TELEWORK, MIGRATION AND HOUSING: EVIDENCE FROM AUSTRALIA'S PANDEMIC-ERA HOUSING DEMAND SHIFTS

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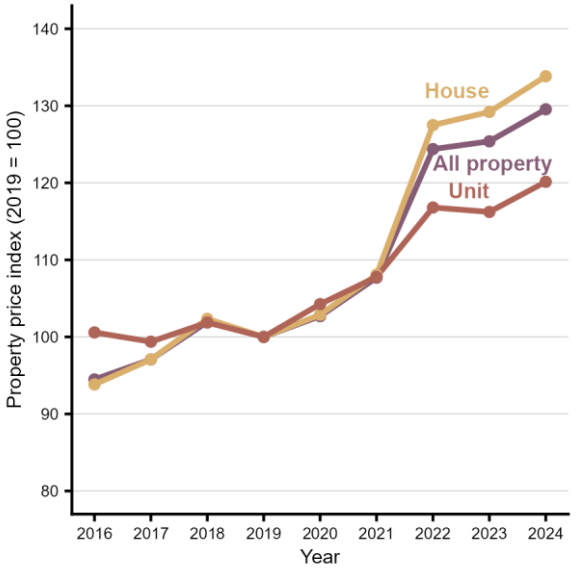
The results of this study are based, in part, on data supplied to the ABS under the Taxation Administration Act 1953, A New Tax System (Australian Business Number) Act 1999, Australian Border Force Act 2015, Social Security (Administration) Act 1999, A New Tax System (Family Assistance) (Administration) Act 1999, Paid Parental Leave Act 2010 and/or the Student Assistance Act 1973. Such data may only be used for the purpose of administering the Census and Statistics Act 1905 or performance of functions of the ABS as set out in section 6 of the Australian Bureau of Statistics Act 1975. No individual information collected under the Census and Statistics Act 1905 is provided back to custodians 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 Australian Taxation Office, Australian Business Register, Department of Social Services and/or Department of Home Affairs' core operational requirements. Legislative requirements to ensure privacy and secrecy of these data have been followed. For access to PLIDA and/or BLADE data under Section 16A of the ABS Act 1975 or enabled by section 15 of the Census and Statistics (Information Release and Access) Determination 2018, source data are de-identified and so data about specific individuals has not been viewed in conducting this analysis. In accordance with the Census and Statistics Act 1905, results have been treated where necessary to ensure that they are not likely to enable identification of a particular person or organisation.

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Increased WFH changed location preferences, just as housing costs rose sharply

- Weakened nexus between work and the workplace expands plausible distance to live from employment
  (Gupta, 2021; Ilham et al., 2024; Kolko et al., 2021)
- More time at home increases demand for more space and amenity
  (Ilham et al., 2024; Stanton & Tiwari, 2021)
- Combined effect can push teleworkers out of city centres

Property price indices, Australia



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Pandemic housing pressures were often blamed on remote workers

Rental vacancy rates hit zero in Australian coastal towns as they hit COVID capacity

By business reporter **Emilia Terzon**

Rental Housing

Fri 8 Jan 2021

COVID-19 the catalyst for sea change, as Sunshine Coast sees influx from Sydney and Melbourne



Caitlin Fitzsimmons
November 8, 2020 — 12:00am

'Gone up astronomically': Rents spike in regional Victorian towns

Elizabeth Redman and **Tawar Razaghi**
July 15, 2022 — 12:01am

Regional house prices soaring due to coronavirus exodus from cities but some locals now living in cars

By business reporter **Rachel Clayton**

Business, Economics and Finance

Wed 13 Jan 2021

ABS data confirms a city exodus during COVID, with biggest internal migration loss on record

By Business Reporter **Emilia Terzon**

Home

Tue 2 Feb 2021

But was this relationship real?

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Limited empirical literature on whether property price changes are caused by WFH

- Most existing literature on links between increased WFH uptake, internal migration and housing demand are calibrated or theoretical spatial equilibrium models

  (Brueckner et al., 2025; Davis et al., 2024; Delventhal et al., 2022; Kyriakopoulou & Picard, 2023; Richard, 2025)

- Several descriptive papers outline correlations in data, but with limited causal interpretation

  (Akan et al., 2025; Althoff et al., 2022; Boeri & Rigo, 2026; Coskun et al., 2026; Ramani et al., 2024)

- Broader migration literature links exogenous migration shocks to changes in housing costs, including through shift-share instruments

  (Erol & Unal, 2023; Glitz, 2012; Sa, 2015; Saiz, 2007)

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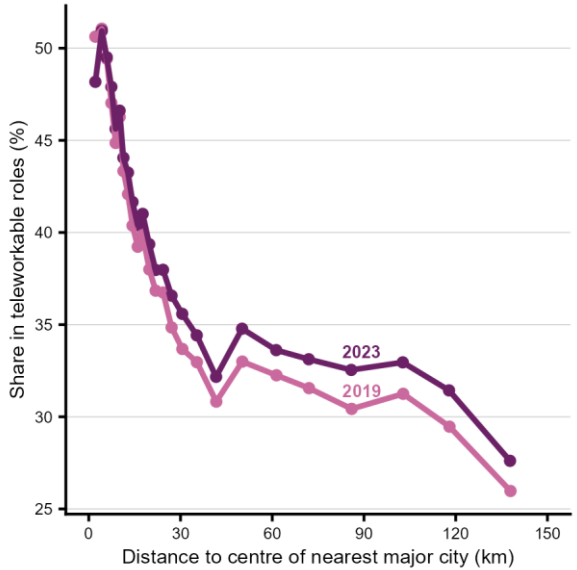
Data

- **Location data**: Australia-wide administrative data combining addresses from federal tax, Medicare and social security records as annual location observations at 31 December for 2016–2023.
  - » Approx. 25.1 million adults represented across panel
  - » SA2 (suburb) locations – 2,473 SA2s across Australia – average of 9,418 adult residents
- **Occupation data**: derived from ‘main salary and wage occupation’ in tax return data
- **Occupation teleworkability scores**: manually-adjusted index between 0 and 1 from Dingel & Neiman (2020), cross-walked to Australian occupation codes.
- Panel is aggregated up to SA2-by-year observations of adult resident counts
- **Property data**: quarterly observations of median SA2 property prices and rents.

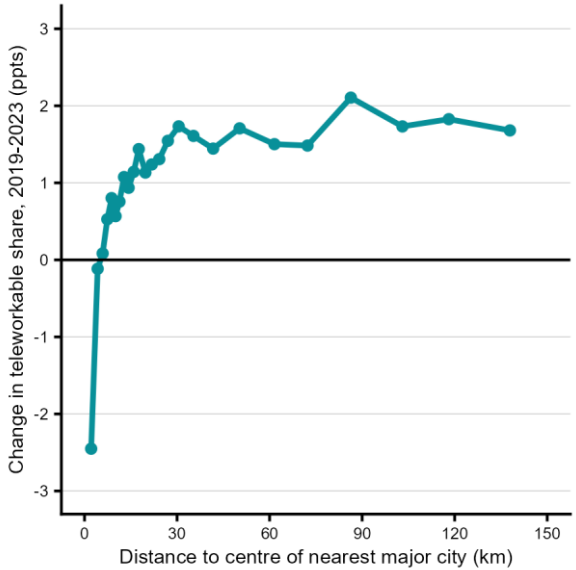
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Administrative data confirms the trend of residents in teleworkable jobs leaving city centres

Teleworkable job shares, 2019 and 2023

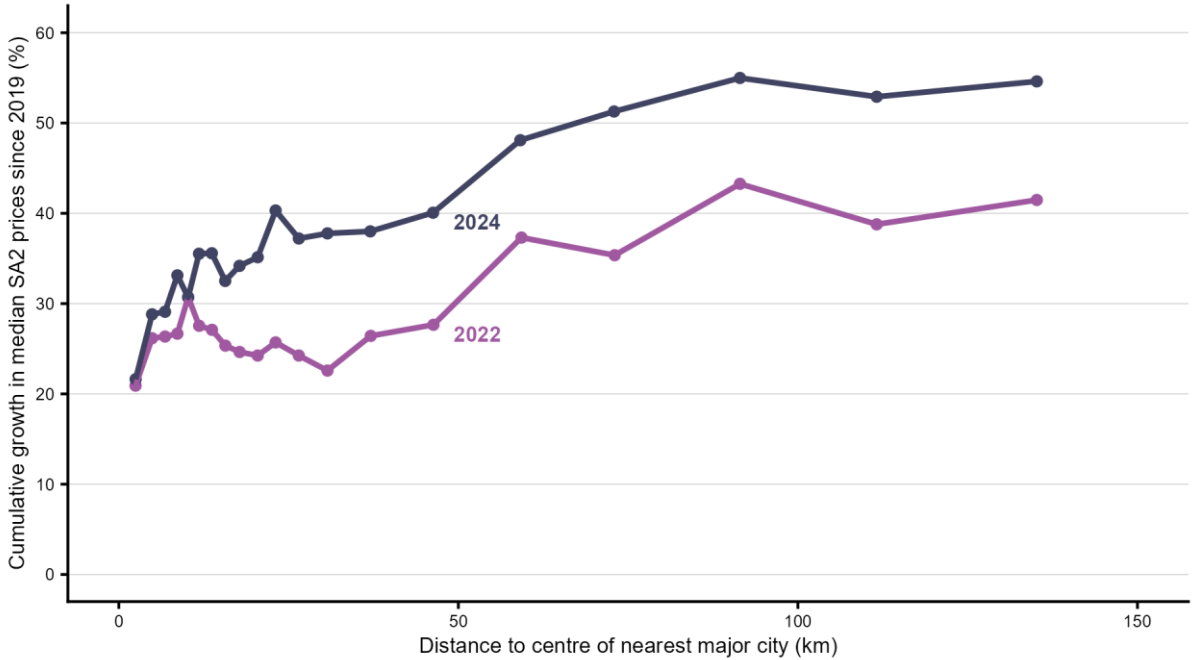


Change in teleworkable job shares, 2019–2023



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Cumulative property price growth since 2019 was higher further from the city centre



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The empirical strategy

- To examine the relationship between teleworker migration and housing costs:

$$\%\Delta Price_{g,2020-2024} = \tau \%\Delta \widehat{Teleworkers}_{g,2019-2023} + \theta \%\Delta OtherPop_{g,2019-2023}$$
$$+ Prepand'_g \beta + \alpha_{SA4(g)} + \epsilon_g$$

- where:
  - $\%\Delta Price_{g,2020-2024}$ is the percentage change in property prices in SA2 g between the first quarters of 2020 and 2024
  - $\%\Delta Teleworkers_{g,2019-2023}$ is the percentage change in the count of individuals in a teleworkable occupation living in SA2 g between 31 December 2019 and 2023
  - $\%\Delta OtherPop_{g,2019-2023}$ is the change in the count of all other adults living in SA2 g
  - $Prepand_g$ is a vector of pre-pandemic SA2 characteristics, including: prices; 2016–2019 price growth; 2016-2019 building approvals; incomes; unit share of sales; distance to the nearest capital; and population density
  - $\alpha_{SA4(g)}$ are regional (SA4) fixed effects for spatial correlations

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Instrumented on a shift-share measure

- Bartik-style shift-share instrument combining pre-pandemic teleworkability share with national occupation-specific internal migration shifts:

$$Z_g = \sum_o \left(s_{go,2019} \times \tau_o\right) m_o$$

  - $s_{go,2019}$ is base year (2019) share of employment by 4-digit ANZSCO occupation (o) in SA2 g
  - $\tau_o \in [0,1]$ is the occupation-specific teleworkability measure, based on Dingel & Neiman (2020)
  - m_o is the national share of workers in occupation o in 2019 who moved SA2 between 2019 and 2023
- **Key identifying assumption**: teleworkable occupation migration shocks should only impact property prices through changes to teleworkable residents
- As shares are endogenous, instrument relies on exogenous shifts – internal migration shock from loosening nexus between work and workplace

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Main results

Dependent variable: **% change in median property prices, 2020-2024**	**(1)** **OLS**	**(2)** **2SLS**	**(3)** **2SLS**	**(4)** **2SLS**
% change in residents in teleworkable roles, 2019–2023	0.196* (0.080)	1.467*** (0.203)	0.525* (0.243)	0.384 (0.316)
First-stage shift-share instrument		-0.975*** (0.056)	-1.403*** (0.152)	-1.215*** (0.169)
Observations	2,033	2,094	2,094	2,033
First-stage F-statistic (Kleibergen-Paap)		298.91	85.37	51.81
R-squared	0.321	0.073	0.411	0.452
Controls for changes in other residents	X	X	X	X
Region (SA4) fixed effects	X		X	X
Controls for pre-pandemic characteristic	X			X

Note: All changes are expressed as a percentage (i.e. multiplied by 100). Standard errors (in parentheses) are heteroskedastic-robust or clustered at the SA4 level for specifications with fixed effects. Data sourced from APM (accessed through AURIN), PLIDA (accessed through Datalab), and ABS (2026a, 2026b). + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

- Initial association between price growth and teleworkable resident migration attenuates once pre-pandemic characteristics are added (particularly unit share)



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Early sensitivity testing and extensions

- Following Borusyak, Hull & Jaravel (2025), sensitivity tests for incomplete share control find a sharply lower F-statistic – typically just over 10
  - » Suggests relationship between instrument and teleworkable resident changes is largely driven by endogenous shares, not exogenous shifts – more work needed
- Heterogeneity tests find some weak effects in high-density areas nearer city centres (↑0.4%) within SA4s
- An extension to rent outcomes finds a strong relationship (↑0.7%), indicating changes were not capitalized in asset prices. Other extensions show:
  - » weakly significant supply responses (↑7.8 building approvals)
  - » increased business counts (↑0.5%) across locally-consumed services (retail, hospitality, beauty/fitness)
  - » weakly significant employment effects in local retail businesses (↑2.4%)



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Conclusions

- We find **a strong descriptive association** between geographic shifts in teleworkable employment and housing demand after the pandemic
- But our **current IV estimates do not establish a robust causal effect** of these changes on local property prices
- Much of the initial association appears to be **explained by regional spatial correlations and pre-existing neighbourhood characteristics**
- **Model extensions** find asking rents increased strongly with teleworkable resident inflows, with some housing supply response and increase in locally-consumed services in surrounding suburbs.
- **Further work needed on refining instrument**, particularly on identifying internal migration patterns within administrative data

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THANK YOU

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Backpockets

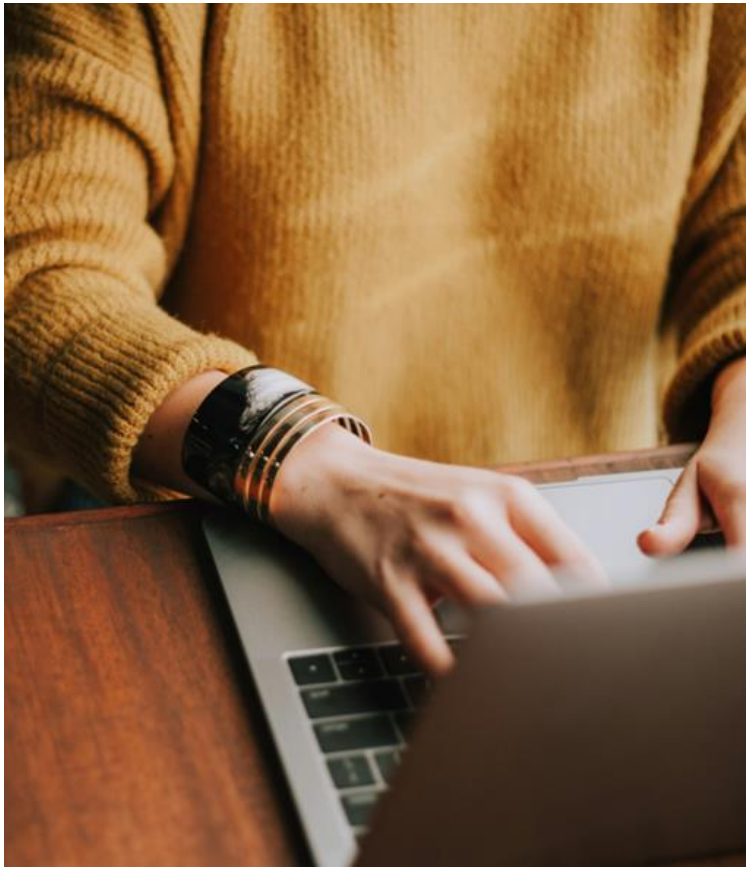
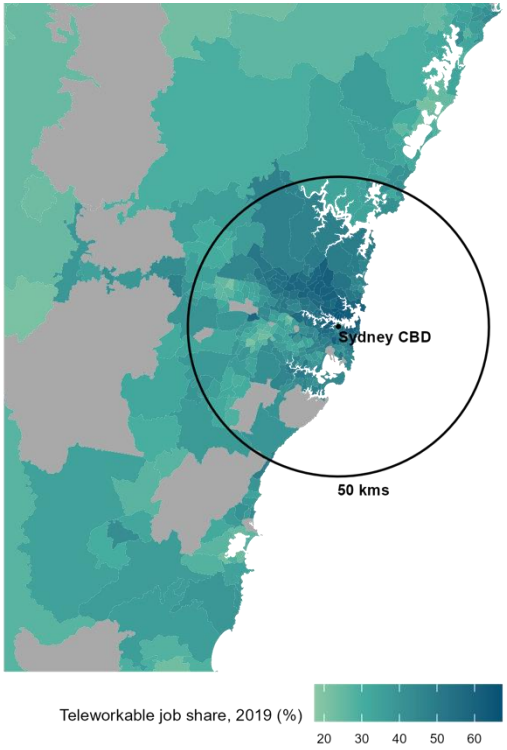
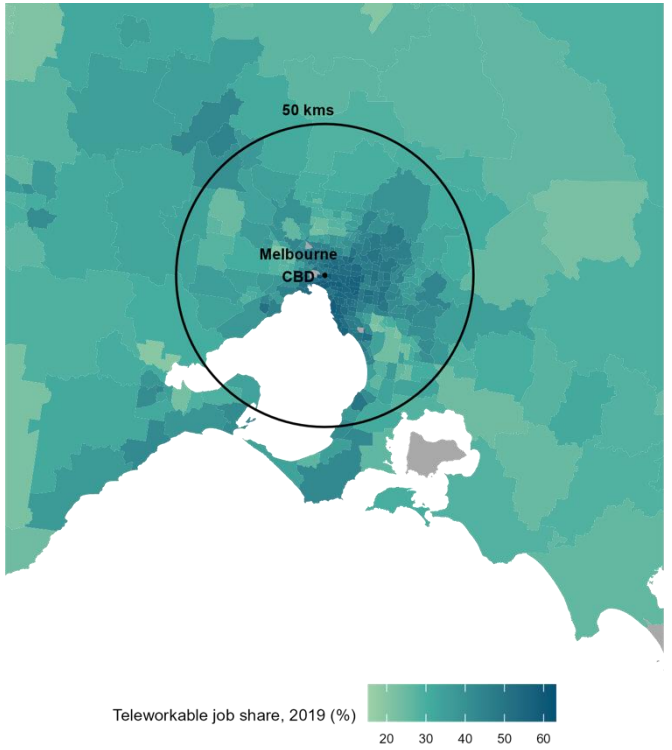


Photo by Caitlin Hamm on Unsplash.

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Pre-pandemic teleworkable job shares in Sydney and Melbourne

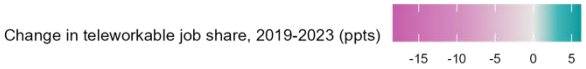


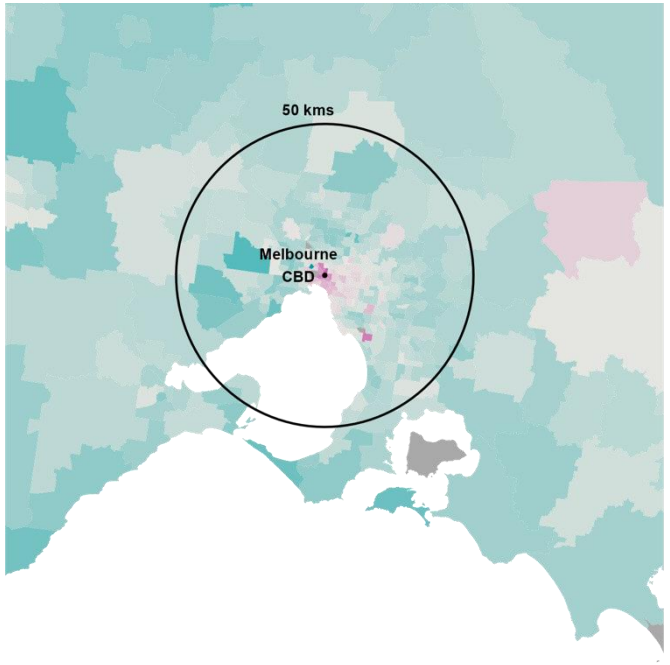


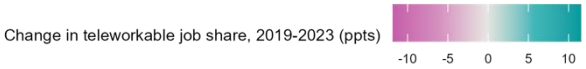
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Teleworkable job share changes in Sydney and Melbourne



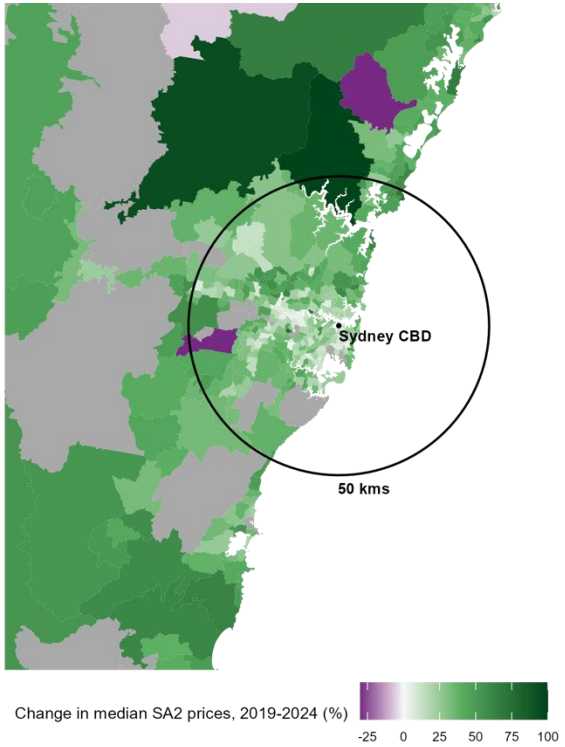


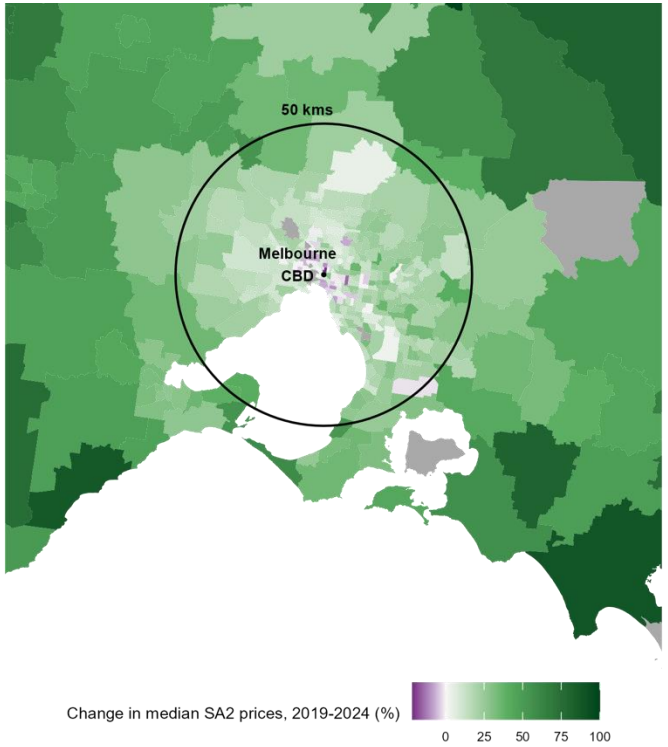




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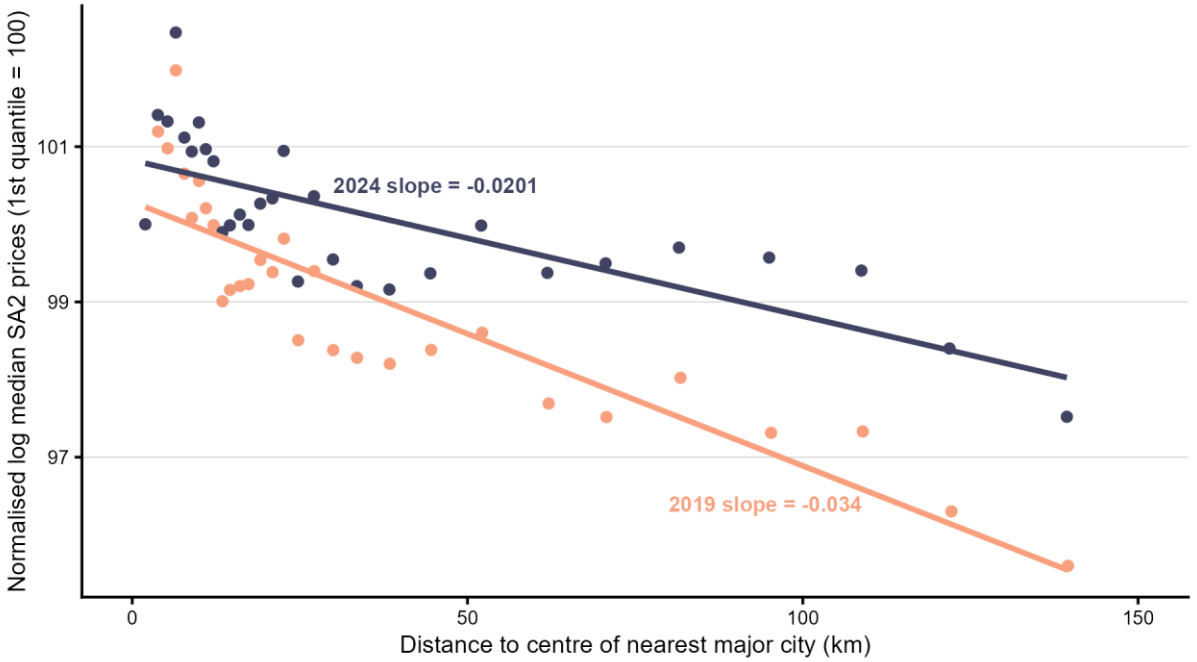
Property price increases in Sydney and Melbourne





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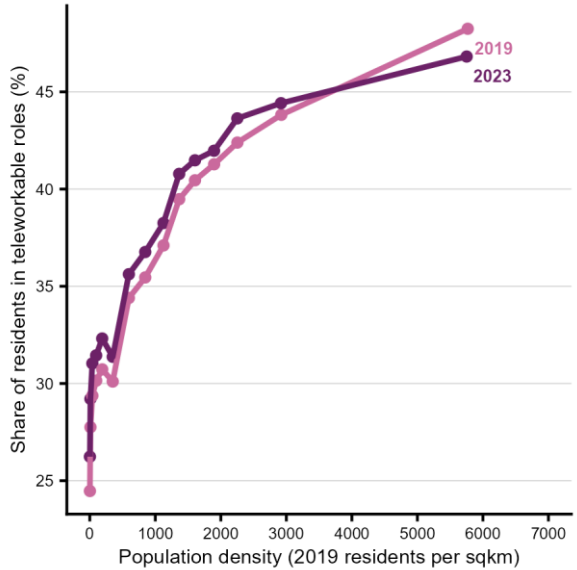
Urban price gradients before and after the pandemic



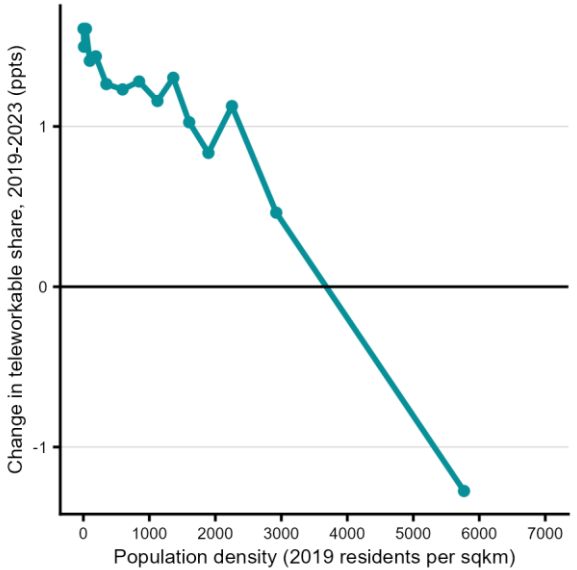
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Teleworkable job shares and changes by population density

Teleworkable job shares, 2019 and 2023

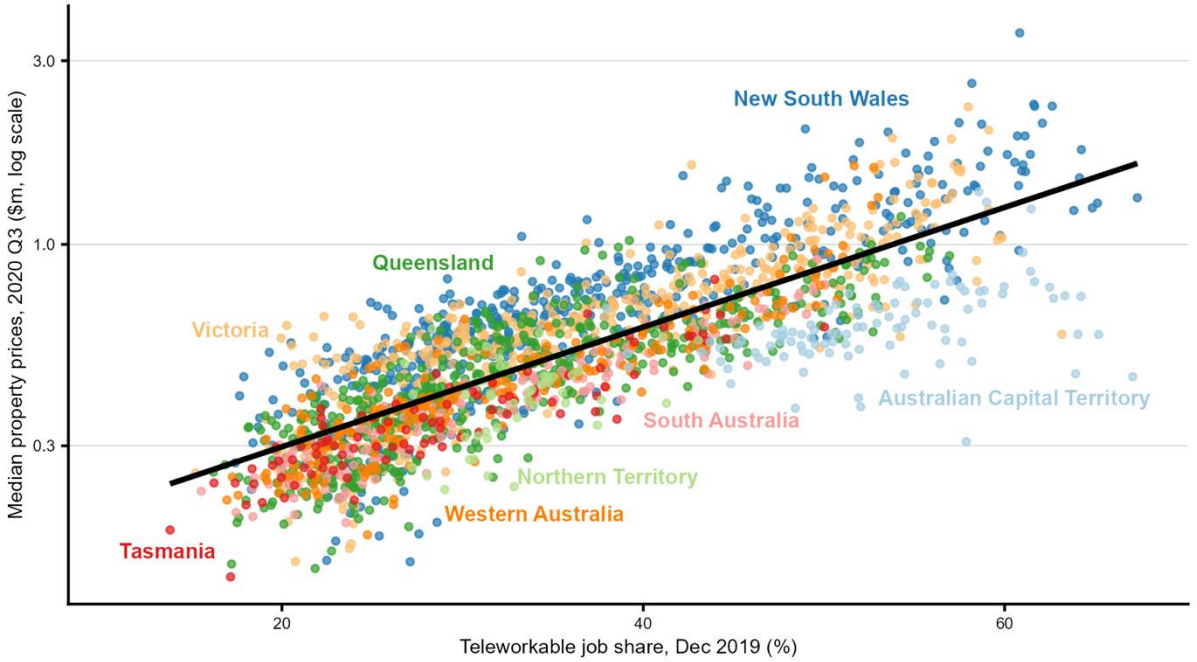


Change in teleworkable job shares, 2019–2023



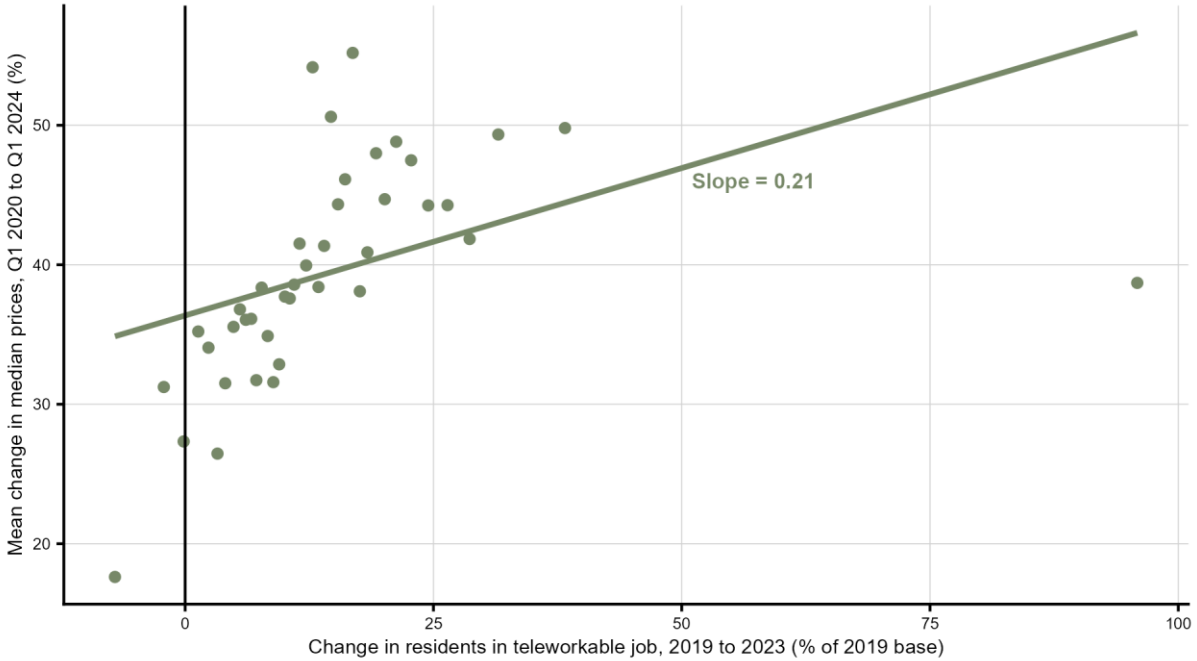
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Pre-pandemic property price by teleworkable job share



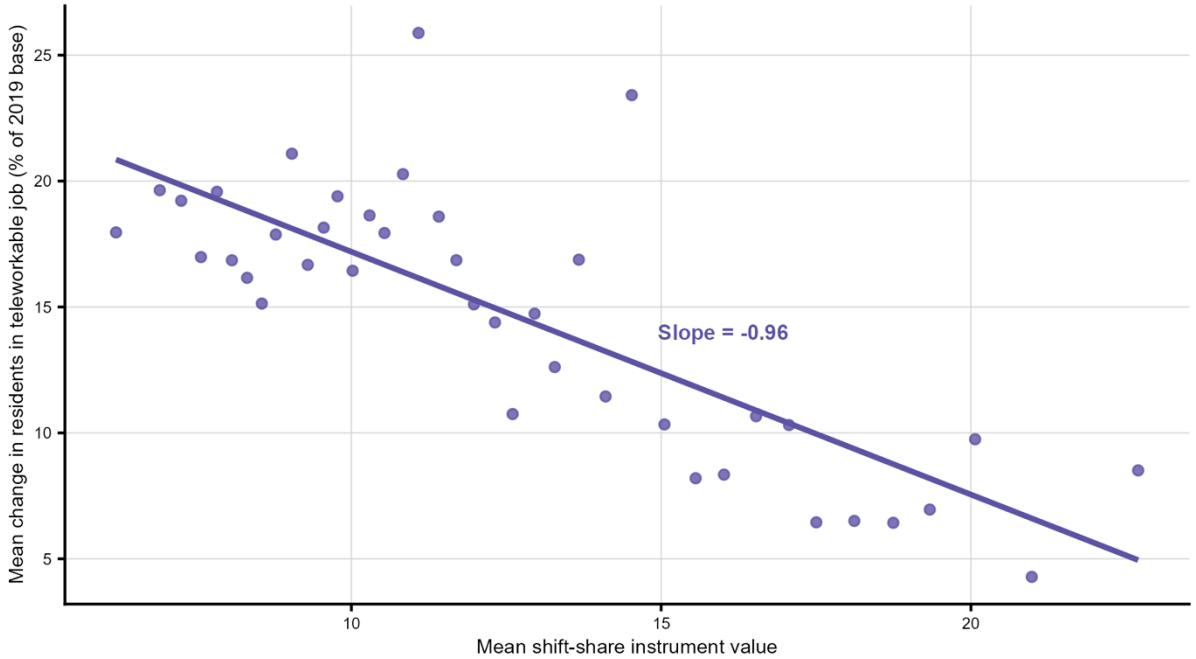
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Unconditional correlation between price growth and teleworkable resident growth



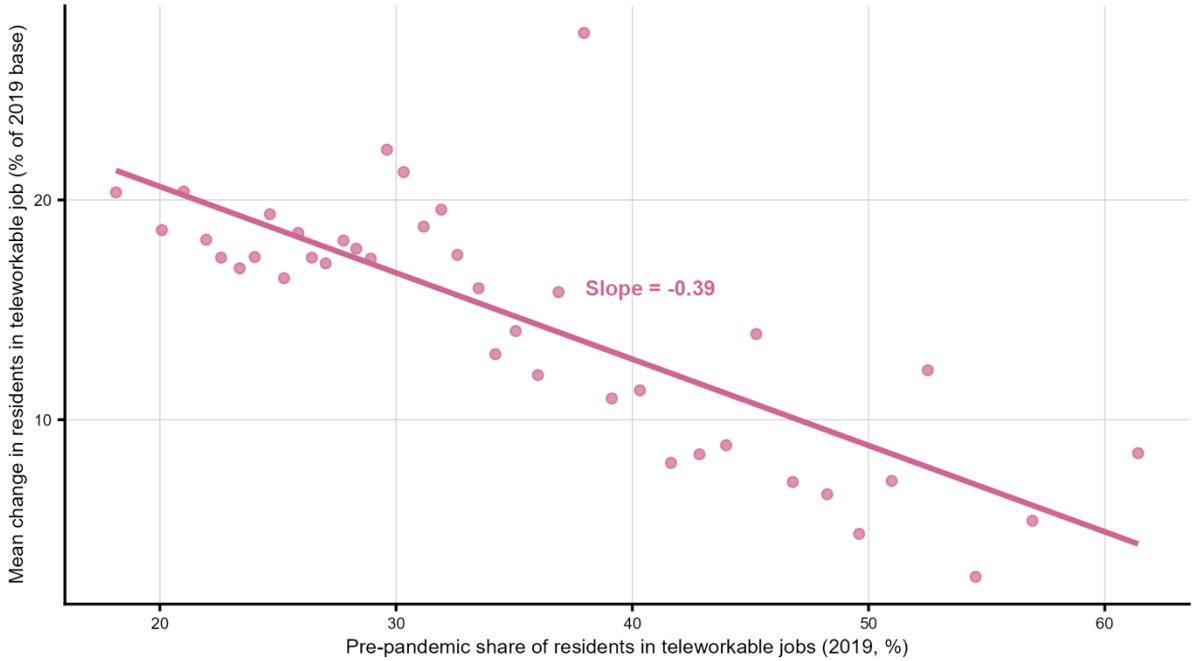
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Changes in teleworkable residents by instrument values



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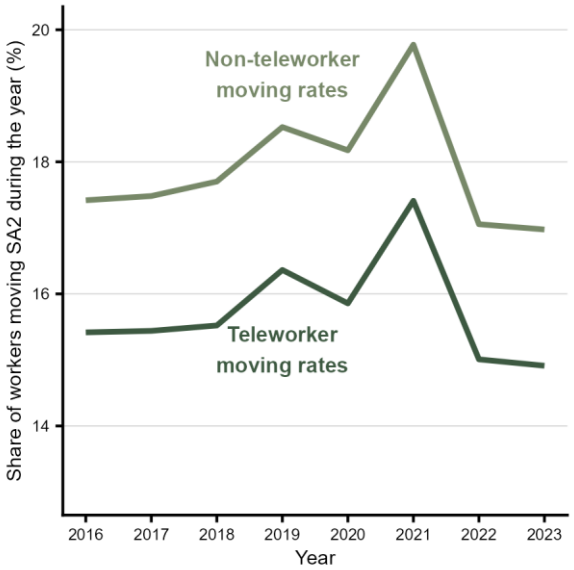
Changes in teleworkable residents by pre-pandemic share



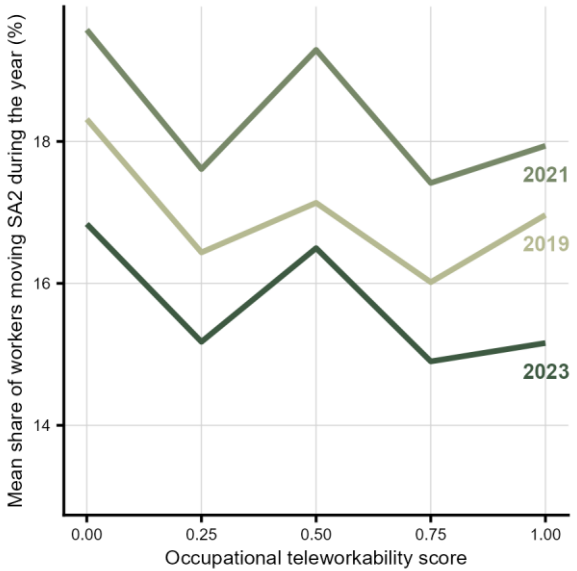
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Annual shares of workers moving SA2

By year and teleworkability status



By detailed teleworkability score



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Extensions: alternate dependent variables

Dependent variable:	% change in rents, 2020-24		# building approvals, 2020-2024		% change in SA3 LCS businesses, 2020-2024		% change in SA3 LCS employment, 2020-2024	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Instrumented % change in residents in teleworkable roles, 2019–2023	0.590***	0.700***	-4.977	7.769+	0.305+	0.593**	1.496+	0.382
	(0.104)	(0.191)	(5.716)	(4.558)	(0.165)	(0.183)	(0.858)	(1.225)
First-stage shift-share instrument	-1.405***	-1.215***	-1.435***	-1.211***	-1.403***	-1.215***	-1.403***	-1.215***
	(0.152)	(0.169)	(0.153)	(0.170)	(0.152)	(0.169)	(0.152)	(0.169)
Observations	2,092	2,031	2,037	2,030	2,094	2,033	2,094	2,033
First-stage F-statistic (Kleibergen-Paap)	85.47	51.58	87.79	51.01	85.37	51.81	85.37	51.81
R-squared	0.603	0.609	0.289	0.738	0.420	0.441	0.263	0.279
Controls for changes in other residents	X	X	X	X	X	X	X	X
Region (SA4) fixed effects	X	X	X	X	X	X	X	X
Controls for pre-pandemic characteristics		X		X		X		X

Note: Standard errors (in parentheses) are clustered at the SA4 level. Data sourced from APM (accessed through AURIN), PLIDA (accessed through Datalab), and ABS (2026a, 2026b). + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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