

# The Effect of Dwelling-based and Neighbourhood-based Precarious Housing on Wellbeing

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# Background

- Housing plays a fundamental role in ones daily life by providing shelter and non-shelter benefits.
- Secure housing provides stability for employment, wealth creation, security, safety, and a base from which to lead a healthy and productive life.
  - However, vast segments of the population worldwide reside in housing that is unsafe, unsuitable and insecure.
- Recent COVID-19 pandemic has highlighted crucial role of secure and adequate housing.
  - Many also face financial insecurity from disruptions in work, loss of employment and unpaid sick leave. This subsequently places pressure on households to meet housing costs.

# Literature Review – Gaps and Contributions

- To the best of our knowledge, there are no studies that attempt to distinguish between dwelling-based precarious measures and neighbourhood-based precarious measures.
  - We investigate these two domains individually and combined.
  - We employ Multiple Correspondence Analysis (MCA) to construct a dwelling-based and neighbourhood-based precarious index.
  - When constructing housing related indices from non-continuous variables, existing studies typically aggregate the components using a composite index technique (Baker et al. 2019; Beer et al. 2019; Boch et al. 2020; Marsh et al. 2000; Jivraj et al. 2019).

# Literature Review – Gaps and Contributions

- Existing research on precarious housing and wellbeing tend to apply Ordinary Least Squares (OLS) estimations (e.g Baker et al. 2013; Bentley et al. 2016; Williams et al. 2020).
  - Most wellbeing measures are bound between an upper and lower limit.
  - We use a random effects tobit regression to account for this boundness.
- Existing research on links between precarious housing and wellbeing typically only analyse levels of wellbeing in a static model – We employ a change model technique.
  - Few studies that analyse the effect of changes in housing precariousness on changes in wellbeing (Carney et al. 2017; Pevalin et al. 2017; Baker et al. 2013).

# Key Research Questions

1. What are the impacts of precarious housing on mental wellbeing, and do these impacts differ across dwelling-based precariousness versus neighbourhood-based precariousness?
2. Are estimates of the link between precarious housing and wellbeing sensitive to different model specifications?
3. What is the impact of a change in exposure to dwelling-based precariousness and neighbourhood-based precariousness on changes in wellbeing?

# Data and Sample

- Wave 1 – 20 of the Household, Income and Labour Dynamics in Australia (HILDA) Survey.
- Aged 15+ and independent
  - Dependent students and children under 15 are omitted from the sample.
- Final Sample
  - Approximately 283,000 observations for 21,000 unique individuals.
- Wellbeing – SF-36 Mental Component Summary (MCS) score.
- Dwelling-based – Forced moves, unaffordability, difficulty paying rent or mortgage, overcrowding.
- Neighbourhood-based – crime, hostility, traffic noise, other noise (planes, trains and industry), vandalism, homes and gardens in bad condition, SEIFA.

# Modelling Strategy

- Random effects tobit model – Equation (1)

$$Well_{i,t+1} = \beta_1^* HHprec_{i,t} + \beta_2^* NHprec_{i,t} + \beta_3^* X_{i,t} + \varepsilon_{i,t}$$

$$Well_{i,t+1} = Well_{i,t+1}^* \text{ if } 0 \leq Well_{i,t+1}^* \leq 100$$

$$Well_{i,t+1} = 0 \text{ if } 0 < Well_{i,t+1}^*$$

$$Well_{i,t+1} = 100 \text{ if } Well_{i,t+1}^* > 100$$

- Random effects linear model – Equation (2)

- Estimated via Ordinary Least Squares (OLS) estimator

$$Well_{i,t+1} = \beta_1^* HHprec_{i,t} + \beta_2^* NHprec_{i,t} + \beta_3^* X_{i,t} + v_{i,t}$$

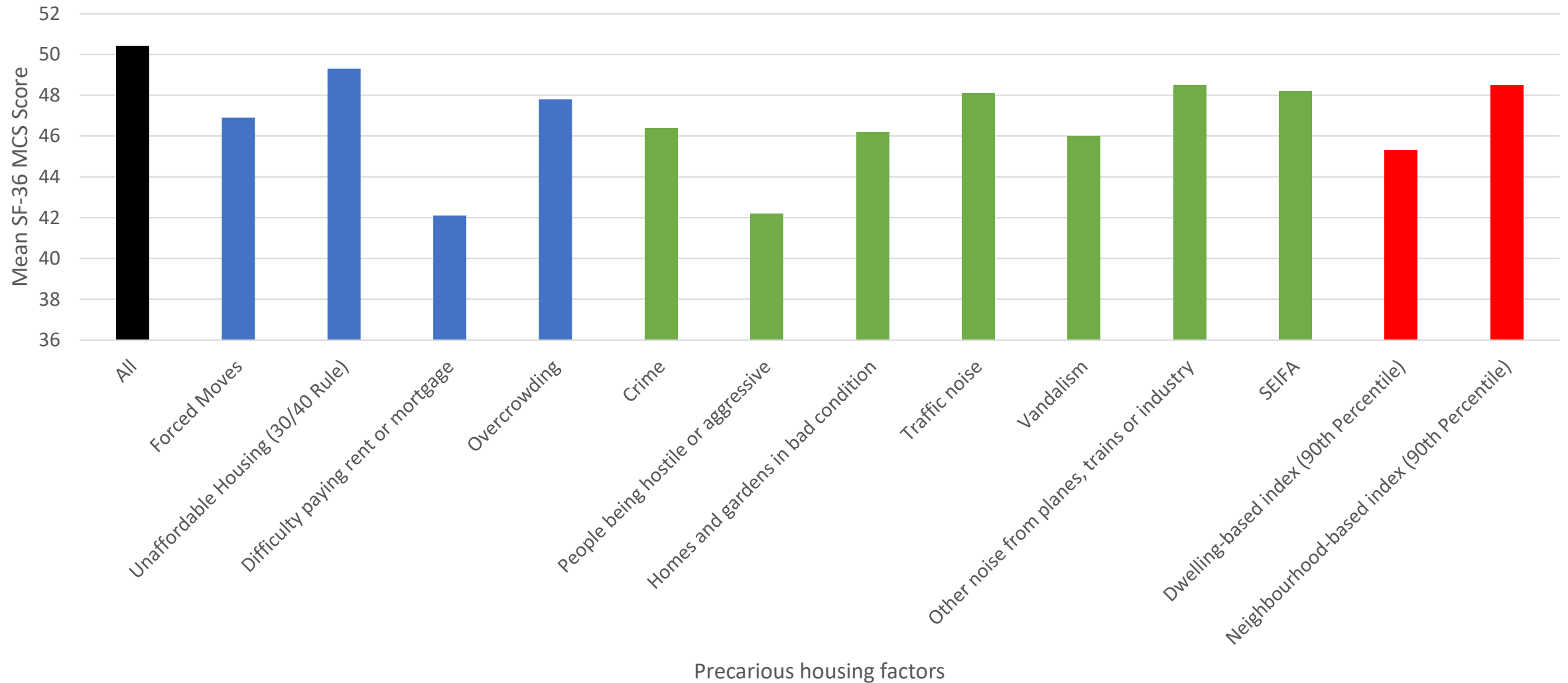
- Change model – Equation (3)

- Pooled tobit model

$$\Delta Well_{i,t \& t-1} = \beta_1 \Delta HHprec_{i,t \& t-1} + \beta_2 \Delta NHprec_{i,t \& t-1} + \beta_3 \Delta X_{i,t \& t-1} + \beta_4 Z_{i,t} + u_{i,t}$$

# Descriptives

Mean SF-36 MCS Score across different dwelling-based and neighbourhood-based factors

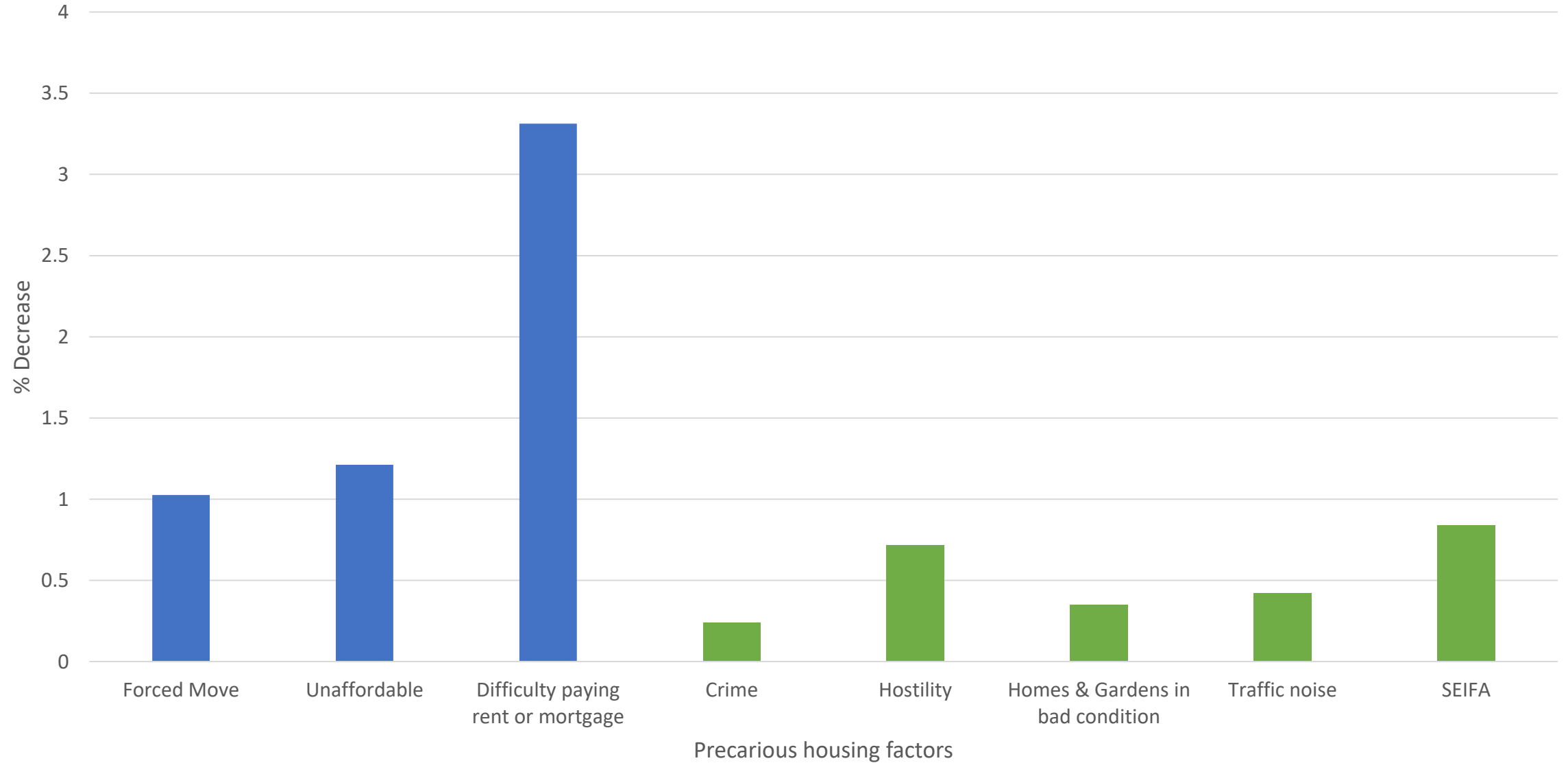




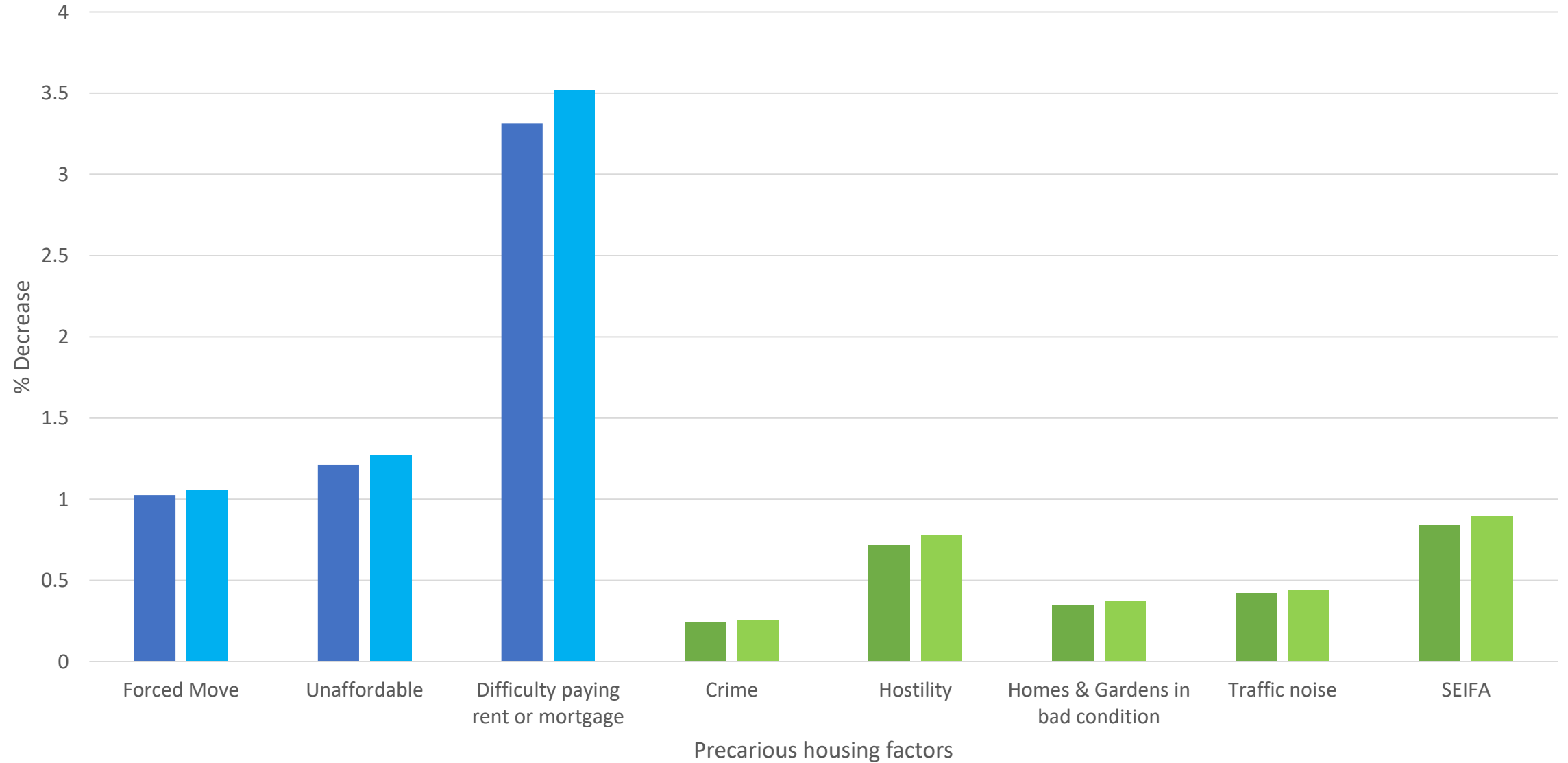
# Results

Predictors	Tobit		Linear	
	SF-36 MCS Score t+1	Std. Err.	SF-36 MCS Score t+1	Std. Err.
Forced move between t and t+1	-0.517**	0.225	-0.531**	0.227
Unaffordable 30%	-0.611***	0.135	-0.642***	0.136
Difficulty paying rent or mortgage in last 12 months	-1.669***	0.133	-1.773***	0.133
Overcrowded	0.143	0.201	0.129	0.202
Neighbourhood - other noise (planes, trains, industry)	-0.038	0.033	-0.048	0.033
Neighbourhood - crime	-0.121**	0.049	-0.126**	0.049
Neighbourhood - hostility	-0.362***	0.048	-0.393***	0.048
Neighbourhood - homes and gardens in bad condition	-0.176***	0.042	-0.189***	0.043
Neighbourhood - traffic noise	-0.211***	0.035	-0.221***	0.035
Neighbourhood - vandalism	-0.010	0.052	-0.012	0.052
SEIFA index (reverse scored, divided by 100)	-0.422***	0.059	-0.453***	0.059

% decrease in average MCS score – tobit model

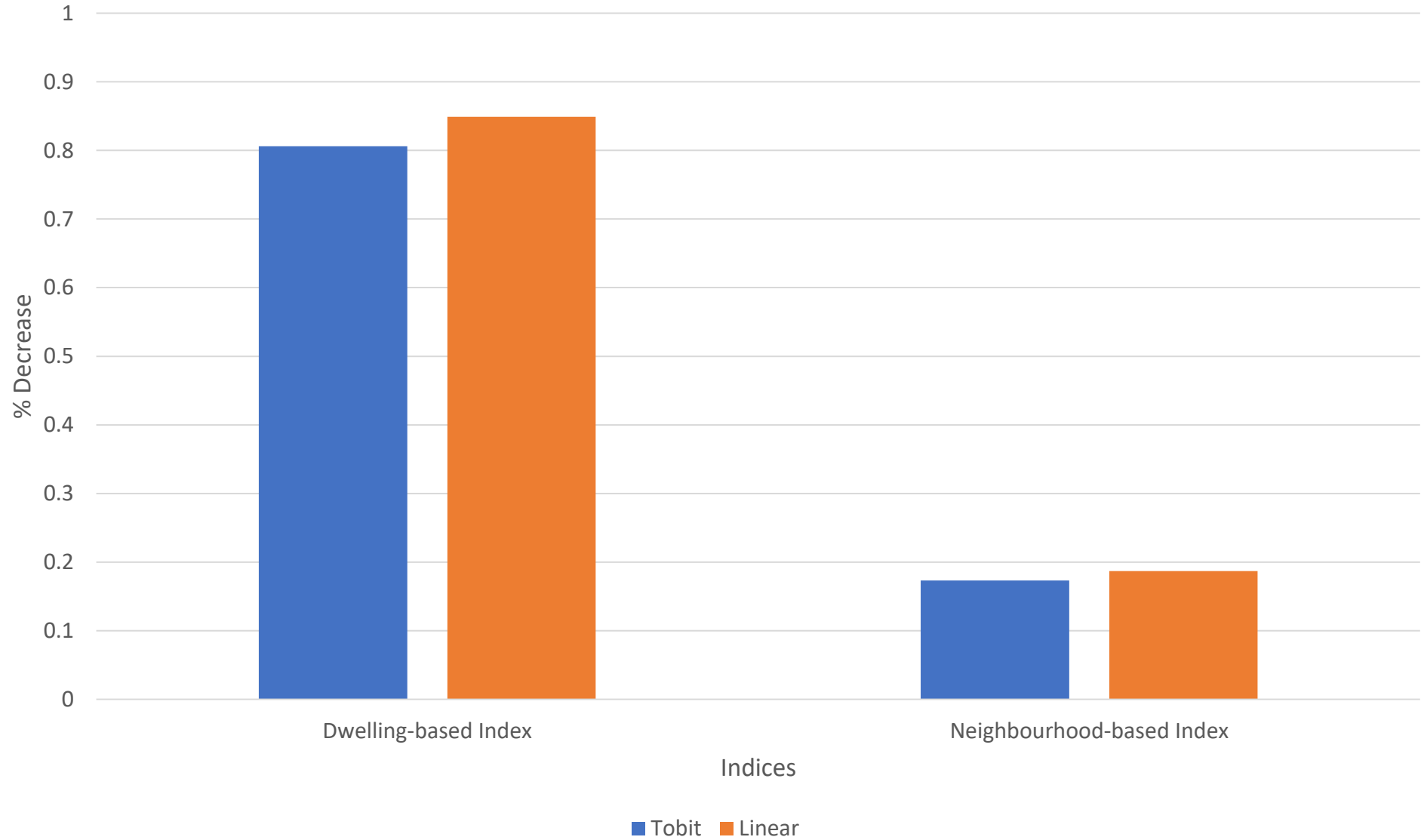


% decrease in average MCS score - tobit model compared with linear model



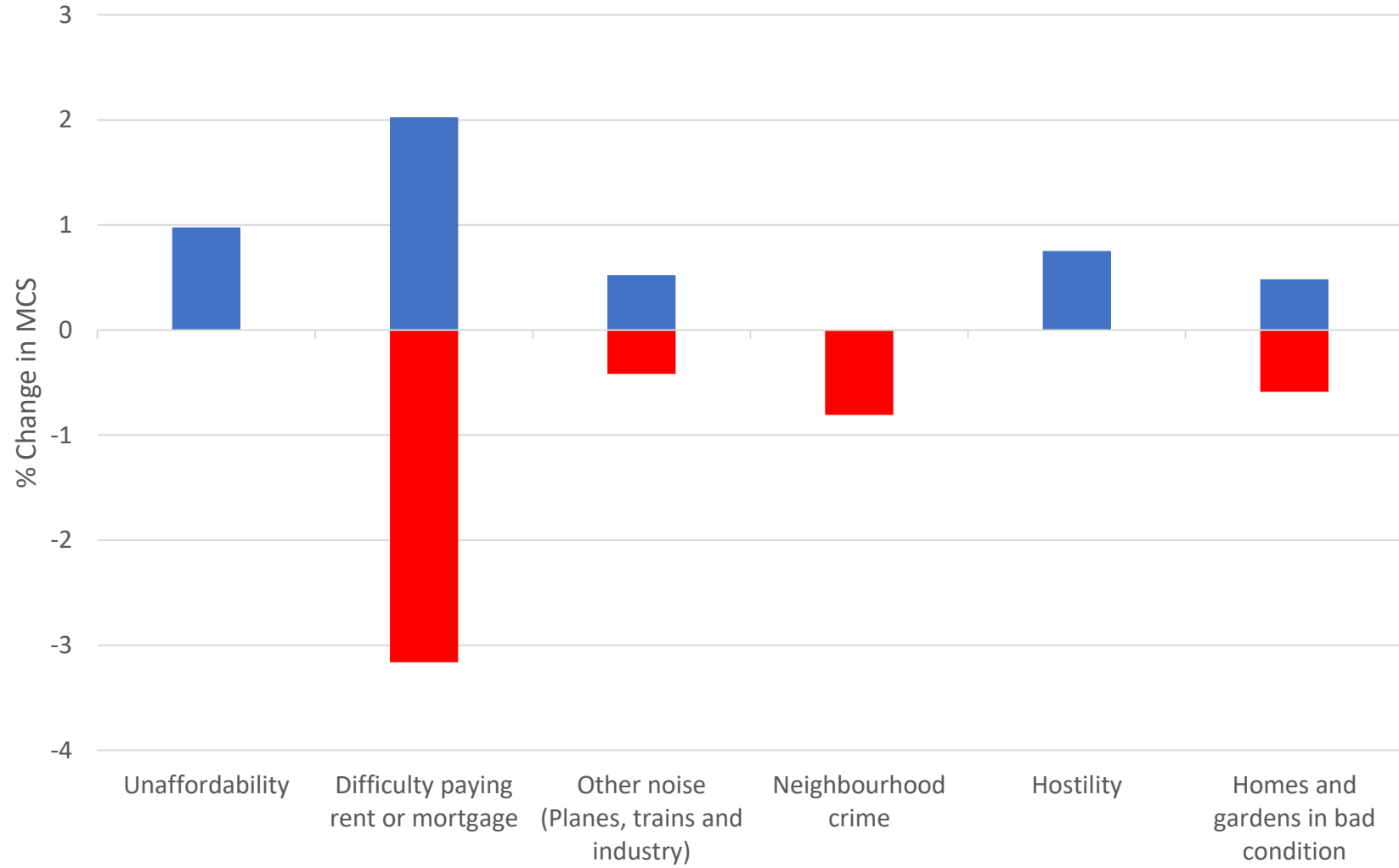
	Tobit		Linear	
Predictors	SF-36 MCS Score t+1	Std. Err.	SF-36 MCS Score t+1	Std. Err.
Dwelling-based Index	-0.406***	0.034	-0.428***	0.034
Neighbourhood-based Index	-0.087***	0.016	-0.094***	0.017

% Decrease in MCS score across tobit and linear models



Predictors	MCS score difference between t-1 and t	Std. Err.
Forced to move between t and t+1	-0.374	0.312
Not in unaffordability at t-1, enter at t	-0.182	0.220
Remain in unaffordability at t-1 and t	-0.111	0.221
In unaffordability at t-1, exit at t	0.493**	0.211
Not in overcrowding at t-1, enter at t	-0.263	0.365
Remain in overcrowding at t-1 and t	0.269	0.293
In overcrowding at t-1, exit at t	-0.118	0.357
No difficulty making payment at t-1, difficulty making payment at t	-1.594***	0.208
Difficulty making payment at t-1 and t	0.040	0.234
Difficulty making payment at t-1, no difficulty at t	1.021***	0.203
Increase in neighbourhood: other noise score between t-1 and t	-0.210*	0.111
Decrease in neighbourhood: other noise score between t-1 and t	0.263**	0.112
Increase in neighbourhood: crime score between t-1 and t	-0.407***	0.125
Decrease in neighbourhood: crime score between t-1 and t	0.060	0.122
Increase in neighbourhood: hostility score between t-1 and t	-0.186	0.120
Decrease in neighbourhood: hostility score between t-1 and t	0.379***	0.120
Increase in neighbourhood: homes & gardens in bad condition score between t-1 and t	-0.296***	0.113
Decrease in neighbourhood: homes & gardens in bad condition score between t-1 and t	0.244**	0.115
Increase in neighbourhood: traffic noise score between t-1 and t	-0.096	0.112
Decrease in neighbourhood: traffic noise score between t-1 and t	0.055	0.113
Increase in neighbourhood: vandalism score between t-1 and t	0.016	0.127
Decrease in neighbourhood: vandalism score between t-1 and t	0.094	0.125
Difference in SEIFA index score between t-1 and t	-0.001	0.001

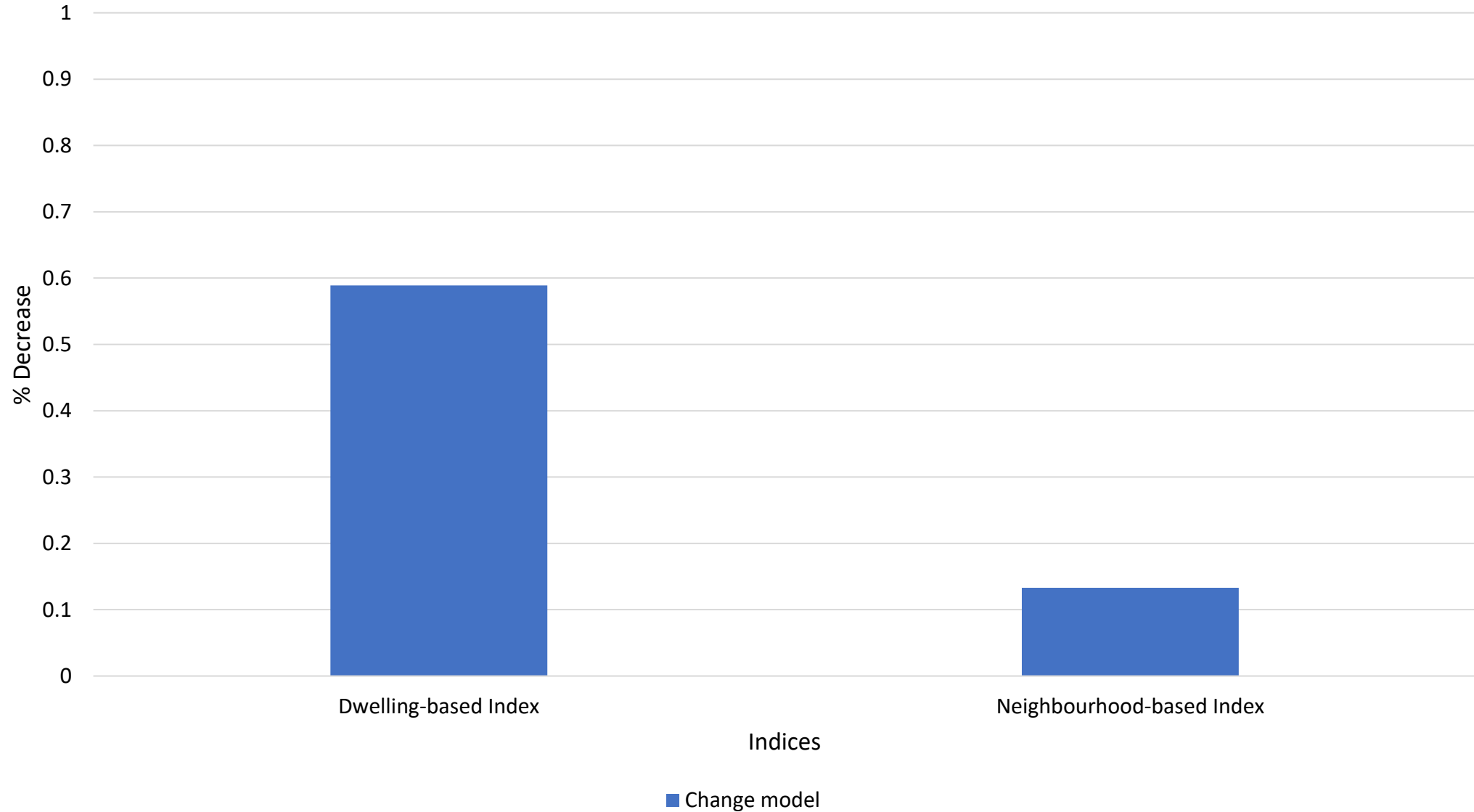
### % Change in MCS score – Change model



Predictors	MCS score difference between t-1 and t	Std. Err.
Dwelling-based Index	-0.297***	0.038
Neighbourhood-based Index	-0.067***	0.022



% Decrease in Mean MCS Score between t-1 and t in change model



# Conclusion

- Difficulty making rent or mortgage payments in the previous 12 months due to a shortage of money is the most important dwelling-based precariousness factor.
- Dwelling-based precariousness overall has the largest adverse impact on mental wellbeing.
- Relative socioeconomic advantage/disadvantage (tobit and linear) and neighbourhood crime (change) are the most detrimental neighbourhood-based factors on mental wellbeing.

Q & A