

Planning deregulation, housing supply and affordability

What if land markets are monopolies?

Discussion paper: December 2022



australia ▶

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** This discussion paper arose after a stimulating discussion with Peter Tulip, Chief Economist at the Centre for Independent Studies. The authors would like to acknowledge his generous and collegial dialogue.*



About Prosper

Prosper Australia is an independent, Melbourne-based think-tank and advocacy organisation with a focus on the distribution of exclusive and essential resource allocation through tax. This includes land and other natural resources, public utilities and other natural monopolies, as well as government-instituted monopolies such as taxi and fishing licences.

It is our position that unearned and unproductive streams of private income which derive from these elements of our economy should be more heavily taxed. This will allow us to reduce taxes on the hard working and innovative parts of our society, building a more equitable and dynamic economy for our future.

We conduct research, host public events, and advocate to policy and decision makers at all levels of Government and across civil society. Our work is funded by the Henry George Foundation of Australia and generous donations from the public.

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Introduction

Australia's house prices are among the highest in the world. In 2018, they reached 7th in the world on the price to average income measure (IMF, 2018). High house and land prices are generating serious economic and social friction and, as economic history regularly demonstrates, unnecessary risk.

Massive planning deregulation has been repeatedly touted as a key policy solution. The story goes that prices remain high because the supply of new dwellings in accessible, desirable locations has not kept pace with demand.

Prosper Australia has consistently critiqued this reasoning, leading to some bewilderment among fellow economists. How can we ignore evidence turned up in modelling from cities around the world?

The simple answer is we suspect the model is incomplete, and at times dangerously so.

The model conflates the impacts of rezoning with the impacts of dwelling completion, and may obscure the behaviour and incentives of the market when it comes to actual building.

The persistence of the 'story' and the models that underpin it may have less to do with its intellectual coherence and more to do with the ways in which it serves sectional interests. Yet, rarely do its champions acknowledge the political-economy of private rent capture through unpriced rezoning.

Further, we have seen the model weaponised against orderly, public-interest land-use planning. At its worst, this line of analysis simply calls for bureaucrats (often caricatured as stooges for parochial NIMBYism) to get out of the way so that more land can be delivered to housing markets. Fulsome discussion of the environmental, social, economic, aesthetic trade-offs associated with spatial planning is neutralised by the moral panic generated by high and rising land prices.

Prosper supports the intensification of land-uses in our cities, but too often "planning constraint" is cited uncritically by housing economists and "rezoning" championed as the solution. Arguably, this has empowered successive federal governments to defer politically unpopular demand-side (tax) reforms, and to side-step their responsibility to invest in non-market housing for our most vulnerable citizens.

This discussion paper is intended to clarify and communicate Prosper Australia's current thinking. We look forward to continuing the co-informing dialogue that we have enjoyed with many economists and policy thinkers on this contested and vital topic.

The merits of urban intensification are undisputed



› We do not dispute the desirability of compact urban forms.

Since the early 1990s, there has been broad-consensus that an urban form characterised by compactness, high population density, and mixed land-uses served by mass transportation is the most sustainable pattern of development (Bibri et al. 2020; Jabareen 2006).

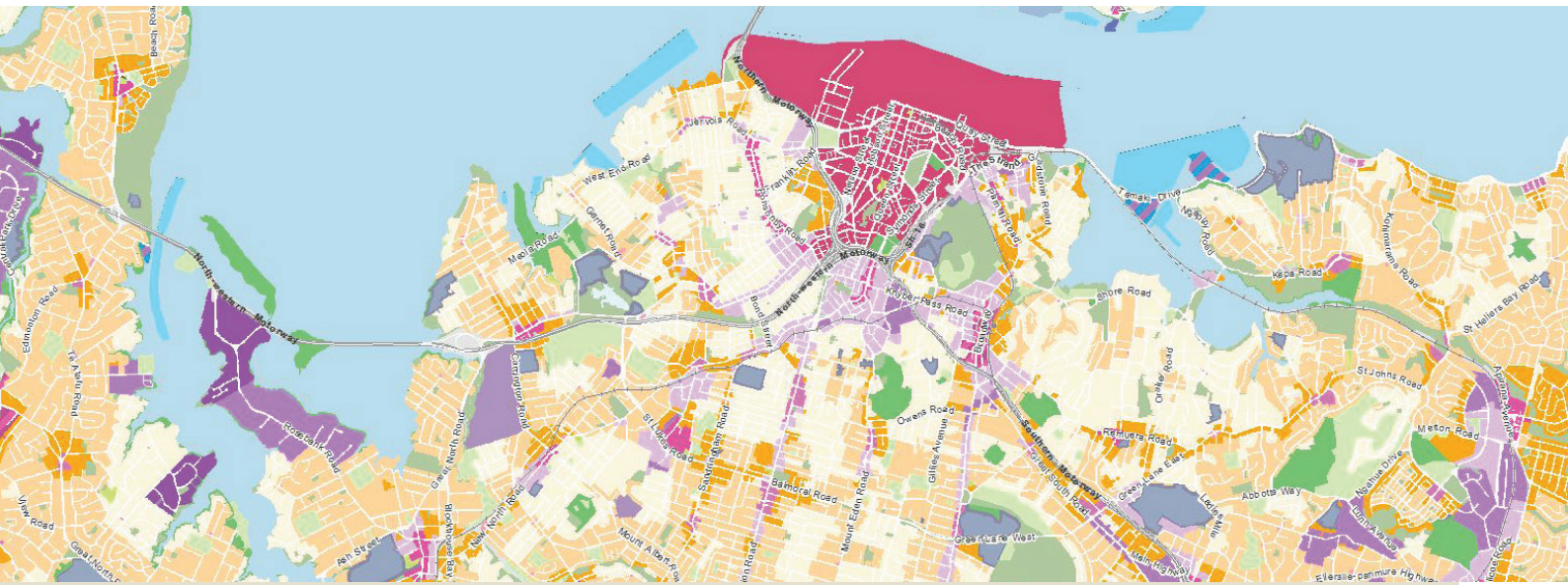
Compactness is a stated objective of planning policy for most Australian cities (Phibbs & Gurran 2021). The transition from existing low-density urban areas to higher intensity, mixed-use is facilitated, in part, via re-regulation of land-uses through the planning system i.e. upzoning.

Upzoning for higher intensity uses may be a necessary precursor to infill development. However, it is not clear that upzoning (as measured by development rights and opportunities) *results* in additional dwellings (as measured by dwelling commencements and completions), or if upzoning instead merely *reallocates* the location of dwellings and results in location substitution.

More land can be rezoned to allow more intensive (denser, higher, more profitable etc) use, but if aggregate dwelling completions do not subsequently increase then it suggests that restrictive zoning is not the main barrier to housing supply after all (be it in infill of existing regions or opening up greenfield areas). The absorption rate—the rate at which new buildings can be built without compromising the profit model of the developer—could instead be a constraint (Murray 2022a).

›› MORE LAND CAN BE REZONED TO ALLOW MORE INTENSIVE USE, BUT IF AGGREGATE DWELLING COMPLETIONS DO NOT SUBSEQUENTLY INCREASE THEN IT SUGGESTS THAT RESTRICTIVE ZONING IS NOT THE MAIN BARRIER TO HOUSING SUPPLY.

Existing scholarship



- **The evidence of the centrality of planning deregulation to deliver additional development and increased affordability is weak.**
- **The Auckland Unitary Plan provides the most recent and highest empirical evidence for increased construction activity post-upzoning.**
- **Building booms in Ireland and Spain prior to the GFC suggest cyclical rather than structural responses.**

Would increasing allowable housing densities in expensive cities generate more housing construction and make housing more affordable?

Existing literature reviews find that areas with increased planning regulations have lower rates of dwelling construction and (therefore) higher rents and prices (Gyourko & Molloy 2015, pp 1316–1317).

However, the scholarship on planning and Land Use Regulations (LURs) has been guided by a theoretical framework that is static and subjected to various other methodological limitations (Murray & Phibbs 2022; Phibbs & Gurrán 2021). Furthermore, there is a lack of robust empirical research to support them (Freeman & Schultz 2017; Schill 2005). In general, underlying assumptions and models for how planning and property markets function have either weak or absent dynamic empirical support.

The best example of this problem in the Australian context is Kendall & Tulip's (2018) estimation of the 'zoning effect'. The model used in their study derives from the popular Glaeser and Gyourko (2003) approach that assumes that differences in average land values to marginal land value are predominantly caused by LURs. This conclusion is hotly contested on the basis that the 'Glaeser and Gyourko' methodology also captures location premiums and produces substantial 'zoning effects' in housing data where no zoning regulations exist (Murray 2020; Murray & Phibbs 2022; Phibbs & Gurrán 2021).

A handful of studies have offered empirical evidence due to localised land-use intensification around new (and existing) public transport infrastructure (transit-oriented upzoning), however these have appeared to contravene the expected outcome of supply-led land price attenuation. Atkinson-Palombo (2010) found that transit-oriented upzonings correlated with increases in existing property values in areas where additional amenities resulted in additional demand.

This points to the 'endogeneity problem' where it is difficult to separate supply effects from increased amenity and demand effects. Furthermore, it is uncertain to what extent homeowners maintain restrictive LURs in an attempt to retain the amenity and exclusivity of their neighbourhoods (Phibbs & Gurran 2021, Quigley & Rosenthal 2005, Fischel 2005). Gyourko & Molloy (2015) examined this literature in greater detail and suggest there is limited evidence to support so-called 'homevoter' endogeneity.

Freemark (2019) finds that transit-oriented upzoning resulted in higher property values in upzoned areas (perhaps due to increased development potential, future amenity expectations, or increased value of existing parking spaces), but yielded no additional increase in construction permits over the medium term (5 years).

Limb & Murray (2021) find that 20 year long development patterns across Brisbane appear unaffected by upzoning and zoned capacity constraints, but are rather constrained by price growth.

In summary, the evidence of the centrality of planning deregulation to deliver additional development and increased affordability is weak (Murray 2022a, Rodríguez-Pose & Storper 2020).

Auckland Unitary Plan

The most recent and highest evidence comes via quality case studies of the Auckland Unitary Plan (AUP), which was drafted in March 2013 and operational from 15 November 2016. The AUP entailed a massive city wide upzoning of about 77.6% of the city's urban area to four kinds of land-use zoning:

1. Terraced Housing & Apartments Zone
2. Mixed Use Urban Zone
3. Mixed Use Suburban Zone
4. Single House Zone

Single House Zones (22.4% of land) remained as a 'non-upzoned' quasi-control, whereas zone types 1–3 are considered upzoned.

Greenaway-McGrevy & Phillips (2021) found a significant increase in dwelling approvals in upzoned areas compared to non-upzoned, with the gap estimated to be equivalent to an additional 5% of the dwelling stock over the five years since the plan change. This effect is much higher than expected. They found an especially large increase in townhouses and mixed-use developments, which now make up half of dwelling approvals, compared to less than 10% a decade prior.¹

Auckland's median house prices did not appear to anticipate mass rezonings into lower values prior to the AUP being introduced (McKnight 2022). After the AUP was implemented, median prices did plateau; falling from a record high of 165% the New Zealand median price and returning to their 29 year long term average of 140%. Between 2020-2021 Auckland property prices escalated 38%, while the rest of New Zealand also increased even more relative to Auckland.

In Auckland, relaxation of planning regulations coincided with reduced aggregate property price growth over a 4-year timeframe. It is difficult to know to what extent this was due to the AUP and not by an endogenous market correction that would've taken place regardless, especially when rents continued to rise (albeit at a slightly slower rate).

» AUCKLAND'S MEDIAN HOUSE PRICES DID NOT APPEAR TO ANTICIPATE MASS REZONINGS INTO LOWER VALUES PRIOR TO THE AUCKLAND UNITARY PLAN BEING INTRODUCED.

1 Hoskins, S [@GeorgistSteve]. (May 30, 2022). Fully half of Auckland's building consents in the last year were townhouses. Compared to fewer than 10% a decade ago. Unitary Plan is truly transforming the city. Twitter. <https://twitter.com/GeorgistSimp/status/1531064235798716416> Derived from Stats NZ's building consents series. <https://www.hud.govt.nz/research-and-publications/statistics-and-research/urban-development-dashboard/>

Ireland and Spain

From 1991 to 2007—just prior to the Global Financial Crisis—property booms in Ireland and Spain led to large increases in residential construction. This was in part facilitated by permissive planning regulations including swathes of rezonings, as well as public subsidies, but the primary driver was a private credit and economic boom (Norris & Byrne 2015). The increase in construction had little impact on property price inflation. The resultant supply glut has depressed construction for over 15 years since the property bust that culminated in the GFC.

In the Irish example (Central Statistics Office 2022; Moody analytics 2022b), the 30-year average annual change in the housing stock from 1991-2021 was ~2%, matched by an average annual population increase of ~1.2%. This appears to be reasonable on the surface and not unusual. However, when we examine it over time, we see that most of this housing supply was built during the property boom in the first 15 years. In the first 20 years the dwelling stock changed by 71.9% (2.75% p.a.), but the last 10 years was a mere 4.3% (0.42% p.a.).²

During the boom itself, the additional supply had no discernable impact on prices. This has been blamed by some on poor planning, which locked up infill areas and forced urban sprawl of low-quality dwellings with poor accessibility and amenities (van Onselen 2013). Regardless, it did not stop the massive supply boom. Instead, there was a 6 year crash after the peak around the GFC, followed by a 6 year recovery.

Spain appears to show a similar story (Moody analytics 2022b), however the property market has recovered much more slowly (Delmendo 2022). It is possible this is due to a weaker economy, with persistently much higher unemployment (including youth unemployment and its effect on household formation for first homebuyers) and low population growth (Trading Economics 2022).

The Irish and Spanish experiences raise questions as to whether “supply responses” can ever structurally resolve property booms. They might sometimes make property markets more cyclical than they already are.

² Dwelling stock per capita follows a similar pattern. A 30 year average increase of 0.8% p.a, with the first 20 years averaging 1.4% p.a and the last 10 years averaging -0.4% p.a.

These questions include:

» **Was the prior planning system a binding constraint on aggregate dwelling supply?**

This could occur either through a scarcity of developable sites, or planning delays that inhibit the long term rate of approvals. The policy outcome in Auckland seems to suggest that it was a binding constraint, but to be sure we would need to examine historical population growth rates, household formation and growth in dwelling stock over time.

» **Did Auckland's increased rate of dwelling approval eventuate into additional dwelling completions?**

It's possible that market conditions resulted in these approvals never eventuating into dwelling supply, and this could be easily measured by looking at completions and the dwelling stock growth over time.

» **If there is a resultant boom in additional dwelling completions, is it structural or a cyclical change?**

One persistent feature of property markets is cyclical booms and busts. It's not clear if a sudden boom in additional dwellings can be sustained as a permanent structural increase, or if after a subsequent bust the recovery in dwelling completions takes longer due to the glut of additional supply built during the boom. This would result in no long term increase in stock, but just bring forward construction of future stock temporarily.

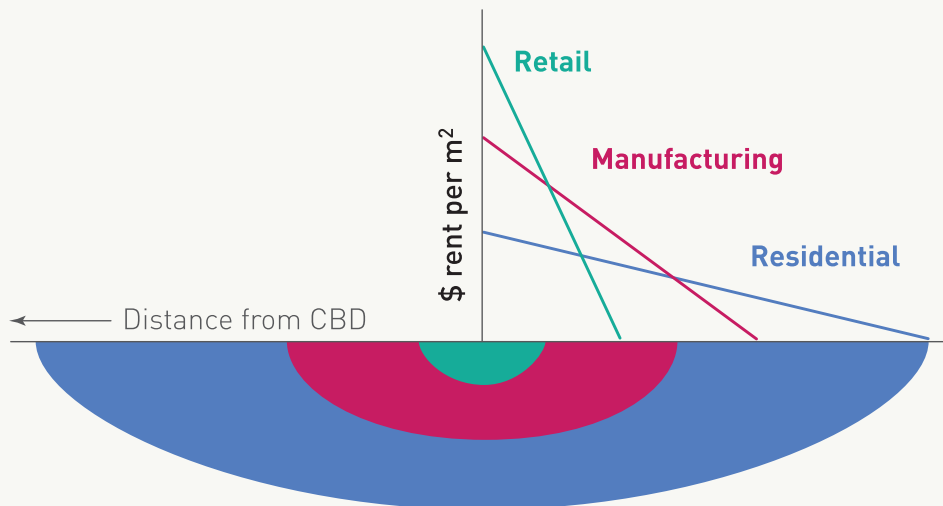
» **What impact did the rezoning have on Auckland's rents, land and property prices over time?**

This includes upzoned and non-upzoned land, but also looking at existing higher density zones to see if the rezoning "devalued" them. This will tell us if zoning really has any correlation to either restricting dwelling local and aggregate supply (leading to higher rents and thus prices), as well as if zoning adds a premium value to existing higher density land uses that are restricted.

As it stands, these remain questions for further research. However, there is enough here to strongly suggest that the model is incomplete and should be subject to much wider and deeper scrutiny than currently occurs.

Location and land rents: neoclassical and non-neoclassical approaches

Bid rent curve



Consequence on land use

- › We contend that there are different conceptual models of land rent deployed within the debate over planning deregulation, housing supply and housing affordability.
- › A quota model, associated with neoclassical economic theory, suggests that increasing the supply of these development permissions would devalue them, increasing opportunities for development, and reducing price of land.
- › A monopoly model, associated with heterodox economic theory, suggests that land value is determined by highest and best use, with that use not being diminished by the potential uses of neighbouring sites.
- › Auckland gives us a case study to begin testing these models.
- › A model that distinguishes between *open* and *closed* cities (the effects of population changes) takes us towards a synthesis.

Much of the contestation in relation to planning deregulation, housing supply and affordability has arisen, in our opinion, from proponents deploying different theories of rent.

Rent (a component of factor income) is a core idea in political-economy. Different theoretical frameworks place emphasis on different concepts; asking different questions and deriving different answers (Collins 2022).

Neo-classical approaches to rent theory tend to view rent in the context of payments made due to scarcity, above the necessary returns to keep factors of production such as capital and labour in sufficient supply or active production.

Heterodox approaches to rent theory tend to view rent in the context of power relations.

Georgist approaches to rent theory have incorporated insights from the neo-classical formulation but, like the classical economists such as Adam Smith, David Ricardo and John Stuart Mill, stress the uniqueness of land. Landed property rights may include not only the exclusive right to location and ground rent, but also air rights, development rights, water rights, mineral rights, timber rights, agricultural rights, right of way etc.

Where they exist, these rights are dependent on land itself in order to have value—effectively they are value adding attributes of existing land (rents), rather than property rights with their own independent value. This is similar to the sunk capital improvements on land, the difference being the market can create additional capital. Adam Smith distinguished these in terms of “Ground Rents” and “House Rents”.

These conceptual variations have led to different ‘working models’ of how the regulation of development through the planning system interacts with land markets. In the current debate we posit two models in particular: the quota model and the monopoly model.

The quota model

In the quota model, the way that planning constrains the supply of housing is conceived as a quota of development opportunities, like taxi medallions prior to deregulation (Tulip 2021). Rezoned sites are valuable because development permissions are scarce, leading to a market failure in which development regulation itself is generating rents.

This model suggests that increasing the supply of these development permissions would devalue them, eventually leading to development rights having no value. It would be the policy equivalent of abolishing the licences.

The implication is if we just rezoned enough land, it would reduce the price/value of all existing zoned land and make housing more affordable. More dwellings would also be completed each period than otherwise, leading to further reductions in prices.

The quota model says, for example, that rezoning Fishermans Bend made existing Melbourne Capital City Zoned CBD land *less valuable*, because it increased the supply of that type of land available.

» THE QUOTA MODEL SAYS THAT REZONED SITES ARE VALUABLE BECAUSE DEVELOPMENT PERMISSIONS ARE SCARCE, LEADING TO A MARKET FAILURE IN WHICH DEVELOPMENT REGULATION ITSELF IS GENERATING RENTS.

As we understand it, the quota model is predicated on the following:

1. Existing land value is affected by what other (rezoned) landholders could *potentially* do with their land. That is to say, that if land is rezoned to allow more high-rise apartments, the value of existing nearby high-rise apartments falls in anticipation of new construction *irrespective* of whether anything new is built.
2. Increasing the quota of development permissions will translate into more construction over time through a combination of denser existing developments or more sites being developed.

This is not to say that the model assumes all sites convert to the highest and best use immediately. Rather, because more sites are available or existing developments can be built to higher densities, proportionately more construction will occur in rezoned areas than otherwise in a given period (assuming there is demand for more construction).

The monopoly model

Under the *monopoly model*, development rights are a monopoly right bundled into the land. Conferring the right to build at higher densities is effectively the same as privatising the vertical airspace above the land itself and no different to transferring public land into private use—or horizontally subdividing public land and gifting part of the subdivision to a private landowner. Granting these rights provides an option, but not an obligation, to construct additional housing at some point in the future. This option has value due to uncertainty, as it is irreversible once used.

The *monopoly model* does not assume *free entry* into the property market, or a supply curve determined by input costs (which are zero). In order to become a competitor, you must first buy property from an existing landholder in the property market. Supply is not independent of demand, meaning landholders can observe their *own-supply* effect on prices. Instead supply is a reflection of demand i.e. demand determined (Murray 2022b).

In this formulation, *land* derives value from what exists around it and the subsequent highest and best use to which that land can be put (its demand). For example, rezoning Fishermans Bend added many more development permissions for higher density, but this would not decrease the value of land in the adjacent Melbourne Capital City area with the same development permissions.

Melbourne Capital City land values should remain the same, as huge and highly elastic demand from developers and capital would ensure these sites are still bid up to their existing highest and best use value. However, if Fishermans Bend was suddenly developed overnight, the added dwelling supply would place downward pressure on rents (and thus feed into lower prices) of the Melbourne Capital City area.

It is possible that rezoning Fishermans Bend could create uncertainty about the highest and best use for sites and when is the optimal time to develop. This uncertainty would only be transitory while the sites remain undeveloped.



THE MONOPOLY MODEL DOES NOT ASSUME FREE ENTRY INTO THE PROPERTY MARKET, OR A SUPPLY CURVE DETERMINED BY INPUT COSTS (WHICH ARE ZERO).

The value of existing dwellings *might* decline, with the lower prices reflecting an increased risk to profits due to this uncertainty, and the *potential* for more dwellings and lower rents in future. However rental prices would not be affected unless dwellings are built and are put on the rental market. Lower rents would feed further into lower property values.

As in the *quota model*, if the government owned enough public land it could flood the market in a one off auction and drive the price of land to \$0. The same applies to the market for development rights (by mass rezonings).

However, unlike the quota model, this would not remain the market outcome. Once land (or the development right) is obtained by private owners, the market value reverts to highest and best use—due to the nature of the market being one trading monopoly rights to location.

The implication is that rezonings can allow more dwellings to be built, but are not necessarily the main policy barrier to increasing the number of *aggregate* dwelling completions. Nor would rezoning necessarily address high *aggregate* property prices. Rezonings (on any scale) would not devalue existing land values. Development must occur before existing values are affected.

The implication is that rezoning can allow more dwellings to be built, but rezoning may not, in and of itself, increase the number of aggregate dwelling completions. Nor would rezoning necessarily address high aggregate property prices. Rezonings (on any scale) would not devalue existing land values, as development must actually occur before existing values are affected.

Empirical evaluation—Auckland case study

Greenaway-McGrevy, Pacheco & Sorensen (2021) provides a good starting point for empirically testing these models.

This study finds some properties depreciate after the rezoning, which initially lends support to *the quota model*. However, the quasi-control (single homes) doesn't tell us whether the "relative" depreciation of existing high density properties (a very small difference of 0.3% at most) was also a depreciation in absolute terms across the whole market, and thus an improvement in affordability.

There are a few possible explanations for the relative depreciation. Higher density properties may have been devalued in expectations of more construction and slower rental growth for apartments. It is also possible that non-upzoned dwellings became more valuable due to their relative scarcity, an endogenous effect that has been observed in Melbourne (Lejcek, Rambaldi & Tan 2020). Although this is likely a longer term impact, and could also be offset by substituted demand as well, so the cumulative impact is unclear.



EVEN WHEN A HUGE QUANTITY OF DEVELOPMENT RIGHTS WERE INTRODUCED VIA THE AUCKLAND UNITARY PLAN, PRICES APPRECIATED FOR MOST UPZONED PROPERTIES RELATIVE TO NON-UPZONED PROPERTIES. THIS SUGGESTS THAT DEVELOPMENT RIGHTS STILL HAVE SIGNIFICANT MARKET VALUE EVEN WHEN THE MARKET IS FLOODED WITH THEM.

What is clear is that even when a huge quantity of development rights were introduced via the AUP, prices appreciated for most upzoned properties relative to non-upzoned properties. This suggests that development rights still have significant market value even when the market is flooded with them, as predicted by the *monopoly model*.

The conclusion from Greenaway-McGrevy et al. (2021) is that the value of additional development rights is dependent on the existing development intensity on each site. It is possible that issuing development rights can relatively and marginally devalue existing high intensity properties. However, it is not apparent that issuing huge quantities of development rights reduces the value of the development rights themselves, or that their value derives from a restricted supply.

Further research with alternative quasi-controls (e.g. segmented locations/markets) that directly test the relationship of additional development rights (or 'zoned capacity') to price appreciation is needed to provide a more conclusive answer.

Towards mutual coherence—open/closed cities

Another way to reconcile some of the differences between the quota and the monopoly model can be understood from Hoskins (2022). Hoskins proposes ³ different categories of land value impacts from planning regulation. These consist of:

- » Amenity effects: value that planning regulations add to amenity.
- » Scarcity effects: value that planning regulations impact on the whole market due to restricting land supply and development rights.
- » Profit effects: value that planning regulations impact on individual sites due to altering the legal highest and best use.

Hoskins also distinguishes between open and closed city models (Parker 2021), which effectively model to what extent populations (demand) can shift as a result of planning regulation.³ An open model proposes that an infinite pool of prospective residents exists *and utility (affordability) for the city is fixed*. Any adjustment to planning regulation results in adjustments in populations—effectively allowing for “induced demand” effects if additional supply is built.

A *closed* model views the resident population as fixed, and thus planning regulations have substantial impacts and no induced demand effects.



AN OPEN MODEL PROPOSES THAT AN INFINITE POOL OF PROSPECTIVE RESIDENTS EXISTS AND UTILITY (AFFORDABILITY) FOR THE CITY IS FIXED. ANY ADJUSTMENT TO PLANNING REGULATION RESULTS IN ADJUSTMENTS IN POPULATIONS—EFFECTIVELY ALLOWING FOR “INDUCED DEMAND” EFFECTS IF ADDITIONAL SUPPLY IS BUILT.

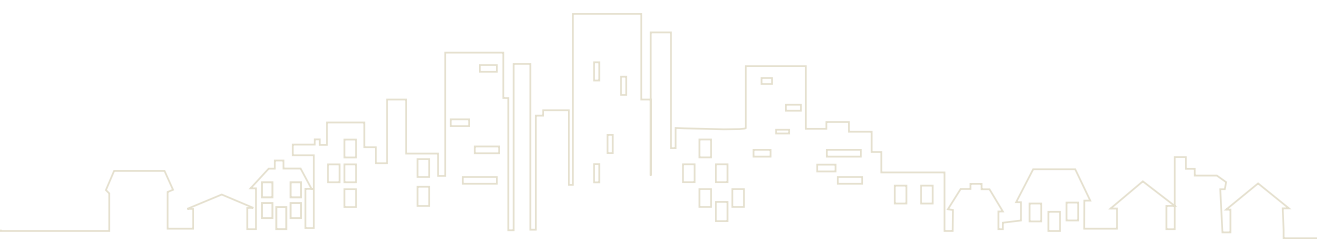
³ Parker’s contrasting open & closed models are also accompanied by models of competitive and uncompetitive land markets—models that potentially align with the quota and monopoly models respectively. These models also move towards explaining different types of land markets and how it is possible to come to radically different policy prescriptions, depending on whether competitive land markets are a policy priority. Some cities might be resigned to permanently uncompetitive land markets, leading to a radically different policy approach.

Through this framework, it is possible to see how the quota model and monopoly focus on different aspects of planning regulations. The quota model focuses on scarcity effects, and impacts are largely viewed as closer to a closed city model. Whereas the monopoly model focuses on profit effects, and impacts are largely viewed as closer to an open city model.

In effect both models have some application. The Auckland case study offers an example where scarcity and profit effects interact. It is possible that while some scarcity effects exist (possibly the relative decline in value of existing high density properties), the profit effect overwhelmingly outstrips those effects in most instances.

It is hard to truly measure scarcity effects on aggregate Auckland land prices, due to difficulties in constructing counterfactuals. As mentioned earlier, it's not clear to what extent Auckland prices declined relative to the rest of New Zealand as a result of the AUP, or if there was a noticeable change in the trajectory of Auckland's rental prices.

Additionally, how "open" a city is also changes what impact these different planning regulation effects have on land rents. Further research could focus on calibrating for the "openness" of cities and thus what impacts changes to planning regulations may have.



Unresolved questions and points of contention



- › We don't know if upzoning increases the number of homes built each year; If there is sufficient zoned capacity to enable dwelling supply to keep up with population growth in the aggregate, then it is inaccurate to say there is not enough building due to zoning.
- › We don't know whether localised planning restrictions translate to high house prices in aggregate; If high dwelling prices in aggregate are considered the problem while rents in aggregate are stable, then we need to look at the way housing rent capitalises into housing asset prices.
- › We are not aware of any empirical evidence that conclusively finds that upzoning reduces the average land price across an entire urban area as predicted by the quota model.

What is the effect of upzoning on dwelling completions?

If a million properties are rezoned but dwelling completions remain unaffected, did the rezoning make any difference to supply aggregates and thus affordability?

We take the timing incentives around development and land speculation to be important. The question becomes: *What if building today is not the most profitable decision for a landholder to make compared to developing in the future?* Development timing decisions are influenced by market conditions, holding costs, and future expectations—all of which can be affected by policies other than planning deregulation.

Fitzgerald (2022) analyses the market induced development timing decisions of greenfield land banks, finding Master Planned Communities are developed (staged) over multiple decades (on average 9.5 years to develop less than 25%), and that developers can curtail supply when market demand falls—rather than cutting prices to meet the market. This work (among other examples of rezonings and data on dwelling completions) investigates whether dwelling supply in a given period is not primarily constrained by zoning.

It is possible for zoning to be a binding constraint on aggregate completions in highly restrictive city wide planning schemes. However, if there is sufficient zoned capacity to enable dwelling supply to keep up with population growth in the aggregate, then it is inaccurate to say there is not enough building due to zoning; zoning is not a bind on the rate of dwelling completions.

This is not to say zoning cannot be a barrier to localised dwelling completions in infill suburbs. We accept that the point of land-use zoning is to constrain development in areas where social, environmental or economic factors warrant such constraint. This is determined by broader considerations of a strategic and/or democratic nature. Land markets are prone to failure and urban development requires coordination of private and public investment.

Rezoning existing high value, low-density neighbourhoods could result in more developments or denser developments in these areas under the following conditions:

- » Developing today (instead of delaying in expectation of future higher densities) is the most profitable choice for landholders, incentivising them (assuming they are rational and profit motivated) to develop or sell for development.
- » Landholders of undeveloped development sites find it most profitable to increase density while *also maintaining* the same completion and sales rate. (If higher density induces a more profitable preference to delay development, it may negate any increase in dwelling completions per project on the completion rate).

Increased *localised* dwelling completions should have (transient) *localised* rent and price reduction impacts. However, it is not clear there would be any influence on *aggregate* housing supply levels, rents, or prices. If additional infill development is at the expense of greenfield developments, the wider market impacts become ambiguous. This is further complicated by how “open” a city is when it comes to considering housing demand.

» WHAT IF BUILDING TODAY IS NOT THE MOST PROFITABLE DECISION FOR A LANDHOLDER TO MAKE COMPARED TO DEVELOPING IN THE FUTURE?

» ...DEVELOPERS CAN CURTAIL SUPPLY WHEN MARKET DEMAND FALLS—RATHER THAN CUTTING PRICES TO MEET THE MARKET.

If zoning is not a barrier to the rate of *aggregate* dwelling completions in a period, then rezoning cannot reduce aggregate housing prices and improve *aggregate* housing affordability. This is why Prosper advocates for an accurate measurement of “zoned capacity” (how many dwellings could be legally built under today’s zoning).

A reliable, consistent measure of zoned capacity would help us answer the question: does zoning constrain dwelling completions? If so, where, and is that a problem for the wider market in *aggregate*?

Do restrictions on infill cause high aggregate house prices?

The economic price of housing services is best measured in rents. Trend data suggests that in most Australian cities over recent decades rental prices have largely tracked incomes. If this is the case, then aggregate housing supply and rents are not a structural issue.

This is not to say there are no localised barriers to development in premium locations (which could be addressed by upzoning). However, the core public discourse of housing affordability, however, does not centre around prime locations, urban sprawl, geographic inequality and inaccessibility.

Media headlines are more often about high housing prices in aggregate as measured by median house prices, and the price of entry level dwellings (irrespective of whether they are infill or greenfield). *If high dwelling prices in aggregate are considered the problem while rents in aggregate are stable, then we need to look at the way housing rent capitalises into housing asset prices.* It is well documented (Saunders & Tulip 2020, Abelson et al. 2005) that interest rates have large effects on housing asset prices via price capitalisation of rental yields and its relationship to the user costs of housing (mortgage rates).

Policies that reduce rents (e.g. more supply, especially public construction with progressively targeted accessibility criteria) may be beneficial, but they are not going to *adequately* resolve the problem of high aggregate house prices.

Policies that reduce individual “overinvestment” in housing would be more effective. What do we mean by this?

If we can cut up residential land value into smaller chunks of home equity (like we can cut up the value of shares by issuing more shares), we can reduce the cost of buying owner-occupied dwellings. Homebuyers do not need to own 100% (or in fact any) of their land equity as an *asset investment* to have the security of owner-occupation.



THE VERY ACT OF FRAMING LAND AND HOUSING AS A PRIVATE INVESTMENT VEHICLE TO BUILD HOUSEHOLD WEALTH UNDERMINES ITS FUNCTION AS A CONSUMPTION GOOD, AND UPZONING PRIVATE LAND DOES NOT ADDRESS THIS FUNDAMENTAL PROBLEM.

Alternative or non-market tenure models such as Community Land Trusts, Land Rent Schemes, Share-Equity, as well as government taxation of land rent (through broad based land taxes) reduce the share of land equity buyers are required to purchase. This in turn reduces the size of home loans and associated deposits which has become the biggest barrier to owner-occupation among first home buyers (Daley, Coates, & Wiltshire 2021).

However, boosting household asset wealth via homeownership is often implicit in policies designed to increase owner-occupation. Teasing these competing objectives apart is widely considered the wicked problem at the heart of Australia's dysfunctional housing system (Dawson, Lloyd-Cape, D'Rosario 2022).

The very act of framing land and housing as a private investment vehicle to build household wealth undermines its function as a consumption good, and upzoning private land does not address this fundamental problem.

How does upzoning affect land value in aggregate?

We are not aware of any empirical evidence that conclusively finds that upzoning reduces the average land price across an entire urban area as predicted by the quota model.

It is true that builders and developers (who don't own development sites) would benefit from upzonings that increase the potential pool of available development sites. However, greater site availability does not equate to lower land values, reduced land acquisition costs or lower house prices. It grows the size of development opportunities and the market. *Unless upzoning translates into additional dwellings it will not reduce rents and prices for homebuyers.*

Upzonings usually inflate land values to their new highest and best use values, which further increases the cost of land for current use buyers.

It is not possible under the *monopoly model* to prevent windfall gains by increasing the amount of rezonings, or flooding the market all at once with infinite development rights—this merely defers when the gains accrue.

We are not convinced that existing landholders (including developers) want more competition, or that they would lobby for government interventions that reduce the value of their assets.

However, it seems reasonable to assume that they have some interest in expanding the development rights associated with their landholdings and the windfall gains associated with upzoning.

This incentive helps explain why the property industry has thrown its weight behind the quota model, and why these interests lobby for relaxed zoning, reduced planning restrictions and the removal of "administrative barriers."



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Conclusion

The theoretical frameworks that attempt to explain the interaction of land use regulations on aggregate dwelling completion are contested. Dynamic wider market impacts and price effects are understudied. This is most evident when we compare different conceptual models of this interaction as either a quota model or monopoly model.

While a large number of empirical studies exist, the smaller number of studies that evaluate dynamic policy changes appear to indicate that land markets function more like the monopoly model rather than the quota model. However, there remains a significant gap in empirical data on zoned capacity and how this interacts with dwelling completions. What is apparent is emerging models that account for the dynamic, open nature of cities and land market competitiveness are moving towards coherence.

The findings of future empirical studies will have crucial implications for planning regulations and land taxation policy. The design of land markets must take into account how various incentives and disincentives affect not only completion rates, prices, and market cycles, but also what tradeoffs really exist.

Prosper continues to advocate for governments to charge the market value for new development rights, either via auction or taxation. Not only can this revenue fund the necessary infrastructure required to accommodate development, but reduces the rewards to rent seeking.



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