

# Impact of stroke and traumatic brain injury on partners' economic outcomes



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# Disclaimer

**Acknowledgement:** Statistics New Zealand (Stats NZ) is the source for any tables, graphs or data that are quoted in this presentation.

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/>.

The opinions, findings, recommendations, and conclusions expressed in this presentation are those of the author(s), not Statistics NZ, Ministry of Health, Inland Revenue, or individual data suppliers.

Access to the anonymised data used in this study was provided by Statistics NZ under the security and confidentiality provisions of the Statistics Act 1975. Only people authorised by the Statistics Act 1975 are allowed to see data about a particular person, household, business, or organisation, and the results in this presentation have been confidentialised to protect these groups from identification and to keep their data safe.

The results in this presentation are based in part on tax data supplied by Inland Revenue to Stats NZ under the Tax Administration Act 1994 for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

# Background

- Poor health on partner's economic outcomes (i.e., employment and income) responses:
  - **'Added-worker effect'**: Increased work effort to offset lost earnings
  - **'Care and leisure'**: Reduced work effort to provide care to ill partner

# Background

- Informal caregiving is related to **reduction** in **employment**, but **effects are small**
- Impact on **earnings** are **mixed**, but leans towards either **no association or small reductions**
- Competing care responsibilities can increase over time, with higher reductions for female caregivers
- **Partnership** effects are also **mixed**
- Evidence of **no association**
- Evidence of associations, leans towards **decreased employment and income**

# Background

- **Caregiving: women** are more likely to **reduce paid work for care work**, leading to reduced income and hours
- But evidence related to partner gender is **mixed** – some evidence of no differences
- **Male partners:** mixed results, especially for employment
- **Female partners:** reduced income but remain employed

# Background

- **Older** age of the partner and the ill individual related to work status:
  - **Reducing in work** or choosing to retire
  - And **not returning to work**
- **Higher pre-event income related to reduction in work**
  - No change for lower incomes
  - Prior employment: small reduction, but no effect for those who were unemployed prior
  - **Education is mixed** – evidence of lower partner education and reduction in work

# Main findings

- **Inconsistent associations** between illness and partner economic outcomes
- Generally a **decrease in work and earnings, but effects are small**
  - More support for 'care and leisure' rather than 'added-worker' effect
- Gender differences are inconsistent in both employment and earnings
- When illness occurs are older ages, priorities may turn towards retirement

# Aim

- Investigate effect of stroke and traumatic brain injury on partner's employment and earnings in New Zealand –  
**Preliminary results**



# IDI

- Census 2013, 2018
- ACC
- Ministry of Health:
  - Chronic Conditions, Cancer Registry, InterRAI, Laboratory tests, NMDS/Public hospital discharges, NMDS/Private hospital discharges, NNPAC, PRIMHD, Socrates)
- Inland Revenue:
  - IR Restrict

# Sample selection

- Opposite sex co-residential couples, both partners aged 20-59, no previous stroke/TBI @ 2013 census
- 'Cases' = *one* partner has first stroke/TBI up to Dec 2017
- 'Controls' = *neither* partner has first stroke/TBI up to Dec 2020
- Outcomes recorded quarterly up to three years post stroke/TBI
- 'Control' couples randomly assigned observed combination of victim gender + stroke/TBI date (within strata of similar couples)

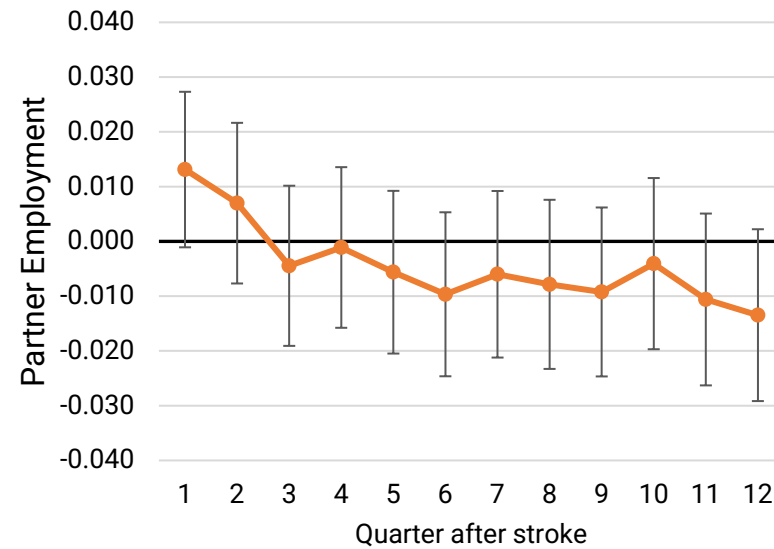
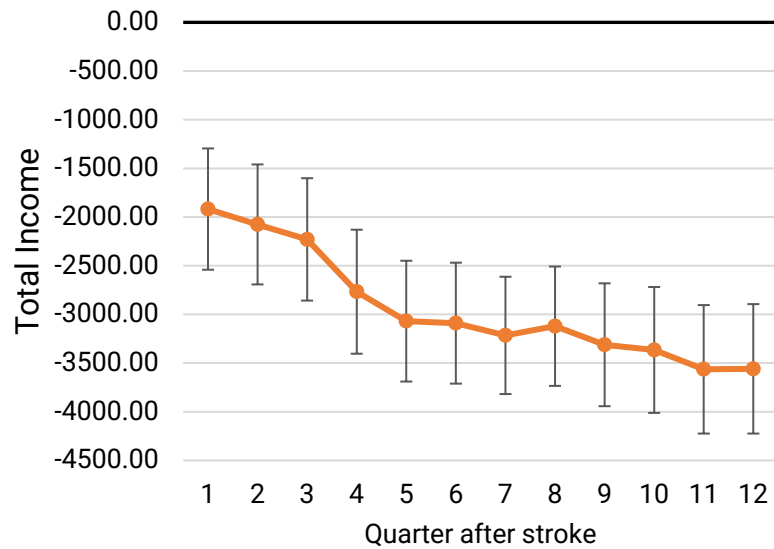
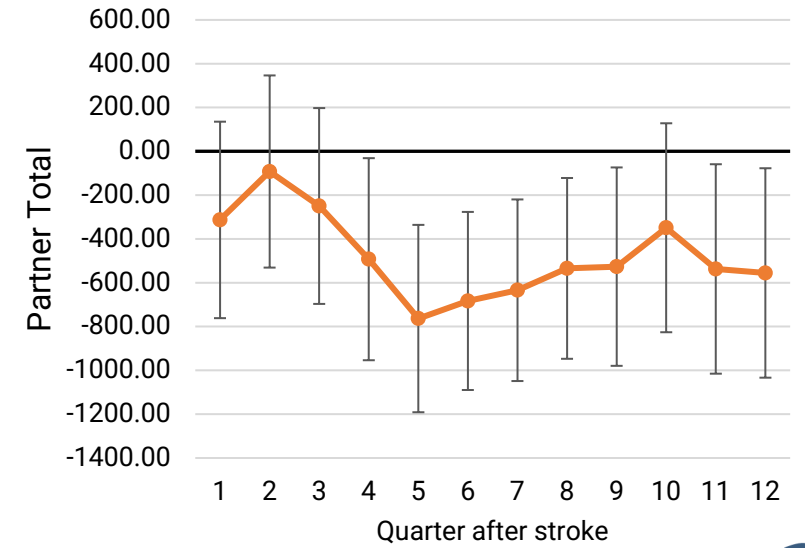
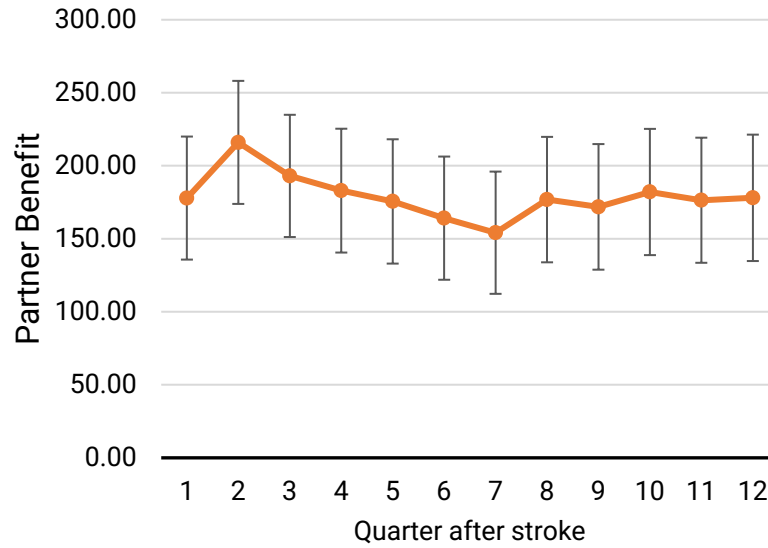
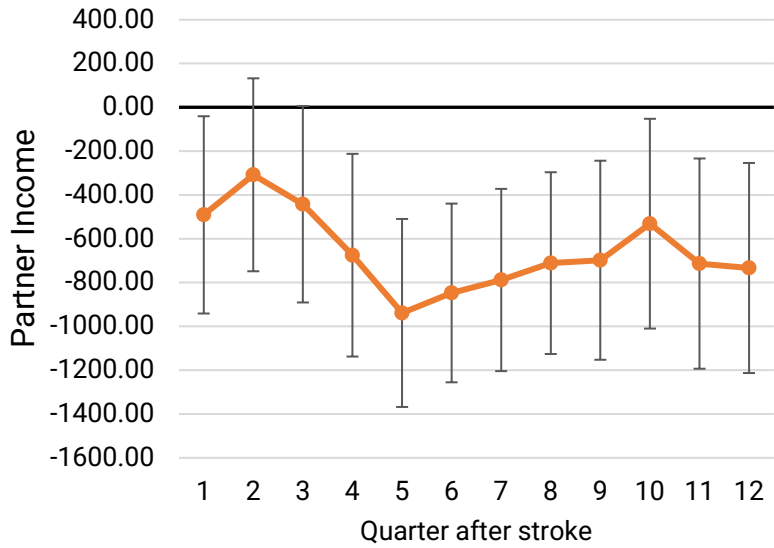
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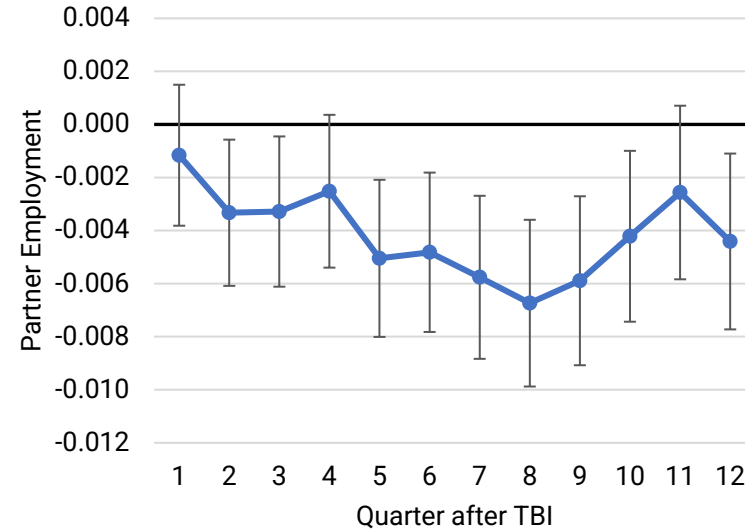
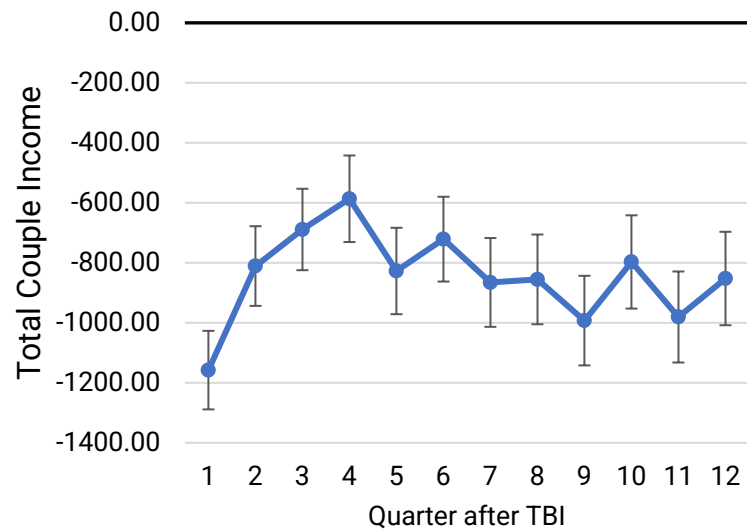
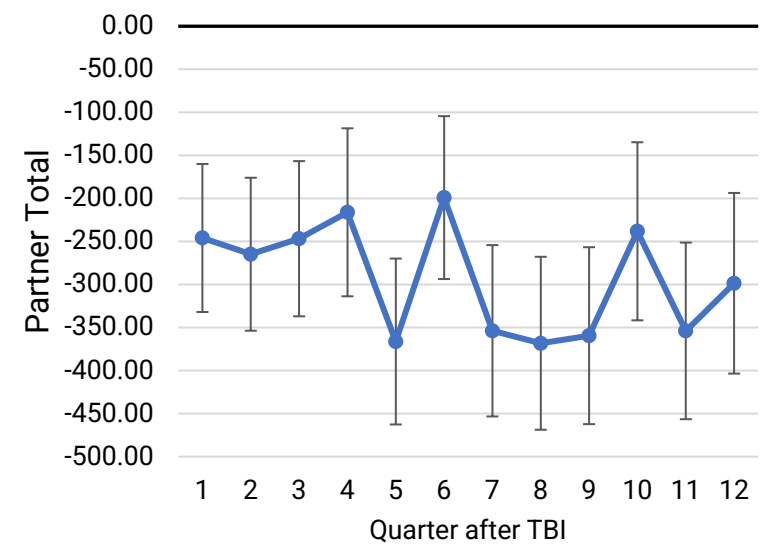
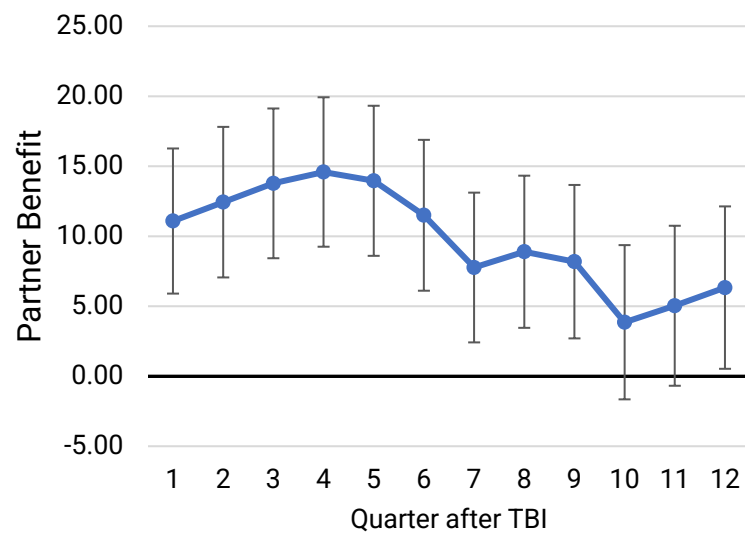
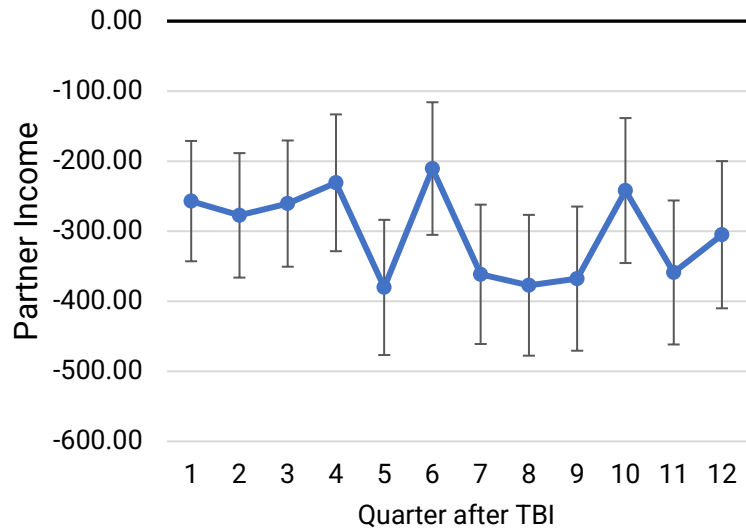
- Exact matching (ATT) by:
  - *stroke/TBI date + stroke/TBI victim gender*
  - *male + female income quintiles 0-1 & 1-2 years pre stroke/TBI*
  - *male + female educational attainment*
  - *male + female 5-year age groups*
- Weighted/matched 'control' sample ~ identical to stroke/TBI couples
- Weighted OLS or logistic regression
  - additional controls/SEs clustered by couple
- Outcomes:
  - Partner labour market income
  - Partner benefit income
  - Partner total income
  - Couple total income
  - Partner employment (Y/N)

# Analysis

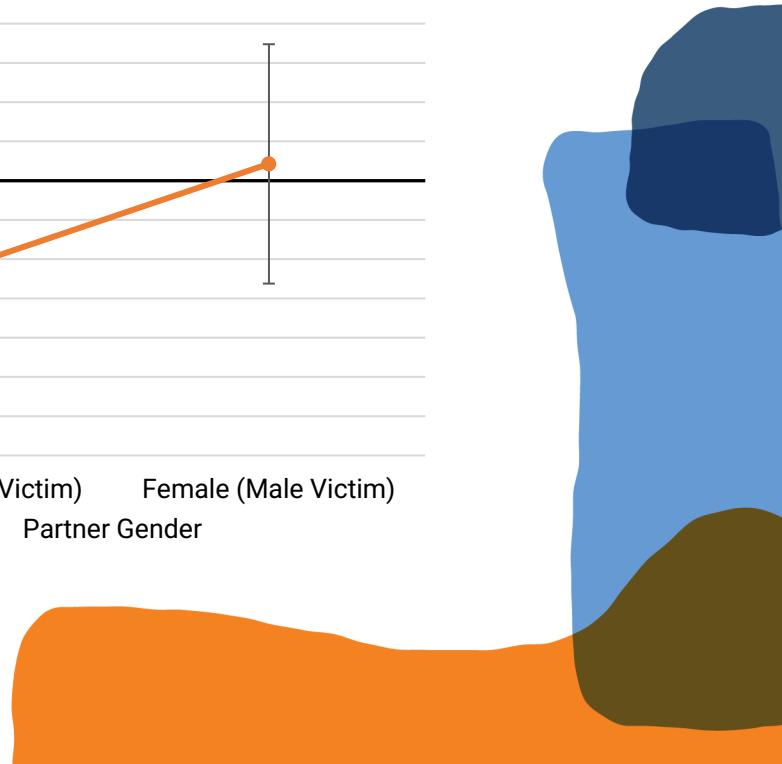
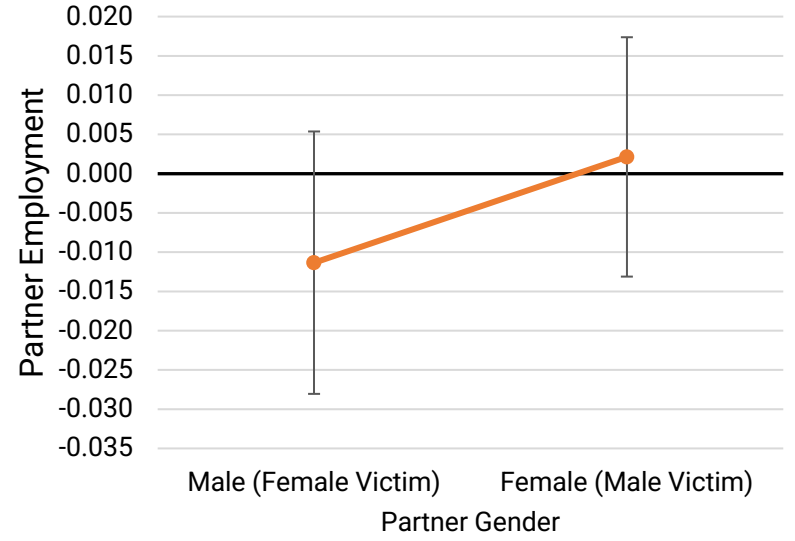
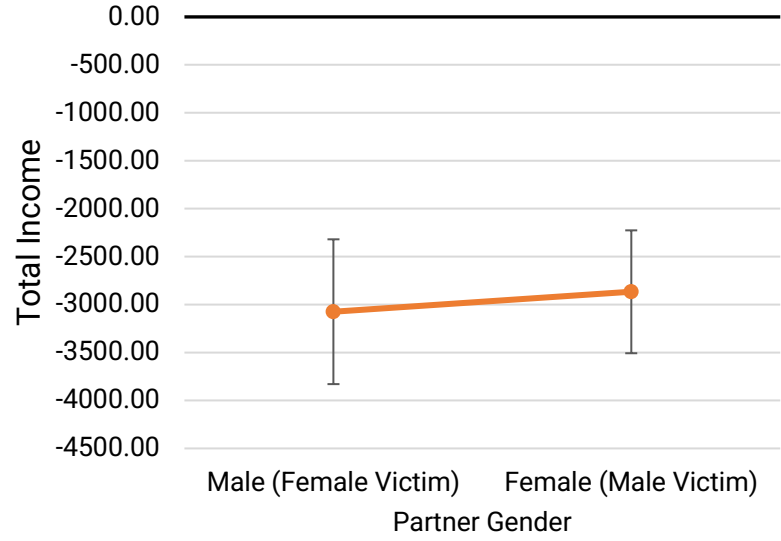
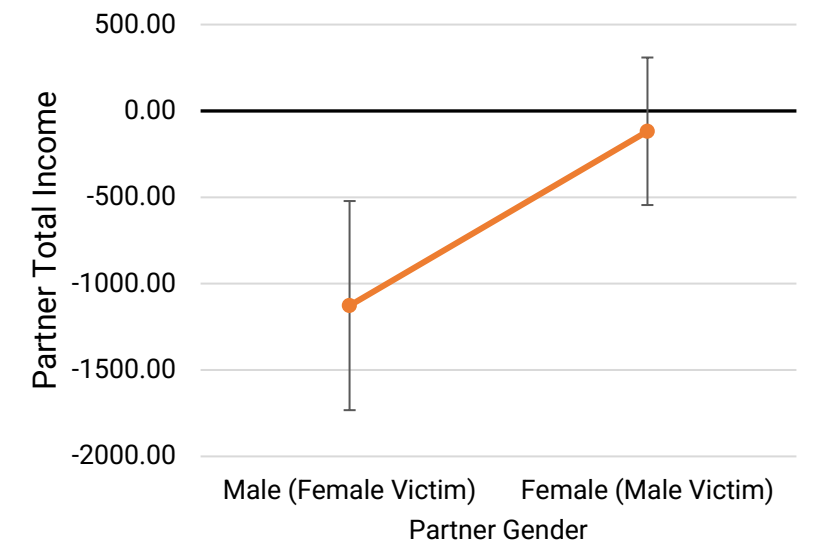
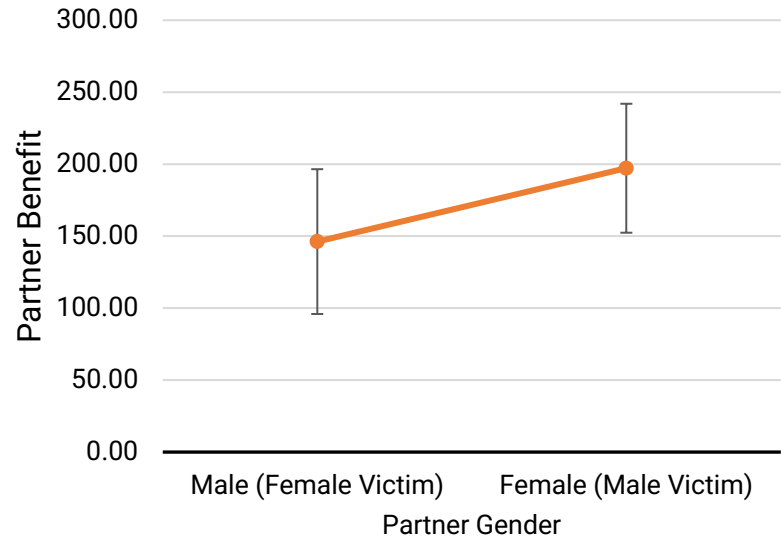
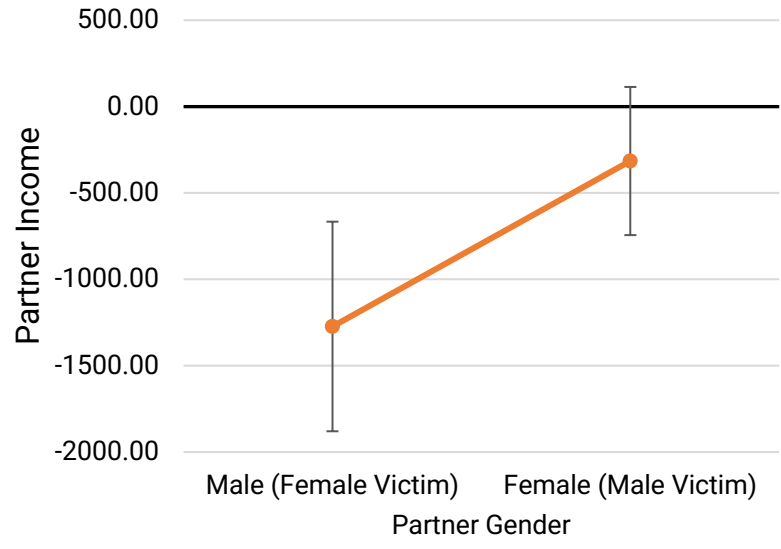
- Controls: partner gender, age, education, dependent child, disability status (Census), Elixhauser co-morbidity, psychotropic medication dispensed 12 months prior to event, average income 1-2 years prior to event, ethnicity
- Moderators – All Partner: gender, age, education, dependent child

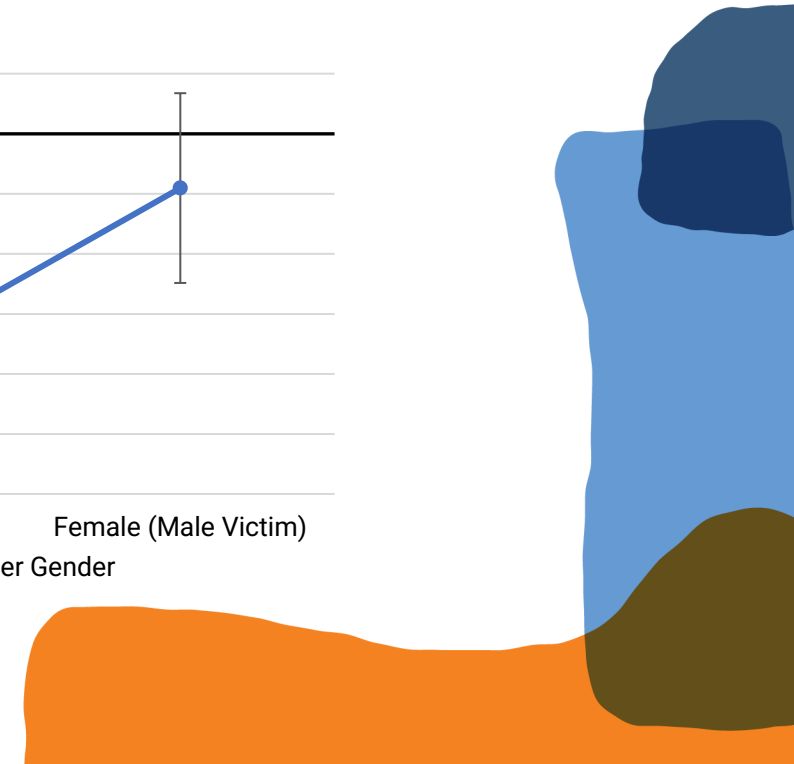
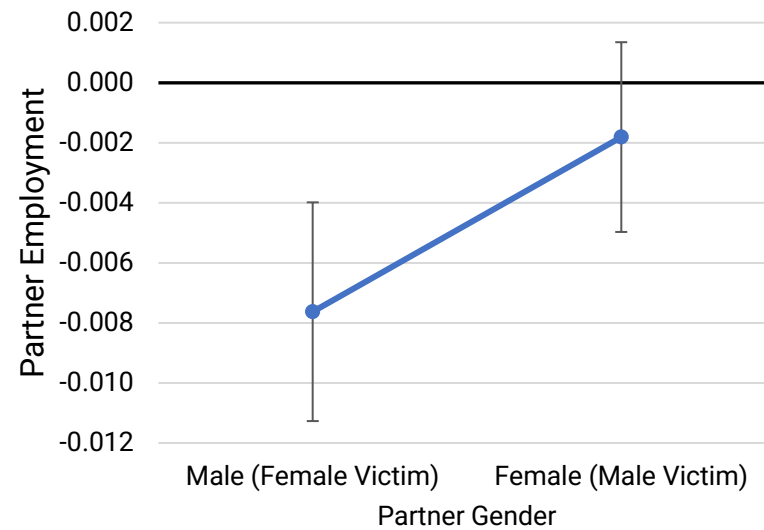
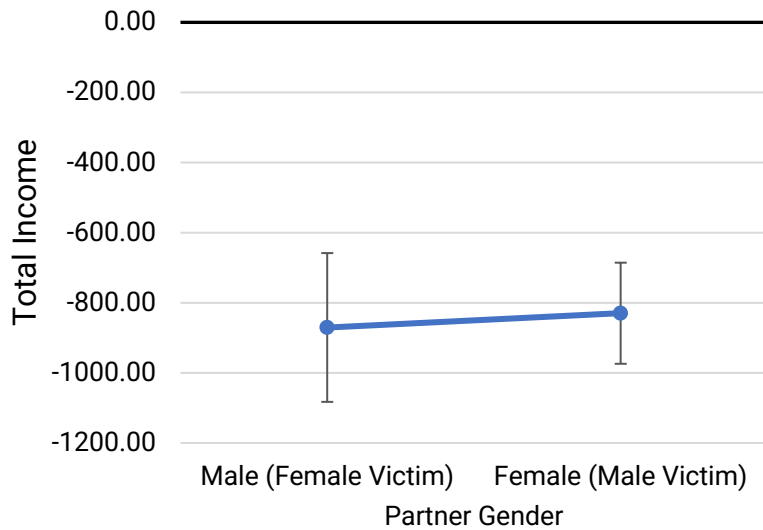
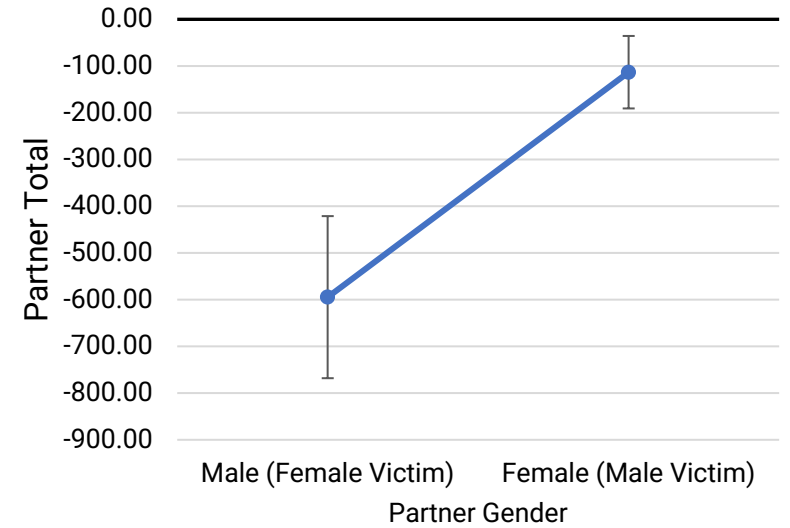
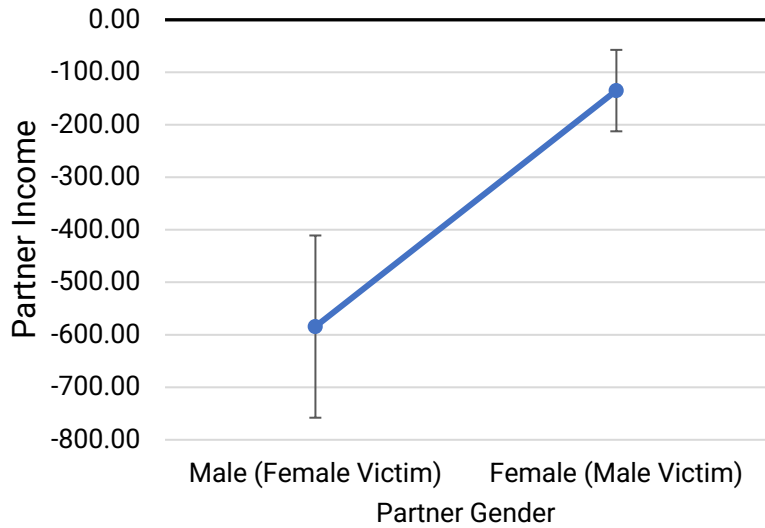
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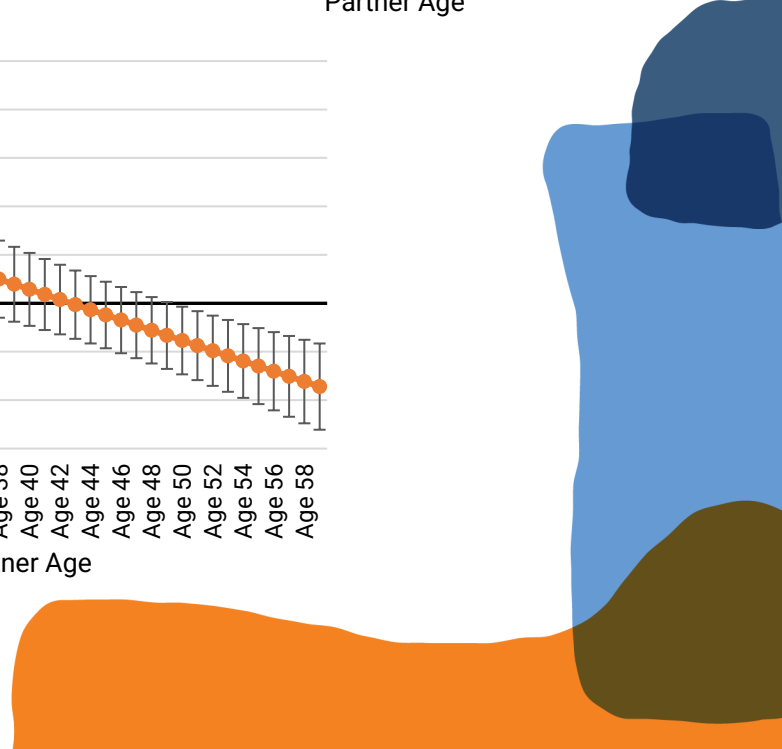
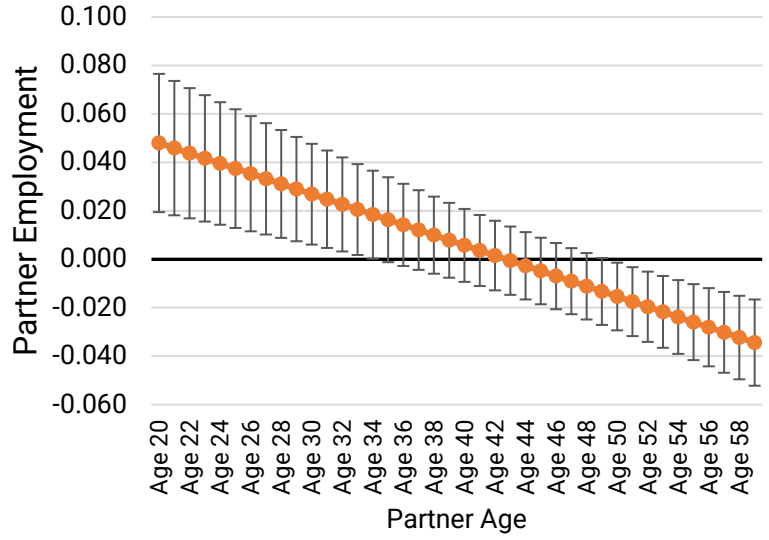
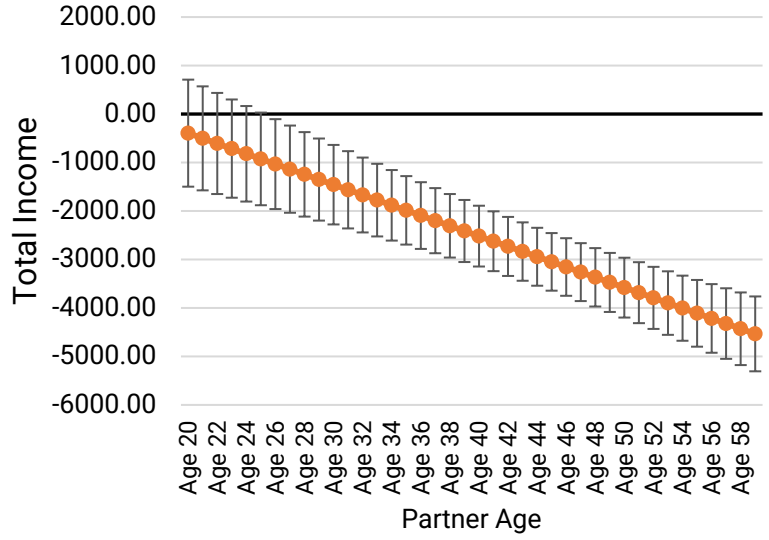
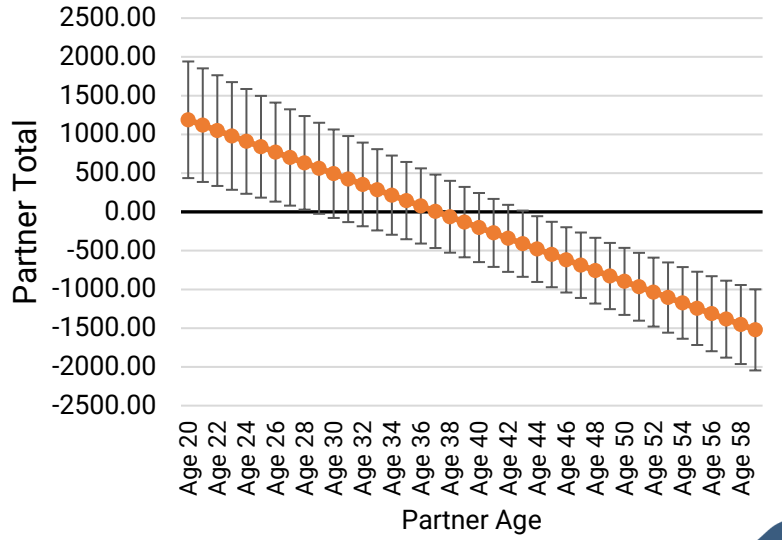
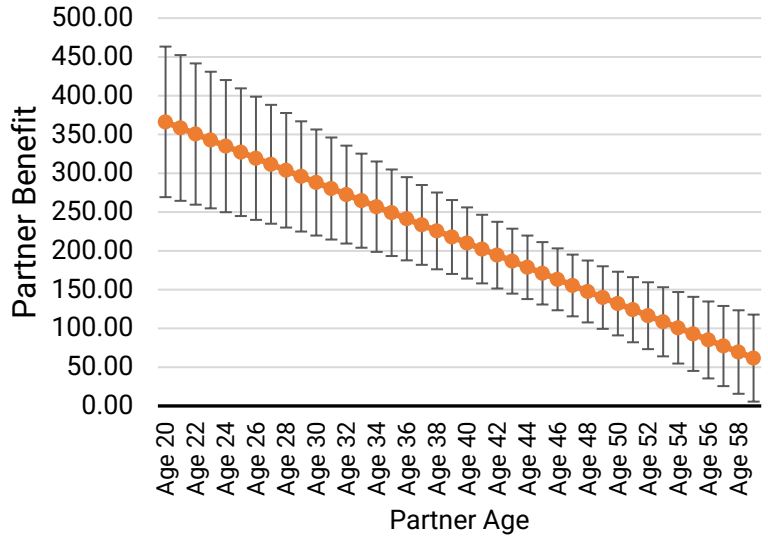
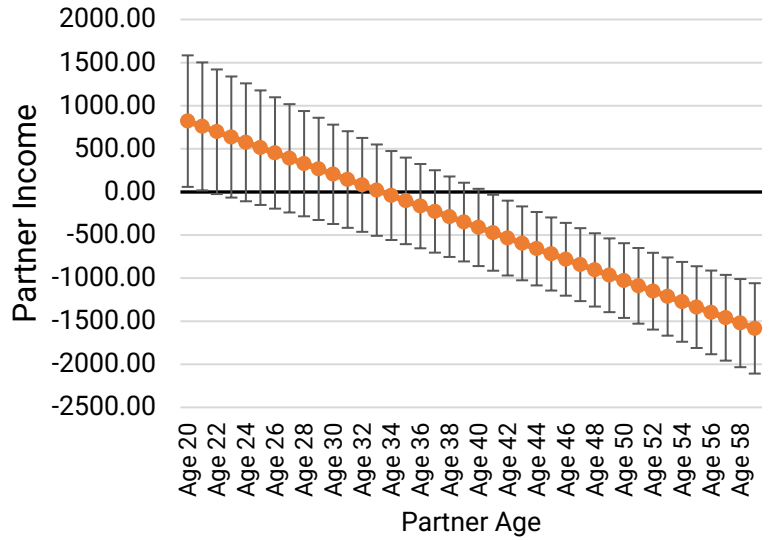
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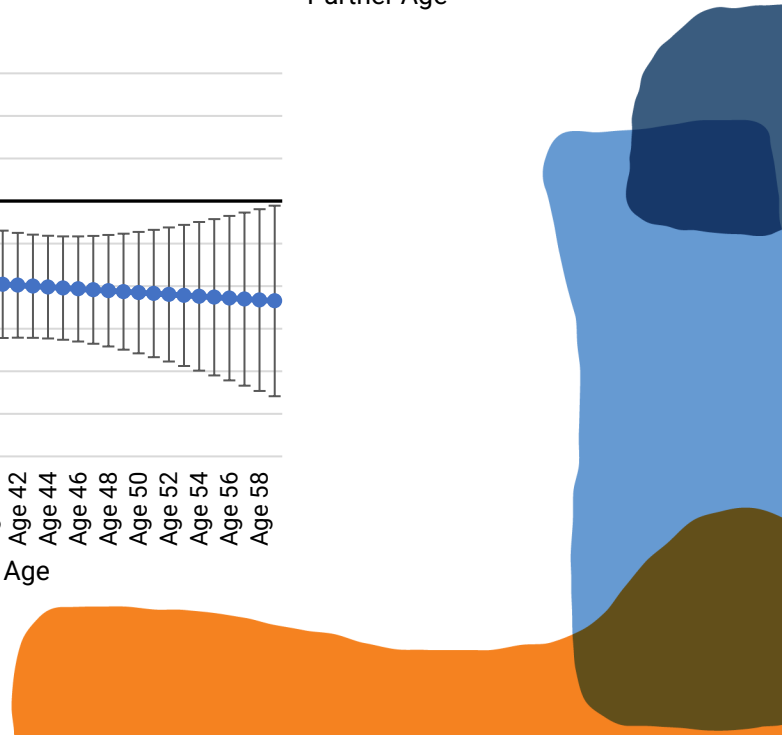
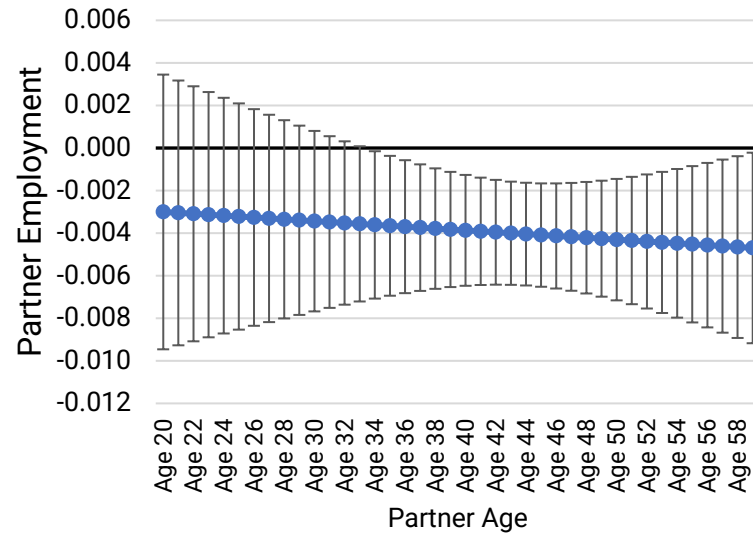
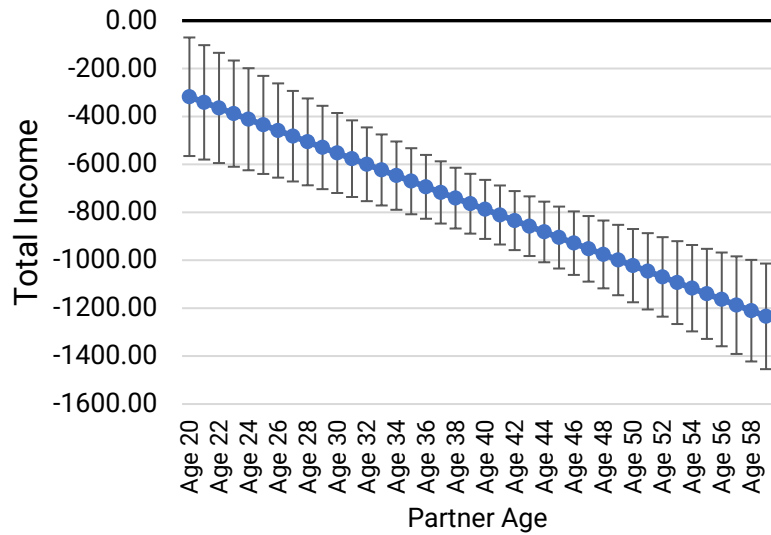
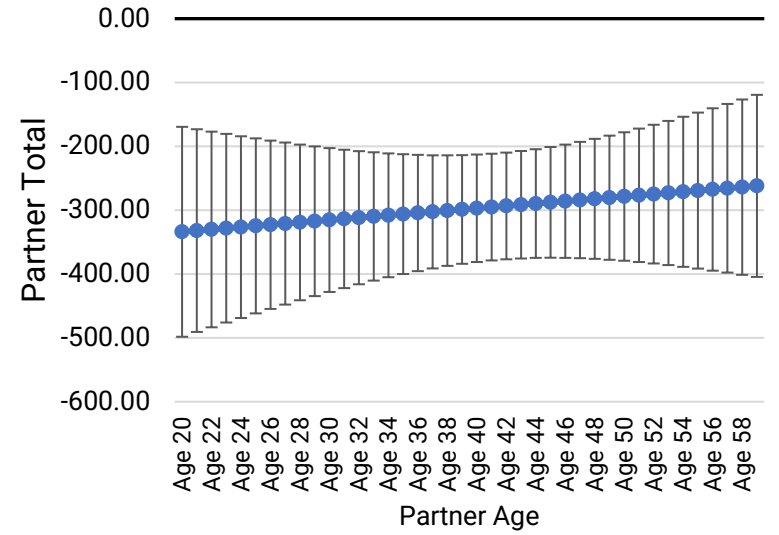
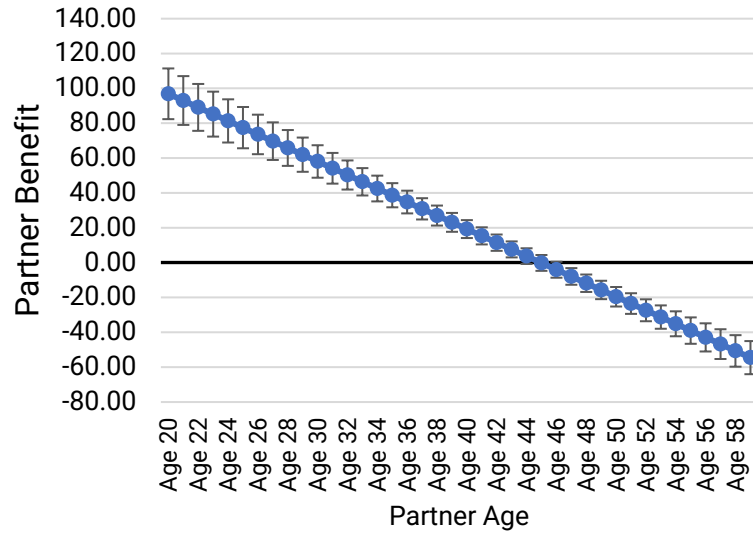
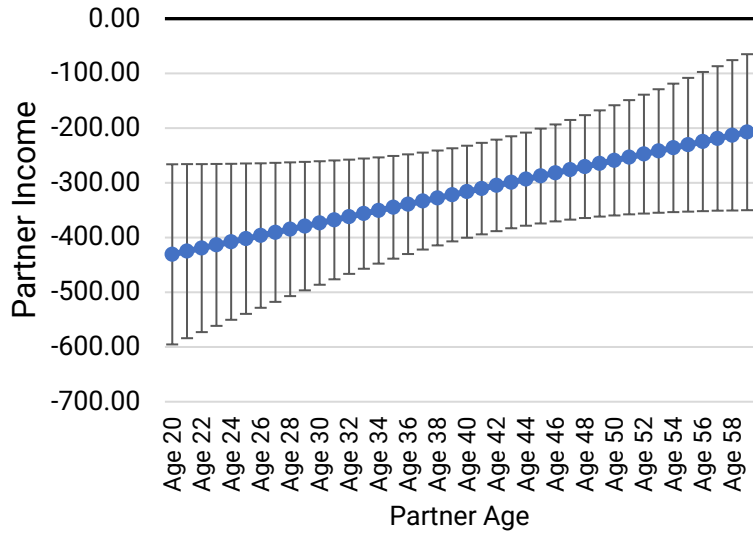




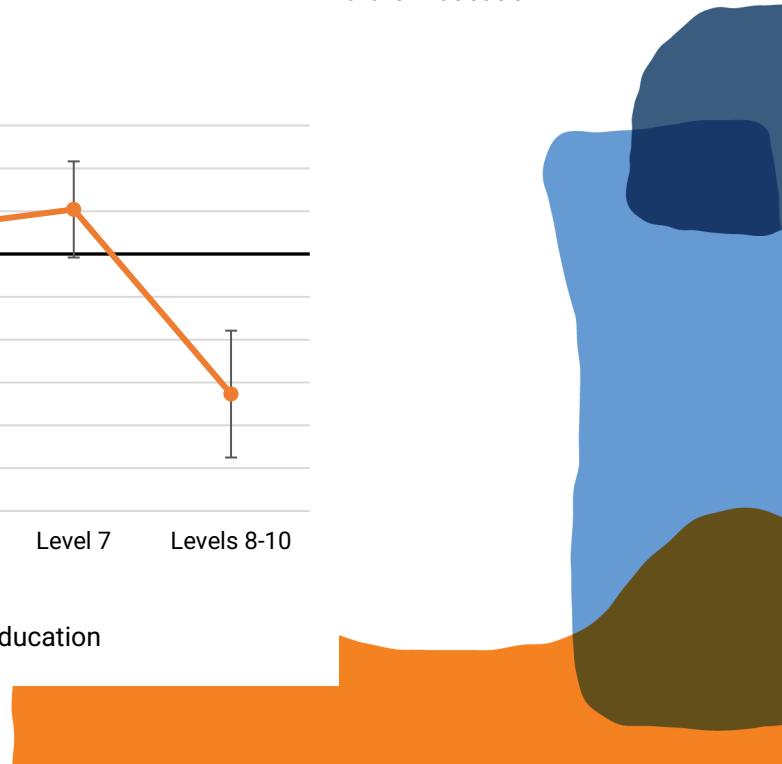
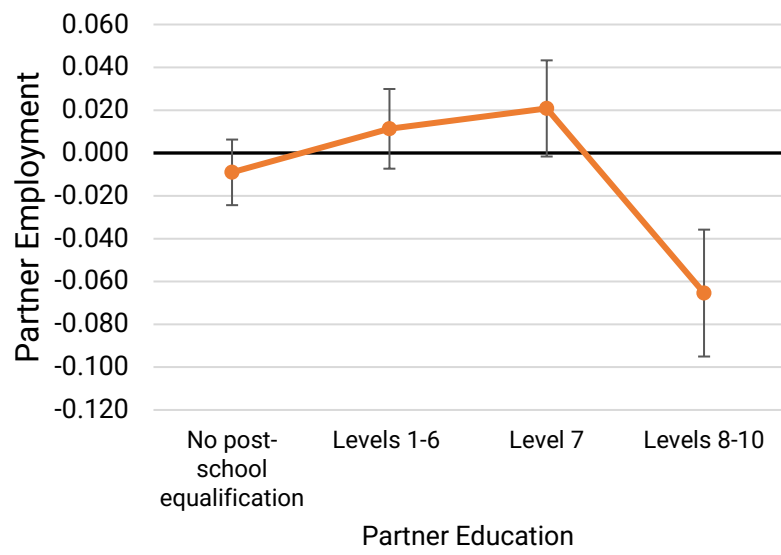
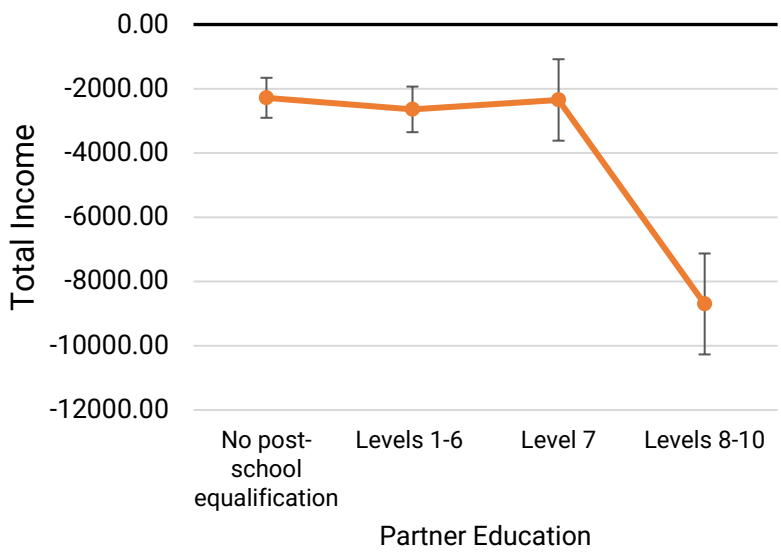
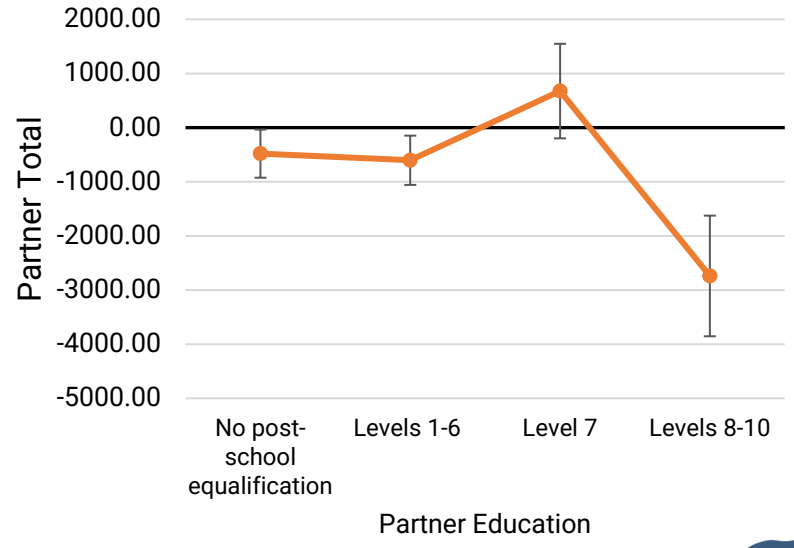
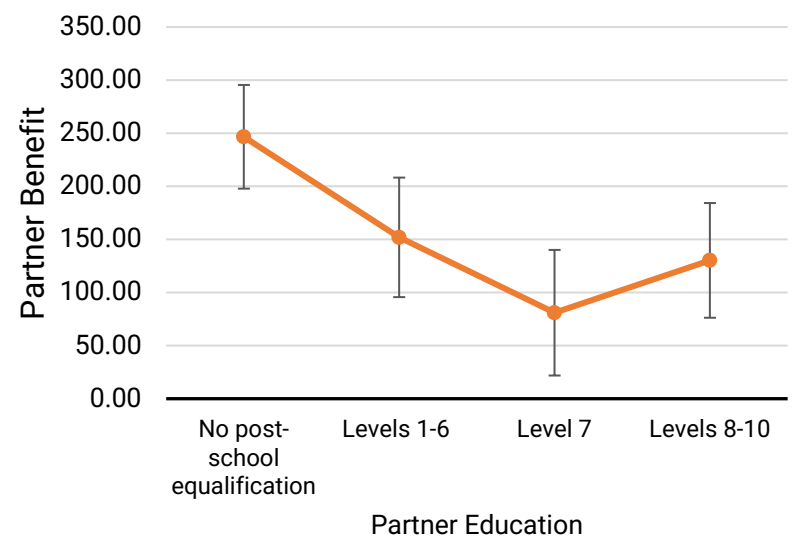
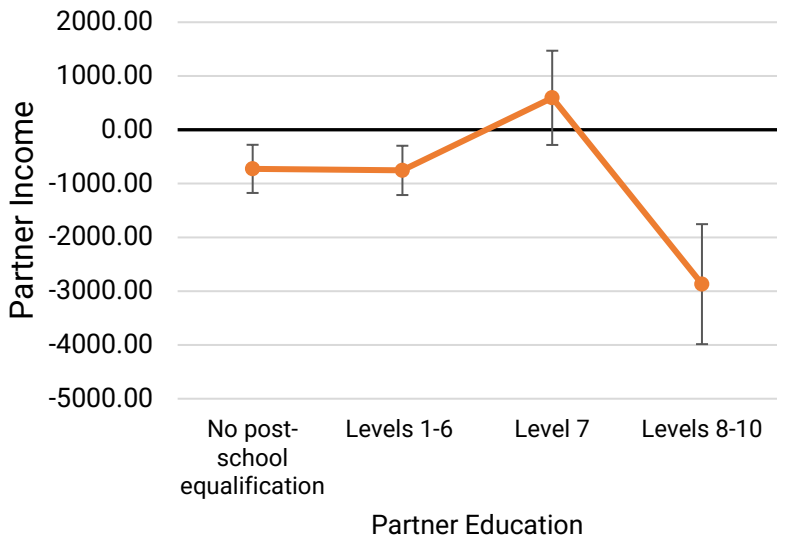


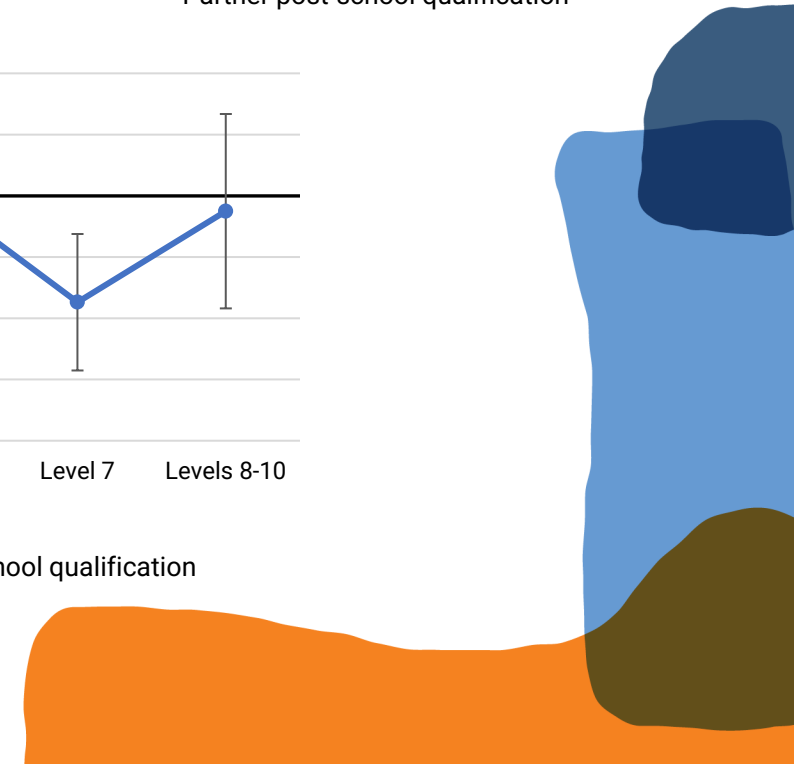
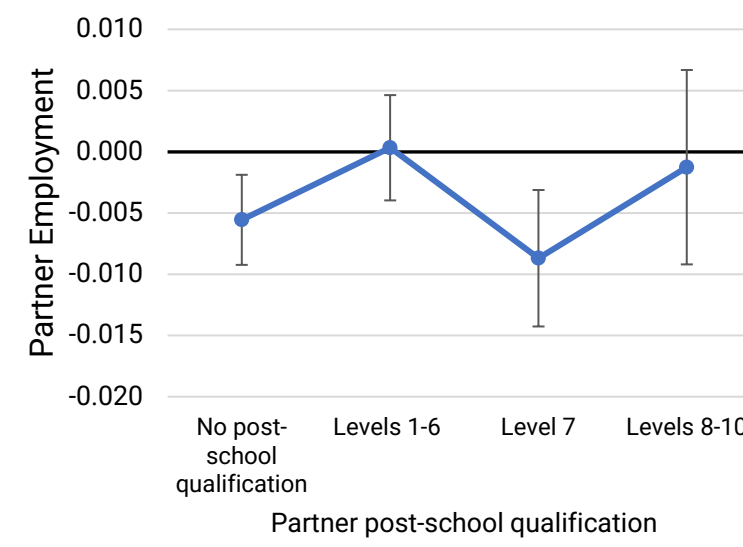
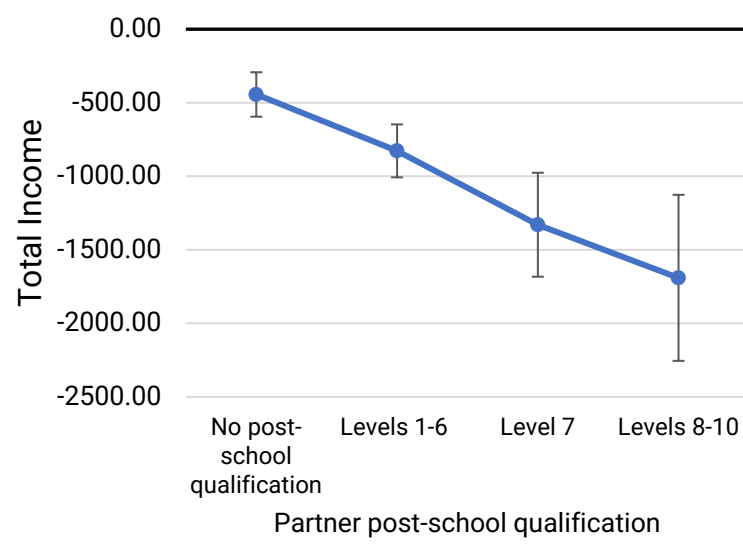
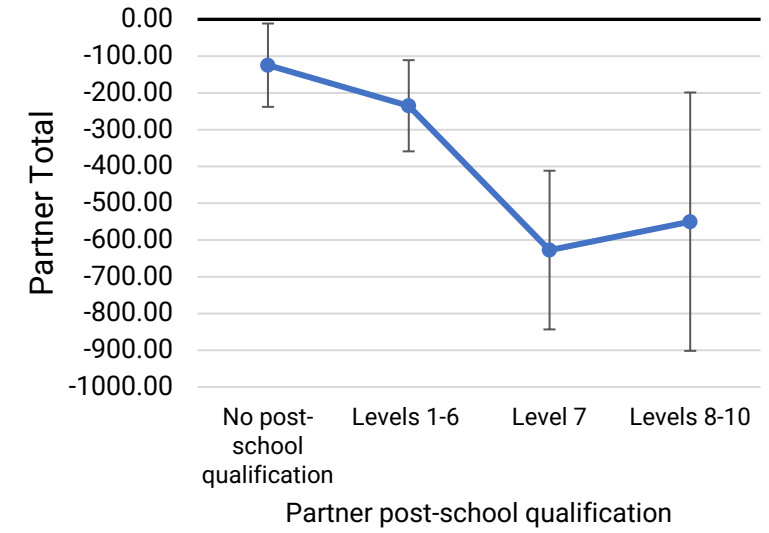
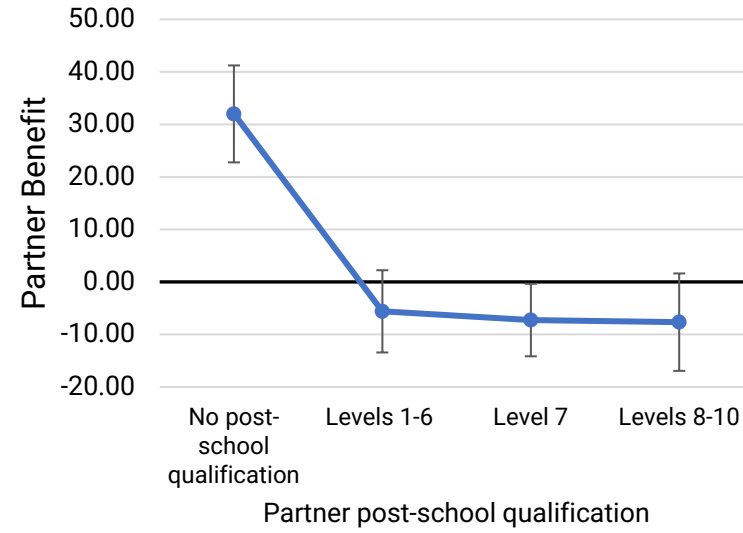
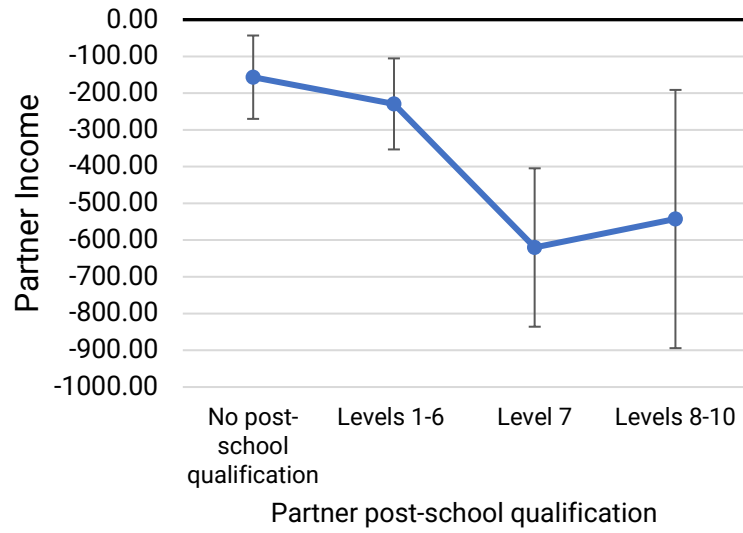
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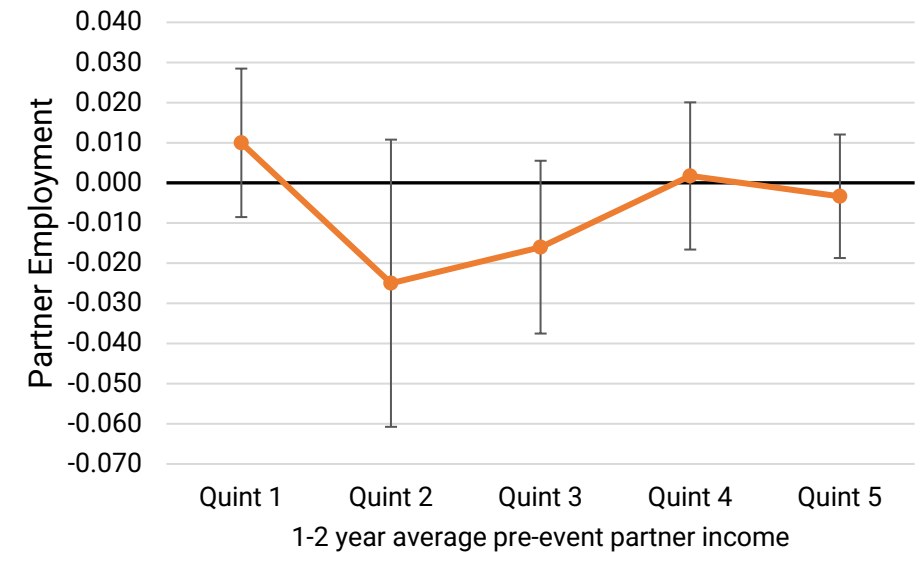
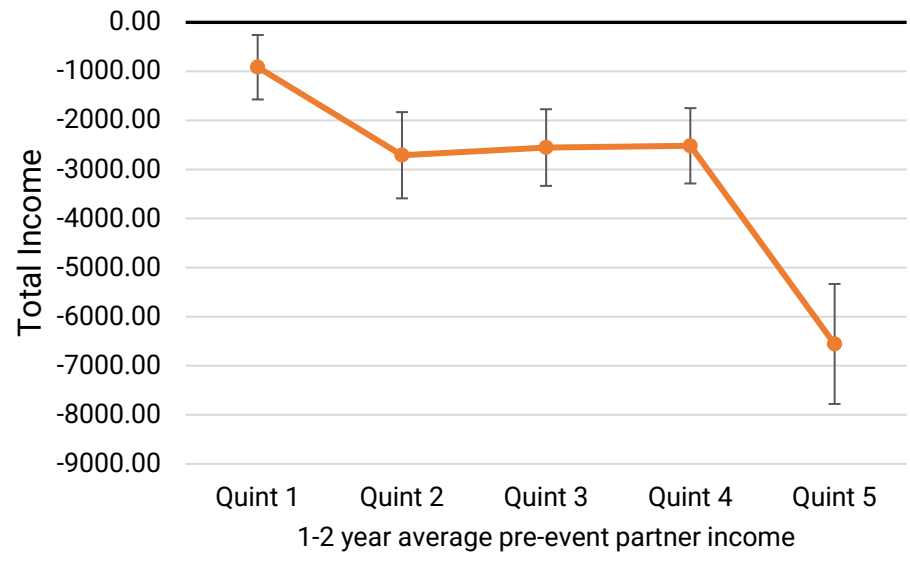
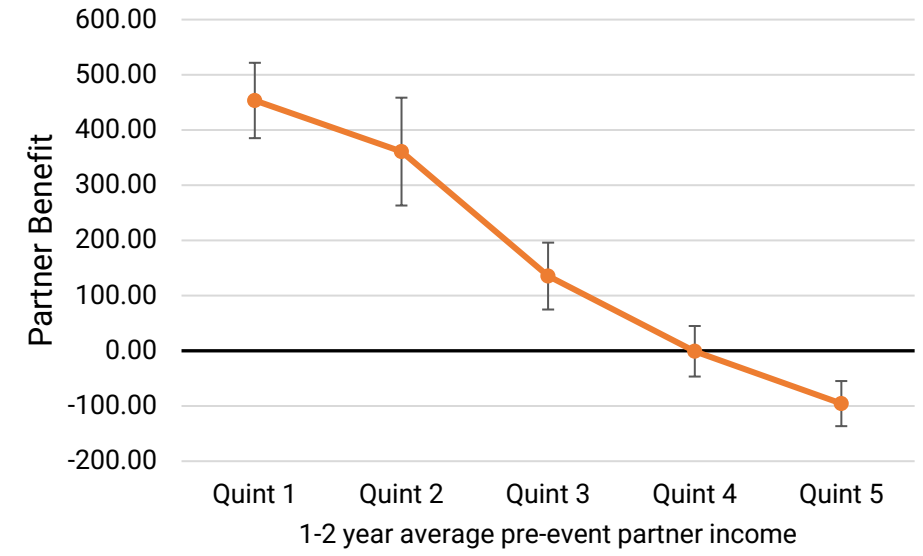
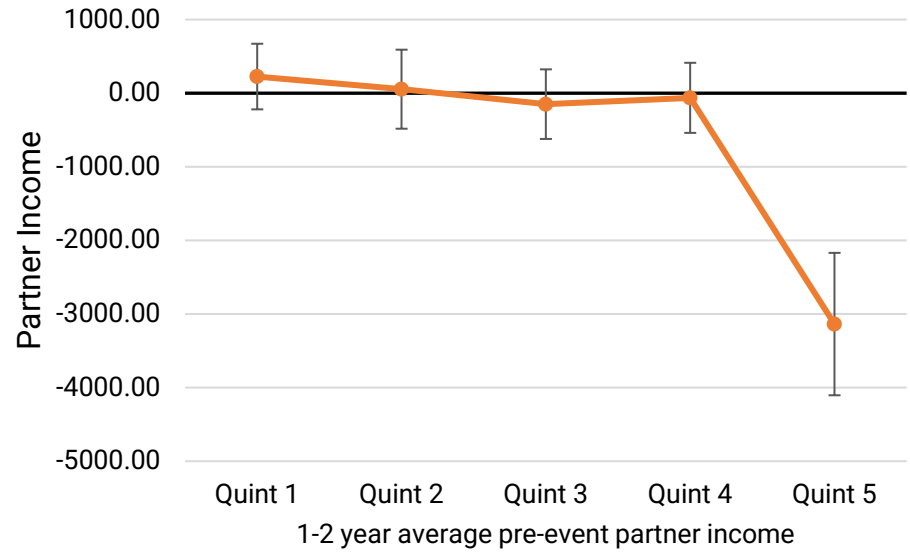
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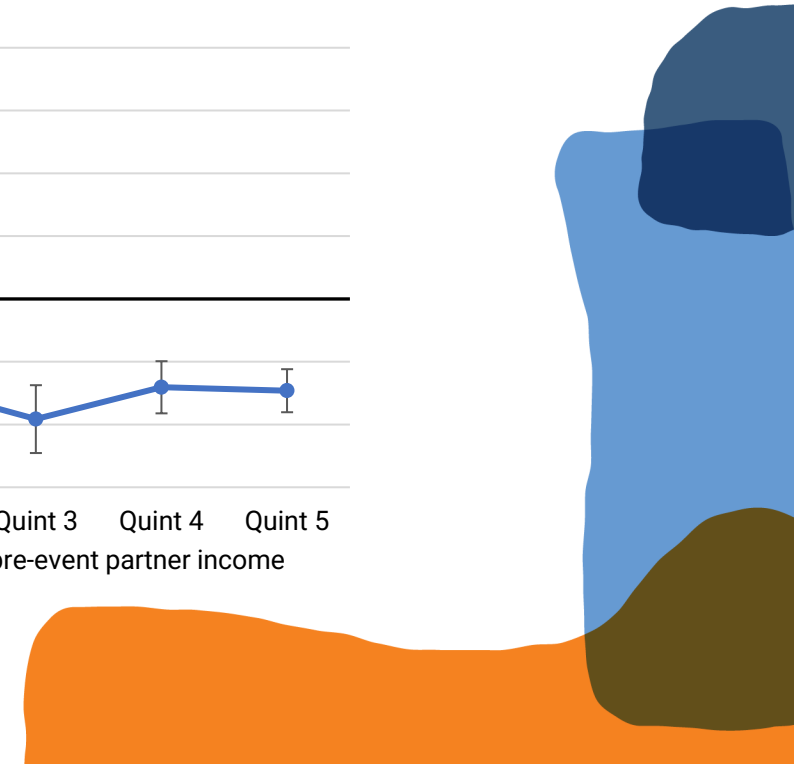
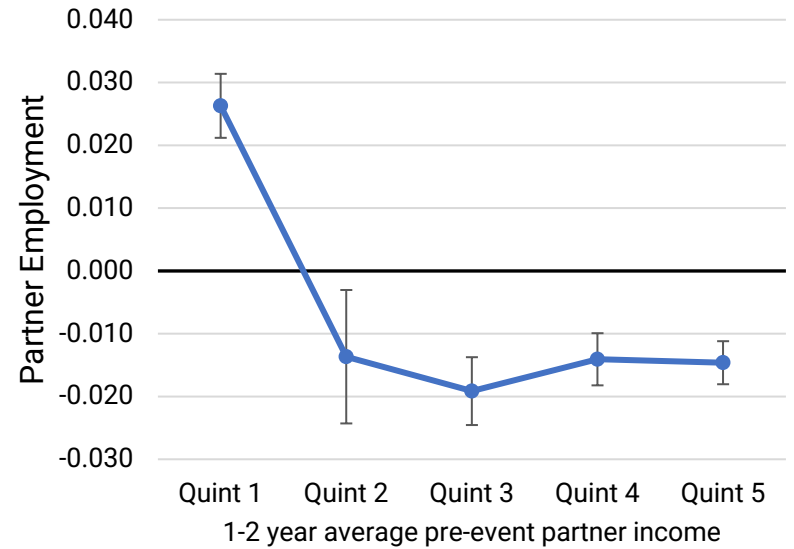
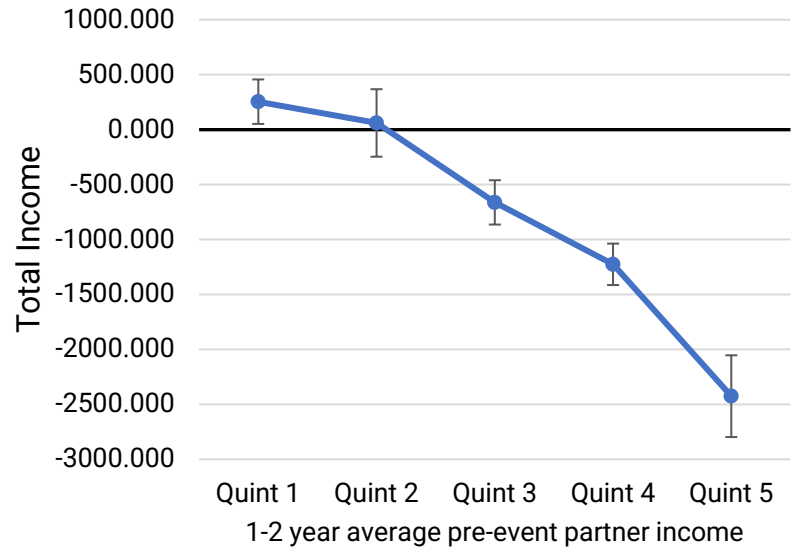
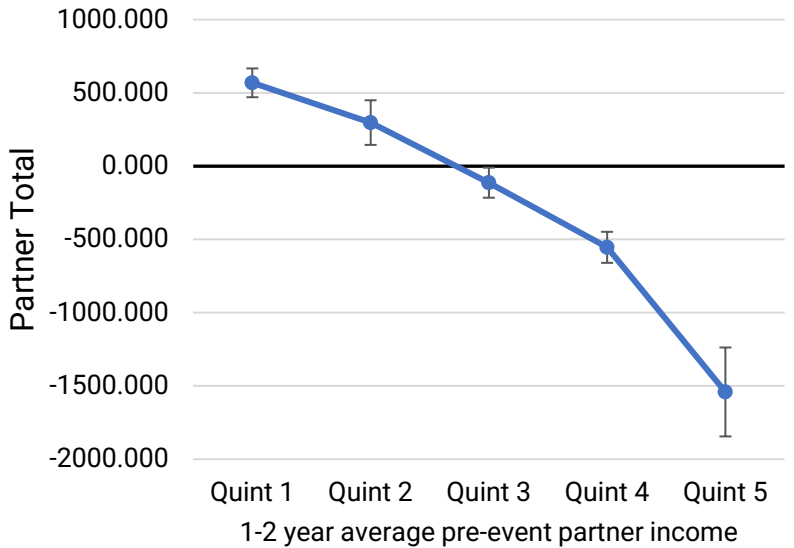
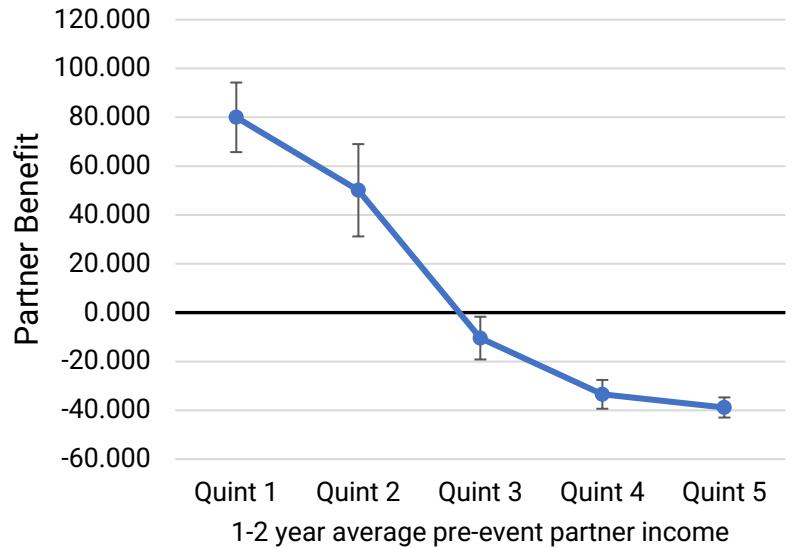
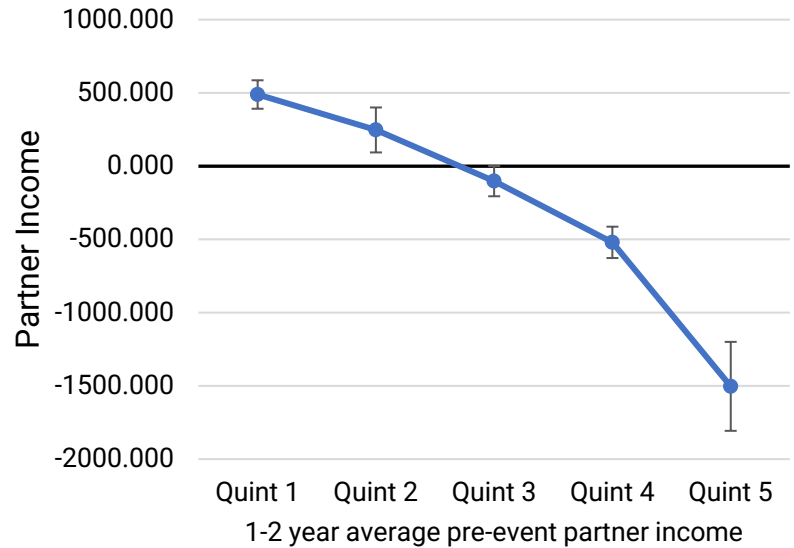




# Stroke

Note. Partner total unavailable due to error





# Concluding comments

- Effects on partners represent an important component of the total effect on families economic wellbeing
- For some groups, there are significant changes in economic outcomes, particularly for older partners, those with higher education, and at lowest and highest incomes prior to event
  - Some differences by condition also detected
- Key limitation is care work is not observed



# Life Course Centre

ARC Centre of Excellence for Children  
and Families over the Life Course