Family firms in the Covid crisis: Employment, operational leverage and financial constraints

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Abstract

Whether family firms perform better in a crisis is an open empirical question. Their higher financial constraints could lead to cuts in investment and employment (Lins, Volpin, and Wagner 2013). Conversely, their conservatism and closer links to their employees may increase their chance of survival (Amore, Quarato, and Pelucco 2021).

We examine the impact of the Covid shock on the universe of family firms in Norway and compare it to the effect on nonfamily firms. We find that the Covid crisis led to sharp drops in revenues concentrated in industries such as tourism, but it was also a growth opportunity in other industries such as retail. The drop in revenues in the industries that were negatively affected generated difficulties in covering fixed costs, and that shock coming from operating leverage was similar for family and nonfamily firms. We find that the financial flexibility of the firm is important for firms facing a large negative shock (Fahlenbrach, Rageth, and Stulz 2020), but also that the financial resources and liquidity of business owners are important.

In terms of employment, we find that family firms were significantly more likely to furlough rather than fire their employees. This result is consistent with some of the existing literature on listed family firms (Sraer and Thesmar 2007) and illustrates the close relationship between family firms and their employees. We also examine the impact of location, size, ownership concentration and firm owners' financial resources in the firms' reaction to the Covid crisis. Our findings emphasize the importance of family firms for key industries and employment in small communities.

Keywords: Covid shock, family firms, employment, labor hoarding, operating leverage, geography, corporate governance

JEL classification numbers: G32, E24, D22, H12

1 Introduction

Ownership by individuals and families is "the most prevalent form of corporate ownership around the world" (Villalonga and Amit 2020), and yet it is relatively little studied given the focus on large, listed corporations with more easily available data. Moreover, some of the research results we have are contradictory. On the one hand, we have papers finding that family firms are less likely to downsize and reduce their employment in a crisis (Sraer and Thesmar 2007, Bassanini et al. 2013), perhaps because they have a closer relationship with their employees or because having stable employment allows them to pay lower wages. On the other hand, we have papers implying that family firms cut more aggressively in a downturn (Lins, Volpin, and Wagner 2013), perhaps as a result of their financial constraints.

In this paper, we examine the behavior of family firms during the Covid crisis. We find first that the impact of the crisis on firm revenues, while highly different across industries, was fairly similar for family and nonfamily firms. However, we also find that family firms were significantly less likely than nonfamily firms to fire, furlough and decrease the working hours of their employees.

One of the most affected economic areas of any country impacted by the emergence of Covid-19 is the small and medium-sized enterprises. As they represent a significant proportion of the wealth and source of income of those who own, run or work in the SMEs, many countries have promoted programs aimed at supporting them. The US CARES program is an example – it has the objective to provide "fast and direct economic assistance for American workers and families, small businesses, and preserves jobs for American industries". As we show in the paper, the vast majority of small and medium enterprises are family-controlled.

The optimal public health policies and economic support policies have been the focus of lively debate in many countries. However, an in-depth analysis of public policies and their effects is often hindered by data availability issues.

From the very beginning of the Covid crisis, Norway adopted a number of measures such as loan guarantees, corporate bond buying, unemployment support and a compensation program for firms facing a large loss in revenues. The aim of these measures is to allow firms facing a large, but temporary decrease in their revenues to survive the crisis.

One of the key features of the Norwegian support package has been its transparency. The names of the firms and the amounts received are made public on an ongoing basis. We plan to use this feature and match the data on public support to our database with information about firms and their owners.

We use this transparency to present an in-depth analysis of the impact of the Covid shock on family and nonfamily firms. Our starting point is the universe of limited liability firms in Norway, with information on their financial statements and ownership. We match that data with information on the compensation aimed at partly covering the unavoidable fixed costs of firms faced with large decreases in revenues, as well as information on firings, furloughs and decreased working hours reported to the

social security services.

We define family firms as firms that are majority-owned by individuals related by blood or marriage, regardless of whether they have chosen to be active as directors or officers. This definition has the advantage of reflecting both the unusually tight social ties between the owners and their option to self-handedly choose their preferred participation in governance, such as recruiting a family member as the CEO[1]. We have about 86,000 firms on average per year, and family firms account for 73% of the firms, 43% of employment, 24% of sales, and 15% of assets. Thus, the family firm is the dominating organizational form and generates a large part of overall economic activity. The only existing family firm study we know that uses population data strengthens this impression. Analyzing Swedish limited-liability firms in 2010, Anderson et al. (2017) find that family firms constitute 62% of all firms and 35% of all employment.

We find that the Covid crisis led to a sharp immediate decrease in revenues for many firms, as reflected by the large number of applications for public support in the form of a contribution to the firm's unavoidable fixed costs. We show that due to the sudden decrease in revenues those fixed costs, usually a relatively low share of a firm's sales, become a significant burden. The shock was large in some industries, such as tourism, and small in others, such as publishing and IT. At the same time, while family firms were slightly less likely to apply for the compensation, the difference was small, and the decrease in revenues was fairly similar. There were many firms applying for compensation in the initial stage of the Covid shock (March-April 2020); following that, numbers were lower, with seasonal peaks due to temporary restrictions.

The Covid shock also raised the issue of employment relationships in firms facing partial or total loss of revenues. We find that the behavior of family and nonfamily firms was quite different. While mass firings were fairly rare, nonfamily firms were almost five times more likely to announce a permanent reduction in employment. Furloughs, which have an established tradition in Norway and received some additional financial support from the government, were more widespread. They were also significantly more frequent in nonfamily firms, which were 50% more likely to announce them. Decreased hours were also slightly more widespread in nonfamily firms. The results hold when we control for industry effects, for firm size and age (usual proxies for financial constraints, as suggested by Hadlock and Pierce (2010)), the decrease in revenues, and the compensation for fixed costs. Even though family firms are on average smaller than nonfamily firms, our results are not driven by a small firm effect; indeed, they are if anything stronger if we focus on larger firms.

Our results are therefore consistent with the idea that family firms are less likely to part with their employees in a crisis. We model their decision starting from the idea that family owners derive utility from having control over the family firm. For

[1]There are about 90 definitions of a family firm in the literature (European Commission, 2009). The definition used in empirical tests is usually driven by data limitations. For instance, working with listed firms may require a minimum control threshold of just 20% rather than 50% to ensure sufficient sample size (Maury, 2006).

instance, the families may be keen on preserving their socio-emotional wealth (Berrone et al. 2012, Gomez–Mejia et al., 2007, 2010, 2011). The need to preserve control over the firm can drive family firms to keep their existing employees during shallow or short-term economic shocks, so as to avoid the search and training costs of hiring new workers when economic conditions improve. However, if the shock is deep or likely to be persistent, family owners will be willing to downsize in order to preserve liquidity, avoid raising additional capital and thus protect their control over the firm. The Covid shock, both temporary and attenuated by public support, was closer to the former case than the latter.

Consistent with the predictions of our model, we find that family firms were significantly less likely than nonfamily firms to issue additional equity during the Covid crisis. That allowed them to keep control over the firm. At the same time, family firms increased their long-term debt, but also their cash positions on average, consistent with conservative financial management.

The first challenge in addressing this question is finding a negative shock suitable to test the above alternatives: On the one hand, we would need a negative shock (for example a drop in demand or a credit crunch) that is not likely to affect the long-run prospects of the firms, so that its transitory nature would justify equity holders' support of the firm. On the other hand, the shock should be severe enough to compromise the firm survival in the short term. The Covid pandemic seems to meet these two requirements: it has had a pervasive impact on the survival of many firms and entrepreneurial activities via a number of channels such as drop in the demand of goods and services or restriction to work practices like home-office requirements.

The highly disruptive impact of the COVID-19 emergency has generated a wave of research papers. Among these projects several focus on the impact of this crisis on the SMEs. Humphries et al (2020) study the impact of information frictions and firms' awareness about government aid programs on aid applications, lay-offs and expectations of going out of business. Bartik et al (2020) describe the impact of the emergency on more than 5,000 small businesses. Both studies, though, rely on survey data given the lack of other data sources for SMEs in the United States as well as in other countries.

The closest paper to our project is Chetty et al. (2020), which uses multiple US data sources to analyze the impact of the crisis on small firms. However, that study does not have information on the ownership structure of various firms, and cannot analyze its impact on firm growth and survival in a crisis. We build on our previous work where we group owners in families, add wealth data and interact with owner activities at private firms and finally group firms in business groups to fully link households and firms based on archival data.

In the debate about family firm downsizing, our results are consistent with less firing. That is likely to be due to the nature of the shock, which is not the large and persistent financial crisis explored in Lins, Volpin, and Wagner (2013). Our results therefore contribute to a taxonomy of family firm behavior in downturns.

It is well established that labor hoarding can have important macroeconomic effects

(Biddle 2014). Our results show that there are significant differences in labor hoarding based on ownership. The prevalence of family firms around the world should be an important factor in modelling the cyclicality of economic activity.

2 Model

To fix ideas, we begin with a brief model outlining the mechanism that we examine in the paper.

2.1 Setup

We have firms that right now have 10 employees each. This period the optimal number of employees is 3. Next period, the optimal number of employees is expected to be also 3 with probability p and 10 with probability $1 - p$.

Employees that are optimally employed by the firm produce an output o for the firm. Additional employees (above the optimal size) produce zero for the firm. Employees have to be paid a wage w per period.

The discount factor between the periods is zero and everyone is risk-neutral.

Firms can choose to have either 3 or 10 employees in either period. Firing employees is free, but hiring additional employees involves a search cost of s per hired employee for the firm.

Workers are paid at the end of the period: the firm receives the output produced by the workers and pays them the wage. If the firm needs to hire additional workers, it bears the search cost at the beginning of the period, before the output is realized.

We have two types of firms: family and nonfamily firms. For simplicity, we assume that firms have zero liquidity at the beginning of the period, and also that the owners' personal liquidity outside the firm is zero. If additional capital (liquidity) needs to be raised from outside investors, then the initial owners lose control over the firm.

Both family and nonfamily owners derive utility from the output generated by the firm net of costs. In addition, family owners derive a private benefit of C for every period they are in control of the firm.

2.2 Intermediary payoff calculations

In the current period, if firms keep all the original 10 employees on their payroll, their net income is $3 \times (o - w) - 7w$. In the following period, the optimal size could be 10. In that case, the firms' net income is $10 \times (o - w)$ if they keep the original size and $3 \times (o - w)$ if they downsize. Alternatively, the optimal size could be 3. In that case, the firms' net income is $3 \times (o - w) - 7w$ if they keep the original size and $3 \times (o - w)$ if they downsize.

If firms downsize to 3 employees in the current period, their net income is $3 \times (o - w)$. In the following period, the optimal size could be 10. In that case, the firms' net income

is $10 \times (o - w) - 7s$ if they hire additional workers and $3 \times (o - w)$ if they keep the original size. Alternatively, the optimal size could be 3. In that case, the firms' net income is $3 \times (o - w) - 7w - 7s$ if they hire additional workers and $3 \times (o - w)$ if they keep the original size.

2.3 Attenuated shock: Nonfamily firms downsize, family firms do not

2.3.1 Parameter assumptions

Assume we have the following:

$$
\begin{aligned}
o &\geq \frac{10}{7}w, \\
s &= o - w - \varepsilon, \\
s &= \frac{w}{1-p} - \theta,
\end{aligned}
$$

where ε and θ satisfy the following conditions:

$$
\begin{aligned}
\varepsilon &\geq \theta \geq 0, \\
\varepsilon &\leq \frac{4}{7}(o - w), \\
\varepsilon &\leq \frac{C}{7}.
\end{aligned}
$$

In sum, we are in the case where optimally employed workers are quite productive, private benefits of control are high, and search costs are moderate (high relative to the net income per worker, low relative to private benefits, low relative to the wage per worker if the probability of recovery is high).

2.3.2 Solving the model

Let's first look at nonfamily firms, that do not have private benefits of control and therefore do not care about raising additional capital as long as that is zero NPV.

Suppose first we are in the second period, after the firm kept all 10 employees. If the optimal size is 10, the firms' net income is $10 \times (o - w)$ if they keep the original size and $3 \times (o - w)$ if they downsize. So they keep the original size of 10. If the optimal size is 3, the firms' net income is $3 \times (o - w) - 7w$ if they keep the original size and $3 \times (o - w)$ if they downsize, so they obviously downsize.

Alternatively, suppose that we are in the second period, after the firm kept only 3 employees. If the optimal size is 10, the firms' net income is $10 \times (o - w) - 7s$ if they hire additional workers and $3 \times (o - w)$ if they keep the original size. Given that $s \leq o - w$, firms hire additional workers. If the optimal size is 3, the firms' net income is $3 \times (o - w) - 7w - 7s$ if they hire additional workers and $3 \times (o - w)$ if they keep the original size, so they obviously keep the original size.

Going to the first period, firms have to decide whether to keep the original 10 workers or downsize to 3 workers.

If they keep the original 10 workers, the expected payoff is

$$3(o - w) - 7w + 3p(o - w) + 10(1 - p)(o - w).$$

If they downsize to 3 workers, the expected payoff is

$$3(o - w) + 3p(o - w) + 10(1 - p)(o - w) - 7s.$$

Given that $s \leq \frac{w}{1-p}$, nonfamily firms prefer to downsize in the first period. They will hire additional workers in the second period if the optimal size is 10. They will issue additional capital to do so since $\varepsilon \leq \frac{4}{7}(o - w)$, which implies that $s \geq \frac{3}{7}(o - w)$ and firms do not have enough liquidity at the end of the first period to hire workers $(3(o - w) - 7w \leq 0)$.

Next, let's look at family firms.

Suppose first we are in the second period, after the firm kept all 10 employees. If the optimal size is 10, the firms' net income is $10 \times (o - w)$ if they keep the original size and $3 \times (o - w)$ if they downsize. So they keep the original size of 10. If the optimal size is 3, the firms' net income is $3 \times (o - w) - 7w$ if they keep the original size and $3 \times (o - w)$ if they downsize, so they obviously downsize. (In both cases, there is no need to raise additional capital. Since $o \geq \frac{10}{7}w$, $3(o - w) - 7w \geq 0$, the firm has enough capital at the end of the first period and does not search for additional workers. The family keeps its control over the firm in both periods.)

Alternatively, suppose that we are in the second period, after the firm kept only 3 employees. If the optimal size is 10, the firms' net income is $10 \times (o - w) - 7s$ if they hire additional workers and $3 \times (o - w)$ if they keep the original size. Given that $s \leq o - w$, the net income is higher in the first case. However, if firms hire workers after the first period, the family loses control, since it needs to raise additional capital $(3(o - w) - 7w \leq 0)$. The family's utility if the firm hires additional workers is $10 \times (o - w) - 7s$, but it is $3 \times (o - w) + C$ if no additional workers are hired. Since $\varepsilon = o - w - s \leq \frac{C}{7}$, the family prefers not to hire additional workers.

If the optimal size is 3, the firms' net income is $3 \times (o - w) - 7w - 7s$ if they hire additional workers and $3 \times (o - w)$ if they keep the original size, so they obviously keep the original size. There is no need to raise additional capital and the family keeps its

control over the firm.

Going to the first period, firms have to decide whether to keep the original 10 workers or downsize to 3 workers.

If they keep the original 10 workers, the expected payoff to the family is

$$3(o-w)-7w+C+3p(o-w)+10(1-p)(o-w)+C.$$

If they downsize to 3 workers, the expected payoff to the family is

$$3(o-w)+C+3p(o-w)+3(1-p)(o-w)+C.$$

Given that $\frac{w}{1-p} \leq o-w$ (that is, $\theta \leq \varepsilon$), family firms prefer to keep the 10 original workers in the first period and avoid downsizing. They will keep their control over the firm in both periods and avoid raising additional capital. The cumulated net income generated by the firm will be lower, but the family will enjoy the private benefits of control.

2.4 Deep shock: Both family and nonfamily firms downsize

2.4.1 Parameter assumptions

Assume we have the following:

$$\begin{aligned} o &\leq \frac{10}{3}w, \\ o &\geq w, \\ s &= o-w-\varepsilon, \\ s &= \frac{w}{1-p}-\theta, \end{aligned}$$

with $\varepsilon > 0$ and $\theta > 0$.

2.4.2 Solving the model

Looking at nonfamily firms, they will downsize and then hire additional workers if necessary, just like in Example 1.

Looking at family firms, if they keep the original number of workers they will have negative liquidity at the end of the first period ($o \leq \frac{10}{3}w$), and lose control over the firm. They will prefer to downsize and then hire additional workers if necessary.

In sum, our model shows that the focus on keeping control over the firm, which is one of the defining characteristics of family firms, leads to more stable employment.

When faced with moderate or temporary negative shocks, family firms prefer to keep temporarily unproductive employees on their payroll in order to avoid future search and training costs. In contrast, in the case of deep or persistent negative shocks, family firms will cut employment in the current period to protect liquidity and ensure their continued control over the firm.

3 Empirical Analysis

3.1 Data

We start with a dataset covering all limited liability firms in Norway. We have accounting and ownership information for our firms. We define a family firm as a firm where an individual or a group of individuals related by blood or marriage own at least 50% of the equity.

We link the initial dataset with two additional components reflecting the impact of the Covid crisis. One of them is data on a compensation program that allows us to measure the decrease in revenues of the worst affected firms through the Covid crisis, as well as their fixed costs. The second is data on firings, furloughs and decreased hours provided by the Norwegian social security service.

The Norwegian government adopted a special compensation scheme for small and medium enterprises facing large falls in their revenues. The compensation was linked to the firm's fixed costs that still had to be covered in spite of the loss of sales. Companies receiving support needed to be registered in Norway and have employees. The first round of compensation was linked to the first lockdown (March-May 2020). The program was started again during the second wave, with 2-month blocks: September-October 2020 (70%), November-December 2020 (85%), January-February 2020 (80%), with additional extensions to June 2021 and then again to February 2022. Companies in liquidation or bankruptcy were excluded from the program, as were industries with their own programs (e.g. creative industries).

Companies experiencing a large decrease in revenues relative to the benchmark year (2019) qualified for support. In the spring 2020 round the decrease in revenue had to be at least 20% (for companies closed by government, such as restaurants) or 30% (other firms). In the second wave, there was a single threshold at 30% for all firms.

The compensation covered "unavoidable fixed costs":

- Rent for commercial real estate,
- Lighting and heating,
- Maintenance, water, sewage, cleaning etc.,
- Rent for equipment, inventory, company cars,
- Accounting, audit, and consulting expenses,
- Electronic communication,

- Insurance and expenses related to company cars/means of transport,
- Membership fees,
- Insurance premiums,
- Net interest expenses.

Companies needed audited statements (but audit costs up to 10000 NOK were reimbursed), and contracts before September 2020 for the second round. There was an upper limit on the amount a firm can receive. Above 60 million kroner over a 12-month period, the compensation was reduced by 50%, and the total amount could not exceed 160 million kroner. There was also a floor at 5000 kroner. Business groups applied as a single entity; they are also considered as a single observation in our analysis. Overall, the compensation program was easily accessible to small firms. Moreover, it was highly transparent: the list of firms and the amounts were made public throughout the Covid period.

Another set of measures was focused on employment (the government taking over furlough payments starting from 2 days rather than 15, employer payment of sick leave reduced from 16 days to 3, reduction in social security contributions). The data on the number of employees fired, furloughed or facing reduced hours was made public during the first wave of Covid, and we use the data in our study.

4 Results

We start by presenting the impact of the Covid crisis on the average firm in the economy. Table 1 presents summary statistics on a wide range of firm indicators for 2019 (pre-Covid) and 2020 (during the Covid crisis).

First, the table shows some typical differences between family and nonfamily firms: family firms tend to be smaller in terms of employment, revenues and especially total assets. They also have slightly lower growth rates, and they are more profitable than nonfamily firms, consistent with conservatism and perhaps also financial constraints. They have more long-term debt relative to short-term debt. The share of wage costs in revenues is similar for family and nonfamily firms.

Second, the comparison between 2019 and 2020 indicates the overall impact of the Covid shock. The slowdown in revenues is noticeable in the data; at the same time, perhaps surprisingly, average profitability is not lower in 2020 than in 2019. Measures of liquidity such as the current ratios seem to be stable, as is the typical payout ratio[2].

The fairly benign picture for average liquidity and profitability of course hides a large amount of heterogeneity among firms. Table 2 explores this heterogeneity by looking at firms in different industries. It shows the growth rates for sales, assets and employment between 2019 and 2020. While some industries, such as tourism and public

[2]Note that, unlike Denmark for instance, there was no restriction on dividend payments for firms receiving compensation from public funds.

services (mostly private kindergartens) were heavily affected by the Covid crisis, others such as IT and financial services did well. As one may expect, employment levels were more stable than revenues.

While our usual accounting variables have an annual frequency, the compensation program provides us additional information at a monthly or bi-monthly frequency. Figure 1 shows that a large number of firms applied for compensation during the first lockdown, in March-April 2020: around 16,000 firms in total, or around one-fifth of our total sample that had a decrease in revenues of at least 20% compared to the benchmark pre-Covid period. The proportion of family firms among firms receiving compensation was slightly lower than the proportion of firms in the overall sample (76% compared to 77%), and it decreased in the following months. The number of firms in compensation scheme was much lower in the following Covid waves, with increases during winter lockdowns.

While the average dip in revenue growth was moderate, as shown in Table 1, the impact on some firms was very large. Figure 2 shows that for firms receiving compensation the mean decrease in revenues was in the 50-70% range. The mean decrease in revenues was actually higher in the second wave, indicating perhaps a learning process about the true need for compensation. While the conditions to receive compensation did not change, firms with more moderate revenue losses may have learned that the shock (e.g. lockdowns) was temporary and chosen not to apply.

As described above, the compensation program covered a restricted set of "unavoidable fixed costs" that may seem trivial. Indeed, Figure 3B shows that in normal, pre-Covid times those costs represented a relatively small part of the firms' revenues. However, given the sharp decrease in revenues during the Covid crisis, those fixed costs reached between 30 and 60% of sales on average. This operating leverage effect had the potential to have a large negative impact on the firms' liquidity.

As shown in tables 1 and 2, overall employment was quite stable during the Covid crisis. However, given that a significant large of firms faced the large revenue drops documented in Figure 2, it is likely that downsizing was an important concern for a subset of firms. Table 3 presents an initial overview of firms announcing firings, furloughs and reduced hours as a result of the Covid shock. While firings were very infrequent in the overall sample, they affected large numbers of employees per firm. They were also almost five times more likely in nonfamily than in family firms. This result is consistent with the predictions of our model.

Furloughs are well established in Norway, and they have a long history in traditional industries such as fishing. That is in contrast to other countries, even neighboring ones such as Sweden. Therefore during the Covid crisis the Norwegian government did not have to introduce new furlough programs, and it just expanded the existing public support. As shown in the table, furloughs were much more frequent than firings, reaching 3.5% of family firms and 5.3% of nonfamily firms. For reference, 21% of family firms and 23% of nonfamily firms received the compensation for unavoidable fixed costs, implying that they faced a large decrease in revenues at least at some point during the Covid period. Decreased hours affected relatively few employees in a few

firms, and their incidence was slightly higher in nonfamily firms.

As expected, there was significant heterogeneity across industries. Table 4 shows that furloughs were frequent in industries affected by lower revenues, such as tourism. They were very infrequent in less affected industries such as utilities.

Norway is a country with a relatively small population, and that population is spread out over a wide range of regions with varying density. Tourism is an important industry in less central regions, and it was heavily affected by Covid, which raises the question of the geographic impact of the economic shock. Table 5 uses the centrality classification used by Statistics Norway. It shows first that family firms are particularly dominant in less central regions, outside the large cities. It shows that while furloughs were important - especially in nonfamily firms - in large cities more heavily affected by social distancing measures, there was also a significant impact on furloughs in the least central areas where tourism is important.

Table 6 presents regression results that examine the difference in the behavior of family and nonfamily firms. The dependent variables are indicators for firings, furloughs, and decreased hours. We regress them on a family firm dummy and control variables. We control for the age and the size of the firm (measured as the log of revenues), which can be seen as proxies for the typical financial constraints faced by the firm (Hadlock and Pierce 2010). We also control for the absolute level of employment in the firm. Given the uneven impact of the Covid crisis across firms, we control for the decrease in revenues, and also for whether the firm receives compensation, which additionally brings information about temporary sharp losses of revenue, such as during lockdowns. We also include industry dummies. We run both linear probability models and logistic regressions. We also run our regressions both on the overall sample and on a restricted sample including only relatively larger firms with at least 10 employees. That is both because we want to capture firms with a more significant economic activity and because that excludes really small firms where the employees may be mostly family members.

We find that family firms are significantly less likely to fire and furlough their employees. The difference in terms of decreased hours is small and often insignificant. Results are stronger and explanatory power is larger in the subsample of larger firms.

5 Conclusion

Given the importance of family firms in any economy, it is important to know whether family ownership promotes or hinders firm resilience. The answer to this question is not obvious: Family owners can be extremely committed to the firm and to the family legacy and, therefore, might be willing to support the family business via fresh equity injection in a time of crisis, over and beyond the level of support that would be provided by non-family owners. When family firms are in a crisis, the family may be willing to bear several years of losses, and sell some of its assets to support the firm. On the other hand, family owners might be averse to open the ownership

structure of a firm to outsiders, in order to preserve control. In this case any wealth constraint of the family-owners would prevent them from injecting necessary equity in moments of transitory financial need, hindering the long-term survival prospects of the firm and undermining its resilience to negative shocks.

Our results indicate that, at least in the case of a temporary shock such as the Covid crisis, employment in family firms is more resilient than employment in nonfamily firms, even though the decrease in revenues is quite similar. This points to the importance of family firms as an economic stabilizer.

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Table 6. Regression results

The table presents regression results analyzing the determinants of firings, furloughs and decreased working hours during the Covid shock. "Firings", "Furloughs", and "Decreased hours" are dummy variables equal to 1 if the firm reports firing, putting on furlough or decreasing the working hours of its employees. Family firms are defined as firms where an individuals or a group of related individuals own at least 50% of a firm's equity. "Age" is the age of the firm in years, Size is the log of the firm's revenues in 2019 NOK, "Employment" is the number of employees, change in revenues is the relative real change in the firm revenues between 2019 and 2020, "Compensation" is a dummy variable if the firm received compensation for unavoidable fixed costs and zero otherwise. All regressions include dummy variables for individual industries. Panel A presents results using all limited liability firms in Norway, Panel B adds the compensation dummy, Panel C uses only firms with at least 10 employees. *, ** and *** indicate significance at the 10%, 5% and 1% level respectively.

Panel A: All firms

	Linear probability model						Logistic regressions					
Dependent variable	Firings		Furloughs		Decreased hours		Firings		Furloughs		Decreased hours	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Family firms	-0.001 **	*0.050*	-0.004 **	*0.036*	0.000	*0.745*	-0.541 **	*0.013*	-0.073 *	*0.090*	-0.028	*0.802*
Age	0.001	*0.195*	-0.001	*0.762*	0.000 **	*0.047*	0.003	*0.553*	-0.001	*0.300*	-0.008 **	*0.041*
Size	0.001 ***	*<.0001*	0.012 ***	*<.0001*	0.000	*0.146*	0.690 ***	*<.0001*	0.281 ***	*<.0001*	0.075 *	*0.060*
Employment	0.001 ***	*<.0001*	0.001 ***	*<.0001*	0.000	*0.149*	0.000 **	*0.049*	0.001 ***	*<.0001*	0.000	*0.298*
Change in revenues	-0.001 ***	*0.006*	-0.011 ***	*<.0001*	-0.002 ***	*0.001*	-0.499 **	*0.029*	-0.399 ***	*<.0001*	-0.333 ***	*0.000*
Industry controls	Yes		Yes		Yes		Yes		Yes		Yes	
Number of observations	83546		83546		83546		83546		83546		83546	
(Pseudo-)R2	0.049		0.023		0.001		0.238		0.047		0.021	

Panel B: All firms, controlling for receiving compensation

	Linear probability model						Logistic regressions					
Dependent variable	Firings		Furloughs		Decreased hours		Firings		Furloughs		Decreased hours	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Family firms	-0.001 **	*0.047*	-0.004 **	*0.013*	-0.004 **	*0.013*	-0.562 **	*0.009*	-0.090 *	*0.037*	-0.036	*0.747*
Age	0.000	*0.200*	0.000	*0.643*	0.000 **	*0.643*	0.002	*0.723*	-0.002	*0.246*	-0.009 **	*0.038*
Size	0.001 ***	*<.0001*	0.011 ***	*<.0001*	0.011 ***	*<.0001*	0.704 ***	*<.0001*	0.263 ***	*<.0001*	0.055	*0.179*
Employment	0.000 ***	*<.0001*	0.000 ***	*<.0001*	0.000 ***	*<.0001*	0.000 **	*0.081*	0.001 ***	*<.0001*	0.000	*0.258*
Change in revenues	-0.001 **	*0.012*	-0.009 ***	*<.0001*	-0.009 ***	*<.0001*	-0.401 **	*0.065*	-0.304 ***	*<.0001*	-0.279 ***	*0.003*
Compensation	0.001 *	*0.056*	0.038 ***	*<.0001*	0.038 ***	*<.0001*	0.810 ***	*<.0001*	0.798 ***	*<.0001*	0.495 ***	*<.0001*
Industry controls	Yes		Yes		Yes		Yes		Yes		Yes	
Number of observations	83546		83546		83546		83546		83546		83546	
(Pseudo-)R2	0.049		0.028		0.002		0.245		0.061		0.024	

Panel C: Large firms, controlling for receiving compensation

	Linear probability model						Logistic regressions					
Dependent variable	Firings		Furloughs		Decreased hours		Firings		Furloughs		Decreased hours	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Family firms	-0.003 **	*0.015*	-0.024 ***	*<.0001*	-0.002	*0.198*	-0.873 ***	*0.002*	-0.336 ***	*<.0001*	-0.258	*0.197*
Age	0.000	*0.226*	0.000 *	*0.052*	0.000 **	*0.926*	0.003	*0.562*	0.003	*0.130*	0.000	*0.966*
Size	0.003 ***	*<.0001*	0.019 ***	*<.0001*	0.001 ***	*0.013*	0.670 ***	*<.0001*	0.282 ***	*<.0001*	0.190 ***	*0.008*
Employment	0.000 ***	*<.0001*	0.000 ***	*<.0001*	0.000 ***	*0.733*	0.000	*0.105*	0.000 ***	*<.0001*	0.000	*0.866*
Change in revenues	-0.002 **	*0.034*	-0.019 ***	*<.0001*	-0.002 ***	*0.195*	-0.536 *	*0.071*	-0.359 ***	*<.0001*	-0.293	*0.193*
Compensation	0.004 ***	*0.008*	0.058 ***	*<.0001*	0.005 ***	*0.002*	0.843 ***	*0.000*	0.818 ***	*<.0001*	0.652 ***	*0.003*
Industry controls	Yes		Yes		Yes		Yes		Yes		Yes	
Number of observations	16695		16695		16695		16695		16695		16695	
(Pseudo-)R2	0.066		0.057		0.004		0.244		0.089		0.024	