

Labour Market Outcomes of Graduates in Economics in Australia

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Background

High school economics isn't popular, particularly with girls and lower socio-economic groups

By Roje Augustin and Belinda Sommer for The Economists

ABC RN Credit and Lending

Sat 14 Aug 2021

The demographics of the school economics classroom have changed significantly.

There has been a sharp decline in the number and diversity of year 12 economics enrolments in Australia, with girls and students from lower socio-economic groups representing the largest dip.

ABC, 14 August 2021

Economics needs to get real if we want more young Australians to study it

Published: February 23, 2019 11.47am AEDT

When it comes to studying economics, Australian high school students are voting with their feet. According to data gathered by the Reserve Bank of Australia, year 12 enrolments in economics courses have plunged 70% nationwide over the last 25 years. Enrolments are so low, many schools are abandoning the subject altogether.

The Conversation, February 23 2019

Why the big drop in high school economics students is a crisis for us all

June 30, 2021 – 10.52pm

Economists make for unlikely newspaper opinion columnists. Why? Because it is the job of columnists to hold strong opinions on a dazzling array of important matters. It is the job of economists, by contrast, to simply and diligently go about the business of politely reminding society that we should generally only take courses of actions for which the benefits exceed the costs.

Or, conversely, that we really ought to stop doing things for which the costs outweigh the benefits.

Sydney Morning Herald, June 30 2021

Underestimated: why young women are shying away from economics

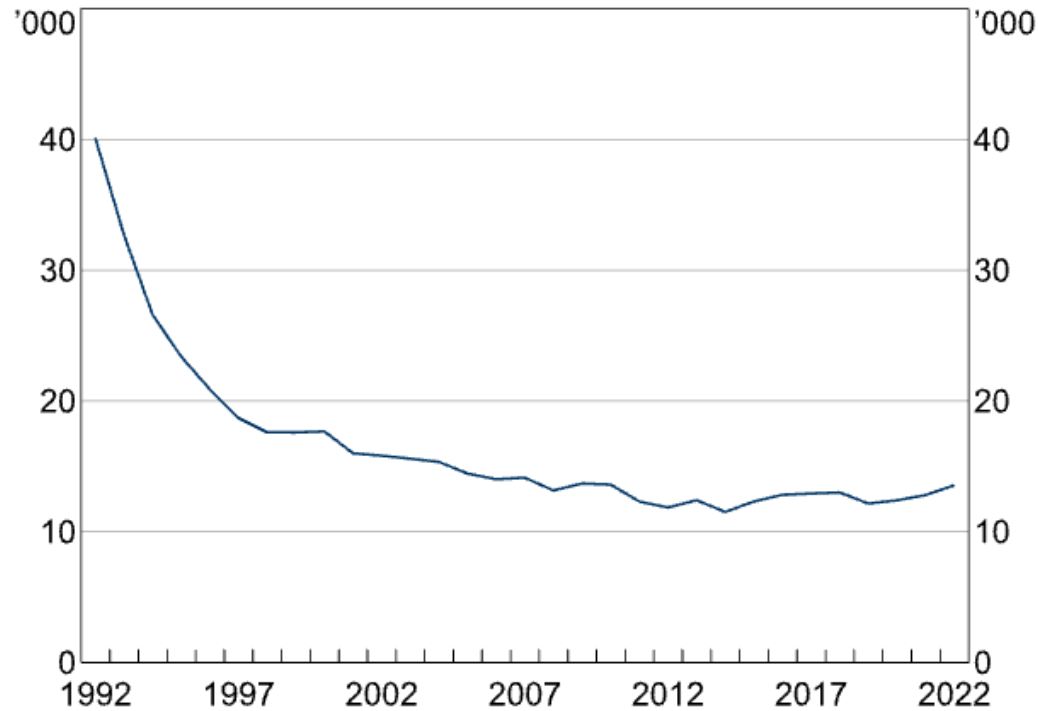
Few women are taking up the study of economics and those that do underestimate themselves - which may have consequences beyond the classroom

The Guardian, 15 April 2022

Background and Literature

Economics Enrolments in Australia

Year 12*

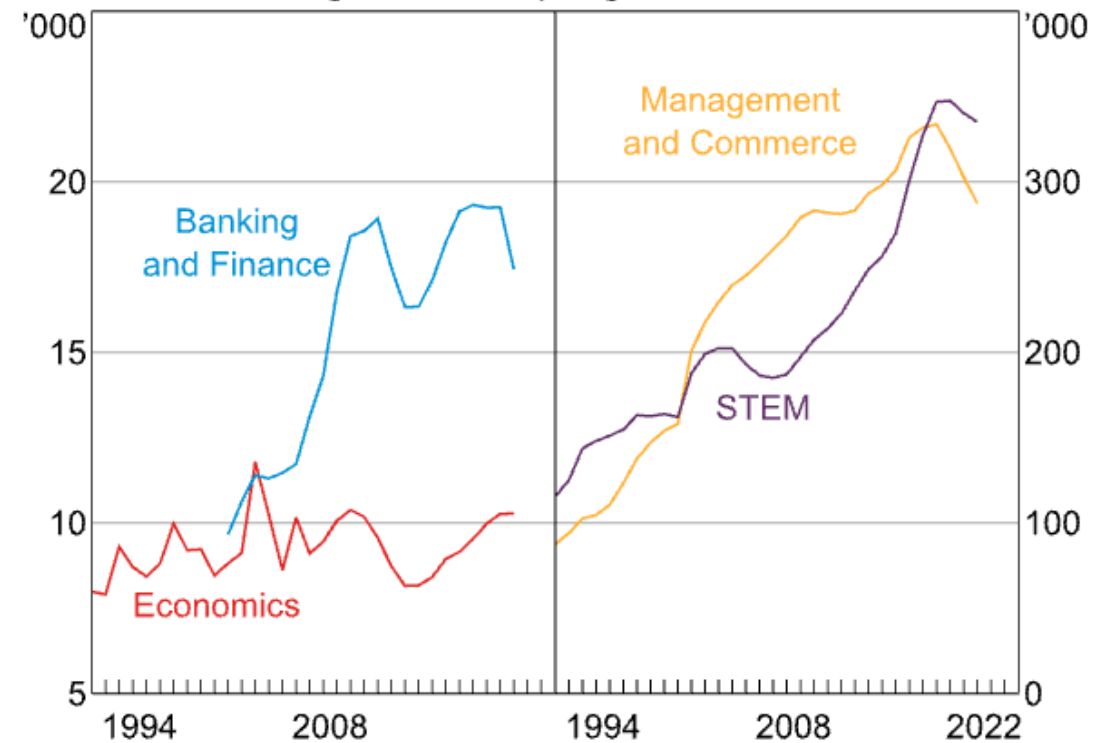


* Data from all mainland states from 1995 to 2022. Prior to this the series was spliced to New South Wales, Queensland and Western Australia.

Sources: NESAs; QCAA; RBA; SACE Board; SCSA; VCAA.

University Enrolments by Discipline*

Undergraduate and postgraduate students



* Excluding Macquarie University.

Sources: DET; RBA.

Literature

- ▶ Considerable prior research on the Australian market for economists.
 1. Analysis of supply-side shortages in market for economists and search for explanations in market for economics education.
 2. Trends in economics enrolment and interest.
 3. Labour market outcomes of various cohorts of economics graduates
 - ▶ We add to the third category by **conducting a detailed analysis on the employment patterns of recent economics graduates at the national level.**
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Data

- ▶ Waves 2019-21 of Graduate Outcomes Survey – Longitudinal
 - ▶ Annual national survey assessing higher education students' outcomes. Respondents surveyed 6 months after graduation with a three-year follow-up.
- ▶ Sample covers **domestic graduates who obtained any higher education degree from an Australian university in 2016-18, from economics or accounting and finance.**
 - ▶ Response rate across waves was approximately 50% at six months, and then 20% at three years.
 - ▶ International graduates made up 25% of the sample, excluded from sample.
- ▶ Following precedents in literature, we **compare economics graduates to accounting and/or finance graduates.** This is due to the (perceived) substitutability and similarity between the fields.

Descriptive Comparisons in Demographics

	Economics			Accounting and Finance		
	Bachelor's	Master's	Doctorate	Bachelor's	Master's	Doctorate
Age	25.5 (5.4)	33.4 (7.8)	43.4 (12.3)	28.7 (9.0)	35.9 (9.5)	43.0 (9.3)
Female	34.9% (47.7%)	34.4% (47.7%)	47.8% (51.1%)	51.9% (50%)	42.9% (49.5%)	40% (50%)
Indigenous	0.4% (5.9%)	-	-	0.7% (8.2%)	-	-
NESB	2.7% (16.1%)	4.1% (19.9%)	21.7% (42.2%)	5.2% (22.2%)	12.4% (32.9%)	20% (40.8%)
Disability	5% (21.7%)	3.3% (17.9%)	4.4% (20.9%)	5.3% (22.3%)	3.8% (19.1%)	-
Low SES	10.3% (30.4%)	10.7% (31%)	4.4% (20.9%)	16.5% (37.2%)	10.1% (30.2%)	12% (33.2%)
Observations	565	122	23	1771	583	25

Standard deviations provided in brackets.

Methods

- ▶ Consider labour market outcomes: (i) employment; (ii) occupations and market matching; (iii) earnings.
 - i. Descriptive comparison of employment indicators.
 - ii. Qualitative word-cloud analysis on occupational titles.
 - iii. Two-state Markov chain analysis to observe transitions between occupations and overqualification states.
 - iv. OLS model with a standard Mincerian specification to observe the earnings premia associated with education levels, fields, occupations.

Methods

- ▶ Further to our comparison with substitutable qualifications (Accounting and Finance), we also compare our results to the average set of graduate outcomes in Australia reported by prior studies.
 - ▶ Li and Miller (2013); Li and Miller (2015); Li *et al.* (2018); Koshy *et al.* (2016); Jackson and Li (2021); QILT (2021a); QILT (2021b); QILT (2023).

Broad Employment Comparisons: 6 Months

	Economics			Accounting and Finance		
	Bachelor's	Master's	Doctorate	Bachelor's	Master's	Doctorate
Employed	79.5% (40.4%)	91% (28.8%)	82.6% (38.8%)	84.7% (36%)	87.7% (32.9%)	96% (20%)
Unemployed	13.6% (34.3%)	5.7% (23.4%)	8.7% (28.8%)	11.7% (32.2%)	10.3% (30.4%)	4% (20%)
Unavailable For Work	6.9% (25.4%)	3.3% (17.9%)	8.7% (28.8%)	3.6% (18.5%)	2.1% (14.2%)	-
Observations	565	122	23	1771	583	25

Standard deviations provided in brackets.

Broad Employment Comparisons: 3 Years

	Economics			Accounting and Finance		
	Bachelor's	Master's	Doctorate	Bachelor's	Master's	Doctorate
Employed	90.1% (29.9%)	94.3% (23.4%)	87% (34.4%)	91% (28.6%)	93.3% (25%)	88% (33.2%)
Unemployed	4.4% (20.6%)	4.1% (19.9%)	-	5.5% (22.9%)	4.1% (19.9%)	8% (27.7%)
Unavailable For Work	5.5% (22.8%)	1.6% (12.8%)	13% (34.4%)	3.4% (18.2%)	2.6% (15.9%)	4% (20%)
Observations	565	122	23	1771	583	25

Standard deviations provided in brackets.

Detailed Employment Comparisons: 6 Months

	Economics			Accounting and Finance		
	Bachelor's	Master's	Doctorate	Bachelor's	Master's	Doctorate
Full-time	71.5% (45%)	85.6% (35.3%)	89.5% (31.5%)	80.1% (40%)	85.1% (35.6%)	83.3% (38.1%)
Part-time	28.5% (45.2%)	14.4% (35.3%)	10.5% (31.5%)	19.9% (40%)	14.9% (35.6%)	16.7% (38.1%)
Weekly hours (FT)	40.6 (10.1)	41.2 (11.3)	45.8 (10.5)	41.3 (6.5)	42.8 (7.5)	49.6 (13.5)
Weekly hours (PT)	23.8 (14.6)	17.7 (9.2)	-	19.3 (9)	21 (8.7)	23.3 (5.7)
Observations	449	111	19	1500	511	24

Standard deviations provided in brackets.

Detailed Employment Comparisons: 3 Years

	Economics			Accounting and Finance		
	Bachelor's	Master's	Doctorate	Bachelor's	Master's	Doctorate
Full-time	85.1% (35.7%)	78.4% (41.4%)	68.4% (47.8%)	86.1% (34.6%)	88.9% (31.5%)	83.3% (38.1%)
Part-time	6.9% (25.4%)	17.1% (37.8%)	26.3% (45.2%)	7.3% (26%)	7.2% (25.9%)	4.2% (20.4%)
Weekly hours (FT)	43.3 (9.4)	43.1 (11.3)	39.2 (12.2)	41.7 (8.8)	42.7 (10.3)	49.8 (10)
Weekly hours (PT)	19 (8.6)	19.6 (9.5)	-	21.3 (8.4)	23.1 (8.0)	-
Observations	449	111	19	1500	511	24

Standard deviations provided in brackets.

Detailed Employment Comparisons: 6 Months

	Economics			Accounting and Finance		
	Bachelor's	Master's	Doctorate	Bachelor's	Master's	Doctorate
Government	26.5% (44.2%)	45.1% (50%)	68.4% (47.8%)	17.8% (38.3%)	20.2% (40.2%)	70.8% (46.4%)
Private	67% (47.1%)	46% (50.1%)	5.3% (22.9%)	75.9% (42.8%)	70.8% (45.5%)	20.8% (41.5%)
Not-for-profit	5.9% (21.6%)	8.1% (27.4%)	26.3% (45.2%)	3.7% (19%)	7.2% (25.9%)	8.3% (28.2%)
Observations	449	111	19	1500	511	24

Standard deviations provided in brackets.

Detailed Employment Comparisons: 3 Years

	Economics			Accounting and Finance		
	Bachelor's	Master's	Doctorate	Bachelor's	Master's	Doctorate
Government	34.4% (47.5%)	50.4% (50.2%)	45% (51%)	21.7% (41.2%)	23.2% (42.2%)	68.2% (47.7%)
Private	58.5% (49.3%)	41.7% (49.5%)	20% (41%)	69.9% (45.9%)	65.8% (47.5%)	22.7% (42.9%)
Not-for-profit	3.9% (19.4%)	7.8% (27%)	30% (47%)	4.5% (20.7%)	6.6% (24.9%)	9.1% (21.3%)
Observations	449	111	19	1500	511	24

Standard deviations provided in brackets.

Detailed Employment Comparisons: 6 Months

	Economics			Accounting and Finance		
	Bachelor's	Master's	Doctorate	Bachelor's	Master's	Doctorate
Overqualified	37% (48.3%)	39.6% (49.1%)	36.8% (49.6%)	30.2% (45.9%)	39.7% (49%)	4.2% (20.4%)
Underemployed	11.8% (32.3%)	3.6% (18.7%)	10.5% (31.5%)	10.5% (30.7%)	8.2% (27.5%)	12.5% (33.8%)
Annual salary	\$53,764 (\$26,333)	\$89,134 (\$43,636)	\$89,312 (\$48,980)	\$54,839 (\$24,542)	\$84,790 (\$55,243)	\$107,132 (\$19,742)
Annual salary (FT)	\$63,786 (\$21,846)	\$93,369 (\$40,457)	\$97,918 (\$46,749)	\$60,781 (\$22,241)	\$91,310 (\$54,607)	\$106,713 (\$20,747)
Observations	449	111	19	1500	511	24

Detailed Employment Comparisons: 3 Years

	Economics			Accounting and Finance		
	Bachelor's	Master's	Doctorate	Bachelor's	Master's	Doctorate
Overqualified	22.7% (42%)	24.3% (43.1%)	15.8% (37.5%)	16.9% (37.5%)	26.4% (44.1%)	(0.0%) (0.0%)
Underemployed	0.7% (8.2%)	2.7% (16.3%)	15.8% (37.5%)	1.9% (13.5%)	1.4% (11.6%)	4.2% (20.4%)
Annual salary	\$84,036 (\$31,249)	\$111,482 (\$47,346)	\$103,283 (\$43,113)	\$78,653 (\$30,642)	\$106,223 (\$51,038)	\$121,507 (\$31,253)
Annual salary (FT)	\$89,445 (\$23,931)	\$117,549 (\$44,225)	\$99,191 (\$38,979)	\$80,347 (\$28,944)	\$107,395 (\$48,482)	\$126,412 (\$36,011)
Observations	449	111	19	1500	511	24

Matching Dynamics: The Market for Economists

	Economist (3yr)	Non-economist (3yr)
Economist (6mth)	440	44
Non-economist (6mth)	39	53

	Not overqualified (3yr)	Overqualified (3yr)
Not overqualified (6mth)	303	61
Overqualified (6mth)	131	81

Matching Dynamics: The Market for Economists

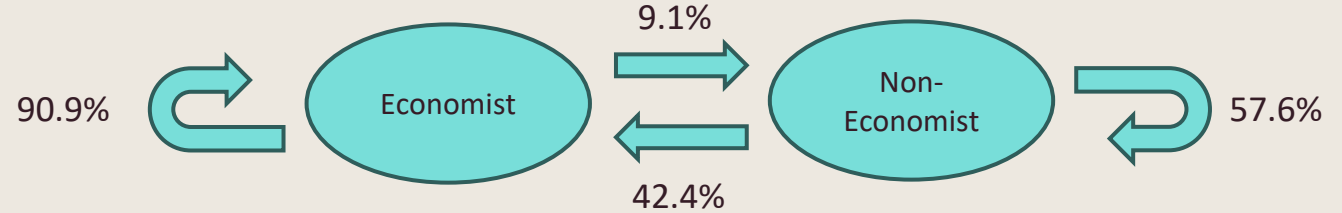
	Economist (3yr)	Non-economist (3yr)
Economist (6mth)	0.909	0.091
Non-economist (6mth)	0.424	0.576

	Not overqualified (3yr)	Overqualified (3yr)
Not overqualified (6mth)	0.832	0.168
Overqualified (6mth)	0.618	0.382

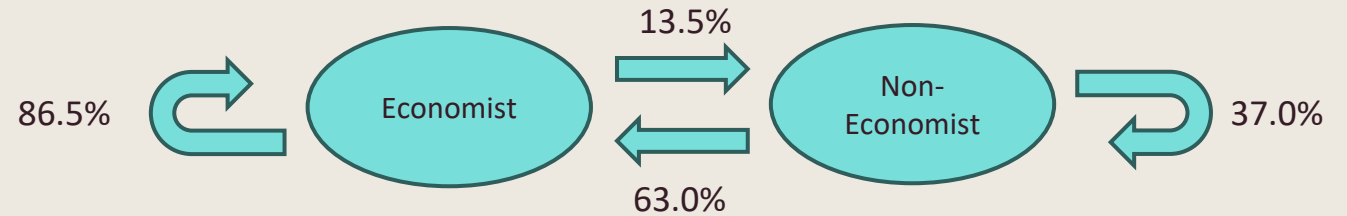
Occupation Transitions

- ▶ The probabilities shown can be used to analyse the dynamics of employment.
- ▶ 4 out of 5 of the graduates who start out as economists tend to stay as economists. Those who transition to non-economist roles do so relatively quickly.
- ▶ Only 1 in 5 graduates who commence in non-economist occupations remain non-economists.
- ▶ The rate of convergence to the steady state is faster for the economist group suggesting that the frictions are ironed out earlier in their careers, whereas it takes time for non-economists to transition away from their roles.

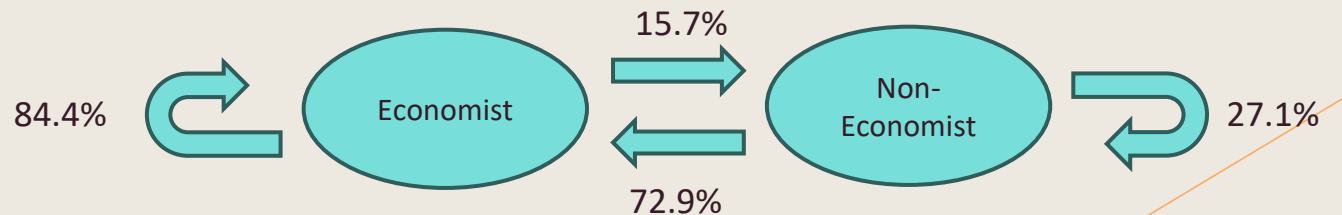
First Step – 2.5 Years



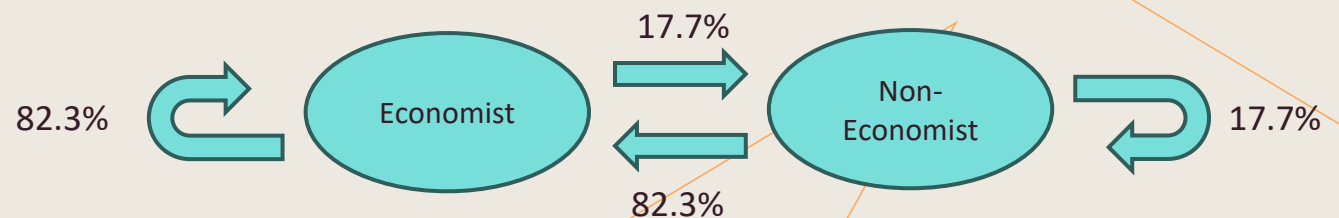
Second Step – 5 Years



Third Step – 7.5 Years



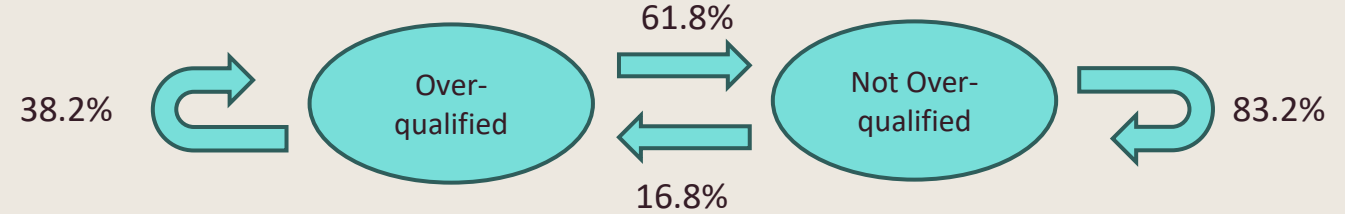
Steady State



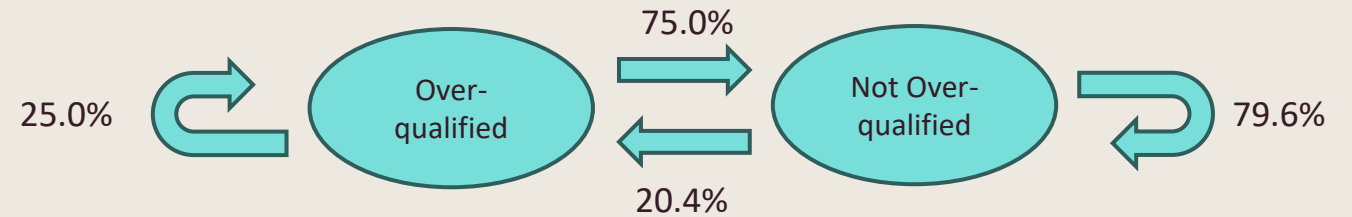
Overqualification Transitions

- ▶ 1 in 5 graduates who began as overqualified will remain overqualified over the long term. The most substantial transition away from overqualification was made over the second step, suggesting that after if an individual remains overqualified after 5 years of employment, then this is highly likely to persist.
- ▶ Conversely, individuals who were initially not-overqualified remain so, with only 1 in 5 shifting to being overqualified, and the largest transition occurring in the first step.
- ▶ These results suggest that the market has trouble 'correcting', however, once an individual is correctly matched, they aren't mismatched in future states.

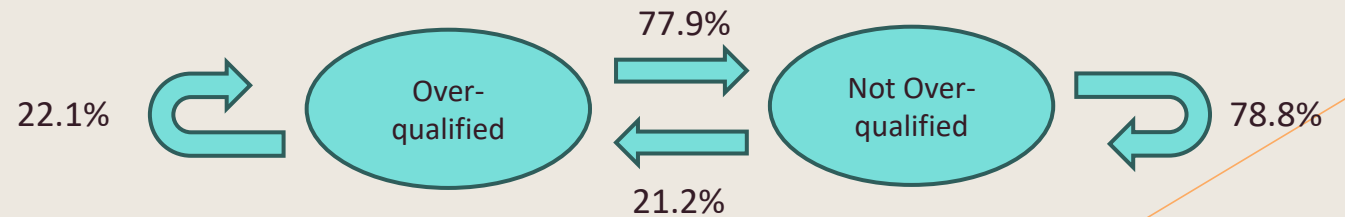
First Step – 2.5 Years



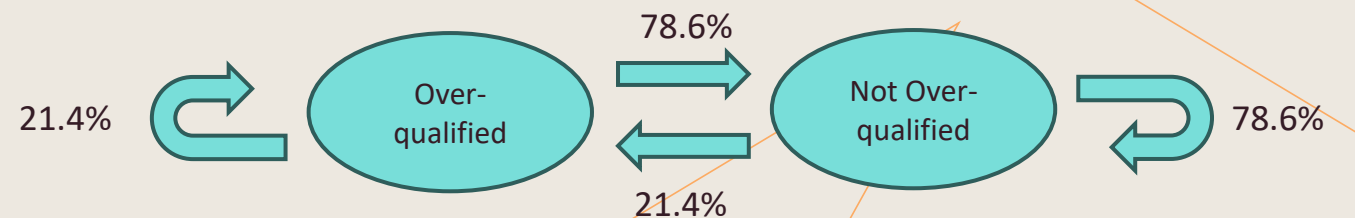
Second Step – 5 Years



Third Step – 7.5 Years



Steady State



Mincerian Wage Models: Degree Level and Field

	6 Months	3 Years
A&F Bachelor	-0.073*** (0.021)	-0.082** (0.032)
Econ Honours	0.135*** (0.048)	0.041 (0.075)
A&F Honours	0.214*** (0.045)	0.202*** (0.068)
Econ Masters	0.215** (0.100)	0.214 (0.143)
A&F Masters	0.168* (0.099)	0.136 (0.125)
Econ PhD	0.074*** (0.027)	0.097** (0.040)
A&F PhD	0.178* (0.091)	0.135 (0.148)
Observations	2328	2110
Adjusted R ²	0.594	0.208

Notes: [a] Dependent variable is the natural logarithm of annual salary; [b] Reference category is Bachelor's degree in Economics; [c] Model controls for demographics, hours worked and university study characteristics.

Mincerian Wage Models: Mismatched Workers

	6 Months	3 Years
Overqualified	-0.092*** (0.017)	-0.137*** (0.029)
Underemployed	-0.257*** (0.033)	-0.273*** (0.106)
Observations	2328	2110
Adjusted R ²	0.594	0.208

Notes: [a] Dependent variable is the natural logarithm of annual salary; [b] Model controls for demographics, hours worked and university study characteristics.

Mincerian Wage Models: Industry and Occupation

	6 Months	3 Years
Private Sector	-0.141*** (0.019)	-0.072** (0.028)
NFP Sector	-0.016 (0.039)	-0.043 (0.056)
Managerial Occupation	0.271*** (0.03)	0.281*** (0.046)
Professional Occupation	0.122*** (0.019)	0.131*** (0.034)
Economist	0.208*** (0.042)	0.219*** (0.064)
Observations	2327	2107
Adjusted R ²	0.602	0.204

Notes: [a] Dependent variable is the natural logarithm of annual salary; [b] Model controls for demographics, hours worked and university study characteristics; [c] Reference category for sector of employment is the public sector; [d] Reference category for occupations are all non-professional occupations; [e] Professional occupation category excludes economists.

Concluding Comments

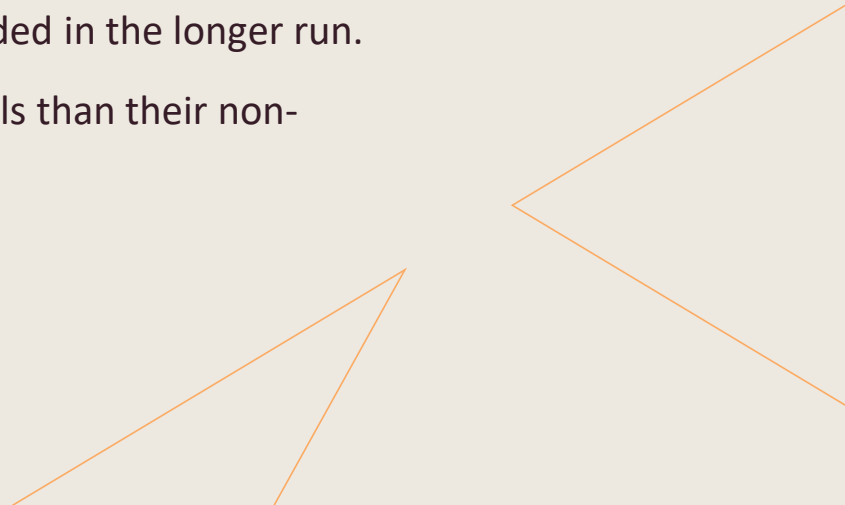
- ▶ We can summarise our results as covering three dimensions of labour market: (i) employment; (ii) occupations and market matching; and (iii) earnings.
 - i. Employment–
 - a. Economics graduates employment outcomes are poorer than Accounting and Finance graduates in the short-term, but outcome equalise in longer-term
 - b. Economics graduates employment outcomes are favourable compared to the broader graduate population
 - c. Bachelor's graduates gravitate towards the private sector, Master's graduates are evenly distributed across sectors, and PhD graduates are skewed towards public sector.

Concluding Comments

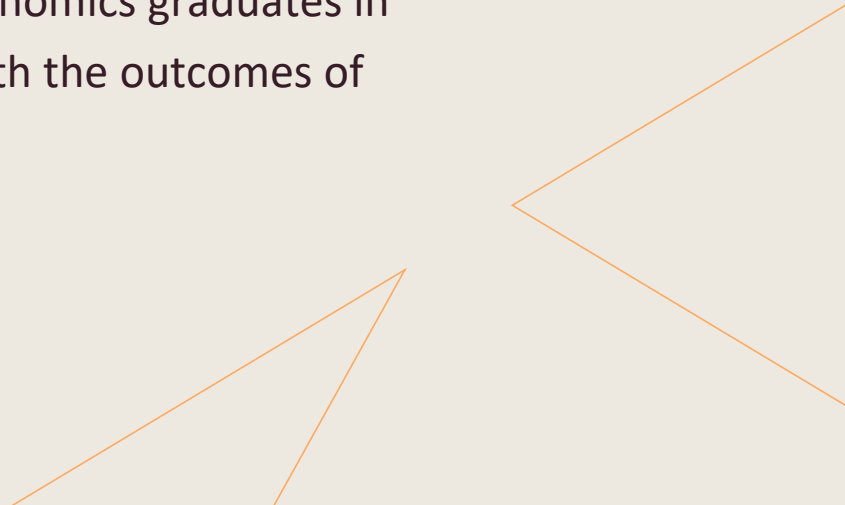
i. Occupations –

- a. Economics graduates tend to find work as economists, however also a suite of other notable occupations, namely, ‘policy analysts’ and ‘management consultants’ which tend to relate to the public and private sector, respectively.
- b. Proportion of graduates who report being overqualified is relatively high and somewhat sticky; earnings analysis revealed a wage penalty for overqualification.

ii. Earnings –

- a. Earnings of Economics graduates are relatively favourable compared to other graduates
 - b. Short-run premia exist for Honours and Master’s degrees, however eroded in the longer run.
 - c. Further, economists had a higher earnings premia over non-professionals than their non-economist professional occupation counterparts.
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Concluding Comments

- ▶ One particular limitation of study lies in potential bias from study attrition and survey non-response. Depending on nature of unobserved population, this could bias estimates in opposing ways. Results need to be interpreted with this caveat in mind.
 - ▶ Key issue - lack of diversity in study and practice of economics. Secondary finding of our analysis - evidence of gender pay gap and disadvantages for NESB graduates.
 - ▶ All things considered, economics degree is attractive to students in terms of employment outcomes, offering rewards at least as attractive as many other alternatives and broadly comparable to fields such as accounting and finance. The outcomes of economics graduates in terms of employment and pay are favourable, especially in comparison with the outcomes of other graduates.
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Thank you!

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