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Sexual Orientation and Earnings in New Zealand

Christopher S. Carpenter, Kabir Dasgupta, and Alexander Plum*

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ABSTRACT

We provide the first evidence on sexual orientation and earnings in New Zealand (NZ), one of the most inclusive countries for LGBTQ+ people in the world. We use confidential linked census-tax data to compare outcomes for individuals in same-sex couples versus different-sex couples. We find patterns of earnings differentials in NZ that are strikingly similar to those documented in other developed countries: men in same-sex couples earn about 7.5 percent less than otherwise similar men in different-sex couples while women in same-sex couples earn about 6 percent more than otherwise similar women in different-sex couples.

JEL Codes: J1
Keywords: sexual orientation, earnings, New Zealand, administrative tax data, population census

Highlights: –

- We explore the first evidence on sexual orientation and earnings from New Zealand
- Our study uses population-level census data linked to administrative tax records
- Analysis shows men in same-sex couples earn less than men in different-sex couples
- However, women in same-sex couples earn more than women in different-sex couples

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Declaration of Interest: None

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1. Introduction

A large body of research has demonstrated that gay men earn less than otherwise similar heterosexual men, while lesbian women earn more than otherwise similar heterosexual women (see Badgett et al. 2023 for a review). The broad stability of this pattern is remarkable, in that it has been found in the US, Canada, UK, and several Nordic countries, and it has been found across different time periods as well. One common approach for documenting these differentials has been to compare outcomes for individuals in same-sex couples – commonly understood to be sexual minority individuals in romantic relationships – with outcomes for otherwise similar individuals in different-sex couples (Allegretto and Arthur 2001, Jepsen and Jepsen 2002, and others).

This paper provides the first estimates of the relationship between minority sexual orientation and earnings for adults in New Zealand (NZ) by comparing outcomes for people in same-sex versus different-sex couples. NZ presents an interesting setting for studying sexual minorities mainly due to the country's progressive attitude concerning LGBTQ+ inclusion. The nation has had extensive legal protections for sexual minorities for several decades, including outlawing sexual orientation-related discrimination in 1993 and legalizing same-sex marriage in 2013. In a ranking of 175 countries on LGBTQ+ equality for the period 1981-2020, Flores (2021) ranks NZ as the tenth most inclusive country.

2. Data and Methods

We use confidential linked census-administrative data within a large-scale database known as the Integrated Data Infrastructure (IDI).[1] Specifically, our analysis incorporates the 2013

[1] Also see the respective disclaimer in the Appendix.

and 2018 NZ Census, which include a household roster with detailed relationships among individuals like the US Census and the American Community Survey. This allows us to identify households with two adults of the same sex, where the second adult is described as the spouse or *de-facto* partner of the reference adult. We also identify a comparison group composed of individuals in different-sex relationships. These data are linked to the Inland Revenue's individual tax records with detailed administrative information on labor market earnings.

Our estimation sample includes adults aged 25-64 who have plausibly completed their formal schooling. The NZ Census also provides information on hours worked in the prior week. We use this information to restrict attention to full-time workers, as is standard in the literature.[2]

We estimate standard OLS regressions using log wages as our outcome variable. These models take the form:

$$y_i = \alpha + \beta_1.\mathbf{X_i} + \beta_2(SAME\text{-}SEX\ COUPLE_i) + \varepsilon_i \quad (1)$$

where y_i is the natural log of individual i's monthly wage in 2017 NZ dollars. The vector $\mathbf{X_i}$ includes demographic and job characteristics, including[3]: age and its square, education (no qualification, Level 1-4, Level 5-6, Bachelor+), ethnicity (European, Māori, Pacifica, Asian, Other), an indicator for being born outside of NZ, occupation (ANZSCO Level 1), industry (ANZSIC classification), region, an indicator of having a child aged under five, an indicator of cohabiting with the current partner at the reported address for at least five years, and partnership status (married/civil union vs *de-facto* relationship). The binary

[2] Statistics NZ defines full-time employment when working 30 hours or more per week. The results are not sensitive to the chosen threshold.
[3] See Table A1 in the Appendix for a detailed description of each variable.

indicator ($SAME\text{-}SEX\ COUPLE_i$) equals 1 if individual i is in a same-sex relationship and 0 otherwise, and β_2 is the coefficient of interest. We estimate White standard errors robust to heteroskedasticity. We estimate unweighted regressions, as our sample is the population.

Appendix Table A2 presents descriptive statistics for our 2013 and 2018 NZ Census sample. Individuals in same-sex couples are significantly younger, more likely to have a bachelor's degree, more likely to live in a city, less likely to be cohabiting for at least five years, and less likely to be married than individuals in different-sex couples.

3. Results

Table 1 presents regression-adjusted estimates of the relationship between minority sexual orientation and monthly earnings. The top panel presents results for women, and the bottom for men. Each estimate is from a separate regression and shows the coefficient and standard error on the indicator variable for ($SAME\text{-}SEX\ COUPLE_i$). Column 1 shows results from a model with no control variables, column 2 adds demographic characteristics (age, education, ethnicity, foreign-born), column 3 adds occupation and industry dummies, and column 4 adds region dummies.

The results indicate that women in same-sex couples earn significantly more than similarly situated women in different-sex couples, represented by a differential on the order of about 11 percent. This difference falls to about 6-7 percent once we control for demographic characteristics, job characteristics, and region, but remains statistically significant. For men, we find the opposite pattern: men in same-sex couples earn significantly less than otherwise similar men in different-sex couples by an average

difference of 6-7 percent. The results for men are largely insensitive to inclusion for demographic characteristics, job characteristics, and region.[4]

In Table 2, we investigate heterogeneity in the relationships identified in Table 1. Column 1 presents results for women, while column 2 presents results for men. Each entry in Table 2 is the coefficient on the $SAME\text{-}SEX\ COUPLE_i$ indicator from the regression specification in column 4 of Table 2 with all the demographic characteristics, occupation and industry dummies, and region controls. We stratify as follows:

1. separately for 2013 and 2018;
2. individuals living in Auckland or Wellington, the cities in NZ with the largest representations of same-sex couples relative to different-sex copules, versus elsewhere;
3. partnered individuals cohabiting at the same reported address for at least five years versus those living together at an address for under five years
4. individuals in legal marriages or civil unions versus individuals in a *de facto* relationships;
5. individuals under age 45 versus individuals over age 45.

The results in Table 2 return some interesting patterns concerning the labor market differences documented in Table 1. First, there was no meaningful change in the earnings differences from 2013 to 2018, despite continued improvement in societal attitudes toward sexual minorities over time and the NZ government's implementation of inclusive policies including legalization of same-sex marriage in 2013. This is true for both men and women. We also see that the earnings differences are larger for individuals in legal unions than for

[4] Table A3 shows that this result is not sensitive to considering annual or 5-year earnings.

people in *de-facto* relationships, for both men and women in same-sex couples; this finding is mirrored when stratifying by length of living together. Furthermore, the earnings differences associated with being in a same-sex couple are smaller for the under-the-age-of-45 sample than for the older sample for both men and women in same-sex couples, compared to their counterparts in different-sex couples. Regarding geographic heterogeneity, the earnings penalty for men in same-sex couples is significantly smaller in Auckland and Wellington, NZ's cities with the largest representation of same-sex couples relative to different-sex couples, than in the rest of the country.

4. Discussion

Our results using confidential linked census-administrative data document that sexual minorities in NZ have significantly different earnings than similarly situated heterosexual individuals. Men in same-sex couples earn significantly less than men in different-sex couples, while women in same-sex couples earn significantly more than women in different-sex couples. Heterogeneity analyses provide little evidence that discrimination drives the differences in earnings, with the exception that the earnings penalty for men in same-sex couples is significantly smaller in NZ's two most popular cities for same-sex couples than in more remote areas of the country where anti-LGBTQ+ attitudes are likely to be stronger. We did not, however, find changes in the earnings penalty from 2013 to 2018 despite a period of continued improvement in attitudes toward sexual minorities. In contrast, the heterogeneity patterns related to age, length of cohabitation (which may proxy for length of the romantic relationship), and relationship type (married or civil union versus

de-facto relationship) are all consistent with a role for household specialization in contributing to sexual orientation-based earnings differences (Becker 1981).

Our study is subject to some limitations. First, we do not have a direct report of minority sexual orientation from the individuals in same-sex couples. However, Badgett et al. (2021) show that most individuals in same-sex couples report a non-heterosexual identity in survey data that contain both a couples-based measure and a direct individual-level question about sexual orientation. Also, our focus on same-sex couples means we cannot identify single or non-partnered sexual minorities whose labor market experiences may differ (Aksoy et al., 2018). Finally, the data used to identify same-sex couples requires individuals to report to the government that they are in a same-sex romantic relationship. Given the presence of anti-LGBTQ+ stigma, biases may be associated with endogenous underreporting of same-sex couple status.

Nonetheless, our results add new evidence to the literature on sexual orientation and earnings from an understudied part of the world with progressive attitudes toward sexual minority people. Further research is needed from other country contexts to better understand LGBTQ+ labor market differences across the world.

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Table 1: Sexual Orientation and Log Monthly Earnings Among Full-Time Workers, 2013 and 2018 NZ Census linked to Inland Revenue Data

	(1) No controls	(2) + age, education, overseas-born, ethnicity, partnership status, children under 5, living together at least 5 years	(3) + occupation, industry	(4) + region
Women				
SAME-SEX COUPLE	0.112*** (0.006)	0.077*** (0.006)	0.070*** (0.005)	0.060*** (0.005)
N	475 884	475 884	475 884	475 884
Men				
SAME-SEX COUPLE	-0.061*** (0.007)	-0.057*** (0.007)	-0.058*** (0.006)	-0.075*** (0.006)
N	667 083	667 083	667 083	667 083
Demographics?		✓	✓	✓
Occupation, industry?			✓	✓
Region?				✓

Robust standards errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Author calculations from 2013 and 2018 New Zealand Census data linked to tax records. All models include a dummy for the 2018 survey wave. Outcome is log monthly earnings.

Table 2: Heterogeneity in Coefficient on SAME-SEX COUPLE Among Full-Time Workers, 2013 and 2018 NZ Census linked to Inland Revenue Data

	(1) Women	(2) Men
2013 (N_w=216 669; N_m=315 918)	0.063***	-0.078***
	(0.007)	(0.009)
2018 (N_w=259 215; N_m=351 165)	0.059***	-0.075***
	(0.006)	(0.007)
χ^2	0.26	0.09
(p-value)	(0.609)	(0.766)
Auckland or Wellington (N_w=223 599; N_m=289 329)	0.055***	-0.061***
	(0.007)	(0.008)
Elsewhere (N_w=252 285; N_m=377 754)	0.064***	-0.103***
	(0.007)	(0.010)
χ^2	1.21	11.58
(p-value)	(0.271)	(0.000)
Living together 5+ years (N_w=345 750; N_m=487 668)	0.083***	-0.077***
	(0.007)	(0.008)
Living together < 5 years (N_w=130 134; N_m=179 415)	0.034***	-0.068***
	(0.007)	(0.008)
χ^2	24.85	0.64
(p-value)	(0.000)	(0.425)
Married/Civil union (N_w=342 702; N_m=501 006)	0.076***	-0.107***
	(0.009)	(0.013)
De facto relationship (N_w=133 182; N_m=166 077)	0.057***	-0.048***
	(0.006)	(0.007)
χ^2	2.94	16.39
(p-value)	(0.0587)	(0.000)
Age below 45 (N_w=237 357; N_m=331 131)	0.039***	-0.057***
	(0.006)	(0.007)
Age 45+ (N_w=238 527; N_m=335 952)	0.077***	-0.094***
	(0.008)	(0.010)
χ^2	14.49	8.83
(p-value)	(0.000)	(0.003)

Robust standards errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Author calculations from 2013 and 2018 New Zealand Census data linked to tax records. All models include a dummy for the 2018 survey wave. Outcome is log monthly earnings.

Appendix

Disclaimer for output produced from the IDI

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

Disclaimer for Inland Revenue tax data

The results are based in part on tax data supplied by Inland Revenue to Stats NZ under the Tax Administration Act 1994 for statistical purposes. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

Disclaimer for Census 2013/2018 data

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 Data and Statistics Act 2022. The results presented in this study are the work of the author, not Stats NZ or individual data suppliers.

Table A1: Variables definition and data source

Variable	Category	Data source
Monthly earnings	continuous	Inland Revenue Employee Monthly Schedule (IRD EMS)
Education	Categorical: No post-school qualification (reference), Level 1-4, Level 5-6, Bachelor+	Census individual output dataset
Ethnicity	Categorical: European (reference), Māori, Pacifica, Asian, Other),	StatsNZ Personal detail file
Born outside of NZ	Binary indicator	StatsNZ Admin Population Census file
Occupation	Categorical: Managers (reference); Professionals; Technicians and Trades Workers; Community and Personal Service Workers; Clerical and Administrative Workers; Sales Workers; Machinery Operators and Drivers; Labourers	Census individual output dataset
Industry	Categorical: Agriculture, Forestry and Fishing (reference); Mining; Manufacturing; Electricity, Gas, Water and Waste Services; Construction; Wholesale Trade; Retail Trade; Accommodation And Food Services; Transport, Postal and Warehousing; Information Media and Telecommunications; Financial and Insurance Services; Rental Hiring and Real Estate Services; Professional, Scientific and Technical Services; Administrative and Support Services; Public Administration and Safety; Education and Training; Health Care and Social Assistance; Arts and Recreation Services; Other Services	Inland Revenue Employee Monthly Schedule (IRD EMS)
Region	Categorical: Northland; Auckland (reference); Waikato, Bay of Plenty; Gisborne; Hawke's Bay; Taranaki; Manawatū-Whanganui; Wellington; Tasman; Nelson; Marlborough; West Coast; Canterbury; Otago; Southland	StatsNZ Address notification dataset
Child born in past five years	Binary	Department of Internal Affairs (DIA) Life Event data
Cohabiting: 5+ years	Binary	StatsNZ Address notification dataset
partnership status	Binary: married/civil union (reference) vs *de facto* relationship	Census family output dataset

Table A2: Descriptive Statistics, 2013 and 2018 New Zealand Census (Full-time employed)

	(1) Women in Different-Sex Couples	(2) Women in Same-Sex Couples	(3) Men in Different-Sex Couples	(4) Men in Same-Sex Couples
Age	44.06	41.89***	44.60	40.85***
	(10.39)	(10.63)	(10.55)	(10.57)
Education: Bachelor and above	0.392	0.489***	0.273	0.441***
	(0.488)	(0.500)	(0.446)	(0.497)
Ethnicity: European	0.678	0.694***	0.696	0.683**
	(0.467)	(0.461)	(0.460)	(0.470)
Born overseas	0.307	0.231***	0.271	0.329***
	(0.461)	(0.422)	(0.445)	(0.470)
Region: Auckland or Wellington	0.469	0.527***	0.432	0.660***
	(0.499)	(0.499)	(0.495)	(0.474)
Cohabiting: 5+ years	0.730	0.506***	0.733	0.522***
	(0.444)	(0.500)	(0.442)	(0.500)
Married/Civil Union	0.728	0.252***	0.756	0.197***
	(0.445)	(0.434)	(0.430)	(0.398)
Earnings in March in 2017 NZ$	5 128	5 723***	6 685	6 356***
	(2 739)	(2 997)	(3 560)	(3 470)
Individuals	358 557	6 192	476 601	4 680
Observations	468 294	7 590	661 344	5 736

Author calculations from 2013 and 2018 New Zealand Census linked to tax records. Reported are means and standard deviations (in parentheses). *** and ** indicate that the difference in the outcome between individuals in different-sex couples and individuals in same-sex couples is different at $p<.01$ or $p<.05$, respectively.

Table A3: Robustness on Earning Dimension Among Full-Time Workers, 2013 and 2018 NZ Census

Outcome	**(1)** log monthly earnings	**(2)** Log annual earnings	**(3)** Log earnings of past 5 years
Women			
SAME-SEX COUPLE	0.060***	0.076***	0.107***
	(0.005)	(0.006)	(0.007)
N	475 884	475 884	475 884
Men			
SAME-SEX COUPLE	-0.075***	-0.086***	-0.071***
	(0.006)	(0.007)	(0.008)
N	667 083	667 083	667 083
Demographics?	X	X	X
Occupation, industry?	X	X	X
Region?	X	X	X

Robust standards errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Author calculations from 2013 and 2018 New Zealand Census data linked to tax records. All models include a dummy for the 2018 survey wave.