

Earnings and Languages in the Family: Second-Generation Australians

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Motivation

- ▶ First-generation (OB): Persons born O/S
- ▶ Second-generation (2G): Native-born with at least one parent born O/S
- ▶ Third-generation (3G): Native-born and both parents native-born

- ▶ How does 2G perform in the labour market?
- ▶ The international evidence suggests
 - ▷ Intergenerational transmission of disadvantage in 2G
 - ▷ Language is a key component of human capital
- ▶ What drives the 2G disadvantage?
 - ▷ An official language deficit?
 - ▷ Lack of labour market socialisation?
 - ▷ Cultural barriers?
 - ▷ Discrimination?
- ▶ Are languages other than English (LOTE) valuable in Australia?

Methodology

- ▶ DATA: HILDA, Wave 7 (cross-section)
- ▶ We account for undereducation, overeducation & severe overskilling
- ▶ 1st Generation of Australians (1G) effects:
 - ▷ English-speaking (ESOB) and Non-English-speaking (NESOB)
 - ▷ Skilled and Unskilled
 - ▷ LOTE
- ▶ 2nd Generation (2G) effects:
 - ▷ Ancestry/Cultural effects
 - ▷ Linguistic background (i.e., LOTE)
 - ▷ Linguistic diversity in the family (i.e., LOTE and English-speaking)
- ▶ We use Quantile regressions to minimise selection bias

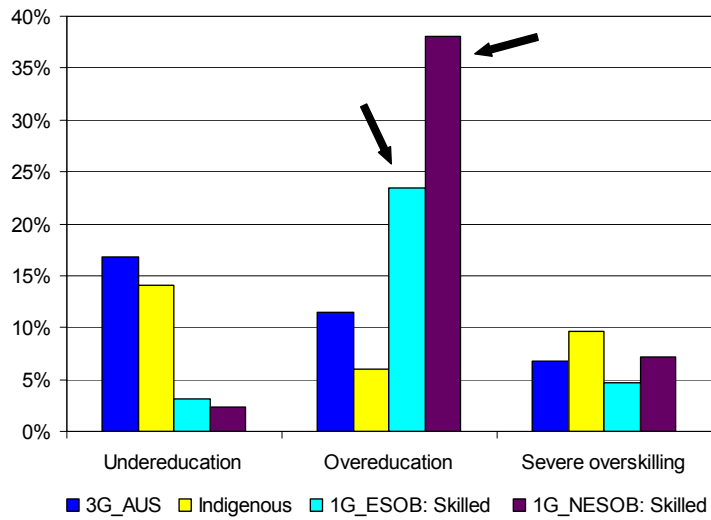
The Model

- ▶ An expanded Mincer equation (Mavromaras *et al.* 2007)

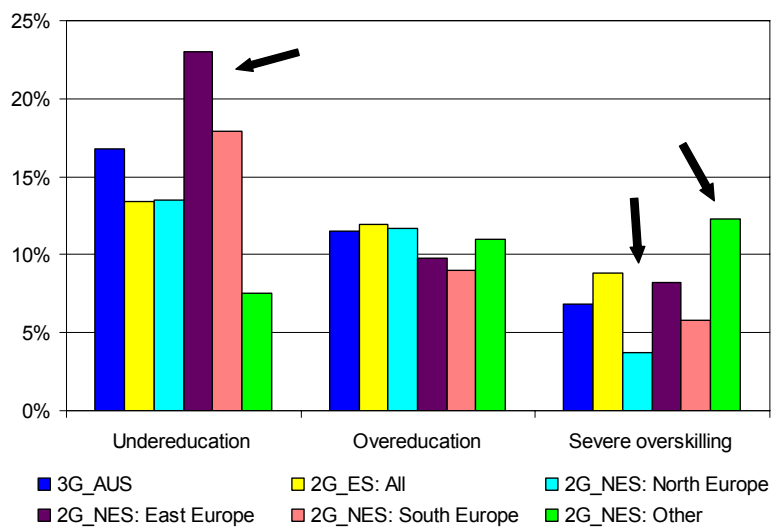
$$\ln W_i = \alpha T_i + \beta VET_i + \gamma Y12_i + \sum_{k=1}^3 \phi_j M_k + X_i \varphi + \eta_i \quad (2)$$

- ▶ $\ln W$ = log of weekly Wages (adjusted for time NILF)
- ▶ T = Tertiary is highest education level
- ▶ VET = Cert III, IV or Diploma or Apprenticeship
- ▶ $Y12$ = completed Year 12
- ▶ M_k = mismatch indicator k
- ▶ X = vector of covariates
- ▶ η = random error term

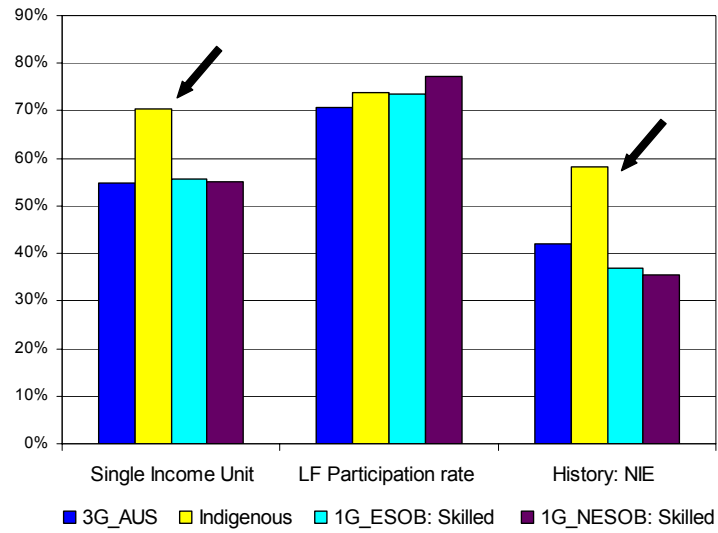
Job-Skill Mismatch: 1st Generation (Table 1)



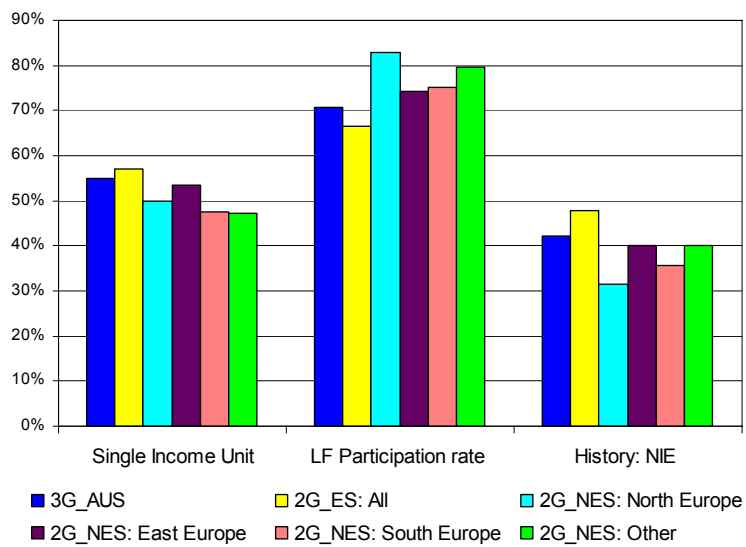
Job-Skill Mismatch: 2nd Generation (Table 1)



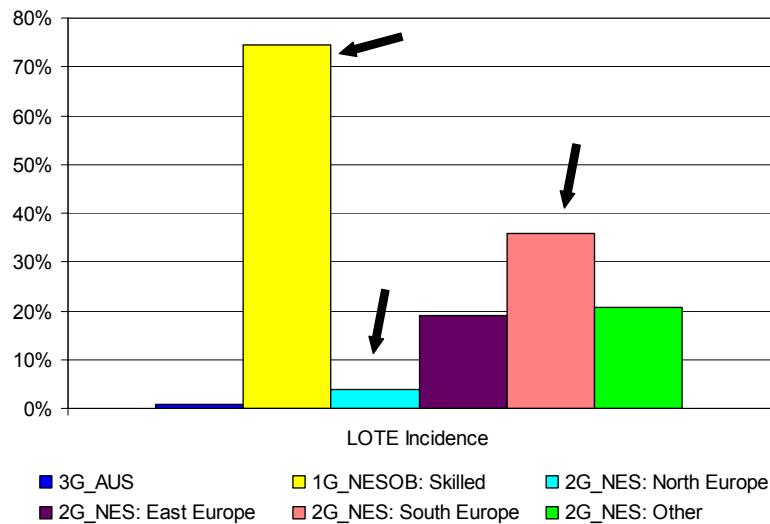
Labour Market: 1st Generation (Table 1)



Labour Market: 2nd Generation (Table 1)



LOTE Incidence (Table 1)

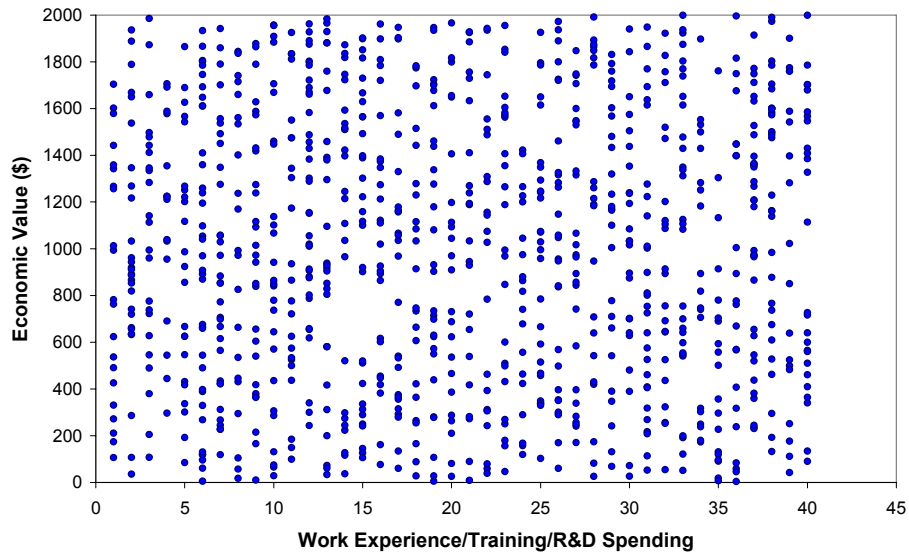


PROBLEM: Non-Random Sample Selection

- ▶ NOTE: Pervasive in cross-section data
- ▶ CAUSES: unobservable factors that correlate with dependent variable
- ▶ RESULT: omitted variables bias → biased (inaccurate) coeff. estimates
- ▶ EXAMPLES:
 - ▷ Earnings (**missing**: those not-in-employment or not in training)
 - ▷ Health care (**missing**: those not using medicines)
 - ▷ Innovation (**missing**: firms that do not apply for patents)
 - ▷ Energy (**missing**: countries that do not record energy use)

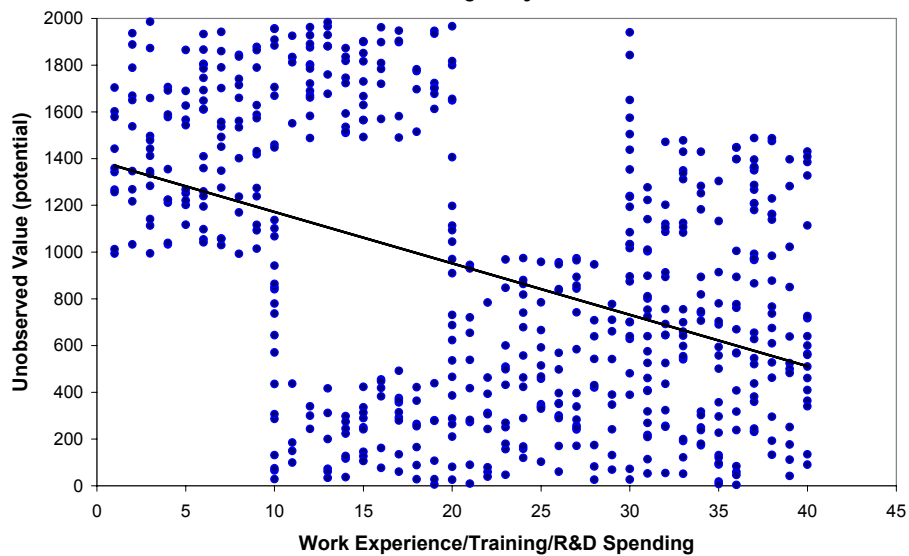
PROBLEM: Non-Random Sample Selection

- ▶ SIMULATION: Population → No relation by design



PROBLEM: Non-Random Sample Selection

- ▶ MISSING: workers (firms) that do **not** have a wage (file for patents)
- ▶ PROBLEM: non-selection or missing is systematic



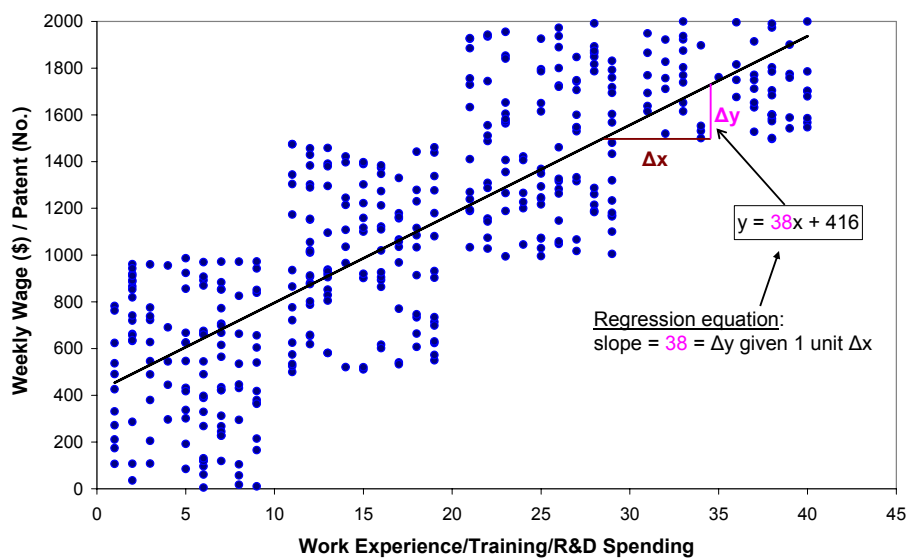
PROBLEM: Non-Random Sample Selection

- ▶ SELECTED: a non-random sample of workers (firms) that participate in employment/training (patents)



PROBLEM: Non-Random Sample Selection

- ▶ SIMULATION: Observed \rightarrow Positive relation



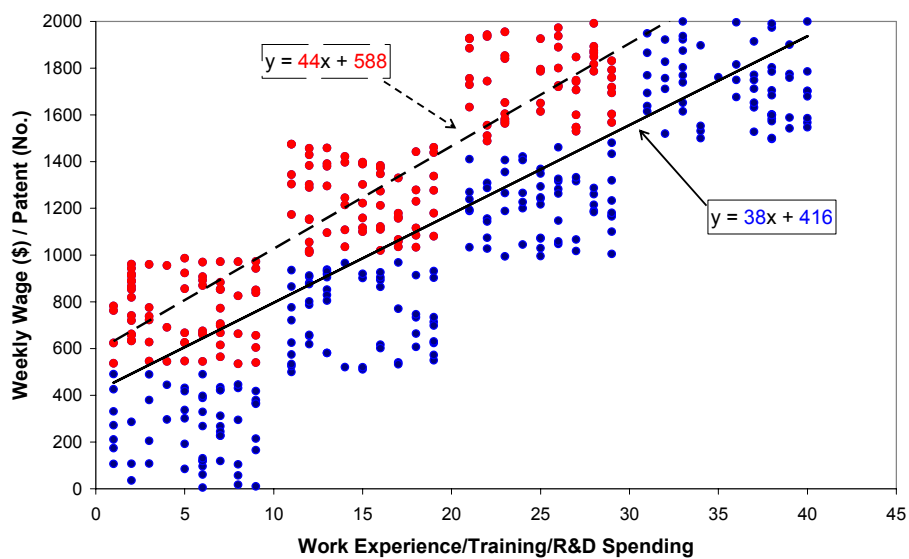
PROBLEM: Non-Random Sample Selection

▶ GROUPS: Is sub-group in **RED** different to others?



PROBLEM: Non-Random Sample Selection

▶ BIASED RESULT: group in **RED** seems to have a **stronger** relation



Accounting for Sample Selection Bias

ESTIMATION TECHNIQUES:

- 1) Heckman (1979): models jointly
(a) employment participation & (b) wages conditional on (a)
- 2) "Differences in Difference" estimators
- 3) Copulae functions
- 4) Quantile regressions

LIMITATIONS:

- ▶ (1) assumes bivariate normal distribution & hard to identify (a) & (b)
- ▶ (2) assumes group differences do NOT change over time
- ▶ (3) hard to identify the right distribution for each equation
- ▶ (4) assumes unobservable variable changes little within a quantile

SOLUTION: Quantile Regressions

- ▶ IDEA: Slice distribution in quartiles & expect omitted variable (eg. ability) to change little **within** the quantile



RESULTS: Quantile Regression (Table 3, part A)

Wages and Cultural Diversity: Full-time Workers, 2007

Variables	MALES			FEMALES		
	(1): Q25	(2): Q50	(3): Q75	(4): Q25	(5): Q50	(6): Q75
Constant	6.136**	6.281**	6.480**	6.068**	6.298**	6.490**
Education: Tertiary	0.453**	0.599**	0.714**	0.413**	0.383**	0.403**
Education: VET	0.186**	0.292**	0.264**	0.150**	0.105**	0.142**
Education: Year 12	0.176**	0.221**	0.295**	0.136**	0.106*	0.098**
Undereducation	0.079**	0.096**	0.120**	0.136**	0.137**	0.178**
Overeducation	-0.046	-0.103**	-0.122**	0.049	0.053	0.056**
Severe overskilling	-0.137**	-0.114**	-0.189**	-0.115**	-0.104*	-0.182**
Work experience	0.018**	0.020**	0.024**	0.015**	0.011**	0.013**
Work experience ² /100	-0.046**	-0.044**	-0.044**	-0.052**	-0.028**	-0.028**
History: Unemployed or NILF	-0.405**	-0.116**	-0.097*	-0.441**	-0.297**	-0.142**
Job tenure	0.005**	0.004**	0.001	0.011**	0.007**	0.003**
Union member	0.109**	0.077**	0.073**	0.100**	0.076**	0.027*
Married	0.092**	0.118**	0.158**	-0.028	0.005	0.018
Public sector employment	0.019	-0.022	-0.117**	0.015	0.040	-0.009
Indigenous person	-0.013	-0.034	-0.104	0.127	0.061	-0.077*

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RESULTS: Quantile Regression (Table 3, part B)

	MALES			FEMALES		
	(1): Q25	(2): Q50	(3): Q75	(4): Q25	(5): Q50	(6): Q75
ESOB: Skilled	-0.027	-0.022	0.021	0.064	0.054	0.087**
ESOB: Other	0.139**	0.119*	-0.002	0.122*	0.059	0.075*
NESOB: Skilled	0.053	-0.062	-0.107	0.085	0.124	0.223**
NESOB: Other	0.063	0.048	-0.104	0.192*	0.160	0.199**
2G: English Speaking (ES) Background (native-born)	-0.085**	-0.076**	-0.085*	-0.028	0.057	0.060**
2G: NES North Europe (native-born)	-0.038	0.004	0.003	0.080	0.014	0.068*
2G: NES East Europe (native-born)	0.199**	0.141	0.068	-0.126	-0.048	0.062*
2G: NES South Europe (native-born)	-0.026	-0.148**	0.016	0.150*	0.135	0.080**
2G: NES Other	0.089	-0.013	-0.002	0.226*	0.171	0.098**
LOTE: 1G (NESOB only)	-0.107**	-0.085	-0.039	-0.107	-0.135	-0.234**
LOTE: 2G NES Background (native-born)	0.063	0.043	-0.128	-0.248**	-0.215*	-0.115**
Observations	2436	2436	2436	1522	1522	1522
Pseudo R ²	0.12	0.12	0.13	0.16	0.17	0.15

RESULTS: Quantile Regression (Table 4, part B)

<i>Wages and Linguistic Diversity in Family: Full-time Male Workers, 2007</i>						
	(1): Q25	(2): Q50	(3): Q75	(4): Q25	(5): Q50	(6): Q75
ESOB: Skilled	-0.023	-0.017	0.015	-0.028	-0.019	0.021
ESOB: Other	0.134**	0.124**	-0.021	0.140**	0.129**	-0.006
NESOB: Skilled	0.053	-0.062	-0.105	0.047	-0.055	-0.108
NESOB: Other	0.059	0.047	-0.081	0.064	0.040	-0.108
2G: English Speaking (ES) Background (native-born)	-0.092**	-0.084**	-0.098*	-0.079**	-0.075**	-0.087*
2G: NES North Europe (native-born)	-0.049	-0.008	-0.029	-0.029	0.010	0.007
2G: NES East Europe (native-born)	0.193**	0.085	-0.016	0.200**	0.120	0.067
2G: NES South Europe (native-born)	-0.041	-0.206**	-0.022	-0.030	-0.139**	0.058
2G: NES Other	0.094	-0.019	-0.082	0.088	-0.007	-0.017
LOTE: 1G (NESOB only)	-0.109*	-0.083	-0.048	-0.106*	-0.089	-0.039
LOTE: 2G NES Background (native-born)	0.007	0.042	-0.143	-0.248**	-0.069	-0.341**
2G: Spouse is from ES Background	0.068	0.072*	0.105*			
LOTE: 2G: Spouse is from ES Background				0.324**	0.135	0.239*
Observations	2436	2436	2436	2436	2436	2436
Pseudo R ²	0.12	0.12	0.13	0.12	0.12	0.13

*Note: * and ** denote 5% and 5% level of significance respectively.*

Summary of results

- ▶ Little evidence of a skill premium for 1G (ESOB or NESOB)
- ▶ 2G of NES background is not at a disadvantage
- ▶ 2G of ES background seems disadvantaged (puzzling)
 - ▷ Low SES background ?
- ▶ LOTE attracts a wage penalty for both 1G & 2G
- ▶ A spouse with an ES background helps ameliorate the LOTE disadvantage for 2G → English language deficit?
- ▶ Results cast doubt on the hypotheses of (i) cultural barriers or (ii) discrimination as drivers of 2G disadvantage