Aiming Low: The Selection into Alternative Forms of Entrepreneurship by Laid-Off Employees *

Frank-Olivier Garané†

March 19, 2024

Abstract

Employees who are laid-off are often forced to resort to entrepreneurial activities to generate income. The prevailing argument in the literature is that these entrepreneurial activities are of low quality because displaced workers have low entrepreneurial skills. In this paper we challenge this conclusion, by examining entrepreneurial outcomes across different kinds of business structures, i.e. incorporated businesses, unincorporated businesses, and gig work. Our data is taken from the universe of Canadian matched employer-employee tax files. Our main conclusion is that displaced workers can generate successful enterprises if they "aim low" and select into unincorporated businesses or gig type activities.

Disclaimer: *The results in this paper are currently pending confidentiality and disclosure review by Statistics Canada, and will be included once their disclosure has been approved, before the time of the conference.*

JEL Codes. L25, L26, J63.

*The author thanks Barry Scholnick and Philippe d'Astous for their helpful comments.

†PhD student at HEC Montréal. E-mail: frank-olivier.garane@hec.ca

1 Introduction

Many entrepreneurs start their businesses out of necessity because they have no other sources of income. An example of such necessity entrepreneurs are employees who have been laid-off or displaced from regular employment. A common argument in the literature, however, is that the quality of the entrepreneurial activities of such necessity entrepreneurs is low, because these laid-off employees have lower levels of pre-existing entrepreneurial skills (e.g. Galindo Da Fonseca, 2022).

In this paper, we revisit this narrative and show that the quality of entrepreneurial activities started by laid-off displaced workers depends on the type of entrepreneurial activity selected into by these individuals. Specifically, we provide evidence that laid-off displaced workers who "aim high" by selecting into incorporated businesses have a lower probability of success, compared to laid-off displaced workers who "aim low" by selecting into unincorporated business and gig type work. The main intuition behind our results is that laid-off displaced workers will indeed have lower levels of pre-existing entrepreneurial skills, and those skills are an important precondition for success for (typically more complex) incorporated businesses. However, as discussed by (Levine and Rubinstein, 2017), those kinds of entrepreneurial skills are less important for (typically less complex) unincorporated business and gig work. Thus laid-off displaced workers who "aim low" and start less complex unincorporated businesses or undertake gig work, will have a higher likelihood of success.

We provide novel empirical evidence that incorporated firms founded by displaced workers tend to be smaller in asset size, generate lower profits, and exhibit a reduced scale, whereas unincorporated ventures, despite their lower sales and costs, manage to secure substantial profit margins. This finding, regarding the relative success of unincorporated entities among displaced workers, highlights the importance of displaced workers setting realistic entrepreneurial goals post-displacement. Our findings thus have important policy implications in terms of providing actionable advice to laid-off workers (i.e. to “aim low”) who are contemplating entry into alternative kinds of entrepreneurial activity.

Our data consists of matched employee-employer tax filing data covering the universe of Canadian taxpayers from 2001 to 2017. The matched employer-employer nature of the tax filer

data allows us to observe (1) all individual tax filings in Canada, and (2) corporate tax filings from various kinds of business structures (including incorporated businesses, unincorporated businesses, and gig activity). We can thus identify the employees who are laid-off in mass layoff events, and then track how these specific individuals select into various kinds of entrepreneurial activity. Our identification assumption follows the large literature arguing that in mass layoff events (Jacobson et al., 1993, Couch and Placzek, 2010, Lachowska et al., 2020), where a large fraction of a company is laid-off simultaneously, whether one specific worker is laid-off can be considered plausibly exogenous. Our data on the universe of Canadian matched employer-employee tax files allows us to identify the universe of mass lay-off events in Canada.

We investigate the entrepreneurial choices of individuals post-displacement and the subsequent performance of their ventures. Following the work of Levine and Rubinstein (2017) we distinguish between "entrepreneurs" and other business owners by disaggregating the self-employed into incorporated and unincorporated. Noting a distinct increase in self-employment post-layoff, with unincorporated ventures indicating a strategic choice or necessity toward a less costly establishment.[1]

Our empirical approach is to compare the financial performance of businesses founded by displaced workers against those initiated by non-displaced individuals. Our findings depict the realities faced by firms initiated by displaced workers. These entities tend to have lower assets, tangibility, revenue, and profitability, highlighting a divergence in the operational 'quality' compared to businesses founded by non-displaced individuals. This discrepancy persists over time, underscoring the enduring impact of displacement on entrepreneurial success.

Moreover, our study explores the heterogeneous effects of founder displacement, immigrant status, industry familiarity, and the influence of economic recessions, presenting an integrated narrative that describes the nuanced dynamics of firm performance. Notably, firms founded by immigrants and during recessionary periods demonstrate unique financial profiles and resilience, while industry familiarity emerges as a significant advantage for entrepreneurial success.

We also find a lasting effect of mass layoffs on employment prospects and earnings, with displaced individuals experiencing significant, enduring financial setbacks. Furthermore, we observe a notable surge in self-employment and gig economy activity among affected individuals,

[1] In our sample, incorporated businesses require more capital than the unincorporated business at inception.

suggesting that layoffs catalyze transitions to alternative forms of employment, albeit with varying financial outcomes. This surge in gig activity aligns with insights from Barrios et al. (2022), who highlight the gig economy's role in providing a financial safety net, facilitating a smoother transition to self-employment for those affected by job loss in our case.

The main contribution of this paper, relative to the existing literature, is our focus on the various different kinds of entrepreneurial business structure (i.e. incorporated business, unincorporated business, and gig work). Other studies, who also examine the transition of laid-off workers into entrepreneurship (e.g. Galindo Da Fonseca (2022)) only focus on incorporated businesses, often because data on incorporated businesses is easier to access. Furthermore, Hacamo and Kleiner (2022) and Babina (2019) concentrate on what we could define as "high-quality" workers emerging from labor market distress. Hacamo and Kleiner (2022), for instance, use individuals who graduate from top us schools whereas Babina (2019) investigates individuals who initiate business out of a voluntary departure, highlighting a proactive selection into potential entrepreneurship.

Our study also makes various other contributions to the literature. The existing literature offers varied perspectives on firm creation post-financial distress. For instance, Hacamo and Kleiner (2022) and Babina (2019) posit that economic downturns and financial distress can lead to the formation of high-quality, sustainable firms. In contrast, Galindo Da Fonseca (2022) suggests that unemployment may diminish the chance of success of new firms. Our analysis engages with these views, particularly contrasting with Babina's and Hacomo et al.'s findings. By focusing on mass layoffs as a clear, exogenous shock, we isolate the impact of job loss on the decision to start a business and its subsequent success, contributing to a more detailed understanding of the interplay between economic distress and entrepreneurship.

In fact, unlike existing studies that may view financial distress as a catalyst for high-quality entrepreneurship, our findings suggest a more nuanced reality. Firms founded by displaced workers tend to exhibit lower quality and financial performance, presenting a counterpoint to the notion that distress alone fosters successful entrepreneurship. This is further illuminated by Graham et al. (2023), whose investigation into the employee costs of corporate bankruptcy reveals the profound and enduring economic toll on displaced workers, adding depth to our understanding of displacement's ripple effects on entrepreneurship.

In summary, our research not only challenges prevailing assumptions about the entrepreneurial

outcomes of displaced workers but also enhances our understanding of the broader implications of job displacement in the context of business creation and performance. Through this study, we aim to provide a comprehensive picture of the hurdles and potential pathways for displaced individuals considering entrepreneurship as a next step in their careers.

2 Data and descriptive statistics

Our study uses Statistics Canada's Canadian Employer-Employee Dynamics Database (CEEDD), which is an employer-employee matched administrative tax records database. In this section, we document the different sources of data used in the analysis. The appendix table 6 lists all the variables used in the analysis, their definition, and the source of data used to construct them.

2.1 Demographics and individual tax data

We use the T1 Personal Master File (T1PMF) data as the preliminary linkage file from 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 aggregate annual tax information, as well as demographics. From this dataset, we obtain age, sex, total labor income, and investment information (Table 6).

In addition to the aggregated tax information provided in the T1PMF, the Record of Employment and Remuneration (T4ROE) provides the annual remuneration of each individual at each employer where they have worked. This allows us to track all the different employers of a given individual, each year. Employers provide information on the employees, salary paid, reason of separation, contributions to pension programs such as Canadian Pension Plan (CPP) and Quebec Pension Plan (QPP), number of days worked if there is job separation, etc. A key feature of the T4ROE is its categorization of job separation reasons into 14 distinct categories, which facilitates the differentiation between voluntary and involuntary separations. For our analysis, we focus on involuntary job separations attributed to a "shortage of work", which serves as our criterion for identifying layoffs from the firm. This approach allows for a precise assessment of layoffs and their impact on employment trajectory.

Finally, we identify immigrants from native-born individuals through the Longitudinal Immigration Database (IMDB), a database that contains immigrant landing records with annual tax data for those arriving in Canada since 1980. The database includes immigrants who have filed at least one tax return since 1982, ensuring a comprehensive coverage of this population group. The landing records within the IMDB provide detailed characteristics of immigrants at the time of their arrival, including age, education, marital status, source country, official language proficiency, and admission category. These data allow us to observe the unique experiences of immigrant entrepreneurs and workers, contrasting their economic outcomes and entrepreneurial endeavors with those of their native-born counterparts, thereby enriching our analysis of the impact of displacement on firm performance across diverse demographic groups.

2.2 Unincorporated business data

To identify unincorporated businesses, we use consolidated data of the T1 Financial Declarations (T1FD) which are filed by taxpayers who report self-employment income, and T1 Business Declarations (T1BD) which are filed by unincorporated business owners. The data is available from 2005 onwards. The businesses can be either sole proprietorship or partnership. The entity in this data does 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. We refer to businesses without a business number as gig work, following Jeon et al. (2021).

This data allows us to track the owners of each unincorporated data by leveraging on the business number[2] under which they have been recorded over time. The Business number accounts for all subsidiary or affiliated businesses, encompassing a range of unincorporated small businesses under the same umbrella.

2.3 Incorporated business data

We use the National Accounts Longitudinal Microdata File (NALMF) to identify incorporated entities, which is a longitudinal administrative database of Canadian firms. From this data, we can retrieve financial information such as income statement components, balance sheet components,

[2]Most results presented in the unincorporated section are aggregate at the Business number level by year.

employee count, and NAICS of the incorporated firms as listed in the table 6.

We complement this data with the T2S50 files[3], which contain shareholder information using the same unique individual-level identifier. We can therefore attribute ownership of each incorporated business to individuals in our sample, and obtain detailed ownership shares, type of ownership (i.e., direct or chain ownership), and the number of owners. All private corporations are required to file the T2S50 and provide information on all shareholders that own at least 10 percent of common or preferred shares. We use this dataset to attribute ownership of the different incorporated businesses to individuals in the sample. By merging both files, we can study firm performance and owner decisions throughout the event period.

2.4 Sample construction

In constructing our sample, we start with the universe of XX firms available in the National Accounts Longitudinal Microdata File (NALMF) between 2001 and 2017. We follow previous studies in defining mass layoffs as a year-to-year reduction of at least 30% of the workforce (Bertheau et al., 2023, Couch and Placzek, 2010, Schmieder et al., 2023), and we impose the condition to have at least 5 employee layoffs. We restrict the sample to employers who conducted only one mass layoff between 2001 and 2017. This definition identifies 102,951 employers with a single mass layoff event, where an average of xx employees have been laid off per incident. To be included in our study, employees are required to have been with their employer for at least 4 years at the time of the mass layoff.[4] The precise identification of workers part of mass layoff is possible using our detailed employer-employee tax data.

Our sample is divided into treatment and control groups, where the treatment group consists of displaced workers, identified as those laid off following a mass layoff. To form a well-matched control group, we perform a one-to-one propensity score matching method without replacement, as employed in Bertheau et al. (2023) and Schmieder et al. (2023). This approach creates a counterfactual group of workers with characteristics as close as possible to the treatment group in terms

[3]The T2 corporate tax file offers a linkage opportunity to Schedule 50 (T2S50), which is a detailed tax document stipulating firm ownership composition. Mandatorily, private Canadian-controlled corporations file this Schedule to transparently disclose the identities of all significant shareholders, defined as individuals holding a minimum of a 10 % stake in either common or preferred shares

[4]Additionally, because we observe all employment links and reasons for separation, we exclude individuals who either retired or were terminated by other firms in the same year as the mass layoff.

of earnings trends and employment trajectories post-layoff. More precisely, we match workers based on several variables: the year of the mass layoff event, earnings recorded during the two years leading up to and including the three years prior to the layoff, the worker's age at the time of layoff, tenure with the firm, and the size of the firm measured by the number of employees one year before the lay-off event. Additionally, we use the 2-digit NAICS code as a proxy for the industry sector. This ensures that both groups have similar pre-displacement characteristics. Below, we verify the validity of the parallel trend assumptions in this context. The control group is chosen at the cohort level and represents a never-treated counterfactual group, similar to the methodology employed by Greenstone et al. (2022).

Finally, to capture the dynamics surrounding mass layoffs, we analyze a balanced panel of individuals observed in the data for six years before and after the mass layoff event. This limits the occurrence of mass layoffs in our study to the period between 2007 and 2011, given the dataset's coverage from 2001 to 2017. This results in 56,620 individuals being affected by a mass-layoff in our sample, matched one-to-one with 56,620 individuals in the control group.

Furthermore, in our analysis, we compare the performance of firms established by displaced workers those laid off following a mass layoff event with firms founded by non-displaced workers. To ensure a robust comparison, we conduct a two-tiered matching process. Initially, at the firm level, each firm founded by a displaced worker is matched on a one-to-one basis with a firm founded by a non-displaced worker from the same year, ensuring that both sets of firms are introduced to comparable macroeconomic conditions and industry trends. To further refine our comparison, we apply the one-to-one propensity score matching method without replacement, as outlined in our individual-level matching procedure (Bertheau et al., 2023). This method aligns founders from the treated and control groups based on their earnings history, age at layoff, tenure with their prior firm, and the size of that firm, along with the 2-digit NAICS industry code (sector). This rigorous matching strategy at both the individual and firm levels ensures that each displaced founder's firm is directly compared to one non-displaced founder's firm, facilitating a precise assessment of the impact of displacement on firm performance. We validate this approach by verifying the parallel trend assumption, confirming the similarity of pre-displacement characteristics between the matched pairs of firm founders. We compare both incorporated and unincorporated firms. Therefore, the sample that we used to analyze firm performance is composed of xxx incor-

porated firms.

As mentioned in the data section, we draw on the date of incorporation recorded in the National Accounts Longitudinal Microdata File (NALMF) alongside the stake of individual participation from the T2S50 filings for the incorporated firms. These data points enable us to accurately identify firms that have been established within a specific time frame and to ascertain that the individuals have both created and incorporated these entities within the same year, as evidenced by their inaugural appearance in the records. Furthermore, To address the impact of outliers on both ends of the distribution, we employed winsorization for the variables, setting limits at both the 5th and 95th percentiles. This approach involves adjusting values below the 5th percentile up to the 5th percentile value and values above the 95th percentile down to the 95th percentile value, effectively reducing skewness and enhancing the robustness of our analysis by minimizing the influence of extreme outliers.

For the sample of unincorporated firms, we utilize the unique and persistent business registry number to consolidate all entities registered under a singular identifier. This measure ensures that our cross-sectional analysis of unincorporated firms is robust, allowing for consistent tracking and aggregation of business activities over time. We are also employing a winsorization for the variables, setting limits at both the 5th and 95th percentiles. Therefore, the sample that we used to analyze firm performance is composed of xxx unincorporated firms.

3 Model and estimation

Our identification strategy uses mass layoffs as an instrument for job separation. The frequency and large scale of these layoffs provide a basis for examining the impact on employees, allowing us to analyze changes in employment patterns, income earnings, and transitions into entrepreneurship or self-employment. To address the recent advances in the literature to measure dynamic treatment effects in a staggered difference-in-differences methodology (Goodman-Bacon, 2021, De Chaisemartin and D'Haultfœuille, 2020, Callaway and Sant'Anna, 2021, Sun and Abraham, 2021), we adopt the stacked regression model such as the methodology employ by Deshpande and Li (2019) and Cengiz et al. (2019). We specify a model that incorporates a stacked regression

estimator to address the complexities posed by staggered treatment timing and treatment effect heterogeneity. This approach enables us to construct and analyze "clean 2×2" subsets of our data, facilitating a nuanced examination of treatment effects across different cohorts (Baker et al., 2022).

Furthermore, our approach is distinguished by the use of a control group that is never affected by a mass-layoff (clean never treated sample). This selection is strategic, simplifying the comparative framework and ensuring a clean baseline for our stacked regression analysis. It directly addresses potential biases from staggered treatments by maintaining the critical assumption of parallel trends more reliably than if the control group were subject to varying treatment timings. Moreover, this method helps to avoid spillover effects, as our control group's outcomes remain uninfluenced by the treatment, providing a clearer estimation of the treatment effect.

$$Y_{it} = \sum_{\substack{j=-6 \\ j\neq -1}}^{6} \text{Period}_{itj} \times (\beta_{0j} + \beta_{1j}\text{Treated}_{ij}) + \gamma_t + \lambda_t + \theta_{dj} + \mu_i + \varepsilon_{it} \tag{1}$$

where Y_{it} is the dependent variable for individual i at time t (for example, labour earnings, firm creation indicators, or firm outcomes), Treated_i is a dummy variable indicating whether individual i is in the treatment group, and Period_{itj} is an indicator variable equal to one if the event time is equal to j, and 0 otherwise, γ_t captures year fixed effects, λ_t represents the firm fixed effect, θ_{dj} is the interaction of the cohort year with the event time, where $_d$ indexes different cohort year, distinguishing among groups of individuals based on the year of the mass layoff. μ_i represents individual fixed effects, and ε_{it} is the error term. In all our results, we cluster standard errors at the individual level and cohort level. Central to our analysis is the incorporation of saturated fixed effects, tailored to accommodate the nuances of each cohort within our staggered mass-layoff timeline. By including saturated, cohort-specific, and individual fixed effects in our model, we achieve more granular control over time-invariant characteristics that could otherwise confound our treatment effect estimation. Such a comprehensive fixed effects structure allows us to precisely isolate the impact of mass layoffs, mitigating potential biases that often challenge differences in differences analyses.

Following papers Baker et al. (2022) and Cengiz et al. (2019), we estimate equation (1) as a stacked regression over the different cohort years. Our main coefficients of interest are the series of $\beta_1 j$, which measure the effect of mass layoffs relative to event time $t = -1$ (the last year in

which individuals are still employed by the firm which experienced the mass layoff).

To analyze the firm performance in our context, we employ a regression framework that incorporates multiple fixed effects to control for various factors, our baseline regression :

$$Y_{it} = \alpha + \beta_{1j}\text{Treated}_{ij} + \gamma_r + \lambda_c + \theta_s + \epsilon_{it} \tag{2}$$

where the Y_{it} serves as the dependent variable for firm i at time t, capturing outcomes such as profitability, growth, employment etc. The variable Treated_i is a dummy variable indicating whether a displaced worker founded the firm. The model includes γ_r to represent region fixed effects, controlling for geographic influence on firm performance, while λ_c accounts for cohort fixed effects, controlling for the year the firm was established. Additionally, θ_s, adjusts for the industry fixed effects using the 2-digit NAICS code to account for industry-specific trends that could affect firm performance.

In some specifications, we introduce an interaction term between the treated variable and a dummy variable which represents the specificity or characteristic of the founder. Our objective is to capture the heterogeneity and nuanced effects that could emerge among firms. This approach allows us to identify the differential impacts and insights into how various baseline characteristics interact with the treatment effect on firm outcomes.

Finally, we look at the choices faced by the individuals in the year of displacement. On whether he chooses to open an unincorporated entity or an unincorporated entity. To analyze this choice, we use a probit model :

$$\Pr(\text{Firmchoice}_{it} = 1) = \Phi(\alpha + \beta\text{Treated}_{it} + \gamma_t + \delta_c + \epsilon_{it}) \tag{3}$$

In our probit model, Firmchoice_{it} represents the binary outcome indicating the choice between incorporation (1) or unincorporation (0). The variable Treated_{it} serves as a dummy variable indicating whether the individual was displaced at time t. To account for time-specific influences that could affect the decision to incorporate or not, we include year-fixed effects, denoted by γ_t. Additionally, cohort fixed effects, represented by δ_c, account for variations among groups of firms founded in the same year. The model is structured with α as the intercept and β as the coefficient

for the treated variable, capturing the impact of displacement on the choice of firm type. Lastly, ϵ_{it} represents the error term, capturing unobserved factors that might influence the incorporation choice. Φ denotes the cumulative distribution function of the standard normal distribution, reflecting the probit model's specification.

4 Results

4.1 Choice between incorporated entity versus unincorporated entity

We analyze the choice between stating an incorporated entity versus an unincorporated entity in the year of displacement (T=0) using the equation 3. Our finding presents a clear pattern, indeed, we found that individuals who have experienced a job displacement are more likely to choose to start with an unincorporated business rather than an unincorporated one. In fact, we notice that they are 12 % more likely to open an unincorporated business (Table 1). The results unveil a discernible inclination towards unincorporated entities, signifying a strategic preference for paths with potentially lower initial investment and complexity. We also notice that at inception, the average asset investment in an unincorporated business by displaced workers is approximately \$4,000, compared to \$102,000 for incorporated businesses This significant difference in the average amount invested combined with the strategic choice of unincorporated compared to incorporated could be interpreted as "aiming low", a strategic approach by displaced individuals to minimized risk and simplified their beginning into the entrepreneurship. By choosing unincorporated businesses, these individuals may seek to leverage the flexibility and lower barriers to entry associated with such entities, reflecting a cautious yet determined step towards self-employment in the aftermath of job displacement.

We then turn our analysis, to identify if there are demographic and economic factors of the founders which could nuanced dynamics across this entrepreneurial decision.

Firstly, we found that the sex of the entrepreneur could significantly influence incorporation choices. Men are more likely to open an incorporated business compared to women. This gender difference could represent the varied perceived opportunities and access to funding between men and women when navigating the decision to launch a business and to incorporate them. However, we also found that among the displaced workers, there is no significant difference among the

genders. The interaction between job displacement and gender is statistically non-significant, suggesting that the impact of job loss on incorporation decisions does not change significantly across men and women.

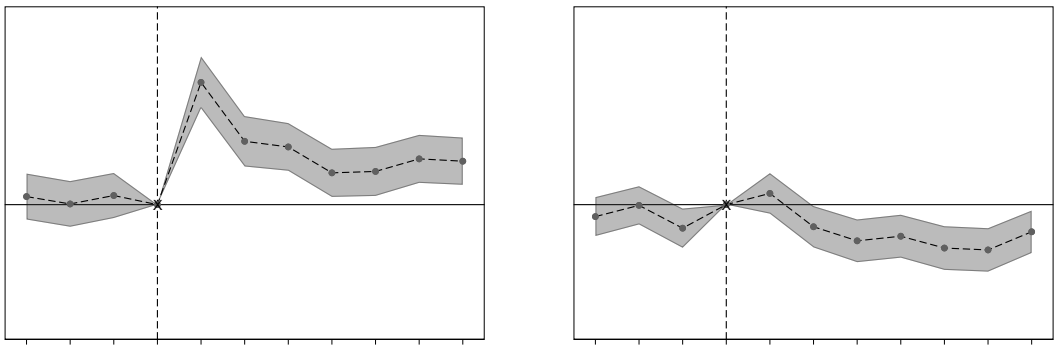
Secondly, we also observe that immigrant status adds another layer of complexity to the problem. While being an immigrant does not directly affect the likelihood of choosing to open an incorporated entity rather than an unincorporated entity, we notice that there is a distinct pattern among the displaced. Displaced immigrants are more inclined towards opening incorporated entities compared to their non-immigrant counterparts. The significance of this interaction between job displacement and immigrant status could reveal the challenges and opportunities faced by immigrants in their entrepreneurial adventures, especially when job loss is a factor.

Lastly, we observe the impact of the economic environment on the likelihood of opening an incorporated business. We found that the presence of a recession does not influence the likelihood of choosing to open an incorporated entity rather than an unincorporated entity. Furthermore, among displaced workers, we do not find any difference between the displaced workers in recession compared to their counterparts in non-recession in the choice between incorporated entity and unincorporated entity. This finding could demonstrate the resilience or adaptability of entrepreneurial decisions in the presence of economic fluctuations.

4.1.1 Incorporated firms

We then observe the dynamic of incorporation for the displaced workers after the displacement. Figure 1 (a) indicates a discernible shift in entrepreneurial activity following mass layoffs, as measured by the opening of newly incorporated businesses. The baseline trend before the layoffs shows little change in the rate of new business creation. However, concurrent with the layoffs, there is a noticeable increase, with the rate of individuals starting new incorporated businesses rising by 1.5%. This elevated level of incorporation suggests a turn toward entrepreneurship, potentially as a strategic choice or a necessity in the face of reduced employment opportunities. The focus on individuals who start incorporated firms is pivotal, as incorporation might be a more accurate proxy for entrepreneurship than overall self-employment (Rubinstein and Levine, 2020). While most unincorporated self-employed individuals harbour modest ambitions for business

Figure 1: Incorporated business



(a) Opening an incorporated business (b) Closing an incorporated business

Note: This figure presents the dynamics of business incorporation and the closure of existing incorporated businesses around the mass-layoff event. The event time is relative to $t = 0$, which represents the year of the mass layoff. We use the sample of 56 620 individuals part of a mass layoff between 2007 and 2011 matched to a control group of 56 620 individuals never employed in a mass-layoff firm. New business incorporation is defined as the businesses created and incorporated within the year, operationalized using a binary indicator. This indicator is derived from combining data from the T2 Corporation Income Tax Return (T2SR50) and the National Accounts Longitudinal Microdata File (NALMF), with '1' indicating the presence of a new business incorporation and firm creation, and '0' indicating the absence of such activity. The closure of existing businesses is similarly tracked. We report 95% confidence intervals based on standard errors which are clustered at the individual level.

growth, incorporation is better suited for high-growth potential ventures due to benefits such as limited liability and a separate legal identity. Levine and Rubinstein (2017) further elucidate that the choice of legal form for a business is influenced by the nature of the planned business activity; incorporating suggests a commitment to an enterprise that may require formal structures for growth, investment, and risk management. This temporal aspect combined with the relatively high-cost need to start an unincorporated business could explain why, even though the magnitude of newly incorporated post-layoff is not as pronounced as that of unincorporated businesses, we observe the effect lasting up to 6 years after the displacement.

4.1.2 Unincorporated firms

Prior to the layoffs, there was a stable rate of new unincorporated business starts, with no discernible difference between the treated group and the control group. In tandem with the mass layoffs, however, a marked rise in the creation of new unincorporated businesses is observed. This increase peaks in the first and second years following the layoffs, reaching a xxx%. This immediate uptick in unincorporated businesses could reflect the lower barriers to entry and in a certain way for displaced workers to generate income without the complexities and financial demands associated with incorporating a business. A figure portraying the patterns of unincorporated business creation surrounding mass layoffs will be added once the results can be released.

4.2 Performance : incorporated firms

Our findings in table 2 offer a detailed perspective on the operational outcomes of firms initiated by individuals who have experienced job displacement. A definitive pattern is discernible, highlighting a divergence in the operational 'quality' of firms founded by displaced workers compared to those established by individuals who were not part of a mass layoff. Notably, there is a marked reduction in asset tangibility, revenue, and profitability for firms originating from displaced founders. This observation exhibits persistence over an extended period, spanning from the first to the fifth year following the firm's inception, with critical variables such as asset and profit being significantly lower than their counterpart. At the creation of these enterprises (t=0), it is evident that firms founded by displaced individuals possess significantly fewer assets than those of their non-displaced counterparts. This is despite the parallel characteristics and income levels observed between the two groups. The enterprises formed by displaced workers are quantifiably smaller in magnitude.

Furthermore, essential financial indicators, such as total revenue, and profit, are considerably lower for firms established by displaced workers, indicating an inherent initial setback in operational capacity. As the analysis progresses into the subsequent years, it unveils the emergence of additional significant variables that contribute to a coherent story: firms that are in the aftermath of job displacement systematically fall short in numerous 'quality' indicators when juxtaposed with those initiated by non-displaced individuals. These findings suggest that the ramifications

of displacement extend beyond the immediate aftermath and into the longer-term fabric of entrepreneurial venture performance.

4.3 Performance: heterogeneous effect incorporated firm

We then present in table 2 an integrated narrative that describes the dynamics of firm performance influenced by founder gender, immigrant status, industry familiarity, and the economic context of the recessions of 2008-2009.

These findings not only persist but also vary when we observe the potential heterogeneity among the founders, particularly when we examine the role of the founder's gender. Interestingly, while initial differences in firm performance based on gender are minimal, a divergence emerges over time, with male-founded firms demonstrating higher payroll.

We then turn our analysis to the impact of immigrant status on firm performance. We notice that immigrant-founded firms exhibit similar initial setbacks as their displaced counterparts, struggling with lower assets, profit, and sales, a trend that steadfastly continues without significant improvement over the first five years. However, among the firms founded by displaced workers, we find no statistical difference between immigrant and native-born displaced workers.

Furthermore, our investigation into firms founded within the same industry as the founder's previous experience shed light on the advantages of industry familiarity. Firms benefiting from this familiarity start stronger with higher profit, sales, and assets. We also observe that these findings extend well into the medium term (1 to 5 years after creation) maintaining their growth trajectory, contrasting deeply with those founded by displaced workers. However, the nuanced analysis of interaction effects reveals that the initial benefits of industry familiarity do not significantly alter the long-term challenges displaced founders face. Indeed, we found that the firms founded by displaced workers even if they are from the same industry as the founder's previous experience present a lower profit, assets, payroll, and fewer sales of goods and services compared to their counterparts.

Lastly, we assess the influence of founding a firm during a recession. Contrary to expectations, the macroeconomic conditions at the time of firm establishment, whether during a recession or a more stable economic period, do not significantly impact firm performance metrics. This finding,

coupled with the lack of significant interaction effects between displacement and recessionary founding, suggests a remarkable resilience or adaptability of incorporated firms to the economic climate at inception.

4.4 Performance : unincorporated firms

We then focus on unincorporated firms, our analysis extends to describe the dynamics of business performance across different spectrums: the influence of founder displacement, the differential impact based on the founder's gender, the economic backdrop of the 2008–2009 recessions, and the nuanced distinctions between immigrant and non-immigrant founders, as well as the familiarity of the industry to the founder as we did for the Incorporated firm. This comprehensive examination aims to shed light on the operational outcomes and resilience of unincorporated firms under varying conditions.

At their creation (T=0), unincorporated firms founded by displaced workers present an intriguing financial profile. Despite facing lower revenue and expenses (table 3), these firms surprisingly report more profit and incur more cost of capital at inception. As these businesses evolve into the medium term (1 to 5 years after creation), a consistent pattern of lower expenses and cost of capital emerges, alongside sustained higher profitability, signalling a strategic resilience in managing financial constraints over time for the unincorporated firms founded by those displaced workers in general.

4.5 Performance: heterogeneous effect unincorporated Firms

When exploring the heterogeneity among founders, especially in terms of gender, we observe distinct patterns from the firm creation. Initially, firms founded by displaced workers have less revenue and expense, but they have higher profits alongside a higher cost of capital. This trend continues during the medium term (1 to 5 years after creation), with such firms maintaining lower expenses but achieving higher profits as they mature. However, when it comes to gender-specific outcomes, the initial disparities are minimal, with notable differences in payroll and employee count at inception that tend to diminish over time for the male-founded business.

We then focus on the performance of firms founded during the recessionary period of 2008-

2009. Intriguingly, at the time of creation, these recession-founded firms exhibit higher revenue, expenses, and a higher gross profit, suggesting a potential advantage or necessity-driven efficiency among entrepreneurs during economic downturns compared to their counterparts founded not during the recession. However, as we move into the subsequent years (1 to 5 years after creation), those difference disappears. We do not observe any significant differences between the firms founded by displaced workers and those founded by their non-displaced counterparts.

We then turn our analysis to the impact of immigrant status on firm performance. We found that firms founded by immigrants begin with lower financial metrics as well but generate higher profitability. As we move into the subsequent year (1 to 5 years after creation), Those differences tend to persist over time.

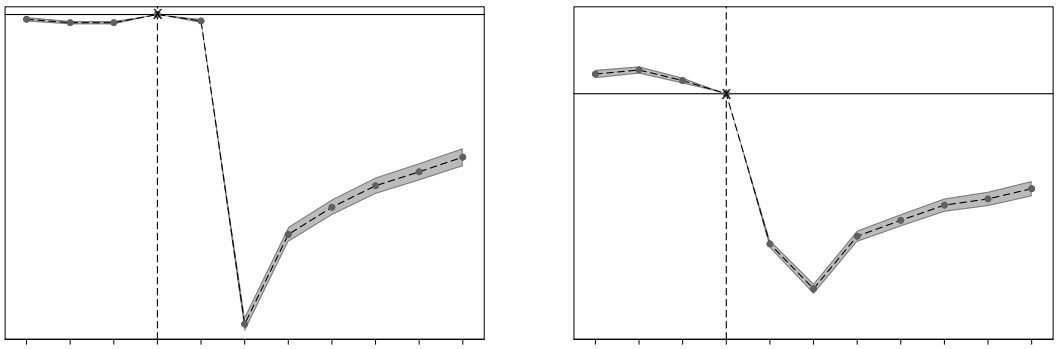
Lastly, our investigation highlights the significant advantages that come with industry familiarity. Firms operating within industries well-known to the founders start with stronger financial foundations, reporting higher profit, revenue, and overall benefits (table 3).

4.6 Employment and labour income

Figure 2 (a) exhibits the impact of mass layoffs on the probability of subsequent employment. The trends for both treated and control groups align consistently until the event of the layoffs. At this point, a pronounced dip in employment likelihood for the treated group is evident, showing a 20% decline. Recovery is gradual over time; however, even several years post-layoff, employment probabilities have not returned to pre-layoff levels, suggesting a lasting effect of mass layoffs on job prospects. Figure 2 (b) portrays the trajectory of earnings following mass layoffs. Aligning with the previous employment probabilities trend, the earnings of the treated group mirror those of the control group until the event of the layoffs. The layoff event marks a significant inflection point, with earnings for the treated group declining sharply by approximately $13,000. The subsequent period demonstrates a partial recovery, yet earnings remain noticeably below the pre-layoff benchmark, reflecting the enduring financial impact of mass layoffs.

Figure (XXX) portrays the trend in income from Registered Retirement Savings Plan (RRSP) withdrawals before and after mass layoffs. The timeline prior to the layoffs demonstrates a relatively low and steady amount of RRSP withdrawals. However, coinciding with the layoffs, there

Figure 2: Effect of mass layoff on employment and earnings



(a) Employment (b) Employment income ($)

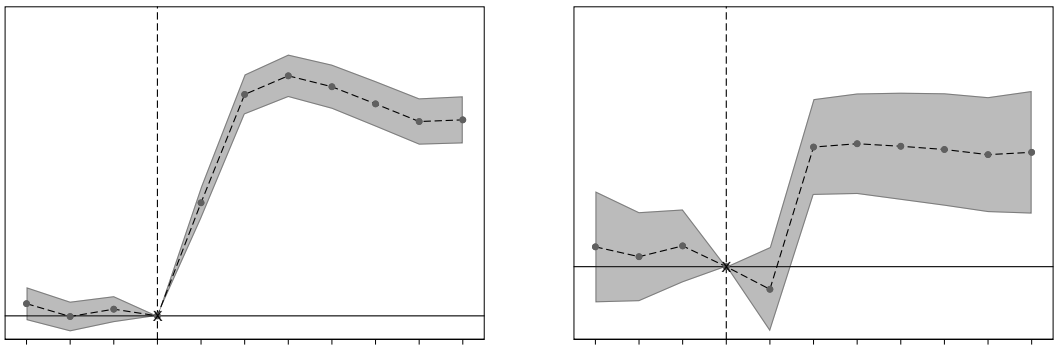
Note: This figure presents employment and employment income around the mass-layoff event. The event-time is relative to $t = 0$, which represents the year of the mass layoff. We use the sample of 56,620 individuals part of a mass-layoff between 2007 and 2011 matched to a control group of 56,620 individuals never employed in a mass-layoff firm. Employment is defined as a dummy variable equal to one if the individual received employment income (i.e. some T4 earnings) from a firm in the current year, and 0 otherwise. Earnings are calculated from the T1 Personal Master File (T1PMF) and are defined as the total employment income reported on T4 slips, before any deductions. We report 95% confidence intervals based on standard errors clustered at the individual level.

is a notable increase in withdrawals (8%), indicating that individuals are tapping into their retirement savings as a response to job loss. The elevated withdrawal rates persist, suggesting a continued reliance on these funds beyond the immediate aftermath of layoffs.

4.7 Self-employment

Figure 3 (a) reveals a marked shift toward self-employment in response to mass layoffs. Prior to the layoffs, the prevalence of self-employment was similar between the treated and control groups. Following the layoffs, however, there is a pronounced surge in self-employment for those impacted, peaking at a 5% increase. This suggests a significant behavioural shift among laid-off individuals, possibly as a strategic pivot or necessity, underscoring the role of layoffs in catalyzing transitions to self-employment. Figure 3 (b) tracks the trajectory of gig economy activity following mass layoffs. The analysis indicates congruence in gig work participation between those affected by layoffs and those who are not, up until the layoffs occur. In the aftermath of the layoffs, there is a discernible uptick in gig economy engagement among the treated group, with an approximate increase of 2.5%. This shift highlights the layoffs' role in driving individuals towards alternative

Figure 3: Effect of mass layoff on self-employment and self-employment income



(a) Self-employment (b) Self-employment income

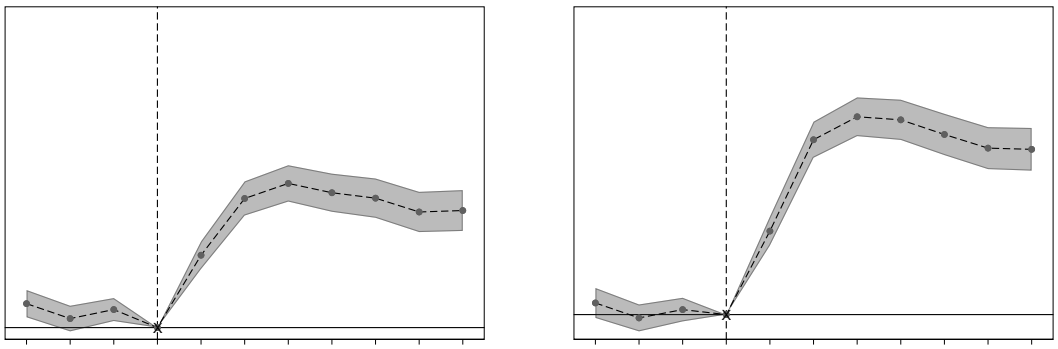
Note: This figure presents self-employment and self-employment income around the mass-layoff event. The event-time is relative to $t = 0$, which represents the year of the mass-layoff. We use the sample of 56 620 individuals part of a mass-layoff between 2007 and 2011 matched to a control group of 56 620 individuals never employed in a mass-layoff firm. Self-employment is defined as a dummy variable equal to one if the individual received self-employment income (i.e. either business, professional, or commission income) in the current year, and 0 otherwise. Self-employment income is the sum of business, commission, and professional income, calculated from the T1 Personal Master File (T1PMF). We report 95% confidence intervals based on standard errors clustered at the individual level.

forms of employment within the gig economy.

Figure 4 (a) illustrates the impact of mass layoffs on self-employment income. Prior to the layoffs, levels of self-employment income are similar between the treated and control groups. In the wake of the layoffs, there is a distinct increase in self-employment income among those affected, with a notable rise peaking at $2,500. This increase signifies a substantial shift towards self-employment, suggesting that individuals may be leveraging entrepreneurial activities as a financial strategy or out of necessity when traditional employment avenues are disrupted.

Figure 4 (b) presents the variation in business income as a result of mass layoffs. The pre-layoff period shows comparable income levels between the treated and control groups. After the layoffs, the business income for the treated group demonstrates a marked increase, stabilizing at a higher level than prior to the event. The elevation in business income suggests that not only are individuals turning to self-employment, but they are also generating increasingly substantial revenue through their entrepreneurial activities, contributing significantly to the overall rise in self-employment observed.

Figure 4: Self-employment income mechanisms



(a) Gig-work activity (b) Business income activity

Note: This figure presents the dynamics of business incorporation and closure of existing incorporated businesses around the mass-layoff event. The event-time is relative to $t = 0$, which represents the year of the mass layoff. We analyze a sample of 56 620 individuals who were part of a mass layoff between 2007 and 2011, matched to a control group of 56 620 individuals never employed by a firm that experienced a mass layoff. Business incorporation is defined as a dummy variable equal to one if the individual incorporated and created a new business in the current year, and 0 otherwise. It is derived from combining the T2 Corporation Income Tax Return (T2SR50) and the National Accounts Longitudinal Microdata File (NALMF). Similarly, the closure of existing incorporated businesses is tracked, with the indicator reflecting the cessation of operation within the current year. We report 95% confidence intervals based on standard errors clustered at the individual level.

5 Conclusion

Our analysis of the intersection between job displacement and entrepreneurship suggests that the path chosen by displaced workers in their entrepreneurial activity holds significant weight in determining their success and their potential economic recovery. Our findings challenge the traditional narrative that displaced workers are less likely to succeed in entrepreneurial ventures. On the contrary, our analysis suggests that displaced workers can indeed find success, particularly when they choose to open unincorporated businesses or to do "gig work". We define this choice as "aiming low". In fact, this approach not only demonstrates a pragmatic adjustment to their displacement but also capitalizes on opportunities available to them, turning these opportunities into substantial profit margins.

Moreover, the strategic choice of displaced workers to start less complex entrepreneurial (unincorporated business and gig work) activities not only demonstrates the importance of accessibility and lower entry cost (Levine and Rubinstein, 2017) but also reflects a broader implication for un-

derstanding entrepreneurship in the face of adversity. It suggests that success in entrepreneurship, particularly in the context of displacement, may not always align with traditional views such as formal structure (incorporation). Instead, success can be found in the ability to leverage available resources and opportunities to generate sustainable profit.

In conclusion, our findings not only challenge the existing assumption about the displaced worker's entrepreneurial outcomes but also improve our understanding of the large implications of job displacement. Our findings depict the diverse forms of entrepreneurship that can emerge in the aftermath of job loss, emphasizing the value of pragmatic decision-making in the entrepreneurial journey.

Tables

Table 1: Choosing between incorporated and unincorporated businesses

	$\mathbb{P}$(Incorporation)
A. *Gender effects*	
Displaced × Sex	∅
Sex	$+^{**}$
Displaced	$-^{***}$
B. *Macroeconomic effects*	
Displaced × Recession	∅
Recession	∅
Displaced	$-$ ***
C. *Immigration effects*	
Displaced × Immigrant	$+^{**}$
Immigrant	∅
Displaced	$-^{***}$

Note: This table summarizes the findings from a probit model analysis on the choice between starting an incorporated versus an unincorporated business in the event year of displacement (T=0). Pending disclosure review of the results, significant postive and negative results are denoted with $+$ and $-$, respectively and non-significant coefficients are denoted with ∅. Our model controls for individual displacement status, gender, immigration status, and the macroeconomic climate, including the presence of recession. The coefficients indicate the likelihood of choosing incorporation over unincorporation, with positive values suggesting a higher propensity towards incorporated businesses. Standard errors are clustered at the individual level to account for within-individual correlation across time. Significance levels are denoted by asterisks, with *** p<0.01, ** p<0.05, * p<0.1.

Table 2: Incorporated business performance

	Incorporated firm outcomes		
	Asset	Profit	Sales of goods
A. *Gender effects*			
Displaced × Sex	−***	−***	−***
Sex	∅	∅	∅
Displaced	−***	−***	−***
B. *Macroeconomic effects*			
Displaced × Recession	−***	−***	−***
Recession	−***	−***	−***
Displaced	−***	−***	−***
C. *Immigration effects*			
Displaced × Immigrant	∅	∅	∅
Immigrant	−***	−***	−***
Displaced	−***	−***	−***
D. *Industry effects*			
Displaced × Same industry	−***	−***	−***
Same industry	+***	+***	+***
Displaced	−***	−***	−***

Note: This table illustrates the influence of various factors on the operational outcomes of incorporated firms, considering asset values, profitability, and sales of goods. Pending disclosure review of the results, significant postive and negative results are denoted with $+$ and $-$, respectively and non-significant coefficients are denoted with $\emptyset$. The analysis uses a sample of firms established by displaced workers, comparing their performance against non-displaced founders across different demographic and economic dimensions. 'Displaced x Sex' indicates the interaction effect of displacement and the founder's gender, while 'Displaced x Recession' and 'Displaced x Immigrant' examine the interplay of job loss with economic conditions and immigration status, respectively. 'Same Industry' denotes firms founded within the industry of the founder's previous employment. Standard errors are clustered at the individual level to account for within-individual correlation across time. Significance levels are denoted by asterisks, with *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Unincorporated business performance

	Unincorporated firm outcomes		
	Profit	Expense	Revenue
A. *Gender effects*			
Displaced × Sex	∅	∅	∅
Sex	∅	∅	∅
Displaced	+***	−***	−***
B. *Macroeconomic effects*			
Displaced × Recession	∅	∅	∅
Recession	∅	∅	∅
Displaced	+***	−***	−***
C. *Immigration effects*			
Displaced × Immigrant	∅	∅	∅
Immigrant	+***	−***	−***
Displaced	+***	−***	−***
D. *Industry effects*			
Displaced × Same industry	∅	∅	∅
Same industry	+***	+***	+***
Displaced	+***	−***	−***

Note: This table illustrates the influence of various factors on the operational outcomes of unincorporated firms, considering profit, expense, and revenue. Pending disclosure review of the results, significant postive and negative results are denoted with $+$ and $-$, respectively and non-significant coefficients are denoted with $\emptyset$. The analysis uses a sample of firms established by displaced workers, comparing their performance against non-displaced founders across different demographic and economic dimensions. 'Displaced x Sex' indicates the interaction effect of displacement and the founder's gender, while 'Displaced x Recession' and 'Displaced x Immigrant' examine the interplay of job loss with economic conditions and immigration status, respectively. 'Same Industry' denotes firms founded within the industry of the founder's previous employment. Standard errors are clustered at the individual level to account for within-individual correlation across time. Significance levels are denoted by asterisks, with *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Event Time Window

	Individual-level variable				
	Earnings	RRSP Withdrawals	Gig Income	Self-Employment	Incorporation
β_{-6}	$\emptyset$	$\emptyset$	$\emptyset$	$\emptyset$	$\emptyset$
β_{-5}	$\emptyset$	$\emptyset$	$\emptyset$	$\emptyset$	$\emptyset$
β_{-4}	$\emptyset$	$\emptyset$	$\emptyset$	$\emptyset$	$\emptyset$
β_{-3}	$\emptyset$	$\emptyset$	$\emptyset$	$\emptyset$	$\emptyset$
β_{-2}	$\emptyset$	$\emptyset$	$\emptyset$	$\emptyset$	$\emptyset$
β_0	$-^{***}$	$+^{***}$	$+^{***}$	$+^{***}$	$+^{***}$
β_1	$-^{***}$	$+^{***}$	$+^{***}$	$+^{***}$	$+^{***}$
β_2	$-^{***}$	$+^{***}$	$+^{***}$	$+^{***}$	$+^{***}$
β_3	$-^{***}$	$+^{***}$	$+^{***}$	$+^{***}$	$+^{***}$
β_4	$-^{***}$	$+^{***}$	$+^{***}$	$+^{***}$	$+^{***}$
β_5	$-^{***}$	$+^{***}$	$+^{***}$	$+^{***}$	$+^{***}$
β_6	$-^{***}$	$+^{***}$	$+^{***}$	$+^{***}$	$+^{***}$

Note: This table presents the effect of mass layoffs on various income variables including earnings, RSP income, gig income, self-employment, and firm incorporation. Pending disclosure review of the results, significant postive and negative results are denoted with $+$ and $-$, respectively and non-significant coefficients are denoted with $\emptyset$. The coefficients presented in the table derive from a stacked model. The sample consists of 56,620 individuals who were part of a mass layoff, matched to an equal number of individuals who were never employed in a mass-layoff firm. The table captures the propensity for self-employment and the likelihood of incorporating a firm post-layoff, providing a numeric depiction of the trends observed in the figures 1 & 4. The reported coefficients are in relation to the year of the mass layoff ($t = 0$), with a breakdown across various event-time windows (β_{-6} through β_6). Standard errors are clustered at the individual level to account for within-individual correlation across time. Significance levels are denoted by asterisks, with *** p<0.01, ** p<0.05, * p<0.1.

6 Appendix

Table A.1: Definitions of Variables

Variable	Definition	Source
A. Demographic variables		
casenum2019	Unique identifier for individuals	T1PMF
prov of residence	Province or territory of residence	T1PMF
year	Year of tax records	T1PMF
birth year	Birth year of the individual	T1PMF
death year	Death year of the individual	T1PMF
sex	Sex	T1PMF
age	Age of the individual	T1PMF
Immigrant	Indicator representing whether the individual is an immigrant or not	IMBD
B. Income variables		
Business income net	Net business unincorporated income	T1PMF
Commission income net	Net commission unincorporated income	T1PMF
Professional inc net	Net professional unincorporated income	T1PMF
Earnings	Total employment income from T4 slips, before deductions	T1PMF
RSP Income	Income from RRSP withdrawals	T1PMF
Gig income total	Revenue from Gig- Income activities	T1PMF
Self-employment income	Self-employment income	T1PMF
C. Incorporated firm variables		
Nbr worker laidoff	Number of worker who were laidoff by the firm	NALFM
Nbr worker	Number of worker who worked for the firm	NALFM
Year of mass layoff	Year of mass-layoff	NALFM
entid syn	Business entity ID	NALFM
reason	Reason of separation from employment	NALFM
naics	NAICS - in detail	NALFM
T4 Payroll	Payroll for the enteprise	NALFM
Net income	Net income or loss for income tax purposes	NALFM
total assets	All current, capital, long-term assets, and assets held in trust	NALFM
total liabilities	All current and long-term liabilities	NALFM
total shareholder equity	All shareholder equity amount	NALFM
total current assets	All current assets	NALFM
total tangible assets	All tangible capital asset	NALFM
total intangible assets	All intangible capital asset	NALFM
total long term assets	All long term assets	NALFM
total current liabilities	All current liabilities	NALFM
D. Unincorporated firm variables		
Business number	Synthetic Business Number (BN)	T1FDB
total revenue unincorporated	L8299 : Total non-farm revenue	T1FDB
total expenses unincorporated	L9368 : Total expenses	T1FDB
wages salaries unincorporated	L9060 : Non farm wages and salaries	T1FDB
material costs unincorporated	L8320 : Cost of materials	T1FDB
direct wages unincorporated	L8340 : Direct wages (commission, labour, production wages and supervision)	T1FDB
cost of goods sold unincorporated	L8518 : Cost of goods sold	T1FDB
gross profit unincorporated	L8519 : Gross Profit	T1FDB
employee beneftis unincorporated	L9794 : Employee benefits, employer contribution, insurance, etc	T1FDB
t4 bn employee count unincorporated	Number of employees in the BN who received T4	T1FDB
t4 bn payroll unincorporated	Total payroll at BN using T4	T1FDB
tot wages benefits unincorporated	Total wages and benefits	T1FDB

References

BABINA, T. (2019): "Destructive Creation at Work: How Financial Distress Spurs Entrepreneurship," *The Review of Financial Studies*, 00, 41.

BAKER, A. C., D. F. LARCKER, AND C. C. WANG (2022): "How much should we trust staggered difference-in-differences estimates?" *Journal of Financial Economics*, 144, 370–395.

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

BERTHEAU, A., E. M. ACABBI, C. BARCELÓ, A. GULYAS, S. LOMBARDI, AND R. SAGGIO (2023): "The Unequal Consequences of Job Loss across Countries," *American Economic Review: Insights*, 5, 393–408.

CALLAWAY, B. AND P. H. SANT'ANNA (2021): "Difference-in-Differences with multiple time periods," *Journal of Econometrics*, 225, 200–230.

CENGIZ, D., A. DUBE, A. LINDNER, AND B. ZIPPERER (2019): "The Effect of Minimum Wages on Low-Wage Jobs*," *The Quarterly Journal of Economics*, 134, 1405–1454.

COUCH, K. A. AND D. W. PLACZEK (2010): "Earnings Losses of Displaced Workers Revisited," *American Economic Review*, 100, 572–589.

DE CHAISEMARTIN, C. AND X. D'HAULTFŒUILLE (2020): "Two-Way Fixed Effects Estimators with Heterogeneous Treatment Effects," *American Economic Review*, 110, 2964–2996.

DESHPANDE, M. AND Y. LI (2019): "Who Is Screened Out? Application Costs and the Targeting of Disability Programs," *American Economic Journal: Economic Policy*, 11, 213–248.

GALINDO DA FONSECA, J. (2022): "Unemployment, entrepreneurship and firm outcomes," *Review of Economic Dynamics*, 45, 322–338.

GOODMAN-BACON, A. (2021): "Difference-in-differences with variation in treatment timing," *Journal of Econometrics*, 225, 254–277.

GRAHAM, J. R., H. KIM, S. LI, AND J. QIU (2023): "Employee Costs of Corporate Bankruptcy," *The Journal of Finance*, 78, 2087–2137.

GREENSTONE, M., G. HE, R. JIA, AND T. LIU (2022): "Can Technology Solve the Principal-Agent Problem? Evidence from China's War on Air Pollution," *American Economic Review: Insights*, 4, 54–70.

HACAMO, I. AND K. KLEINER (2022): "Forced Entrepreneurs," *The Journal of Finance*, 77, 49–83.

JACOBSON, L. S., R. J. LALONDE, AND D. G. SULLIVAN (1993): "Earnings Losses of Displaced Workers," *The American Economic Review*, 83, 685–709, publisher: American Economic Association.

JEON, S.-H., H. LIU, AND Y. OSTROVSKY (2021): "Measuring the gig economy in Canada using administrative data," *Canadian Journal of Economics/Revue canadienne d'économique*, 54, 1638–1666.

LACHOWSKA, M., A. MAS, AND S. A. WOODBURY (2020): "Sources of Displaced Workers' Long-Term Earnings Losses," *American Economic Review*, 110, 3231–3266.

LEVINE, R. AND Y. RUBINSTEIN (2017): "Smart and Illicit: Who Becomes an Entrepreneur and Do They Earn More?*," *The Quarterly Journal of Economics*, 132, 963–1018.

RUBINSTEIN, Y. AND R. LEVINE (2020): "Selection into entrepreneurship and self-employment," ISSN: 2042-2695 Issue: 1722 Num Pages: 64 Number: 1722 Place: London, UK Publisher: London School of Economics and Political Science.

SCHMIEDER, J. F., T. VON WACHTER, AND J. HEINING (2023): "The Costs of Job Displacement over the Business Cycle and Its Sources: Evidence from Germany," *American Economic Review*, 113, 1208–1254.

SUN, L. AND S. ABRAHAM (2021): "Estimating dynamic treatment effects in event studies with heterogeneous treatment effects," *Journal of Econometrics*, 225, 175–199.