

Spatial integration of overseas-born immigrants in Australia

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Background

- 28% of the Australian population are born overseas (2021 Census)
- Shifts in migration forms since mid-1990s
- Spatial integration - Relevant to chances for inter-group interactions, cultural diversities, and social cohesion
- The conventional spatial assimilation theory



Overseas-born immigrants in Australia, 2021 Census

| Country or region of birth | Persons | Percentage |
|----------------------------------|------------|------------|
| Australia* | 17,020,422 | 70.8 |
| New Zealand | 530,492 | 2.2 |
| Other Oceania and Antarctica | 157,726 | 0.7 |
| United Kingdom** | 1,108,404 | 4.6 |
| Other North-West Europe | 351,429 | 1.5 |
| Southern and Eastern Europe | 658,197 | 2.7 |
| Northern America | 152,119 | 0.6 |
| South America^^ | 187,500 | 0.8 |
| Sub-Saharan Africa | 372,151 | 1.5 |
| North Africa and the Middle East | 454,856 | 1.9 |
| Vietnam | 257,997 | 1.1 |
| Indonesia | 87,075 | 0.4 |
| Malaysia | 165,616 | 0.7 |
| Philippines | 293,892 | 1.2 |
| Other South-East Asia | 246,853 | 1.0 |
| China^ | 549,618 | 2.3 |
| Other North-East Asia | 305,189 | 1.3 |
| India | 673,352 | 2.8 |

* includes External Territories

** include the Channel Islands and Isle of Man

^ excludes SARs and Taiwan

^^ includes South America, Central America, and the Caribbean



Research Aim

- To understand spatial integration of overseas-born immigrants in Australia
 - Decompose the residential integration at a finer geographic level (SA2) across various nested geographic scales
 - Variations by immigrants' overseas origins
 - Changes between 2011 and 2021 Censuses
 - Contributing factors such as income (education levels, and arriving cohort).



Australian Census Data

- Sourced from ABS TableBuilder (and Datapacks)
- Census years: 2011, 2016, 2021
- Birthplaces: 18 overseas countries and regions + Australia
- Geographic levels (*Australian Statistical Geography Standard - ASGS*)
 - Statistical Area Level 2 (SA2)
 - SA3
 - SA4
 - Greater Capital City Statistical Areas (GCCSA)
 - One capital region and one rest-of-state region
- Year of first arrival in Australia
- Highest education attainment



Measuring spatial integration

- Multiple dimensions
 - Evenness, exposure, concentration, clustering, centralization, etc. (Massey & Denton 1988)
- Indices to measure spatial integration
 - Dissimilarity index, Gini index, Theil index, Exposure index, Coefficient of Variation, etc. (Massey & Denton 1988; Reardon & Firebaugh 2002; Reardon & O'Sullivan 2004; Iceland 2004; Lichter et al. 2015; Guan 2019)
- Advantages of the Theil index
 - Decomposable into additive contributions from different geographic levels (Fischer et al. 2004; Reardon & Firebaugh 2002; Reardon & O'Sullivan 2004)
 - Residential integration measured at a lower geographic level is **net** of residential integration at higher geographic levels



Measuring residential unevenness between two populations

- Theil index (H) measures how evenly two populations are distributed across subnational areas, controlling for the size of the two populations (Fischer et al. 2004; Reardon & Firebaugh 2002; Reardon & O'Sullivan 2004; Iceland 2004; Lichter et al. 2015)
 - 0=maximum integration; 1=maximum separation
 - Theil index) at geographic level i is calculated as:
 - : two-population total of Australia
 - : two-population total of subnational geographic area i
 - : Entropy at Australian national level
 - Entropy at subnational geographic area i
- Entropy (E) measures the population diversity of an area (0~0.69)
 - Two-population Entropy () of area i is calculated from the percentage () of a population



Decompose across multi-scalar geographic levels

(build on ASGS)

$$H_{SA2_A} = \frac{1}{N_A E_A} \sum_{sa2=1}^{SA2} N_{sa2} (E_A - E_{sa2})$$

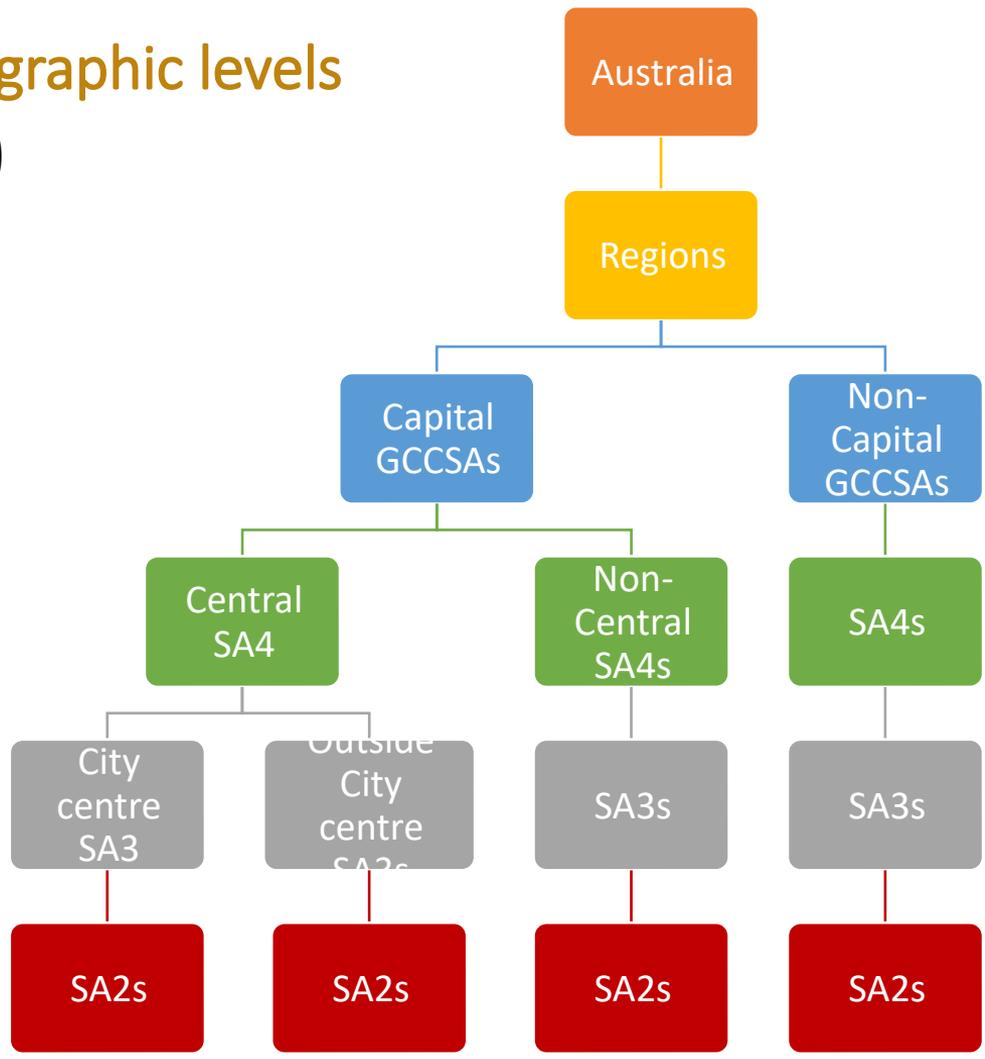
$$H_{R_A} = \frac{1}{N_A E_A} \sum_{r=1}^R N_r (E_A - E_r)$$

$$H_{GCCSA_A} - H_{R_A} = \frac{1}{N_A E_A} \sum_{r=1}^R \sum_{gccsa=1}^{GCCSA} N_{gccsa} (E_r - E_{gccsa})$$

$$H_{SA4_A} - H_{GCCSA_A} = \frac{1}{N_A E_A} \sum_{r=1}^R \sum_{gccsa=1}^{GCCSA} \sum_{sa4=1}^{SA4} N_{sa4} (E_{gccsa} - E_{sa4})$$

$$H_{SA3_A} - H_{SA4_A} = \frac{1}{N_A E_A} \sum_{r=1}^R \sum_{gccsa=1}^{GCCSA} \sum_{sa4=1}^{SA4} \sum_{sa3=1}^{SA3} N_{sa3} (E_{sa4} - E_{sa3})$$

$$H_{SA2_A} - H_{SA3_A} = \frac{1}{N_A E_A} \sum_{r=1}^R \sum_{gccsa=1}^{GCCSA} \sum_{sa4=1}^{SA4} \sum_{sa3=1}^{SA3} \sum_{sa2=1}^{SA2} N_{sa2} (E_{sa3} - E_{sa2})$$

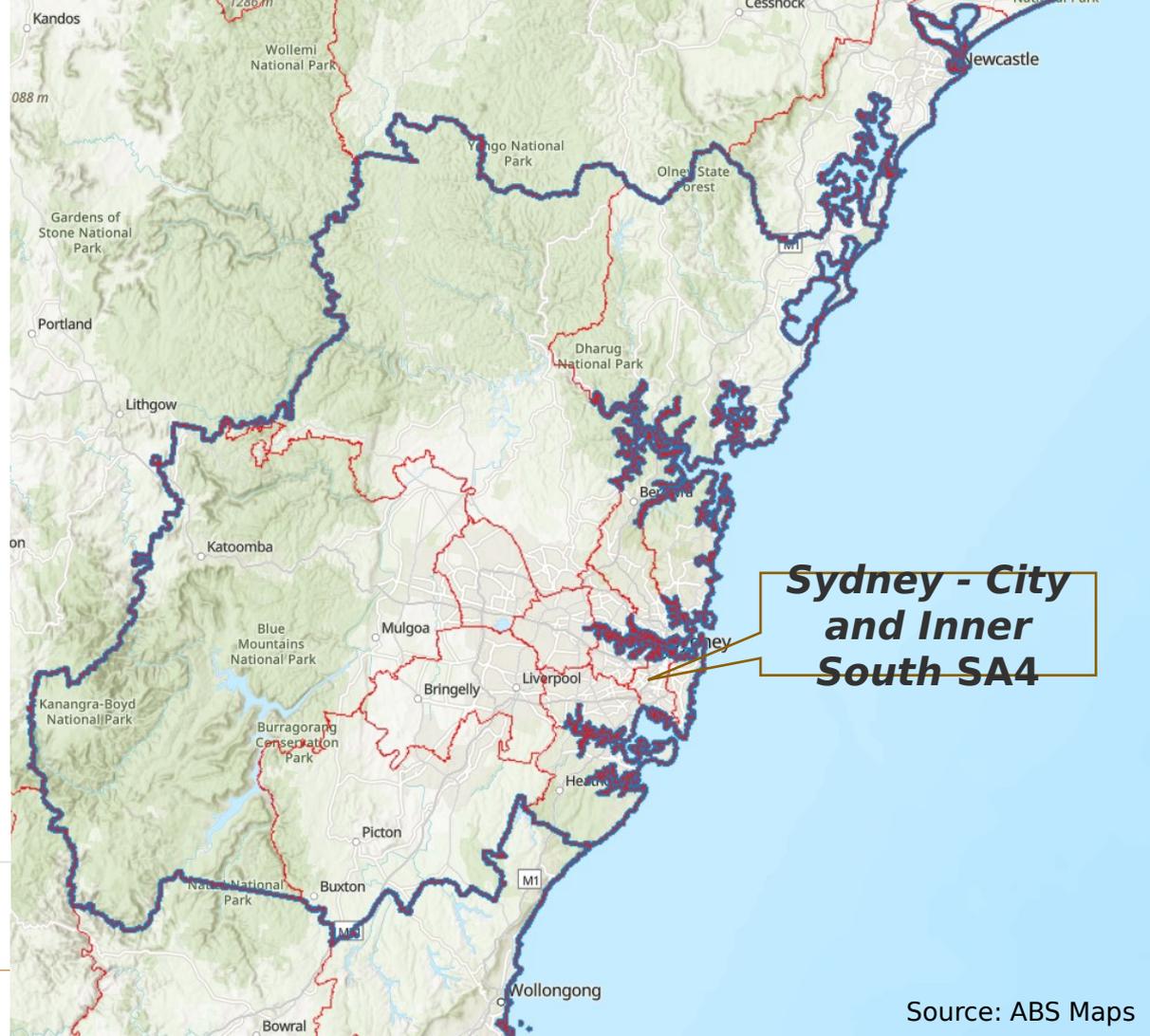


SA4s nested in the Greater Sydney GCCSA

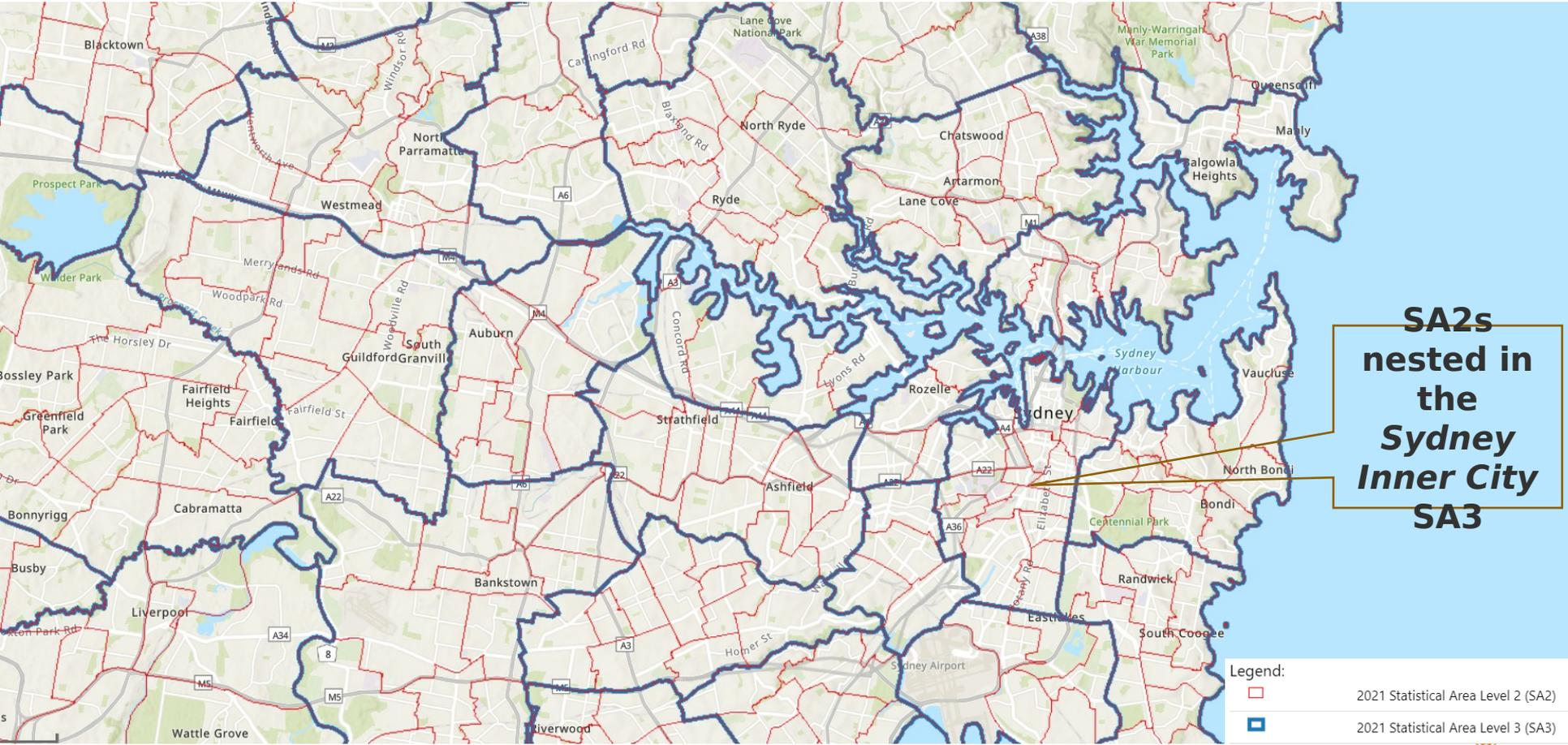
- Central SA4: *Sydney - City and Inner South*

Legend:

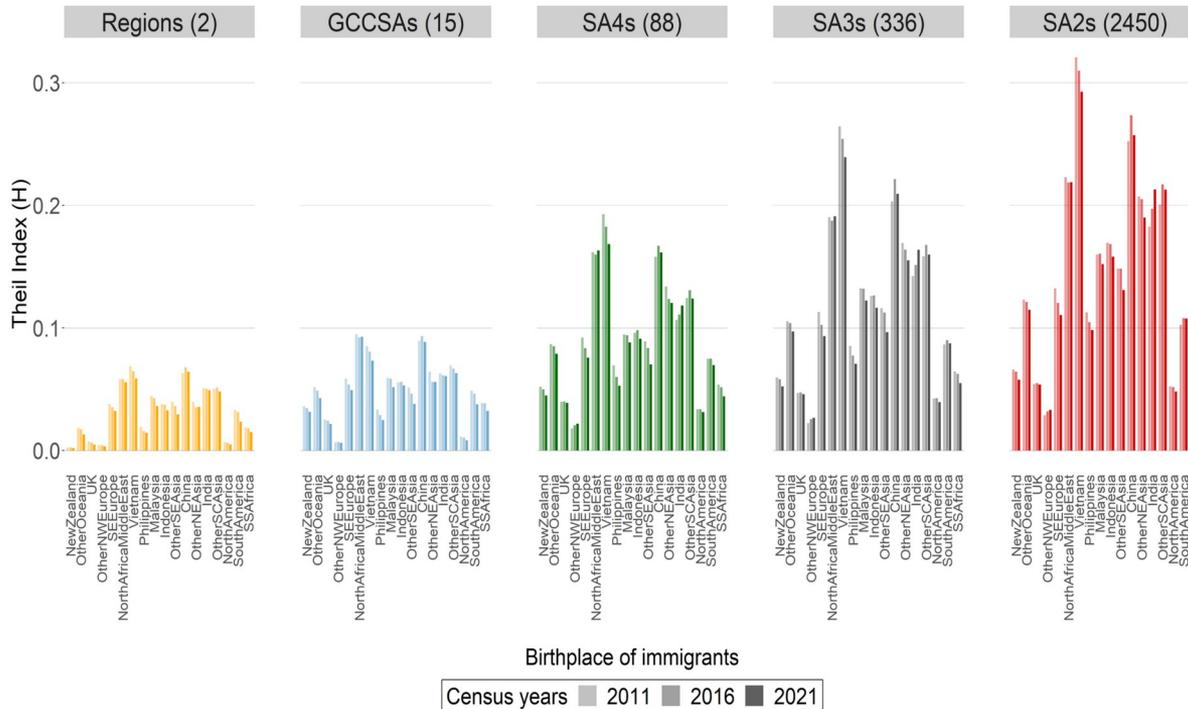
- 2021 Statistical Area Level 4 (SA4)
- 2021 Greater Capital City Statistical Area (GCCSA)



SA2s nested in SA3s in Sydney



Theil index (H) at different levels by immigrants' birthplace

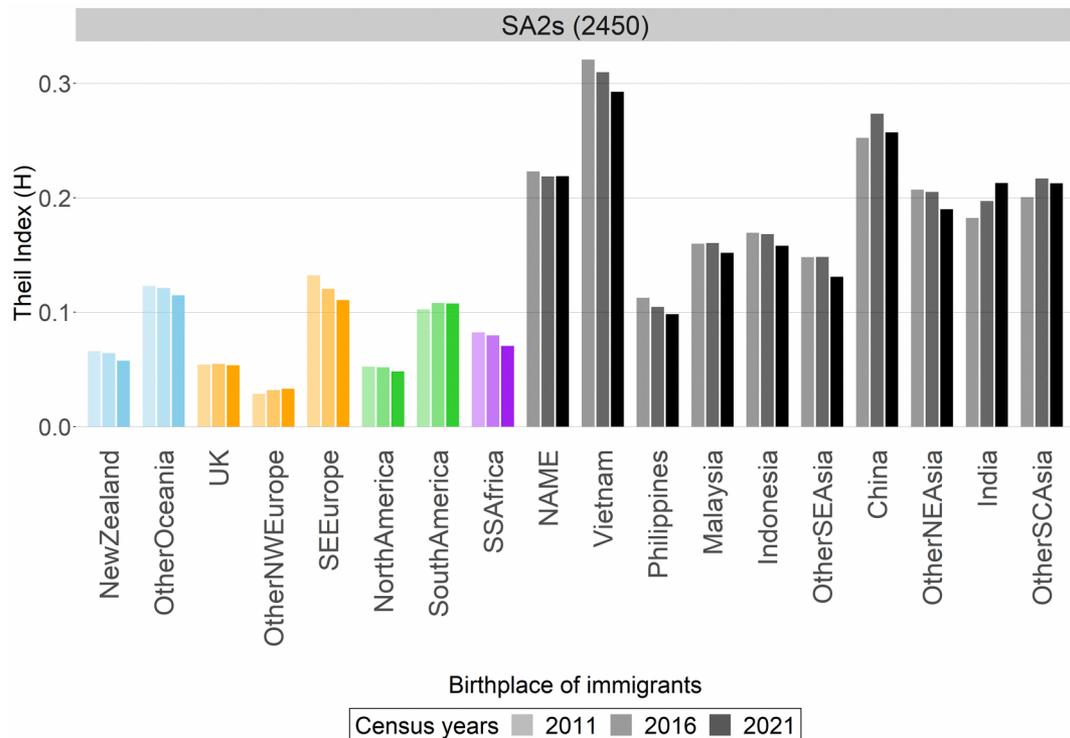


In 2016 Census, there are: 2 regions, 15 GCCSAs, 88 SA4s, 336 SA3s, and 2288 SA2s.
 In 2011 Census, there are: 2 regions, 15 GCCSAs, 87 SA4s, 330 SA3s, and 2193 SA2s.

- Relative higher residential separation from the Australia-born persons for **Asia-born populations**
- Over-time changes
 - Increased integration in most immigrant groups
 - Declined integration: India, other NW Europe
 - Declined then increased: UK, China,



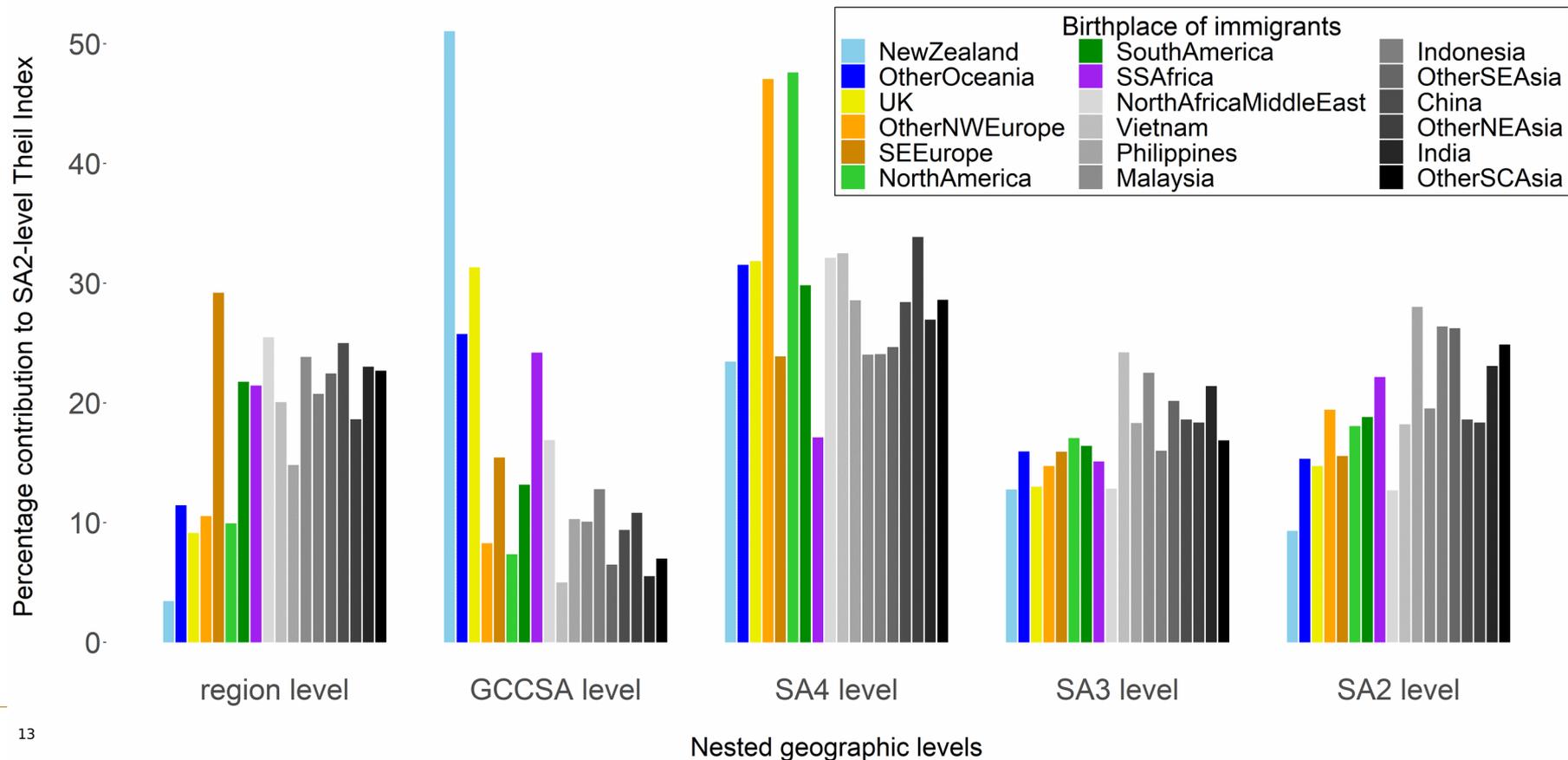
Theil index (H) at SA2 level by immigrants' birthplace



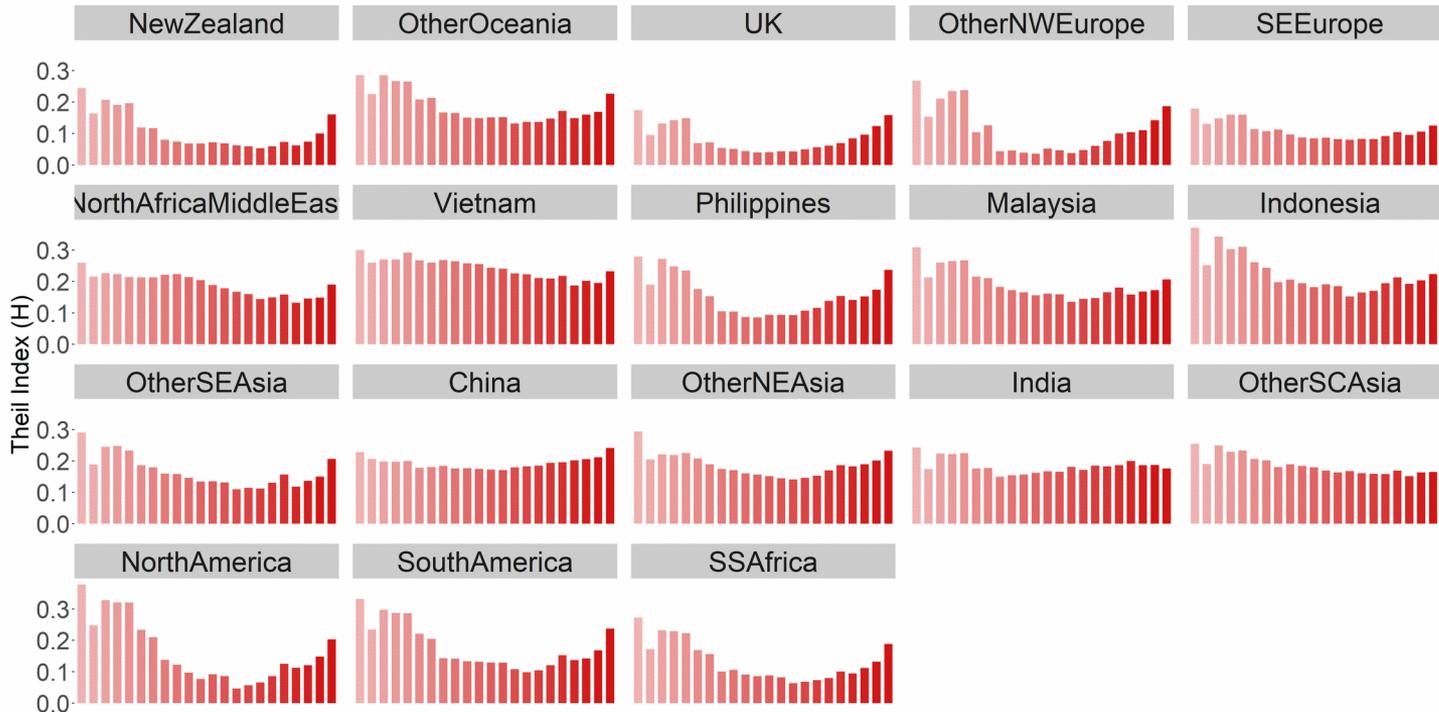
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- Relative higher residential separation from the Australia-born persons for **Asia-born populations** at SA2 level
- Over-time changes
 - Increased integration in most immigrant groups
 - Declined integration: India, other NW Europe
 - Declined then increased: UK, China, Other SC Asia

SA2-level residential unevenness is largely attributed to the unevenness at higher geographic levels (in %)



Theil index (H) at SA2 level by immigrants' birthplace and family income, 2021 Census



| | | income level | | | | | | | | | |
|---|-----------------|--------------|---------|---|-------------|---|-------------|---|-------------|---|---------------|
| ■ | Negative income | ■ | 300 399 | ■ | 800 999 | ■ | 1 750 1 999 | ■ | 3 500 3 999 | ■ | 6 000 7 999 |
| ■ | Nil income | ■ | 400 499 | ■ | 1 000 1 249 | ■ | 2 000 2 499 | ■ | 4 000 4 499 | ■ | 8 000 or more |
| ■ | 1 149 | ■ | 500 649 | ■ | 1 250 1 499 | ■ | 2 500 2 999 | ■ | 4 500 4 999 | | |
| ■ | 150 299 | ■ | 650 799 | ■ | 1 500 1 749 | ■ | 3 000 3 499 | ■ | 5 000 5 999 | | |

- **Very high or very low income, higher H index, higher residential unevenness compared to Australia-born persons (U-shape)**
- Exceptions are immigrants born in North Africa and Middle East, Vietnam
- **Median weekly household income ranged between 1,358 in TAS to 2,373 in ACT**



Limitations

- Changes in geographic boundaries between censuses
- Integration is measured as against the local-born population
 - Residential separation between different overseas-born groups



Key findings

- The capital-regional divide, the balance between capital cities, and the distribution outside capital city centres contribute the most to residential unevenness between the overseas-born and the Australia-born persons
 - Also recorded substantial differences between Asia-born immigrants and immigrants born elsewhere
 - Differences in finer-geography index are largely contributed by residential unevenness between immigration and the Australia-born persons at higher geographic levels rather than neighbourhood level
- Immigrants born in Asia, with very high or very low family income are generally more separated from the Australia-born persons



Concluding remarks

- On top of the diverse origin, heterogeneity within an immigrant population further complicates their residential choices
 - E.g. education and income ladders
- The role of migration policies in transforming immigrants residential patterns and spatial integration
 - E.g. skill selection, the State Nomination and Regional Sponsored scheme
 - The regional migration policies could have made a major contribution to the increased spatial integration of the skilled immigrant cohorts
- Future works
 - Separating effects from the eight capital cities (and compare individual cities)
 - Theorizing the multidimensional and multi-way approach of immigrant integration
 - The gaps between (residential) similarities to the local-born population and “integration”
 - » E.g. Sense of belonging and (spatial) integration



THANK YOU

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Spatial integration of immigrants

- Recent development of the integration debate to understand residential choices of immigrants from more diverse backgrounds
 - **Segmented assimilation theory** (Portes & Zhou, 1993; South et al., 2005; Edgar, 2014; Hirschman, 2001)
 - **The heterolocalism model** (Zelinsky & Lee, 1998)
 - **The positive benefits of segregation** (Merry, 2012a, 2012b)
 - **A multi-way approach** (Bolt et al., 2010; Samaluk, 2020)
- **The skilled migration context**
 - **New arrivals characterised by high human capital, channelled by migration policies, connected to co-national networks**
 - **Post-2000 dispersion for China-born immigrants** (Wang et al., 2018; Guan  2019, 2021)