The views expressed are those of the authors and not necessarily of Australian Treasury. All mistakes are our own.
Motivation

Youth labour market harder hit and slower to recover post GFC/end of mining boom.

Youth (15-24 years)

Aggregate and youth unemployment rates


Per cent

Note: Treasury calculations based on ABS data. 12-month average

Younger people have been hit harder by COVID-19

Could the weakness in youth labour markets have long-run negative implications for works and the economy?
Our contribution

• Evidence of labour market scarring in Australia
  – Graduating in a state-year with a youth unemployment rate 5ppt higher is associated with a:
    ▪ 8 per cent fall in initial year earnings; and
    ▪ 3 ½ per cent fall in earnings five years on
    ▪ Similar for employment probability
  – Key mechanism is a disruption of quality job-matching
    ▪ Scarring appears more permanent for graduates of the 2000s, consistent with less dynamism

• Find a role both for cyclical and structural policy in minimising scarring
DATA AND EMPIRICAL FRAMEWORK
Data

• Use cell-based tax data (drawn from ALife), grouped by:
  – graduation cohort (c) [last year in which HELP debt incurred]
  – state of graduation (s) [based on nearest tax return(s)]
  – year outcome is observed (t)
  – 2008 cells, based on 18.3m observations

• Look at gender / educ level / provider heterogeneity

• Observe:
  – Mean of the log of annual earnings of tax filers ($\bar{y}_{cst}$)
  – Employment
  – Proportion switching jobs / mean firm productivity
  – Youth (15-24yo) unemployment rate in state and year of graduation
Empirical framework

- Can think of wages for a group or workers reflecting 3 factors:
  - Year: Wages for all workers might be higher or lower in some years due to national factors, like the business cycle and inflation
  - Experience: Worker’s wages tend to rise as they gain experience
Empirical framework

- Can think of wages for a group or workers reflecting 3 factors:
  - Year: Wages for all workers might be higher or lower in some years due to national factors, like the business cycle
  - Experience: Worker’s wages tend to rise as they gain experience
  - Cohort: There might be differences between groups of workers that enter the labour market at different times
    - Some of these differences might be nation-wide:
      » E.g. expansion of higher education means new graduate cohorts have a larger proportion of less skilled workers
      » Could shift the profile down (or maybe even tilt it)
      » We want to be able to abstract from most of these
Empirical framework

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    ▪ Some of these differences might be nation-wide:
      » E.g. expansion of higher education means new graduate cohorts have a larger proportion of less skilled workers
      » Could shift the profile down (or maybe even tilt it)
      » We want to be able to abstract from most of these
    ▪ And some might be related to differences across states in a given year, and in particular the strength of the labour market
      » This is what we are interested in!!!
Empirical framework

- Estimate effect of unemployment rate at graduation ($UR_{cr0}$) using (Oreopoulos et al 2012):

$$\bar{y}_{cst} = \alpha + \beta_e UR_{cs0} + \phi_t + \theta_s + \gamma_e + \chi_c + \varepsilon_{cst}$$

Accounting for differences across:
- Years (nation-wide)
- Stable state differences
- Experience profile (nation-wide)
- Cohorts (nation-wide)

- Scarring = change in the experience-earnings profile associated with state unemployment rate $UR_{cs0}$
RESULTS
Results – baseline static model

Effect of 1ppt increase in youth unemployment rate at graduation on annual earnings of employed graduates

Persistent effects on wages out to 5 years
Similar for employment probability (slide A1)
Results – Heterogeneity

Effects larger and more persistent for lower quality course/uni:
- Could reflect person or course

Slightly more persistent for females
THREATS, MECHANISMS AND IMPLICATIONS
Is this all ‘fake’ scarring?

• Selection into graduation
  – More able graduates defer labour market entry via further study
    ▪ Makes this cohort look permanently weak

• Interstate migration
  – More able grads might move to states with stronger labour markets

• Examine emigration and postgraduate enrolments in a similar model and little evidence of a substantial effect
Is this all ‘fake’ scarring?

- **Persistency in UR**
  - UR at graduation matters in future years only to the extent that it predicts current UR
    - Weakness in wages could reflect weak labour market in future
  - We estimate a model controlling for UR history
    - Preferred model finds that there are moderately persistent effects of initial UR, even accounting for later UR
      - Magnitude is a bit smaller, and finding is a bit less robust
    - Also suggest that UR has much larger effect on wages when at the start of career, compared to a few years in.
      - Results don’t just reflect weak labour markets being bad for all
Mechanisms and Policy

Effect of 1ppt increase in youth unemployment rate at graduation on

A: Wages

B: Firm productivity

A timely macroeconomic policy response can reduce scarring by influencing the subsequent path of the unemployment rate

Shocks disrupt initial match quality but wage recovery is underpinned by switching to more productive firms

To reduce scarring, there’s no substitute for effective macroeconomic policy response:

➢ “It takes a heap of Harberger triangles to fill an Okun’s gap”.

BUT structural reforms that enhance labour market dynamism form a strong complementarity.
Mechanisms and Policy

Effect of 1ppt increase in youth unemployment rate at graduation on annual earnings of employed graduates

Process of recovery has slowed since the 1990s.

Consistent with evidence of:
• Declining job-switching (Slide A3) and dynamism (Slide A4)
• Less effective job ladders (de Fontenay et al 2020)
Conclusions

• Evidence of medium-run scarring effects of entering into weak labour markets
  – Short-run shocks like COVID can have longer-term effects

• A key mechanism if worse job-matching, which can take time to recover

• Highlight the roles for:
  – Stabilisation policy to minimise length of the downturn
  – Structural policies to promote labour market dynamism
Spares
### Slide A1: Results – Employment Margin

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<th>Years since graduation</th>
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<th>National models</th>
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<td>-0.0027***</td>
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</tr>
</tbody>
</table>

**Specification**
- Experience FE $\times$ cohort: X
- Experience FE $\times$ cohort FE: X
- Cohort FE: X
- Order of cohort trend: 1 2 2

**N**

**Probability of employment lowered by**
- $\frac{3}{4}$ ppt lower on impact
- 0.1 ppt lower after 5 years

**Larger in national model**
Figure 10: Effect of a 1 percentage point increase in the local youth unemployment rate by years since graduation

Panel A: Effect on switching rates

Panel B: Effect on employer productivity

Note: Shows estimated effect of a 1 percentage point increase in the state-youth unemployment rates, on switching rates and the productivity of employers, for various sub-samples. These come from the static model outlined in Section 5.
Slide A3: Declining job switching

Job switching by age group

Job switching after graduation
Declining Dynamism

Indicators of dynamism in product and labour markets:
- Firm entry rate
- Job switching rate
- Excess job reallocation rate

Over half of the decline in job switching reflects less people going from old to young firms.

↓ Incentives for incumbents to adopt
↓ Growth-enhancing reallocation and high wage jobs

Old-to-young Switching and Entry Rate:
- Firm entry rate (RHS)
- Old-to-young firm switch rate (LHS)*

* Young firms are 0-5 years old
Sources: De-identified matched employer-employee data; Australian Treasury

Over half of the decline in job switching reflects less people going from old to young firms.
Figure 3: Stylised example of experience profiles, wages by years of experience

Panel A: Stylised shift in national cohort

Panel B: Stylised effect of local labour market

Note: Both panels show a stylised example of worker experience profiles by plotting expected wages for different years of working experience. Panel A demonstrates a change in the (national) cohort effects due, for example, to an expansion in the higher education system between 2010 and 2012. Panel B demonstrates variation in profiles within cohort, based on differential labour market strength across states.