

DOES HIGH-RISE DEVELOPMENT DAMAGE NEIGHBOURHOOD CHARACTER?

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POLICY Paper 40

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Summary

Local residents often oppose new apartment buildings on the grounds that they would harm neighbourhood character. This paper suggests these complaints are exaggerated and unrepresentative.

The paper examines several examples of high-rise development in Sydney and Melbourne. If these developments harmed neighbourhood character, as local residents often claim, nearby house prices should fall. But that does not happen.

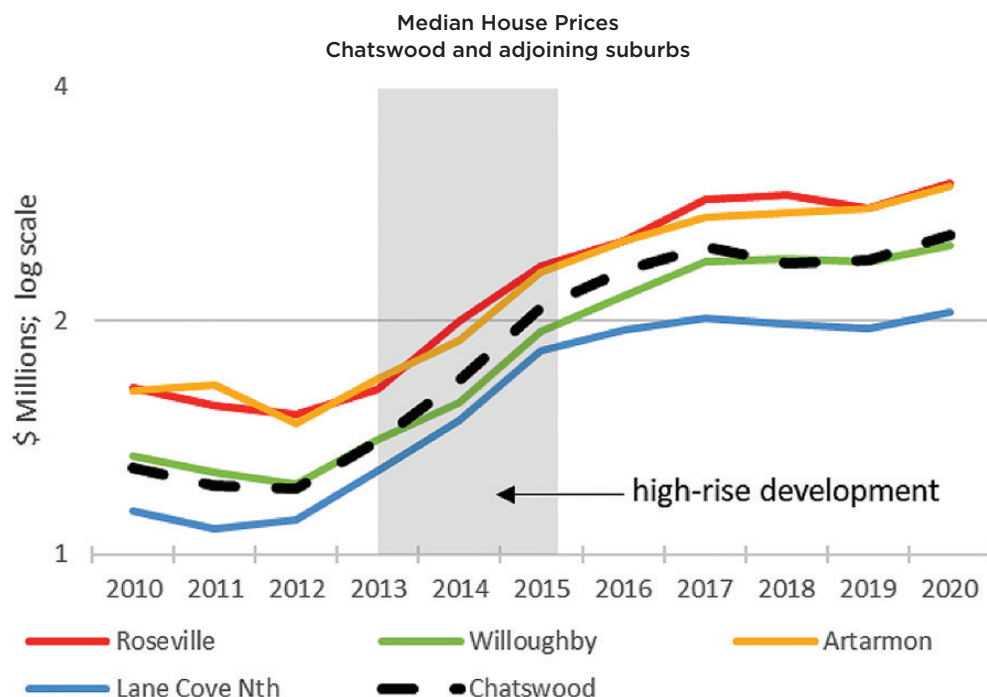
For example, the chart below shows median house prices in the Sydney suburb of Chatswood and adjoining suburbs. From 2013 to 2015 (shaded) six very tall apartment towers were constructed in central Chatswood, making the suburb a symbol of 'overdevelopment'.

However, house prices in Chatswood closely tracked prices in adjoining suburbs, both before and after the

towers were constructed. Judging by willingness to pay, the relative amenity of living in Chatswood barely changed.

The paper presents similar analyses for several other suburbs with pronounced high-rise development: Box Hill, Footscray and South Yarra in Melbourne and Forest Lodge, Green Square, Liverpool and Turrella in Sydney. The results are the same: house prices near new apartment buildings move by about the same as house prices elsewhere.

These results have policy implications. Many zoning regulations restrict the supply of new apartments, raising the cost of housing. The paper suggests that these regulations are hard to justify in terms of preserving local amenity. Zoning restrictions appear to increase the cost of housing unnecessarily.



1. Introduction

Perhaps the most common argument against high-rise buildings is that they would harm neighbourhood character.

Local residents complain that new apartment buildings are ugly, noisy, block sunlight and increase traffic and overcrowding. These residents want to preserve the ‘village atmosphere’ of their neighbourhoods.

State and local governments have responded to these concerns by strictly limiting urban infill. The combination of restricted supply and steadily increasing demand has resulted in large increases in housing costs ([Tulip, 2020](#)).

However, other potential residents like high-density housing and the vibrant communities it creates. This latter group is large — judging from the many real estate advertisements that describe proximity to shops, entertainment and other features of high density as selling points. Song-writers enthuse about life in dense cities, not about life in the suburban outskirts.¹

Policymakers need some way to balance these opposing preferences. How important are the benefits of low density?

One way of quantifying these benefits is through willingness to pay. The desirability of a neighbourhood’s character should be reflected in what

home-buyers are prepared to pay to live there. If high-rise development makes a neighbourhood less pleasant, then there will be fewer buyers and more sellers. The price will fall until buyers feel the lower price provides fair compensation for any perceived deterioration. The market essentially puts a dollar value on changes in local amenity.

This paper assesses changes in willingness to pay in suburbs with unusually pronounced high-rise development. We find little effect on nearby house prices, and conclude that building high-rise apartments does not harm neighbourhood amenity, on balance. To be clear, the ‘character’ of these neighbourhoods is often transformed — but the change is not a deterioration. In Section 6 we discuss other possible interpretations of our data and explain why we prefer our conclusion.

This conclusion has policy implications. For most new apartments, the value to the buyer, as measured by the price they are prepared to pay, far exceeds the marginal cost of supply ([Jenner and Tulip, 2020](#)). This is because planning restrictions limit supply, raising the price. Those restrictions would be justified if there were large negative externalities from high density. However, our results suggest those externalities are unimportant. That implies that existing planning restrictions unnecessarily make housing unaffordable and cause substantial social harm.

2. Our approach

As we show in Section 4, construction of high-rise apartments tends to be positively correlated with above-average price gains in a suburb. We do not disregard this evidence, however it is difficult to interpret. Does construction cause prices to rise by improving neighbourhood amenity (that is, an externality that shifts the demand curve)? Or do high prices lead to extra construction (moving along a standard upward-sloping supply curve)? The paper considers several ways of disentangling these effects.

One approach is to look at reasons for decisions. For example, the decision to develop high-density housing in Forest Lodge (discussed in Section 3c) reflected a large area of land, previously occupied by a paceway, becoming available. This was for reasons of internal developments in the harness racing industry — exogenous to real estate developments.

Another approach is to use nearby suburbs as a control. Most factors that increase demand to live in one suburb should also increase demand to live in adjacent suburbs. Indeed, we find that houses in adjacent suburbs seem to be extremely close substitutes.

A third approach considers timing. Events earlier in time are more likely to determine later events. Although pricing and investment are forward-looking decisions, long lags make timing informative. In particular, when relative prices have not changed for many years before a construction project begins, it is difficult to attribute that project to price signals.

We examine eight case studies that combine these approaches -- five from Sydney and three from Melbourne. These examples satisfy three criteria:

- New construction has been large or otherwise salient, so any effect should be discernible through the noise.
- There is a marked contrast in development with adjoining suburbs, which can act as controls. This ruled out Olympic Park and Parramatta in Sydney, for example, and many inner Melbourne suburbs.
- The relevant suburbs have significant sales of detached houses, so externalities can be gauged. This ruled out the central business districts of both cities, and adjoining suburbs like Barangaroo, Southbank and Docklands.

¹ [Williams \(2019\)](#) provides a journalistic account of high-development leading to “thriving” “sought-after” neighbourhoods.

Within these bounds, we wanted variety, which our eight examples provide. Forest Lodge and Turrella are suburbs with large changes in the composition of housing. Chatswood and Box Hill represent highly visible development. The other examples simply reflect high levels of construction. The neighbourhoods vary. In Chatswood and Liverpool, development occurred in busy commercial districts; Forest Lodge and Turrella used to be low to medium density residential; Green Square used to be semi-industrial.

In all eight cases, zoning approval was needed for development. Approval is typically denied to projects like those we examine. In particular, discussions with developers indicate it would not have been provided in the adjoining suburbs we use as counterfactuals. So approval represents an important causal factor. Official documents outlining reasons for rejection of large developments, such as 2,400 apartments in South St Leonards ([Independent Planning Commission](#), 2019) or 1,900 apartments at Little Bay ([Randwick](#)

[Council](#), 2020), indicate that residents' insistence on preserving neighbourhood character is pivotal. However, our analysis suggests these arguments should not have been given much weight.

The previous Australian research that most resembles ours is Davison et al ([2013](#)). They examine whether affordable housing in Brisbane and Sydney affects neighbourhood amenity by examining nearby house prices. They differ in that they focus on affordable housing, rather than high-rise apartments. And, as a control, they use hedonic regressions, rather than adjoining suburbs. A strength of hedonic regressions is that they can estimate interactions and within-suburb effects, such as those within say 100 metres. A weakness is that they will omit slowly changing influences that are unobservable to the econometrician, but captured by our difference in differences comparisons. Hedonic regressions also have greater data requirements and complexity. We discuss overseas research in Section 5.

3. Examples

Chatswood

Chatswood, on Sydney's affluent North Shore, was home to a sudden increase in high-rise buildings from 2013 to 2015. Until 2013, the tallest residential building in Chatswood was the 96m (33 storey) Epica. Then six taller buildings were constructed in two years, up to 170m ([Wikipedia 2021](#)). Their transformation of the skyline can be seen in Figure 1. The new towers dominate views throughout the northern suburbs of Sydney.

The development was initially criticised as excessive by the local member (Berejiklian, 2005) and has since become a symbol of 'overdevelopment'. When residents of Lindfield, Crows Nest and Edgecliff protested development in each of their suburbs, newspaper headlines read 'Residents do not want Chatswood high rises' or variations ([Taylor 2020](#), [2021](#); SMH print edition 13 January, 2021). This attention is a bit odd given that the new buildings in Chatswood comprise 'only' 1,500 apartments.² Although substantial, this is a smaller scale of development than most of our other examples. It may be the height and hence visibility of the Chatswood towers that attracts so much opposition.

Figure 2 shows median house prices for Chatswood (black, dashed) and the four largest adjoining suburbs (coloured, solid). Prices are for houses, so the new apartments are not included. In the adjoining suburbs,

there was little high-rise development (in Willoughby, none) and certainly nothing comparable to 40-storey towers (Table A1). Indeed, the central shopping centres of these suburbs are still populated by one and two-storey buildings. Accordingly, they provide a counter-factual — a guide to how Chatswood prices may have evolved in the absence of the new development. The 2013–2015 period, when the construction of very tall buildings was concentrated, is shaded.

The house prices in Figure 2 follow parallel tracks. If high rise construction did harm neighbourhood amenity, as its opponents claim, then Chatswood house prices would decline relative to prices elsewhere. But, as can be seen, they didn't.

We have two sources of data on house prices by suburb. Estimates from Australian Property Monitors (APM), affiliated with the real estate web site domain.com.au, are available for purchase and extend back to 1993. Estimates from Residex Suburb Reports are available inexpensively, but only extend back to 2010. In general, the two estimates are very close. For most of this paper we use data from APM but, for reasons of variety and ease of replicability, Figure 1 shows Residex series.

For a different cut of the data, Figure 3 shows APM data, extended back to 1993 and taking the average of the four adjoining suburbs shown in Figure 2.³

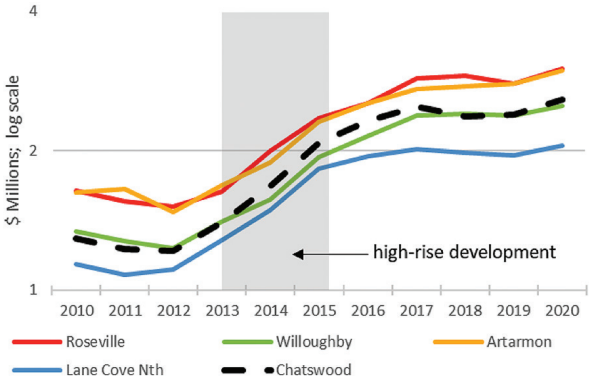
2 To be precise, this is the increase in dwellings in buildings of more than 4 storeys, as measured by the ABS. We refer to this throughout as "high-rise". Many planners would describe buildings of 4 to 8 storeys as 'medium rise'.

Figure 1: The transformation of the Chatswood skyline.



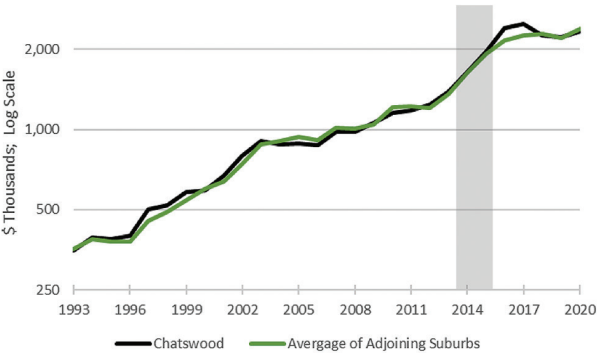
The top panel shows the skyline in 2006 ([Wikimedia](#)). The bottom panel is in 2021 (photo by the authors). We have labelled some buildings, visible in both photos, with letters to facilitate comparisons. The perspectives differ because the 2006 photo seems to have been taken from a helicopter (which our budget did not cover).

Figure 2: Median House Prices
Chatswood and adjoining suburbs



Source: Residex Suburb Reports

Figure 3: Median House Prices
Chatswood and adjoining suburbs



Source: APM

The closeness of the lines over a long historical period suggests the adjoining suburbs provide a good control. Housing in adjoining suburbs appears to be a close substitute for housing in Chatswood. This is a recurring feature of our examples, and Section 6 discusses some of its implications.

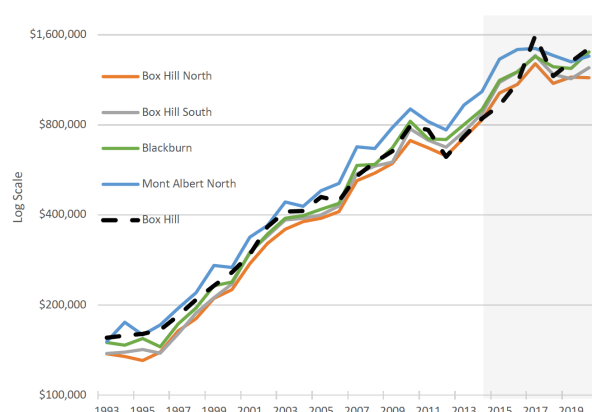
The closeness of the lines in the last few years of Figure 3 suggests the ‘transformation’ of Chatswood has actually had very little effect on the attractiveness of living there. If anything, there may have been a marginal and temporary improvement in Chatswood’s relative amenity.

Box Hill

The suburb of Box Hill in Melbourne is demographically and architecturally similar to Chatswood. Since 2015, over 3,000 high-rise apartments have been approved there, while very little development has occurred in most adjoining suburbs (Table A2). The 35-storey Sky One and the 36-storey Whitehorse Towers were, at the time of their completion, the tallest buildings in Melbourne outside the CBD. Like Chatswood, the new towers dominate the local topography.

Figure 4 shows house prices in Box Hill and adjoining suburbs. The story is the same as for Chatswood. Prices move along parallel paths prior to development, so adjoining suburbs provide a good control. Then, following the new construction, house prices continue to move in line, suggesting little change in relative amenity. It could be argued that prices in Box Hill have increased relative to other suburbs, however quantifying comparisons like this is sensitive to timing assumptions.

4: Median House Prices⁴
Box Hill and adjoining suburbs



Source: APM

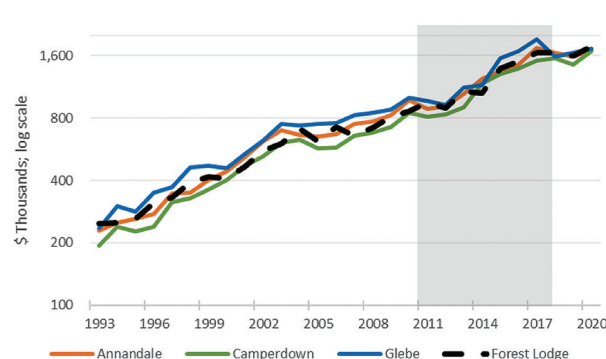
Forest Lodge

In 2010, the NSW Harness Racing Club sold the Harold Park Paceway in the inner-Sydney suburb of Forest Lodge. The sale reflected the age and growing unsuitability of the site for harness racing — it was increasingly distant from stables and most spectators. 1,250 new apartments were constructed on the site over the next few years. Forest Lodge was transformed: between the Censuses of 2011 and 2016 (not the full period of development) the share of high-rise apartments rose from 10 per cent of dwellings in the suburb to 46 per cent; one of the largest compositional shifts in Sydney.

Figure 5 shows the lack of effect this transformation had on nearby house values (primarily two-storey terraces). As can be seen, prices in Forest Lodge (the black dashed line) moved in lockstep with those in adjoining suburbs prior to the development, suggesting that adjoining suburbs provide a good control. But then, as new apartments come on the market, prices continue to move closely together — suggesting the new development had little effect on the relative amenity of living in Forest Lodge. The period 2011 to 2018, when most apartments were approved, is shaded.

Two further features of the development in Forest Lodge are noteworthy. First, it arose from a decision of the prior occupants to relocate; so is plausibly exogenous to local real estate dynamics. The location of new construction in Forest Lodge, rather than Camperdown or Annandale, cannot be attributed to relative price signals.

Figure 5: Median House Prices
Forest Lodge and adjoining suburbs



Source: APM

- 3 For context, the ABS’s median price of established houses in Sydney (spliced to the ABS’s earlier price index) has increased by about the same proportion as the series shown in Chart 3 since 1993. It rose much faster in the first two decades and much slower in the last decade.
- 4 Some readers would prefer that we average or otherwise aggregate the adjoining suburbs for a clear counterfactual, as we did in Figure 3. We prefer to show that the comparisons are robust to alternative weights. And the stability of price differentials is a remarkable feature of the data, relevant to other research.

Second, the development involved active opposition from residents, including local politicians Jamie Parker, Chris Harris and Irene Doutney. Parker chaired '[packed public meetings](#)', complaining about the '[massive overdevelopment of the site](#)' (Parker, undated). The residents group argued the 'overdevelopment of the site will lead to a large increase in traffic and devalue homes in the area' ([Hurley, 2012](#)). The failure of residents' objections to materialise is relevant to assessing resident objections to other projects.⁵

Green Square

Green Square is an area 5km south of the Sydney CBD, overlapping the suburbs of Alexandria, Zetland, Waterloo, Rosebery and Beaconsfield. A decade ago, it was semi-industrial. Then, from 2011 to 2020, 12,000 high-rise apartments were approved for construction in the Waterloo-Beaconsfield Statistical Area — the highest level of construction in NSW.⁶ If any suburban neighbourhood is likely to show the problems of 'overdevelopment' it would be Green Square.

Measuring prices for Green Square raises some complications. The development spans multiple small suburbs, so we 'zoom out' and use prices for Waterloo-Beaconsfield SA2 area. Many properties in Waterloo are owned by the Housing Commission, which arguably makes developments in that suburb unrepresentative. To ensure this does not bias our results, we run similar comparisons using the median price in the combined suburbs of Zetland, Beaconsfield and Rosebery (that is, excluding Waterloo). This

series is slightly less volatile than the SA2 price and consistent with marginally stronger conclusions. Out of conservatism, we emphasise the SA2 results.

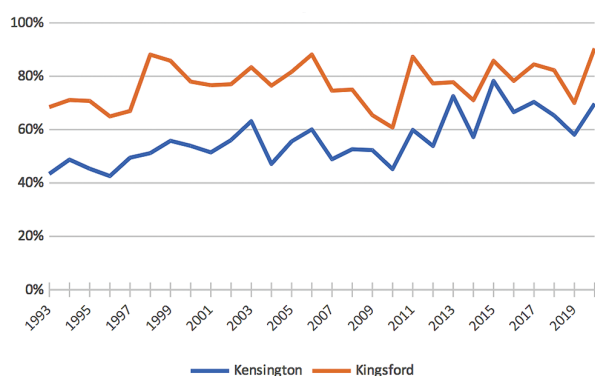
The control group comprises the suburbs on the other side of Southern Cross Drive: Kingsford and Kensington. These suburbs are almost adjacent⁷ with the same commuting distance to central Sydney. However, in contrast to suburbs to the North, West and South of Green Square, Kingsford and Kensington saw little high-rise construction (Table A1), so provide interesting controls.

Kensington and Kingsford house prices are much higher than those around Green Square, so parallel movements are harder to see in a chart in levels. Instead, Figure 6 shows the ratios of the median house price near Green Square (more precisely, the Waterloo-Beaconsfield SA2) to house prices in Kensington and Kingsford. Development around Green Square has been strong for at least the last decade, so we do not shade a particular period.

In the 1990s and 2000's -- before the high-rise construction began -- the ratios of house prices near Green Square to prices in Kensington and Kingsford were fairly stable, suggesting the nearby suburbs provide good controls. Then, as Green Square grew, the ratios barely changed. If anything, prices near Green Square may have risen slightly faster than those in Kensington.

High rise development occurred in Green Square but not Kingsford and Kensington, because of the availability of large parcels of industrial land,

Figure 6: Ratio of Green Square house prices to nearby suburbs



Source: APM

⁵ Another example of resident objections failing to materialise is Central Park in Sydney. Our suburb-level and SA2 data is too coarse to show contrasts with nearby areas however the high-density development there is reported to be very popular and the precinct has become a sought-after address. (NSW Productivity Commission, 2021, Box 7.3)

⁶ See Table A1. Other SA2s with large developments include Melbourne (21,000 approvals), Southbank (11,000) and Docklands (6,000) in Victoria and Homebush Bay – Silverwater (10,000) and Mascot – Eastlakes (6,000) in NSW.

⁷ To be precise, Kingsford and Waterloo-Beaconsfield are separated by 100m of golf course and Southern Cross Drive.

reinforced by heritage controls in Kensington. Accordingly, like Forest Lodge, it is interpretable as an exogenous shift of the supply curve; not a movement up and along it.

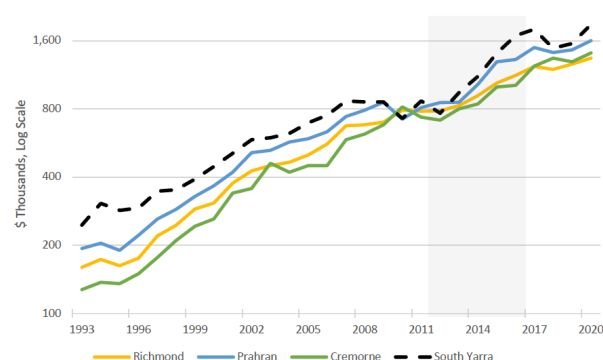
Subject to that minor qualification, our interpretation of the data for Green Square is essentially the same as for previous examples. The addition of 12,000 new apartments seems to have had little effect on the relative attractiveness of living in the area.

South Yarra, Footscray, Liverpool and Turrella

Figure 7 to 10 show house prices in and around four other suburbs that have seen unusually strong high-rise construction: South Yarra and Footscray in Melbourne and Liverpool and Turrella in Sydney. As in our previous examples, prices closely track adjoining suburbs, both before and after high rise development begins. Appendix A provides construction numbers.

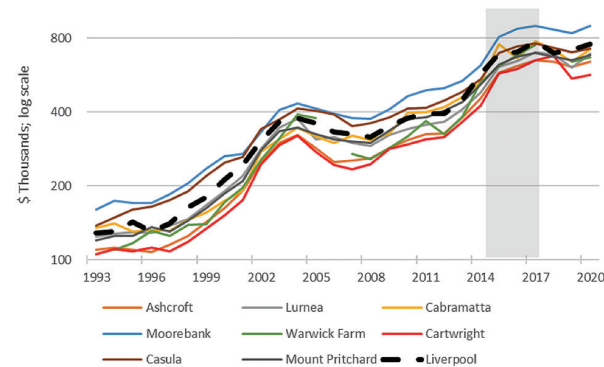
We note that some of the charts may look cluttered at first glance; however, on closer inspection it is striking how stable the price relativities are over time.

7: Median House Prices
South Yarra and adjoining suburbs⁸



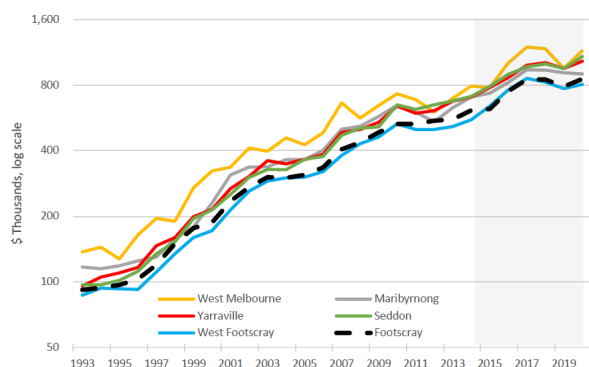
Source: APM

Figure 9: Median House Prices
Liverpool and adjoining suburbs



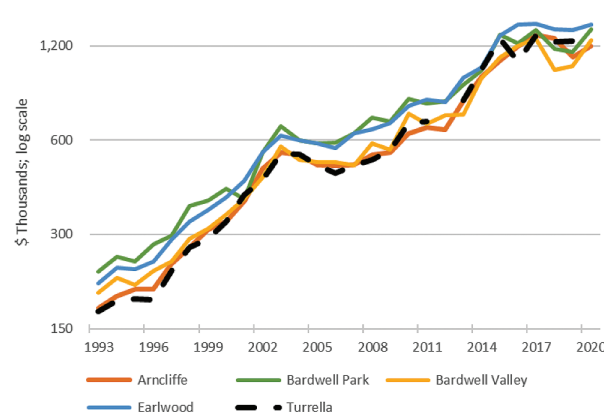
Source: APM

8: Median House Prices
Footscray and adjoining suburbs



Source: APM

10: Median House Prices⁹
Turrella and adjoining suburbs



Sources: APM and Residex

⁸ There was significant development in Richmond and Cremorne, so Prahran is the more interesting control. We do not show Toorak, where the median price in 2020 was \$4.4 million.

⁹ APM require more than 10 sales in a suburb in a year to report a median price, so do not provide estimates for Turrella after 2017. We use Residex estimates for Turrella for 2018 to 2020. The Residex and APM estimates for Turrella for 2017 are both \$1.3million.

4. Cross Section Correlations

To place our results in context, Figure 11 compares house price growth with high-density construction over 2011 to 2016 for all 481 suburbs in the Sydney metropolitan area for which we have matched data.¹⁰ Our price data is on a suburb basis, so for consistency we measure construction using the census, which restricts our dates. Forest Lodge and Turrella are at the far right of the chart.¹¹ Other examples are to the left, partly because much of their development occurred after the 2016 census and partly because they also had substantial medium-density development.

The relationship between these variables is weak. A line of best fit is

$$\text{House price change} = 67 + 28\text{density}$$

[0.8] [17]

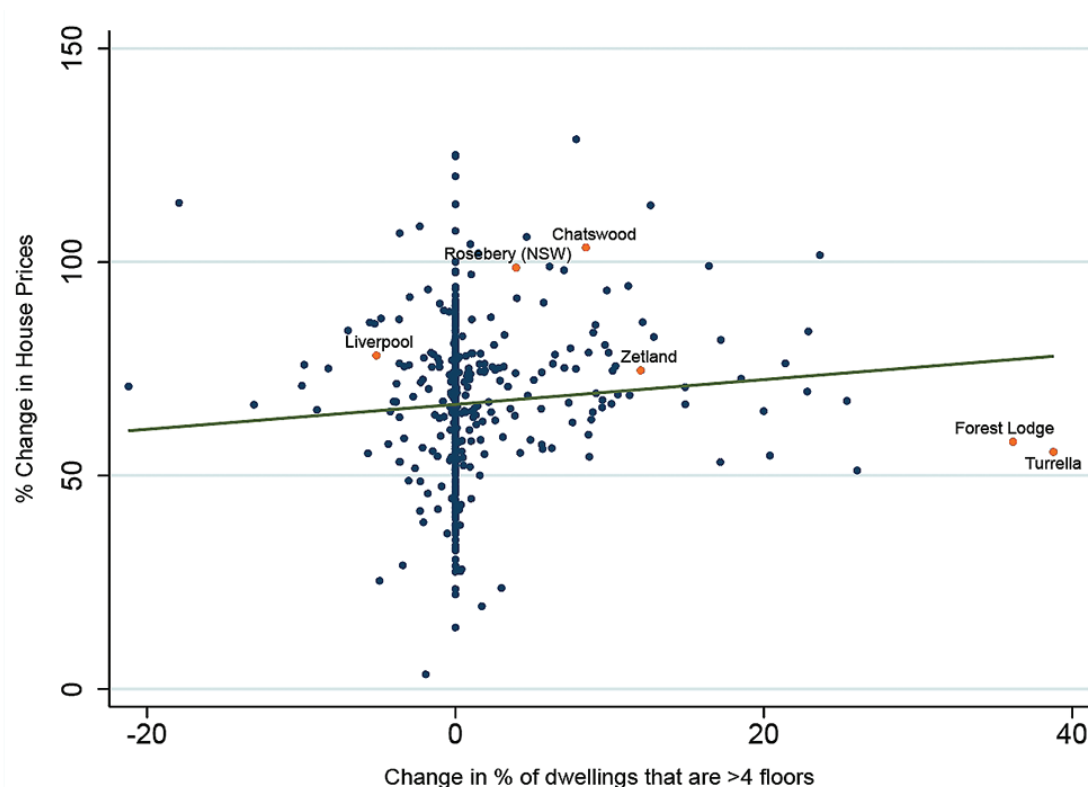
s.e. = 17, $R^2 = .008$, $n = 481$

Where *House price change* is the percentage (not log) change in the median house price sale between 2011 and 2016 and *density* is the percentage point change in the share of dwellings that are in buildings exceeding four storeys. Davidson-MacKinnon HC3 standard errors are in brackets.

An increase in the high-rise share of dwellings in a suburb of 10 percentage points would be associated with an extra increase in house prices of 2.8%. This coefficient has a p-value of 10%, which would not usually be considered statistically significant.

We would not describe this relationship as causal or structural. Incentives to build are stronger in areas with relatively strong demand and high prices. More generally, our regression reflects a mix of supply, demand and externality factors. It does not control for other influences. It would not apply at different levels of aggregation. Nevertheless, it shows that our case

Figure 11: House Prices and High-Rise Development (2011 – 2016)



Sources: APM, Census

¹⁰ The concentration of observations with zero change largely reflects suburbs with no high-rise dwellings in either census. We have many fewer observations for both prices and construction than we do for either, partly because of inconsistencies in naming between the two data bases.

¹¹ Barangaroo and Olympic Park, which are now almost entirely high-rise apartments, are not shown.

studies are not unrepresentative — other than they are drawn from the observations on the right of the scatter plot.

Our approach, focussing on select examples is not comprehensive. A broader assessment would run a regression like that above, but with instrumental variables. There are always trade-offs between internal and external validity. Some overseas studies, discussed in the following section, use timing differences — on the assumption that construction precedes changes in housing costs. That may be plausible when using rents, which are arguably backward-looking. But it does not seem plausible for

prices, which are forward-looking. Moreover, Census estimates are only available every 5 years. Future research will hopefully find good instruments or identification strategies.

More broadly, many of the papers discussed in the following section run hedonic regressions using individual sale prices, land values or rents as the dependent variable. If problems of endogeneity can be solved, that approach can provide more powerful estimates. In comparison, our approach — using the median price per suburb as observations — has advantages of simplicity and transparency.

5. Overseas Studies

There is a large body of international research on this topic, which [Fredrik Brunes, Cecilia Hermansson, Han-Suck Song and Mats Wilhelmsson \(2020\)](#) summarised:

‘Most studies using hedonic price models and difference-in-difference analyses have found that residential infill development produces a positive impact’ on nearby property prices.

That assessment was valid at the time, however two qualifications are necessary. First, several good studies have been circulated after Brunes *et al* would have written their summary. [Shane Phillips, Michael Manville and Michael Lens](#) (2021) provide a survey of this recent work, most of which finds small negative effects. So an updated summary would describe the research as mixed. Second and more importantly, the effects are small. That is in line with our results.

What follows is a brief summary of the overseas research, focussing on papers which pay close attention to causality and with versions outside firewalls. Unless otherwise noted, results relate to the effect of new, large, market-rate apartment buildings.

[Brunes *et al* \(2020\)](#) found that construction of apartments in Stockholm boosts the prices of apartments within 200m by about 1%. This effect is stronger in areas where incomes are low, there is more public housing and more inhabitants are born abroad. The effect did not vary with the scale of construction.

[Xiaodi Li](#) (2019) found that for every 10% increase in the housing stock in New York City, rents and condominium prices within 500 feet decrease 1%. Price effects were near zero or positive for low density, rentals and co-ops. These estimates imply a clearer and more negative effect on close substitutes. Li interpreted this as indicating that the negative effect was driven by extra supply, not by neighbourhood amenity, which seemed to improve.

[Rebecca Diamond and Tim McQuade](#) (2019) found that high-density construction subsidised by the Low Income Housing Tax Credit (LIHTC) in the US ‘revitalises’ low-income neighbourhoods, increasing house prices within 0.1 miles by 6.5%. However, it reduces house prices by 2.5% in high-income neighbourhoods.

[Kate Pennington \(2021\)](#) found that rents fall by 2% within 100m of new construction in San Francisco. Nearby renovation, construction and business turnover increased and wealthier residents moved into the neighbourhood, all suggestive of an increase in amenity. Pennington interpreted her results as a small negative supply effect, partially offset by improved amenity. New construction is driven by recent fires, so is more clearly exogenous than other studies.

[Brian Asquith, Evan Mast, and Davin Reed](#) (2019) looked at 11 US cities. They found that new buildings decrease nearby rents in low-income neighbourhoods by 5–7% relative to locations slightly farther away or developed later. They interpreted this as a substantial negative supply effect, partially offset by improved amenity. When higher-income neighbourhoods are included, they found no significant effect on nearby rents.

[Anthony Damiano and Chris Frenier](#) (2020) found that new construction in Minneapolis increases rents 7 per cent in nearby low-rent dwellings, has no effect on mid-price rentals and decreased rents 3 per cent in expensive dwellings. These effects persist for up to two years.

[Nicolás González-Pampillón](#) (2019) found that large housing projects in Montevideo raise house prices by 12 per cent within 200 meters, with little effect at greater distances. This is a higher and more localised effect than most other studies. The exogenous variation comes from government subsidies; however, in contrast to some other papers, these subsidies are not targeted to low-income households.

[Divya Singh \(2020\)](#) found new buildings in New York City (induced by a change in taxes) were associated with 2.3% higher rents in buildings within 150m. Singh attributed the rise in rents to improved neighbourhood amenity.

There are more papers that could be mentioned; however, the selection above is enough to show some overall patterns. The overseas results cluster around zero, with some positive and some negative. Most estimates are quite small. That matches our results.

Effects appear to be somewhat more positive for market-rate as opposed to subsidised apartments,

for development in low-income neighbourhoods, and for dissimilar types of housing. The last difference is especially relevant. As suggested by Li, conventional supply effects will be more negative for close substitutes, like other apartments than for weak substitutes like houses. However, externalities might be expected to affect different types of housing similarly. The papers surveyed by [Phillips, Manville and Lens](#) (2021) tend to focus on effects on nearby apartment prices, which will be more reflective of supply effects and more negative than effects on house prices.

6. Issues of Interpretation

Although we conclude that construction of high-rise apartments has little net effect on neighbourhood amenity, other interpretations of the data are possible. This section discusses why we prefer our interpretation to alternatives.

Disentangling supply effects from externalities.

It may be that supplying an extra quantity of housing has a negative effect on prices in the suburb (a 'supply effect'), which is offset by positive externalities. Indeed, this is the usual interpretation of the overseas research.

This interpretation would strengthen our conclusion that high rise development does not harm neighbourhood character.

Extra supply must depress local prices to some extent. Nevertheless, it seems more likely that both effects are small. House prices in adjoining suburbs move closely together, suggesting that houses in these suburbs are close substitutes. Of course, were density to change the amenity of one of these suburbs, that substitutability would weaken; but that does not seem to happen. It seems too much of a coincidence to think this nexus reflects exactly offsetting effects, both in timing and magnitude.

Option value of further development

It is possible that home buyers may interpret high-rise development as a signal of likely further rezoning in the suburb. Because of the scarcity of development approvals, this increases the option value of land used for houses.

It is not clear this would greatly affect our results: It suggests home-owners are compensated for nearby development via capital appreciation rather than improved amenities. That is a question of *why* nearby home-owners are better off, not *whether*.

As it is, this effect is probably unimportant. Several of the overseas studies discussed in Section 5 measured nearby housing costs with rents, which should be unaffected by option values. They found little effect either in absolute terms or relative to results with prices. That said, it would be interesting to confirm this with Australian rent data.

Representativeness

Perhaps the sites chosen for development were unusual in that they were unlikely to generate adverse effects on the neighbourhood. That is, our examples may reflect skilful planning. If so, those results could not be extrapolated to other locations.

We think this is unlikely for several reasons. First, there is no obvious factor that would lead one to think our examples are unusual in this respect. Certainly, press reports at the time do not point to such a factor, nor do our conversations with people involved in initial planning discussions. Second, the location of high-rises in Forest Lodge and Green Square (but not the adjoining suburbs) reflected the availability of land that had become unsuitable for other uses. These exogenously located developments have the same effect (that is, none) as other developments. Third, as noted before, residents opposed to development have campaigned under slogans such as 'we don't want our suburb to become another Chatswood'. So finding that the development in Chatswood had benign effects is surely relevant. As is the failure of predictions that development in Forest Lodge or Central Park would harm neighbourhood character and reduce property values.

Reverse causation

It may be that high relative prices in a suburb call forth extra building (the supply curve slopes up) and this is offset by negative externalities.

The clearest evidence against this is the examples of Forest Lodge and Green Square, where the location of increased supply can easily be assumed to be exogenous.

Timing considerations, evident in other examples, also make this interpretation unlikely. 40-storey buildings take many years to be planned, approved and built. (Development approval for the first three Chatswood towers was given in 2005). While it is possible that new development in a suburb is a response to relatively strong demand, this would have been demand that was apparent many years before completion, which is not evident in our price data. Moreover, for this effect to be offset by negative effects on neighbourhood amenity and prices, the latter would need to precede completions by the same length of time and have the same size. In addition, pricing decisions would have needed to predict the development and its effects with confidence. That seems too strong a coincidence. It is more plausible that both effects are small, in which case the absence of an overall net effect is to be expected.

Wider externalities

Perhaps we fail to see a difference because development has the same effect on adjacent suburbs as it does on houses immediately nearby. However, it is effects on the immediate locality — traffic, overshadowing, aesthetics — that resident opposition emphasises so are most interesting to assess.

If externalities were the same in adjacent suburbs then one might expect similar, if not quite the same, effects in the next circle of suburbs, some effect in the circle beyond that and so on. That is, one would be considering urban, rather than local effects. In that context we would need to also consider effects on employment, wages, productivity, pollution etc., which tend to be strongly positive (Ahlfeldt and Pietrostefani, 2019).

The overseas studies suggest wider effects on amenity are unlikely. A common finding is that the (small and mixed) effects they find fade to zero beyond 200m to 1km.

Other Amenities

Apartment buildings may have negative externalities that happen to be offset, in our examples, by the favourable effects of new transport, shops and other community facilities. This is probably common, but beside the point. The availability of new facilities is because of the extra housing. This argument seems to be important in explaining resident opposition — neighbours want the extra facilities, but not the housing. In practice, the two go together.

This argument may also be important in explaining opinion polls, which often show widespread opposition to high density (Trounstine, 2021; Productivity Commission, 2011, Table 2.3; Nicholls, 2017). Although these examples are detailed it is still difficult to know what respondents are holding constant. One interpretation is that responses assume that population and housing vary, but not shops, parks, or transport facilities. So they assume that increased density leads to over-crowding. An advantage of gauging preferences by willingness to pay is that infrastructure accompanies new construction, which is the more relevant experiment for many purposes.

Supply is irrelevant

Do our results have broader implications, for example for national markets? Do they imply that 'supply does not matter for prices'?

No. The tight relationship between prices in adjacent suburbs implies that houses in those suburbs are close substitutes. That in turn implies that an increase in supply in one suburb will lower prices in both suburbs (and, by implication, other nearby suburbs) by similar amounts, leaving relative prices unaffected. Ignoring this substitutability between nearby houses appears to underlie [Mark Limb and Cameron Murray's](#) (2021) outlier result that zoning does not affect housing prices.

Moreover, an increase in supply in one suburb will be diluted throughout the region, so overall prices will not change much. It takes a market-wide change in supply to change the overall price level. By analogy, a farmer can double his crop without affecting his or his neighbours' price, however if every farmer doubles their output, the price would collapse. Urban economists will recognise this as the Rosen-Roback model applied to suburbs rather than cities.

Conclusion

Across the eight examples we consider, about 32,000 new apartments have recently been supplied, providing accommodation for over 70,000 people. Although local residents often oppose developments like this, we find no discernible harm from this extra housing.

It is possible that the opponents of new development are simply wrong — they claim new building will ruin neighbourhood amenity but the actual effects are benign. More politely, Toby Long of Mirvac (a leading developer of Forest Lodge and Green Square) suggests opposition reflects 'fear of the unknown' which is often alleviated 'when people see the product' (quoted in [Williams, 2019](#)).

A more charitable interpretation is that preferences vary. While some residents dislike the change in ambience (and presumably move away in greater numbers than otherwise) others prefer the new neighbourhood and pay extra for the benefit.

The policy implications of these various interpretations

seem to be similar. Proposals for high density housing are often greeted with protests from neighbours who dislike change. Those sentiments can be regarded as genuine and should be respected. But they should also be weighed against the preferences of those who like vibrant, walkable communities. For every recalcitrant neighbour who dislikes change, there is a young family desiring walking access to transport, shops and entertainment.

Potential future buyers are mobile and have a choice of where to live. They do not have an incentive to actively participate in decisions over a specific building that would not be occupied for several years. Accordingly, they make less noise than incumbent residents who believe they will be affected. Moreover, potential future buyers are unrepresented in local government decisions. The political process prioritises the neighbours over the potential buyers, however that does not represent a fair weighting of the different groups' interests.

Appendix A: Construction Data

We use two sources of data on apartment construction. For Melbourne, we only use Building Approvals. For Sydney, but not Melbourne, we also use the Census.

Building Approvals data are available for SA2s, but not suburbs (though often they coincide), the basis of our price data. Census estimates are available on both bases, though we only use suburb estimates.

Census data provides estimates of the level of existing dwellings, whereas building approvals only relate to new construction. Hence, the Census can tell us about changes in composition, which might be more directly relevant to character.

Census estimates only provide 5-yearly snapshots — we use 2011 and 2016. In contrast, building approvals for each SA2 are available each month since 2011.

Table A1: Census data; Select Suburbs

Suburb	Percentage of High-Rise Apartments in Total Dwellings		Ppt Change	Number of new HR apartments	Rank By ppt change (out of 2,535)
	2011 Census	2016 Census			
Chatswood	41	50	9	1466	70
Artarmon	34	29	-5	-151	>200
Willoughby	13	8	-5	-99	>200
Roseville	2	12	10	370	48
Lane Cove North	23	35	12	799	42
Forest Lodge	10	46	36	945	4
Glebe	19	12	-7	-366	>200
Camperdown	50	62	12	1462	35
Annandale	15	15	0	26	>200
Waterloo	66	77	11	2206	43
Turrella	0	39	39	337	3
Arncliffe	3	20	17	713	19
Bardwell Valley	0	0	0	0	>200
Bardwell Park	0	0	0	0	>200
Earlwood	1	4	3	193	133
Liverpool	26	20	-6	-274	>200
Ashcroft	0	0	0	0	>200
Cabramatta	3	3	0	-20	>200
Lurnea	0	0	0	0	>200
Moorebank	0	1	0	0	183
Casula	0	0	0	0	>200
Warwick Farm	36	31	-5	74	>200
Cartwright	1	0	0	0	>200
Mount Pritchard	0	0	0	-6	>200

Table A2: Building Approvals Data, Select SA2s

SA2	Total High Rise Dwelling Approvals (2011 – 2020)	Rank (out of 576 SA2s)
Waterloo-Beaconsfield	12,324	1
Kingsford	6	199
Kensington	369	105
Erskineville – Alexandria	2,593	19
Mascot – Eastlakes	6,191	2
Glebe – Forest Lodge	2,625	17
Liverpool	5,469	5
Cabramatta West - Mt Prichard	0	201
Holsworthy - Wattle Grove	0	286
Ashcroft - Bisby – Miller	39	189
Casula	91	166
Chipping Norton – Moorebank	153	144
Lurnea – Cartwright	190	139
Warwick Farm	875	68

SA2	Total High Rise Dwelling Approvals (2011 – 2020)	Rank (out of 463 SA2s)
Box Hill	3,698	7
Box Hill North	116	107
Blackburn	844	38
Blackburn South	103	110
Surrey Hills East - Mt. Albert	122	106
South Yarra – East	4,395	5
Prahran – Windsor	1,802	21
Toorak	252	77
Richmond – Cremorne	3,678	8
Footscray	4,078	6
Braybrook	181	93
Maribyrnong	1,266	26
Seddon – Kingsville	33	143
Yarraville	222	96
West Footscray – Tottenham	172	87
West Melbourne	0	160

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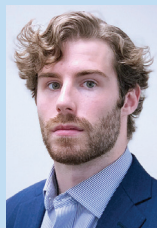
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Our data is at <https://bit.ly/2QnEQ2Y>. Correspondence to Peter Tulip, ptulip@cis.org.au.

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