Why Firms Lay Off Workers instead of Cutting Wages: Evidence from Matched Firm Survey-Administrative Data

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In this paper

- We design and field an innovative survey of firms
- We match our survey data with the administrative data to study:
  - How firms adjust labor during crisis - via layoffs or pay cuts
  - Reasons behind the prevailing adjustment margin
  - How labor adjustment approaches differ by firm performance measures

Why important

During crises firms lay off a large number of workers. The subsequent search and matching process and hiring and recruiting activities are time-consuming and costly.

- Can layoffs be avoided?
- Can pay cuts save layoffs?
- Why or why not firms use pay cuts?

Our key findings

1. Pay cuts occur, but are less common than layoffs or hiring reductions.

2. Layoffs are prevalent, even when the government-sponsored furlough schemes are available.

3. Firms do not consider pay cuts as a viable alternative to layoffs during crisis:

   - The size of a hypothetical pay cut needed to save a layoff is large.
   - Some layoffs during a crisis are not caused by the crisis. Rather, a crisis is an opportune time for firms to lay off some workers.

4. Worker skills and a firm-worker match capital are important considerations in the layoff decision.

5. Morale considerations are not important for layoff but play a role in wage-cut decisions.

Related literature

- Closely related is Bewley (1999)'s survey of 300 firms in 1992-1994
- Recently, Krolikowski and Davis (2020) study sticky wages on the layoff margin in a survey of workers
- Wage adjustment is studied by Card and Hyslop (1997) (household survey), Nickell and Quintini (2003) (employer survey), Elsby and Solon (2019), Grigsby et al. (2021), Kurmann and McEntarfer (2019) (admin data), many others
- Restructuring during recessions studied by Koenders and Rogerson (2005), Hershbein and Kahn (2018)

Data

Firms survey design

We designed a firm survey containing 70+ questions (yes/no, multiple choice, open-ended questions)

1. Impact of the pandemic on firms
2. Human resources strategies in 2020—pay and number of employees
3. Questions about layoffs:
   - Layoff-related considerations
   - The role of public policies and worker representation
4. Questions about pay:
   - Firm wage policy in normal times
   - The extent and reasons behind wage cuts
5. Hiring process
   - Firm searching process
   - Hiring cost
   - Recruiting intensity

Survey data collection

- We sent the survey to the population of all Danish firms
  - Survey was administered online via a private firm
  - Survey was sent in May 2021 (week 19), the response period closed in July 2021
- Response rate is 12%—high for a non-mandatory online survey.

Survey data matched with admin data

We match our survey data with rich admin data via firm identifiers

- Firm-level admin data (income statements (FIRM), balance sheets (FIRE))
- Employer-employee matched dataset (BFL)
- Dataset on the firms' use of the government assistance programs during the pandemic

Key advantages of our matched survey-admin data

- In the survey we ask "what" and "why"
  - While the info on what the firms did can, in principle, be obtained from the administrative data, the survey information on "why"—the reasons behind firms actions—is not in the admin data and typically comes from theory.
- Matching with admin data allows obtaining detailed info on firms without the need to ask about it in the survey. This reduces the survey burden on respondents and increases response rate.
- Large sample size as compared to the existing surveys.

Key features of the Danish labor market

- Wages and hours are (mostly) set at the firm- and not industry-level.
- Employment protection is low and worker turnover is high, similar to the US.
- Availability of the government-sponsored "furlough" programs during the pandemic, but firms still could cut pay
  - We directly ask about these programs in the survey
- Low unemployment rate before the pandemic—5%.
- In May 2021, the pandemic in Denmark was declared "under control" (vaccination rates, businesses reopened, etc)

Data

Sample description

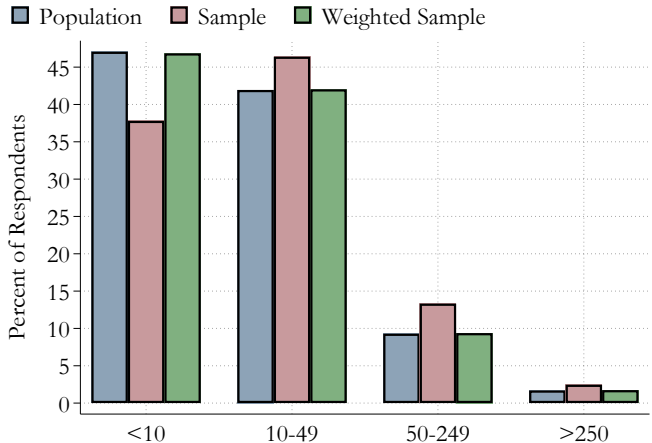
Resulting sample: 3,000 firms

- Response rate for participants: 11.83% (3215/27185)
- After sample selection: 3,002
  - Privately-owned firms (no sole proprietorship)
  - At least 2 full-time employees in 2019 (administrative data)
  - With non-missing and non-imputed value-added per worker (exclude some sectors)

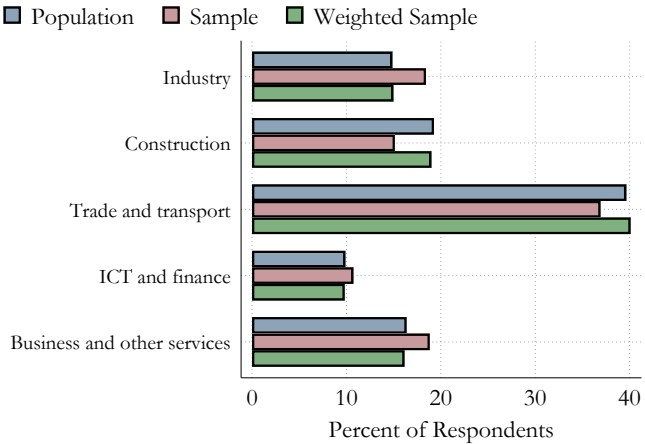
Summary statistics

	Study population	Unweighted sample	Weighted sample
Firm characteristics			
Number of employees (FTE)	26.95	34.74	27.27
Age	16.61	19.09	18.35
Revenue growth in 2020 (%)	-3.77	-1.62	-1.55
Value added per worker (K EUR)	85.63	92.40	90.45
Labor costs per worker (K EUR)	65.00	69.22	67.74
Liquid assets per worker (K EUR)	20.75	22.19	22.46
Job creation in 2019 (%)	5.75	5.58	5.57
Poaching hiring rate (%)	46.31	47.28	46.22
In the manufacturing sector (%)	13.37	16.99	13.67
In the services sector (%)	60.18	59.59	59.91
In other sectors (%)	26.45	23.42	26.42
Copenhagen (%)	27.46	26.18	25.36
Employees characteristics			
Female (%)	28.42	28.65	27.98
Employee's age	40.03	41.84	41.73
Tenure (years)	4.65	5.23	5.28
Employee educational level	3.25	3.39	3.33
Furloughed workers in 2020 (%)	16.75	15.93	15.92
Unionized workers (%)	52.97	57.99	56.64
Observations	27186	3002	3002

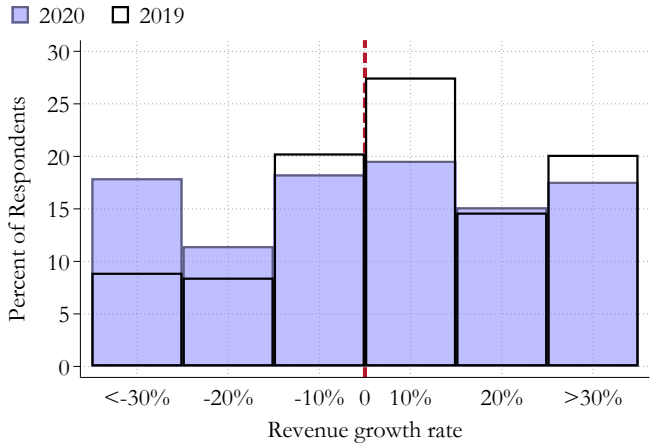
Representativeness: firm size



Representativeness: sectoral composition



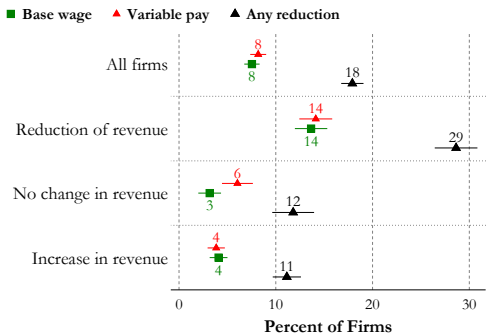
Revenue growth rate in 2019 and 2020

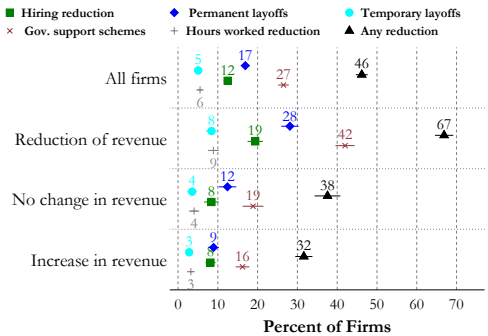


The figure compares the revenue growth between 2019 and 2020 (blue) to the growth rate between 2018 and 2019 (transparent).

How Firms Adjusted Labor in the 2020 Crisis

Reductions in worker pay and number employees

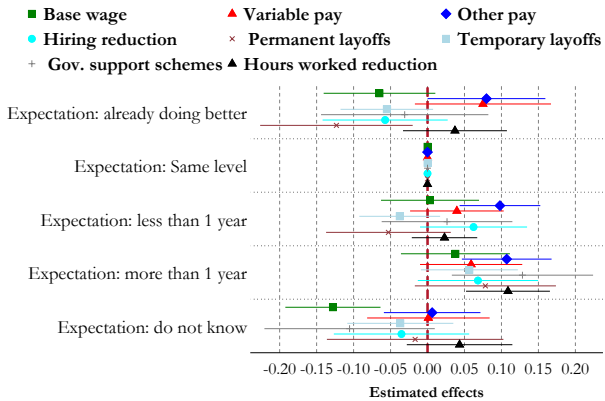




Reductions in worker pay and number employees

1. A greater share of firms adjusted number of employees than worker pay.
2. Even though the reductions in the number of workers or pay were most prevalent among the firms that experienced the reduction in revenue, other firms also reported layoffs and pay cuts.
3. Pay cuts are not rare, especially among the firms that experienced reduction in revenue.
4. Despite the ample use of government furlough schemes, a large fraction of firms reported permanent layoffs and reduction in hiring.

Expectations about the persistence of the shock

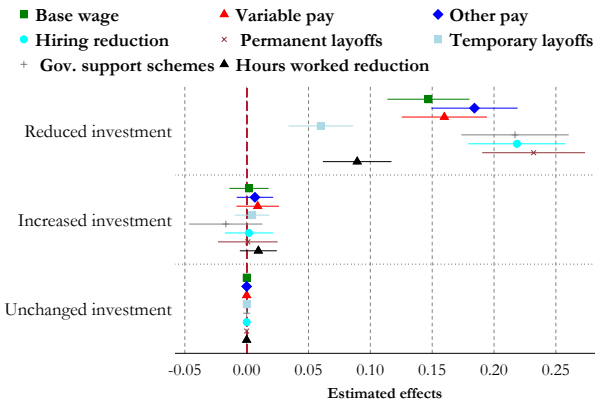


The figure reports estimated coefficients from the regressions of the use of a specific labor adjustment method on the dummies that capture firms' responses to "How long do you expect it will take before the revenue is back to its 2019 pre-crisis level?", other controls.

Expectations about the persistence of the shock

1. Base wage reductions: more likely by firms that expect a reduction in revenue to last more than a year than by those that expect less persistent shock.
2. Variable or other pay reductions: equally likely, whether the revenue reduction lasts more than a year or less.
3. Permanent layoffs: more likely among firms that expect the shock to last more than a year than those that expect a less persistent shock.
4. Firms that report an increase in revenue, also reduce variable and other pay, but are less likely to cut the base wage, lay off workers or reduce hiring.
5. The firms that responded “Do not know” re persistence of the shock, were less likely to cut the base wage than those that had some expectations.

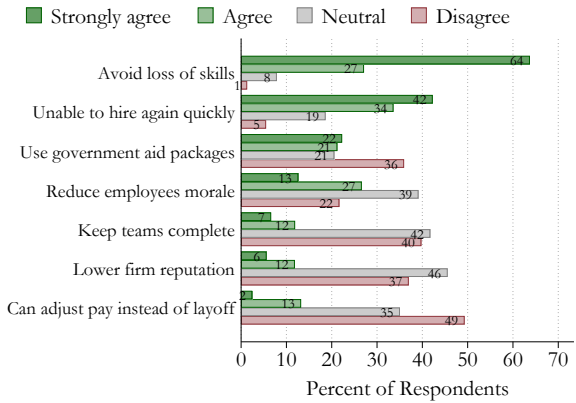
Investment plans



The figure reports estimated coefficients from the regressions of the use of a specific labor adjustment method on the dummies that capture firm's response to "Compared to 2019, investments in 2021 will be …", other controls.

Employer Considerations at the Layoff Margin

Why retain employees when revenue reduced?

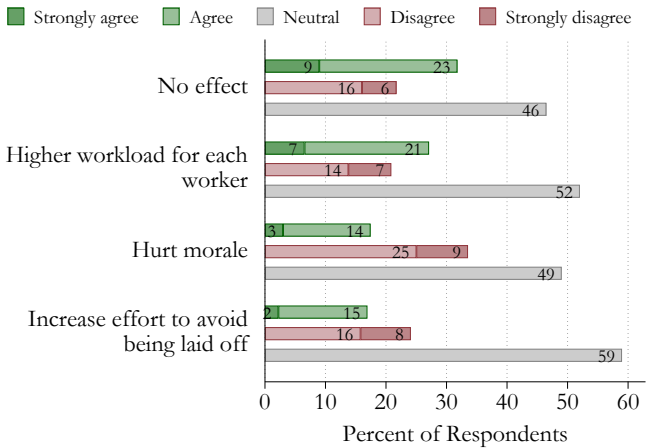


Responses to "What were the main reasons for retaining employees despite a reduction in sales, other cost pressures? Even if you have laid off some employees, consider why you have not laid off more." The question was asked only of those firms that reported a reduction in revenue in 2020.

Why retain employees despite revenue drop?

1. The most important reason for retaining employees is avoiding the skill loss.
2. Another important reason is not being able to hire quickly when needed during the recovery (80% of respondents agree).
3. Wage cuts or reduction in variable pay is not an alternative to layoffs.
4. Morale concerns are not the first-order concerns in the layoff decision.

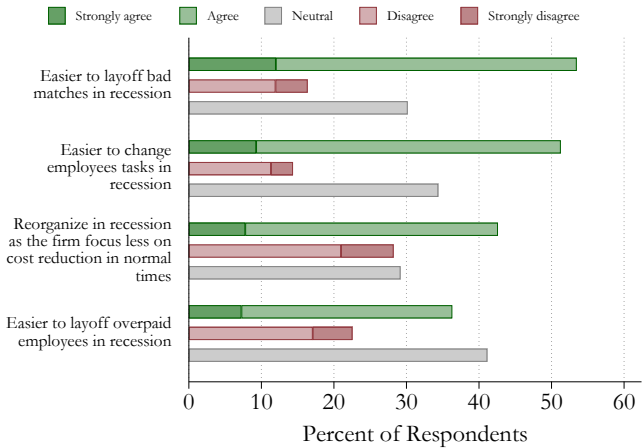
The effect of layoffs on remaining employees



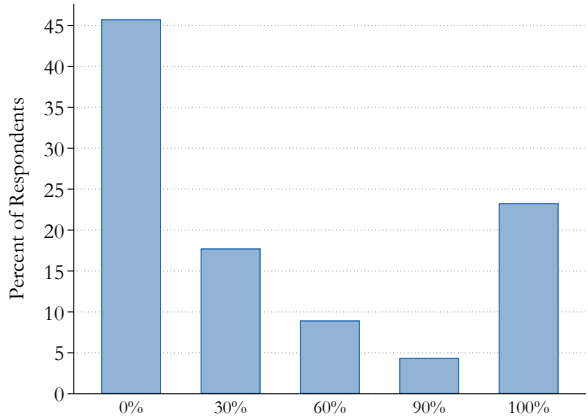
The effect of layoffs on remaining employees

- Firms do not view layoffs as being associated with higher effort of the remaining workers.
- Also, firms do not view that layoffs hurt morale of the remaining workers.

Is crisis an opportune time for layoffs?

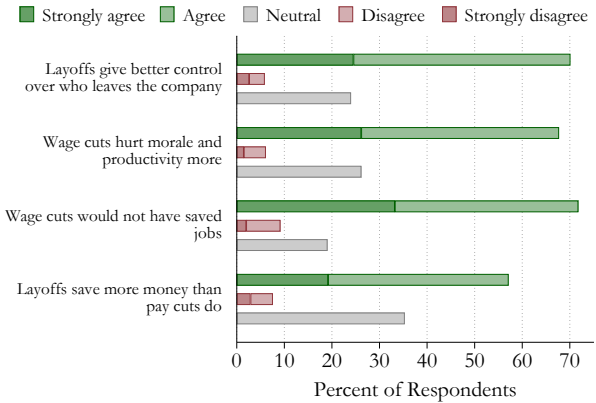


How many of the layoffs would have happened in 2020 or the next 2 years if not for the pandemic?

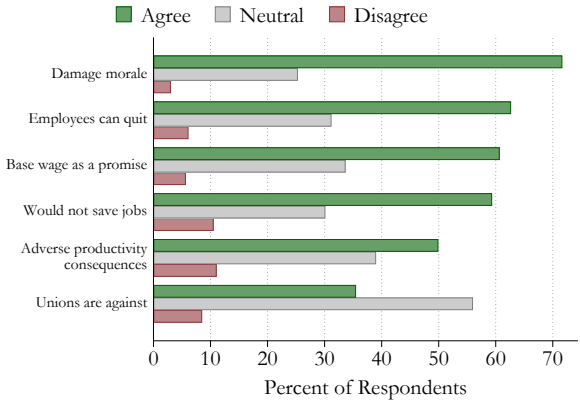


Can Wage Cuts Save Layoffs?

Why not lower wages instead of laying off workers?

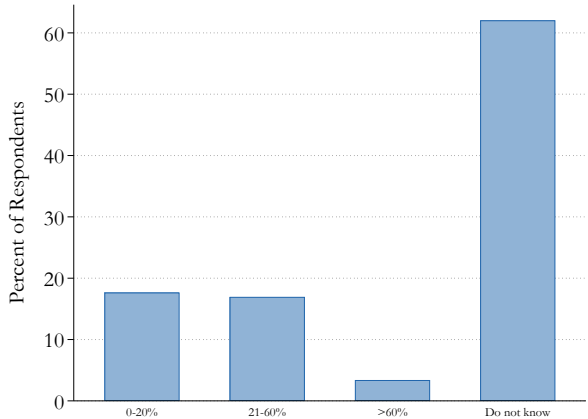


Reasons for not lowering the base wage



Reasons are related to morale and labor market competition (via quits)

What reduction in the total wage cost could have prevented layoffs?



This question is conditional on answering that the firm did not use wage reductions.

Results by firms characteristics and measures of performance

We also study how firms' labor adjustment approaches vary with the firm size, value added per worker, labor cost per worker, capital per worker, liquid assets per worker, percent of unionized workers in firm, or the average tenure of the workers.

- Firms with higher value-added per worker are much less likely to cut base wages.
- Firms with higher labor costs per worker are more likely to cut base wage.

Conclusions

Conclusions

Using our original large-scale survey of firms matched to the admin data, we find the following regarding how firms adjust labor in response to adverse shocks:

- Layoffs are much more prevalent than pay cuts.
- But pay cuts are not rare.
- Firms do not consider pay cuts as a viable substitute for layoffs during crisis.
- Worker skills and a firm-worker match capital are important considerations in layoff decisions.
- Morale considerations are not important for layoff decisions but play a role in wage cuts.

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