Factors explaining the low income return for education among Asian New Zealanders

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Outline

1. Introduction
2. Exploratory Analysis
3. Results
4. Conclusion

Disclaimer: Access to the data used in this study was provided by Statistics New Zealand under conditions designed to give effect to the security and confidentiality provisions of the Statistics Act 1975. The results presented in this study are the work of the author, not Statistics New Zealand.
Project Origins

While creating the New Zealand Socio-Economic Index (NZSEI), it was noticed that at the 2006 Census, Asian New Zealanders had more than double the prevalence of university degrees compared to any other large ethnic group, yet tended to be in poorly paid jobs.
Observations

• Asians had **double** the prevalence of **Bachelor’s degrees** compared to the European population
• Migrants **earn less**
• The children of Asian migrants earn comparable incomes to the general population (2\textsuperscript{nd} generation)
Migration Histories

1850 1880 1910 1940 1970 2000

Year

Chinese

Indian

Filipino

Korean
NZ Immigration Law

- **1986**: Personal Merit
- **1991**: Points System
- **1995**: Pass Mark + Fluency Standard
- **1998**: English Language Standard Increased
- **2002**
- **2004**
- **2009**: Minimum Income Requirements
- **2012**: Stricter Family Rules

**Year**
Population Breakdown - 2013

Non Asian - 89%

Asian - 11%

Other Asian - 2%
Korean - 1%
Filipino - 1%
Indian - 4%
Chinese - 4%
Context

- New Zealand is similar to Australia, Canada and the US in its at times tense relationship with migration from Asia.
Importance

• Skill shortages
• Asia is an important source of skills
• Our economy is at risk
Exploratory Analysis
The Big Picture

Our analysis focuses on New Zealanders:
- 21 - 69 years of age,
- with an ANZSCO rating,
  - i.e. in the workforce
- who responded to all relevant 2013 census questions.

A group of just under 1.7 million people were used in this analysis.

Of these, about 190,000 identify as Asian with 2/3 living in Auckland and 90% born overseas.
Income by Education (2013 Census)

- **Euro**
- **Population Average**
- **Māori**
- **Pacifica**
- **Asian**

Average Annual Income

- **No Qualification**: $11,800
- **School Only**: $19,500
- **Post School**: $19,500
- **Bachelors**: $19,500
- **Post Graduate**: $19,500
Born in NZ (Asian Population Only)

Average Annual Income

- Migrant
- Born in New Zealand
- Population Average

Education Levels:
- No Qualification
- School Only
- Post School
- Bachelors
- Post Graduate
Counterfactual Models
Means Adjustment - Example

What if...

Each ethnicity had the same proportion of migrants as the overall population?

Reality

Counterfactual
Means Adjustment - Example

What if...

Each ethnicity had the same proportion of migrants as the overall population, and each population had the same proportion of migrants who arrived before turning 18?
What if...?

• **Base:**
  • What if all ethnicities had the same age, sex and marital status distributions?

• **Education:**
  • What if all ethnicities had the same distribution of educational qualifications?

• **Migrant Status:**
  • What if all ethnicities had the same distribution of migrant status?

• **Language and Migrant Characteristics (3 variables):**
  • What if all ethnicities had the same distribution of language, age of arrival and length of residence?

• **Work Characteristics (2 variables):**
  • What if all ethnicities had the same distribution of occupation and workplace ethnic profile?
Base Model – Average Annual Income
Adjusting Age, Sex and Marital Status
What if all ethnicities had the same distribution of educational qualifications?

<table>
<thead>
<tr>
<th>Base</th>
<th>Education</th>
<th>Migrant Status</th>
<th>Language and Migrant Characteristics</th>
<th>Work Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euro</td>
<td>Maori</td>
<td>Pacific</td>
<td>Indian</td>
<td>Chinese</td>
</tr>
<tr>
<td>Other Asian</td>
<td>Filipino</td>
<td>Korean</td>
<td></td>
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</tr>
</tbody>
</table>

Average Annual Income
What if all ethnicities had the same distribution of migrant status?
What if all ethnicities had the same distribution of language, age of arrival and length of residence?
What if all ethnicities had the same distribution of occupation and workplace ethnic profile?
Effect of each model compared to the previous model

Average Annual Income (Difference)

-6,000 -4,000 -2,000 0 2,000 4,000 6,000 8,000 10,000 12,000 14,000

Education - Base
Migrant Status - Education
Language and Migrant Characteristics - Migrant Status
Work Characteristics - Language and Migrant Characteristics

Euro Maori Pacific Indian Chinese Other Asian Filipino Korean
Conclusions

- Migrant status
  - The biggest factor in the conversion of education into income for Asian New Zealanders

- Age at arrival, years of residence and language also important

- Occupation and workplace ethnic density were not as influential as expected

- Other factors of culture and background
  - Despite having access to some factors that once controlled for explain more of the ethnicity effects, we are still left with differences between our ethnicities.
Limitations

Of this data set
• Missing data
  • Where education or income data was missing, this may not be at random.
    • This was not found to be overly different between migrants and the overall population
• Accuracy of self-report
  • Especially for variables like language

Of the scope of this analysis
• Missing factors
  • What would we have liked to have but didn’t?
    • Sensitivity of measures, like language fluency
    • Where educational qualifications are from

• Non census style data about cultural differences or racism might hold the key
Where this research has been...

- Department of Statistics Honours and Masters talks day
- Population Association of New Zealand Conference
- Meeting at Ministry of Business, Innovation and Employment
- COMPASS Colloquium at Statistics New Zealand
- Meeting with economist from Treasury
- Inclusion in Superdiversity Stocktake (Superdiversity Centre for Law, Politics and Business)
Where it is going...

- Write a paper
- Keep talking to interested and affected people
Questions and Comments?

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Appendix
These additional slides briefly consider a few other topics of interest:

- Income case study for Chief Executives, General Managers and Legislators
  - For all
  - For those aged 35 – 56
  - For those who arrived between the ages of 30 and 40
- Income case study for Specialist Managers
- Age at arrival and gender averages for Asian groups

Anything of particular interest missing? Email me at liza.bolton@auckland.ac.nz.
Occupation Case Studies
Average Income by Education for Chief Executives, General Managers and Legislators - Considered by Ethnicity and Migrant Status

Average Annual Income by Education Level and Ethnicity:  
- **Asian Migrant** (blue line)  
- **Asian Born NZ** (red line)  
- **Not Asian Migrant** (purple line)  
- **Not Asian Born NZ** (green line)
Average Income by Education for Chief Executives, General Managers and Legislators (Aged 35 - 56)
Average Income by Education for Chief Executives, General Managers and Legislators (Arrived in NZ between the ages of 30 and 40)
Average Income by Education for Specialist Managers – Considered by Ethnicity and Migrant Status

Average Annual Income

- No Qual
- School Only
- Post School
- Bachelor’s
- Post Grad

- Asian Migrant
- Asian Born NZ
- Not Asian Migrant
- Not Asian Born NZ
• These are just two occupation groups, and I chose the Chief Executive group because there were some of the largest gaps between the Asian and non-Asian groups in this category. There are some occupations where Asian people receive a higher average income than others, but overall non-Asian groups are earning more for the same jobs and education.

• **Note:** The Australia New Zealand Standard Classification of Occupations (ANZSCO) suggests that Level 1 occupations, like the Chief Executives, General Managers and Legislators group and Specialist Manager group, usually have at least a Bachelor’s degree, or many years of experience, so the most important comparisons are probably at the Bachelor’s and Post Grad level.
• When we limit the ages over which we’re examining income to 35-56 we see the born in NZ Asian group aligning much more closely to the non-Asian migrant group at higher levels of education.
  • It is important to consider age profiles when comparing groups.

• There is still an almost $12,000 difference at the Bachelor’s level between Asians born in NZ and non-Asians born in NZ.

• The disparities in the Specialist Manager group are much smaller than for the Chief Executive group.
• There are two levels of selection in standard migration: firstly, people self-selecting to apply to migrate, and secondly the destination country selecting whom to approve from these.

• If the processes that cause people to choose to migrate differ by groups this may relate to income differences.

• **Hypothesis:** Non-Asian migrants may have entered the country with job offers more often than Asian migrants, or with different types of job offers, explaining some of the income differences.

  • Anecdotally, Asian migrants may be more likely to be coming to be with family, or seeking a better environment/education for their children.

  • This would need to be explored further with Immigration data, but understanding the extent to which this explains differences between migrant groups is important.
Asian Groups
Age at Arrival and Gender
Chinese Summary

• Slightly more women than men
• Largest arrival group is those who arrived between 21 and 40
• Best paid: Someone who was born here and has a Post Graduate degree
• Male and Female income parity reasonably similar to overall trends
• Largest education group is Bachelor’s, followed by School Only
• This group has the smallest difference between the number of people of each gender
Filipino Summary

- More women than men
- Largest arrival group is those who arrived between 21 and 40
- Best paid: Someone who arrived here between 21 and 40 and has a Post Graduate degree
- Male and Female income parity reasonably similar to overall trends
- Largest education group is Bachelor’s, followed by School Only
Indian Summary

• More men than women
• Largest arrival group is those who arrived between 21 and 40
• Best paid: Someone who was born here and has a Post Graduate degree
• Male and Female income parity is reasonably similar to overall trends, but the difference is a bit larger at Bachelor’s (women only earning 80% of what men do)
• Largest education group is Bachelor’s, followed by School Only.
• Unusually high level of people with Post School qualifications compared to other groups
Korean Summary

• More men than women
• Largest arrival group is those who arrived between 21 and 40
• Best paid: Someone who arrived between 21 and 40 and has a Post Graduate degree
• Male and Female income the closest for this group out of all Asian subgroups
• Largest education group is School Only, followed by Bachelor’s
• Very few Koreans in the workforce in 2013 were born in New Zealand
Other Asian

**Gender**

**Age at Arrival**

- No Qual
- School Only
- Post School
- Bachelor's
- Post Graduate

- Male
- Female

- Born in NZ
- 0 to 20
- 21 - 40
- Over 40
Other Asian Summary

- More women than men
- Largest arrival group is those who arrived between 21 and 40
- Best paid: Someone who arrived before age 21 and has a Post Graduate degree
- Women are not as close to pay parity here as in other groups
- Largest education group is Bachelor’s, followed by School Only
2006 Census Results
Steps

1. Perform multiple linear regression and extract estimates of effects.
   
   \[
   \text{income}_{\text{adj}} = \text{asian} \times \text{euro} \times \text{age} \times \text{sex} \times \text{married} \times \text{bornNZ} \times \text{bornNZ*asian} \times \text{bornNZ*euro}
   \]

2. Identify proportions for counterfactual population

3. Reweight using theoretical probabilities to get the ethnicity average incomes associated with the counterfactual.
Born in NZ (Asian Population Only) 2006 Census

Not Born in NZ
Born in NZ
Pop. Average

Not Born in NZ
Born in NZ
Pop. Average

No Qualification  School Only  Post School  Bachelors  Post Graduate
Age at Immigration (Asian Population Only)

Average Annual Income

- Born in NZ
- Arrived before 5
- Arrived 5 - 12
- Arrived 13 - 17
- Arrived after 18 - 23
- Arrived after 24
- Population Average

No Qualification | School Only | Post School | Bachelors | Post Graduate
Years in NZ (Asian Population Only)

Average Annual Income

- No Qualification
- School Only
- Post School
- Bachelors
- Post Graduate

Population Average
Asian Avg Income
Languages Spoken (Asian Population Only)

Average Annual Income

- Bilingual Asian Born in NZ
- English only
- Bilingual
- No English
- Population Average

No Qualification | School Only | Post School | Bachelors | Post Graduate

0 | 10000 | 20000 | 30000 | 40000 | 50000 | 60000 | 70000 | 80000
Cumulative Model Ethnicity Stable Composition Adjusted Means

Factor Added to Model

- Migrant Status
- Age at Arrival
- Years of Residence
- Language

Average Annual Income

Asian: $48,300, $45,200, $45,800, $46,000, $46,300
Euro/Other: $48,100, $48,100, $48,000, $48,000, $48,000
Maori: $43,200, $43,100, $43,100, $43,000, $43,000
Pacific: $42,900, $42,900, $42,700, $42,700, $42,800
Validity of Models

• Dealing with a whole population, not a sample
• All categorical explanatory variables
• Normal distribution of errors
  • Structure in the right tail – married, European, male, CEOs