



Do firms respond to skill shortages with wage increases?

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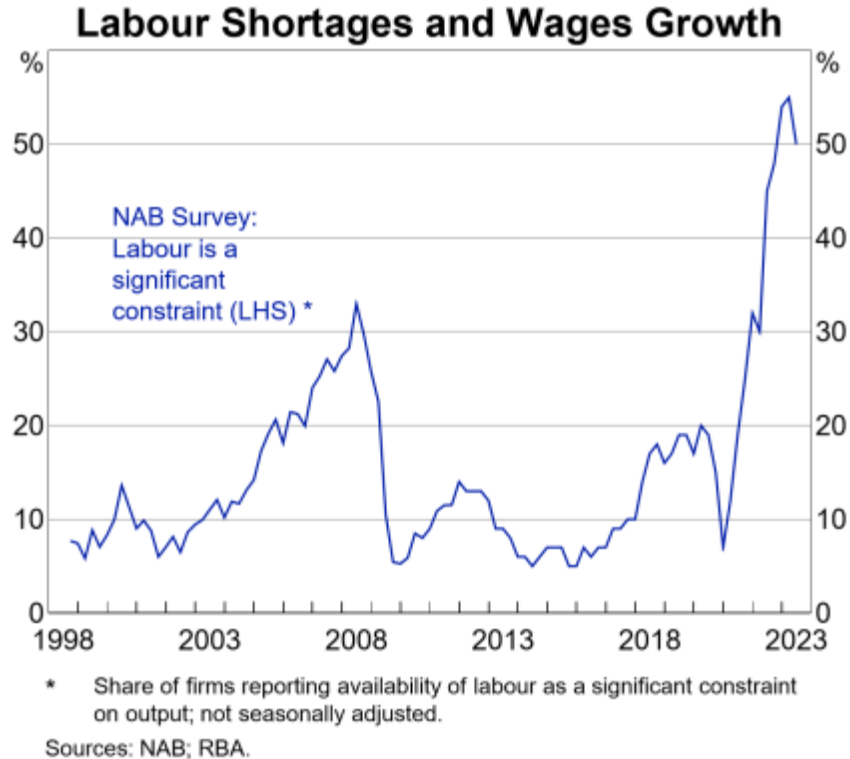
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The results of these studies are based, in part, on Australian Business Register (ABR) data supplied by the Registrar to the Australian Bureau of Statistics (ABS) under *A New Tax System (Australian Business Number) Act 1999* and tax data supplied by the Australian Taxation Office (ATO) to the ABS under the *Taxation Administration Act 1953*. These require that such data are only used for the purpose of carrying out functions of the ABS. No individual information collected under the *Census and Statistics Act 1905* is provided back to the Registrar or ATO for administrative or regulatory purposes. Any discussion of data limitations or weaknesses is in the context of using the data for statistical purposes, and is not related to the ability of the data to support the ABR or ATO's core operational requirements. Legislative requirements to ensure privacy and secrecy of this data have been followed. Only people authorised under the *Australian Bureau of Statistics Act 1975* have been allowed to view data about any particular firm in conducting these analyses. In accordance with the *Census and Statistics Act 1905*, results have been confidentialised to ensure that they are not likely to enable identification of a particular person or organisation.

There are many reports of skill shortages...



...but limited evidence of wages growth



* Share of firms reporting availability of labour as a significant constraint on output; non seasonally adjusted.

** Year-ended growth; seasonally adjusted, excluding bonuses.

Sources: ABS; NAB; RBA.

Do firms raise wages in response to skill shortages?



Quantify the relationship using novel firm and job level panel data

Most research is qualitative (Leal, 2019) or using aggregated data (e.g. Colli and Wilkins, 2018)



Estimate causal effect of skill shortages on wages

Weak identification even when new research has used microdata (Frohm, 2019; Kolling, 2022)



Determine role of wage dynamics and examine state dependency



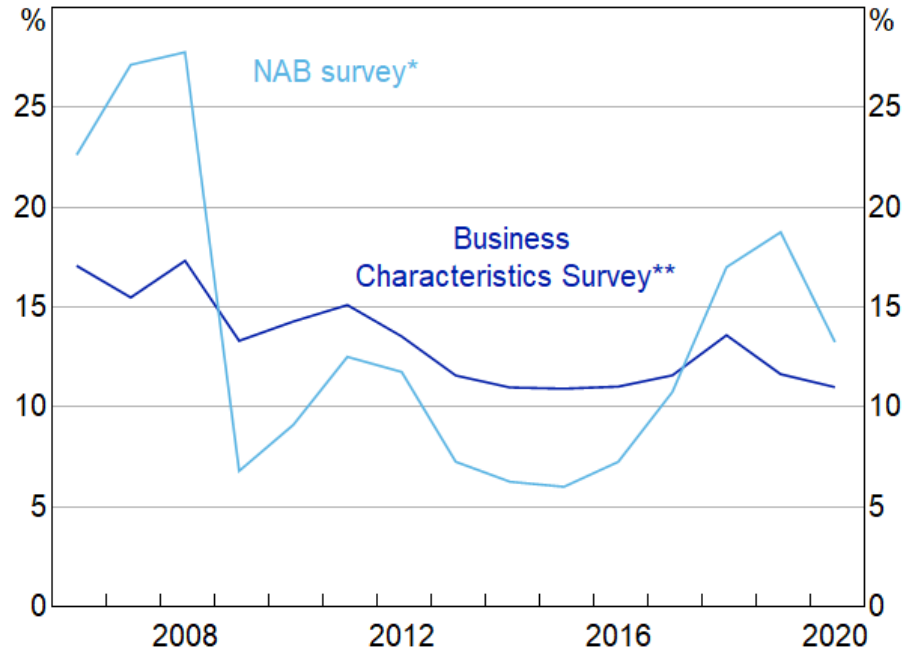
Our approach

Measures of skill shortages

- National Skills Priority List
- Employer-based survey E.g. NAB Survey

Q8 To what extent are these factors currently constraining output? <i>ANSWER FOR EACH OF A - E</i>		Significant constraint	Minor constraint	No constraint	Not applicable
a.	Premises and plant	1	2	3	4
b.	Availability of suitable labour	1	2	3	4
c.	Sales and orders	1	2	3	4
d.	Availability of materials	1	2	3	4
e.	Availability of finance/working capital	1	2	3	4

Business Characteristics Survey microdata...

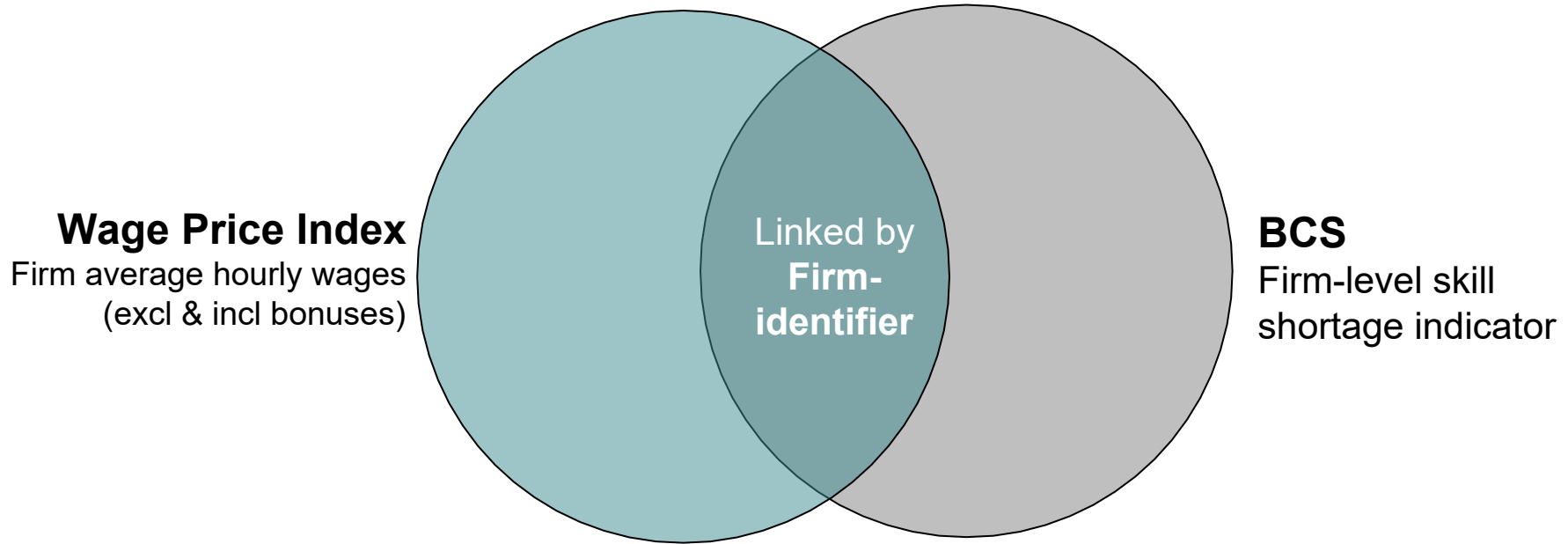


* A skill shortage is defined as labour being a significant constraint on output; financial year average.

** A skill shortage is defined as a lack of skilled persons within the labour market hampering general business activity or performance.

Sources: ABS; RBA

...linked with Wage Price Index microdata



No evidence of wages growth premium



* Average year-ended growth to June quarter.

Sources: ABS; RBA.

Model Specification (one of many)

$$\Delta \ln w_{jt} = \beta_0 + \beta_1 SS_{jt} + \omega_j + \tau_t + \mu_{jt}$$

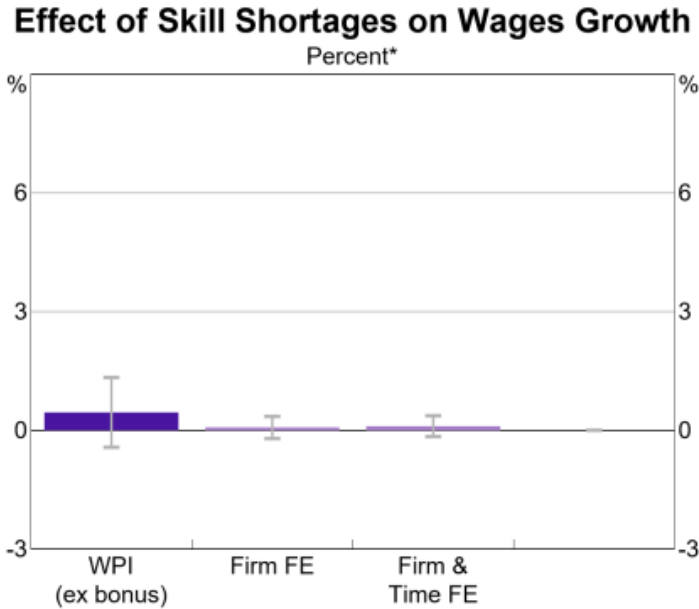
Where

- $\Delta \ln w_{jt} = \ln w_{jt} - \ln w_{jt-1}$ is the wages growth at firm j at time t
- SS_{jt} is a dummy variable = 1 if the firm identifies a skill shortage (SS)
- Includes firm (ω_j) and time (τ_t) fixed effects
- Not shown: lagged wages, wage dynamics, additional robustness checks



Our results

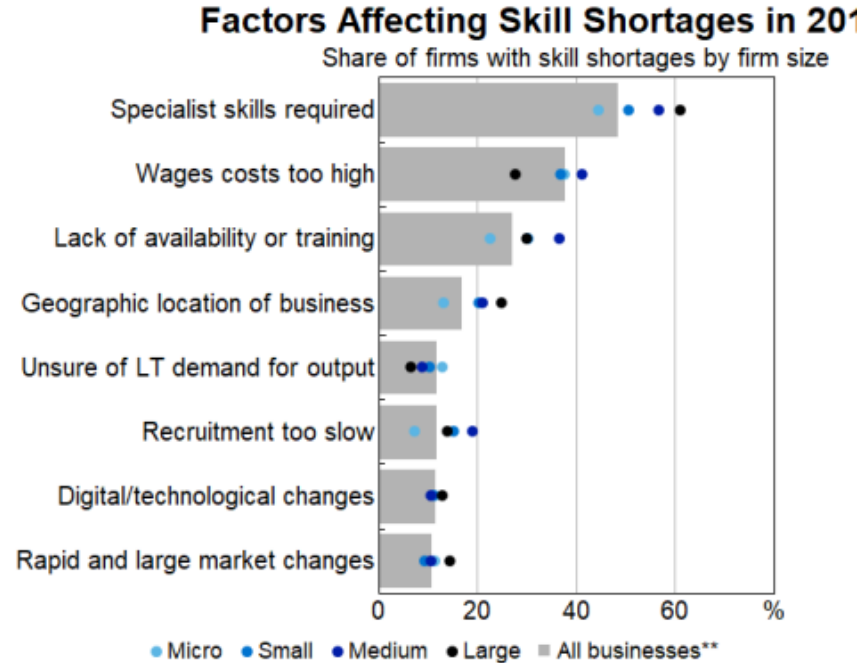
No evidence of a wages growth premium...



* Coefficient estimate shown, with 95 per cent confidence interval. Dark coloured bars are statistically significant at the 10 per cent level.

Source: RBA.

IV approach to address reverse causality



* Businesses could select more than 1 response

** Not weighted by firm size

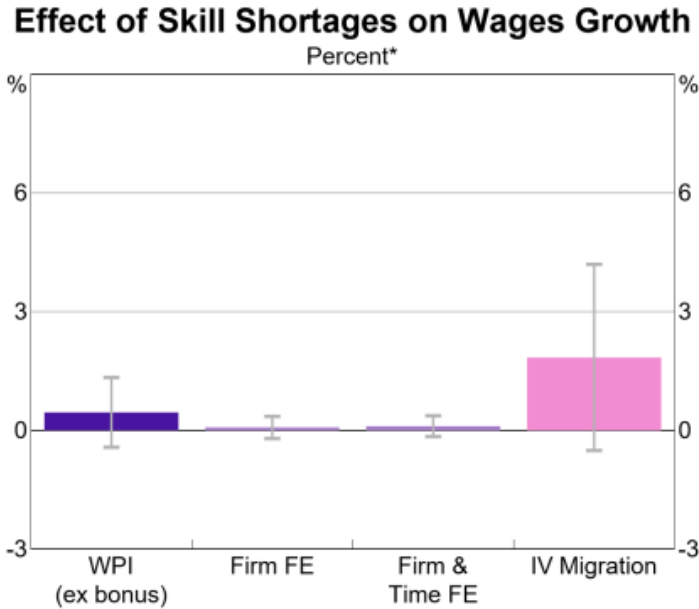
Source: RBA

IV approach to address reverse causality

Predicted Net overseas migration flows

- Dependent on migration flows into industries experiencing shortages
- Exogenous through:
 - Historical propensity of migrants in particular industry and states
 - Aggregate net overseas migration by visa stream
- Relevant and valid instrument

Controlling for endogeneity



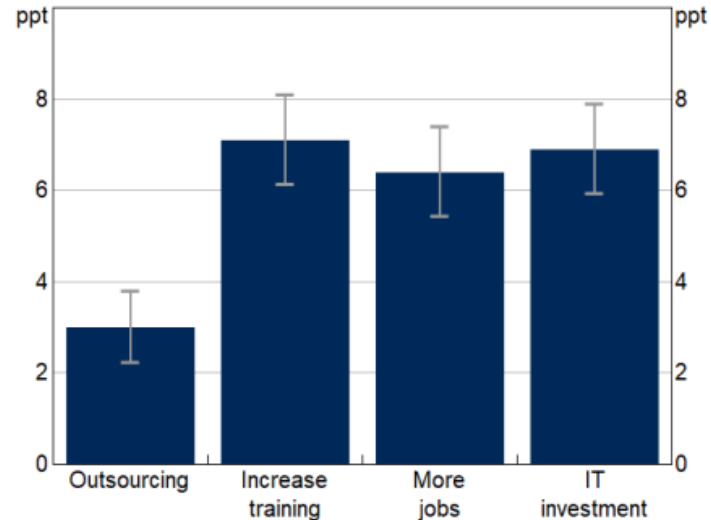
* Coefficient estimate shown, with 95 per cent confidence interval. Dark coloured bars are statistically significant at the 10 per cent level.

Source: RBA.

No wage response to firm-wide skill shortages

- Firms do not raise:
 - Base wages **temporarily**
 - **Total hourly wages** temporarily or permanently
 - **Average employee income** temporarily or permanently
 - Or with a **delay**
- **Robust:** firm linear trends, state/industry controls, additional firm controls (e.g. productivity, sales)
- Not sensitive to **alternative IVs**
- Firms prefer **non-wage adjustments** and flexible working arrangements

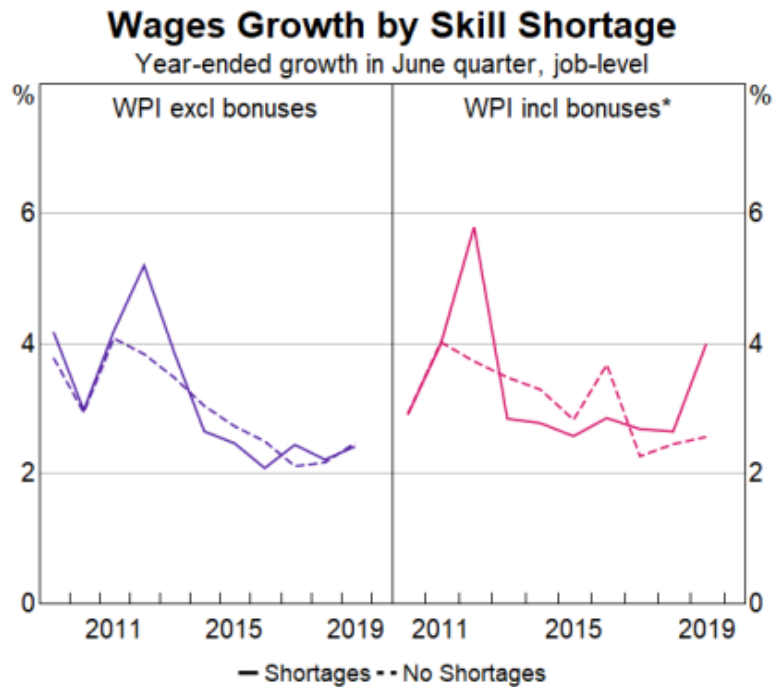
Probability of adopting these strategies relative to a firm without skill shortages



* Darker bars indicate statistically significant results. Whiskers show 95 per cent confidence interval.

Sources: ABS; Author's calculation

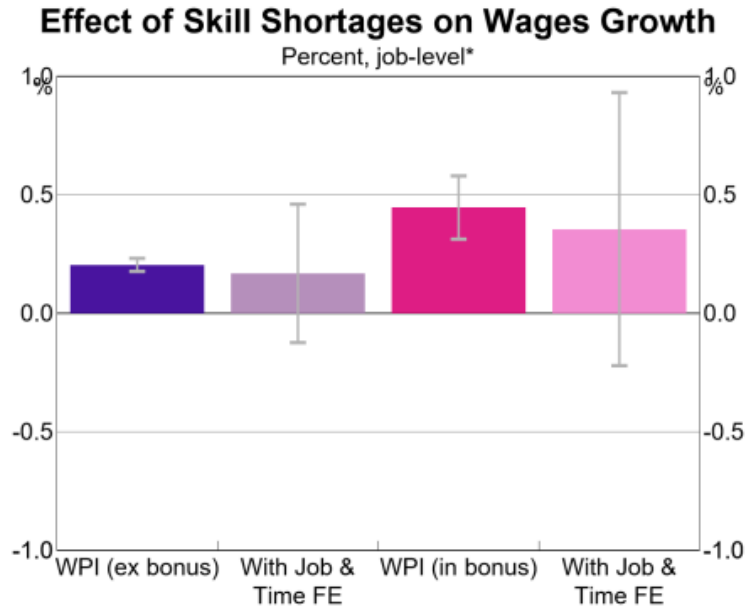
Do jobs associated with skill shortages have higher wages?



* Excluding jobs in mining and finance industry.

Sources: ABS; RBA

No wage response to job-level skill shortages



* Coefficient estimate shown, with 95 per cent confidence interval. Darker regions represent coefficients with a 1% significant level.

Source: RBA.

- Same identification
- No response to:
 - Base or total wages temporarily or permanently
 - Even with delays
 - Even across different payment setting methods (EBAs, awards, etc).
- Not sensitive to National Skills Priority List as an alternative job-skill shortage indicator
- Some evidence of temporary wage increases during **tighter labour market**

Key findings

- Limited evidence that firms raise wages (temporarily or permanently) in response to firm-wide or job-level skill shortages
- Some evidence of a wage response in tighter labour markets
- Firms prefer non-wage adjustments



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