binding constraints on the firm's financing mix (i.e., requiring less equity), some entrepreneurs may be able to optimally choose to commit less personal wealth and thus run their business differently.[13]

3.4 Entrepreneurial income

This section studies whether becoming an entrepreneur increases comprehensive income and, particularly, whether this change in income differs between pre and post-reform entrants. Thereby, we address the question of whether post-reform entrants engage in less financially rewarding entrepreneurship.

Our entrepreneurial income measure consists of *total personal taxable income*, which includes salary and wage earnings and dividends, as well as sole-proprietor income. Importantly, we also include unrealized gains by allocating retained earnings according to ownership shares.[14]

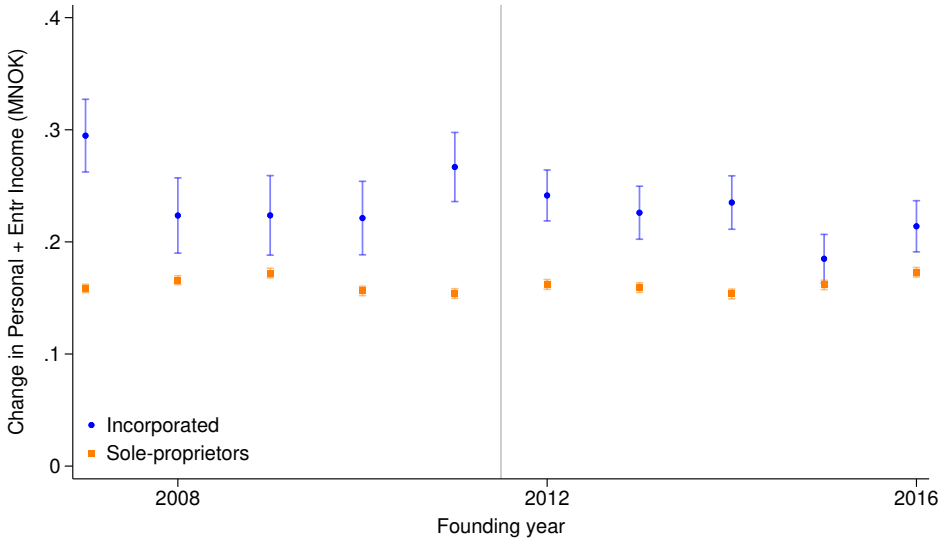
[13] For example, forcing a risk-averse entrepreneur to put up more equity may cause the entrepreneur to undertake fewer high-return high-risk projects.

[14] We allocate retained earnings from all firms in which the entrepreneur or her spouse has an ownership share.

This income measure accounts for the fact that some incorporated entrepreneurs become serial entrepreneurs, and it accounts for the possibility that sole-proprietors subsequently incorporate.

We report our findings in Figure 7. There is no indication that those who incorporate after the reform engage in less financially rewarding entrepreneurship. We measure income changes over the six-year period starting three years prior and ending three years after entry. We see a substantial increase in comprehensive income for entrants in all years. In 2011, incorporated entrepreneurs increase their incomes by about NOK 270,000 (USD 45,000). This figure is only slightly smaller at 241,000 in 2012. There is no graphical indication of a clear level shift following the reform.

Figure 7: Change in Income After Becoming an Entrepreneur: Contrasting Pre and Post-reform Entrants



Notes: All panels condition on firms incorporated by individuals who were not entrepreneurs in the prior year. Scatter points come from estimating the following regression equation: (personal income$_{i,t+3}$ + allocated retained earnings$_{i,t+3}$)−(personal income$_{i,t-3}$+allocated retained earnings$_{i,t-3}$) = $\alpha_{t,n}+\varepsilon_i$, where t indexes firm type $\in$ {incorporated, sole-proprietorship}. The left-hand-side variable is winsorized at the 1% and 99% levels. If an individual who starts a firm in t is not an entrepreneur at time t, the left-hand-side variable only contains personal income as observed in the tax returns. Allocated retained earnings$_{i,t}$ equal $\sum_f$ ownership share$_{i,f,t}$ × (net income$_{f,t}$ − dividends$_{f,t}$). Standard errors underlying the 95% confidence bands are clustered at the person (entrepreneur) level.

Appendix Figure OA.18 shows that there is also no discernible difference in income changes if we only consider personal taxable income. However, this approach removes the "incorporation premium" of about NOK 50,000 that we see in Figure 7 for most incorporation years.

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.

4 Estimates on how marginal entrepreneurs are different

Section 3 provides graphical reduced-form results on how post-reform entrants differ from pre-reform entrants. However, the sample of post-reform entrants contain both always-entrepreneurs (who would have entered regardless of the reform) and marginal entrepreneurs (who only entered due to the reform). Hence, this pre-post difference will understate the difference between marginal entrepreneurs and always-entrepreneurs. To identify this difference, we impose some more structure to our econometric framework. Importantly, we 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. We discuss how these assumptions may not hold when considering firm-level outcomes.

4.1 Empirical framework

Differences in average traits of post and pre-reform entrants. We assume that there are two types of entrepreneurs, e: always entrepreneurs, A, and marginal entrepreneurs, B. Post-reform there are $N_{post} = N_A + N_B$ entrepreneurs and pre-reform there are $N_A = N_{pre}$. We only consider *entrants*, not existing entrepreneurs. Pre-reform, the average characteristic of entrepreneurs 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

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

which says that the pre versus post-reform difference in means divided by the growth rate of the number of firms (relative to the new total – not the existing one) equals the difference in mean characteristics of the two types of entrepreneurs. Both terms on the left-hand-side of Equation (5) can be measured directly in the data.

In particular, we estimate the denominator by way of a regression discontinuity design. This RDD approach essentially formalizes and quantifies the criteria we used in Section 3, however, we are more comfortable assigning causality if any effects materialize sharply following the

reform and do not appear to be driven by time trends. Our estimate of $\overline{Y}^{post} - \overline{Y}^{pre}$ is $\hat{\beta}^Y$ from estimating the regression equation

$$Y_{i,h} = \alpha + \beta^Y \mathbb{1}[s \geq 2012] + \gamma^- \times s \times \mathbb{1}[s < 0] + \gamma^+ \times s \times \mathbb{1}[s \geq 0] + \varepsilon_i, \tag{6}$$

where Y_i is a characteristic measured in year h, and s is the founding year, normalized to be zero in 2012. The $\gamma \times s \times \mathbb{1}[\cdot]$ terms take out pre and post-reform trends, allowing β to identify the discrete change in Y that occurs in 2012. To limit the influence of non-linear long-run time trends, we limit the sample to incorporations done within 3 years of the reform, that is during 2009–2014.

The related estimator for the growth rate in the number of firms, $\frac{N_{post}-N_{pre}}{N_{post}}$, is simply $\frac{N^Y_{2012}-N^Y_{2011}}{N^Y_{2012}}$, where this growth rate is based only on incorporation events for which Y is observable.[15] The choice of a simple estimator for the increase in entry is due the graphical evidence in Figure 1 that shows no evidence that the 2011–2012 jump was related to overall trends. Hence, our estimator on how marginal entrepreneurs differ from average entrepreneurs is

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

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

4.2 Estimated differences

Table 1 provides our formal estimates from equation (7). Panel A considers ex-ante characteristics of the entrepreneurs. All differences are statistically insignificant, consistent with the graphical evidence in Figure 2.

Panel B considers ex-post outcomes. We estimate large differences in proxies for entrepreneurial size: assets, revenues, and the total wage bill of the firm. The marginal entrepreneur creates firms that are about 1.25 MNOK (32%) smaller in terms of assets, 0.96 MNOK (21%) smaller in revenues, and 0.26 MNOK (22%) smaller in terms of labor costs. In contrast, firms founded by the marginal entrepreneur are not smaller in terms of profitability and not less likely to be economically active in 2018, again in line with the graphical evidence from Section 3.

The differences in sample size across columns are driven by data availability (e.g., firm exits cause missing values). Entrepreneurial income is defined at the person level. If the firm no longer exists, we allocate zero retained earnings from the firm. Missing values for en-

[15] That is, incorporation events that were followed by exits before $Y_{i,h}$ was measured (e.g., profitability in 2018) do not count toward the growth rate.

Table 1: How the Marginal and Average Entrepreneurs Differ

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 our main estimate. Panel A considers ex-ante traits of entrepreneurs: total personal income in 2006, liquid financial wealth prior to incorporation, whether a college degree in 2010, and their age. Panel B considers ex-post outcomes measured in 2018. Wages are the total wage bill (labor costs) for the firm. Entrepreneurial income is the sum of personal taxable income (e.g., salaries, capital income, sole-proprietor income) and allocated retained earnings. $\overline{Y}_{2011}$ is the outcome-variable sample mean for 2011. Standard errors are obtained from a 200-repetition bootstrap procedure.

	Panel A: Ex-ante 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

	Panel B: Ex-post outcomes, 2018					
	(1) Profitability	(2) 1[Nonmissing Accounting]	(3) Assets (MNOK)	(4) Revenues (MNOK)	(5) Wage bill (MNOK)	(6) ΔEntr. Income (MNOK)
$\mathbb{1}[s \geq 2012]$	0.00	-0.02	-1.25***	-0.96***	-0.26***	-0.05*
	(0.01)	(0.01)	(0.19)	(0.28)	(0.07)	(0.02)
$\frac{N_{2012}-N_{2011}}{N_{2012}}$	0.43***	0.42***	0.43***	0.43***	0.43***	0.41***
	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)
$\widehat{\Delta Y}$	0.00	-0.04	-2.90***	-2.23***	-0.60***	-0.11*
	(0.03)	(0.04)	(0.46)	(0.66)	(0.17)	(0.06)
N	13739	23798	13877	13877	13877	22140
$\overline{Y}_{2011}$	0.03	0.56	3.86	4.53	1.17	0.27

trepreneurial income arise only if the person has no reported personal taxable income (e.g., due to death).

4.3 Balance Sheets at incorporation

We find that post-reform firms are considerably smaller than pre-reform firms in terms of assets. Table 2 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.[16] 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 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.[17]

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.

In Appendix Table OA.2, we consider the differences as of 2018 and find roughly similar patterns, except that revenue-dependent assets such as accounts payable become more important.

5 Conceptual framework

To interpret our findings, we set up a model based on Evans and Jovanovic (1989) that helps us develop hypotheses about how lowering the capital requirement may affect entrepreneurial selection. In the model, individuals choose to become entrepreneurs if entrepreneurial profits exceed their outside option or opportunity cost. Profits are a concave function of capital and the entrepreneur's ability. Due to this concavity, there is both a minimal and maximal amount of capital the entrepreneur would invest. Entrepreneurs are constrained by their own liquidity and must satisfy a minimum capital requirement. In this environment, lowering the capital requirement may affect selection into entrepreneurship through several channels. First, it may allow low-liquidity entrepreneurs to satisfy the capital requirement. Second, it may facilitate the entry of optimally-small-scale entrepreneurs. These are entrepreneurs with more concave

[16] 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.

[17] 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 2: 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. 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

production functions who would have negative profits if they had to satisfy the baseline capital requirement.

5.1 General setup

Profit function. The entrepreneurial profit function is given by

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

where $\theta_i > 0$ is entrepreneurial ability of individual i, $k_i > 0$ is invested capital, which we assume can only be equity, and r is the (opportunity) cost of capital. Unlike Evans and Jovanovic (1989), we allow $\alpha_i \in (0,1)$, which governs the concavity of the profit function, to vary across individuals.

Selection constraint. An individual enters entrepreneurship only if entrepreneurial profits exceed some opportunity cost, s_i, which could for example be income from salaried employment:

$$\theta_i k_i^{\alpha_i} - r k_i \geq s_i. \tag{9}$$

This selection criteria is possibly violated both for small k_i as well as for large k_i due to the concavity of the production function. As $k_i \to \infty$, marginal revenues approach zero while the marginal cost of capital is constant. We can thus write the selection constraint as

$$\underbrace{k_{min}(\theta_i, \alpha_i, s_i)}_{\substack{\text{Minimum capital that} \\ \text{satisfies selection constraint}}} \leq k_i \leq \underbrace{k_{max}(\theta_i, \alpha_i, s_i).}_{\substack{\text{Maximum capital that} \\ \text{satisfies selection constraint}}} \tag{10}$$

In our setting, the threshold for when investing more leads to a negative payoff net of opportunity costs is of particular interest. This threshold, $k_{max}(\theta_i, \alpha_i, s_i)$, is characterized both by an indifference condition, $\theta_i k_{max}(\theta_i, \alpha_i, s_i)^{\alpha_i} - r k_i = s_i$ and a negative marginal return condition, $f_i'(k_{max}(\theta_i, \alpha_i, s_i) < 0$.

Capital requirement and liquidity constraint. We next impose the liquidity constraint and capital requirement

$$\underbrace{\underline{k}}_{\text{Capital requirement}} \leq k_i \leq \underbrace{\ell_i}_{\text{Liquidity}}. \tag{11}$$

We think of ℓ_i as a measure of entrepreneurial liquidity. In Evans and Jovanovic (1989), this term is the product of an agent's personal assets and a multiplicative borrow constraint. We can thus write $\ell_i = \lambda_i \cdot a_i$, where a_i is a measure of (observable) liquid assets. We can think of $\lambda_i > 1$ as indicating that the agent can obtain additional funds from either creditors, family, or other investors. We note that the capital requirement and liquidity constraints interact in the following sense. If ℓ_i is small, then the liquidity constraint (11) causes the capital constraint (11) to be violated, and i does not become an entrepreneur.

Entry condition. We can summarize the if-and-only-if condition for entry as

$$\underbrace{\ell_i \geq \max\{\underline{k}, k_{min}(\theta_i, \alpha_i, s_i)\}}_{\text{Financial and selection constraints satisfiable}} \quad \cap \quad \underbrace{k_{max}(\theta_i, \alpha_i, s_i) \leq \underline{k}}_{\substack{\text{Max size not smaller} \\ \text{than capital requirement}}}. \tag{12}$$

5.2 The Effect of Lowering the Capital Requirement

Equation 12 shows that lowering the capital requirement, $\underline{k}$, operates through two channels.

Channel 1: Liquidity channel. When lowering $\underline{k}$, some low-liquidity (low-ℓ_i) agents are now able to satisfy the capital constraint (11) and *can* enter. They choose to do so if the minimum-capital selection requirement $\ell_i \geq k_{min}(\theta_i, \alpha_i, s_i)$ can be satisfied. There are two potential selection implications. First, if ℓ_i is positively correlated with ability, θ_i, we will see an entry of lower-ability entrepreneurs. Second, for a given amount of capital, higher θ_i implies higher profits, and thus the selection criteria is more easily satisfied. Hence, among all individuals who can afford to enter after the reform (i.e., those who now satisfy the capital constraint (11)), it is rather the high θ_i who enter because for them, the minimum-capital selection-requirement is more easily satisfied.

Finally, one unambiguous implication of the liquidity channel is that entrants have less ex-ante liquidity (ℓ_i). However, the reduction in liquidity may either be due to less personal liquidity (a_i) or a lower ability to raise additional financing (that is, λ_i is low).

Channel 2: Small-business-entry channel. For some agents, the reform will induce $\underline{k}$ to shift from above to below $k_{max}(\theta_i, \alpha_i, s_i)$. These agents will now want to become entrepreneurs and do so if the liquidity constraint can be satisfied. These are agents for whom satisfying the pre-reform capital requirement would have implied that the selection requirement was violated. In other words, they would have had to invest so much that (due to the concave profit function) the selection criteria would not have been satisfied.

The small-business-entry channel selects agents with a low maximal capital level, k_{max}. Since k_{max} is decreasing in both α_i (see Appendix B.2) and θ_i (see Appendix B.1), this channel selects both high-concavity (low-α_i) and low-ability (low-θ_i) agents. Hence, lowering the capital requirement induces the entry of either or both low-ability and low-concavity entrepreneurs. Note that these new entrants do not necessarily have less liquidity. The small-business-entry channel would operate even if all agents had infinite ℓ_i.

In summary, our theoretical framework suggest that the effect of lowering capital requirements on selection into entrepreneurship is ambiguous. A *liquidity channel* operates through two forces. On the one hand, if liquidity and entrepreneurial ability are correlated, average ability

of new, low-liquidity entrepreneurs, may be lower. On the other hand, among low-liquidity entrepreneurs, a selection constraint that trades off profits against the opportunity cost of becoming an entrepreneur selects positively on entrepreneurial ability. The *small-business-entry channel* predicts that new entrants will start smaller businesses and have lower ability and (or) more concave profit functions.

Relating back to our empirical results from section 3, we do not find any difference in proxies for ability between pre- and post-reform entrants. On the other hand, we do find that marginal entrepreneurs start smaller businesses. Hence, it appears that in our setting, the small-business channel dominates.

6 Discussion

In this paper, we exploit a reduction in the minimum capital required to incorporate a limited liability company in Norway to study selection into entrepreneurship. Following the reform, the number of incorporation roughly doubled, suggesting a large mass of marginal entrepreneurs in the economy. We show the these marginal entrepreneurs were not different from existing entrepreneurs in terms of past income, cognitive ability, education levels, or personal wealth. Moreover, new entrants start businesses that are considerably smaller but not less profitable or less likely to survive. Interpreted through the lens of a simple theoretical framework, our results suggest that marginal entrepreneurs are not liquidity constrained or of lower ability, but they rather choose to start optimally-small businesses.

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Online Appendix

A Data Appendix

A.1 Accounting for indirect ownership

In order to link individuals with firms through indirect ownership,[18] we take the following approach. We first limit our data to 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.

B Derivations for conceptual framework

B.1 Max k that satisfies selection criteria is increasing 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

$$\frac{dk_{max}}{d\theta_i} = \frac{-k_{max}^{\alpha_i}}{\theta_i \alpha_i k^{max,\alpha_i - 1} - r} = \frac{-k_{max}^{\alpha_i}}{f'(k_{max}^{\alpha_i})}, \tag{13}$$

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

[18] 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.

B.2 Max k that satisfies selection criteria is increasing in α

$k_{max}(\theta_i, \alpha_i, s_i)$ is increasing in α_i:

k_{max} is defined by $\theta_i k_{max}^{\alpha_i} - r k_{max} - s = 0$. If we differentiate this with respect to α_i, we obtain

$$\theta_i k_{max}^{\alpha_i} \left[\frac{\alpha_i}{k_{max}} \frac{dk_{max}}{d\alpha_i} + \log(k_{max}) \right] - r \frac{dk_{max}}{d\alpha_i} = 0. \tag{14}$$

We reorganize and get

$$\frac{dk_{max}}{d\alpha_i} = \frac{\theta_i k_{max}^{\alpha_i} \log(k_{max})}{r - \theta_i k_{max}^{\alpha_i - 1} \alpha_i} \tag{15}$$

$$= \frac{\theta_i k_{max}^{\alpha_i} \log(k_{max})}{-f'(k_{max})}, \tag{16}$$

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

B.3 Profitability

This section shows that profitability measured as profits divided by capital is independent of θ and a nonmonotonic function of α.

Assuming an interior solution, the first-order condition that determines k for $\alpha \in (0, 1)$ is

$$\alpha \theta k^{\alpha - 1} - r = 0. \tag{17}$$

Rearranging, we obtain that the optimal capital amount is given by

$$k^* = \left(\frac{\alpha \theta}{r} \right)^{\frac{1}{1-\alpha}}. \tag{18}$$

This implies that profitability (where profits is gross of the opportunity cost of capital) can be written

$$\frac{\theta k^{*\alpha}}{k^*} = \frac{\theta \theta^{\frac{\alpha}{1-\alpha}} \alpha^{\frac{\alpha}{1-\alpha}} r^{-\frac{\alpha}{1-\alpha}}}{\theta^{\frac{1}{1-\alpha}} \alpha^{\frac{1}{1-\alpha}} r^{-\frac{1}{1-\alpha}}} = \alpha^{\frac{2\alpha-1}{1-\alpha}} r^{\frac{1-2\alpha}{1-\alpha}}, \tag{19}$$

which is *nonmonotonic*. Our empirical notion of profits is annual, hence the r should be considered to have the same magnitude as annual required rates of return. If we set $r = 10\%$, then profitability is U-shaped in α with a minimum at $\alpha \approx 0.3$.

C Derivations for empirical specification

$$\frac{1}{N_B}\sum_{i\in B} Y_i - \frac{1}{N_A}\sum_{i\in A} Y_i = \frac{1}{N_B}\left(\overline{Y}^{post}(N_A+N_B) - N_A\overline{Y}^{pre}\right) - \frac{1}{N_A}\sum_{i\in A} Y_i \tag{20}$$

$$= \frac{N_A}{N_B}\left(\overline{Y}^{post}\frac{N_A+N_B}{N_A} - \overline{Y}^{pre}\right) - \overline{Y}^{pre} \tag{21}$$

$$= \frac{N_A}{N_B}\left(\overline{Y}^{post}\frac{N_A+N_B}{N_A} - \overline{Y}^{pre}\left[1+\frac{N_B}{N_A}\right]\right) \tag{22}$$

$$= \frac{N_A}{N_B}\left(\overline{Y}^{post}\frac{N_A+N_B}{N_A} - \overline{Y}^{pre}\left[\frac{N_A+N_B}{N_A}\right]\right) \tag{23}$$

$$= \frac{N_A}{N_B}\left(\overline{Y}^{post} - \overline{Y}^{pre}\right)\frac{N_A+N_B}{N_A} \tag{24}$$

$$= \frac{\overline{Y}^{post} - \overline{Y}^{pre}}{\frac{N_B}{N_A+N_B}} \tag{25}$$

$$= \frac{\overline{Y}^{post} - \overline{Y}^{pre}}{\frac{N_{post}-N_{pre}}{N_{post}}}. \tag{26}$$

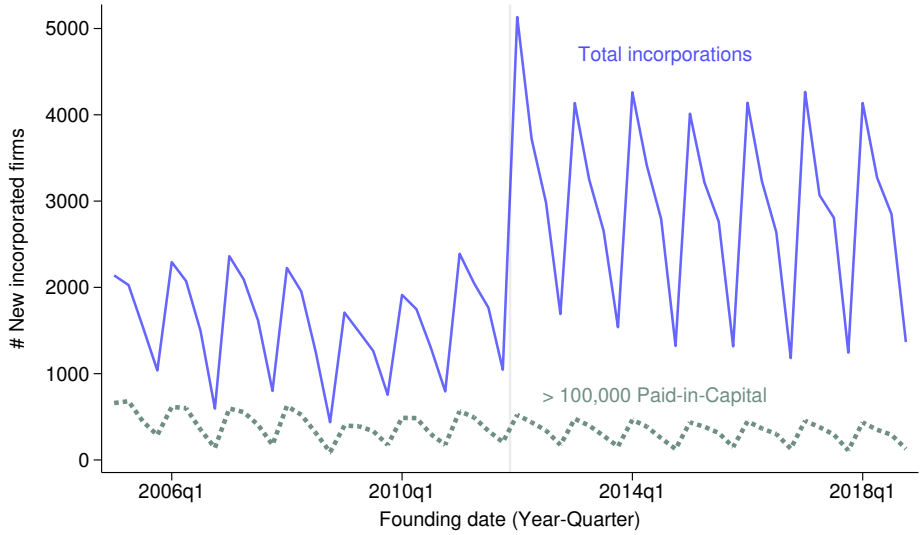
D Supplementary figures

Figure OA.1: Firm Creation Before and After the Reform: Excluding Entrepreneurs Who Owned Any Private Equity



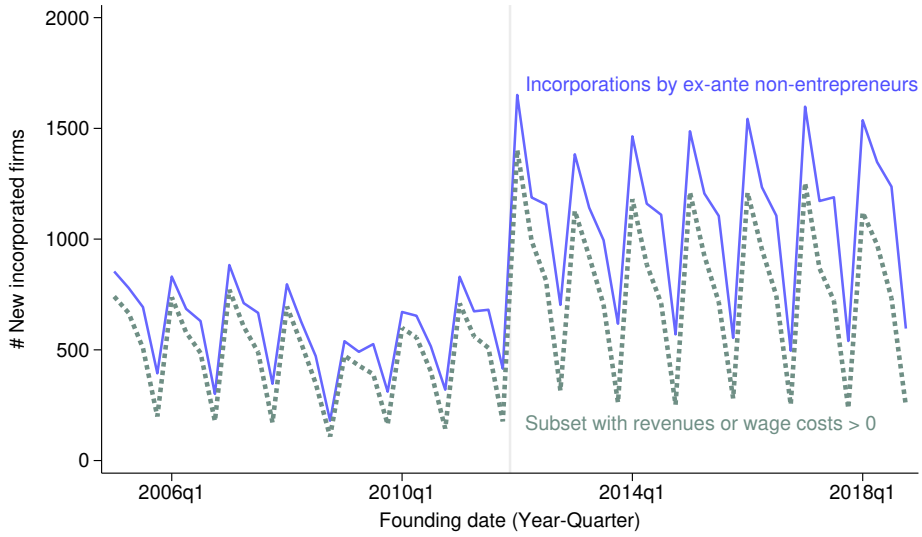
Notes: The solid blue line considers only incorporations done by individuals who were not previously entrepreneurs: neither incorporated (AS), sole-proprietor (ENK), CEO-partner of a partnership (ANS, DA), or CEO of a foreign-incorporated firm (NUF). The dashed orange line restricts the sample to incorporations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

Figure OA.2: Firm Creation Before and After the Reform: No Effect on High-Capital Firm Creations



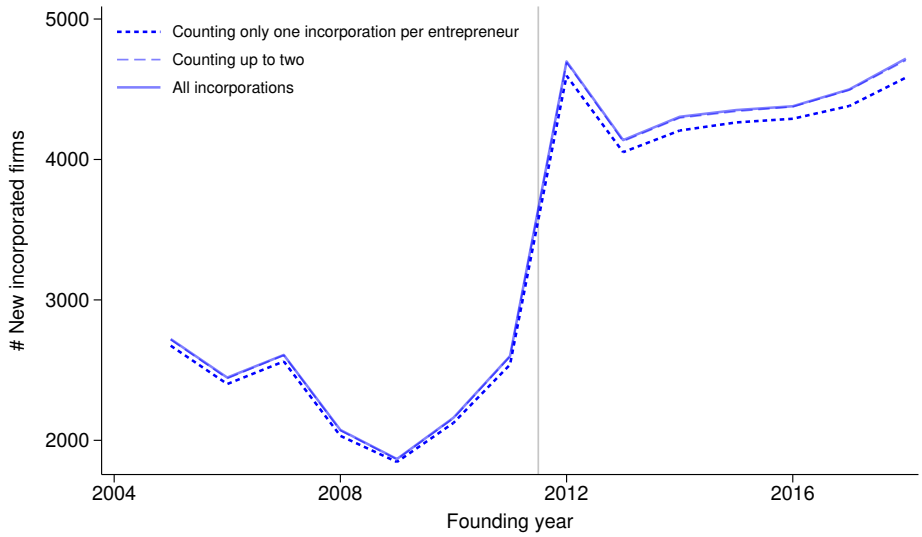
Notes: The solid blue line shows the total number of incorporations (as in Panel B of main-text Figure 1). The dashed teal line shows the total number of incorporations of firms with strictly more than NOK 100,000 in paid-in-capital (measured at the end of the incorporation year).

Figure OA.3: Incorporations of firms with strictly positive revenues or labor costs



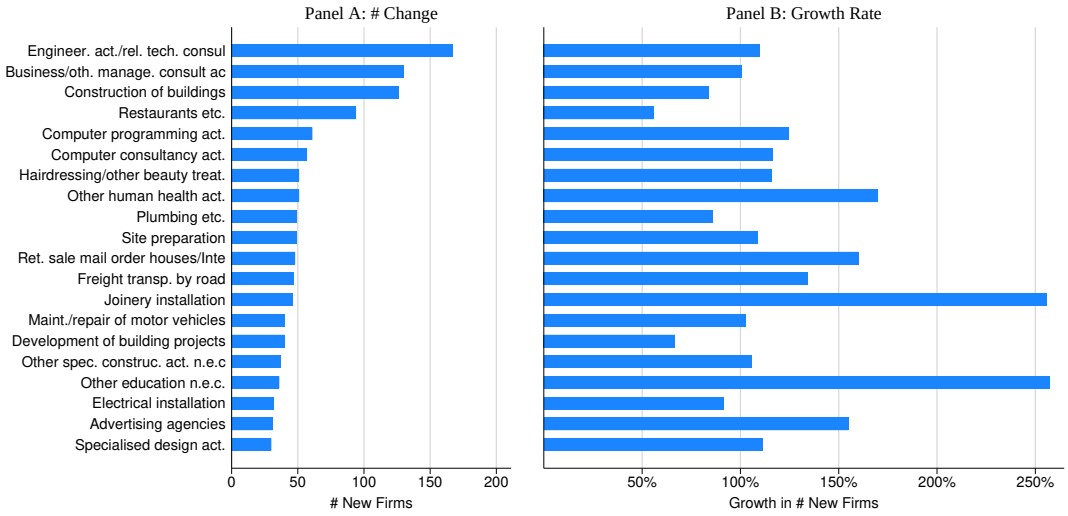
Notes: The solid blue line shows the total number of incorporations by ex-ante non-entrepreneurs (as in Panel B of Figure 1). The dashed teal line shows the subset of these incorporations where the firms had strictly positive revenues or wage bills in the year of incorporation as an indication of (immediate)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

Figure OA.4: How the change in incorporation rates (does not) depend on multiple incorporations by individual entrepreneurs



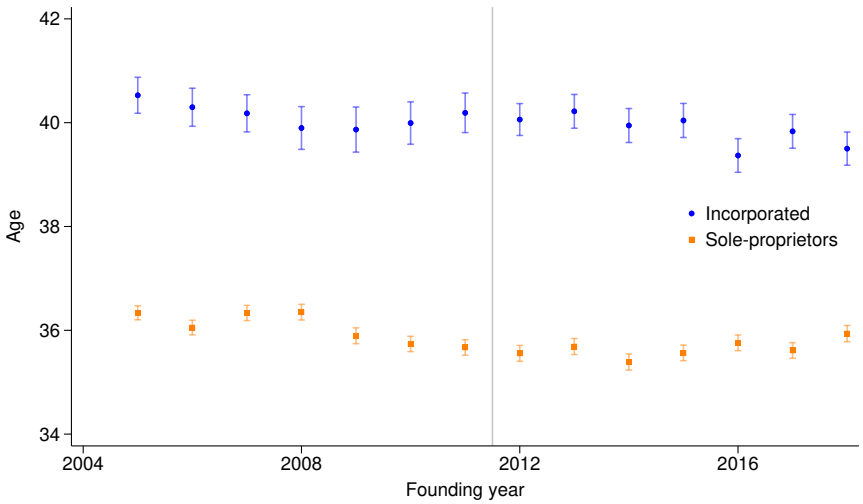
Notes: The solid blue line shows the total number of incorporations by ex-ante non-entrepreneurs (as in Panel B of Figure 1) aggregated to a yearly frequency. The long-dashed blue line shows the number of new incorporations when we count at most two incorporations per entrepreneur (per year). The short-dashed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

Figure OA.5: Industry Decomposition of the Increase in Incorporations From 2011 to 2012



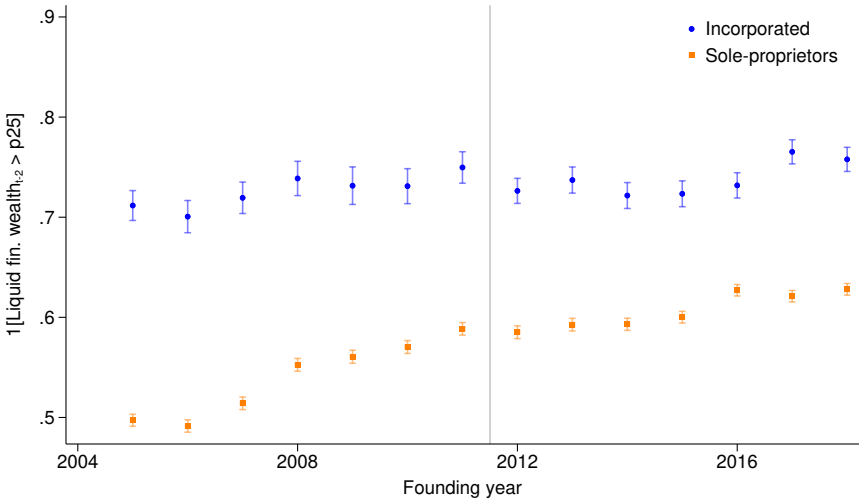
Notes: This figure considers the change (Panel A) and relative change (Panel B) in incorporations from 2011 to 2012. This is done separately for different four-digit NACE-code industries. The figure only includes data for four-digit NACE codes for which there were at least 30 more incorporations in 2012 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.6: Characteristics of Entrepreneurs Around the Reform: Age



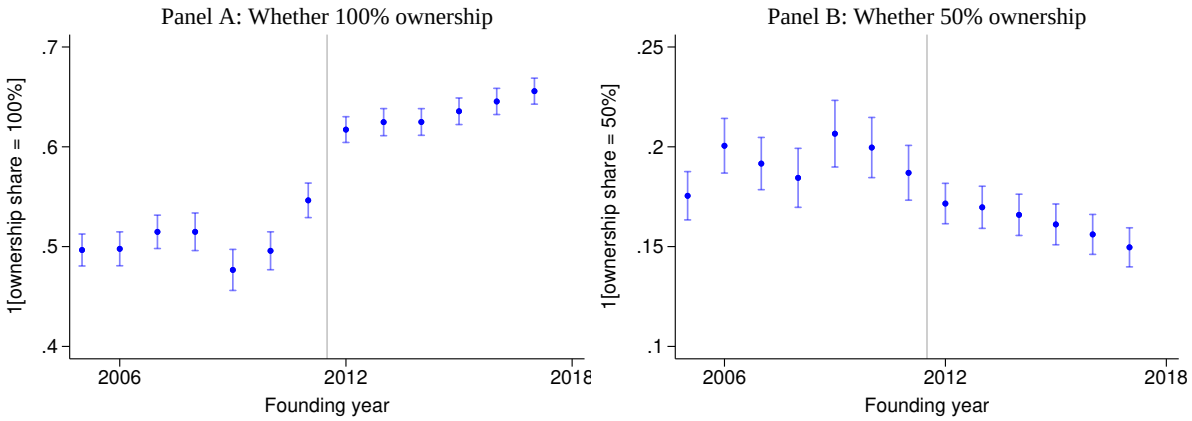
Notes: All panels condition on firms created by individuals who were not entrepreneurs in the prior year. This figure considers the age of the entrepreneur (incorporation year − birth year). Standard errors underlying the 95% confidence bands are clustered at the person (entrepreneur) level.

Figure OA.7: Whether Entrepreneurs Ex-Ante Liquidity is Above the 25th Percentile



Notes: All panels condition on firms created by individuals who were not entrepreneurs in the prior year. This figure considers whether the entrepreneur's liquid financial wealth is above the 25th percentile (measured in 2011 among incorporating entrepreneurs). Standard errors underlying the 95% confidence bands are clustered at the person (entrepreneur) level.

Figure OA.8: 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.

Table OA.1: Predictors of Firm Outcomes

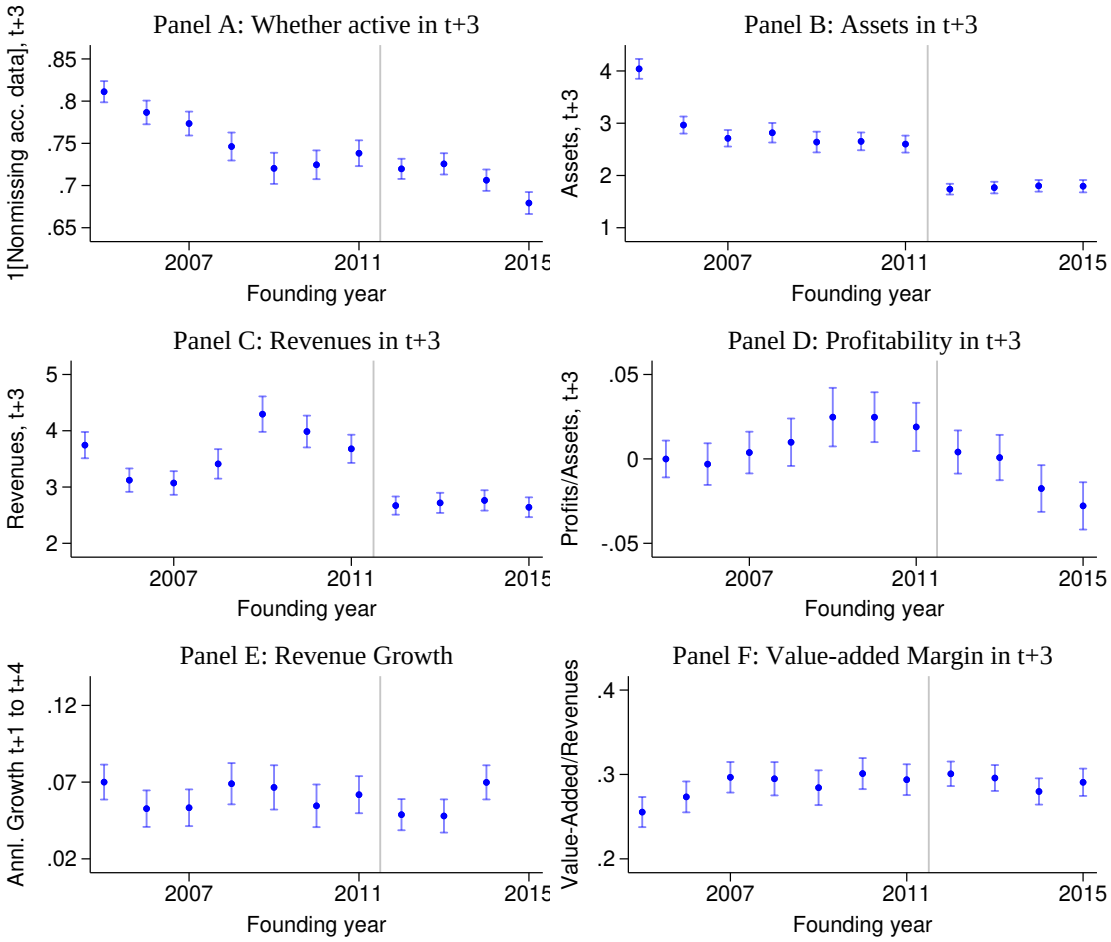
Notes: This table provides the regression coefficients from regressing profitability, value-added margin, and revenues (in MNOK) on different individual characteristics. Sample sizes vary with the coverage of the right-hand-side variables. In columns (3), (6), and (9), where personal income in 2006 is 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(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

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

Figure OA.9: Firm outcomes measured three years later, contrasting pre- and post-reform entrants

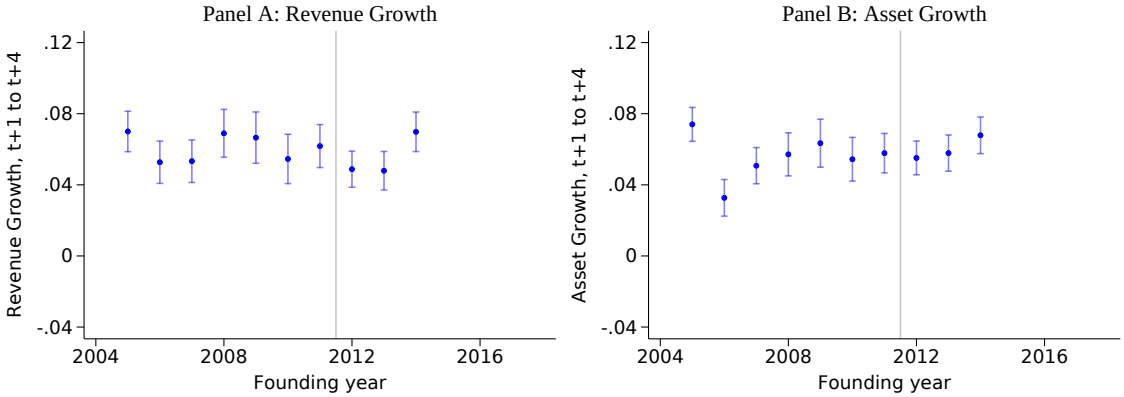


Notes: All panels condition on firms incorporated by individuals who were not entrepreneurs in the prior year. Panel A considers whether the firm has nonmissing accounting data at $t+3$, where t denotes the year of incorporation. Panel B considers the total book assets (winsorized at the 95th percentile) 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 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 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.9 for results when all panels (except E) use 2018 instead of $t+3$ data.

for productivity. More formally, for each year and 3-digit NACE industry, we estimate

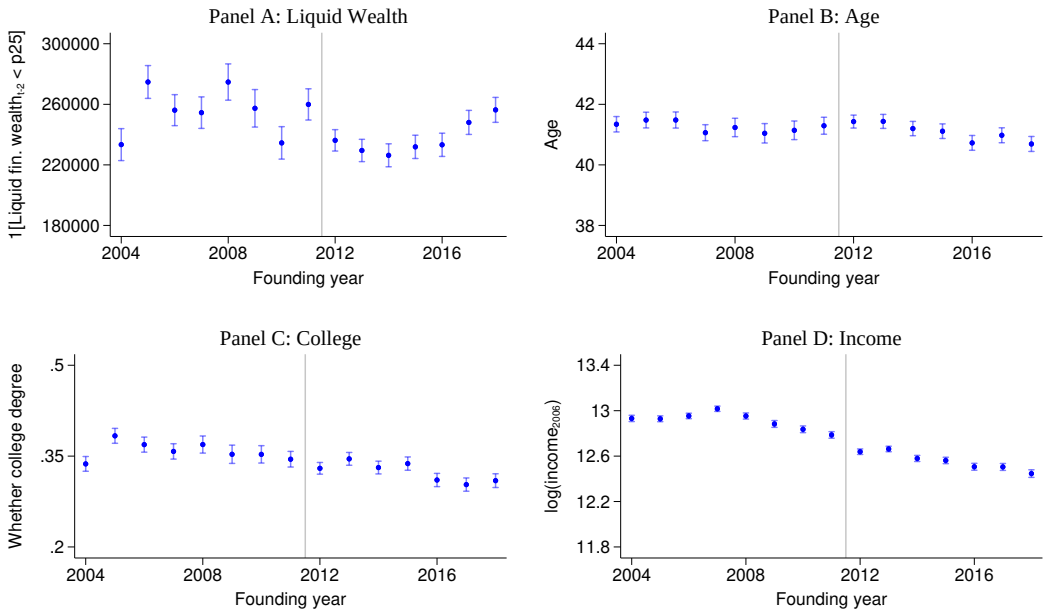
$$\begin{aligned} \log(\text{Revenues}_{f,t}) &= \beta_0 + \beta_1 \log(\text{Assets}_{f,t}) \\ &+ \beta_2 \log(\text{Wage bill}_{f,t}) \\ &+ \beta_3 \log(\text{Operating costs minus payroll tax, depr., and write-downs}_{f,t}) + \varepsilon_{f,t} \end{aligned} \tag{27}$$

Figure OA.10: 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 6 for further details.

Figure OA.11: Characteristics of Entrepreneurs Who Transition from Sole-proprietorship to Incorporated Entrepreneurship

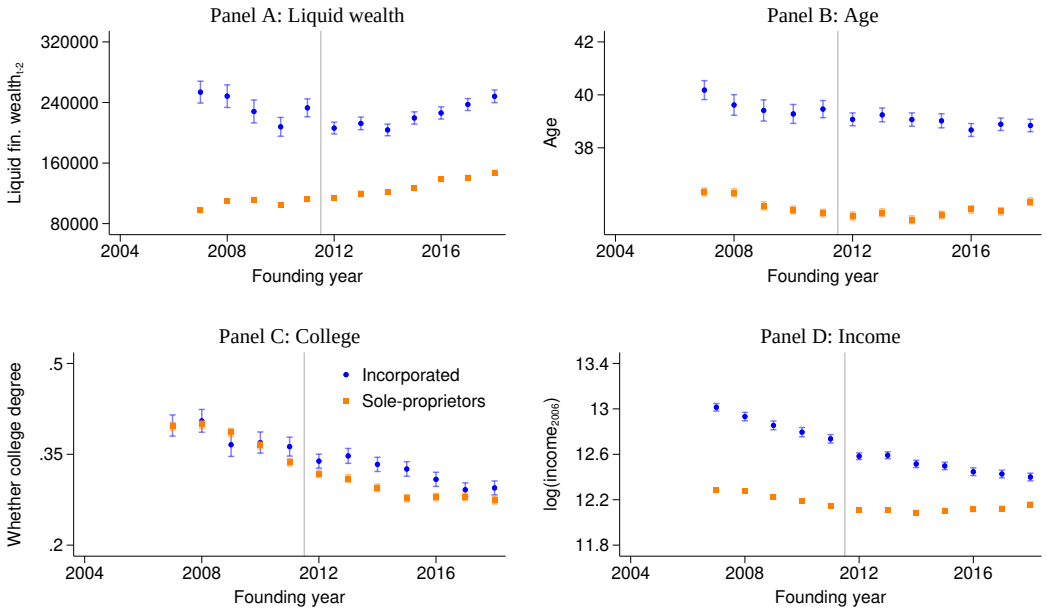


Notes: All panels condition on firms created by individuals who were sole-proprietors but otherwise not entrepreneurs. Standard errors underlying the 95% confidence bands are clustered at the person (entrepreneur) level.

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.[19] All operating cost components

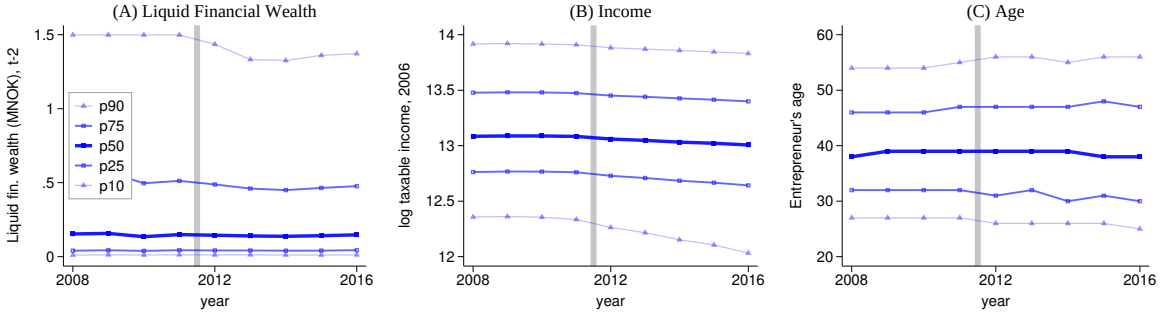
[19]Inflation adjustment assumes a constant rate of inflation of 2%.

Figure OA.12: Characteristics of Entrepreneurs Conditioning on Not Being an Entrepreneur in 2006



Notes: We modify the definition of new entrants relative to main Figure 2 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 $t-1$.

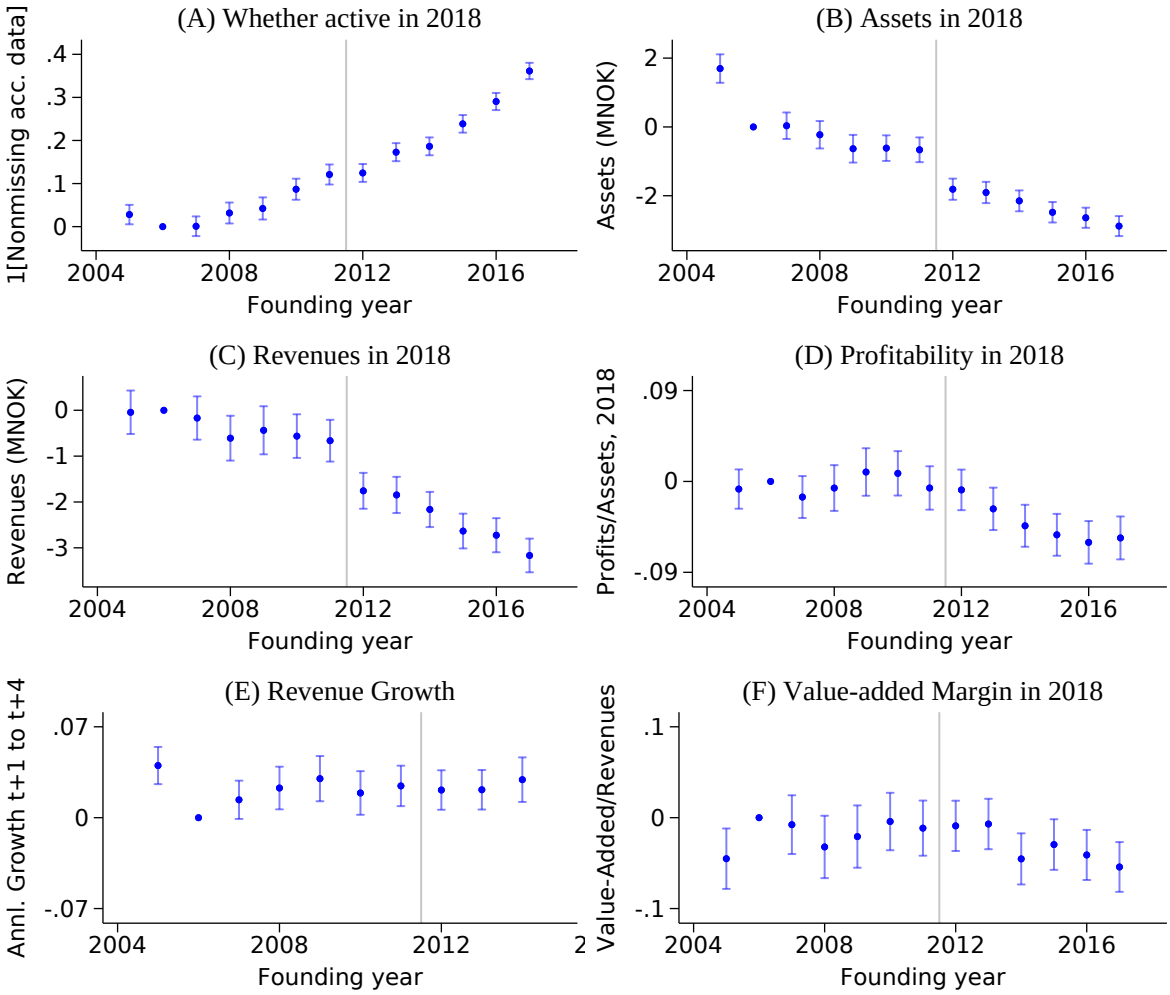
Figure OA.13: Distribution of ex-ante Characteristics of Entrepreneurs Around the Reform



Notes: In contrast to Figure 2 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 2.

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. This is because we

Figure OA.14: Firm outcomes, contrasting pre- and post-reform entrants while controlling for industry fixed effects.

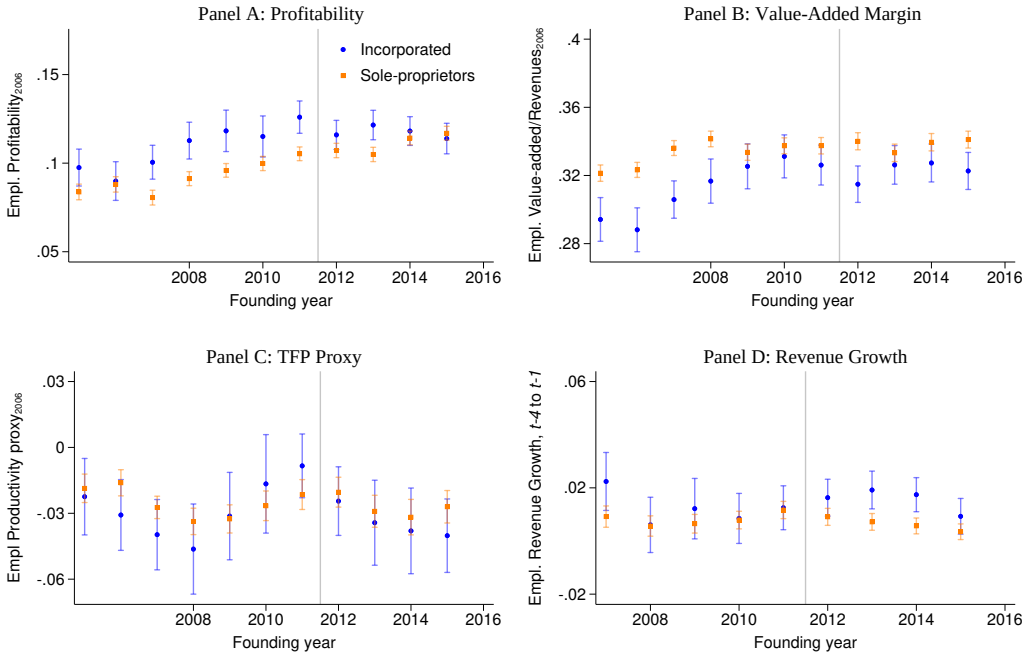


Notes: In contrast to Figure 6, the following regression estimates are the result of also controlling for the incorporated firms' 5-digit NACE industry codes. All panels condition on firms incorporated by individuals who were not entrepreneurs in the prior year. All variables are measured, except revenue growth, are measured in 2018. Standard errors underlying the 95% confidence bands are clustered at the person (entrepreneur) level.

consider revenue residuals as of 2018 and compare firms based on their incorporation year (not the year in which productivity is measured).

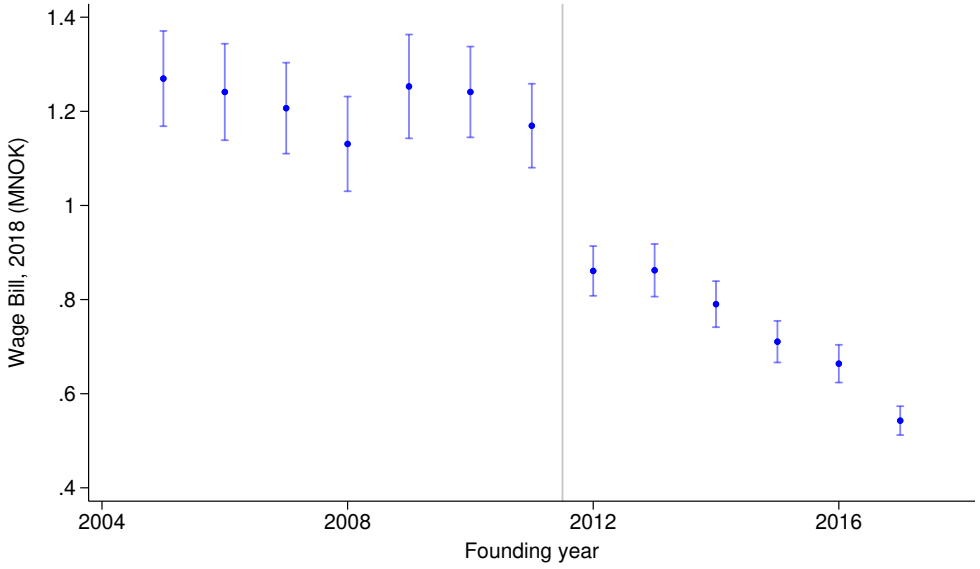
Figure OA.20 reports our findings on how this proxy for productivity in 2018 varies with the year of incorporation.

Figure OA.15: Characteristics of Entrants' Prior Employers



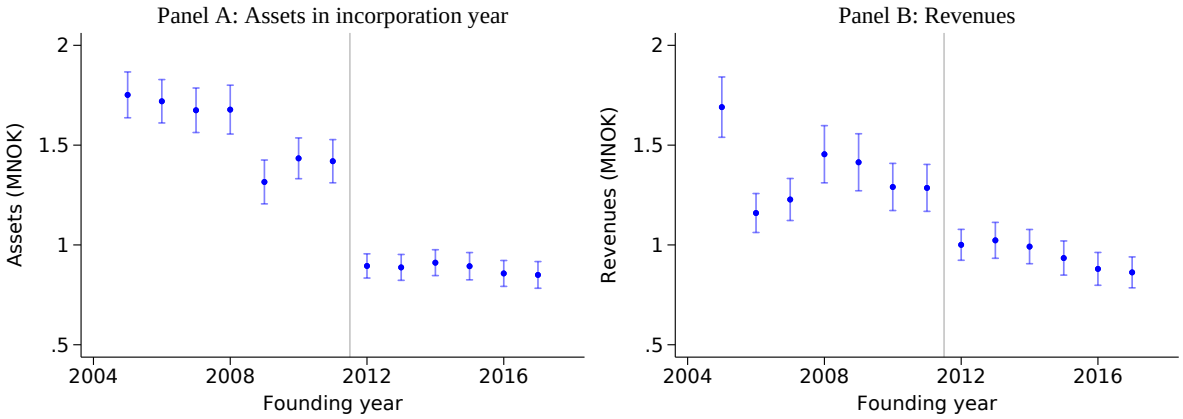
Notes: This figure plots the characteristics of new entrants' ex-ante employers. Panel A considers Profitability (operating income divided by assets). Panel B considers the value-added margin (operating income plus wage bill divided by revenues. Panel C considers the TFP proxy described in Appendix D.1. Panel D considers revenue growth from $t-4$ to $t-1$. 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.16: Total wage bill



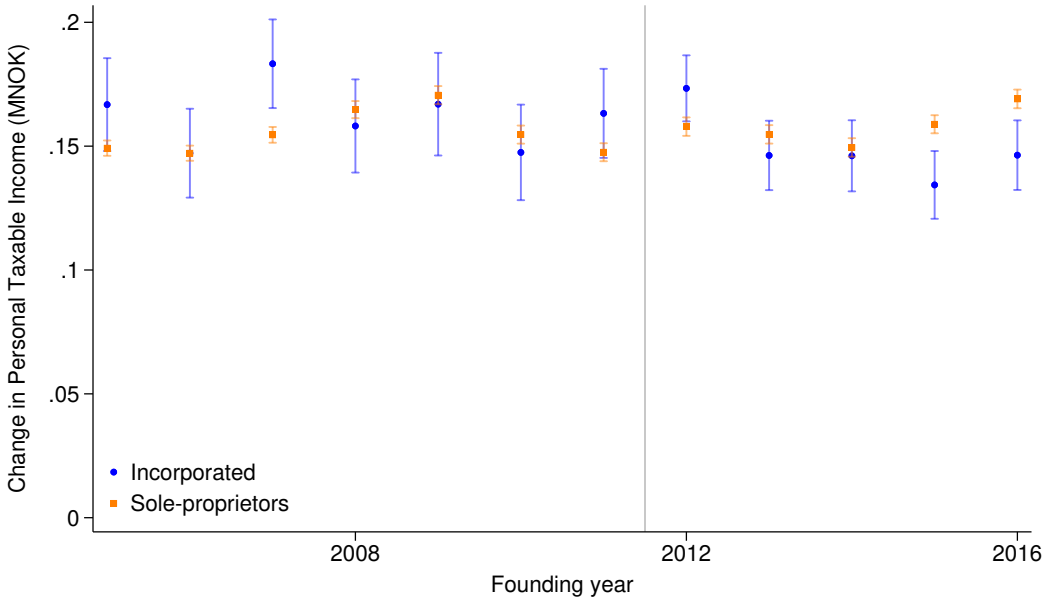
Notes: We supplement Figure 6 by also considering the total labor cost (wage bill, winsorized at 95th percentile) of the firms measured in 2018.

Figure OA.17: Assets and Revenues Right After Incorporation



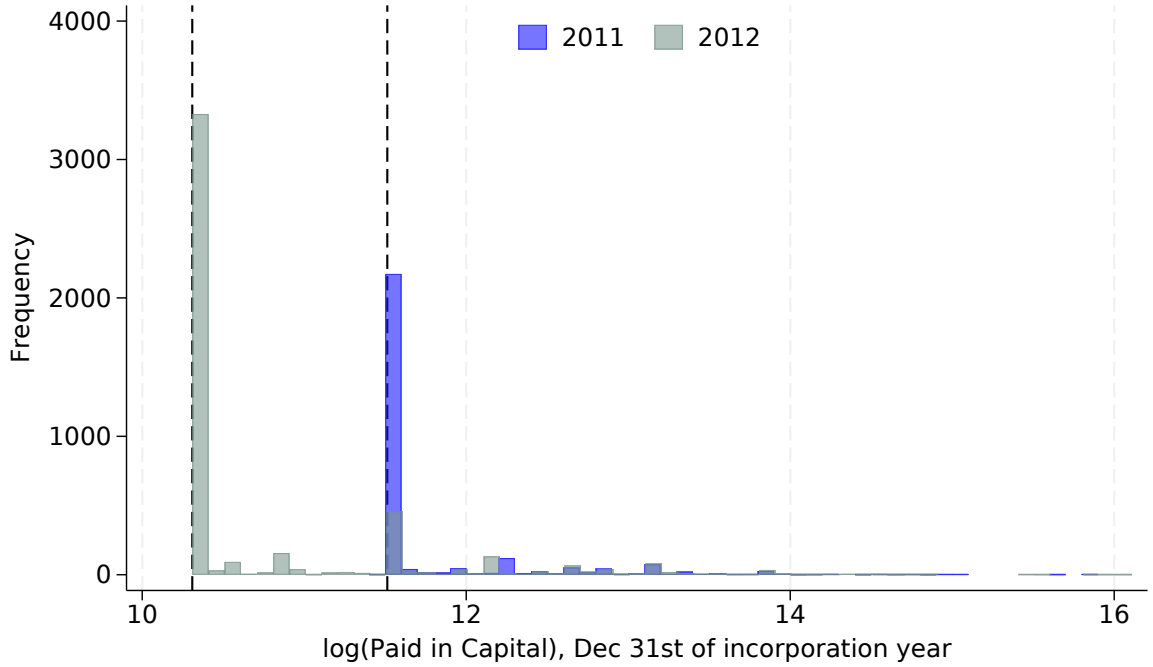
Notes: This figure plots how assets and revenues, measured at the end of the incorporation year, varies with the incorporation year.

Figure OA.18: Change in Personal Taxable Income After Entry: Contrasting Pre and Post-reform Entrants



Notes: All panels condition on firms incorporated by individuals who were not entrepreneurs in the prior year. Scatter points come from estimating the following regression equation: (personal income$_{i,t+3}$ − (personal income$_{i,t-3}$ = $\alpha_{t,n} + \varepsilon_i$, where t indexes firm type $\in$ {incorporated, sole-proprietorship}. The left-hand-side variable is winsorized at the 1% and 99% levels. If an individual who starts a firm in t is not an entrepreneur at time t, the left-hand-side variable only contains personal income as observed in the tax returns. Standard errors underlying the 95% confidence bands are clustered at the person (entrepreneur) level.

Figure OA.19: Distribution of Equity (Paid-in-Capital) Before and After Reform



Notes: We plot the distribution of (log) Paid-in-Capital for 2011 and 2012, truncated to restrict the x-axis. The vertical lines indicate the capital requirements for 2012 and 2011, respectively.

Table OA.2: The Balance Sheets of Marginal Entrepreneurs in 2018

Notes: This table provides estimates of how marginal entrepreneurs differ from average entrepreneurs: The first three rows are the estimated coefficients from equation (6) , the fourth row is the growth rate in incorporations in the sample where the outcome variable is observed, the fifth row provides the estimated ΔY_h, which is our main estimate. 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. AP is accounts payable. CA Secur consists of listed securities (e.g., listed stocks, bonds). 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. Standard errors are obtained from a 200-repetition bootstrap procedure.

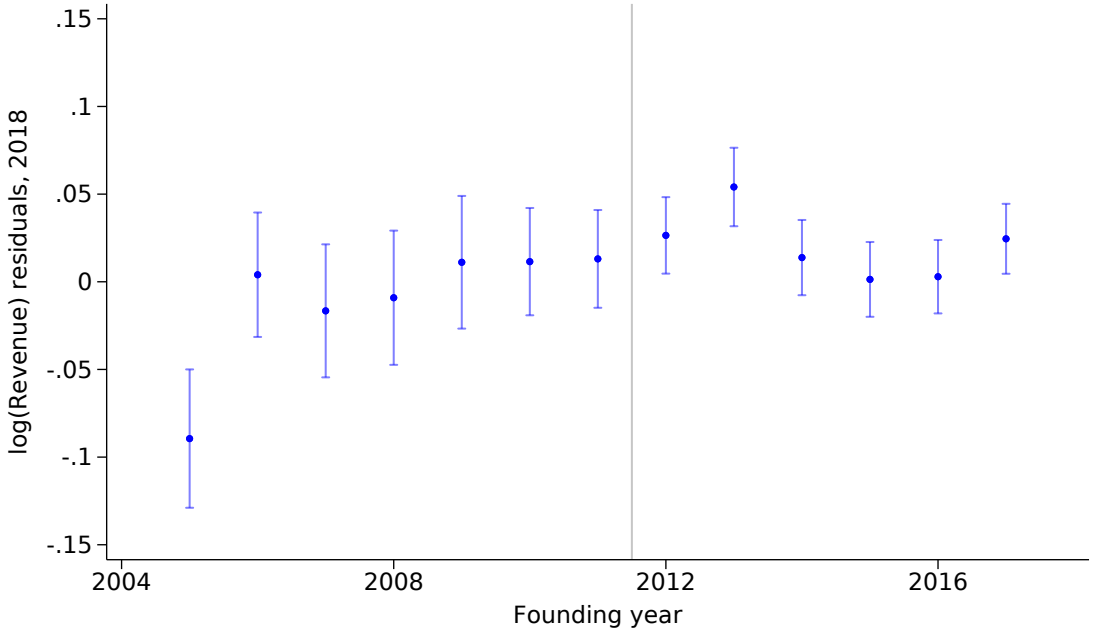
Panel A: Assets in 2018, Million NOK

		Fixed Assets						Current Assets		
	Total	Intang	PPEV	REI	Subsid	Secur	Other	AP	Secur	Cash
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\mathbb{1}[s \geq 2012]$	-1.25***	-0.00	-0.17**	-0.17***	-0.17**	-0.14***	-0.03	-0.24***	-0.04	-0.17***
	(0.19)	(0.02)	(0.08)	(0.06)	(0.08)	(0.04)	(0.03)	(0.08)	(0.05)	(0.06)
$\widehat{\Delta Y}$	-2.90***	-0.00	-0.40**	-0.39***	-0.40**	-0.32***	-0.07	-0.57***	-0.10	-0.40***
	(0.46)	(0.05)	(0.18)	(0.13)	(0.19)	(0.10)	(0.07)	(0.18)	(0.11)	(0.13)
N	13877	13877	13877	13877	13877	13877	13877	13877	13877	13877

Panel A: Liabilities in 2018, Million NOK

		Equity		Debt					
	Total	Paid-in	Retained	Taxes	Bank/bonds	Suppliers	Wages	Affil	Other
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
$\mathbb{1}[s \geq 2012]$	-1.25***	-0.15***	-0.47***	-0.08***	-0.25***	-0.09**	-0.04***	-0.16***	-0.05
	(0.19)	(0.05)	(0.10)	(0.02)	(0.07)	(0.05)	(0.02)	(0.04)	(0.06)
$\widehat{\Delta Y}$	-2.90***	-0.34***	-1.08***	-0.19***	-0.58***	-0.22**	-0.10***	-0.36***	-0.12
	(0.46)	(0.12)	(0.23)	(0.06)	(0.17)	(0.11)	(0.04)	(0.09)	(0.14)
N	13877	13877	13877	13877	13877	13877	13877	13877	13877

Figure OA.20: 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 6 for further details on methodology.