



**NEW ZEALAND  
WORK RESEARCH INSTITUTE**

# The future of work in NZ

## An empirical examination

Lisa Meehan and Nicholas Watson, MBIE, 7 May 2021



# Disclaimer

Access to the data used in this study was provided by Stats NZ under conditions designed to give effect to the security and confidentiality provisions of the Statistics Act 1975. The results presented in this study are the work of the author, not Stats NZ or individual data suppliers.

These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) and Longitudinal Business Database (LBD) which are carefully managed by Stats NZ. For more information about the IDI and LBD please visit <https://www.stats.govt.nz/integrated-data/>.

Unweighted and weighted observation counts are graduated random rounded, in accordance with Stats NZ policy.

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# Context

- Future of Work (FoW): variety of disruptive forces changing the nature of the way we work, workforces and workplaces
- Lots of interest and policy work: e.g. Future of Work Tripartite Forum, the Productivity Commission's Inquiry into Technological Change and the Future of Work, Options for strengthening legal protections for contractors.
- But what do we know about state of FoW in NZ?
- Lack of empirical evidence on the prevalence and distribution of FoW practices in NZ

# What this study does

- Initial step to fill some information gaps on prevalence and distribution of FoW practices in NZ
- 2 main research questions:
  - **Prevalence:** What proportion of firms are using FoW practices and what share of workers are employed by these firms?
  - **Distribution:** What characteristics are associated with firms being more likely to have FoW practices and what worker characteristics affect the odds of being employed by such firms?

# Data

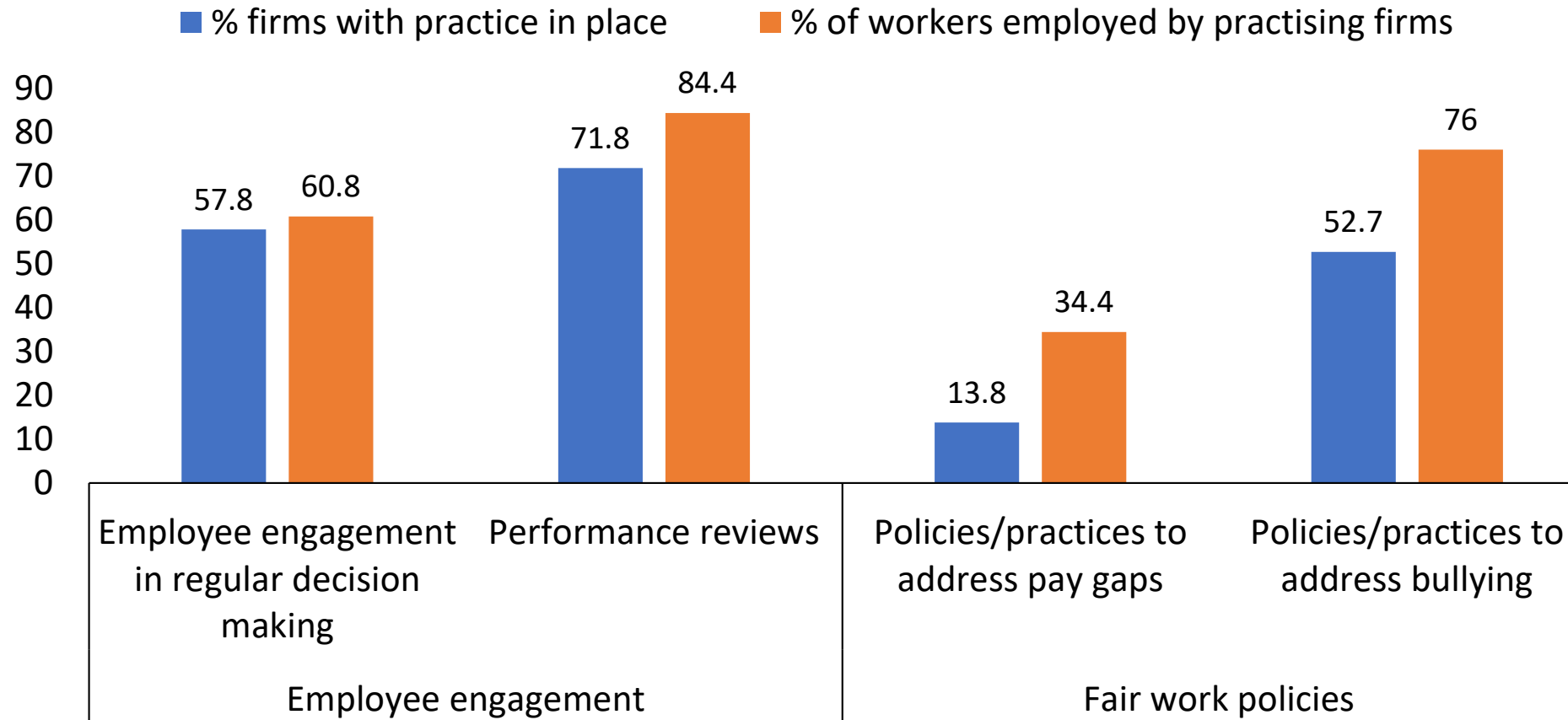
- Stats NZ's Business Operations Survey (BOS) 2018 module on the 'Changing nature of work'
- Private enterprises with 6+ employees
- Self-reported information on range of FoW practices
  - 31 practices groups into 6 areas: Employee engagement; Fair work practices; Leave and childcare; Flexible work arrangements; Automation; Changing business practices
- Part of Stats NZ's integrated data, allowing us to link BOS to administrative data sources on firm and worker characteristics
- Cross-sectional descriptive relationships. We don't look at trends over time nor causal relationships.

# **Research question 1:**

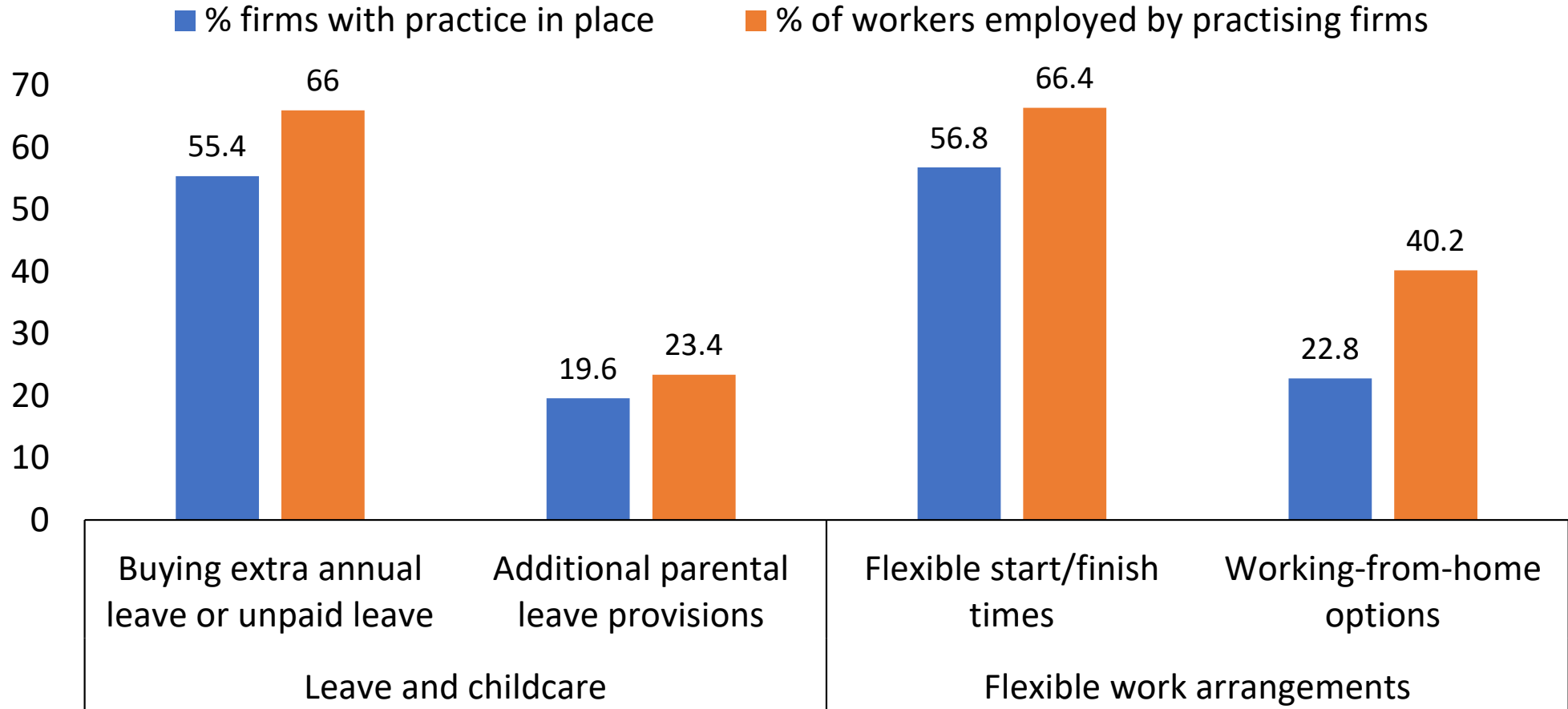
## **The prevalence of FoW practices**

*What proportion of firms are using FoW practices and what share of workers are employed by these firms?*

# Prevalence of FoW practices (1)

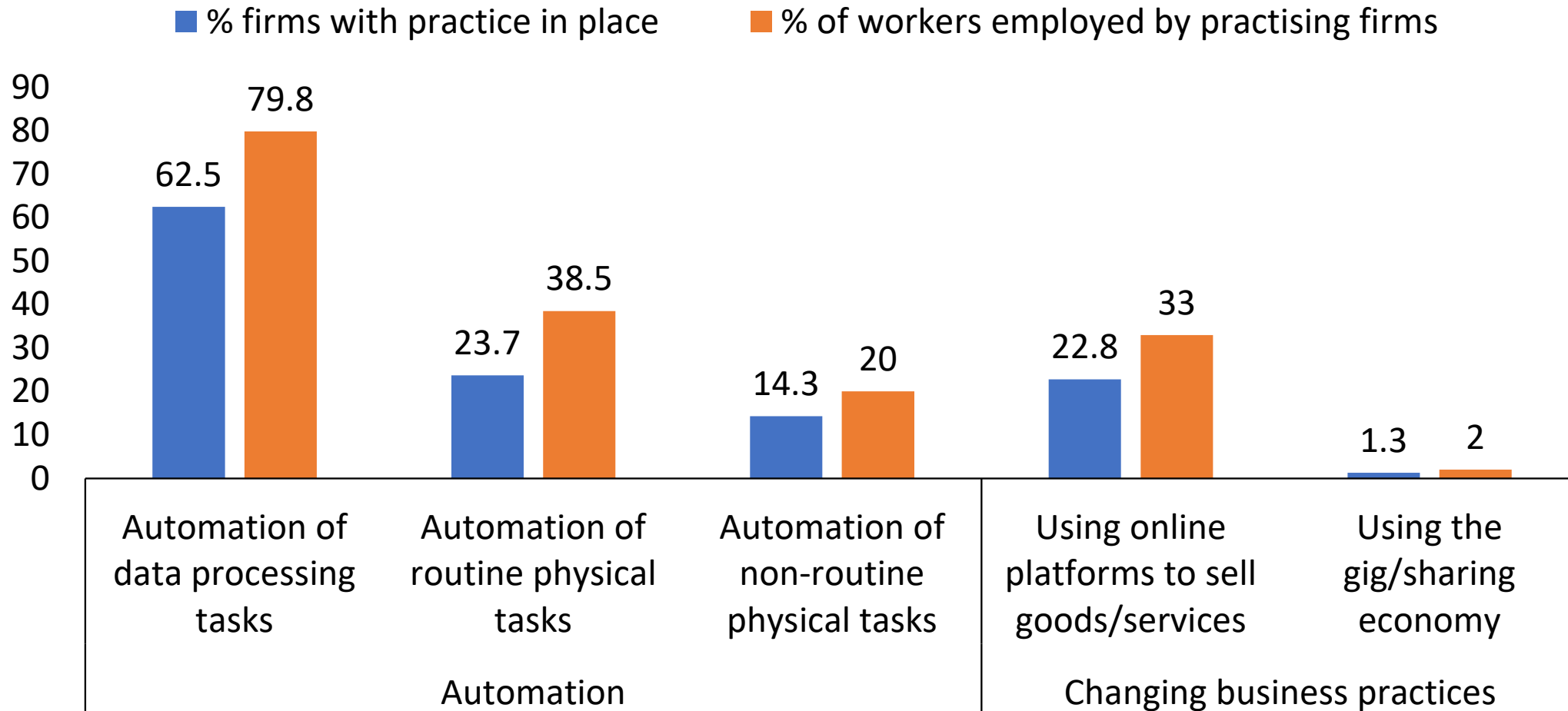


# Prevalence of FoW practices (2)

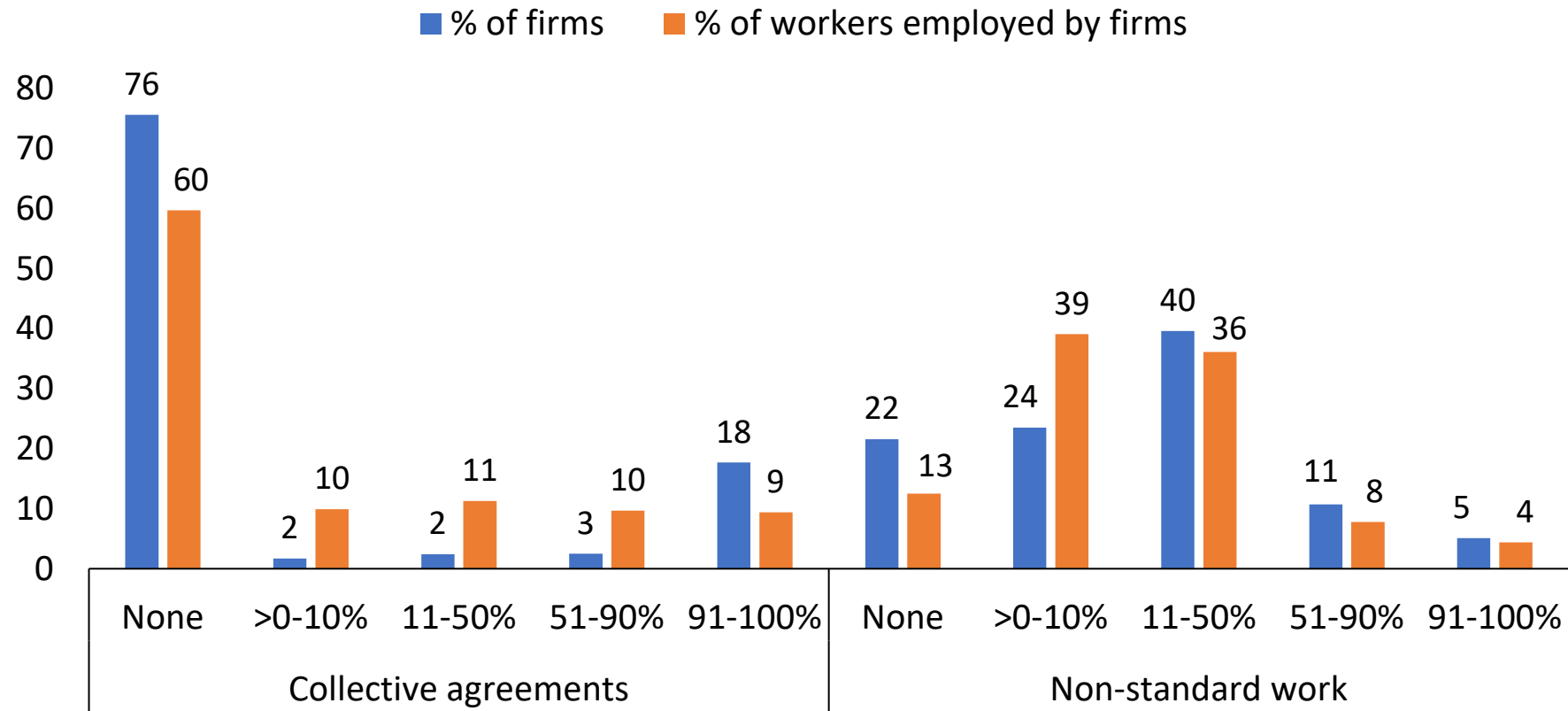




# Prevalence of FoW practices (3)



# Collective agreement coverage and non-standard work



% of workers covered by collective agreements/non-standard work contracts  
within the firm

## **Research question 2:** The distribution of FoW practices

*What characteristics are associated with firms being more likely to have FoW practices and what worker characteristics affect the odds of being employed by such firms?*

# Methodology

- Multivariate logistic regressions to examine what characteristics are associated with greater odds of
  1. an individual working in a firm with a particular FoW practice
  2. a firm having a particular FoW practice (firm-level regressions)
- 30+ FoW practices reduced to 10 binary and 2 categorical = 24 regressions

# Outcome variables

## **Employee engagement and inclusion**

1. Performance reviews
2. Employee feedback programmes
3. Fair work policies

## **Flexible leave and work options**

4. Flexible leave arrangements
5. Additional parental leave
6. Flexible work options

## **Automation and digitalisation**

7. Non-physical task automation
8. Routine physical task automation
9. Non-routine physical task automation
10. Online platforms

## **Collective agreements & non-standard work**

11. Collective agreements
12. Non-standard work

# Explanatory variables

## Individual-level

Gender  
Age  
Ethnicity  
NZ born  
Earnings  
Holds multiple jobs  
Industry

## Firm-level

Firm profit  
Firm size (no. of employees)  
Firm age  
Foreign ownership  
Industry  
Merger/acquisition  
Competition level  
Market share change  
Recruitment difficulties


	Flexible leave arrangements	Additional parental leave	Flexible work options
<b>Female</b>	1.112*** (0.019)	1.028** (0.013)	1.295*** (0.016)
<b>Age (Base category: 25-34)</b>			
15 - 24	1.041 (0.027)	1.003 (0.022)	0.986 (0.019)
35 - 44	0.996 (0.024)	0.942*** (0.016)	1.019 (0.018)
45 - 54	0.943** (0.023)	0.892*** (0.016)	0.942*** (0.017)
55 - 64	0.900*** (0.023)	0.893*** (0.017)	0.896*** (0.017)
65+	0.907*** (0.031)	0.910*** (0.026)	0.926*** (0.024)
<b>NZ born</b>	0.954** (0.019)	0.99 (0.014)	0.961*** (0.014)
<b>Prioritised ethnicity (Base category: European)</b>			
Māori	1.114*** (0.025)	0.987 (0.017)	0.901*** (0.014)
Pacific	1.286*** (0.032)	0.965 (0.021)	1.013 (0.018)
Asian	1.091*** (0.029)	1.386*** (0.027)	1.017 (0.02)
MELAA	0.98 (0.06)	0.971 (0.041)	1.025 (0.045)
Other	1.013 (0.058)	0.903*** (0.034)	1.029 (0.044)
<b>Earnings (Base category: More than \$60,000)</b>			
Less than \$20,000	0.568*** (0.014)	0.679*** (0.013)	0.638*** (0.012)
\$20,000 - \$40,000	0.622*** (0.015)	0.643*** (0.012)	0.650*** (0.012)
\$40,000-\$60,000	0.732*** (0.015)	0.702*** (0.011)	0.695*** (0.011)
<b>Multiple Jobs</b>	0.854*** (0.027)	0.942** (0.025)	0.881*** (0.021)
<b>Industry (Base category: Agriculture, forestry &amp; fishing)</b>			
Mining	1.467*** (0.066)	2.172*** (0.092)	0.665*** (0.026)
Manufacturing	2.526*** (0.063)	1.599*** (0.044)	1.157*** (0.026)
Electricity, gas, water & waste services	3.894*** (0.155)	3.228*** (0.105)	5.325*** (0.206)
Construction	2.201*** (0.098)	0.663*** (0.033)	0.930** (0.032)
Wholesale trade	1.560*** (0.048)	1.207*** (0.04)	1.854*** (0.052)
Retail trade	2.126*** (0.069)	0.624*** (0.021)	1.089*** (0.029)
Accommodation & food services	1.983*** (0.085)	1.287*** (0.056)	1.873*** (0.071)
Transport, postal & warehousing	2.967*** (0.09)	0.396*** (0.014)	2.317*** (0.061)
Information media & telecommunications	4.619*** (0.163)	6.952*** (0.209)	2.125*** (0.057)
Financial & insurance services	11.43*** (0.438)	6.538*** (0.187)	3.793*** (0.098)
Rental, hiring & real estate	1.289*** (0.051)	1.05 (0.046)	0.874*** (0.03)
Professional, scientific & technical	2.490*** (0.09)	2.315*** (0.072)	3.605*** (0.129)
Administrative & support services	3.736*** (0.101)	1.503*** (0.041)	1.951*** (0.045)
Education & training	3.591*** (0.157)	0.635*** (0.032)	2.185*** (0.081)
Healthcare & social assistance	2.270*** (0.067)	1.451*** (0.045)	0.926*** (0.024)
Arts & recreation	4.969*** (0.259)	1.192*** (0.044)	2.070*** (0.074)
Other services	1.154*** (0.064)	1.029 (0.069)	0.689*** (0.035)
<b>Constant</b>	2.784*** (0.094)	0.295*** (0.009)	1.926*** (0.054)
<b>Observations (unweighted)</b>	759,400	759,400	758,900
<b>Observations (weighted)</b>	1,561,600	1,561,600	1,560,100
<b>Pseudo R<sup>2</sup></b>	0.035	0.082	0.045

Female workers are almost 1.3 times more likely to work in a firm offering flexible work options

Workers in financial & insurance service firms are 3.8 times more likely to work in firms offering flexible work options

## Regression example:

Flexible leave and work options logistic models (Individual level)



**Research question 2:**  
Summary findings and discussion:  
Individual characteristics



# Gender (1)

- Female workers are more likely to work in firms with FoW practices
- More progressive firms which use FoW practices may be more likely to hire, retain and promote women
- Women may self-select into firms that have FoW practices such as additional parental leave, fair work policies, flexible work options etc.
- May come at the expense of higher earnings (e.g. Sin et al., 2017)
- Possibility of different results if looked at whether individual has access to FoW practice vs. working in firms that has FoW practice?
- Gender differences would probably be smaller if could control for occupation

## Gender (2)

- Female workers more likely to work in firms with higher share of workers on collective agreements and with non-standard employment arrangements
- Possibly reflects that women are more likely to be employed by firms with a higher share of lower-paid and more precarious roles
- Data limitations make it difficult to assess, but available indicators don't suggest that the share of non-standard work is increasing in NZ (Productivity Commission, 2019). But, if it does increase in the future, women may be disproportionately affected

# Ethnicity and country of birth

- Māori, Pasifika, Asian, MELAA and workers of other ethnicities are more likely to be employed by firms with FoW practices than NZ European workers
- Overseas-born workers also more likely than NZ-born workers
- May reflect ethnicity or nationality-based hiring or promotional biases and/or self-selection into firms with FoW practices
- Differences may be smaller if we could control for occupation and education levels
- Māori and Pacific workers are more likely to work in firms with a high share of non-standard employment

# Earnings

- Workers with lower earnings are less likely to work in firms with FoW practices
- May be that earnings is also proxying for occupation and/or qualification level (which we can't measure)
- Possible that those with higher skills (and earnings) have greater ability to be selective about which firm they work for and progressive workplace practices may make firms more attractive places to work

# Industry

- Strong relationships between industry and FoW practices in both individual- and firm-level regressions
- Firms in industries such as financial & insurance services and information media & telecommunications are much more likely to have FoW practices
- Aligns with expectations. E.g. Nature of work undertaken in these industries is more amenable to FoW practices
- Measured differences by industry for workers would likely be lower if we could control for occupation

## Firm size

- Larger firms are more likely to have FoW practices
- Large firms may get a larger payoff from FoW practices like automation and digitalisation (economies of scale)
- Could also reflect that BOS generally asks whether these practices are offered on a *formal* basis. Small firms may offer them on informal basis.

# Foreign ownership

- Generally, foreign-owned firms are more likely to have FoW practices than domestically-owned ones,
- However, size and statistical significance of these relationships vary depending on the FoW practice being investigated and isn't always monotonic.
- E.g. for some FoW practices, there is a significant difference between wholly-domestically-owned firms and those that are 90% foreign-owned, but not with 100% foreign-owned firms
- Lack of uniformity may reflect that foreign-owned firms tend to be larger, and firm size is included as a separate explanatory variable

# Possible future work

- To complement firm-level FoW practices, could use the Household Labour Force Survey, including Survey of Working Life supplement, to examine relationship between individual-level FoW variables and individuals' characteristics.
- Would allow examination of whether the individual has access to FoW practices like flexible hour, not just if they work in a firm with these practices.
- Would allow analysis of dimensions of job quality like individuals' perception of the security of their employment, the degree of workplace autonomy they have etc.
- Would also allow inclusion of hours worked, occupation and highest qualification.





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[lisa.meehan@aut.ac.nz](mailto:lisa.meehan@aut.ac.nz)

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