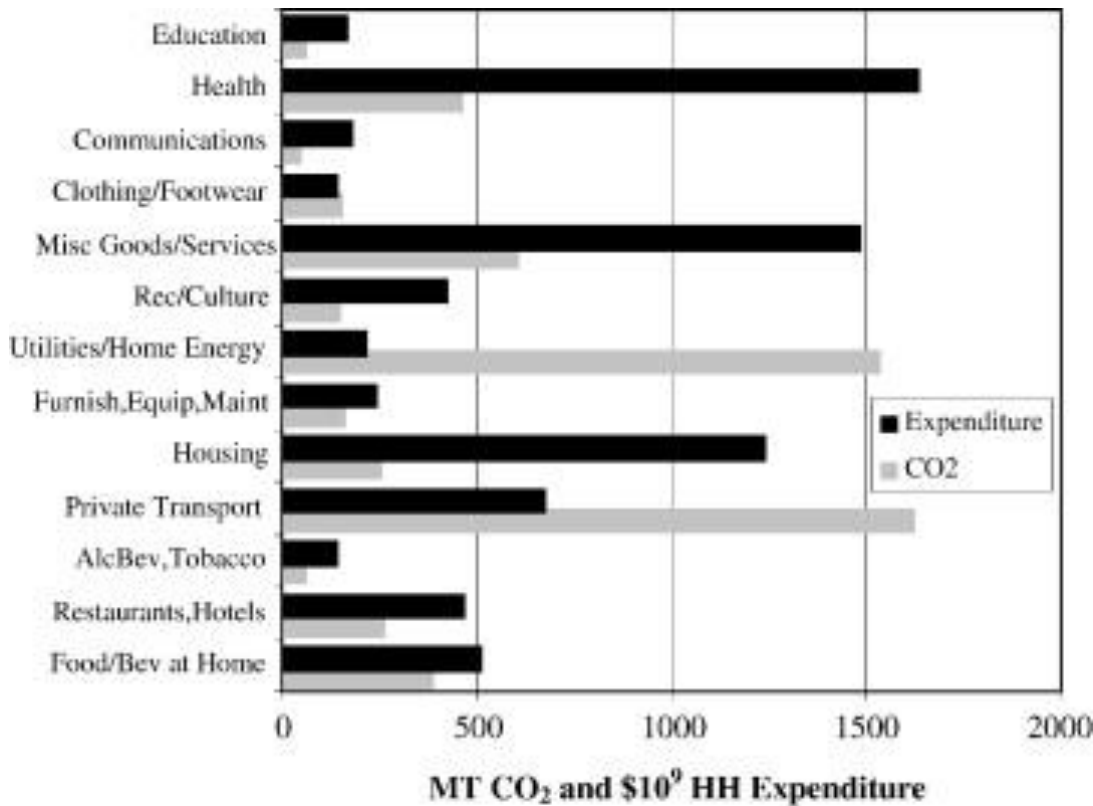


# **THE ECONOMICS OF GREEN LIFESTYLES: A MICRO-ECONOMIC STUDY OF AUSTRALIAN HOUSEHOLD PANEL AND HOUSING MARKET DATA**

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Source: Weber & Matthews, 2008

- Household-related carbon emissions from consumption are a major contributor to overall greenhouse gas emissions
- Considerable differences in carbon footprints across comparable households: high-impact household footprints at least 10x higher than low-impact (Weber & Matthews, 2008). Household income/expenditure best predictors.
- The present study estimates housing and local transport CO<sub>2</sub> emissions based on household expenditure data
- Large carbon footprints from housing and transport directly linked to non-GHG related problems such as car dependency, urban sprawl and lifestyle diseases

- **Perino (2015):**
  - Voluntary sustainable lifestyles may lead to more aggregate greenhouse gas emissions (carbon leakage).
- **Kotchen (2013) Ostrom (2012), Andreoni (1990) and Brekke *et al.* (2003):**
  - Show that adverse effects may be small if consumers make a conscious effort to shrink their carbon footprints
  - This paper investigates empirically if households with lower carbon footprints experience higher levels of satisfaction with life, finance, health and neighbourhood .
- **Ambrey and Daniels (2016):**
  - The results indicate, holding other factors constant, on average, higher carbon footprints are associated with marginally lower levels of well-being.
  - Positive association between carbon footprints and pro-environmental behaviour

## Country level: York and Bell (2014):

- using cross-country data find no clear connection between life satisfaction and either GDP per capita or the ecological footprint per capita.
- Most studies are macro-level, we use household data

**City level:** Mixed evidence on urban inequality and happiness: inverse (**Glaeser, 2009**), no (**Florida, 2013**) or positive (**Glaeser et al 2016**).

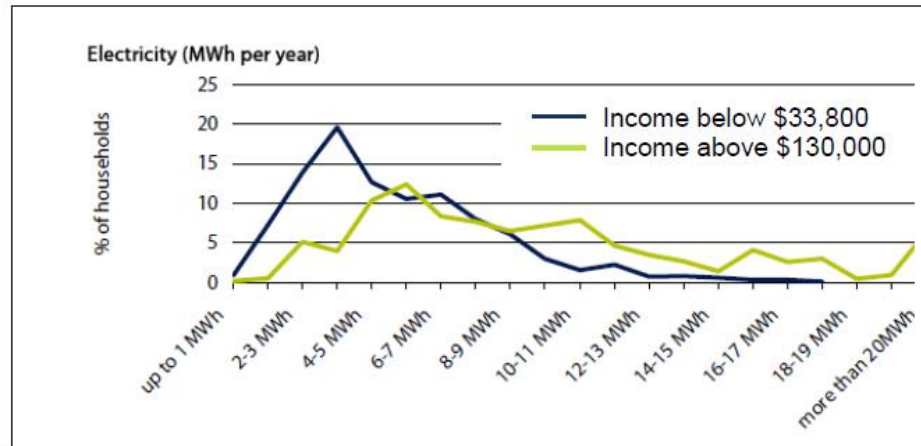


Figure 1: Frequency distribution of electricity consumption, by consumption band, for low income and high income households (IPART, 2010)

High income households tend to have higher energy consumption despite having more energy efficient properties and appliances

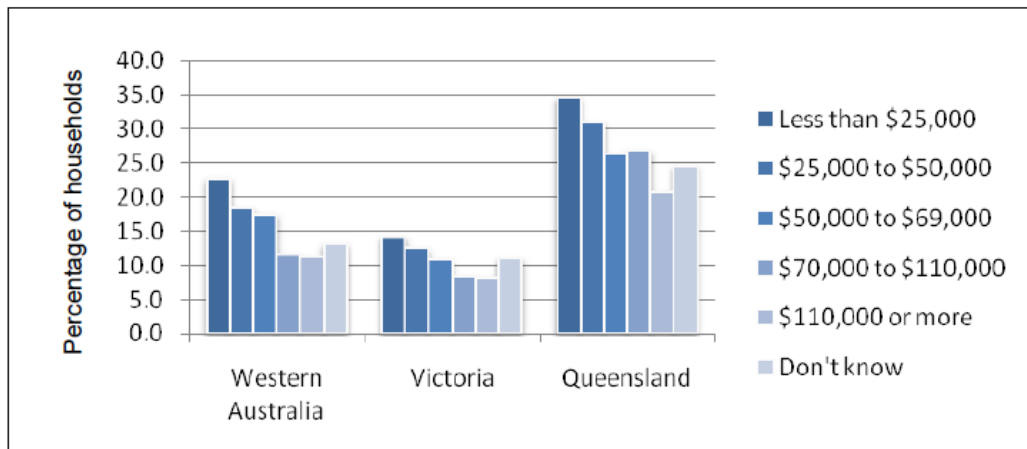


Figure 2 Households without insulation by income, WA, VIC and QLD (ABS, 2010a, b, c)

Empirical evidence:  
 Johnson & Sullivan (2011):  
 Australia  
 Druckman & Jackson (2008):  
 UK

$$S = h(u(y, z, c, t)) + e$$

$S$  = satisfaction with life/health/finances/neighbourhood

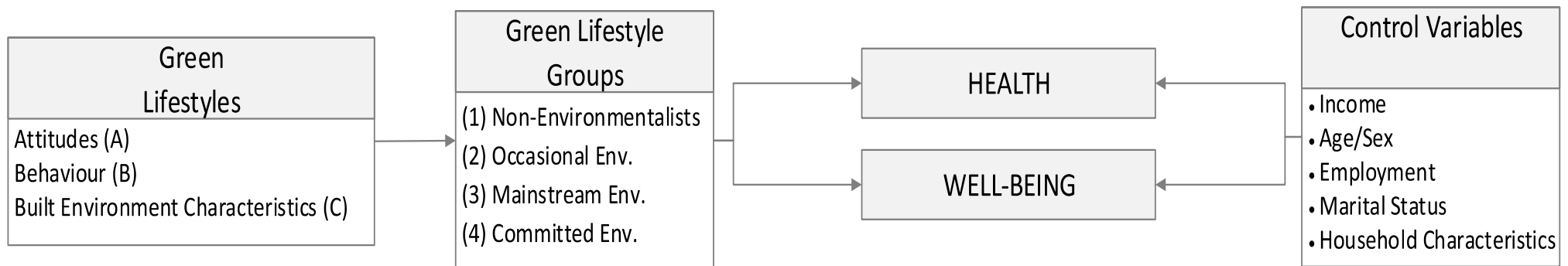
$h$  = ratio of actual to reported well-being /health

$y$  = income

$z$  = socio-economic control variables

$c$  = carbon footprint of household

$t$  = time controls



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The Household, Income and Labour Dynamics in Australia (HILDA) Survey is a household-based panel study.

Started in 2001, the HILDA Survey tracks more than 17,000 Australians each year and collects information on many aspects of life in Australia, including household and family relationships, income and employment, health and education. Participants are followed over the course of their lifetime.

We use HILDA survey data to estimate a housing and transport carbon footprint based off energy and gas bills as well as annual motor vehicle expenditure.

## Summary statistics

	Mean	St.Dev
Life Satisfaction	3.49	7.83
Financial Satisfaction	2.5	7.4
Home Satisfaction	3.55	7.91
Health Satisfaction	2.95	7.6
Household Expense Motor vehicle	1947.62	2503.41
Household Expense Electricity & Gas bills	1699.88	1784.54
Household Expense Motor vehicle R&M	917.78	1365.01
Household Expense Rent (monthly) \$	452.02	786.52
Household Expense Mortgage (monthly) \$	765.38	1417.47
Proxy: GHG emission (tonnes)	3.31	3.935
House: Number of bedrooms	3.34	1.07
House: Value	458493.1	550534.2
Mortgage repayments (monthly)	746.48	1397.62
Weekly Groceries	1679.43	1673.79
Number of Adults	3.2	1.59
Number of children	-1.34	5.15

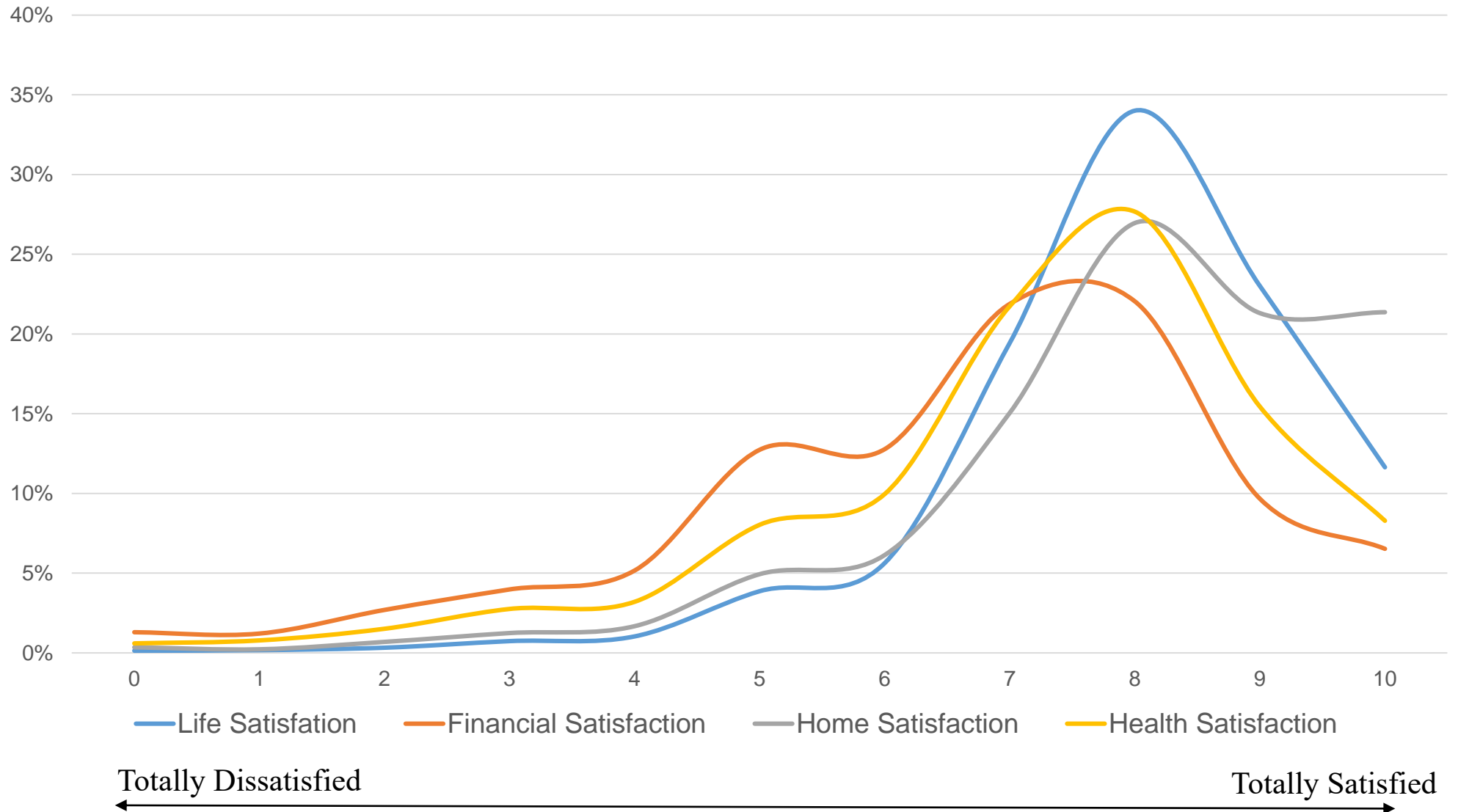
$n = 23,496$



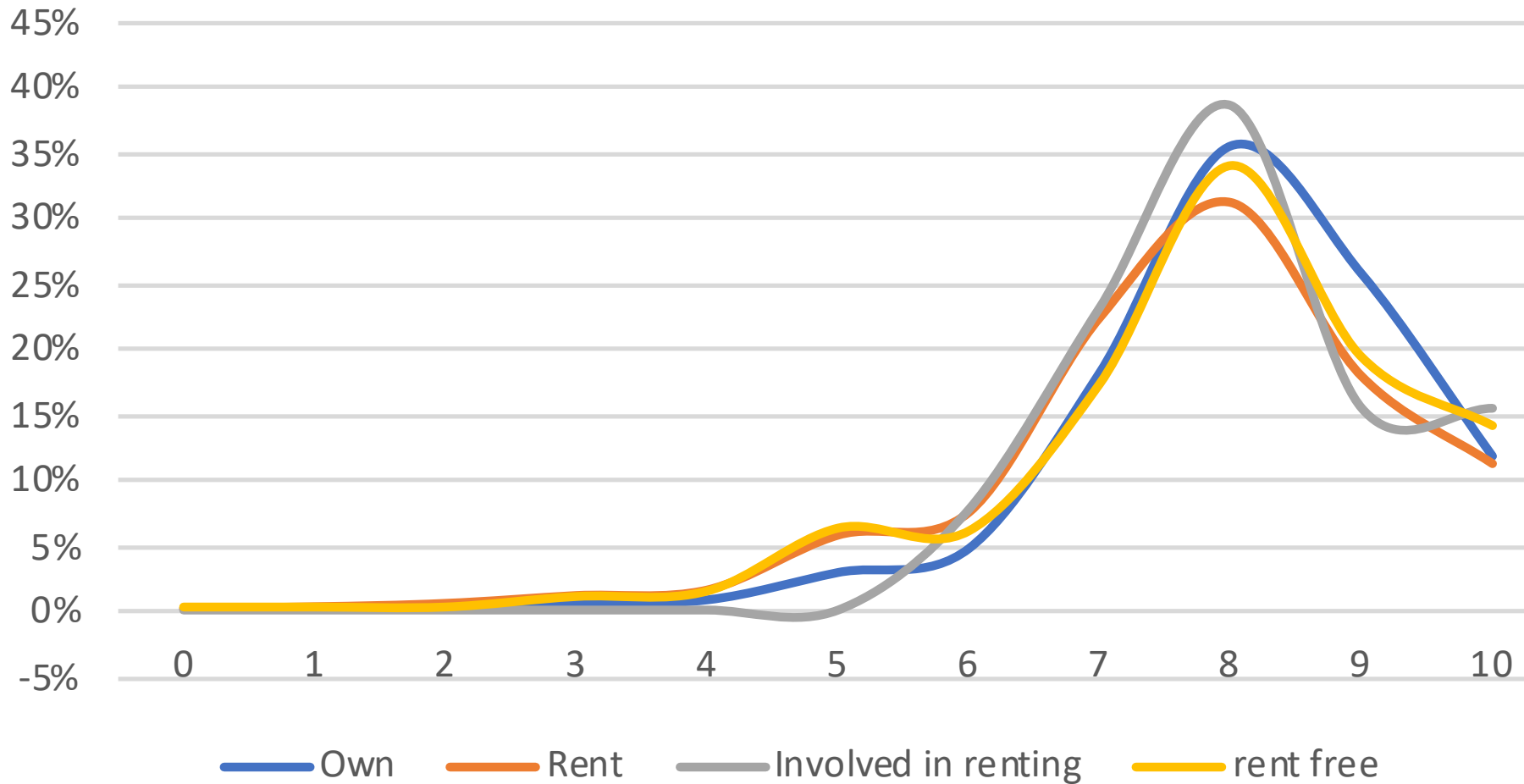
<b>ASGS 2011 Greater Capital City Statistical Area (GCCSA)</b>	<b>Freq.</b>	<b>Percent</b>
Greater Sydney	3933	16.74
Rest of NSW	3011	12.81
Greater Melbourne	4040	17.19
Rest of Vic.	1758	7.48
Greater Brisbane	2414	10.27
Rest of Qld	2708	11.53
Greater Adelaide	1500	6.38
Rest of SA	609	2.59
Greater Perth	1695	7.21
Rest of WA	407	1.73
Tasmania	751	3.20
Northern Territory	208	0.89
Australian Capital Territory	462	1.97
<b>R3 Own, Rent or live rent free</b>	<b>Freq.</b>	<b>Percent</b>
Refused/Not stated	38	0.16
Dont know	20	0.09
Own/currently paying off mortgage	15265	64.97
Rent (or pay board)	7539	32.09
Involved in a rent-buy scheme	16	0.07
Live here rent free/Life Tenure	618	2.63
<b>Housing Type</b>	<b>Freq.</b>	<b>Percent</b>
Separate House	19394	83
Semi-detached	1602	7
Flat/unit/apartment	2293	10
Caravan/Tent/Cabin/Houseboat	84	0.4
Other	111	0.5
Non-response	12	0.1

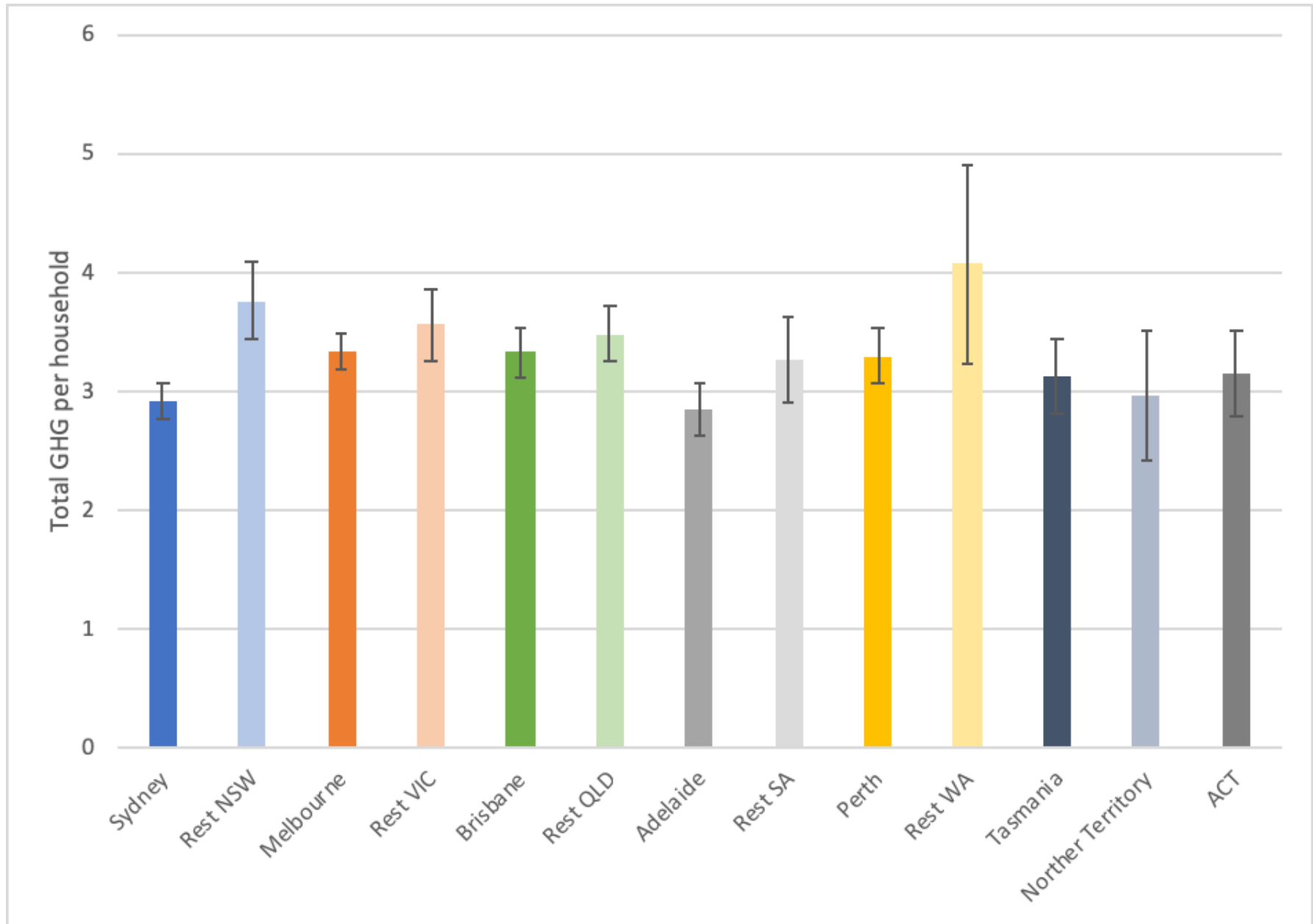
$n = 23,496$

# LIFE SATISFACTION: LIKERT SCALE 0-10



## Life satisfaction by Tenure





# HILDA ORDERED LOGISTIC REGRESSION (W16): PRELIMINARY RESULTS: BASE MODEL

	(1) Life	(2) Health	(3) Finances	(4) Neighbourhood
Housing&transport footprint	-0.00216	0.148***	0.0713*	-0.0157
Urban/rural	yes	yes	yes	yes
Observations	10371	10371	10368	10360
Pseudo $R^2$	0.001	0.001	0.000	0.002

*t* statistics in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

# HILDA ORDERED LOGISTIC REGRESSION (W16): PRELIMINARY RESULTS

	(1) Life	(2) Health	(3) Finances	(4) Neighbourhood
Housing&transport footprint	-0.0784*	-0.00134	-0.0332	-0.0985*
Number of bedrooms	-0.0196	0.0106	0.0237	-0.0206
Estimated home value	0.391***	0.366***	0.765***	0.715***
Persons in household	-0.00498	0.00744	-0.139***	-0.0545*
Household wages	-0.0480***	0.0389***	0.00229	-0.0255**
Number of children	0.0592**	-0.0212	0.0311	0.0650***
Educational attainment	yes	yes	yes	yes
Rent/mortgage paymt	yes	yes	yes	yes
Dwelling type	yes	yes	yes	yes
Tenure	yes	yes	yes	yes
Remoteness area	yes	yes	yes	yes
Capital City Stat Area	yes	yes	yes	yes
Observations	6713	6713	6713	6713
Pseudo $R^2$	0.011	0.007	0.019	0.016

## ESTIMATION RESULTS: RANDOM EFFECTS ESTIMATION

	GSOEP		UKHLS	
	SWL	SWH	SWL	SWH
Green Lifestyle	0.0513***	0.0318***	0.1541**	0.0933***
ln(Income)	0.6742***	0.4932***	-0.0461***	-0.0485***
ln(Age)	-0.4503***	-1.6618***	-0.5848***	-0.6364***
Female	0.0702***	-0.05778**	0.0391*	-0.0166
Employment	-0.0479**	0.1879***	0.3807***	0.4374***
Partnership	0.2293***	0.0564**	0.2794***	0.2019***
Kids in HH	0.0918***	0.1283***	2.1577	-0.8722
ln(Adults in HH)	-0.4878***	-0.3306***	0.0486*	-0.1049***
Const.	3.7820	9.4646	4.4373	7.7143
Obs.	26,649	24,460	18,367	18,369
R <sup>2</sup>	0.070	0.127	0.043	0.024

- This study investigates if there is a relationship between household carbon footprints and several measures of life satisfaction
- We find evidence of
- To minimise the impact of confounding factors, we study the impact of
  - relocations on
  - more detailed modelling of housing choices.
- Future work:
  - Dynamic panel analysis
  - Non-linear impacts (quantile regression, splitting footprints into percentiles)
  - Detailed Carbon Footprint analysis
  - No distinction made between green and non-green energy consumption



Thank you

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