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?
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?
• 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
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 ≠ Utility
  – but interpretation is not based on a life-cycle model

Our theoretical life-cycle model shows:
  – location choice (& SWB) is a function 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)*

**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.

\[
c_2 = y_2 + (1 + r)(y_1 - c_1)
\]
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
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.

\[ t = 12 \text{ years (drop first year) [2002-2013]} \]

Supplement with ABS Labour force stats.

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

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

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

Robustness check: Look only at (smaller) balanced panel
How satisfied are you with your life?

Wave 13  N = 17,493  Median = 8  Mean = 7.9  Sd = 1.45
Estimate McFadden’s choice model:

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

- individuals’ characteristics, $w_i$, and on:
- all regions’ attributes in relation to individual $i$, $x_{i,k}$.

$$\text{Prob}(\text{Location}_{i,t} = \text{Region}_j) = f\left(\sum_{k} x_{i,k,t-1}, w_{i,t-1}\right)$$
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
Changes in average log income and well-being from 2001 to 2013
Coefficients are odds ratios (i.e. coeff=1 ⇒ zero effect). Dependent variable is location choice.

<table>
<thead>
<tr>
<th>Region attributes:</th>
<th>income</th>
<th>SWB</th>
<th>comparison</th>
<th>with controls</th>
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</thead>
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<tr>
<td>log (mean income)</td>
<td>1.00</td>
<td>0.90</td>
<td>0.80</td>
<td></td>
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<tr>
<td>mean SWB</td>
<td></td>
<td>1.63***</td>
<td>1.63***</td>
<td>1.50*</td>
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<td>current region</td>
<td>463.06***</td>
<td>463.36***</td>
<td>463.37***</td>
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<td>distance</td>
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<td>log (population)</td>
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<td>3.77**</td>
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<td>employment rate</td>
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<td>log (mean rent)</td>
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<td>Regional intercepts</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Personal Characteristics</td>
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<td>No</td>
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<td>Yes</td>
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<tr>
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<td>Number of regions</td>
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</table>

* p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered at person level.
SBE coefficients by age for high and low education

- High Education
- Low Education
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
Plotted is the 2% trimmed mean of labour income, calculated on those with positive labour income.
Graph plots the 2% trimmed mean household rent

APPENDIX: RENTS

[21] Melbourne
[31] Brisbane
[41] Adelaide
[51] Perth
[61] Tasmania
[81] ACT

[19] Balance of NSW
[29] Balance of Victoria
[39] Balance of QLD
[49] Balance of SA
[59] Balance of WA
[71] Northern Territory