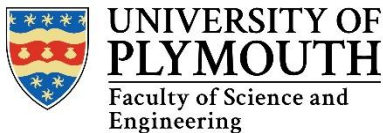


Investigation of the influence of the Covid-19 pandemic on the wellbeing of the British population using APS data

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Aim of the study

- How did the subjective wellbeing of the British population change during Covid pandemic while controlling for other factors such as socio-economic status, gender, age and health condition?
- Data from the *Annual Population Survey (APS)* for two seasons:
 - Before pandemic: October 2018 – September 2019 (SN 8598)
 - During pandemic*: October 2020 – September 2021 (SN 8886)
- The APS comprises key variables from the *Labour Force Survey (LFS)*.
- Key topics covered in the survey include education, employment, health and ethnicity.

*WHO declared the pandemic in March 2020

Subjective wellbeing

- **Happy**

“Overall, how happy did you feel yesterday?”

- **Satisfied**

“Overall, how satisfied are you with your life nowadays?”

- **Worthwhile**

“Overall, to what extent do you feel the things you do in your life are worthwhile?”

- ... whole values between 0 and 10:

- 0 to 4 (low)
- 5 to 6 (medium)
- 7 to 8 (high)
- 9 to 10 (very high)

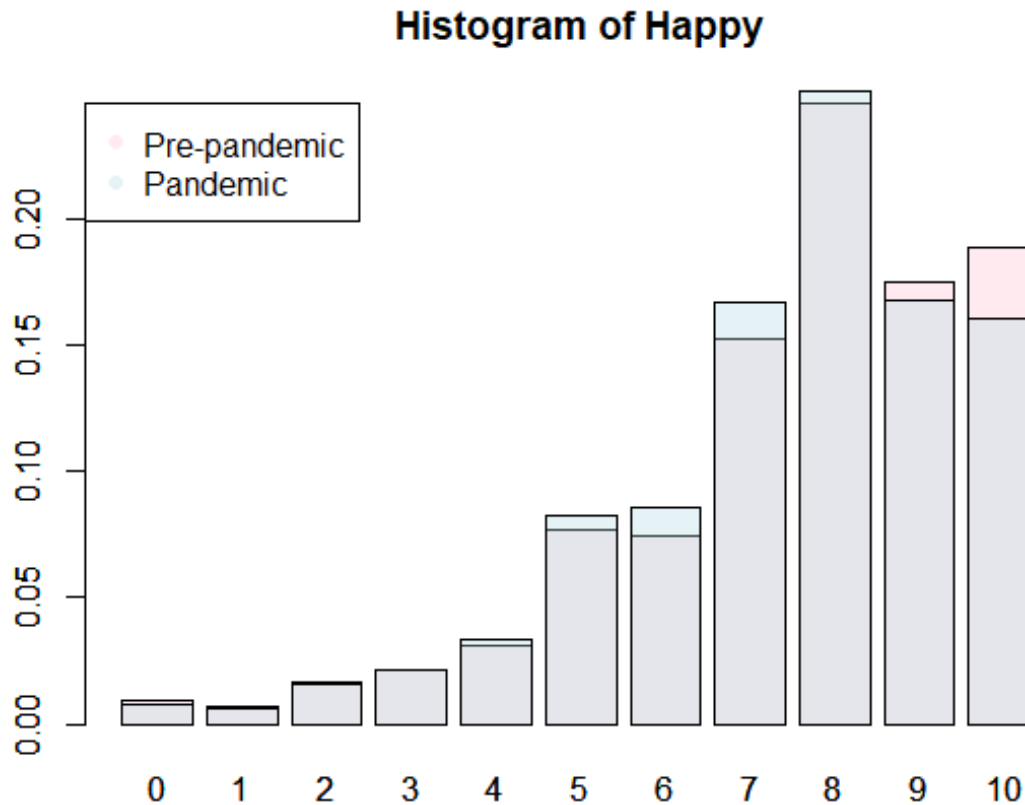
- **Anxious:** *“Overall, how anxious did you feel yesterday?”*

- 0 to 1 (very low)
- 2 to 3 (low)
- 4 to 5 (medium)
- 6 to 10 (high)

Missing data for wellbeing

- Around 48% missing values in the four wellbeing indices, for both data sets.
- These were removed from the analysis.

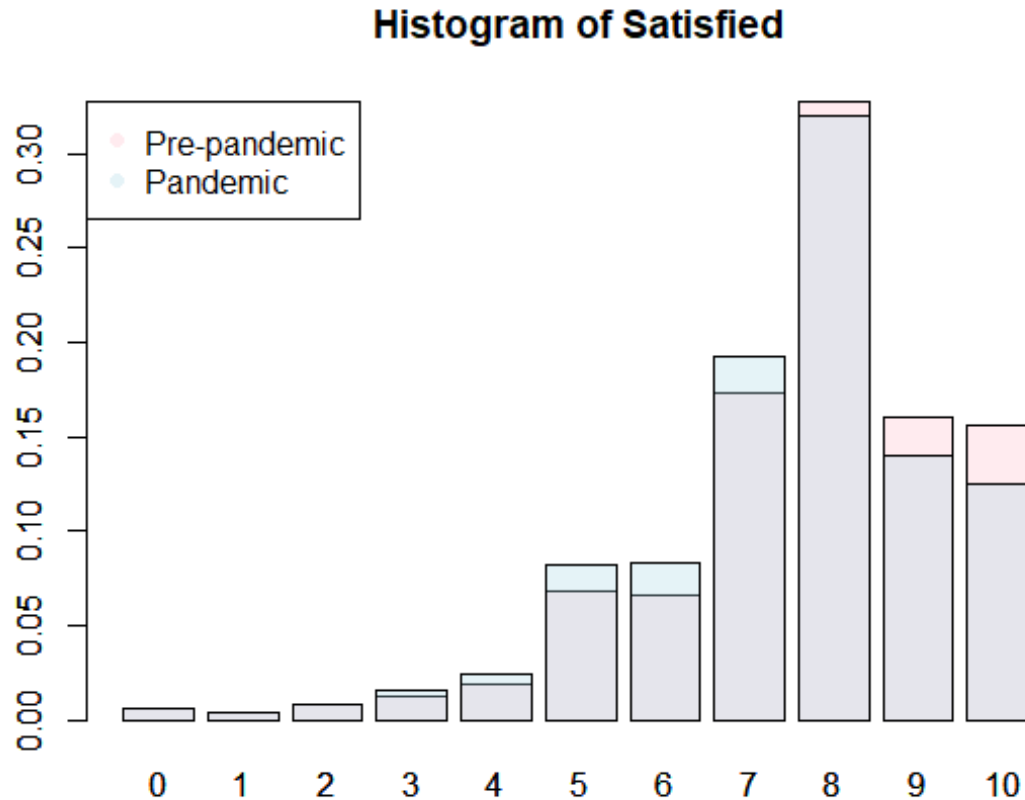
Comparison of distributions



Mean with 95% confidence interval:

- Pre-pandemic: 7.57 (7.56, 7.58)
- Pandemic: 7.46 (7.45, 7.47)

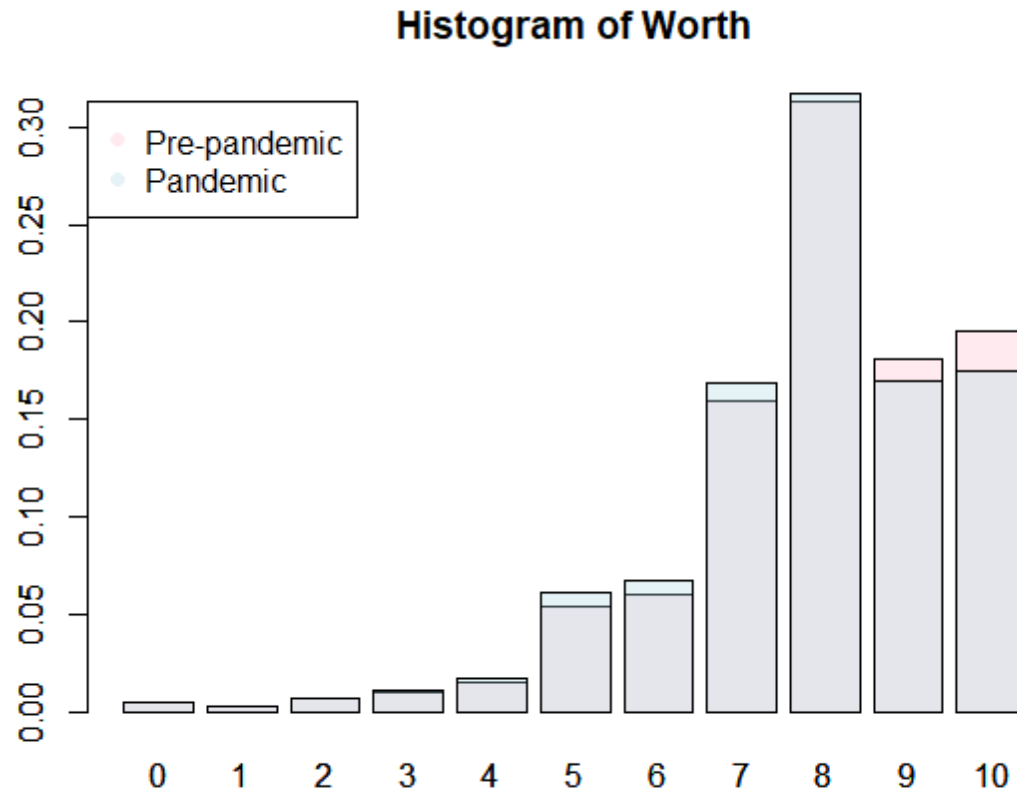
Comparison of distributions



Mean with 95% confidence interval:

- Pre-pandemic: 7.71 (7.70, 7.72)
- Pandemic: 7.49 (7.48, 7.50)

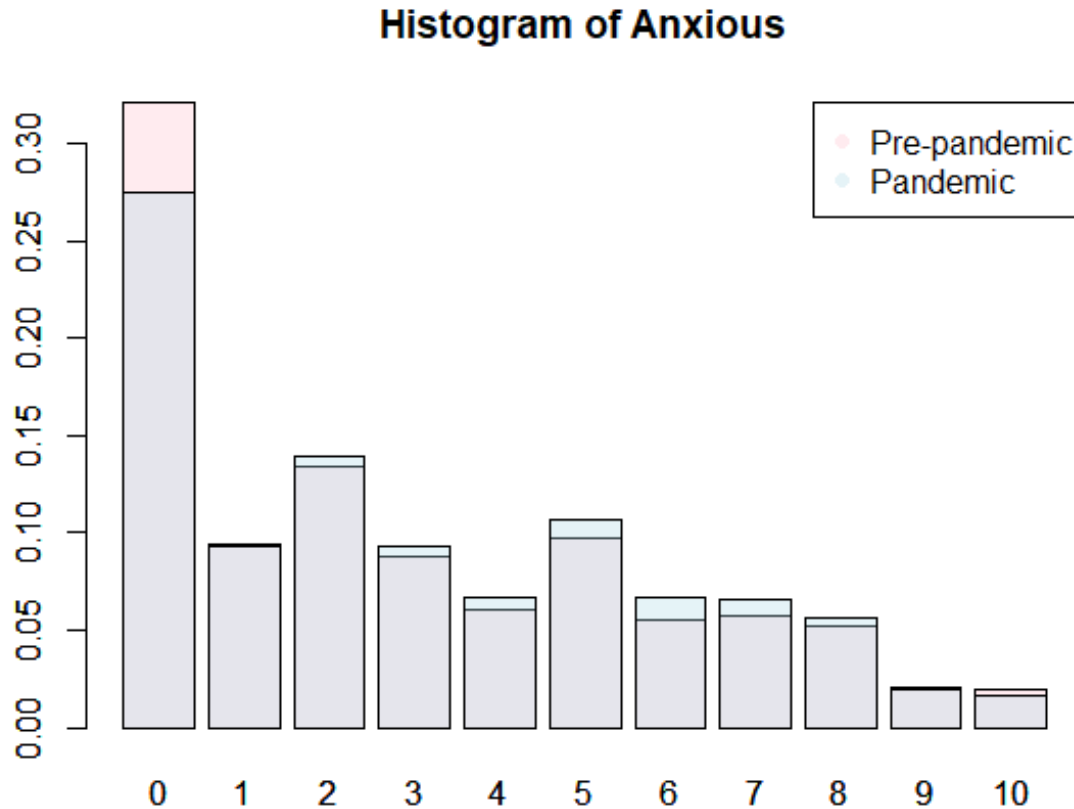
Comparison of distributions



Mean with 95% confidence interval:

- Pre-pandemic: 7.93 (7.92, 7.94)
- Pandemic: 7.82 (7.81, 7.83)

Comparison of distributions



Mean with 95% confidence interval:

- Pre-pandemic: 2.88 (2.87, 2.90)
- Pandemic: 3.11 (3.09, 3.13)

Correlations between wellbeing indices

	Ax	Ha	Sa	Wo
Ax	1.00	-0.48	-0.37	-0.29
Ha	-0.48	1.00	0.60	0.54
Sa	-0.37	0.60	1.00	0.66
Wo	-0.29	0.54	0.66	1.00

Before pandemic

	Ax	Ha	Sa	Wo
Ax	1.00	-0.49	-0.37	-0.28
Ha	-0.49	1.00	0.61	0.53
Sa	-0.37	0.61	1.00	0.62
Wo	-0.28	0.53	0.62	1.00

During pandemic

Covariates

- Age
- Benefits Claim
- Country of residence
- Disability Status
- Education level
- Ethnicity
- Employment Status
- Housing Status
- Marital Status
- Long-lasting Health Conditions (>1 year)
- Religion
- Sex

Missing data in covariates

	Proportion of missing values before pandemic	Proportion of missing values during pandemic
Benefits claim	21%	25%
Disability	12%	12%
Long term health condition	12%	12%
Education	21%	25%

- Almost all above age 65.
- We replaced those corresponding missing values using the label “pensioner”
- A few other remaining missing values imputed using MICE (Multivariate Imputation by Chained Equations)

Covariates – more details

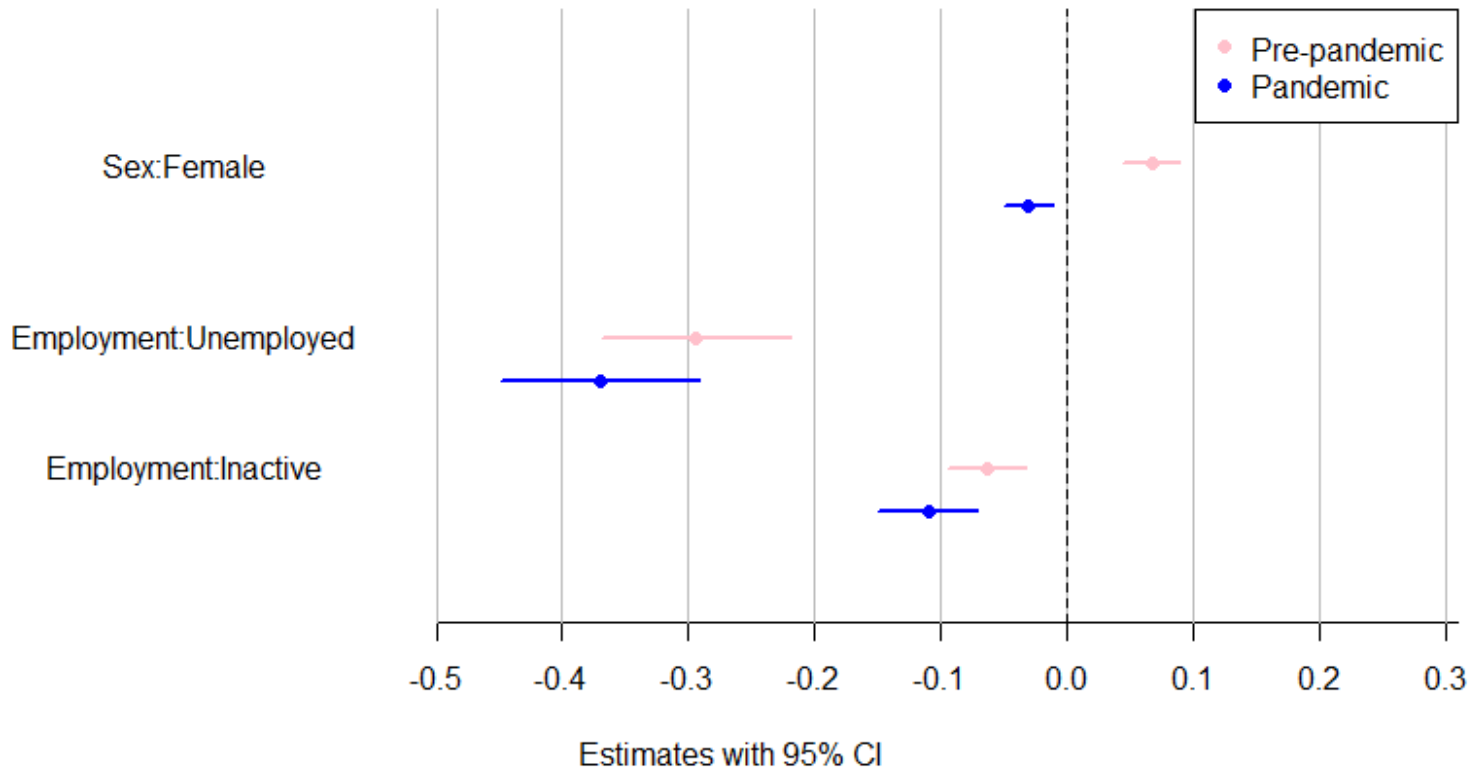
- Age – numeric (integer)
- Benefits Claim – 3 categories (yes/no/pensioner)
- Country of residence – 5 categories
- Disability Status – 3 categories (yes/no/pensioner)
- Education level – 8 categories
- Ethnicity – 9 categories
- Employment Status – 3 categories
- Housing Status – 5 categories
- Marital Status – 6 categories
- Long-lasting Health Conditions (>1 year) – 5 categories
- Religion – 8 categories
- Sex – female/male

The model

- Multiple linear regression for each wellbeing index
- Skewed distributions of outcomes but due to very large datasets the assumptions about estimates' distributions being normal are approximately met
- Interactions not included

Happy: regression results for Sex and Employment

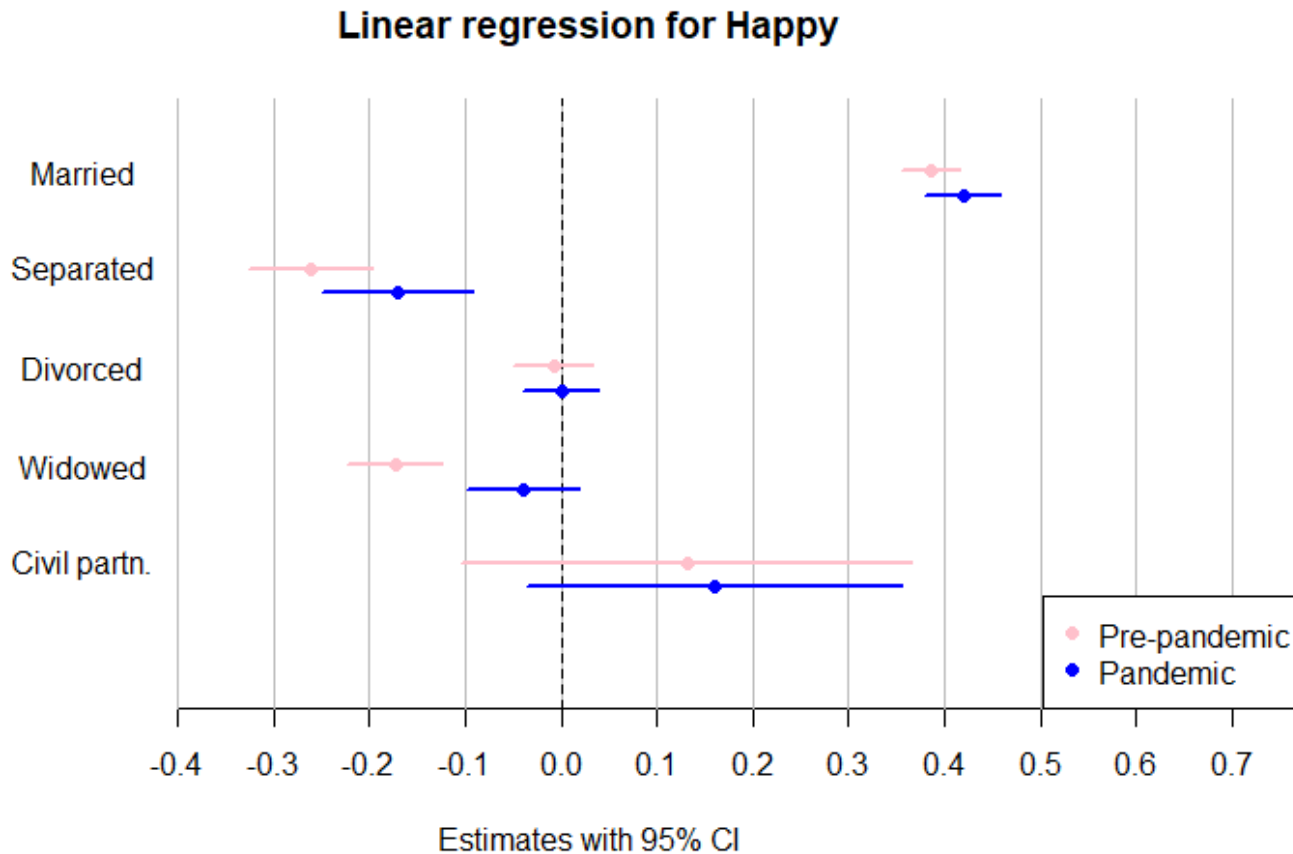
Linear regression for Happy



Reference level for Sex: "Male"

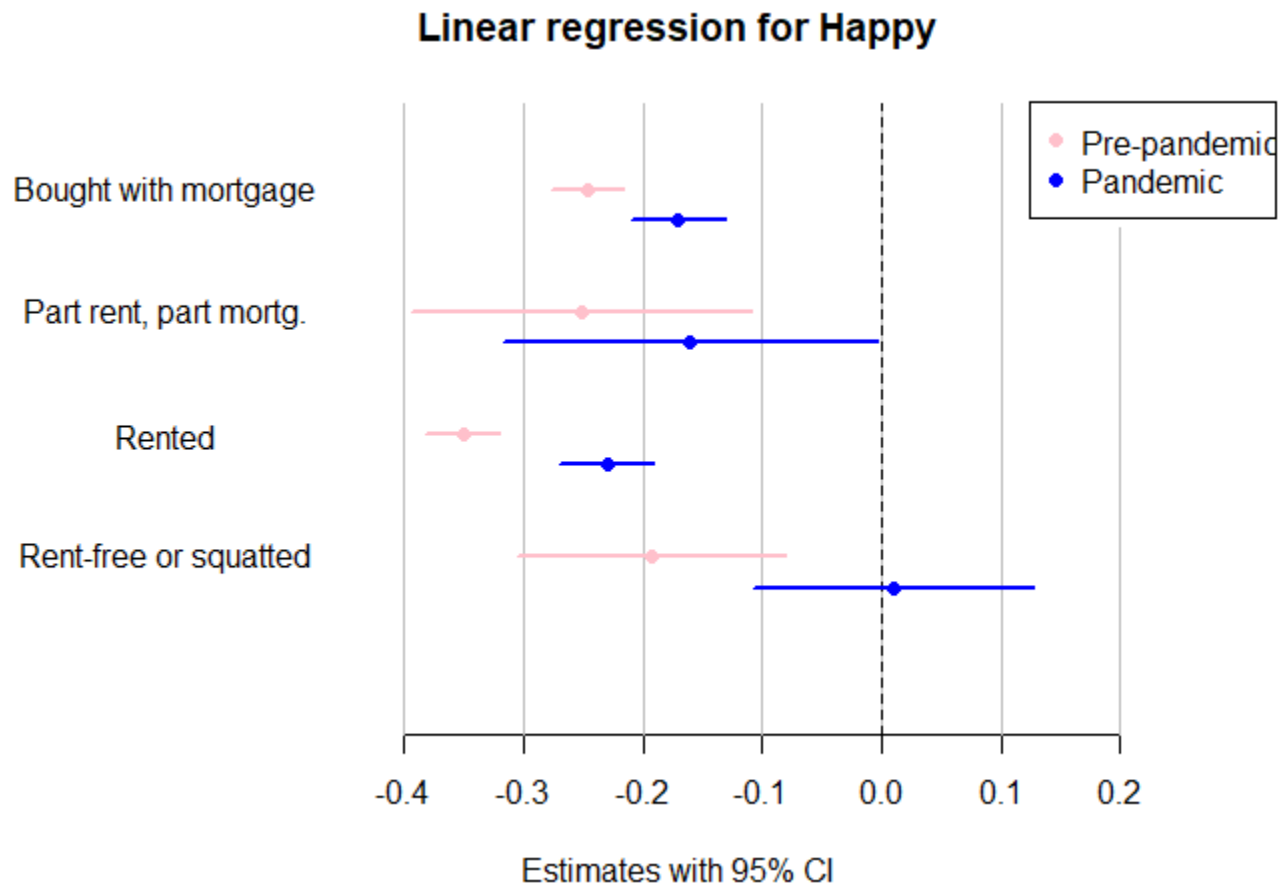
Reference level for Employment status: "In employment"

Happy: regression results for Marital Status



Reference level Marital status: "Single, never married"

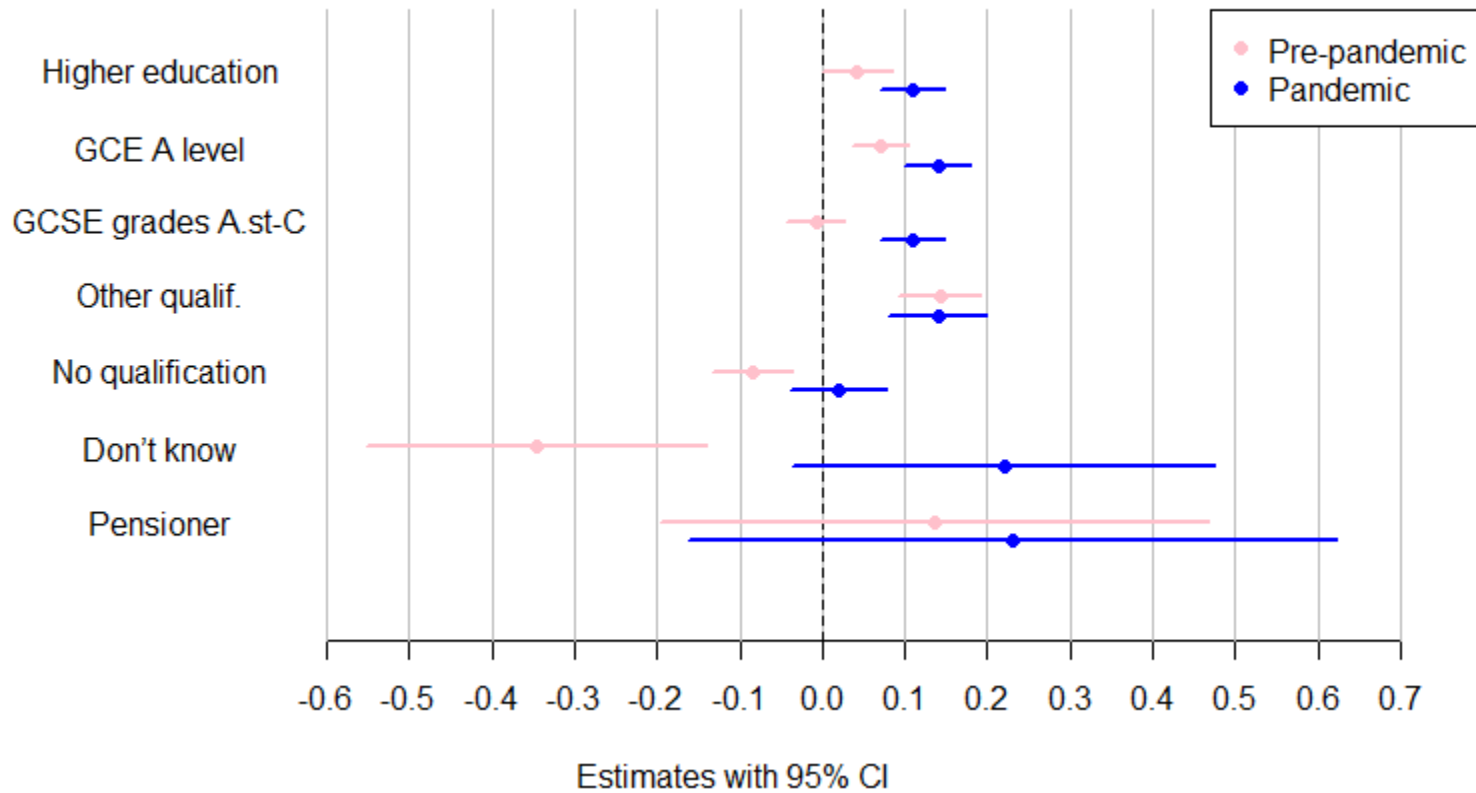
Happy: regression results for Housing Status



Reference level Housing status: “Owned outright ”

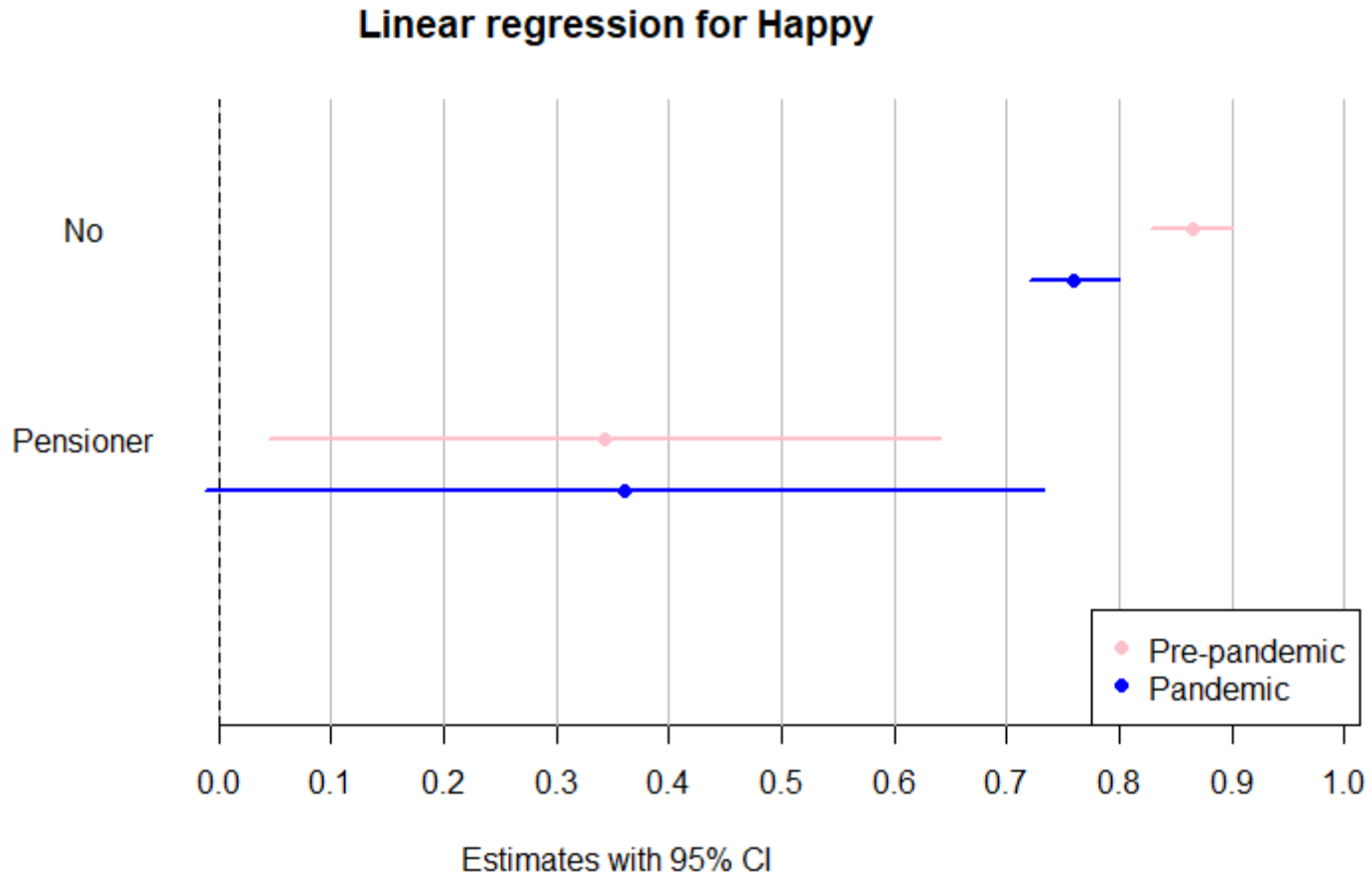
Happy: regression results for Education Status

Linear regression for Happy



Reference level Education status: "Degree or equivalent"

Happy: regression results for Disability Status

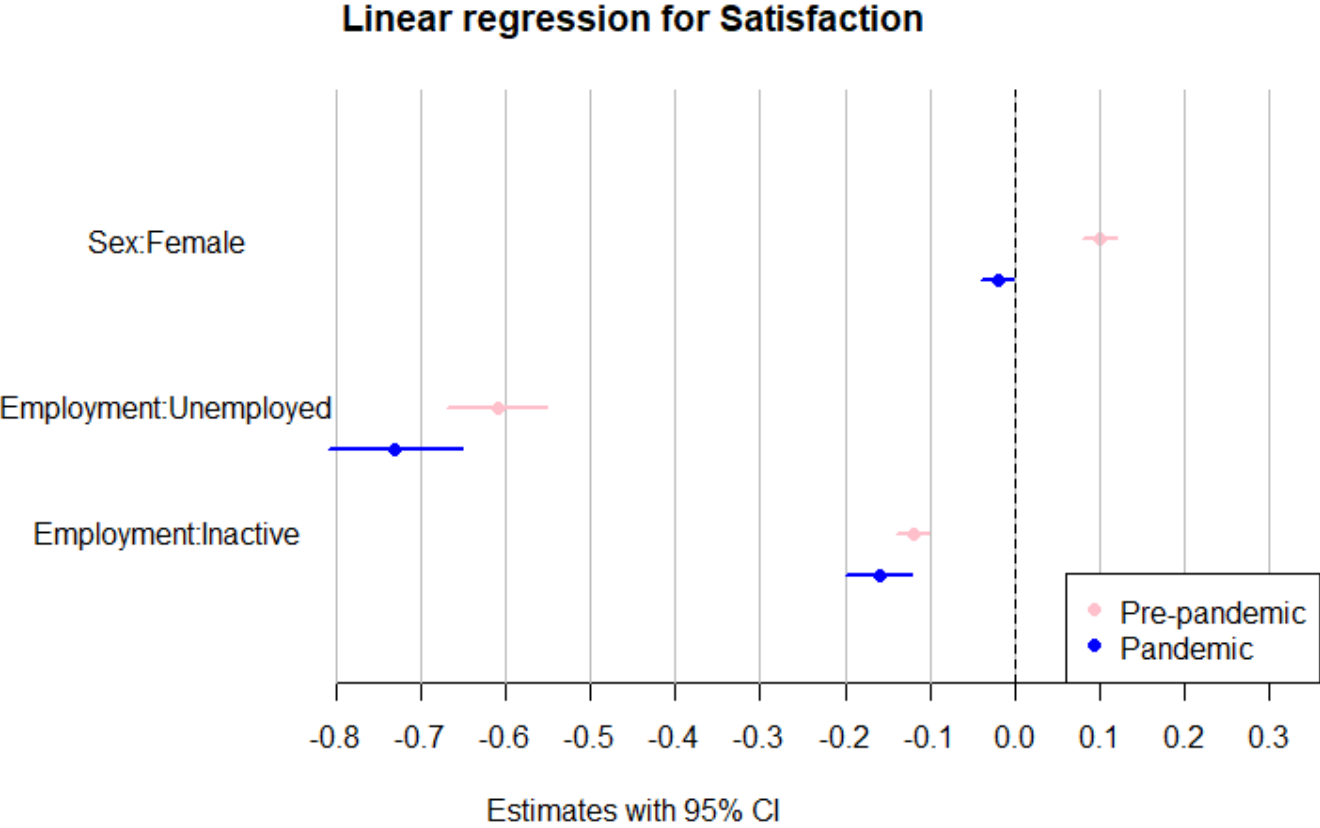


Reference level Disability status: "Yes"

Happy: no change in regression results

- **No significant change** in regression coefficients for:
 - Ethnicity
 - Religion
 - Country
 - Long term health condition
 - Benefits claim

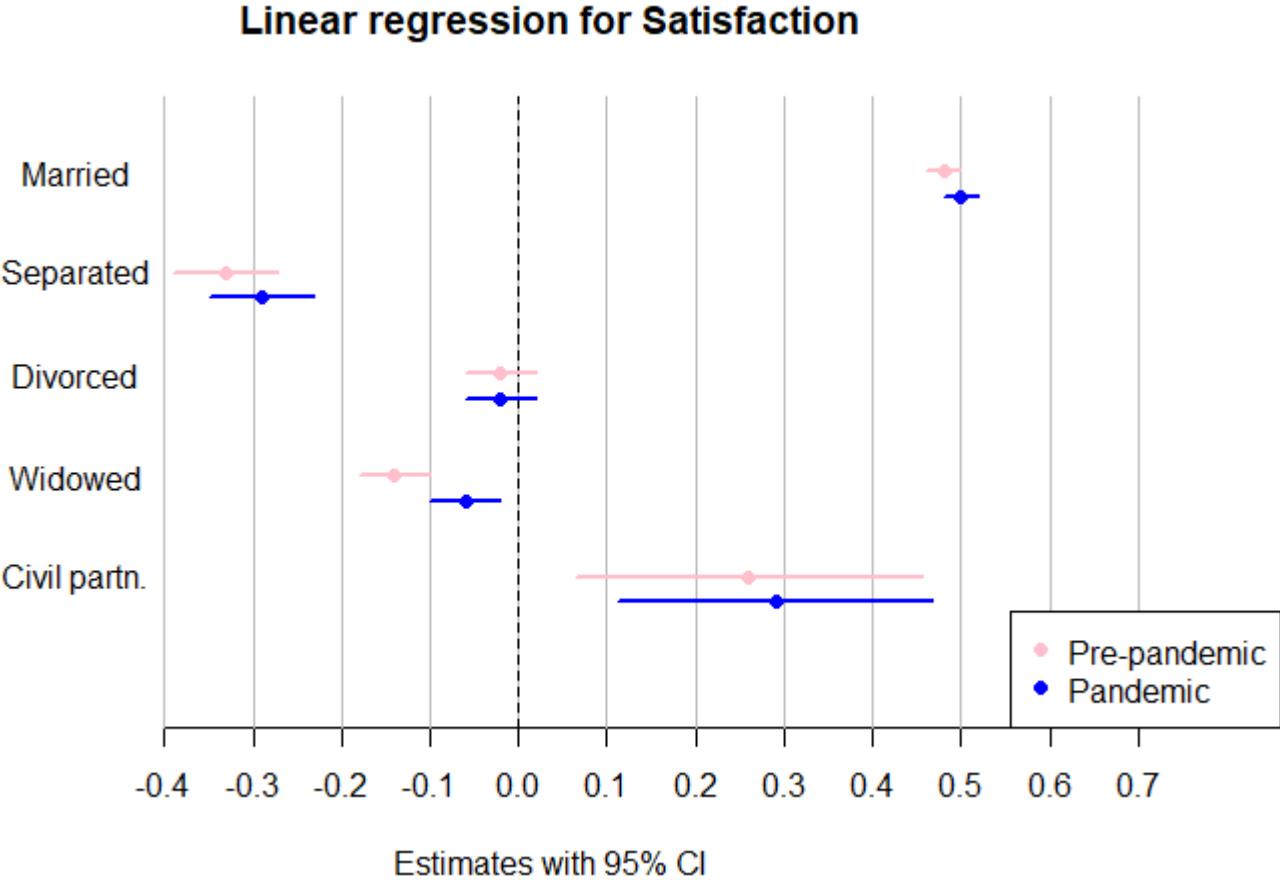
Satisfied: regression results for Sex and Employment



Reference level for Sex: "Male"

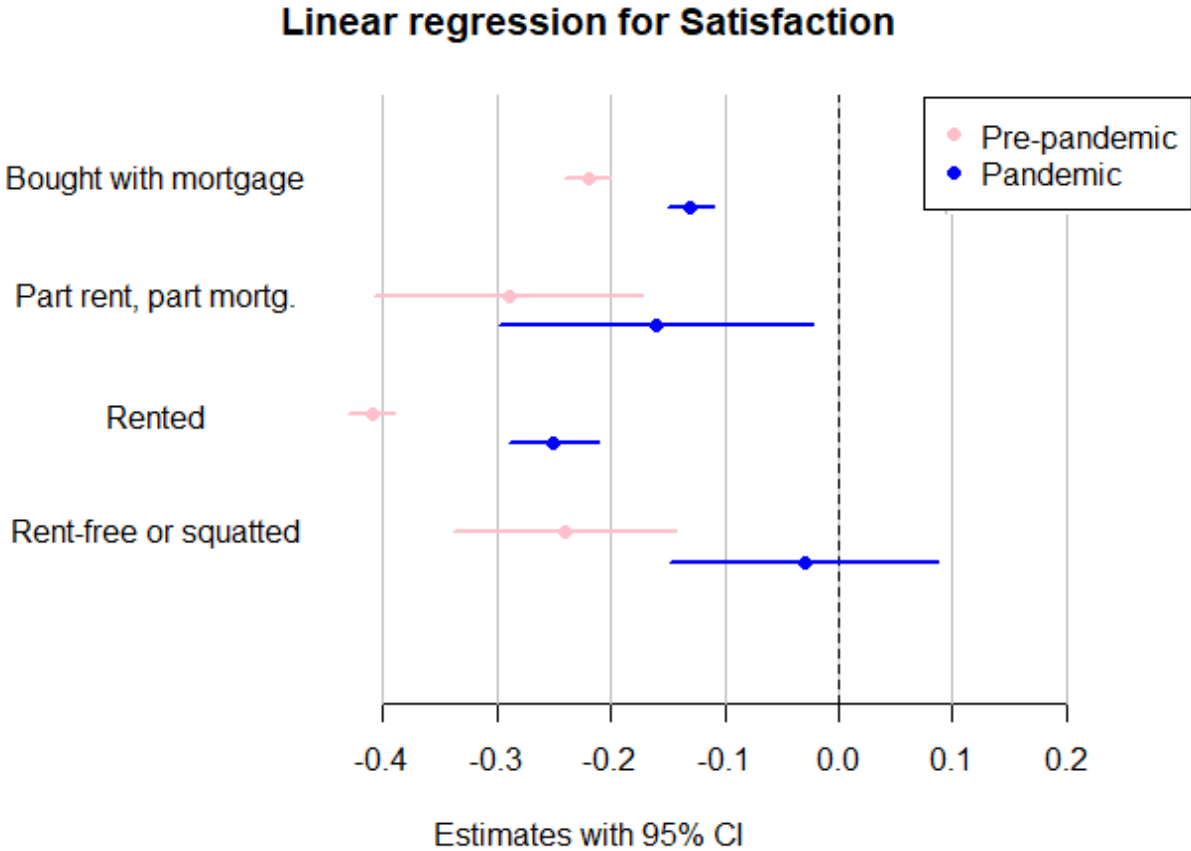
Reference level for Employment status: "In employment"

Satisfied: regression results for Marital Status



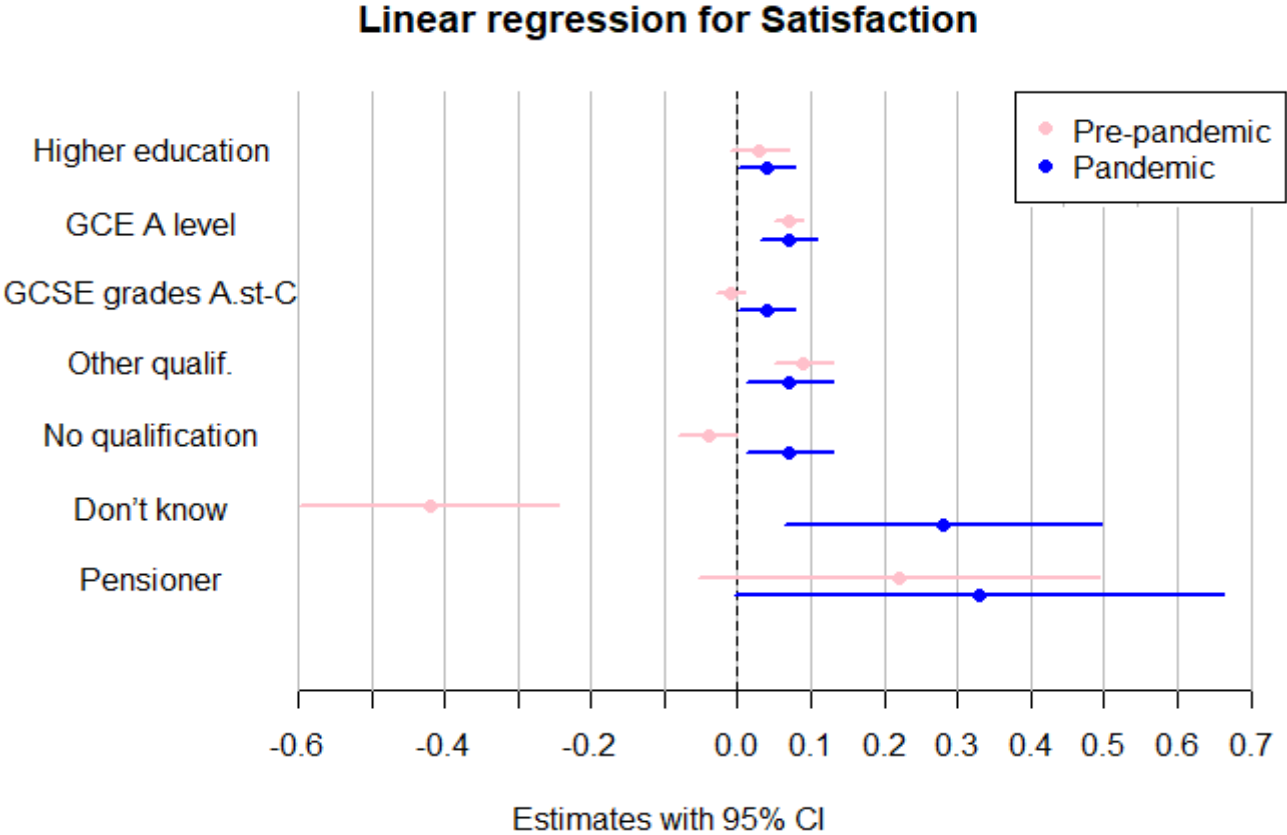
Reference level Marital status: "Single, never married"

Satisfied: regression results for Housing Status



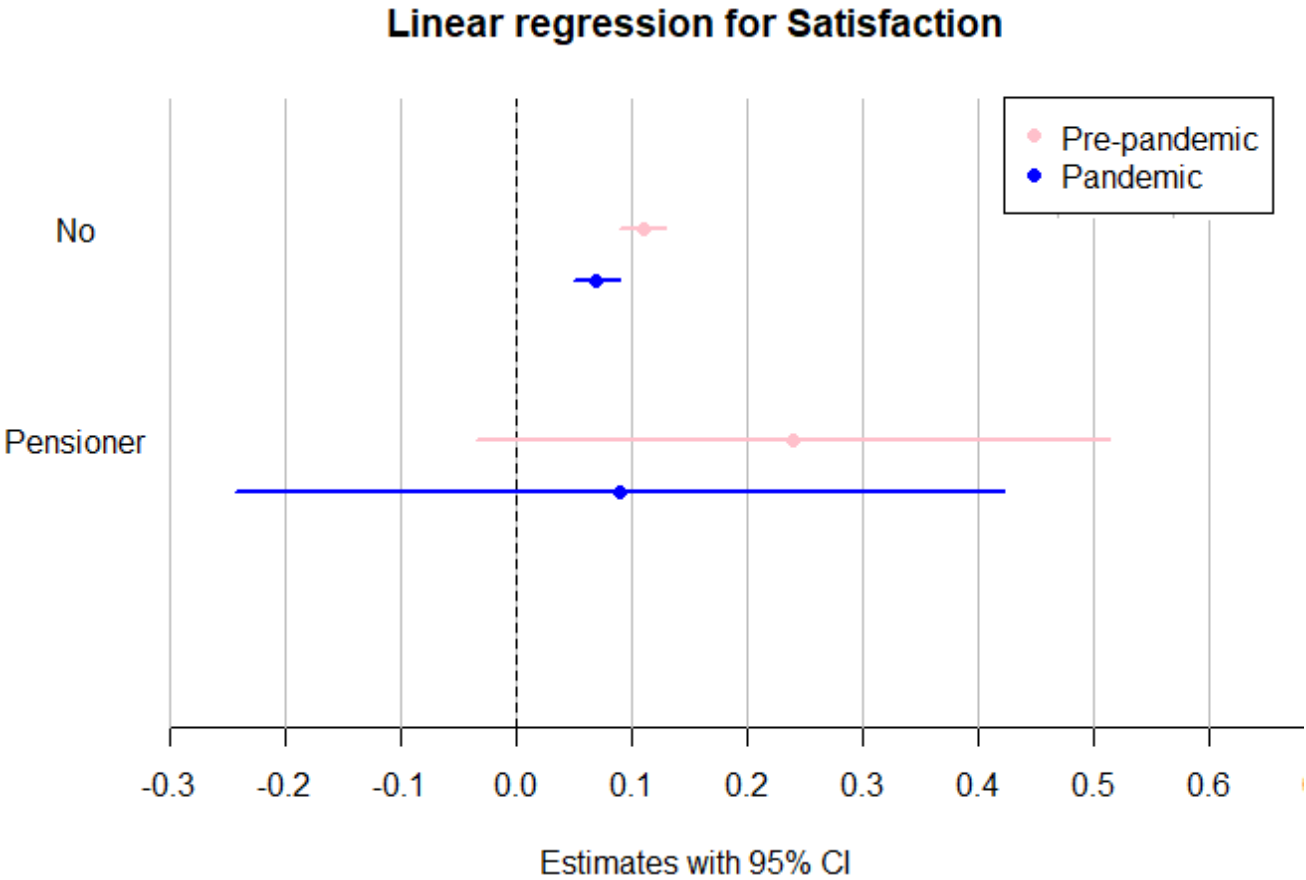
Reference level Housing status: “Owned outright ”

Satisfied: regression results for Education Status



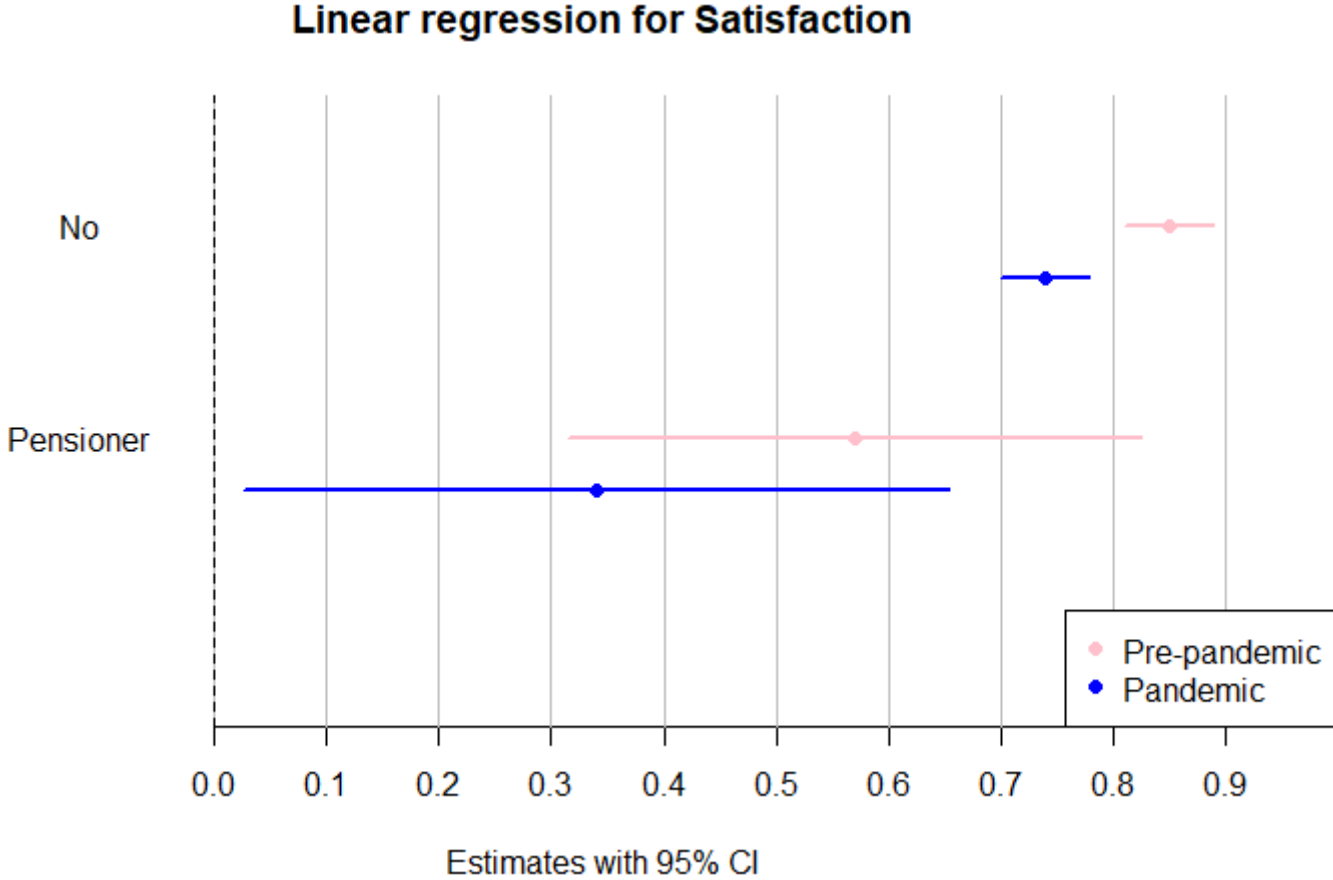
Reference level Education status: “Degree or equivalent”

Satisfied: regression results for Benefits status



Reference level Benefits status: "Yes"

Satisfied: regression results for Disability status

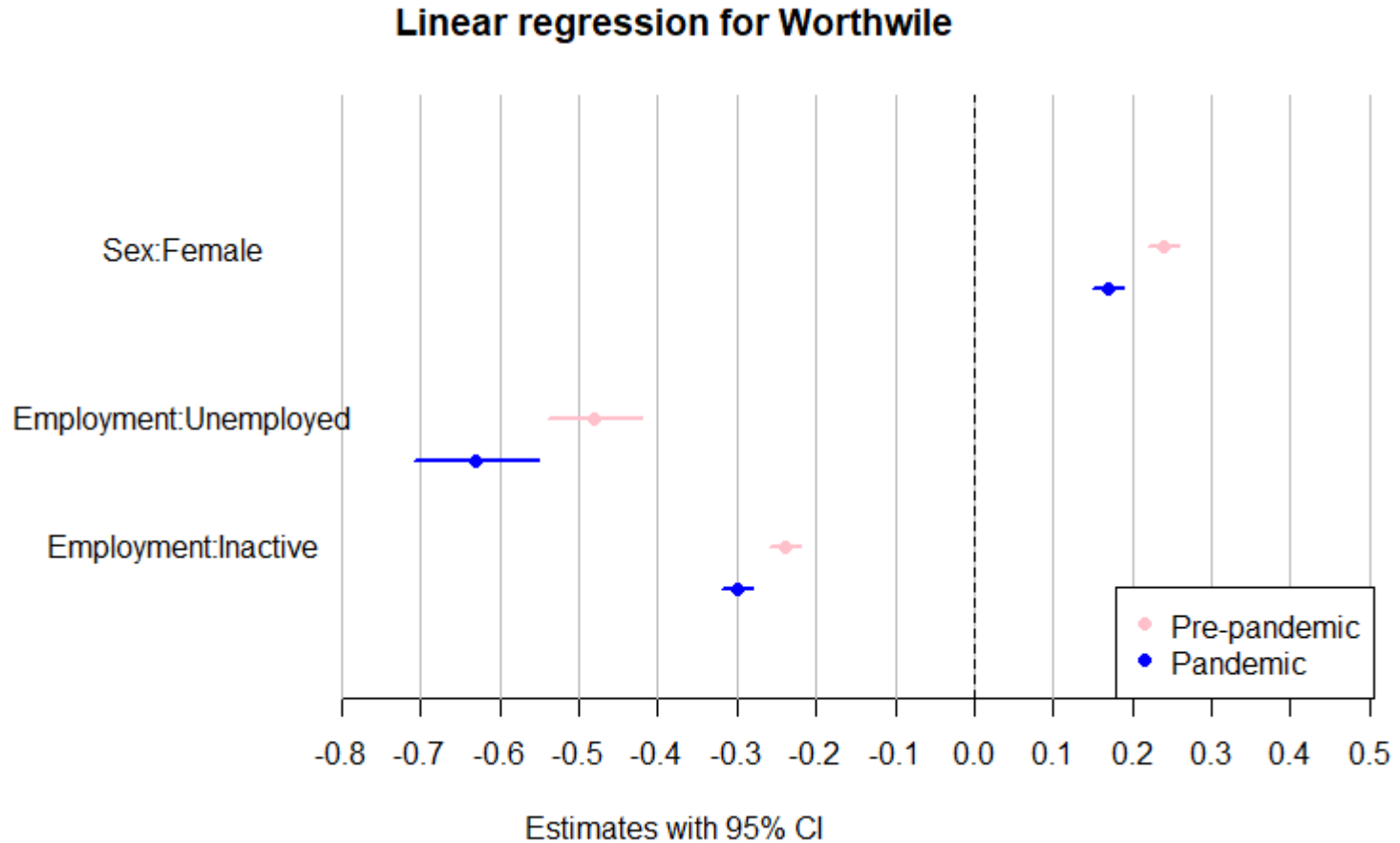


Reference level Disability status: "Yes (disabled)"

Satisfied: no change in regression results

- No significant change in regression coefficients for:
 - Ethnicity
 - Religion
 - Country
 - Long term health condition

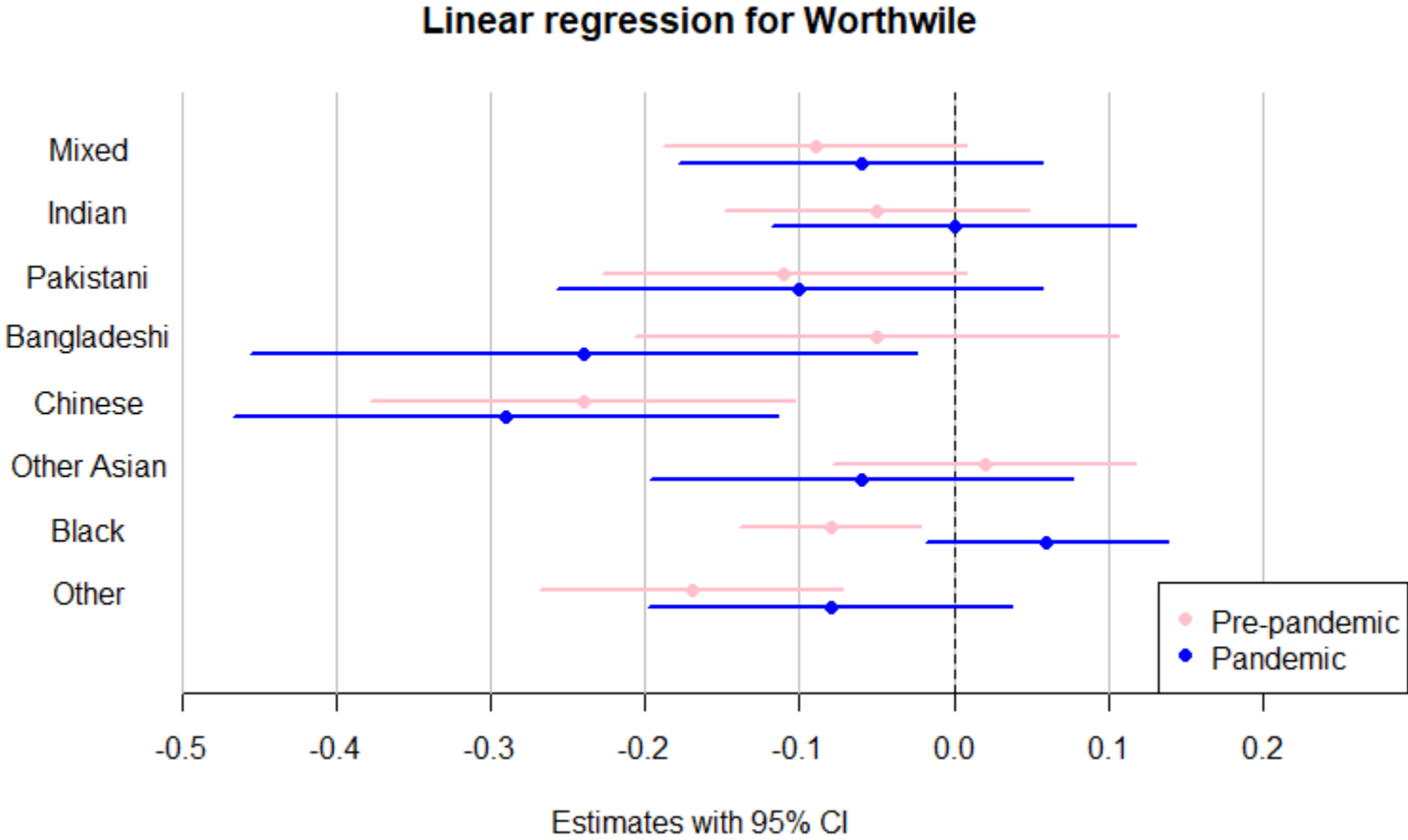
Worthwhile: regression results for Sex and Employment



Reference level for Sex: "Male"

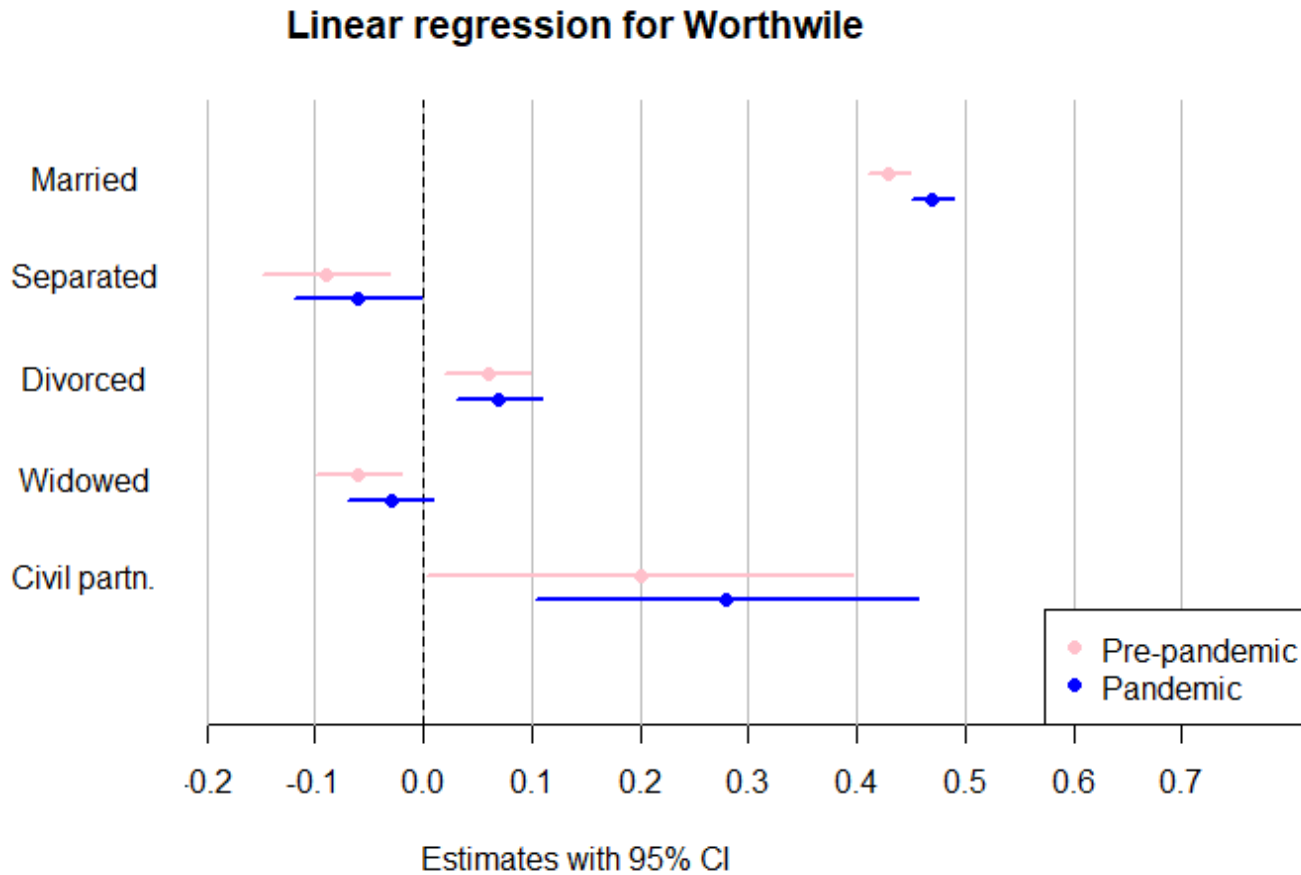
Reference level for Employment status: "In employment"

Worthwhile: regression results for Ethnicity



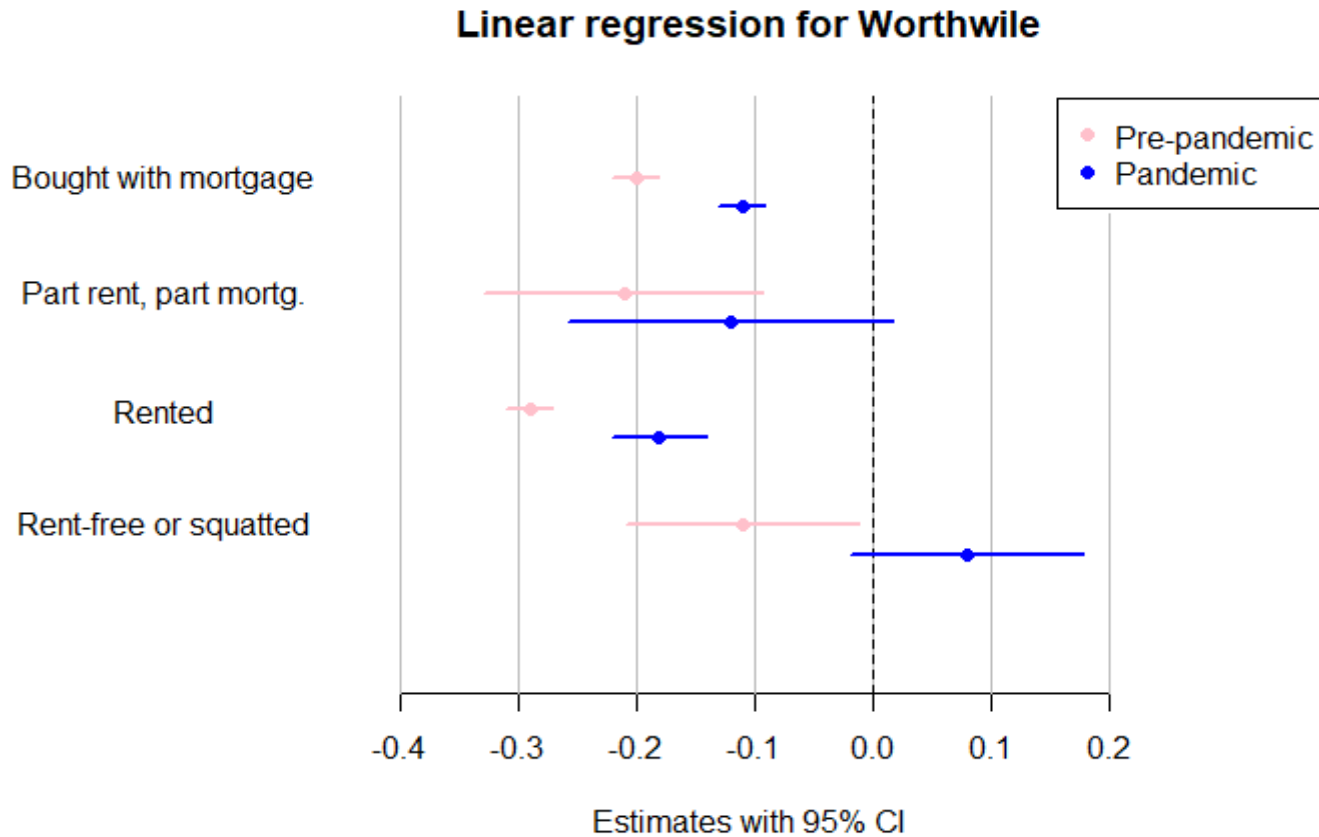
Reference level for Ethnicity: "White"

Worthwhile: regression results for Marital status



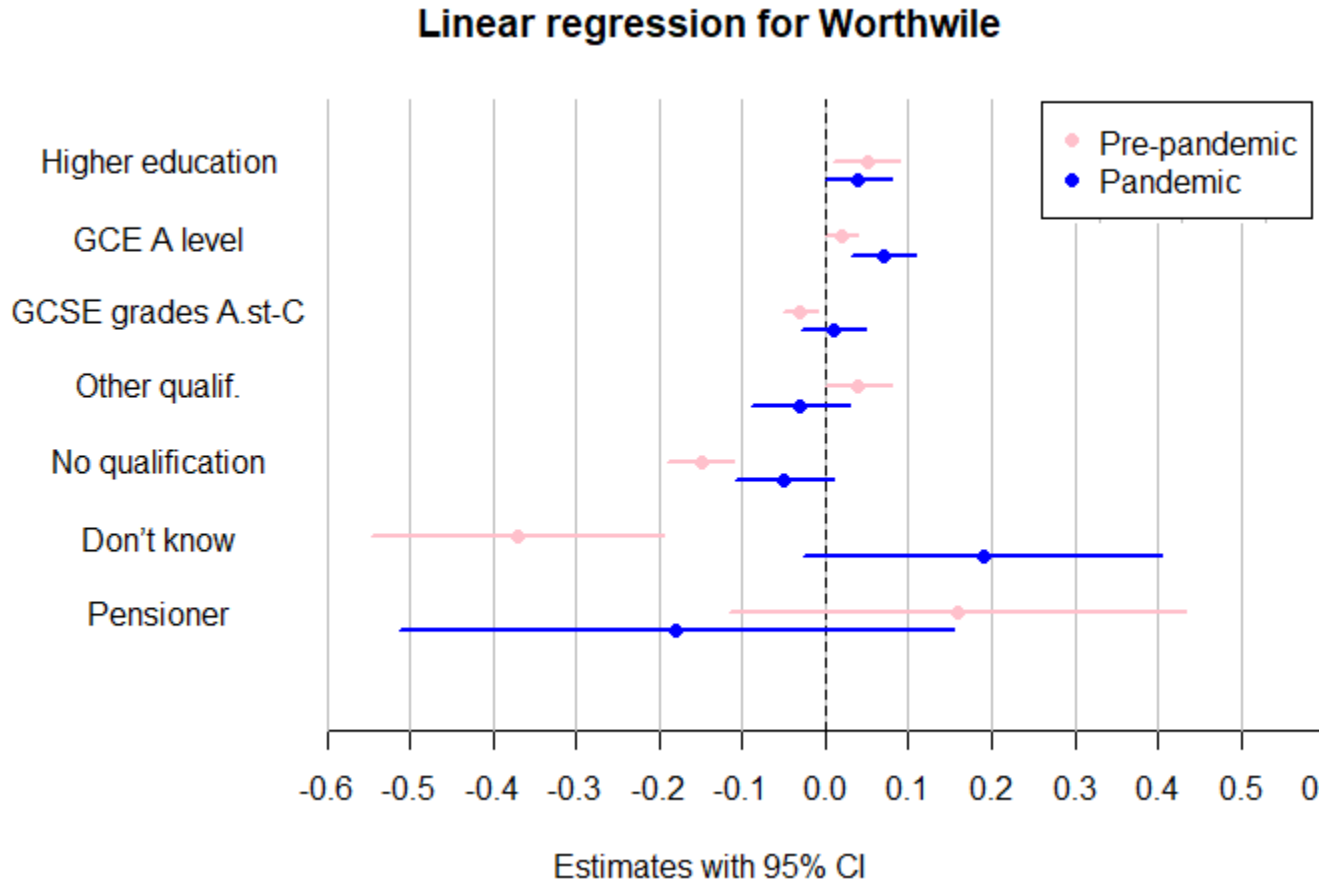
Reference level Marital status: "Single, never married"

Worthwhile: regression results for Housing status



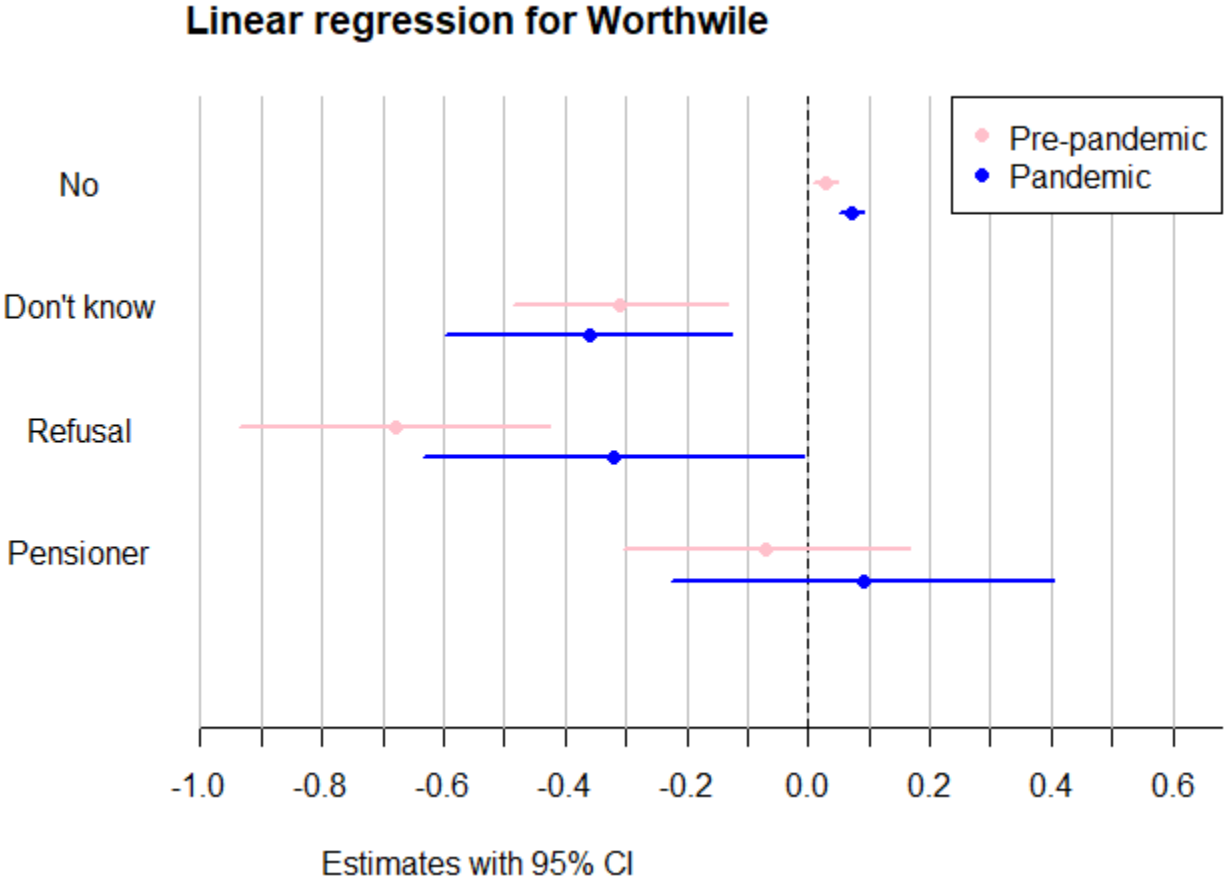
Reference level Housing status: “Owned outright ”

Worthwhile: regression results for Education status



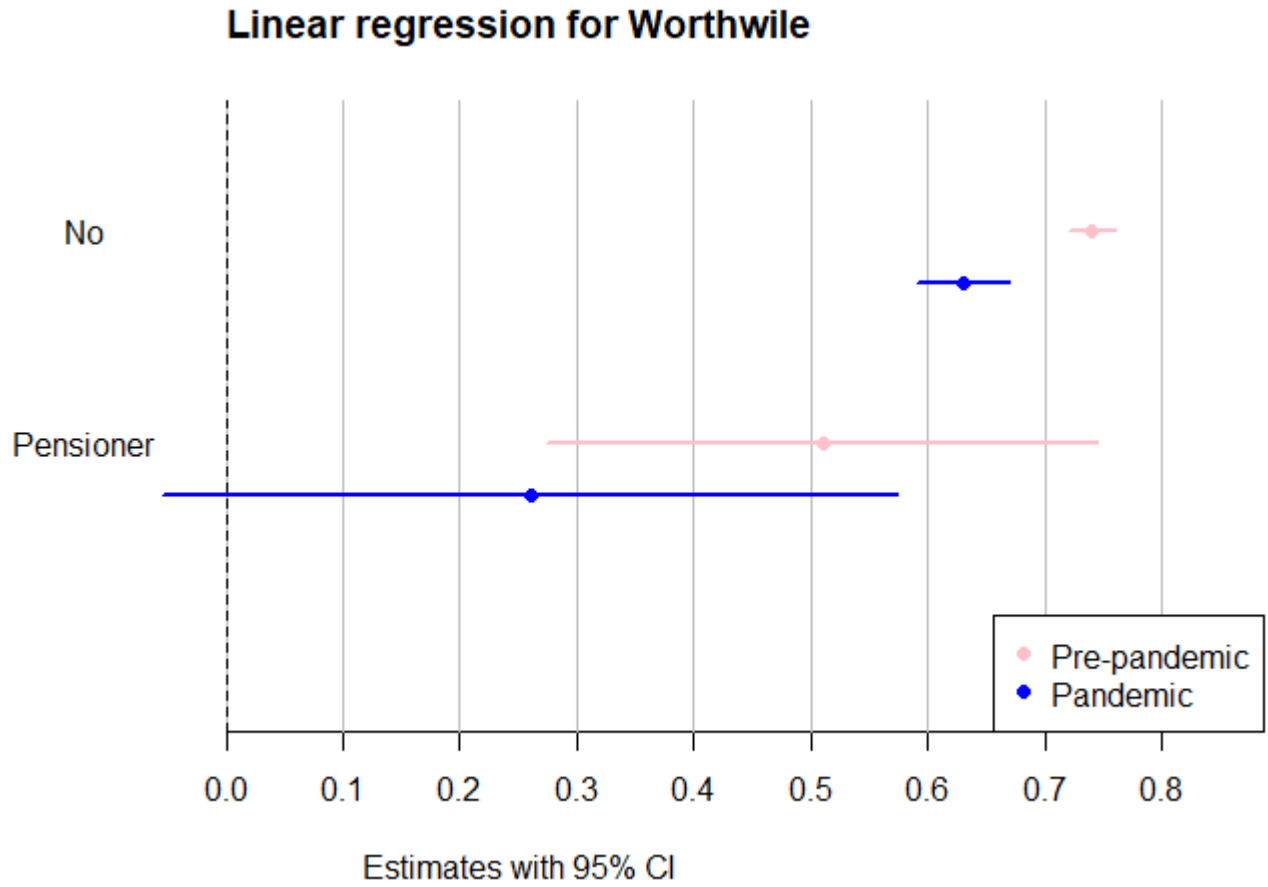
Reference level Education status: “Degree or equivalent”

Worthwhile: regression results for Long term health condition



Reference level Long term health condition : “Yes”

Worthwhile: regression results for Disability status

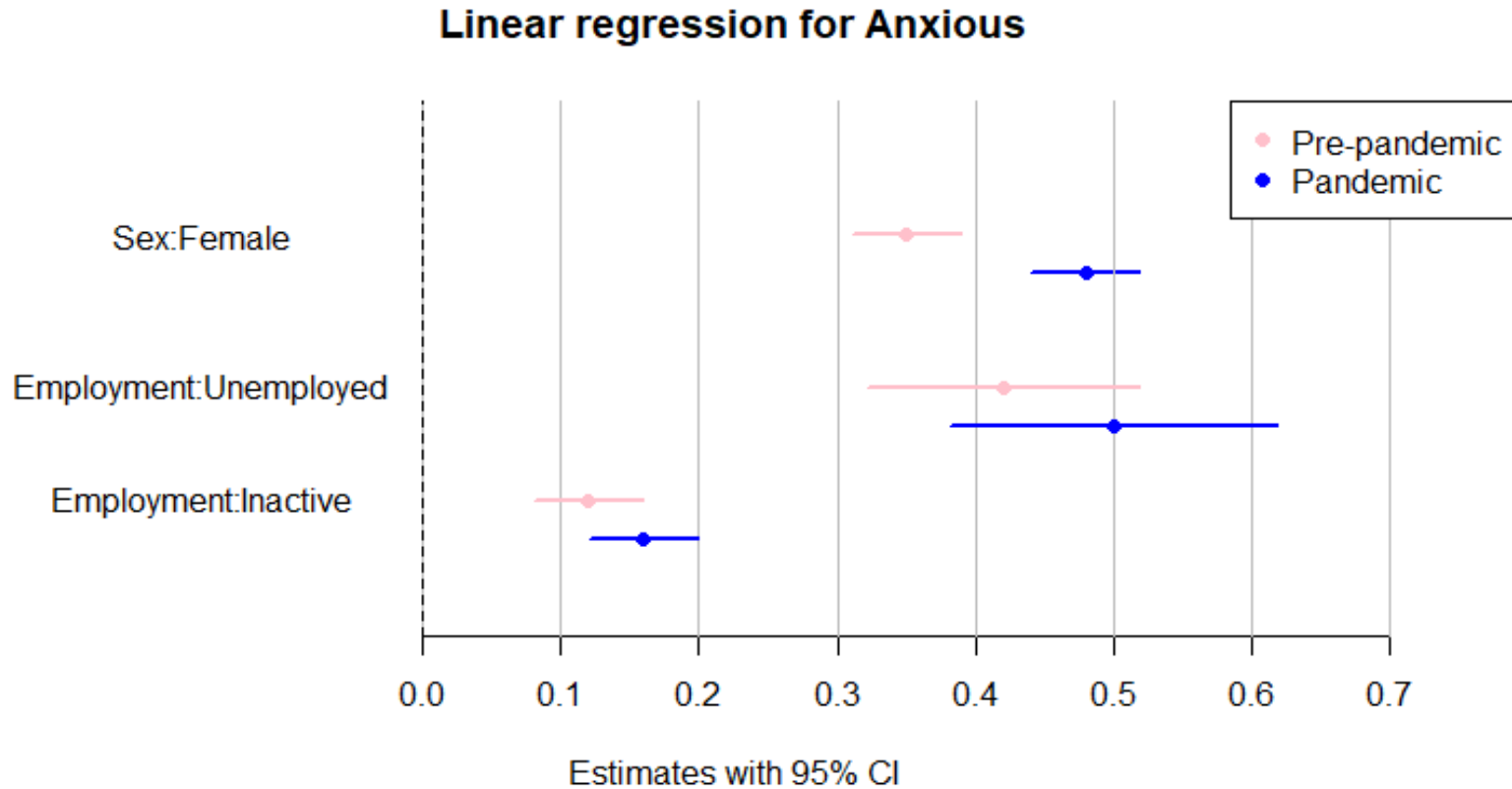


Reference level Disability status: "Yes (disabled)"

Worthwhile: no change in regression results

- No significant change in regression coefficients for:
 - Religion
 - Country
 - Benefits claim

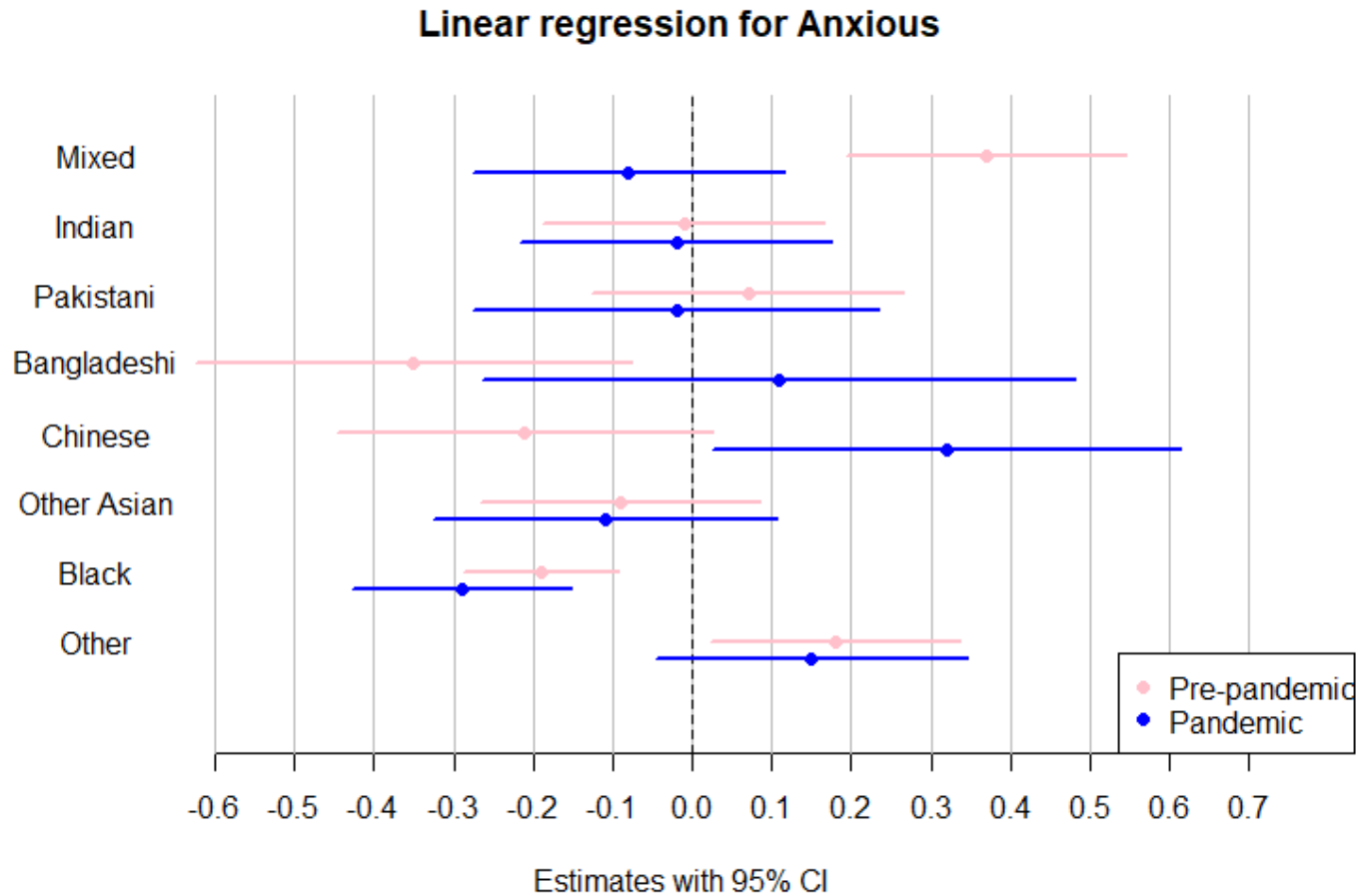
Anxious: regression results for Sex and Employment



Reference level for Sex: "Male"

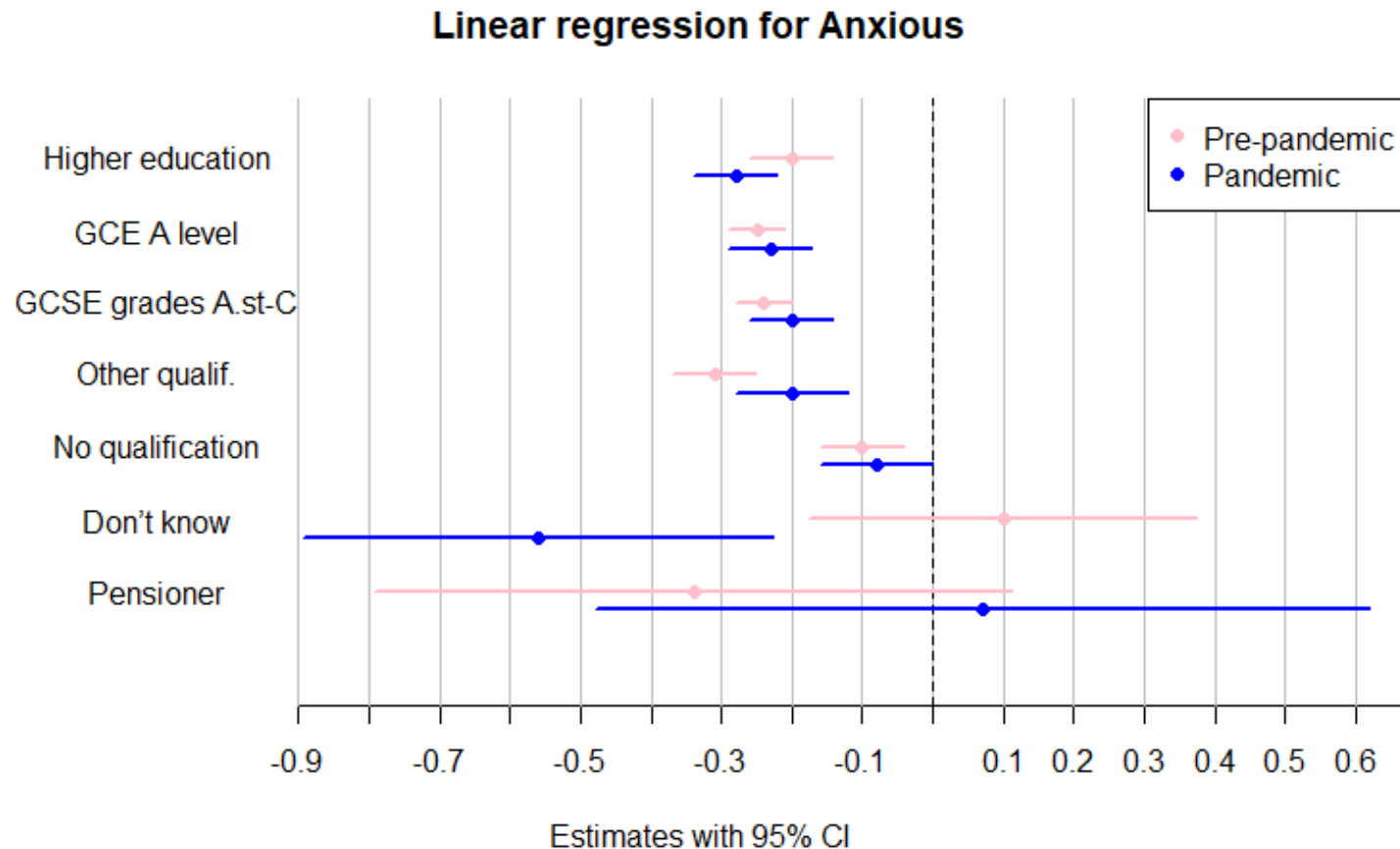
Reference level for Employment status: "In employment"

Anxious: regression results for Ethnicity



Reference level for Ethnicity: "White"

Anxious: regression results for Education



Reference level Education status: “Degree or equivalent”

Anxious: no change in regression results

- No significant change in regression coefficients for:
 - Marital status
 - Religion
 - Housing
 - Country
 - Long term health condition
 - Benefits claim
 - Disability

Summary

- The direction of the relationship “flipped” in several cases:
 - **Happy and Sex**: before pandemic females were happier than males and less happy than males during pandemic
 - **Satisfaction and Sex**: before pandemic females were more satisfied than males and less satisfied than males during pandemic
 - **Satisfaction and Education**: before pandemic those with “no qualification” and “don’t know” were less satisfied than degree holders and more satisfied during
 - **Worthwhile and Ethnicity**: before pandemic Black people scored less for worthwhile than White people and the same or more during pandemic
 - **Worthwhile and Housing status**: before pandemic those who live rent-free scored less for worthwhile than those who owned their houses and the same or more during pandemic
 - **Anxiety and Ethnicity**: before pandemic Chinese people were less anxious than White people and the same or more anxious during pandemic

Summary

- There were no significant changes for **Religion** and **Country** for either of four wellbeing indices.
- Pandemic affected the four well-being indices in different ways, although there were a lot of similarities and the general trend of a decrease in well-being can be observed during pandemic

References

- Office for National Statistics, Social Survey Division. (2019). *Annual Population Survey, October 2018 - September 2019*. [data collection]. UK Data Service. SN: 8598, [DOI: 10.5255/UKDA-SN-8598-1](https://doi.org/10.5255/UKDA-SN-8598-1)
- Office for National Statistics, Social Survey Division. (2022). *Annual Population Survey, October 2020 - September 2021*. [data collection]. *3rd Edition*. UK Data Service. SN: 8886, [DOI: 10.5255/UKDA-SN-8886-3](https://doi.org/10.5255/UKDA-SN-8886-3)