Working on Wall Street or Relaxing on the Riviera?

Age-related impacts of income and wellbeing on regional migration

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AIMS

Understand relationship between internal migration, age, subjective wellbeing & income.

1. Does SWB of a place matter for migration?
2. Do incomes in a place matter for migration?
3. How do patterns change with age?
4. What impacts of education?
5. What impacts of the rate of time preference?

ROAD MAP

Definition of subjective wellbeing

Theory and hypotheses

Data: HILDA

Ex-ante analysis

(Future extension: *ex-post* analysis)

Conclusions

SUBJECTIVE WELLBEING

All things considered, how satisfied are you with your life? … pick a number between 0 and 10.

Previous lit shows SWB correlates with:

- Income
- Blood pressure
- Friends' & colleagues' perceptions
- Objective measures of a place's well-being
- Sunshine

But does SWB matter for behaviour, especially migration?

RESULTS PREVIEW:

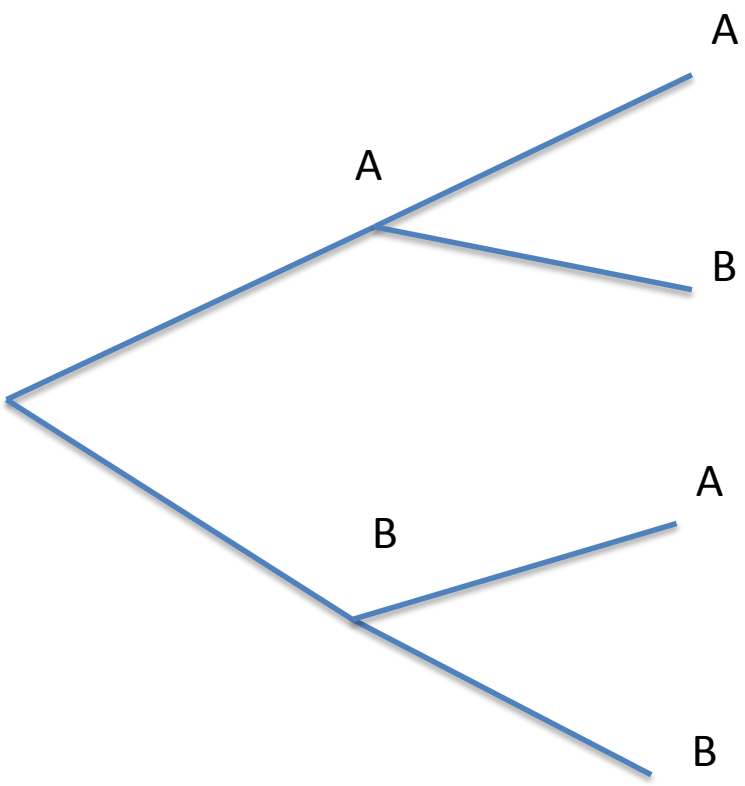
- **People migrate to happy places**
  - A revealed preference validation of SWB
  - Younger people are most responsive to well-being (with an upturn again when old)
  - SWB more important for highly educated people (especially for young & old adults)
- **Income not (separately) significant**
  - But we do see declining coefficients over time
- **Distance matters (negatively)**
- **People less mobile as they age**
  - And more mobile with higher education

(INTERNAL) MIGRATION MODEL

- Most migration models concentrate on impacts of income (Y) rather than SWB [or utility]
- Glaeser et al. (2014) find some people move to 'unhappy cities'
  - they conclude that SWB $\neq$ Utility
  - but interpretation is not based on a life-cycle model
- Our theoretical life-cycle model shows:
  - location choice (& SWB) is a f^n of income & amenities across multiple periods
  - people make different migration choices faced with same external parameters (because of different rates of time preference and different income profiles)

LIFE-CYCLE MODEL

(LOCATION A IS HIGH AMENITY/LOW WAGE; B IS HIGH WAGE/LOW AMENITY)



	Period one	Period two
Moving Costs:	0	≥0

Location attributes:

Income $y_A < y_B$

Amenities $n_A > n_B$

Payoffs:

$$u_t = \log(c_t) + \log(n_t)$$

Problem:

$$\max U = u_1 + \frac{1}{1+\rho} u_2$$

s.t.

$$c_2 = y_2 + (1+r)(y_1 - c_1)$$

KEY THEORETICAL RESULTS: STABLE INCOME PATH

(LOCATION A IS HIGH AMENITY/LOW WAGE; B IS HIGH WAGE/LOW AMENITY)

1. Interest rates matter: high r may enable (B, A) rather than (B, B)
2. Moving costs may keep one in an otherwise less preferred location [e.g. (B, B) instead of (B, A)]
3. Someone who lives for the present (surfer) may choose (A, B)
   - and will have low U_2 relative to U_1
4. So Gold Coast may comprise young surfers & old savers

THEORETICAL IMPLICATIONS

(LOCATION A IS HIGH AMENITY/LOW WAGE; B IS HIGH WAGE/LOW AMENITY)

1. Different individuals choose different location combinations
2. May move to or from high wage areas
3. May increase or decrease utility over time
4. Moving costs $\rightarrow$ greater immobility
   - may keep people either in (A, A) or (B, B)
5. People with high rates of time preference move from high-amenity area in youth to high-wage area when older
6. Rising income path adds further complexity
   - Person may use higher future income to purchase more amenities when young, so educated may choose high amenities initially

DATA: OVERVIEW

HILDA – unit record panel dataset.

$t = 12$ years (drop first year) [2002-2013]

Supplement with ABS Labour force stats.

<u>Sample:</u>

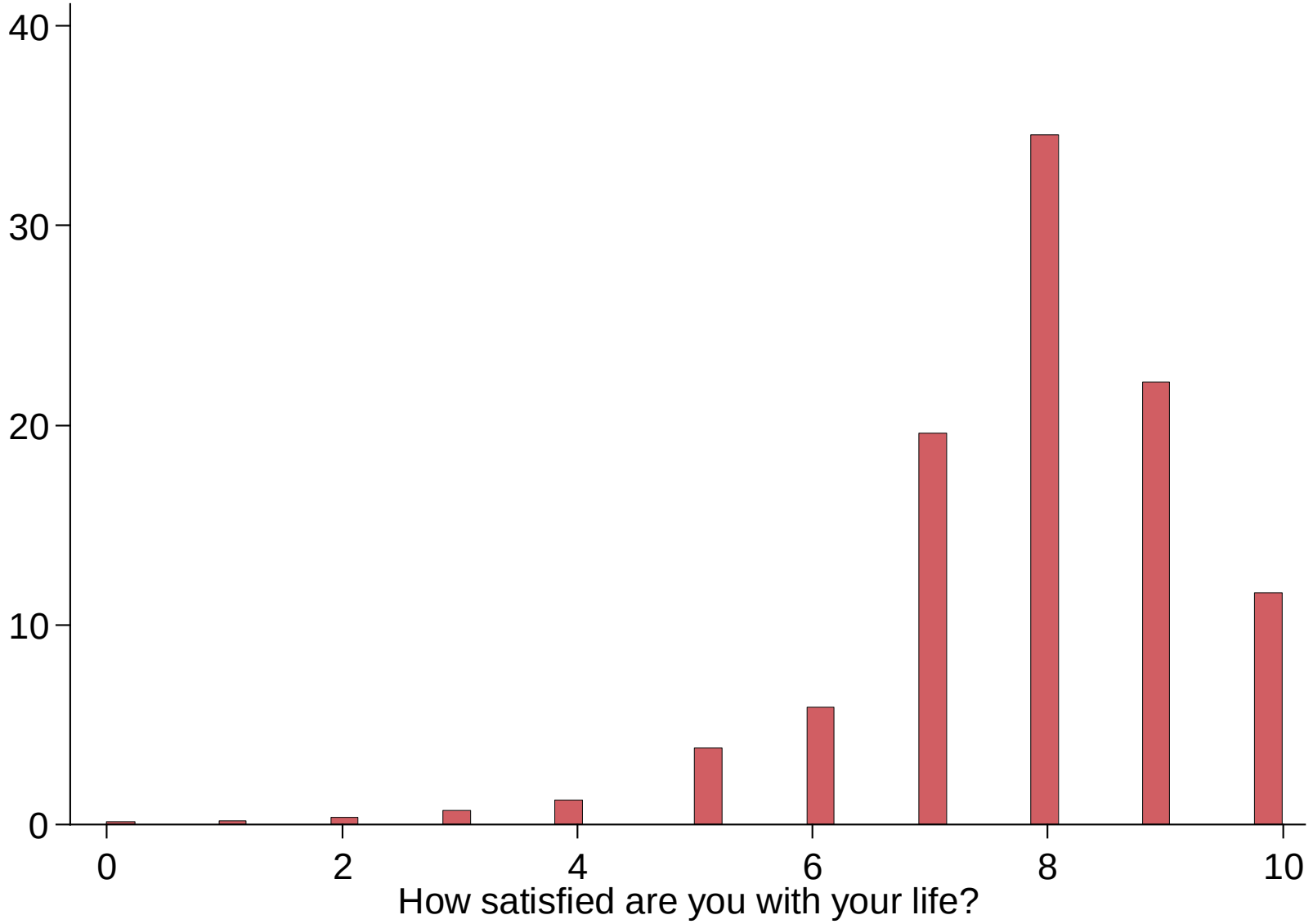
All people in HILDA (originally ~37,000) less those:

- Not in two consecutive waves (~7,000)
- Younger than 25 (another ~10,000)
- Temporary sample members (another ~2,000)
- In the defence force, missing attributes (<60 more)

~17,700 people & ~126,000 person-time observations.

Robustness check: Look only at (smaller) balanced panel

SWB – INDIVIDUAL DISTRIBUTION



METHODOLOGY: 1

Estimate McFadden's choice model:

Probability of individual *i* choosing to live in region *j* depends on:

- individuals' characteristics, $\boldsymbol{w}_i$, and on:
- <u>all</u> regions' attributes in relation to individual *i*, $\boldsymbol{x}_{i,k}$.

$$\text{Prob}\left(\text{Location}_{i,t} = \text{Region}_j\right) = f\left(\sum_k \boldsymbol{x}_{i,k,t-1}, \, , \boldsymbol{w}_{i,t-1}\right)$$

METHODOLOGY: 2

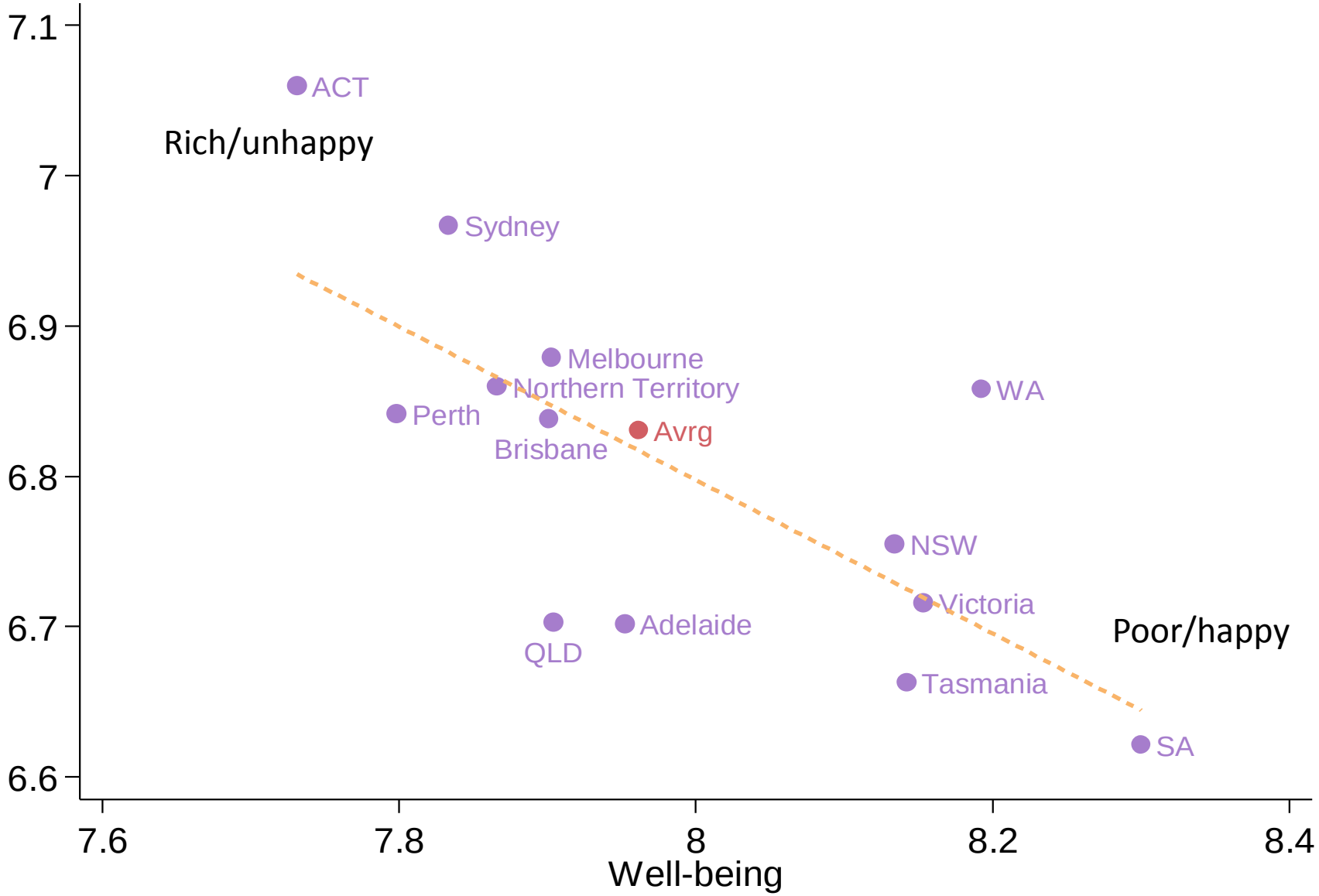
Region attributes, $x_{i,k,t-1}$

Mean SWB, log mean income, log mean rent, currently live in region, current distance to region, log population, unemployment rate, employment rate, regional fixed effects

Individual characteristics, $w_{i,t-1}$

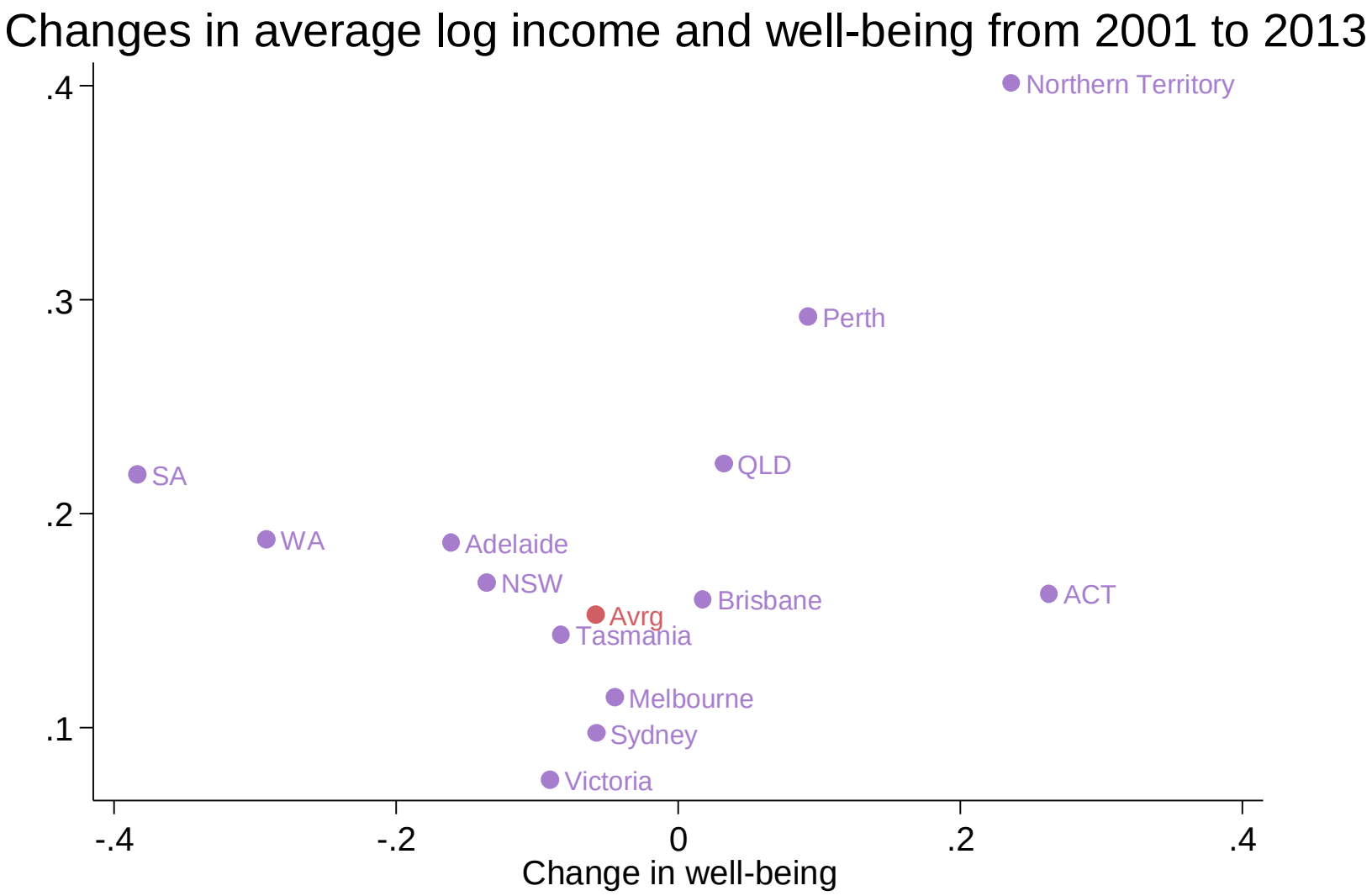
Different regional effects for different types of people according to: gender, ethnicity, education, age, family type, smoker

MEAN LOG(Y) VS MEAN SWB (2001)



wave 1

LOG(Y) & SWB CHANGES (2001-2013)



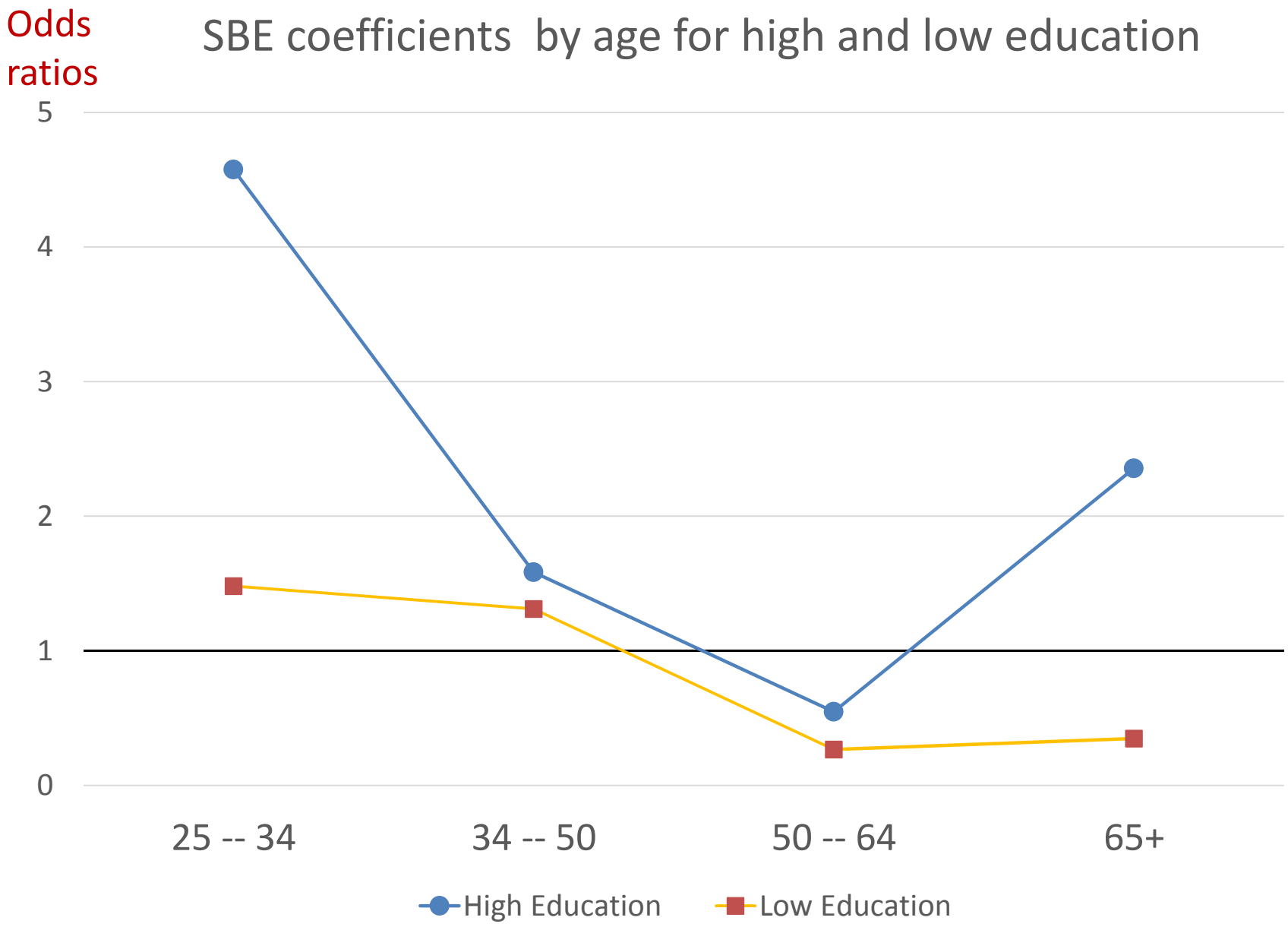
Coefficients are odds ratios (i.e. coeff=1 ⇒ zero effect).
Dependent variable is location choice.

BASE RESULTS

	income	SWB	comparison	with controls
Region attributes:				
log (mean income)	1.00		0.90	0.80
mean SWB		**1.63*** **	**1.63*** **	**1.50***
current region	**463.06*** **	**463.36*** **	**463.37*** **	**201.18*** **
distance				**.93*** **
log (population)				**3.77** **
employment rate				0.10
unemployment rate				0.04
log (mean rent)				0.85
Regional intercepts	Yes	Yes	Yes	Yes
Personal Characteristics	No	No	No	Yes
N	1,615,445	1,615,445	1,615,445	1,615,445
Number of person-time observations	124,265	124,265	124,265	124,265
Number of people	17,347	17,347	17,347	17,347
Number of regions	13	13	13	13

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered at person level.

RESULTS BY AGE



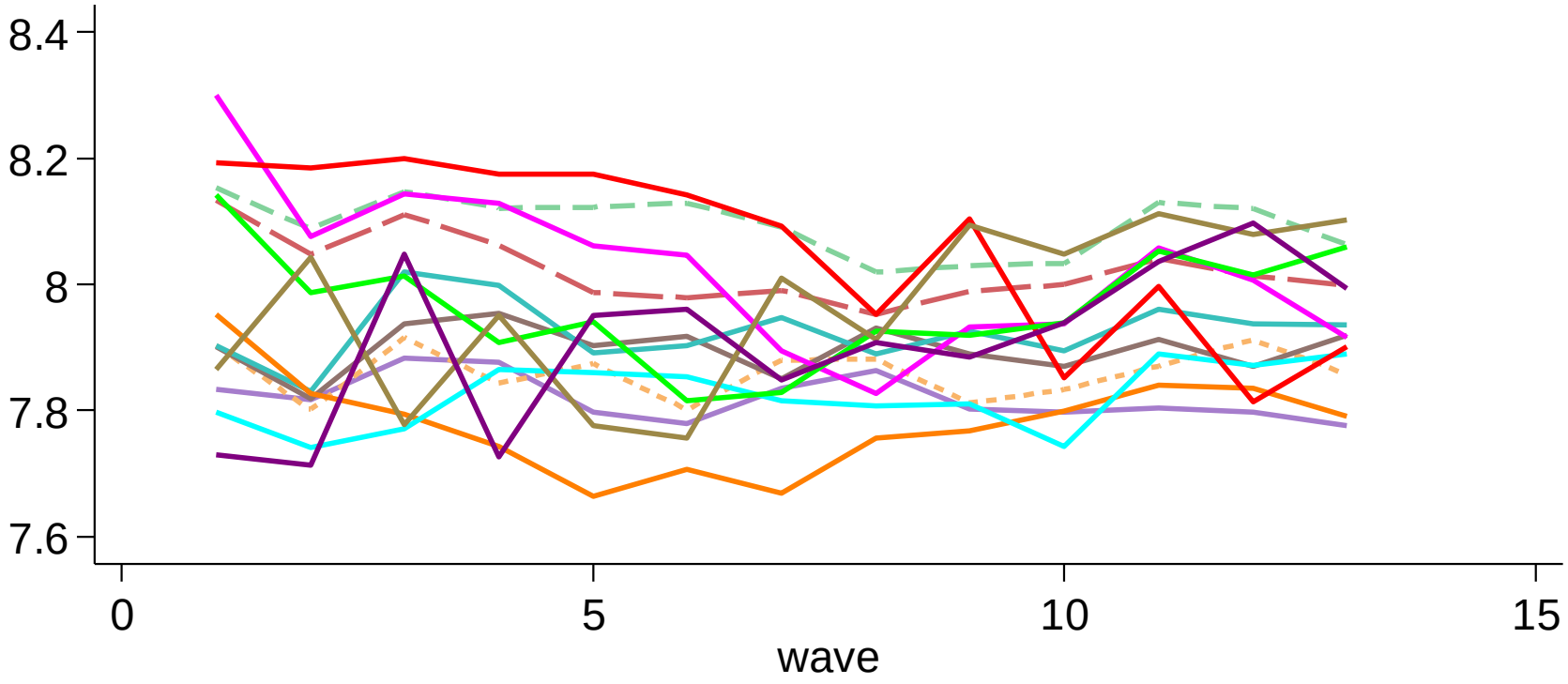
KEY CONCLUSIONS

- SWB is a measure that matters to people
  - verified by revealed preference migration choices
- Income is not separately important
  - But distance is important
- Younger people more responsive to SWB than older people
- Tertiary educated people more responsive to SWB than less educated people
- Educated older people also tend to respond to SWB

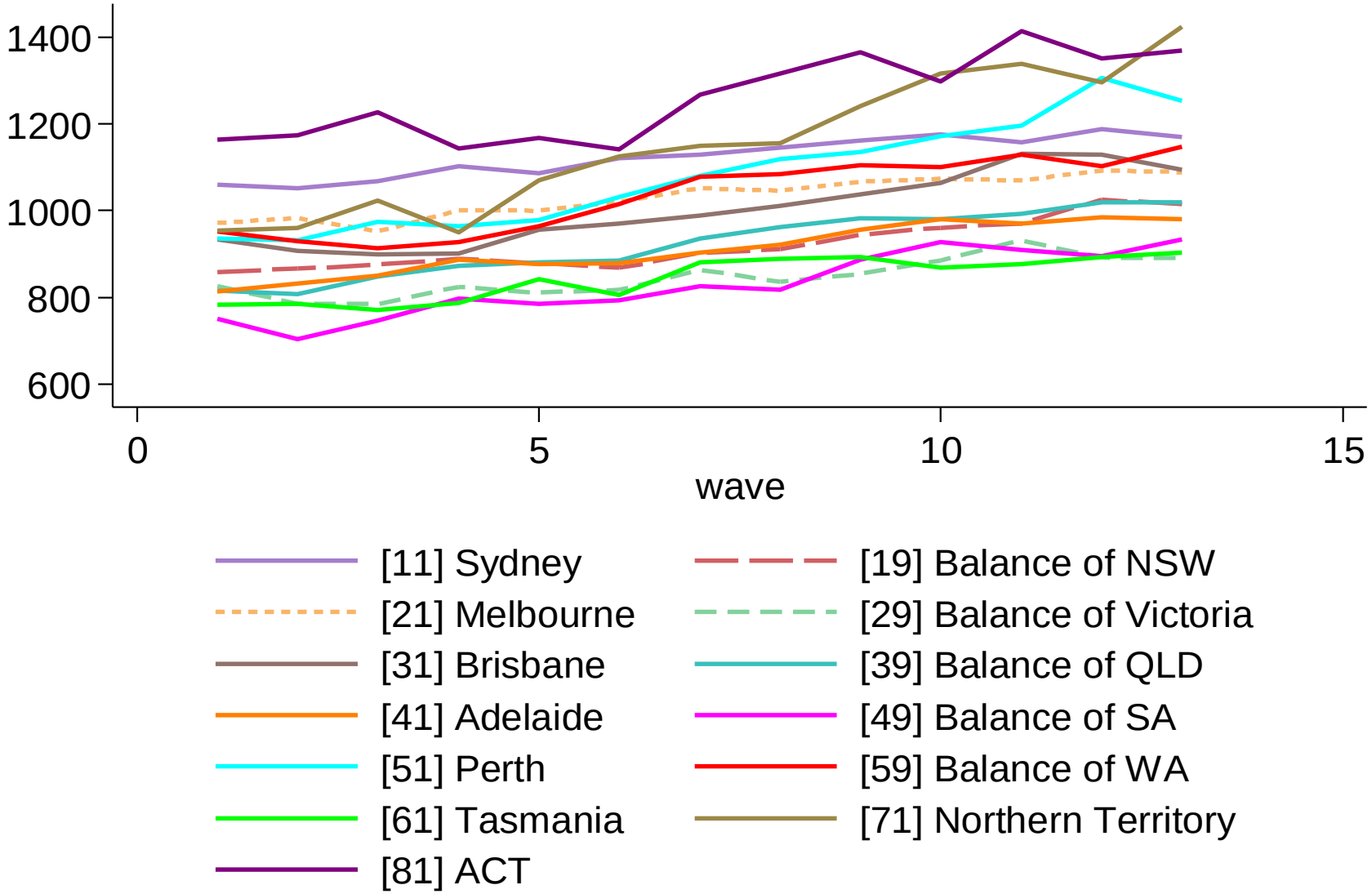
NEXT STEPS

- Include SWB & income for ‘like people’ in model
- Breakdowns by rate of time preference (& age)
  - Include SWB & income of older people as influences (interacted with time preference)
- Run *ex-post* analysis
  - Estimate what is the actual effect of migration on SWB

APPENDIX: SWB

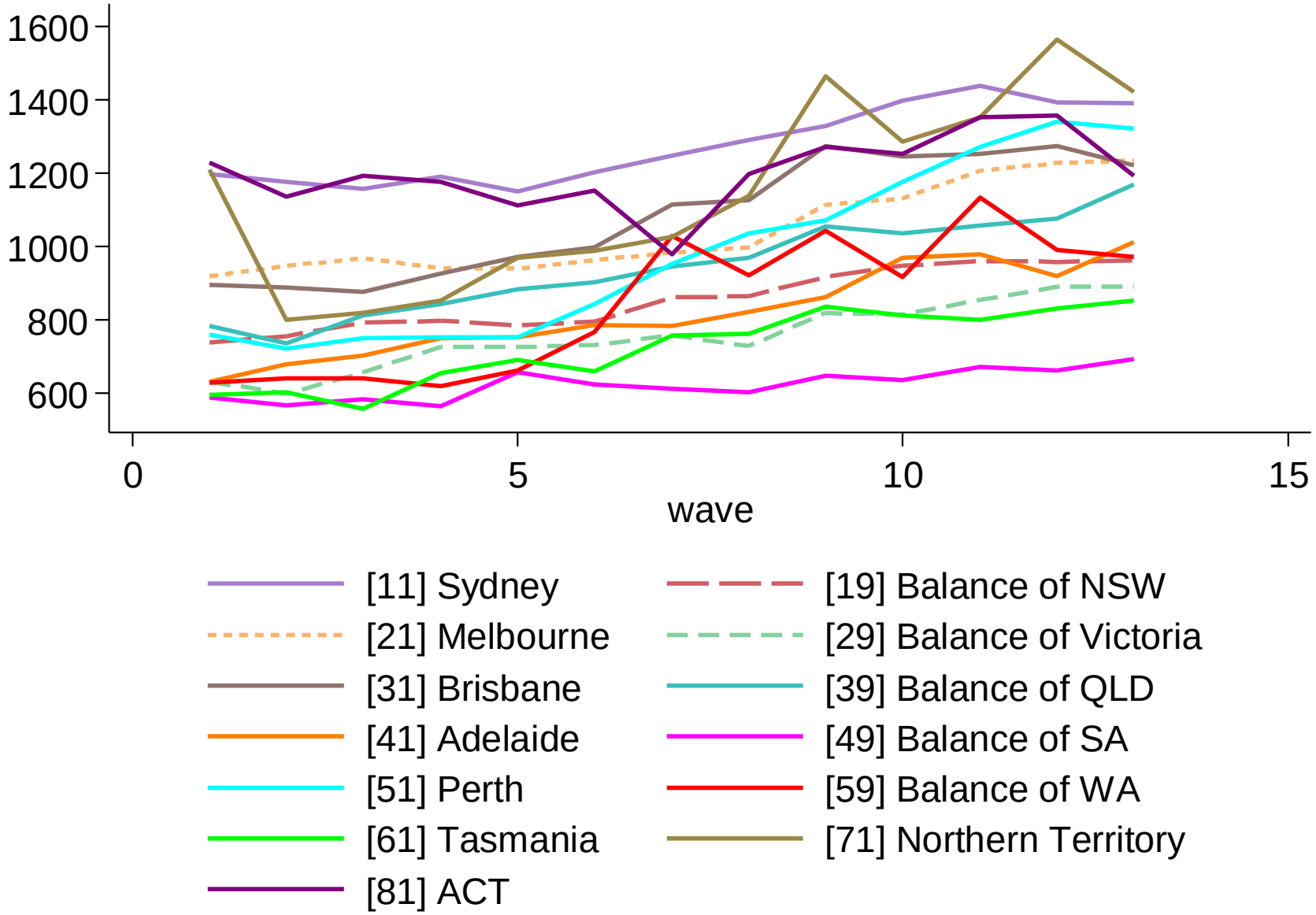


APPENDIX: INCOME



Plotted is the 2% trimmed mean of labour income, calculated on those with positive labour income

APPENDIX: RENTS



Graph plots the 2% trimmed mean household rent