

Gender differences in the relationship between labour market outcomes and wellbeing

Nicholas Biddle Maria Jahromi

Australian National University

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- We examine how the relationship between labour market outcomes (employed, unemployed and (not) actively looking, retired, caring or housework, permanently sick or disabled, or other activity) and wellbeing (life satisfaction, psychological distress and loneliness) differs for males and females;
- We use longitudinal data from ANUpoll which is an Australian survey from a probability-based sample from February 2020 and ongoing that includes a rich set of variables related to labour market and wellbeing outcomes, socio-demographic variables, financial circumstances, health, personality, attitudes, etc.;
- This time period includes a pre-COVID baseline as well as 9 waves of data throughout the pandemic that cover both lockdown periods and periods without lockdowns.

- The ongoing COVID-19 pandemic has had widespread impacts on the labour market and on individuals' wellbeing in Australia and globally [Daly et al., 2020, Newby et al., 2020, Park et al., 2020, Australian Institute of Health and Welfare, 2022];
- According to the National Study of Mental Health and Wellbeing in 2020-21, 15% of Australians aged 16-85 years experienced high or very high levels of psychological distress (19% of women vs 12% of men, 20% aged 16-34 years vs 9% aged 65-85 years);
- Further, 15% of Australians aged 16-85 years reported feeling lonely in the previous four weeks, while 16% of households experienced at least one financial stressor such as not being able to pay bills on time [Australian Bureau of Statistics, 2021a].

- Unemployment increased and average hours worked decreased, particularly during lockdown periods [Australian Bureau of Statistics, 2021b];
- There are different ways in which individuals deal with unemployment or reduced work hours, with some continuing to actively look for work, whereas others may take up further study or caring responsibilities [Biddle et al., 2020];
- Negative effects of unemployment on subjective wellbeing are well documented [Korpi, 1997, Dockery, 2005, Carroll, 2007, Weckström, 2012, Binder and Coad, 2015];
- Carers are another group that tend to have lower levels of mental health and subjective wellbeing [Cummins, 2001, Edwards and Higgins, 2009, Hammond et al., 2014, Rafnsson et al., 2017];

Literature: Gender differences

- Despite major improvements in gender inequality over the longer term, there remain gender gaps in earnings, employment and health outcomes and women often bear a higher caring burden than men [Bertrand et al., 2010, Fernández-Kranz et al., 2013, Goldin, 2014, Goldin et al., 2017, Australian Government, 2021, Barth et al., 2021, Milner et al., 2021];
- Gender gaps appear to have intensified with the recent COVID-19 pandemic [Australian Government, 2021, Biddle and Jahromi, 2021, Craig and Churchill, 2021];
- We expect to see some gender differences, with respect to unemployment and caring in particular;
- Based on social norms unemployment may be associated with higher levels of mental distress (and lower self-esteem) for men relative to women [Álvaro et al., 2019];
- Caring may be associated with lower levels of wellbeing for men relative to women due to traditional gender roles [Biddle et al., 2020];

Research Questions

- 1 What is the association between labour market outcomes and wellbeing during COVID-19 in Australia (across different jurisdictions)?
- 2 How does the relationship between labour market outcomes and wellbeing differ by gender?

Data: Longitudinal data from ANUpoll

- 1 February 2020 (pre-COVID);
- 2 April and May 2020 (first wave of COVID spread evenly across Australia),
- 3 August and November 2020 (the middle and towards the end of wave 2 in Victoria);
- 4 January and April 2021 (very few restrictions across Australia);
- 5 August 2021 (variation of COVID related restrictions across states);
- 6 October 2021 (lockdown restrictions are easing);
- 7 January 2022 (high case numbers with few lockdown restrictions and high vaccination rates).

Data: Wellbeing outcomes

- Life satisfaction on a scale from 0 to 10;
- Psychological distress equal to 1 if the individual is classified as having a probable serious mental illness based on a score of 19-36 of the K6 Index of the Kessler Psychological Distress Scale (on a range from 6 to 36) covering self-reported measures of feeling nervous, hopeless, restless or fidgety, that everything was an effort, so sad that nothing could cheer you up, or worthless;
- Loneliness equal to 1 if the individual felt lonely at least two days per week.

Data: Labour market outcomes (over the last 7 days)

- paid work (or away temporarily), including employees, self-employed and working for their family business;
- in education (not paid for by employer), even if on vacation;
- unemployed and actively looking for a job;
- unemployed, wanting a job but not actively looking for a job;
- permanently sick or disabled;
- retired;
- doing housework, looking after children or other persons; and
- other

Data: Lockdown variable

- Indicates whether a given jurisdiction is in lockdown during the particular wave;
- Equal to 1 for everyone in April and May 2020, for individuals in Victoria during August 2020, for individuals in New South Wales, and Victoria in August 2021, and for individuals in the Australian Capital Territory and in Victoria in October 2021, and 0 otherwise;
- Lockdowns in the Australian Capital Territory were imposed on 12 August 2021 which is half-way through the data collection;
- Dropping these 50 individuals from our estimation as part of a robustness test does not affect our overall results.

We use unbalanced panel data regressions, mainly random effects models, that are estimated via ordered probit regressions where life satisfaction is our outcome variable and probit regressions where mental distress or loneliness are our outcome variables as shown in Equation 1.

$$\begin{aligned} \text{wellbeing}_{it} = & \alpha_0 + \alpha_1 \text{Education}_{it} + \alpha_2 \text{Unemployed (actively looking)}_{it} \\ & + \alpha_3 \text{Unemployed (not actively looking)}_{it} \\ & + \alpha_4 \text{Permanently sick or disabled}_{it} + \alpha_5 \text{Retired}_{it} \\ & + \alpha_6 \text{Housework or caring}_{it} + \alpha_7 \text{Other activity}_{it} + X'_{it}\gamma + \alpha_i + \epsilon_{it} \end{aligned} \quad (1)$$

Some specifications include interaction terms between labour market outcomes and a female indicator variable.

Potential Endogeneity

- There is the possibility of omitted variables bias as there can be variables that affect an individual's wellbeing and that are also related to an individual's labour market outcome.
- There is the possibility that there is reverse causality, as wellbeing could also affect labour market outcomes.
- To account for that we include a rich set of control variables covering socio-demographic variables, financial circumstances, health and personality & attitudes; we include Mundlak terms (within-group means of all time-varying explanatory variables) and add an IV specification with the first lag of each employment activity as IVs for our seven employment activities.

Specifications I

- 1 Specification 1 is our baseline regression and includes a female indicator variable, socio-demographic variables (e.g., age categories, geographic, ethnicity, education, household structure, parenting, and other variables), a lockdown indicator variable, and time fixed effects.
- 2 Specification 2 adds financial circumstances to our baseline regression, including hours worked, 10 household income categories, whether the individual is finding it difficult on present income, and occupation categories.
- 3 Specification 3 adds health related variables to our baseline regression, including self-rated general health, current smoker, using drugs, drinks excessively (at least 5 standard drinks at least 5 times a week), has gambled in the last 12 months, and has experienced discrimination because of their ethnic origin.

Specifications II

- 4 Specification 4 adds variables related to personality and attitude to our baseline regression, including continuous variables measuring trust (believe that most people can be trusted), advantage (believe that most people would try to be fair), helpful (believe that most people would try to be helpful), altruistic (derived variable from various questions in questionnaire), frequency of meeting socially with friends, relatives or work colleagues and future outlook (longer term future outlook since COVID-19 in May 2020).
- 5 Specification 5 is a full specification with all control variables from specifications 1 to 4.
- 6 Specification 6 includes Mundlak terms.
- 7 Specification 7 is our IV model with the first lag of our employment activities as instruments.

Table 3.1: *Relationship between labour market outcomes and life satisfaction: Ordered probit model*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Socio-Demographics	Financial	Health	Personality	All	Mundlak	IV
Female	0.100* (0.059)	0.105* (0.060)	0.083 (0.055)	0.069 (0.054)	0.077 (0.053)	0.043 (0.053)	0.038 (0.038)
Education	-0.249*** (0.072)	-0.157** (0.075)	-0.230*** (0.072)	-0.248*** (0.070)	-0.147** (0.075)	-0.127 (0.080)	-0.021 (0.247)
Unemployed - Actively looking	-0.445*** (0.082)	-0.293*** (0.083)	-0.418*** (0.081)	-0.449*** (0.081)	-0.285*** (0.083)	-0.234*** (0.088)	-0.227 (0.172)
Unemployed - Not actively looking	-0.356*** (0.089)	-0.254*** (0.096)	-0.302*** (0.089)	-0.365*** (0.089)	-0.219** (0.095)	-0.195** (0.098)	0.050 (0.200)
Permanently sick or disabled	-0.340*** (0.094)	-0.221** (0.096)	-0.159* (0.095)	-0.340*** (0.091)	-0.067 (0.095)	-0.091 (0.107)	-0.336* (0.177)
Retired	-0.041 (0.051)	0.016 (0.055)	-0.013 (0.051)	-0.039 (0.051)	0.038 (0.055)	-0.017 (0.059)	-0.038 (0.078)
Housework or caring	-0.115** (0.046)	-0.064 (0.049)	-0.090** (0.045)	-0.116*** (0.045)	-0.046 (0.048)	-0.059 (0.051)	0.016 (0.129)
Other activity	-0.097 (0.064)	-0.038 (0.066)	-0.079 (0.064)	-0.119* (0.065)	-0.044 (0.067)	-0.045 (0.069)	-0.098 (0.108)

Results: Life satisfaction summary

- Females report a higher life satisfaction (explained by health and personality);
- Life satisfaction declines during lockdowns (-0.275 to -0.374) but after controlling for lockdowns it is higher in April, May and November 2020, January, April and August 2021, while it is lower in January 2022 (relative to February 2020);
- Most labour market outcomes are associated with lower life satisfaction compared to being employed;
- After accounting for financial circumstances and health, most gaps in life satisfaction between those who are employed and other labour market activities reduce and become statistically insignificant (except for unemployed);

Results: Life satisfaction for females

Table 3.2: *Relationship between labour market outcomes and life satisfaction for females: Ordered probit model*

	(1) Socio-Demographics	(2) Financial	(3) Health	(4) Personality	(5) All	(6) Mundlak	(7) IV
Education	-0.335*** (0.090)	-0.236** (0.093)	-0.306*** (0.090)	-0.335*** (0.088)	-0.213** (0.093)	-0.242** (0.100)	-0.057 (0.428)
Unemployed - Actively looking	-0.592*** (0.120)	-0.433*** (0.122)	-0.572*** (0.119)	-0.611*** (0.118)	-0.440*** (0.121)	-0.421*** (0.131)	-0.667*** (0.214)
Unemployed - Not actively looking	-0.446*** (0.129)	-0.346** (0.140)	-0.396*** (0.128)	-0.451*** (0.130)	-0.305** (0.139)	-0.308** (0.142)	0.114 (0.271)
Permanently sick or disabled	-0.412*** (0.120)	-0.285** (0.124)	-0.224* (0.121)	-0.399*** (0.116)	-0.107 (0.124)	-0.227 (0.140)	-0.411* (0.221)
Retired	-0.078 (0.067)	-0.006 (0.073)	-0.046 (0.067)	-0.083 (0.067)	0.017 (0.073)	-0.104 (0.080)	-0.070 (0.112)
Housework or caring	-0.170*** (0.053)	-0.097* (0.059)	-0.145*** (0.053)	-0.172*** (0.052)	-0.078 (0.058)	-0.130** (0.062)	-0.166 (0.186)
Other activity	-0.212** (0.085)	-0.126 (0.091)	-0.184** (0.085)	-0.242*** (0.087)	-0.131 (0.092)	-0.186* (0.095)	-0.102 (0.142)

Results: Life satisfaction for males

Table 3.3: *Relationship between labour market outcomes and life satisfaction for males: Ordered Probit Model*

	(1) Socio-Demographics	(2) Financial	(3) Health	(4) Personality	(5) All	(6) Mundlak	(7) IV
Education	-0.123 (0.116)	-0.012 (0.123)	-0.118 (0.118)	-0.124 (0.112)	-0.027 (0.122)	0.061 (0.130)	0.236 (0.298)
Unemployed - Actively looking	-0.294*** (0.113)	-0.132 (0.114)	-0.259** (0.112)	-0.286** (0.112)	-0.112 (0.113)	-0.033 (0.118)	0.023 (0.227)
Unemployed - Not actively looking	-0.265** (0.122)	-0.139 (0.129)	-0.206* (0.123)	-0.275** (0.119)	-0.109 (0.127)	-0.061 (0.132)	0.058 (0.212)
Permanently sick or disabled	-0.231 (0.142)	-0.088 (0.143)	-0.063 (0.141)	-0.251* (0.138)	0.024 (0.139)	0.112 (0.155)	-0.187 (0.402)
Retired	0.025 (0.077)	0.082 (0.080)	0.046 (0.077)	0.037 (0.077)	0.099 (0.079)	0.114 (0.083)	0.068 (0.136)
Housework or caring	0.001 (0.092)	0.030 (0.091)	0.026 (0.090)	0.008 (0.089)	0.051 (0.088)	0.086 (0.092)	0.363* (0.190)
Other activity	0.065 (0.095)	0.109 (0.095)	0.071 (0.095)	0.059 (0.095)	0.098 (0.095)	0.162* (0.096)	-0.115 (0.147)

Results: Life satisfaction by gender summary

- There are more differences in life satisfaction by labour market outcome among females compared to males;
- These gaps are larger for females and many of these remain significant after controlling for financial circumstances and health for the two unemployed categories, while nothing remains statistically significant for males;
- We find consistent results in our IV specification for females who are unemployed and actively looking and permanently sick or disabled;
- In our IV specification, males who undertake housework or caring have a higher life satisfaction compared to employed males. We attribute this to a small sample size of males in this labour market activity, which tends to be short-term, mostly around lockdown periods (only a third will continue this activity for at least another wave, while most males subsequently transition into other employment activities); our IV specification picks up the effect of transitioning from housework or caring into categories that are associated with higher levels of life satisfaction such as employment and retirement.

Results: Mental distress

Table 4.1: *Relationship between labour market outcomes and mental distress: Probit model*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Socio-Demographics	Financial	Health	Personality	All	Mundlak	IV
Female	0.094 (0.101)	0.029 (0.103)	0.121 (0.098)	0.078 (0.095)	0.014 (0.097)	0.042 (0.099)	0.007 (0.066)
Education	0.465*** (0.149)	0.166 (0.157)	0.395*** (0.146)	0.461*** (0.146)	0.154 (0.152)	0.165 (0.164)	0.118 (0.194)
Unemployed - Actively looking	0.529*** (0.156)	0.108 (0.158)	0.453*** (0.153)	0.520*** (0.147)	0.093 (0.153)	0.086 (0.173)	-0.107 (0.184)
Unemployed - Not actively looking	0.856*** (0.147)	0.538*** (0.153)	0.721*** (0.142)	0.847*** (0.145)	0.465*** (0.149)	0.478*** (0.161)	0.479** (0.210)
Permanently sick or disabled	0.813*** (0.158)	0.443*** (0.167)	0.460*** (0.159)	0.793*** (0.149)	0.186 (0.166)	0.082 (0.185)	-0.136 (0.202)
Retired	0.081 (0.143)	-0.148 (0.150)	0.034 (0.137)	0.110 (0.139)	-0.145 (0.146)	-0.134 (0.177)	0.012 (0.148)
Housework or caring	0.315*** (0.096)	0.081 (0.108)	0.260*** (0.095)	0.316*** (0.094)	0.052 (0.108)	0.101 (0.117)	0.011 (0.107)
Other activity	0.451*** (0.146)	0.163 (0.158)	0.399*** (0.145)	0.495*** (0.143)	0.181 (0.156)	0.204 (0.158)	0.084 (0.151)

Results: Mental distress summary

- Mental distress is higher during lockdowns (0.129 to 0.206) and after controlling for lockdowns, it is consistently higher in January 2022 (relative to April 2021);
- Most labour market outcomes are associated with higher mental distress compared to being employed;
- After accounting for financial circumstances and health, most of these gaps in mental distress by labour market activity reduce and become statistically insignificant (except for unemployed);

Results: Mental distress for females

Table 4.2: *Relationship between labour market outcomes and mental distress for females: Probit model*

	(1) Socio-Demographics	(2) Financial	(3) Health	(4) Personality	(5) All	(6) Mundlak	(7) IV
Education	0.425** (0.172)	0.129 (0.189)	0.359** (0.172)	0.410** (0.172)	0.102 (0.188)	0.178 (0.203)	0.258 (0.240)
Unemployed - Actively looking	0.416** (0.212)	-0.014 (0.218)	0.365* (0.215)	0.463** (0.201)	0.038 (0.213)	-0.053 (0.238)	-0.124 (0.252)
Unemployed - Not actively looking	0.786*** (0.206)	0.450** (0.213)	0.662*** (0.199)	0.788*** (0.207)	0.394* (0.207)	0.364 (0.224)	0.280 (0.421)
Permanently sick or disabled	0.910*** (0.202)	0.477** (0.210)	0.557*** (0.199)	0.879*** (0.194)	0.216 (0.207)	0.211 (0.237)	0.029 (0.235)
Retired	-0.034 (0.195)	-0.288 (0.198)	-0.072 (0.188)	0.005 (0.189)	-0.264 (0.192)	-0.197 (0.234)	-0.072 (0.176)
Housework or caring	0.229** (0.109)	-0.047 (0.123)	0.179* (0.107)	0.242** (0.107)	-0.054 (0.122)	-0.009 (0.133)	-0.063 (0.114)
Other activity	0.491** (0.196)	0.152 (0.203)	0.395** (0.193)	0.563*** (0.188)	0.182 (0.198)	0.301 (0.205)	-0.039 (0.177)

Results: Mental distress for males

Table 4.3: *Relationship between labour market outcomes and mental distress for males: Probit model*

	(1) Socio-Demographics	(2) Financial	(3) Health	(4) Personality	(5) All	(6) Mundlak	(7) IV
Education	0.538** (0.270)	0.217 (0.265)	0.479* (0.255)	0.540** (0.262)	0.238 (0.252)	0.186 (0.274)	0.133 (0.388)
Unemployed - Actively looking	0.719*** (0.228)	0.323 (0.231)	0.617*** (0.215)	0.656*** (0.218)	0.261 (0.224)	0.329 (0.250)	0.076 (0.314)
Unemployed - Not actively looking	1.004*** (0.205)	0.705*** (0.220)	0.841*** (0.200)	0.948*** (0.199)	0.609*** (0.217)	0.708*** (0.240)	0.657** (0.303)
Permanently sick or disabled	0.670*** (0.247)	0.353 (0.266)	0.298 (0.262)	0.655*** (0.228)	0.097 (0.267)	-0.133 (0.279)	-0.115 (0.317)
Retired	0.254 (0.211)	0.057 (0.232)	0.182 (0.199)	0.260 (0.208)	0.036 (0.231)	-0.011 (0.272)	0.120 (0.253)
Housework or caring	0.553*** (0.207)	0.391* (0.228)	0.489** (0.206)	0.498** (0.205)	0.310 (0.233)	0.423* (0.249)	0.249 (0.231)
Other activity	0.503** (0.215)	0.272 (0.244)	0.491** (0.217)	0.498** (0.212)	0.275 (0.243)	0.229 (0.243)	0.231 (0.309)

Results: Mental distress by gender summary

- We find similar patterns in terms of differences in mental distress by labour market outcome among males and females, with higher mental distress for most labour market outcomes;
- After controlling for financial circumstances, health and personality, both males and females have higher mental distress when being unemployed (and not actively looking), although in our Mundlak and IV specifications this only remains statistically significant for males.

Table 5.1: *Relationship between labour market outcomes and loneliness: Probit model*

	(1) Socio-Demographics	(2) Financial	(3) Health	(4) Personality	(5) All	(6) Mundlak	(7) IV
Female	0.214*** (0.077)	0.166** (0.079)	0.237*** (0.074)	0.202*** (0.073)	0.169** (0.075)	0.193** (0.078)	0.107** (0.049)
Education	0.200 (0.123)	-0.003 (0.128)	0.165 (0.123)	0.191 (0.122)	-0.028 (0.128)	-0.018 (0.138)	-0.204 (0.186)
Unemployed - Actively looking	0.290** (0.119)	-0.000 (0.130)	0.253** (0.119)	0.275** (0.117)	-0.023 (0.128)	-0.088 (0.136)	-0.170 (0.156)
Unemployed - Not actively looking	0.403*** (0.141)	0.179 (0.150)	0.338** (0.141)	0.400*** (0.140)	0.131 (0.149)	0.077 (0.152)	0.215 (0.196)
Permanently sick or disabled	0.580*** (0.138)	0.316** (0.146)	0.338** (0.138)	0.565*** (0.133)	0.130 (0.143)	0.023 (0.170)	-0.082 (0.184)
Retired	-0.083 (0.083)	-0.240*** (0.092)	-0.107 (0.081)	-0.070 (0.082)	-0.248*** (0.091)	-0.251** (0.102)	-0.077 (0.084)
Housework or caring	0.196*** (0.068)	0.055 (0.077)	0.174** (0.068)	0.197*** (0.068)	0.039 (0.076)	0.018 (0.084)	-0.097 (0.099)
Other activity	0.129 (0.107)	-0.044 (0.114)	0.112 (0.105)	0.144 (0.106)	-0.043 (0.112)	-0.015 (0.119)	-0.036 (0.134)

Results: Loneliness summary

- Females are more likely to report feeling lonely across all specifications;
- Loneliness is higher during lockdowns (by 0.155 to 0.285) and even after controlling for lockdowns it is higher in April, August and November 2020 and January 2022 (relative to April 2021);
- Being unemployed, permanently sick or disabled and housework or caring are associated with higher levels of loneliness, but these are not significant our specification with lags after controlling for all factors;
- After accounting for financial circumstances, being retired is associated with lower levels of loneliness;

Results: Loneliness for females

Table 5.2: *Relationship between labour market outcomes and loneliness for females: Probit model*

	(1) Socio-Demographics	(2) Financial	(3) Health	(4) Personality	(5) All	(6) Mundlak	(7) IV
Education	0.122 (0.150)	-0.052 (0.158)	0.074 (0.150)	0.115 (0.148)	-0.086 (0.156)	-0.033 (0.172)	-0.382* (0.206)
Unemployed - Actively looking	0.279* (0.164)	0.059 (0.179)	0.256 (0.161)	0.298* (0.160)	0.074 (0.174)	-0.017 (0.179)	-0.000 (0.249)
Unemployed - Not actively looking	0.552*** (0.191)	0.388* (0.201)	0.496*** (0.187)	0.557*** (0.188)	0.357* (0.195)	0.212 (0.197)	0.202 (0.297)
Permanently sick or disabled	0.615*** (0.164)	0.390** (0.173)	0.382** (0.163)	0.605*** (0.153)	0.207 (0.167)	0.082 (0.205)	0.069 (0.421)
Retired	0.043 (0.102)	-0.082 (0.113)	0.023 (0.101)	0.062 (0.101)	-0.074 (0.112)	-0.064 (0.127)	-0.143 (0.122)
Housework or caring	0.206*** (0.080)	0.084 (0.092)	0.187** (0.079)	0.210*** (0.079)	0.080 (0.091)	0.071 (0.099)	0.211 (0.154)
Other activity	0.167 (0.137)	0.016 (0.147)	0.140 (0.135)	0.191 (0.136)	0.031 (0.144)	0.073 (0.151)	-0.006 (0.179)

Results: Loneliness for males

Table 5.3: *Relationship between labour market outcomes and loneliness for males: Probit model*

	(1) Socio-Demographics	(2) Financial	(3) Health	(4) Personality	(5) All	(6) Mundlak	(7) IV
Education	0.368* (0.213)	0.110 (0.221)	0.355* (0.212)	0.341 (0.216)	0.091 (0.225)	0.043 (0.233)	-0.365 (0.347)
Unemployed - Actively looking	0.295* (0.173)	-0.091 (0.189)	0.250 (0.175)	0.242 (0.175)	-0.147 (0.193)	-0.201 (0.206)	-0.344 (0.220)
Unemployed - Not actively looking	0.268 (0.209)	-0.052 (0.223)	0.194 (0.213)	0.255 (0.212)	-0.101 (0.228)	-0.080 (0.241)	0.166 (0.244)
Permanently sick or disabled	0.579** (0.250)	0.243 (0.266)	0.316 (0.247)	0.533** (0.247)	0.023 (0.263)	-0.012 (0.305)	0.011 (0.430)
Retired	-0.299** (0.138)	-0.497*** (0.151)	-0.327** (0.136)	-0.314** (0.136)	-0.536*** (0.150)	-0.555*** (0.170)	-0.304* (0.158)
Housework or caring	0.192 (0.136)	0.031 (0.146)	0.169 (0.135)	0.169 (0.135)	-0.014 (0.146)	-0.049 (0.160)	-0.263 (0.182)
Other activity	0.075 (0.168)	-0.120 (0.177)	0.075 (0.165)	0.070 (0.168)	-0.134 (0.177)	-0.123 (0.188)	0.136 (0.187)

Results: Loneliness by gender summary

- Baseline specifications suggest higher levels of loneliness among the unemployed and permanently sick or disabled relative to being employed for both males and females;
- Females also feel more lonely when undertaking housework or caring relative to being employed, while males feel less lonely when retired relative to being employed;
- After controlling for other factors, these gaps only remain significant for females who are unemployed (but not in our Mundlak and IV specifications), as well as for retired males (across all specifications).

- The underlying K6 Index of the Kessler Psychological Distress Scale is made up of six individual components which are each ranked on a scale from 1 to 5 with higher scores given for higher prevalence: feeling nervous, feeling hopeless, feeling restless or fidgety, feeling that everything was an effort, feeling so sad that nothing could cheer you up and feeling worthless.
- We apply Ordered Probit Models to analyse each of these categories separately to establish which ones are driving the results for mental distress in our main analysis.

Summary I

- We generally observe higher levels of wellbeing among those who are employed relative to other labour market outcomes;
- Financial circumstances and health can reduce these differences, but may not be enough to close the gaps in wellbeing between those who are unemployed and for those who are permanently sick or disabled (relative to being employed);
- This confirms findings from previous studies, e.g., financial, personal and socio-relational resources have been shown to partially mediate the relationship between retirement and psychological wellbeing [Kim and Moen, 2002];
- We find some gender differences in the relationship between wellbeing and various labour market activities relative to being employed (and some similarities);

Summary II

- Life satisfaction: Females experience larger differences in life satisfaction when they are employed relative to other labour market outcomes (compared to men), and after controlling for other factors these differences in life satisfaction remain statistically significant for unemployed females and females who are permanently sick or disabled (but not for males);
- Mental distress: Males and females experience higher mental distress when unemployed relative to being employed, even after accounting for finances and health, however, in our Mundlak and IV specifications this only remains statistically significant for males (mainly due to feeling nervous and that everything was an effort); females tend to experience more negative effects of being permanently sick or disabled (feeling nervous, hopeless, that everything was an effort and worthless);

- Loneliness: Females are less likely to feel lonely when in education but more likely to feel lonely when unemployed (compared to employed females), and males less likely to feel lonely when retired (compared to employed males);
- We observe significantly lower levels of wellbeing during lockdowns and during the Omicron wave in January 2022 when restrictions were relatively low but case numbers were high.

Conclusion and Policy Implications

- Government policies such as financial support and public health policies have potential to reduce the gaps in life satisfaction, mental health and loneliness between those who are employed and those in other employment activities;
- There are some limitations, as it is not feasible to align incomes of those who are employed and other groups, or to align health of those who are permanently sick or disabled and other groups;
- Support for unemployed to secure employment;
- Targeted mental health support for unemployed (particularly males) and for females who are permanently sick or disabled.

Table 2.1: *Summary statistics for main variables*

	Obs	Mean	Min	Max	Weighted mean
Life Satisfaction	18,434	6.819	0	10	6.721
Psychological Distress (k6)	17,267	0.077	0	1	0.095
Loneliness	17,269	0.340	0	1	0.363
Female	18,434	0.539	0	1	0.492
Lockdown	18,434	0.339	0	1	0.365
Employed	18,434	0.493	0	1	0.545
Education	18,434	0.024	0	1	0.040
Unemployed (actively looking)	18,434	0.022	0	1	0.028
Unemployed (not actively looking)	18,434	0.013	0	1	0.016
Permanently sick or disabled	18,434	0.033	0	1	0.033
Retired	18,434	0.277	0	1	0.193
Housework or caring	18,434	0.110	0	1	0.121
Other activity	18,434	0.029	0	1	0.024

Summary Statistics by Gender

Table 2.2: *Summary statistics by gender for main variables*

	Obs		Mean		Weighted Mean		Min	Max
	M	F	M	F	M	F		
Life Satisfaction	8,491	9,943	6.819	6.818	6.712	6.729	0	10
Psychological Distress (k6) (***)	7,922	9,345	0.066	0.086	0.081	0.110	0	1
Loneliness (***)	7,923	9,346	0.294	0.380	0.320	0.407	0	1
Employed (***)	8,491	9,943	0.530	0.462	0.593	0.497	0	1
Education (**)	8,491	9,943	0.021	0.026	0.036	0.043	0	1
Unemployed (actively looking) (***)	8,491	9,943	0.025	0.019	0.035	0.021	0	1
Unemployed (not actively looking) (***)	8,491	9,943	0.015	0.011	0.017	0.016	0	1
Permanently sick or disabled	8,491	9,943	0.032	0.035	0.031	0.034	0	1
Retired (***)	8,491	9,943	0.305	0.253	0.219	0.166	0	1
Housework or caring (***)	8,491	9,943	0.046	0.164	0.047	0.198	0	1
Other activity (*)	8,491	9,943	0.026	0.031	0.024	0.025	0	1

Notes: Statistically significant differences in the mean of each variable between males and females is indicated in parentheses. *** significant at 1% level, ** significant at 5% level, * significant at 10% level.

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