Aiming Low: Necessity Entrepreneurs and the Choice to Incorporate*

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Abstract

Wage employees who are laid-off may turn to entrepreneurship to generate income. Conventional wisdom suggests that these necessity entrepreneurs perform poorly because they lack entrepreneurial resources (e.g. financial, managerial, human, or social). In this paper we challenge this view, using data from matched employee-employer tax records that cover incorporated and unincorporated firms. We find that displaced workers subject to mass layoffs, who "aim low" and start unincorporated companies, perform better than matched voluntary entrepreneurs starting similar firms. However, necessity entrepreneurs who "aim high" and start incorporated companies perform worse than their voluntary counterparts. We show that exposure to entrepreneurial coworkers improves the performance of necessity entrepreneurs in incorporated firms, whereas their position in their previous employer's hierarchy does not. Taken together, our results show that entrepreneurial success depends on the match between a founder's existing resources and the resource requirements of different organizational forms.

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1 Introduction

Necessity entrepreneurs (also known as "forced entrepreneurs", "distress-driven entrepreneurs", or "displaced entrepreneurs") are individuals who are pushed into entrepreneurship after an unexpected negative labor market shock.[1] Because these entrepreneurs start firms out of necessity, compared to voluntary entrepreneurs, they may have lower human capital (e.g., managerial skills), lower financial capital (e.g., collateral and access to credit), and lower social capital (e.g., access to valuable networks). For these reasons, conventional wisdom suggests that, all else equal, necessity entrepreneurs may underperform relative to voluntary entrepreneurs.

However, the literature finds mixed results regarding the performance of firms started by necessity entrepreneurs. Some papers find that they underperform (Galindo Da Fonseca, 2022), while others provide evidence of entrepreneurs finding success following negative labor shocks (Babina, 2020, Hacamo and Kleiner, 2022, Hou et al., 2025). At the same time, recent studies emphasize the importance of a firm's legal structure—particularly the choice to incorporate, which is more capital- and skill-intensive—for subsequent entrepreneurial performance (e.g. Levine and Rubinstein, 2017, 2018). Entrepreneurial success may therefore depend on the match between the resources of the founder (which are low for necessity entrepreneurs) and the resources required for different organizational forms (which are high for incorporated firms).

In this paper, we study this hypothesis by analyzing the performance of firms started by necessity entrepreneurs following job displacement. Our identification strategy follows the large literature on mass layoff events, where an important fraction of a company's workforce is laid off simultaneously (e.g. Jacobson et al., 1993, Couch and Placzek, 2010, Lachowska et al., 2020). Importantly, these layoffs may increase necessity entrepreneurship by displaced workers for plausibly exogenous reasons. We leverage this setting to examine the conditions under which displaced workers, with limited entrepreneurial resources, achieve success when starting incorporated and unincorporated firms. Providing evidence on this issue is important, given that individuals who have been subject to negative labor market shocks are often advised to enter entrepreneurship as an alternative way to generate income.[2]

[1] Examples include job layoff (e.g. Von Greiff, 2009, Røed and Skogstrøm, 2014, Nyström, 2020, Galindo Da Fonseca, 2022), financial distress of an employer (Babina, 2020), graduating into a recession (Hacamo and Kleiner, 2022), or increased unemployment risk (Hou et al., 2025).

[2] For instance, see this Forbes article on tech layoffs: https://www.forbes.com/sites/bernhardschroeder/2023/04/03/layoffs-

To identify mass layoffs and firm creation, we use matched employee-employer tax records covering the universe of Canadian taxpayers from 2001 to 2021. The data allow us to link individual tax filings to corporate tax filings and the ownership structure of all businesses in Canada (including incorporated and unincorporated businesses). In addition, the data include a record of whether an employee separation is voluntary or involuntary, allowing us to identify layoffs accurately. Because we observe all firm creations, their legal form, their owners, and their subsequent performance, we can precisely measure entrepreneurial entry and compare the performance of necessity and voluntary entrepreneurs.

Following mass layoff events, we document large and persistent reductions in employment and wage earnings of laid-off workers, consistent with the literature on job displacement. We also find a significant increase in entrepreneurship, suggesting that mass layoffs have a causal impact on entry into necessity entrepreneurship. We then evaluate the performance of new firms started by necessity entrepreneurs by analyzing displaced workers who start either incorporated or unincorporated firms. We compare their firm performance to that of a control group of matched voluntary entrepreneurs, who start a firm with the same legal structure, in the same year and in the same industry, but who were not subject to a mass layoff.

We find that necessity entrepreneurs, subject to a mass layoff, who start unincorporated firms perform better than a matched control group of voluntary entrepreneurs. On the other hand, we also find that those who start incorporated firms perform worse than voluntary entrepreneurs. Taken together, these findings imply that it may be more appropriate for displaced workers to "aim low" and choose a simpler unincorporated legal structure rather than "aim high" with a more complex incorporated legal structure.

Our main explanation for these findings relates to the framework proposed by Levine and Rubinstein (2018) to explain selection into incorporated and unincorporated business forms. In their model, incorporation "demands entrepreneurial ability, physical capital, and liquidity," while unincorporation "demands none (or little) of these resources and is driven primarily by the non-pecuniary benefits of self-employment, such as being one's own boss." Given that employees in our setting have been unexpectedly laid off, they may lack the resources required to succeed in starting an incorporated firm. This is consistent with our finding that laid-off employees who

are-fueling-a-new-wave-of-entrepreneurs-heres-how-you-can-join-them/.

start incorporated businesses perform worse than matched voluntary entrepreneurs. By contrast, Levine and Rubinstein (2018) argue that such resource constraints are *not* prerequisites for successful performance in unincorporated firms, where entrepreneurs mostly derive non-pecuniary benefits. In our context, because displaced workers act out of necessity, they may face stronger incentives to generate income with their business, consistent with our finding that they outperform voluntary entrepreneurs in unincorporated firms.

In addition to these results, we examine how founder characteristics can help overcome resource constraints and achieve entrepreneurial success. First, we examine the role of entrepreneurial networks, measured by exposure to coworkers with entrepreneurial experience. A large literature documents that entrepreneurs gain from interacting with peer entrepreneurs.[3] Our matched employer-employee data allow us to precisely identify coworker entrepreneurial peers. We find that displaced individuals with more entrepreneurial peers perform significantly better when they start incorporated firms, consistent with the idea that peer exposure can help mitigate resource constraints in incorporated firms that require high entrepreneurial resources.

Second, we examine the role of displaced workers' position within their previous employer's hierarchy. Higher-ranked employees may possess general managerial skills that transfer to entrepreneurship, or alternatively, firm-specific skills that do not transfer. Our data contain the exact earnings of every individual within each firm, which allows us to rank employees from highest to lowest paid. Individuals who are highly ranked within the firm may have more managerial responsibilities than those who are lower ranked.[4] However, we find that employment rank does not have a significant impact on performance in either incorporated or unincorporated firms. These results suggest that the skills associated with hierarchical advancement do not contribute to successful transitions into entrepreneurship.

Our paper contributes to several strands of the literature. First, we document how the choice of business structure can impact the success of necessity entrepreneurs. The patterns we docu-

[3]This literature documents that entrepreneurs can acquire valuable entrepreneurial resources from peers of different kinds. Papers that examine entrepreneurial peers as coworkers include Gompers et al. (2005), Field et al. (2016), Nanda and Sørensen (2010), Graham et al. (2023), Hong (2024). Papers that examine entrepreneurial school peers (e.g. randomization into MBA Sections) include Lerner and Malmendier (2013), Howell et al. (2022), Hacamo and Kleiner (2024), Abraham et al. (2025). Papers that examine entrepreneurial peers as neighbors include Giannetti and Simonov (2009), Guiso et al. (2021).

[4]Similarly, Babina (2020) argues that the distress driven entrepreneurs in her study are high wage workers in sectors where "employees are key assets."

ment can help reconcile recent studies of forced entrepreneurship. In particular, Babina (2020) examines high-wage key workers, who leave wage employment for entrepreneurship when their wage employer experiences financial distress, while Hacamo and Kleiner (2022) examines students of elite US colleges who graduate into a recession. In both studies these individuals start complex and sophisticated businesses that subsequently perform well. However, compared to the displaced workers in our setting, these studies focus on necessity entrepreneurs who potentially have higher pre-existing entrepreneurial resources. We contribute to this literature by showing that displaced workers can nonetheless find success when they start firms that require less entrepreneurial resources.

Second, we show that exposure to entrepreneurial coworkers—measured in linked employer–employee data—improves the performance of incorporated ventures started by displaced workers. This evidence complements recent work on peer effects in entrepreneurship among coworkers and MBA peers (e.g., Nanda and Sørensen, 2010, Lerner and Malmendier, 2013, Hacamo and Kleiner, 2024) and shows how peer effects may operate in necessity entrepreneurship settings. Our findings highlight that entrepreneurial networks can partially mitigate the resource constraints faced by displaced workers who choose incorporated ventures. In contrast, we find no evidence that a displaced worker's position in the employer's hierarchy predicts subsequent entrepreneurial success.

Finally, a strand of literature shows that fallback employment options can shape entrepreneurial entry and success: Catherine (2022) models how paid employment fallback opportunities may encourage experimentation; Gottlieb et al. (2022) document that expanded job protection increases entry into high-quality firms; and Hou et al. (2025) show that higher unemployment risk can induce employees to enter entrepreneurship without impairing performance. We contribute to this literature by showing that displaced workers—who have weaker fallback employment options by definition—can nonetheless find success when they start unincorporated firms.

2 Hypothesis Development

We build on Levine and Rubinstein (2018), who develop a theoretical model to show how human capital, preferences, and liquidity constraints affect entry into entrepreneurship. In their model, incorporated firms require greater entrepreneurial resources than unincorporated firms, which are mostly driven by the non-pecuniary benefits of self-employment. The setting of displaced workers following a mass layoff event is ideal to test these predictions. Displaced workers may not have planned to accumulate entrepreneurial-specific resources and, given these constraints, may find it hard to succeed in incorporated firms. However, because they act out of necessity instead of being driven by non-pecuniary benefits, they may find success in unincorporated firms.[5]

Hypothesis 1. The Choice to Incorporate. *Displaced workers who "aim high" and start incorporated firms underperform relative to voluntary entrepreneurs, because they lack the entrepreneurial resources these firms require. In contrast, displaced workers who "aim low" and start unincorporated firms outperform matched voluntary entrepreneurs out of necessity.*

2.1 The Role of Entrepreneur Networks

Interactions with peer entrepreneurs may improve subsequent entrepreneurial success. Exposure to these entrepreneurial peers may transmit knowledge helpful to navigate regulatory requirements (Nanda, 2011), find business opportunities (Dahl and Sorenson, 2012), or obtain funding and recruit employees (Hochberg et al., 2007). These mechanisms should be more valuable in incorporated firms, which require more entrepreneurial resources, than in unincorporated firms.

Hypothesis 2. The Effect of Peer Entrepreneurs. *Among displaced workers starting incorporated firms, those with high entrepreneurial peer exposure outperform those with low peer exposure. In contrast, entrepreneurial peer exposure has minimal impact on unincorporated firm performance, as these firms require few entrepreneurial resources.*

[5]This hypothesis is similar to the Resource-Based View (RBV) developed in the strategy literature (Wernerfelt, 1984, Barney, 1991), which emphasizes that entrepreneurial performance depends on matching firm strategies to the resources available to the entrepreneur. RBV papers on entrepreneurship include Alvarez and Busenitz (2001), Hitt et al. (2001), Sirmon et al. (2007), Teece (2007), and on necessity or low-resource entrepreneurs include Baker and Nelson (2005), Winborg and Landström (2001). Our setting differs from these papers by studying how different legal forms of entrepreneurship affect performance following job displacement.

2.2 The Role of Employment Rank

Alternatively, a worker's hierarchical position at their employer may affect subsequent entrepreneurial success. Individuals higher ranked at their employer (e.g., proxied by income rank within the firm) may have accumulated more organizational capital or managerial experience and this experience may or may not transfer to entrepreneurial success. On one hand, successful entrepreneurship requires competences across multiple domains (Lazear, 2004), which suggests that individuals with greater organizational capital may have a higher probability of entrepreneurial success. On the other hand, managerial experience may be firm-specific and less useful when starting a new entrepreneurial venture.

Hypothesis 3. The Effect of Employment Rank. *If managerial experience transfers to entrepreneurship, higher-ranked displaced workers outperform lower-ranked ones in incorporated firms. If organizational capital is firm-specific, employment rank does not predict incorporated firm performance. Employment rank has minimal impact in unincorporated firms, as these firms require few entrepreneurial resources.*

3 Data and Variables

In this section, we document the data and main variables used in the analysis.

3.1 Employer-Employee Data

We use a panel of linked employer-employee tax data from the Canadian Employer-Employee Dynamics Database (CEEDD), a comprehensive dataset covering the universe of tax filers in Canada from 2001–2021. Unlike other similar administrative datasets that focus on established incorporated firms or employers above specific size thresholds, our data cover the universe of Canadian firms, including newly created, and very small businesses. Critically, the data contain information on business ownership shares, which allows us to link each firm to its founder and to track firm outcomes at the owner-firm level.

3.1.1 Demographics and Individual Tax Data

We use the T1 Personal Master File (T1PMF) data as the preliminary linkage file from the CEEDD, which allows us to match individuals' personal tax data across a range of datasets, using a unique identification number. The T1PMF is recorded at the individual level and contains the individual's annual tax information, as well as demographics.

In addition to the tax information provided in the T1PMF, the T4 Record of Employment and Remuneration (T4ROE) provides the annual remuneration of each individual at each employer where they have worked. This allows us to observe all the different employers of a given individual in each year. Employers provide information on the employees such as salary paid, reason for separation, contributions to national pension programs, and number of days worked when there is job separation. A key feature of the T4ROE is its differentiation of job separation between voluntary and involuntary separations. We use this feature of the data to only include individuals who were involuntarily laid off, rather than those who voluntarily quit, in our definition of mass layoff events (as described in detail below).

3.1.2 Unincorporated Business Data

To identify unincorporated businesses, we use consolidated data from the T1 Financial Declarations (T1FD) which are filed by taxpayers who report self-employment income, and from the T1 Business Declarations (T1BD) which are filed by unincorporated business owners. The data are available from 2005 onwards and cover all the unincorporated firms and self-employed individuals in Canada. The businesses can be either sole proprietorships or partnerships. The firms in these data do not necessarily have to be registered. In Canada, registration through a business number (BN) is only mandatory for total taxable business revenues above $30,000 per year.[6] From these data, we obtain the financial information of all unincorporated business activities.

3.1.3 Incorporated Business Data

To identify incorporated entities, we use the National Accounts Longitudinal Microdata File (NALMF), which is an administrative panel dataset of all Canadian incorporated firms. The

[6]Some authors define unincorporated businesses with total taxable business revenues of less than $30,000 per year, and without a business registry number, as "gig work" (e.g. Jeon et al., 2021).

NALMF combines different data sources including administrative tax records and business data. From these data, we retrieve financial information such as income statement components, balance sheet components, employee count, and the industry code (NAICS) of the firms.

We complement these data with the T2 Schedule 50 (T2S50) files, which contain shareholder information linked to the unique individual-level identifier. It is mandatory for corporations to file this Schedule to disclose the identities of all significant shareholders, defined as individuals holding a minimum of a 10% stake in either common or preferred shares. We can therefore attribute ownership of each incorporated business to individuals in our sample, and obtain detailed ownership shares.

3.2 Variables

In this Section, we describe the variables used in the analysis. Appendix Table A1 lists all the variables, their definition, and the source of data used to construct them.[7]

3.2.1 Worker-Level

Employment and income. We define employment as a dummy equal to one if the individual received any T4 earnings in the year, and employment income as the total earnings reported on T4 slips, from the T1PMF. We also calculate pension savings withdrawals as total income withdrawals from Registered Retirement Savings Plan (individual tax-advantaged savings accounts), measured both as a dollar amount and as an extensive margin dummy.

Firm Ownership. We define the opening of a new unincorporated firm as the first year the business registry number appears in the data, and we link its creation to the individual owning the firm. To measure business ownership more generally (including unregistered unincorporated firms), we aggregate all unincorporated business activities in a given year at the individual level. This allows us to track both the opening of new unincorporated firms and total unincorporated business activities over time.[8]

[7] To minimize the influence of outliers, we winsorize all variables at the 5th and 95th percentiles of the distribution, adjusting values below and above these thresholds to the respective percentile values.

[8] An individual can be linked to many unincorporated businesses, in which case we regroup all subsidiaries and affiliated businesses under the same umbrella.

We define the creation of an incorporated firm using the date of incorporation recorded in NALMF, and we link its creation to the individual owning the firm. This allows us to accurately identify firms established in a specific year and link them with the individuals who created and/or incorporated these entities. To measure business ownership more generally, we create a variable indicating any incorporated business ownership in a given year at the individual level.

Entrepreneurial Peers. Our data allow us to observe both the complete history of employment and entrepreneurial activity of each individual. We define coworker peers as peers who work at the same firm in the same year. We define entrepreneurial peers as coworker peers who own either an incorporated or an unincorporated firm. In order to normalize for the number of workers in a firm, we define the share of peer entrepreneurs as the total number of coworker peers with entrepreneurial experience, divided by the total number of coworkers in the firm. We then rank individuals into quartiles, based on the fraction of their coworkers who have entrepreneurial experience. The first and fourth quartiles represent workers with the highest and lowest entrepreneurial peer shares, respectively. In the analysis, peers are measured at the pre-event firm (defined as the mass-layoff firm for treated workers and the firm of employment for non-treated workers).

Employment Rank. The richness of our matched employer-employee tax data also allows us to examine variation in the employment rank across all individuals in a firm. We use the income of every employee of a firm in a year and we rank each worker from highest to lowest paid. We then convert these income ranks into quartiles, with the first quartile representing the highest earning individuals, and the fourth quartile representing the lowest earning individuals within the firm. In the analysis, income ranks are measured at the pre-event firm.

3.2.2 Firm-Level

Unincorporated Firms. We exploit the business-level variables provided in the T1FDBD tax records to measure unincorporated firm performance. Specifically, we analyze: (i) total revenues, which capture the gross receipts associated with the business's operations; (ii) total expenses, which include deductible operating costs; (iii) gross profits, defined as total revenues minus total expenses; (iv) capital cost, which includes the depreciation and capital cost allowance claimed on

business assets; (v) number of employees, derived from linked T4 records; and (vi) total payroll, which reflects the sum of employment income paid to workers associated with the business.

We also exploit the fact that the unincorporated income is separated into different categories in the tax data (professional, business, and commission income). Professional income comes from regulated professional practices (e.g. self-employed physicians, dentists, lawyers, or notaries), business income comes from commercial activities that are not regulated professions (e.g. retail, consulting, trades, or repair shops), and commission income comes from self-employed commission agents (e.g. independent real estate agents, brokers, sales representatives or insurance agents). We construct dummy variables based on these categories to describe the type of business activity associated with unincorporated firms.

Incorporated Firms. We use the financial and employment variables provided in the NALMF to characterize the performance of incorporated firms. Specifically, we analyze: (i) sales, which capture gross revenues; (ii) cost of sales, which includes expenses directly tied to production or service provision; and (iii) gross profits, defined as sales minus expenses. On the balance sheet side, we use (iv) total assets, representing the book value of all assets held by the corporation; (v) intangible assets, including goodwill, patents, and other non-physical capital; and (vi) the tangibility ratio, calculated as the share of physical assets in total assets. Finally, we measure labor inputs using (vii) the number of employees derived from linked T4 slips and (viii) total payroll, reflecting the sum of employment income paid by the corporation.

4 Identification Strategy and Estimation

4.1 The Mass Layoff Identification Strategy

The key element of our identification strategy is to distinguish *involuntary* job separations from voluntary quits. We follow a large literature using mass layoffs to identify quasi-random displacement.[9] The identifying assumption is that job loss during a mass layoff is exogenous from a worker's perspective.

[9]See, e.g., Jacobson et al. (1993), Couch and Placzek (2010), Lachowska et al. (2020), Schmieder et al. (2023), among others.

Threats to Identification. Recent literature highlights threats to identification when using mass layoffs. The primary concern is that simply observing a worker's separation during a mass layoff event may not be enough to identify it as an involuntary layoff rather than a voluntary quit; some workers may *voluntarily* quit during a mass layoff due to the employer's financial distress (as in Babina, 2020, for example). It is thus critical to distinguish between voluntary quits and involuntary layoffs in the data for all employees who separated during the mass layoff event.

To address this concern, we exploit a key feature of Canadian employment law: employers are legally required to report the reason for separation of all employees, as this determines eligibility for employment insurance. Specifically, employers must certify whether each separation is a voluntary quit or an involuntary layoff. This information is recorded in the Record of Employment (ROE), which is available in our matched employer-employee database. We therefore observe separation reasons for the workers in our sample.[10]

Defining Mass Layoff Events. We follow previous studies in defining mass layoffs as a year-to-year layoff of at least 30% of the workforce, and at least 5 employee layoffs (Bertheau et al., 2023, Couch and Placzek, 2010, Schmieder et al., 2023). We only consider employees who have been explicitly laid off by the employer, as indicated in the ROE administrative records. We restrict the sample to employers who conducted only one mass layoff between 2001 and 2021, and employees who were part of only one mass layoff during this period. This definition identifies a significant number of employers with a single mass layoff event, where an average number of at least 10 employees have been laid off per incident.

4.2 Treatment and Control Groups

4.2.1 Individual Level: Displaced vs Non-Displaced Workers

Our treatment group consists of displaced workers, identified as those laid off in a mass layoff event. To be included in our sample, employees are required to have a tenure of at least 3 years

[10]Using this same ROE data, Birinci et al. (2023) document that examining mass layoff events in the Canadian data, *without* using ROE data, would result in very distorted conclusions. For example, they document that only a quarter of workers who would otherwise be classified as being part of a mass layoff should indeed be classified as an involuntary layoff. More than 45% of the mistaken classifications are caused by legal changes of the employer (e.g. name change or merger and acquisition), and the rest are voluntary quits that occurred at the same time as the mass layoff event.

at the mass-layoff firm the year before the event, and have been part of a single mass layoff between 2001 and 2021. Because we observe all employment links and reasons for separation, we can exclude individuals who leave voluntarily or who were part of more than one mass layoff. The precise identification of workers who are part of a mass layoff is possible using our detailed employer-employee tax data.

We construct a control group consisting of individuals who are never part of a mass layoff at any point in the sample and who are not laid off in the event year. They are therefore never-treated, as in Greenstone et al. (2022). We match displaced workers to non-displaced workers from the same cohort (i.e. mass-layoff year) and the same 2-digit NAICS industry. We use a one-to-one propensity score matching method without replacement using pre-event worker and firm characteristics, as in Bertheau et al. (2023) and Schmieder et al. (2023).[11] For treated workers, these characteristics are measured at the mass-layoff firm; for control workers, they are measured at the firm employing them in the matching year. We refer to these firms as the pre-event firms. This cohort-by-industry matching structure ensures that both groups face comparable macroeconomic conditions and industry-specific shocks. This creates a counterfactual group of workers with characteristics as close as possible to the treatment group in terms of earnings trends and employment trajectories pre-layoff.

Finally, to capture the dynamics surrounding mass layoffs, we force a balanced panel of individuals observed in the data before and after the mass layoff event. This limits the occurrence of mass layoffs in our study to the period between 2007 and 2015.

4.2.2 Firm Level: Necessity vs Voluntary Entrepreneurs

The second stage of our analysis compares the performance of firms started by displaced workers with firms started by non-displaced workers. In our sample of displaced workers, we observe laid-off workers who start new incorporated and unincorporated firms. Our aim is to examine the performance of these firms, relative to an appropriate control group of similar firms founded by non-displaced individuals. We include all firms created by displaced workers from the year of the

[11] We impose a minimum tenure requirement of three years at the pre-event employer for both treated- and control-group workers. The propensity score is estimated using average log earnings two and three years before the event year, worker age, and tenure at the pre-event firm, as well as pre-event firm age and the number of employees, also measured one year before the event.

mass layoff event through six years after displacement, as in our event-study.[12]

We match treated and control firms separately for incorporated and unincorporated firms, in a given year and within a given industry. We first identify all firms started each year in each 2-digit NAICS industry, by both displaced and non-displaced workers. Within founding year and industry, we then match treated-group founders to control-group founders using one-to-one propensity score matching without replacement, based again on the same pre-event worker and employer characteristics. This matching strategy at individual and cohort levels ensures that each displaced founder's firm is directly compared to one non-displaced founder's firm. We perform this firm-level matching to ensure that we compare displaced and non-displaced founders who open firms in the same industry and who are subject to the same macroeconomic conditions.

4.3 Individual-Level Analysis: Staggered Difference-in-Differences

The first part of our analysis documents the effect of mass layoff events on employment and entrepreneurship. The frequency and large scale of these layoffs provide a basis for examining their impact on employees, allowing us to analyze changes in employment patterns, wage earnings, and transitions into entrepreneurship (both incorporated and unincorporated). Our identification strategy compares the treated group of displaced workers with the control group of non-displaced workers. Because mass layoff events can be considered involuntary and plausibly exogenous to workers, this setting captures a quasi-natural experiment increasing necessity entrepreneurship.

We follow recent advances in the difference-in-differences literature that address potential biases arising from staggered treatment timing and heterogeneous treatment effects (Goodman-Bacon, 2021, De Chaisemartin and D'Haultfœuille, 2020, Callaway and Sant'Anna, 2021, Sun and Abraham, 2021, Baker et al., 2022, Wing et al., 2024). Our design incorporates two key features to address these concerns. First, we use never-treated individuals as controls, ensuring that treatment effects are not identified from comparisons between units treated at different times (Baker et al., 2022). Second, we include cohort $\times$ event-time fixed effects ($\theta_{c\tau}$), which allow each displacement cohort to have its own event-time profile. Together, these features ensure that our treatment effects are identified exclusively from within-cohort comparisons between displaced workers and their never-displaced controls.

[12] If an individual creates more than one firm, we include each firm separately in the analysis.

Specifically, we estimate the following equation:

$$Y_{it} = \sum_{\substack{\tau=-3 \\ \tau \neq -1}}^{6} \mathbb{1}(\text{Period}_{i\tau}) \times (\beta_{0\tau} + \beta_{1\tau}\text{Treated}_i) + \gamma_j + \lambda_t + \theta_{c\tau} + \mu_i + \varepsilon_{it}, \tag{1}$$

where Y_{it} is the dependent variable for individual i in calendar year t (for example, labor earnings or entrepreneurship indicators), Treated_i is a dummy variable indicating whether individual i is in the treatment group of laid off workers, and $\mathbb{1}(\text{Period}_{i\tau})$ is an indicator variable equal to one if the event time is equal to τ, and 0 otherwise. λ_t captures calendar-year fixed effects, γ_j represents pre-event firm fixed effects (i.e., the mass-layoff firm for treated workers and the firm of employment in $\tau = -1$ for controls), $\theta_{c\tau}$ is the cohort $\times$ event-time fixed effects, where c indexes the displacement cohort (the calendar year of the mass layoff), μ_i represents individual fixed effects, and ε_{it} is the error term. We cluster standard errors at the individual and pre-event firm levels. Our main coefficients of interest are the series of $\beta_{1\tau}$, which measure the effect of mass layoffs relative to event time $\tau = -1$ (the last year in which individuals are still employed by the pre-event firm).

Because each treated individual experiences only one mass layoff and we match to never-displaced individuals within each cohort-year, individual fixed effects capture time-invariant individual characteristics. The pre-event firm fixed effects capture time-invariant characteristics of the worker's previous employer (for example, differences in entrepreneurial culture or organizational practices). In addition to estimating equation (1) for the full sample, we also estimate the specification separately by entrepreneurial peer quartiles and by employment rank quartiles to assess heterogeneity across workers.

4.4 Firm-Level Analysis: Incorporation Choice and Firm Performance

After documenting the impact of displacement on entry into entrepreneurship, we then examine firm-level performance outcomes. We analyze whether firms founded by displaced workers differ in initial performance and whether these differences persist over the medium term.

We estimate the following cross-sectional regression:

$$Y_i = \alpha + \beta\,\text{Treated}_i + \gamma_r + \lambda_t + \theta_c + \delta_s + \epsilon_i, \tag{2}$$

where Y_i is the outcome for firm i, Treated_i is a dummy variable indicating whether the firm was founded by a displaced worker, γ_r represents province fixed effects, λ_t captures founding-year fixed effects, θ_c represents cohort fixed effects (the year of displacement for the founder), δ_s captures industry fixed effects (2-digit NAICS), and ϵ_i is the error term. Our coefficient of interest is β, which captures the difference in outcomes between firms founded by displaced versus non-displaced workers. We cluster standard errors at the firm level.

To explore heterogeneity in treatment effects, we also estimate specifications that interact the treatment indicator with founder characteristics:

$$Y_i = \alpha + \sum_{q=1}^{3} \beta_q \left(\text{Treated}_i \times \mathbb{1}(Q_i = q)\right) + \beta_0 \,\text{Treated}_i + \gamma_r + \lambda_t + \theta_c + \delta_s + \varepsilon_i, \tag{3}$$

where Q_i denotes the quartile of the founder's characteristic (either entrepreneurial peer exposure or employment rank), measured at the pre-event firm, one year before the event. The coefficients β_q capture the differential effect of displacement for founders in quartile q relative to the bottom (4th) quartile. All other fixed effects remain as in equation (2). Hence, while our baseline specification compares laid-off workers to non-laid-off workers, our heterogeneity specification in addition includes an interaction term based on these quartiles. We can thus compare laid-off to non-laid-off entrepreneurs, relative to each of the four quartiles.

We compare the performance of firms founded by displaced workers to those founded by non-displaced workers, according to the matching procedure described in Section 4.2.2. We include all firms created by displaced workers in years $\tau = 0$ to $\tau = 6$, estimating separate regressions for incorporated and unincorporated firms. We examine two time horizons: performance in the year of firm creation ($t = 0$), and average annual performance over years one through five after creation ($t = 1$ to $t = 5$).

5 Baseline Results: Aiming Low and the Incorporation Choice

In this section, we present results comparing displaced workers to matched non-displaced workers. We document three key findings. First, we confirm that mass layoffs cause significant reductions in employment and earnings, consistent with the large literature on job displacement

in economics. Second, we provide novel evidence that displaced workers respond by entering necessity entrepreneurship at significantly higher rates. In all of the event-study results we report, we show insignificant pre-trends before the mass layoff event and significant changes after that, which supports the identification assumption that layoffs are exogenous. Third, we show that necessity entrepreneurs who start unincorporated firms outperform matched voluntary entrepreneurs, while those who start incorporated firms underperform.

5.1 Employment and Earnings

Figure 1 presents event-study coefficients from equation (1), showing the effect of displacement on employment and employment income. Panel (a) shows the probability of employment. The trends for treated and control groups align consistently until the layoff event, after which employment for the treated group declines by approximately 20 percentage points. Recovery is gradual, but even six years post-layoff, employment probabilities remain below pre-layoff levels, suggesting persistent effects of mass layoffs on employability. Panel (b) shows that employment earnings for the treated group decline sharply at the layoff event by approximately $15,000. The subsequent periods demonstrate partial recovery, yet earnings remain below the pre-layoff benchmark for at least six years, reflecting the lasting financial impact of mass layoffs.[13] Similar employment responses to mass layoffs have been documented in different countries (e.g. Bertheau et al., 2023).

5.2 Entry into Entrepreneurship

Figure 2 documents how displaced workers enter entrepreneurship following mass layoffs using event-study coefficients from equation (1). Panel I examines new firm creation, while Panel II examines business ownership.

New Firm Creation. Panels (a) and (b) show new openings of incorporated and unincorporated firms, respectively. Both figures show non-significant trends before the event. However, concurrent with the layoffs, there is a noticeable increase, with the rate of individuals opening new incorporated businesses peaking at approximately one percentage point in the year of the

[13] Displaced workers also respond by withdrawing from retirement savings. Figure A1 in the Appendix shows that RRSP (Registered Retirement Savings Plan) withdrawals increase by approximately 5 percentage points following the layoff, indicating that individuals tap into retirement savings to cope with income loss.

mass layoffs. We observe similar patterns for unincorporated businesses. Following the layoffs, there is a marked increase in new unincorporated businesses, with new openings increasing substantially in the year of displacement and remaining elevated in subsequent years. Given that the rate of business ownership is around 10% in the data, the effects we document are large and precisely estimated.

Firm Ownership. Panels (c) and (d) translate these flows into the stock of business owners of incorporated and unincorporated firms, respectively. For incorporated businesses, the cumulative effect of new business creation shows a steadily growing ownership rate among displaced workers. The gap between treated and control groups widens over time, up to at least six years after the event. For unincorporated businesses, the accumulation is even greater.[14] The stock of unincorporated business owners among displaced workers increases sharply following the layoff, peaking at approximately 2.5 percentage points higher than the control group. This sustained increase in business ownership indicates that displaced workers not only enter entrepreneurship at higher rates but also remain in these businesses over time.

Unincorporated Income Type. Our tax return data allow us to observe various categories of unincorporated business activity. We focus on three main categories of income (1) business income, (2) professional income and (3) commission income.[15] Appendix Figure 3 presents the extensive margin of these three income components, and shows that the vast majority of the effect of mass layoff events is on unincorporated business income; the effects on commission income and on professional income are small.

5.3 Firm Performance of Necessity vs. Voluntary Entrepreneurs

Having documented that mass layoff events increase entrepreneurship in both incorporated and unincorporated firms, we now compare the performance of necessity entrepreneurs with the performance of matched voluntary entrepreneurs. We classify displaced workers who start a new firm as necessity entrepreneurs. The control group consists of propensity score matched founders who were not subject to a mass layoff event, which we therefore designate as voluntary entrepreneurs. We study firm-level performance data (e.g. sales, assets, profits, etc.) from the date

[14]The unincorporated ownership variable captures both registered and unregistered unincorporated firms, whereas the new unincorporated business variable relies on the first year in which a new business registry number appears.

[15]Because they consist of small amounts, we exclude farming, fishing, and rental income.

of the origination of the firm.

5.3.1 Incorporated Firms

Panel A of Table 2 presents the results for incorporated firms. Row I shows performance in the year of firm creation. Displaced workers who start incorporated businesses create firms with significantly lower total assets ($136,552 less) and tangibility than matched voluntary entrepreneurs, suggesting necessity entrepreneurs hold proportionally fewer physical assets. Row II presents average annual performance over years 1 through 5. The performance gaps widen substantially over time. Necessity entrepreneurs generate $63,625 less in annual sales, earn $29,979 less in annual gross profits, and have $200,689 less in total assets, compared to matched voluntary entrepreneurs. These results indicate that necessity entrepreneurs who "aim high" into incorporated firms create significantly smaller and less profitable ventures than voluntary entrepreneurs. These findings are consistent with the hypothesis that necessity entrepreneurs starting incorporated firms lack the entrepreneurial resources needed to succeed in this complex organizational form.

5.3.2 Unincorporated Firms

Panel B of Table 2 presents results for unincorporated firms, and reveals a strikingly different pattern. Row I shows that in the year of firm creation, displaced workers who start unincorporated firms earn significantly higher gross profits ($2,384 more) than matched voluntary entrepreneurs, despite creating smaller firms. Total revenues are $14,307 lower and total expenses are $9,063 lower, but the profit margin is higher. Capital costs and payroll are also significantly lower, indicating necessity entrepreneurs operate leaner businesses. Row II shows these patterns persist over years 1 through 5 following firm creation. Necessity entrepreneurs earn $2,318 more in average annual gross profits despite having $22,193 less in revenues. They continue to operate with significantly lower capital costs and payroll.

These results indicate that necessity entrepreneurs who "aim low" into unincorporated firms successfully overcome resource constraints through profitability rather than scale. One interpretation is that displaced workers, having no alternative income source, are motivated to maximize profitability by necessity. In contrast, voluntary entrepreneurs may prioritize non-pecuniary ben-

efits of self-employment, leading to lower profit focus (Levine and Rubinstein, 2018).

6 The Role of Peer Entrepreneurs and Employment Ranking

6.1 Entrepreneurial Peers

In this Section, we provide evidence that entrepreneurial peer exposure improves performance of displaced workers who start incorporated firms, but has minimal impact on unincorporated firm performance. The logic follows from the idea that incorporated firms require greater entrepreneurial resources than unincorporated firms do. Peer networks should therefore be more valuable in incorporated firms, where entrepreneurial resources act as a binding constraint. Thus, while the average displaced worker should "aim low" into unincorporated firms, those with high peer exposure may accumulate sufficient entrepreneurial resources to successfully "aim high" into incorporated firms.[16]

We first provide event-study based evidence of the employment effects across entrepreneurial peer quartiles. Panel (a) of Figure 4 presents event-study coefficients from equation (1) for employment across subsamples constructed for each entrepreneurial peer quartile. The results show that the impact of mass layoffs on employment is similar across all quartiles, indicating that peer exposure does not affect the employment trajectory following displacement. All quartiles experience comparable declines in employment probability and show similar recovery patterns. This implies that peer quartiles are not driving the employment trajectory of laid-off individuals, which supports the identification assumption that layoffs are exogenous to the displaced workers' characteristics.

6.1.1 Entrepreneurial Peer Networks and Entry into Entrepreneurship

Next, we turn to the event study results for firm creation, where we find large variation across peer quartiles. Figure 5 presents event-study coefficients from equation (1) across subsamples

[16] A potential identification concern could arise if firms with more entrepreneurial peers have a distinct entrepreneurial culture that independently affects worker outcomes. We address this concern in two ways. First, our firm-level analysis compares necessity entrepreneurs (displaced in mass layoffs) to matched voluntary entrepreneurs (who voluntarily transitioned to entrepreneurship), where both groups are matched on characteristics at their pre-event employer. Second, our entry specifications include pre-event firm fixed effects, which control for firm-level entrepreneurial culture and other time-invariant firm characteristics.

constructed for each entrepreneurial peer quartile. Panel I presents the results of opening a new incorporated and unincorporated firm in panels (a) and (b), respectively. Panel II presents the results of business ownership in incorporated and unincorporated firms in panels (c) and (d), respectively.

The patterns reveal substantial heterogeneity by peer exposure. Panel (a) shows that displaced workers in the top peer quartile are significantly more likely to open incorporated firms following displacement. The heterogeneity is even more pronounced in Panel (c) for ownership: by year 6, workers in the top quartile are approximately 5 percentage points more likely to own an incorporated business than those in the bottom quartile. Panel (b) also shows a relatively larger increase in new unincorporated businesses for displaced workers with greater peer exposure, which transmits to higher levels of unincorporated business ownership in Panel (d). These results suggest that entrepreneurial peers facilitate entry into both organizational forms, with particularly strong effects for incorporated ventures.

6.1.2 Entrepreneurial Peer Networks and Firm Performance

Incorporated Firms. In Table 3 we estimate equation (3) and report performance measures across the four peer quartiles for incorporated firms. The table and the various measures of performance we study follow the presentation in our baseline tests. We separately report these performance results for both the short term (year zero in Panel A) and long term (average for years 1 to 5 in Panel B).

Our main results in Table 3 show that there is very large and significant variation across the four peer quartiles for long run performance in incorporated firms (years 1 to 5 in Panel B). In most cases, we find that negative long run performance is driven by the lower peer quartile (the omitted category). In contrast, individuals with the most entrepreneurial peers tend to perform better. Results are mostly monotonic across the four peer quartiles. For example, the coefficient for gross profits is negative $94 thousand for the bottom peer quartile, whereas it is $105 thousand for the top peer quartile. This suggests that for incorporated firms, being in the top peer quartile closes the performance gap of necessity entrepreneurs, relative to voluntary entrepreneurs.

These results indicate that laid off individuals exposed to entrepreneurial peers can succeed in

incorporated firms. Conversely, laid off individuals with less exposure to entrepreneurial peers, who start incorporated firms, have significantly lower performance. Taken together, these results are consistent with the hypothesis that entrepreneurial resources, acquired through peer networks, enable laid-off individuals to "aim high" into incorporated firms. These results reinforce the findings in much of the entrepreneurial peer literature, documenting the importance of peers in providing entrepreneurial resources. To the best of our knowledge, we are the first to document the importance of entrepreneurial peers in providing additional entrepreneurial resources, in the choice between starting incorporated and unincorporated firms.

Unincorporated Firms. In Table 4 we estimate equation (3) and report performance measures across the four peer quartiles for unincorporated firms. The structure of this table follows that of Table 3 above. Our main results show that there is little significant variation across the peer quartiles for unincorporated firms, unlike for incorporated firms. These results imply that entrepreneurial peers do not increase performance in unincorporated firms, consistent with the hypothesis that unincorporated firms do not require high levels of entrepreneurial resources (Levine and Rubinstein, 2017, 2018).

6.2 Employment Ranking

In this Section, we examine whether a displaced worker's hierarchical position at their pre-event employer affects subsequent entrepreneurial performance. Higher-ranked employees (proxied by within-firm income rank) may possess transferable managerial skills that aid entrepreneurship. Babina (2020) finds that necessity entrepreneurs who are "high-wage workers" start better-performing firms. Alternatively, hierarchical position may reflect firm-specific skills that do not transfer to entrepreneurship for displaced workers. Under this view, employment rank may not predict entrepreneurial performance. We measure income rank using each worker's position in the earnings distribution at their pre-event firm in the year before displacement, divided into quartiles where the first quartile represents the highest earners.

We again start by providing event-study based evidence on variation in employment effects across the employment rank quartiles. Panel (b) of Figure 4 presents event-study coefficients from equation (1) for employment across subsamples constructed for each employment rank quartile.

The impact of mass layoffs on employment is similar across all quartiles, indicating that workers at all hierarchical levels experience comparable employment trajectories following displacement.

6.2.1 Employment Ranking and Entry into Entrepreneurship

Next, we provide the same event-study results as above, but in this case we report results for each of four subsamples of employment rank quartiles. Figure 6 presents entry of laid off individuals into entrepreneurial activities. Our flow results (i.e. opening a new firm) again show significant differences across the four employment rank quartiles, for both unincorporated and incorporated firms. Our stock results (i.e. owning a firm) indicate that the lowest employment ranked quartile is more likely to own an incorporated firm in the latter part of the sample (years 4, 5 and 6 after the event date).

6.2.2 Employment Ranking and Firm Performance

Our main results for the effect of employment rank on firm performance are displayed in Tables 5 and 6 for incorporated and unincorporated firms, respectively. The key finding across both of these tables is that none of the employment rank interaction terms are significant for firm performance. In other words, these results imply that variation across employment rank in the worker's previous firm does not predict subsequent entrepreneurial performance, for either incorporated or unincorporated firms. These findings imply that the types of firm-specific organizational capital that allow an individual to attain a high rank within a large firm may be less valuable when transitioning into an entrepreneur.

7 Conclusion

In this paper, we study the performance of firms started by necessity entrepreneurs using matched employer–employee tax records covering the universe of Canadian taxpayers from 2001 to 2021. We follow workers displaced in mass layoff events and compare them to a matched group of non-displaced workers. We document large and persistent reductions in employment and earnings for displaced workers, consistent with the job displacement literature, and show that these workers respond by entering entrepreneurship at significantly higher rates. Our main finding is that the

performance of necessity entrepreneurs depends on the type of firm they start: displaced workers who "aim low" and open unincorporated firms outperform matched voluntary entrepreneurs, while those who "aim high" and start incorporated firms create smaller, less profitable ventures than their voluntary counterparts.

We interpret these findings through the lens of the model of Levine and Rubinstein (2018), in which incorporation demands more entrepreneurial resources than unincorporation, which is typically driven by the non-pecuniary benefits of self-employment. Workers displaced in mass layoffs are subject to a large negative labor market shock and are likely to lack entrepreneurial resources. At the same time, they have strong incentives to generate monetary income rather than to pursue non-pecuniary benefits. Our evidence is consistent with the idea that, under these constraints, displaced workers are poorly suited to succeed in skill-intensive incorporated firms but can nonetheless succeed in simpler unincorporated firms, where their main margin of adjustment is profitability rather than scale.

We then examine how founder characteristics shape these patterns. First, we show that exposure to entrepreneurial coworkers improves the performance of incorporated ventures started by displaced workers. Necessity entrepreneurs with a high share of entrepreneurial peers at their previous employer close much of the performance gap relative to voluntary entrepreneurs in incorporated firms, whereas those with few entrepreneurial peers perform particularly poorly. By contrast, entrepreneurial peer exposure has little impact on the performance of unincorporated firms, consistent with these ventures requiring fewer entrepreneurial resources. Second, we show that a displaced worker's position in the employer's hierarchy does not predict entrepreneurial success in either organizational form. These findings suggest that the skills associated with hierarchical advancement in wage employment do not transmit to entrepreneurial performance.

Our results help reconcile the mixed findings in the literature on forced or necessity entrepreneurs. Prior work documents both underperformance by firms created in response to adverse shocks (Galindo Da Fonseca, 2022) and success among groups of forced entrepreneurs who start sophisticated businesses (Babina, 2020, Hacamo and Kleiner, 2022, Hou et al., 2025). Our findings suggest that these seemingly conflicting results can be understood once we account for business structure and founder resources. Our setting captures a population of displaced workers with limited resources, for whom success arises primarily in unincorporated business forms.

These findings have implications for how we think about entrepreneurship as a response to adverse labor market shocks, since displaced workers are often advised to start a business as a way to replace lost earnings.

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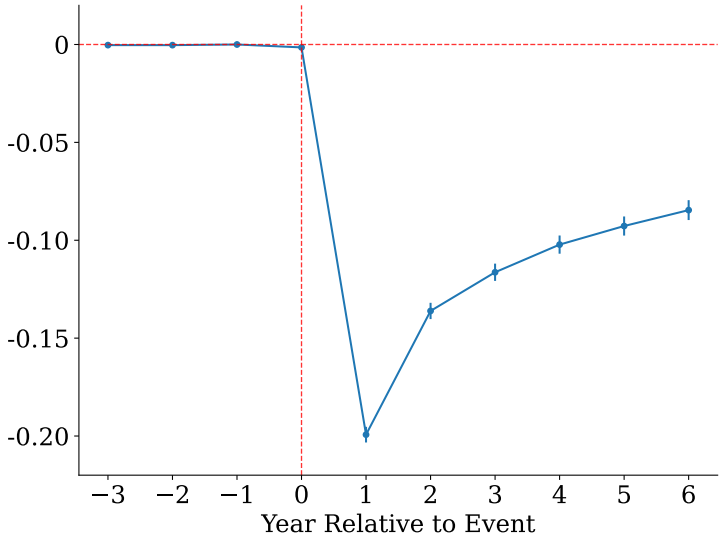
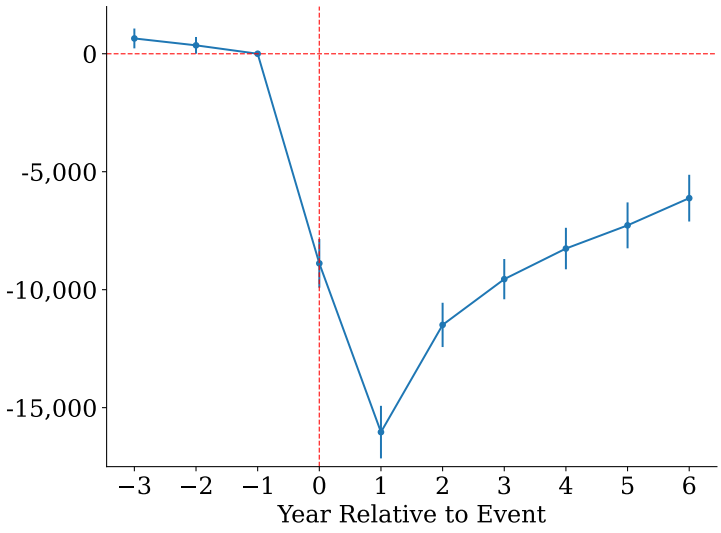
Figures

Figure 1: Effect of Mass Layoffs on Employment and Earnings



(a) Employment

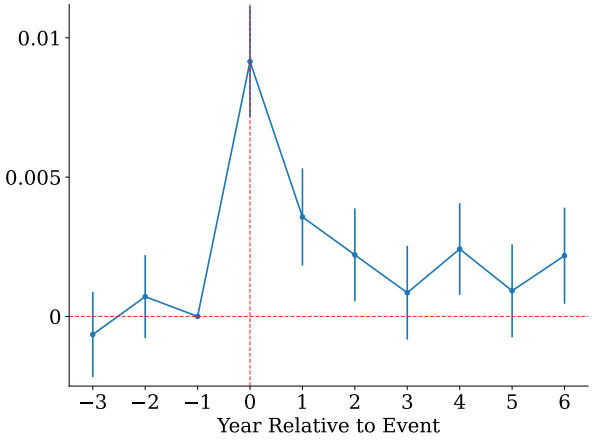


(b) Employment Income ($)

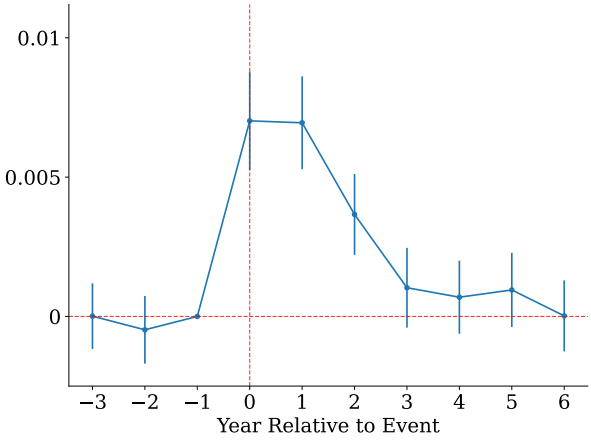
Note: This figure plots event-study coefficients ($\beta_{1\tau}$) from equation (1), showing the effect of displacement on employment and employment income. The sample includes displaced workers from mass layoffs between 2007 and 2015, matched one-to-one to workers not affected by mass layoffs. Employment is defined as a dummy equal to one if the individual received any T4 earnings in the year. Employment income is total earnings reported on T4 slips. All specifications include individual, pre-event firm, and calendar-year fixed effects, as well as cohort $\times$ event-time fixed effects. Confidence intervals (95%) are based on standard errors clustered at the individual and pre-event firm levels.

Figure 2: Effect of Mass Layoffs on Firm Creation and Ownership

I. Opening a New Firm

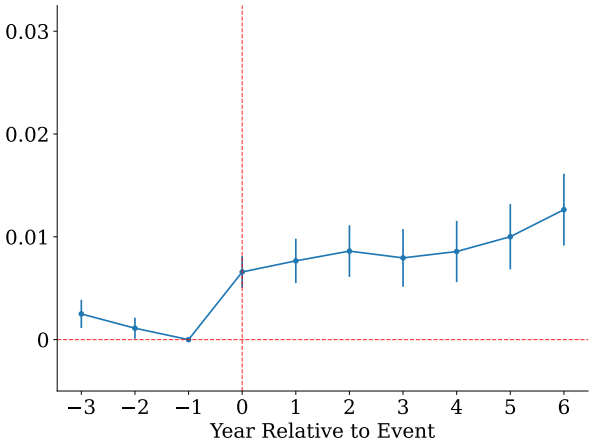


(a) Incorporated Firm

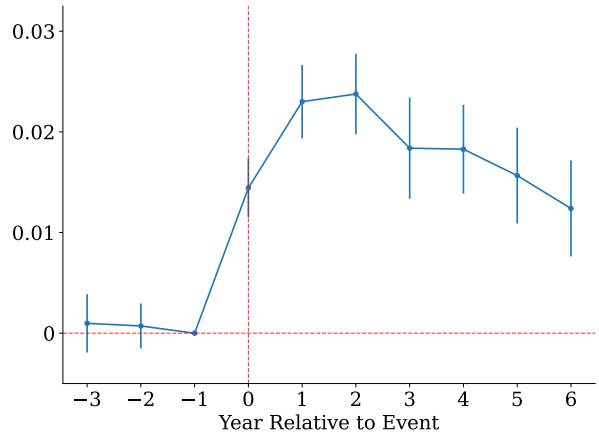


(b) Unincorporated Firm

II. Owning a Firm



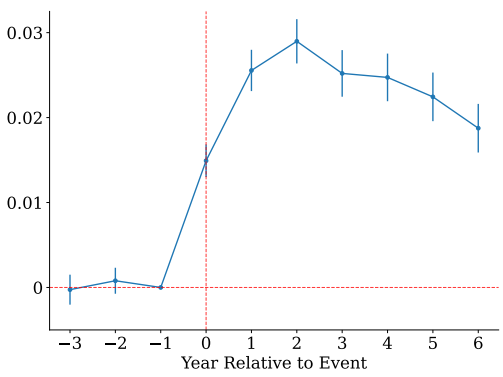
(c) Incorporated Firm



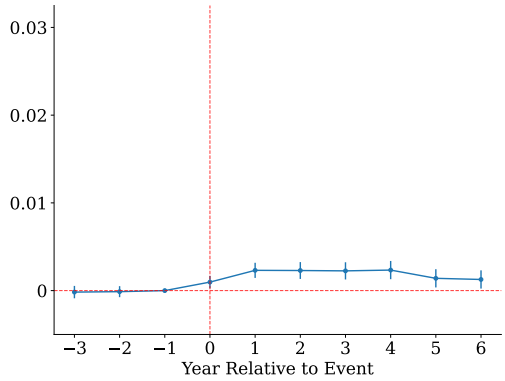
(d) Unincorporated Firm

Note: This figure plots event-study coefficients ($\beta_{1\tau}$) from equation (1), showing the effect of displacement on firm creation and ownership. Panel I shows new firm creation (whether the individual opens a new business in a given year). Panel II shows firm ownership (whether the individual owns a business in a given year). Results are shown separately for incorporated businesses (left) and unincorporated businesses (right). All specifications include individual, pre-event firm, and calendar-year fixed effects, as well as cohort $\times$ event-time fixed effects. Confidence intervals (95%) are based on standard errors clustered at the individual and pre-event firm levels.

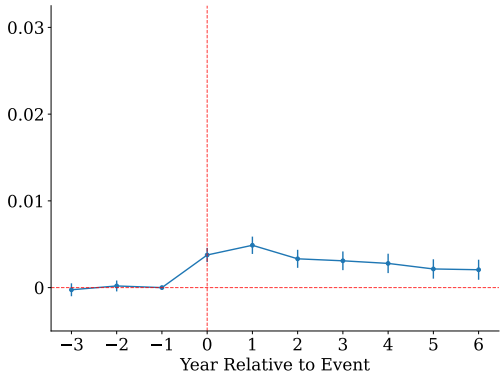
Figure 3: Effect of Mass Layoffs on Unincorporated Income Type



(a) Business Income



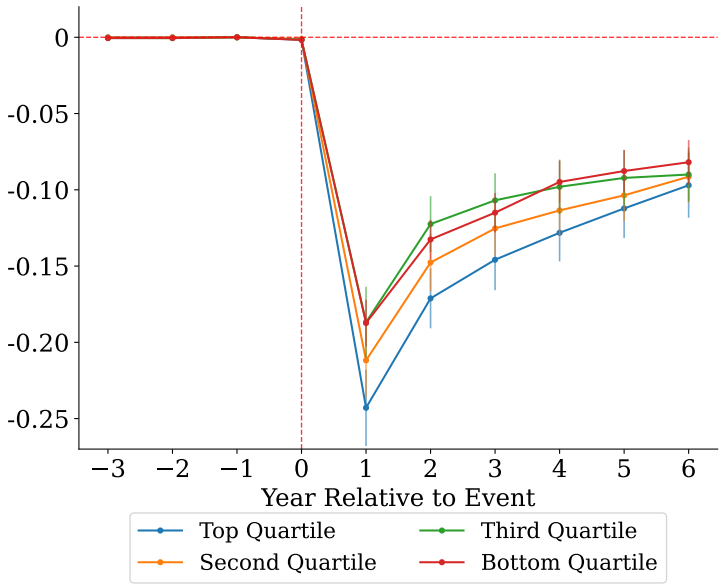
(b) Commission Income



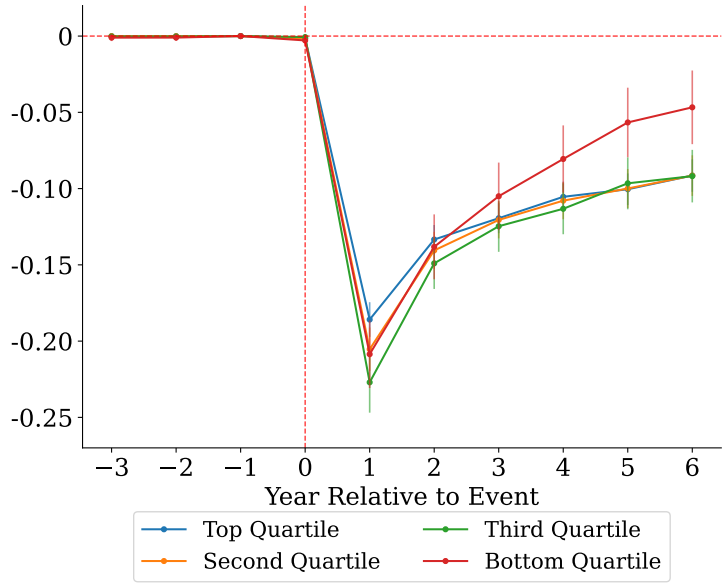
(c) Professional Income

Note: This figure plots event-study coefficients ($\beta_{1\tau}$) from equation (1), showing the effect of displacement on the type of unincorporated income. Each outcome is a dummy equal to one if the individual reports positive income from: business activity, commission income, or professional practice income. All specifications include individual, pre-event firm, and calendar-year fixed effects, as well as cohort $\times$ event-time fixed effects. Confidence intervals (95%) are based on standard errors clustered at the individual and pre-event firm levels.

Figure 4: Heterogeneous Effect of Mass Layoffs on Employment



(a) Entrepreneurial Peer Quartiles

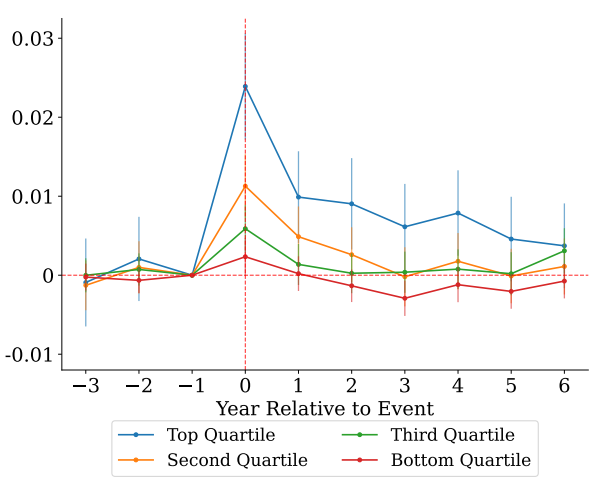


(b) Employment Rank Quartiles

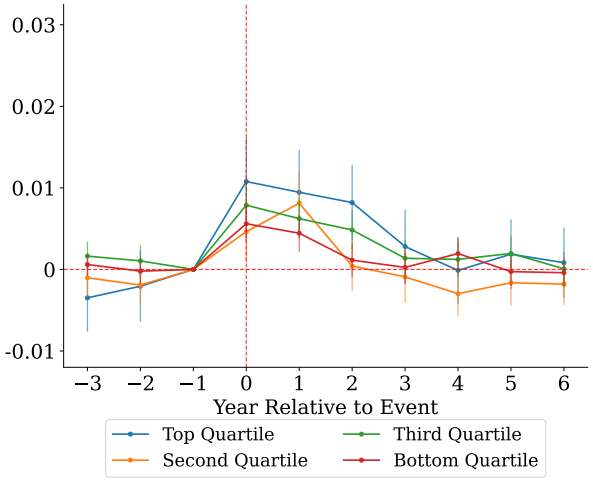
Note: This figure plots event-study coefficients ($\beta_{1\tau}$) from equation (1), showing the effect of displacement on employment, estimated separately by quartile group. Panel (a) stratifies workers by entrepreneurial peer quartiles, defined by the prevalence of entrepreneurial activity among coworkers at the pre-event firm. Panel (b) stratifies workers by their pre-displacement employment rank quartile. Employment is defined as a dummy equal to one if the individual received any T4 earnings in the year. All specifications include individual, pre-event firm, and calendar-year fixed effects, as well as cohort $\times$ event-time fixed effects. Confidence intervals (95%) are based on standard errors clustered at the individual and pre-event firm levels.

Figure 5: Effect of Entrepreneurial Peers on Firm Creation and Ownership

I. Opening a New Firm

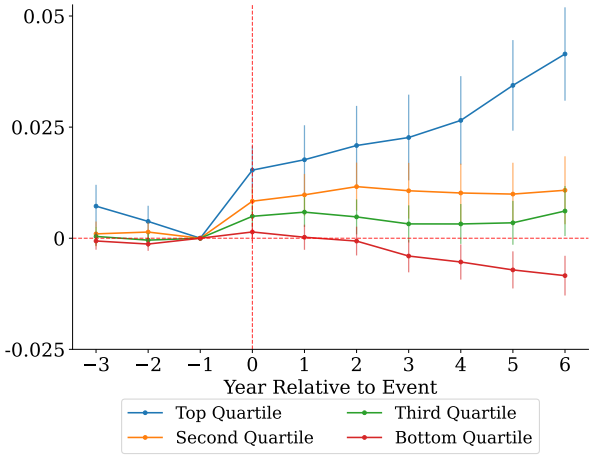


(a) Incorporated Firm

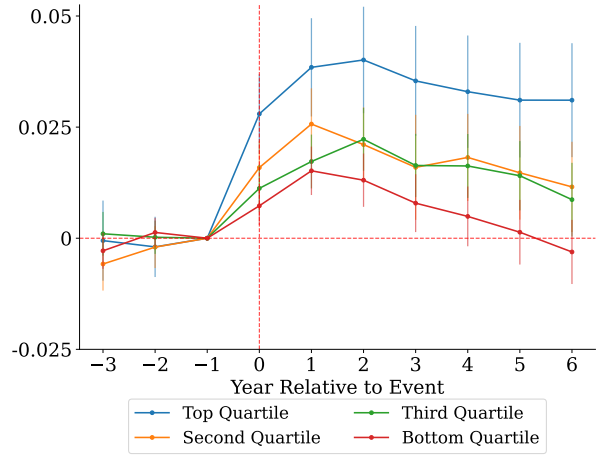


(b) Unincorporated Firm

II. Owning a Firm



(c) Incorporated Firm

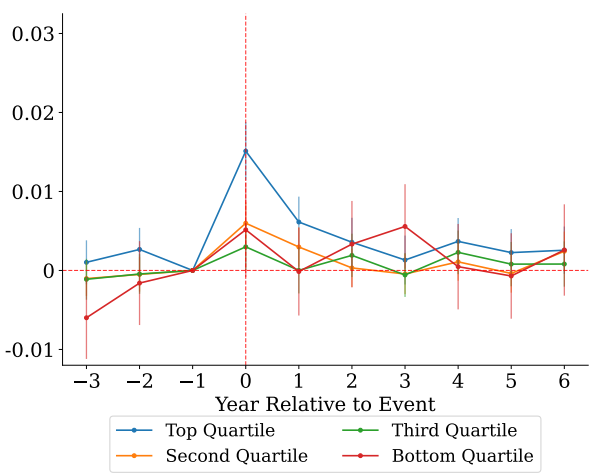


(d) Unincorporated Firm

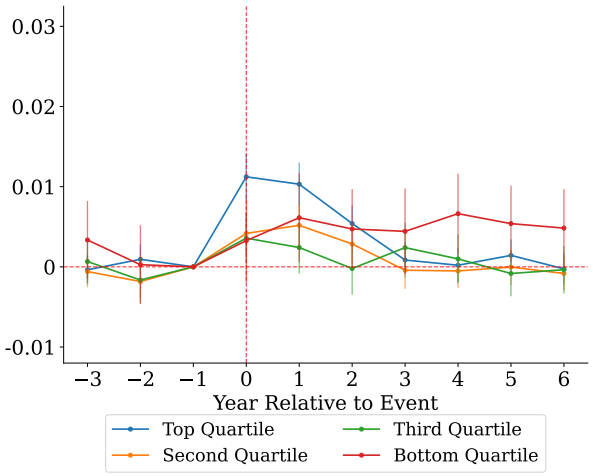
Note: This figure plots event-study coefficients ($\beta_{1\tau}$) from equation (1), showing the effect of displacement on firm creation and ownership, estimated separately by entrepreneurial peer quartile. Panel I shows new firm creation (whether the individual opens a new business in a given year). Panel II shows firm ownership (whether the individual owns a business in a given year). Results are shown separately for incorporated businesses (left) and unincorporated businesses (right). Peer quartiles are defined based on the prevalence of entrepreneurial activity (share of business owners) among coworkers at the pre-event firm in the year preceding the layoff. All specifications include individual, pre-event firm, and calendar-year fixed effects, as well as cohort $\times$ event-time fixed effects. Confidence intervals (95%) are based on standard errors clustered at the individual and pre-event firm levels.

Figure 6: Effect of Employment Rank on Firm Creation and Ownership

I. Opening a New Firm

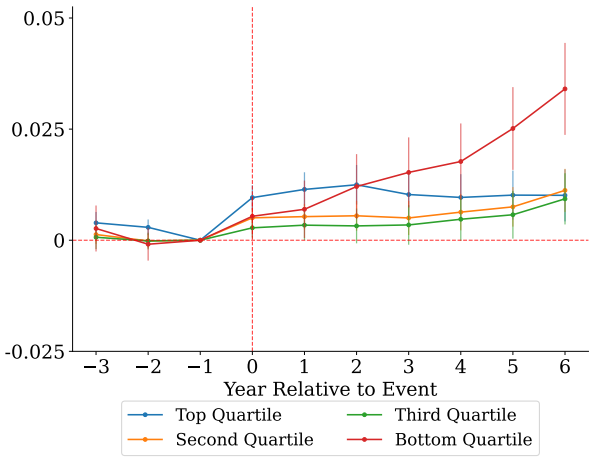


(a) Incorporated Firm

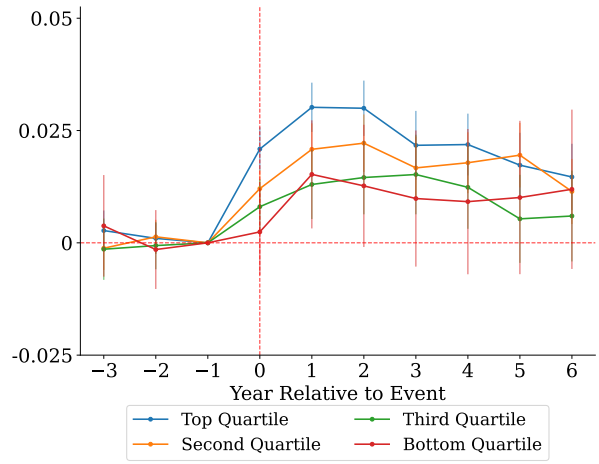


(b) Unincorporated Firm

II. Owning a Firm



(c) Incorporated Firm



(d) Unincorporated Firm

Note: This figure plots event-study coefficients ($\beta_{1\tau}$) from equation (1), showing the effect of displacement on firm creation and ownership, estimated separately by income quartile. Panel I shows new firm creation (whether the individual opens a new business in a given year). Panel II shows firm ownership (whether the individual owns a business in a given year). Results are shown separately for incorporated businesses (left) and unincorporated businesses (right). Income quartiles are based on the individual's T4 earnings rank within the pre-event firm in the year preceding the layoff. All specifications include individual, pre-event firm, and calendar-year fixed effects, as well as cohort $\times$ event-time fixed effects. Confidence intervals (95%) are based on standard errors clustered at the individual and pre-event firm levels.

Tables

Table 1: Descriptive Statistics

	Mean	SD	N
Panel A. Demographics			
Displaced worker indicator	x	x	x
Year of layoff	x	x	x
Age at layoff	x	x	x
Male indicator	x	x	x
Tenure at pre-event firm (years)	x	x	x
Average log earnings ($\tau - 2$ to $\tau - 3$)	x	x	x
Share of entrepreneurial peers	x	x	x
Income rank	x	x	x
Panel B. Employment data			
Employment indicator	x	x	x
Employment income	x	x	x
RRSP withdrawal indicator	x	x	x
RRSP withdrawals (amount)	x	x	x
Panel C. Incorporated business data			
New incorp. firm indicator	x	x	x
Incorp. firm owner indicator	x	x	x
Sales, goods and services	x	x	x
Cost of sales	x	x	x
Gross profits	x	x	x
Total assets	x	x	x
Intangible assets	x	x	x
Tangibility ratio	x	x	x
Number of employees	x	x	x
Total payroll	x	x	x
Panel D. Unincorporated business data			
New unincorp. firm indicator	x	x	x
Unincorp. firm owner indicator	x	x	x
Total revenues	x	x	x
Total expenses	x	x	x
Gross profits	x	x	x
Capital cost	x	x	x
Number of employees	x	x	x
Total payroll	x	x	x

Note: This table presents the descriptive statistics for the main variables used in the analysis, and is currently pending disclosure review.

Table 2: Incorporated and Unincorporated Firm Performance

	Income and profits			Balance sheet and labor				
	(1) Sales	(2) Cost of sales	(3) Gross profits	(4) Total assets	(5) Intangible assets	(6) Tangibility ratio	(7) Number of employees	(8) Total payroll
A. Incorporated Firms								
I. In year of firm creation								
Displaced worker	-12,176	-2,919	-3,669	-136,552***	-2,993	-0.069**	-0.265	-580
	(14,203)	(11,925)	(5,823)	(20,514)	(2,107)	(0.029)	(0.211)	(3,611)
II. In years 1 to 5								
Displaced worker	-63,625**	-45,975*	-29,979**	-200,689***	-4,960	-0.075	-1.080***	-20,799**
	(30,969)	(26,753)	(12,485)	(39,366)	(3,289)	(0.049)	(0.383)	(10,057)
Province FE	YES	YES	YES	YES	YES	YES	YES	YES
Founding year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES

	Income and profits			Balance sheet and labor		
	(1) Total revenues	(2) Total expenses	(3) Gross profits	(4) Capital cost	(5) Number of employees	(6) Total payroll
B. Unincorporated Firms						
I. In year of firm creation						
Displaced worker	-14,307**	-9,063***	2,384***	-302***	-0.095***	-1,199***
	(6,695)	(1,251)	(836)	(83)	(0.021)	(215)
II. In years 1 to 5						
Displaced worker	-22,193***	-9,877***	2,318**	-434***	-0.091***	-992***
	(3,674)	(1,479)	(998)	(98)	(0.025)	(261)
Province FE	YES	YES	YES	YES	YES	YES
Founding year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Note: This table presents the results from estimating equation (2), comparing firm performance between firms founded by displaced workers and matched firms founded by non-displaced workers. Panel A reports results for incorporated firms; Panel B reports results for unincorporated firms. Rows I and II report outcomes in the year of firm creation and average annual outcomes in years one through five, respectively. All specifications include province, founding year, and industry (2-digit NAICS) fixed effects. Standard errors, clustered at the firm level, are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Effect of Entrepreneurial Peers on Incorporated Firm Performance

	Income and profits			Balance sheet and labor				
	(1) Sales	(2) Cost of sales	(3) Gross profits	(4) Total assets	(5) Intangible assets	(6) Tangibility ratio	(7) Number of employees	(8) Total payroll
A. Peers at time 0								
Displaced worker × Top quartile	-3,374	5,194	-10,811	-55,656	5,683	0.073	0.384	-4,407
	(44,048)	(36,109)	(18,219)	(66,377)	(7,473)	(0.091)	(0.661)	(11,747)
Displaced worker × 2nd quartile	27,898	10,575	20,406	77,290	-3,793	-0.077	0.651	7,797
	(36,982)	(29,208)	(16,026)	(56,704)	(5,816)	(0.079)	(0.628)	(10,209)
Displaced worker × 3rd quartile	-19,142	-45,960	1,892	-30,456	-1,098	-0.092	0.205	-6,703
	(38,383)	(33,154)	(15,494)	(57,817)	(5,477)	(0.083)	(0.623)	(10,093)
Displaced worker	-9,823	8,450	-6,438	-135,213***	-2,293	-0.038	-0.574	449
	(27,752)	(20,992)	(12,252)	(43,189)	(4,216)	(0.060)	(0.510)	(8,183)
B. Peers in year 1 to 5								
Displaced worker × Top quartile	163,317*	53,076	105,785***	128,283	851	0.019	2.592**	68,193**
	(86,209)	(68,650)	(37,564)	(11,786)	(9,537)	(0.149)	(1.122)	(30,319)
Displaced worker × 2nd quartile	136,672*	62,377	88,043**	164,002	-4,399	-0.094	1.272	40,798
	(81,295)	(68,694)	(34,887)	(10,602)	(8,763)	(0.126)	(1.001)	(25,873)
Displaced worker × 3rd quartile	129,076	43,062	64,321*	121,353	-717	0.117	2.180**	55,431**
	(80,473)	(68,228)	(33,877)	(11,124)	(9,263)	(0.122)	(1.071)	(25,997)
Displaced worker	-170,487***	-86,683*	-94,110***	-315,428***	-3,771	-0.093	-2.549***	-60,483***
	(62,746)	(49,312)	(27,264)	(79,312)	(7,152)	(0.088)	(0.835)	(20,176)
Province FE	YES	YES	YES	YES	YES	YES	YES	YES
Founding year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES

Note: This table presents the results from estimating equation (3), comparing incorporated firm performance between firms founded by displaced workers and matched firms founded by non-displaced workers, by entrepreneurial peer quartile. The omitted category is the bottom (4th) quartile. Panels A and B report outcomes in the year of firm creation and average annual outcomes in years one through five, respectively. All specifications include province, founding year, and industry (2-digit NAICS) fixed effects. Standard errors, clustered at the firm level, are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Effect of Entrepreneurial Peers on Unincorporated Firm Performance

	Income and profits			Balance sheet and labor		
	(1) Total revenues	(2) Total expenses	(3) Gross profits	(4) Capital cost	(5) Number of employees	(6) Total payroll
A. Peers at time 0						
Displaced worker × Top quartile	42,488	1,401	5,596**	-48	-0.108*	-1,125*
	(31,030)	(3,951)	(2,635)	(258)	(0.063)	(642)
Displaced worker × 2nd quartile	-17,669**	-9,571***	2,737	-146	-0.045	-362
	(8,622)	(3,399)	(2,316)	(226)	(0.061)	(608)
Displaced worker × 3rd quartile	8,415	-116	3,737*	164	0.017	239
	(7,805)	(3,217)	(2,268)	(218)	(0.059)	(571)
Displaced worker	-20,122***	-6,098***	-64	-266*	-0.065	-898**
	(5,900)	(2,278)	(1,719)	(152)	(0.047)	(447)
B. Peers in year 1 to 5						
Displaced worker × Top quartile	14,356	1,388	2,827	-77	-0.093	-1,108
	(11,651)	(4,674)	(3,031)	(287)	(0.072)	(785)
Displaced worker × 2nd quartile	-6,203	-5,776	2,990	-221	-0.039	-460
	(9,985)	(3,983)	(2,694)	(269)	(0.070)	(733)
Displaced worker × 3rd quartile	11,046	3,149	761	215	-0.002	26
	(9,452)	(3,856)	(2,750)	(261)	(0.068)	(699)
Displaced worker	-24,453***	-8,831***	1,083	-411**	-0.063	-639
	(6,860)	(2,788)	(1,996)	(187)	(0.052)	(545)
Province FE	YES	YES	YES	YES	YES	YES
Founding year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Note: This table presents the results from estimating equation (3), comparing unincorporated firm performance between firms founded by displaced workers and matched firms founded by non-displaced workers, by entrepreneurial peer quartile. The omitted category is the bottom (4th) quartile. Panels A and B report outcomes in the year of firm creation and average annual outcomes in years one through five, respectively. All specifications include province, founding year, and industry (2-digit NAICS) fixed effects. Standard errors, clustered at the firm level, are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Effect of Employment Rank on Incorporated Firm Performance

	Income and profits			Balance sheet and labor				
	(1) Sales	(2) Cost of sales	(3) Gross profits	(4) Total assets	(5) Intangible assets	(6) Tangibility ratio	(7) Number of employees	(8) Total payroll
A. Income rank at time 0								
Displaced worker × Top quartile	-41,962	-12,292	-12,339	-86,441	-8,152	-0.070	-0.342	2,286
	(66,440)	(38,291)	(33,182)	(94,060)	(6,105)	(0.135)	(0.974)	(18,232)
Displaced worker × 2nd quartile	-30,354	2,355	-9,849	-10,823	3,110	-0.047	0.000	7,555
	(66,737)	(39,900)	(33,188)	(95,726)	(6,523)	(0.142)	(0.978)	(18,364)
Displaced worker × 3rd quartile	-65,753	-44,544	-23,919	-13,986	1,382	-0.164	-0.595	-10,124
	(78,094)	(53,086)	(37,306)	(10,683)	(9,507)	(0.176)	(1.073)	(20,671)
Displaced worker	25,914	6,774	8,761	-80,648	701	0.001	0.000	-2,475
	(63,107)	(33,592)	(32,149)	(88,704)	(5,565)	(0.129)	(0.919)	(17,523)
B. Income rank in year 1 to 5								
Displaced worker × Top quartile	-90,284	-104,943	-28,599	-135,514	-19,954	0.017	1.018	10,054
	(13,702)	(12,786)	(60,015)	(17,811)	(24,185)	(0.171)	(1.338)	(33,128)
Displaced worker × 2nd quartile	41,393	-2,030	29,252	49,919	-12,040	-0.066	2.936**	50,113
	(13,877)	(12,966)	(60,868)	(18,193)	(24,879)	(0.185)	(1.410)	(34,887)
Displaced worker × 3rd quartile	-148,552	-208,930	-47,678	-232,711	-20,792	-0.148	0.508	-10,558
	(16,966)	(15,529)	(71,562)	(21,849)	(26,976)	(0.254)	(1.724)	(42,790)
Displaced worker	-6,140	37,147	-15,904	-105,965	12,309	-0.057	-2.460*	-38,340
	(13,223)	(12,323)	(57,815)	(16,893)	(23,777)	(0.162)	(1.282)	(30,892)
Province FE	YES	YES	YES	YES	YES	YES	YES	YES
Founding year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES

Note: This table presents the results from estimating equation (3), comparing incorporated firm performance between firms founded by displaced workers and matched firms founded by non-displaced workers, by employment rank quartile. The omitted category is the bottom (4th) quartile. Panels A and B report outcomes in the year of firm creation and average annual outcomes in years one through five, respectively. All specifications include province, founding year, and industry (2-digit NAICS) fixed effects. Standard errors, clustered at the firm level, are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Effect of Employment Rank on Unincorporated Firm Performance

	Income and profits			Balance sheet and labor		
	(1) Total revenues	(2) Total expenses	(3) Gross profits	(4) Capital cost	(5) Number of employees	(6) Total payroll
A. Income rank at time 0						
Displaced worker × Top quartile	11,128	-8,161*	-952	218	0.070	657
	(21,357)	(4,882)	(3,601)	(368)	(0.086)	(912)
Displaced worker × 2nd quartile	2,057	-5,872	-3,188	103	0.077	922
	(12,026)	(4,953)	(3,691)	(380)	(0.088)	(940)
Displaced worker × 3rd quartile	29,828**	4,851	-1,490	355	0.209**	2,431**
	(13,378)	(5,397)	(4,009)	(414)	(0.098)	(1,011)
Displaced worker	-23,758**	-3,883	4,171	-470	-0.178**	-2,081**
	(11,384)	(4,506)	(3,411)	(350)	(0.080)	(863)
B. Income rank in year 1 to 5						
Displaced worker × Top quartile	7,414	1,564	483	-73	0.041	470
	(14,601)	(5,950)	(4,282)	(383)	(0.094)	(1,030)
Displaced worker × 2nd quartile	4,201	518	-5,065	-334	0.036	508
	(14,756)	(6,024)	(4,417)	(396)	(0.096)	(1,062)
Displaced worker × 3rd quartile	29,177*	10,268	-2,713	371	0.145	1,844
	(15,870)	(6,490)	(4,815)	(440)	(0.104)	(1,137)
Displaced worker	-30,649**	-12,027**	4,083	-342	-0.143	-1,620*
	(13,542)	(5,527)	(4,050)	(357)	(0.087)	(964)
Province FE	YES	YES	YES	YES	YES	YES
Founding year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Note: This table presents the results from estimating equation (3), comparing unincorporated firm performance between firms founded by displaced workers and matched firms founded by non-displaced workers, by employment rank quartile. The omitted category is the bottom (4th) quartile. Panels A and B report outcomes in the year of firm creation and average annual outcomes in years one through five, respectively. All specifications include province, founding year, and industry (2-digit NAICS) fixed effects. Standard errors, clustered at the firm level, are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

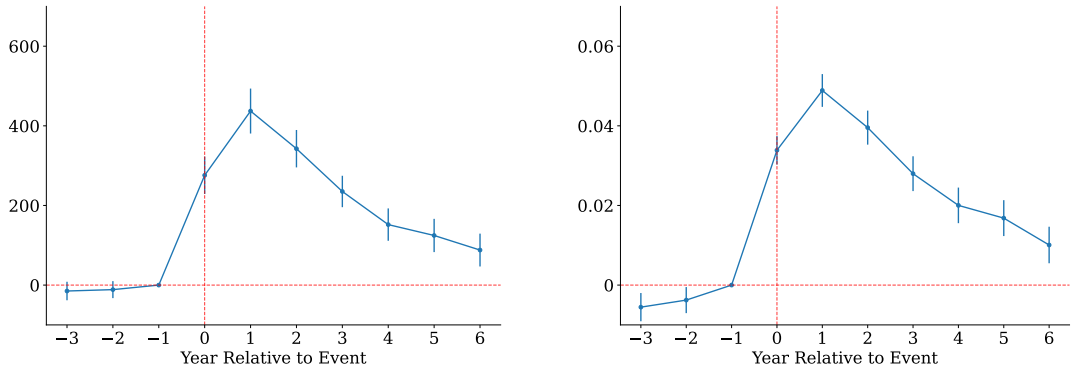
A Appendix

Table A1: Definitions of Variables

Variable	Definition	Source
A. Worker characteristics		
Age	Age of the individual	T1PMF
Sex	Sex of the individual	T1PMF
Province	Province or territory of residence	T1PMF
Tenure	Years employed at the firm	T4ROE
B. Worker-level variables		
Employment	Equals one if the individual received any T4 earnings	T4ROE
Employment income	Total T4 employment income, before deductions	T1PMF
New incorporated firm	Equals one if the individual opens a new incorporated business	T2S50, NALMF
New unincorporated firm	Equals one if the individual opens a new unincorporated business	T1FDB
Owns incorporated firm	Equals one if the individual owns an incorporated business	T2S50
Owns unincorporated firm	Equals one if the individual owns an unincorporated business	T1FDB
Business income (extensive)	Equals one if the individual reports business income	T1PMF
Commission income (extensive)	Equals one if the individual reports commission income	T1PMF
Professional income (extensive)	Equals one if the individual reports professional income	T1PMF
RRSP withdrawal ($)	RRSP withdrawal amount in dollars	T1PMF
RRSP withdrawal (extensive)	Equals one if the individual reports any RRSP withdrawal	T1PMF
C. Heterogeneity variables		
Employment rank quartile	Quartile of T4 earnings rank within firm at $\tau = -1$	T4ROE
Entrepreneurial peer quartile	Quartile of business ownership rate among coworkers at $\tau = -1$	T2S50, T1FDB
D. Incorporated firm variables		
Sales	Gross revenues from sales of goods and services	NALMF
Cost of sales	Expenses tied to production or service provision	NALMF
Gross profits	Sales minus cost of sales	NALMF
Total assets	Book value of all corporate assets	NALMF
Intangible assets	Goodwill, patents, and other non-physical capital	NALMF
Tangibility ratio	Tangible assets as a share of total assets	NALMF
Number of employees	Employee count from linked T4 slips	NALMF, T4ROE
Total payroll	Total employment income paid by the corporation	NALMF
E. Unincorporated firm variables		
Total revenues	Gross receipts from business operations	T1FDB
Total expenses	Deductible operating costs	T1FDB
Gross profits	Total revenues minus total expenses	T1FDB
Capital cost	Depreciation and capital cost allowance	T1FDB
Number of employees	Employee count from linked T4 slips	T1FDB, T4ROE
Total payroll	Total employment income paid to workers	T1FDB
F. Sample definition		
Displaced worker	Equals one if involuntarily separated during a mass layoff	T4ROE
Mass layoff	Employment drop $\geq$30% with $\geq$10 involuntary separations	T4ROE, NALMF
Cohort year	Calendar year of the mass layoff	T4ROE
Event time	Year relative to the mass layoff ($\tau = 0$ is displacement year)	T4ROE

Note: This table presents all variables used in the analysis, their definitions, and data sources.

Figure A1: Effect of Mass Layoffs on Pension Savings Withdrawals



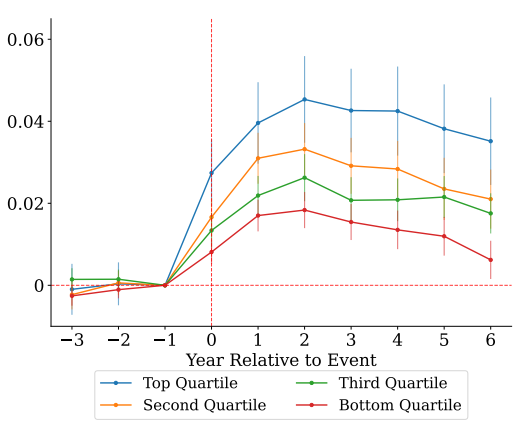
(a) Amount ($)

(b) Extensive margin

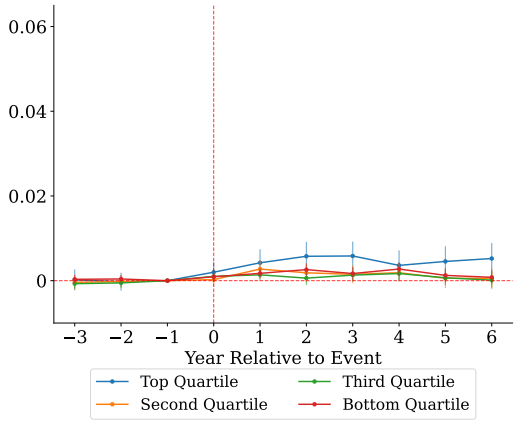
Note: This figure plots event-study coefficients ($\beta_{1\tau}$) from equation (1), showing the effect of displacement on RRSP withdrawals. Panel (a) shows the amount withdrawn in dollars. Panel (b) shows the extensive margin, a dummy equal to one if the individual reports any RRSP withdrawal income. RRSP income is calculated from the T1 Personal Master File (T1PMF). All specifications include individual, pre-event firm, and calendar-year fixed effects, as well as cohort $\times$ event-time fixed effects. Confidence intervals (95%) are based on standard errors clustered at the individual and pre-event firm levels.

Figure A2: Heterogeneous Effects of Mass Layoffs on Unincorporated Income Type

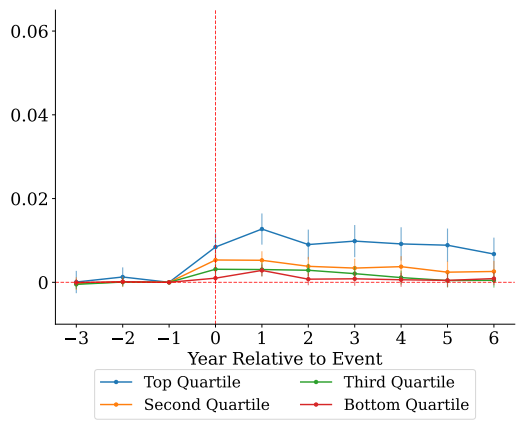
I. Entrepreneurial Peer Quartiles



(a) Business Income

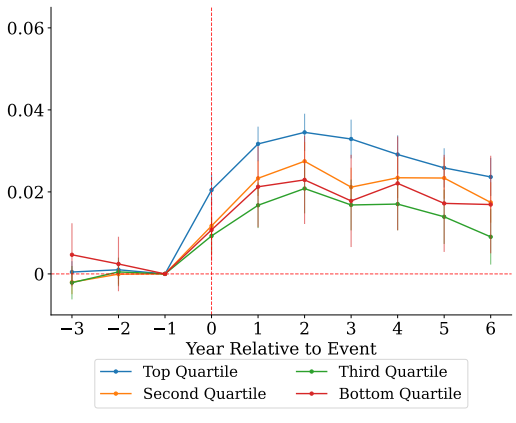


(b) Commission Income

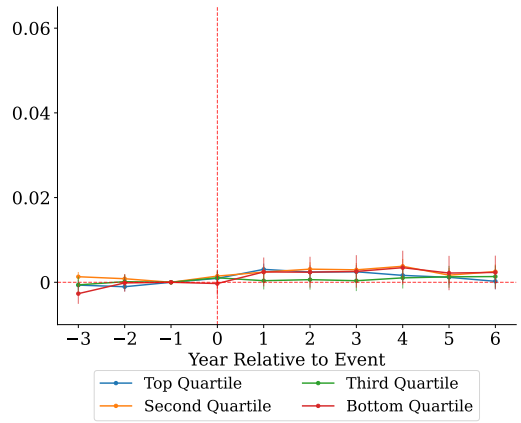


(c) Professional Income

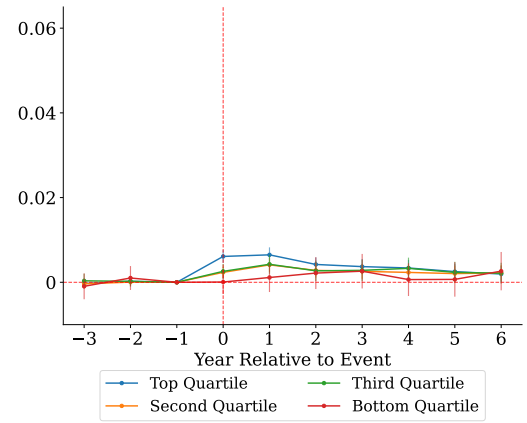
II. Employment Rank Quartiles



(d) Business Income



(e) Commission Income



(f) Professional Income

Note: This figure plots event-study coefficients ($\beta_{1\tau}$) from equation (1), showing the effect of displacement on the type of unincorporated income, estimated separately by quartile group. Each outcome is a dummy equal to one if the individual reports positive income from: business activity, commission income, or professional practice income. Panel I stratifies workers by entrepreneurial peer quartiles, defined by the prevalence of entrepreneurial activity among coworkers at the pre-event firm. Panel II stratifies workers by their pre-displacement employment rank quartile. All specifications include individual, pre-event firm, and calendar-year fixed effects, as well as cohort $\times$ event-time fixed effects. Confidence intervals (95%) are based on standard errors clustered at the individual and pre-event firm levels.