



## Zoning reform in Auckland – what can we learn from the emerging literature?

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### Summary

- A survey of the growing body of literature evaluating Auckland's experience with upzoning to help policy making and wider discussion
- The research shows that land use policy decisions can have powerful demand and supply side effects on land and housing markets
- Upzoning can enable housing supply to be more responsive to demand and housing prices to be lower than otherwise
- Key themes of location, timing, and measurement of upzoning policy are identified, which may assist critical engagement with the literature

### Introduction

Access to housing is a fundamental human need and essential to enabling flourishing communities within urban environments. Allowing more housing density, known as upzoning, has been at the forefront of debate in Auckland as a key step in achieving such outcomes.

Established economic theory tells us that upzoning will increase housing capacity across a city. This, in turn, enables more supply to be created and pushes down the cost of housing. However, due to the historic scarcity of large scale urban upzoning policies, few suitable test cases exist to empirically evaluate this theory. However, Auckland is an exception, with the Auckland Unitary Plan (AUP) representing an excellent opportunity to investigate the impact of upzoning.

The adopted AUP, operative from November 2016, unified zoning rules across the amalgamated Territorial Land Authorities in Auckland. It also significantly increased housing capacity by upzoning approximately three-quarters of residential land.<sup>3</sup> Much of Auckland's low density residential land was upzoned to medium-low or medium density. This reversed a 30-year trend of declining housing capacity across Auckland.<sup>4</sup>

Following the implementation of the AUP, Auckland has led a worldwide trend re-investigating the impact of zoning constraints on housing price and supply. Recently, several large metropolitan areas around the globe have also begun to systematically remove zoning

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<sup>2</sup> We thank Gary Blick, Chief Economist, for his support for this paper and valuable comments during its development. We also thank James Stewart of the Chief Economist Unit for helpful comments.

<sup>3</sup> See Greenaway-McGrevy & Jones (2023).

<sup>4</sup> See New Zealand Infrastructure Commission (2022): The decline of housing supply in New Zealand: Why it happened and how to reverse it.

constraints and unlock residential capacity within their jurisdictions.<sup>5</sup>

While such changes are likely driven by the economic merits of upzoning in the face of high demand from population growth, undoubtedly the research into the outcomes for Auckland following upzoning is informing ongoing policy debate. Often, much of this policy debate focuses on the likely outcomes of upzoning and whether it can, in fact, achieve the goal of increasing supply and reducing housing costs.

Common objections to upzoning are: sufficient dwelling capacity exists in aggregate across a region, therefore upzoning in specific locations is unnecessary; upzoning can incentivise dispersed patterns of development producing inferior urban form outcomes, or density in locations where it is unsuitable; and upzoning simply reallocates development from one area to another, thus not stimulating an overall increase in supply.<sup>6</sup>

While we can look to economic literature to dispel many of these contentions, their presence in the debate serves a useful purpose. Such counter arguments highlight the complexity associated with major changes to land use rules, along with the need to critically engage with the growing literature focused on Auckland's experience with widespread upzoning.<sup>7</sup>

Being the first city to enact urban upzoning of a significant scale, Auckland has attracted a substantial body of empirical research investigating the outcomes. Much of this research has been driven by the Economic Policy Centre at the University of Auckland.<sup>8</sup>

This Insights Paper engages with this growing body of research into Auckland's experience with upzoning.

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<sup>5</sup> See Sorensen (2020) for a list of North American jurisdictions. Also note the case of Sydney, Australia where a state-level initiative to relax zoning constraints around transportation hubs has been [announced](#).

<sup>6</sup> Although delivery of *sufficient housing supply* is standard wording in most policy documents, the concept of sufficiency requires careful consideration. For example, whether a recommended target and safety margin can be justified within an outcomes-based policy framework.

<sup>7</sup> While this paper reviews the literature on upzoning, it does not advocate upzoning as a panacea for all housing market issues. Rather, optimal housing policy involves a combination of upzoning within urban areas and greenfields expansion, to maximise locational choice for residents.

<sup>8</sup> This is a topical point as a recent Independent Hearings Panel report on the Proposed District Plan for Wellington City does not engage with the research into the effects of upzoning. Statements regarding the absence of quality evidence causally linking zoning constraints to housing supply and prices overlook the substantial evidence surveyed in this paper, including those published in respected academic journals.

The purpose is to identify the key takeaways for policy making and to inform wider discussion around:

- How and where we are upzoning
- The timeliness of effects
- Robust measurement of effects.

Overall, the paper provides a basis for critically engaging with the upzoning theory, research, and debate, to help frame the ongoing policy discussion in Auckland without offering any specific position on land use policy.<sup>9</sup>

It is also important to note here that research can originate from, and present in, many forms. A key element of the critical engagement process is understanding where and when we can place higher weightings on certain results and findings. In this paper we focus our discussion on peer-reviewed research from academic publications and working papers.<sup>10,11</sup>

This paper follows an informal structure with sections dedicated to the key themes of research relating to Auckland and upzoning. The second section below investigates price effects of upzoning policy and, following this, the third section outlines the research on how upzoning impacts housing supply outcomes. In the fourth section, we discuss theoretical models and their application to Auckland. Finally, we offer a general discussion of the key policy takeaways of the research discussed along with general conclusions.

## Price effects

Auckland faces housing costs which are generally considered to be large and unaffordable for many households. This is a major issue shared with many other urban areas of New Zealand and cities overseas.

<sup>9</sup> The scope is focused on research concerned with upzoning. Extensions to cover a wider set of impediments to housing supply could consider: view shaft controls, administrative obstacles, and the imposition of privatised zoning and building controls through covenant provisions. For further reading, see Cooper (2021) and Lees (2019).

<sup>10</sup> A working paper is a pre-publication research paper released through a university department or research organisation while research and peer review remains ongoing. The goal is to enable access to an audience who can comment on and critique the work. The peer review process can be long (measured in years) and final publication is often paywalled which limits the immediate term value that can be recognised and extracted from published academic research outputs.

<sup>11</sup> Note that at times we will make reference to unpublished works such as blogs and evidence reports which, while they may offer valuable insights, they have not necessarily met the standard of academic rigour that peer-reviewed and working paper based research must achieve.

In such environments, most housing policy debates are centred on the consequential pricing effects within the market. After all, if a well-intentioned policy is not resulting in downward pressure on prices, what is the ultimate goal?

Here lies a somewhat tricky paradox of upzoning; while we chase a silver bullet for immediate housing cost relief, we can lose sight of the mechanisms by which upzoning operates. That is, upzoning should have the explicit goal of immediately raising *land* prices in areas of highest demand and redevelopment potential, while reducing land cost per dwelling (i.e. the costs of *housing*) in the longer run.

The mechanism here is intuitive; if upzoning permits five dwellings to be built on a site that previously only permitted one, this raises the productivity of the land and increases the value that developers are willing to pay. However, each of the new dwellings a developer produces will individually consume less land than the one dwelling they replaced.<sup>12</sup> This increase in housing supply and reduction in land costs per dwelling in turn paves the way for reductions in the prices of pre-existing intensely developed housing and a reduction of new housing prices in upzoned areas over the longer run as we allow housing to consume less land.<sup>13</sup> This also has benefits for ratepayers, as it reduces whole-of-life infrastructure costs per dwelling.

There are two key papers which identify the immediate price effects of upzoning: Greenaway-McGrevy, Pacheco & Sorensen (2021) and Cheung, Monkkonen and Yiu (2023).

The former represents one of the first empirical papers to investigate the effects of large scale upzoning. It leverages the AUP as a natural experiment and uses real option theory to conceptualise why prices should increase in upzoned parcels following increases in zoned capacity.<sup>14</sup> Essentially, it relies on the theory that residential land value is partly determined by its dwelling capacity potential (how much is permitted to be built), and this is mediated by the extent to which the parcel is currently developed (i.e. how much of the site capacity is currently utilised).

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<sup>12</sup> See Cooper, Greenaway-McGrevy, & Jones (2022) for a formalisation of a price index that tracks the land costs per dwelling. Applying the measure to Auckland, the authors show that upzoning reduced land costs per dwelling following the implementation of the AUP.

<sup>13</sup> While we do not review any empirical literature which documents this long-run effect directly, the theoretical modelling section below details that this is an intuitive outcome of upzoning.

A key result of Cheung, Monkkonen and Yiu (2023) was to reiterate the conclusions of Greenaway-McGrevy, Pacheco & Sorensen (2021), highlighting that the findings are robust to alternative approaches to estimating the development option of existing land parcels.

The findings of these papers can be summarised as follows.

- The effects of upzoning on pricing occurs over the immediate term following a strong announcement signal. The market does not wait for a policy to become active (e.g. the AUP becoming operative in part) before the effects of increased development capacity begin to capitalise into property values.
- Properties with lower levels of existing development (or capital intensity) in upzoned areas have higher levels of capital appreciation, reflecting their desirability for redevelopment.
- Upzoning has an immediate depreciative effect on pre-existing intensively developed housing.

This research deals with understanding price effects within the housing bundle, which refers to both the consumption component of housing as well as the future value of the asset itself. Conceptually, these two things are very different and have significant implications for policy outcomes.

The consumption component refers to housing services that are consumed period on period, i.e. the value of living in the property provided to the occupants. This incorporates both housing amenities (e.g. number bedrooms, bathrooms etc.) and locational amenities (e.g. proximity to jobs, schools, etc.). In a perfectly competitive market, the rental price for a property would be equal to this value of housing services. The future value of the asset, on the other hand, includes expected capital appreciation, and the value of alternative (permitted) uses for the land.

Upzoning policy directly impacts both the consumption and future value components of the housing bundle, albeit in different ways and over different time horizons. A lack of careful distinction can lead to the effects in one single area washing out effects in another.

<sup>14</sup> The AUP can be thought of a natural experiment in the sense that it upzoned large tracts of the urban landscape (treatment subset) across Auckland while leaving other areas at pre-existing levels of intensification potential (control subset). With the use of appropriate modelling tools, researchers can leverage this situation to estimate the difference between outcomes in a treated groups versus outcomes in a control group. Given some underlying assumptions, the observed differences then represent the effect of the policy intervention.

Considering this, Greenaway-McGrevy (2023) investigates the effects of upzoning on *rental* prices (housing consumption costs) in Auckland by again comparing outcomes of treatment groups to a plausible counterfactual outcome in absence of the AUP. Within this study, the author compares the observed Auckland rental prices with a simulated, or synthetic, pathway of expected rental prices in the absence of the upzoning. The synthetic price series is calibrated based on the weighted average of rents observed across New Zealand prior to the policy period.

We can think of this as being akin to a controlled experimental framework where we reference a reliable baseline (or counterfactual environment) for which to disentangle overall outcomes from the true policy effects. Using this approach, the paper highlights that upzoning can enhance housing affordability over the medium term.

The key results of the rental price research are:

- Six years following the implementation of the AUP, rental prices for three-bedroom dwellings in Auckland are between 26% and 33% less than they otherwise would have been in absence of the AUP.
- Rents on two-bedroom dwellings are between 21% and 24% less than they otherwise would have been.<sup>15</sup>

## Housing Construction

The housing supply channel is the primary mechanism by which zoning policy influences housing prices. As with price effects, the mechanisms by which upzoning influences supply are important to understand.

Upzoning itself does not increase the supply of residential land; instead, it changes the demand for land which impacts the price level. This is because, for all intents and purposes, the land supply curve can be thought of as highly inelastic reflecting the lack of ease at which residential land can be supplied through zoning and infrastructure. That is, new residential land is not easily supplied as it generally relies on conversion from one use to another: for example, via a change in zoning from rural to residential use and installation of enabling infrastructure.

Upzoning does however impact the supply curve for *housing* over the medium and long term. It achieves this by pivoting and shifting the supply curve for housing to the right (clockwise), along the downwards sloping demand curve. All else equal, this results in an increase in housing supplied and a decrease in market prices for both home ownership and rental tenure.

Driving the pivot in the supply curve is the more permissible nature of zoning which allows more parcels to be converted, by right, into higher intensity use. The increase in density potential reduces the land required per dwelling and enables unit cost efficiencies through all stages of development, such as design, consenting, and construction materials and labour. This can flow through as a shift in the supply curve to the right.<sup>16</sup>

There are two key papers which document the policy success of the AUP in stimulating significant increase in housing supply. These are Greenaway-McGrevy & Phillips (2023) and Greenaway-McGrevy (2023a). As in the aforementioned price effects papers, these papers rely on a treatment and control type identification procedure. The former relies on identifying the supply effects based on what occurred within Auckland and between upzoned and non-upzoned areas. The latter paper identifies the AUP effect based on what occurred within Auckland compared to what happened across the rest of New Zealand.<sup>17</sup>

Though the approach differs in each study, the conclusions remain reassuringly consistent; the AUP unequivocally stimulated a large housing supply response following its enactment. That is, both papers show that this increase in supply is over and above what would have occurred in the absence of the AUP.

The key results for construction effects are as follows:

- The methodology of Greenaway-McGrevy & Phillips (2023) uses non-upzoned areas within the city and controls for the construction reallocation effects of upzoning. The key finding is that the AUP enabled approximately 21,800 additional dwelling consents to be issued from 2016 to 2021, representing 4.11% of the total Auckland housing stock in 2016. This equates to 33% of the

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<sup>15</sup> These findings do not suggest that rents are currently low in absolute terms or are affordable, just that they are lower than they would have been without the upzoning policy.

<sup>16</sup> Note that there may be ambiguous effects here. Standard cost efficiencies can also be captured as shifts in the demand curve for *land* given that the supply of land is inelastic and developer willingness to pay is inversely related to costs to develop. Changes in land required per dwelling do however unambiguously shift the supply curve for *housing*.

<sup>17</sup> Note that the synthetic control approach used in Greenaway-McGrevy (2023a) is fundamentally the same as that implemented in Greenaway-McGrevy (2023), albeit creating a counterfactual for quantity instead of prices. Also note that the approach does not necessarily utilise all regions or cities within New Zealand to calibrate and construct the synthetic control. Interested readers are directed to the respective papers for a more detailed technical overview.

approximately 65,700 dwelling consents issued in residential zones over that period.<sup>18,19,20</sup>

- The results of Greenaway-McGrevy (2023a) reiterate the results of Greenaway-McGrevy & Phillips (2023) while using an alternative methodological approach. Again, the effect of the AUP is shown to be large with approximately 45% (43,000) of dwelling consent permits issued being directly attributable to the policy itself.<sup>21</sup>

Aside from the overall increases in supply, it is also important to understand where supply responses are occurring within the region. As noted above, the AUP upzoned approximately three quarters of residential land in the Auckland region, providing significant diversity in location and topology for development between 5 and 25km from the city centre.

While this new freedom of development across a wide area may imply potential for a more dispersed urban form, economic theory tells us that development is more likely to concentrate around locations of high amenity where more people want to live (as reflected by higher land prices). Greenaway-McGrevy & Jones (2023) investigates this very question of development patterns by examining the distribution of issued consents since the AUP went live in late 2016.

They deliver several key findings on the distribution of housing development across Auckland:

- Housing construction has increased as a result of enactment of the AUP in 2016, and this increase is driven by construction in upzoned areas.
- Housing construction is occurring at a high rate within the upzoned areas, closer to the city centre and areas of high amenity and access. Furthermore, within these upzoned areas, development was not randomly distributed and reflected a pattern of concentration around areas of highest amenity within the upzoned areas.

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<sup>18</sup> A counterview argues that, while upzoning stimulates construction in the areas where it occurs, total aggregate demand for housing is effectively inelastic which results in a reallocation of supply instead of an overall increase in the dwelling stock (see the unpublished works [here](#) and [here](#)). Such views have stimulated debate among commentators and attracted critique (for example, see [here](#)). Furthermore, concerns raised have been directly addressed in Greenaway-McGrevy (2023a) and Greenaway-McGrevy (2023b).

<sup>19</sup> Various papers also highlight that the effect of this should not be assumed to be immediate, but instead represented as a ramping effect over time. See Sorensen (2020), Greenaway-McGrevy (2023), Greenaway-McGrevy (2023a), and Greenaway-McGrevy & Jones (2023) for examples.

- Housing construction is more weighted towards infill and redevelopment opportunities involving higher density, attached housing in high amenity areas as opposed to greenfield development.

## Theoretical modelling calibrated to Auckland

Although sometimes we are presented with examples for which to study effects directly, often the questions we seek answers for cannot be easily explained through empirical analysis. In such circumstances, it is necessary to use theory and conceptual models calibrated through observed data and solved mathematically to understand the likely impacts of policy decisions such as zoning density relaxation.

Two such examples of this are Greenaway-McGrevy (2023c) and Greenaway-McGrevy & Jones (2023a); both of which extend the standard Alonso-Muth-Mills (AMM) model of urban adjustment to better replicate the contextual environment of Auckland from an urban planning perspective.<sup>22</sup>

The first paper develops a theoretical model of urban adjustment which allows floor area ratio (FAR) restrictions to vary across urban space in the model, acting to reflect differences in development potential across a city. Using this model, it is possible to test equilibrium, or long-run outcomes of changes in planning policy (e.g. AUP), on outcomes such as the urban form, housing supply, and dwelling prices, without necessarily first observing the event. Using this method, two cities based on the characteristics of Auckland can be simulated and compared, one with, and one without, the restrictive zoning policies.

The second paper, Greenaway-McGrevy & Jones (2023a), applies a version of this model to character protections in central Auckland residential areas.<sup>23</sup>

<sup>20</sup> Note that the estimate of the additional dwelling consents as a proportion of all dwelling consents issued in residential zones has been calculated by the Chief Economist Unit.

<sup>21</sup> Note that the methodology of the two papers explicitly considers building consents only and not actual (net) completed dwellings. Greenaway-McGrevy and Jones (2023) find that translation of consents into completed dwellings is high in Auckland, with completion rates of ~85% after 2 years of consent issuance, rising to ~90% within 4 years. The authors also find that completion rates are higher in upzoned areas.

<sup>22</sup> For a detailed discussion of the AMM model, refer to Greenaway-McGrevy (2023c) and references within.

<sup>23</sup> Special Character Areas have been at the centre of debate on land use policy. Rather than focusing on whether such

Such protections trade-off the benefits of housing supply in high-demand areas with the amenity benefits of traditional character, where preservation generally requires restrictions on density and aesthetics in these locations. The model is applicable to policy debate because it presents a parsimonious and theoretically consistent methodology for assessing the trade-off and the net economic (dis)benefits to society of character restrictions.

The key implications of the modelling papers are as follows:

- Simple models of urban adjustment can be calibrated to reflect planning realities in urban environments.
- Modelled long-run responses to the AUP suggest an 18% increase in floorspace, translating to a reduction of dwelling prices of between 23% and 39% over the long-run.<sup>24</sup>
- Character provisions are sufficiently binding on location decisions of households in Auckland. That is, in their absence, the protected areas would develop to a significantly higher density than currently permitted and realised.
- Binding character provisions also result in a city with a more dispersed growth pattern, smaller houses, and higher house prices than a city with no such protections. This has a negative welfare effect which is estimated to be equivalent to an income decrease for each household in Auckland of between \$330 and \$1,368 per annum.

## Summing up the policy takeaways

The key results from the literature can be grouped into some broad categories to help inform urban policy discussions relating to upzoning.

### 1. How and where we are upzoning

- a. Significant upzoning of pre-existing parcels with low levels of development intensity will result in property (land) value uplift. This is a positive outcome as it immediately signals that the policy is stimulating interest in future housing construction. Though, policy makers need to be careful to understand the potential wealth effects they are generating through changes to zoning policy and recognize the potentially significant immediate

distributive effects of this among landowners and between landowners and renters.

- i. Owners with underdeveloped properties realise a larger increase in land value than those with developed properties.
  - ii. Affected landowners see an immediate increase in land value, while renters are likely to only see the benefits of intensification in the medium to long term.
- b. Minor upzoning of parcels with relatively high existing development intensity will result in minor levels of value uplift, signalling low intention to redevelop. Examples of this could be a minor easing of development potential from 6 to 8 stories in already highly developed areas.
  - c. With respect to (b), policy makers should be careful to not conflate technical capacity afforded through minor upzoning in highly developed areas with technical capacity in underdeveloped areas. While boosting overall capacity numbers, it will not return the commercially feasible yield required to achieve meaningful progress towards more favourable housing market outcomes.
  - d. Protections that result in density restrictions in well located areas in proximity to employment and transport options will produce adverse city-wide outcomes. In some instances, the effective cost of this on a per household basis can be measured in the thousands of dollars. Cost benefit analysis must always be undertaken and rigorously vetted to ensure that these types of costs are thoroughly understood and factored into advice.
  - e. The distribution of housing development is not random. It traces the areas of highest demand and development potential. Because of this we can be confident of two things:
    - i. all locations are not equal; therefore, assessments of capacity and demand at an aggregate level should not be used to justify a headline accounting identity such as 'sufficiency'
    - ii. blanket relaxation of zoning will not result in a random, dispersed pattern of development across the city; it almost certainly concentrates where land values are highest.

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provisions are wholly good or bad, the paper helps to usefully centre the debate on the trade-offs involved. This leads to a policy debate informed on the range of benefits (and costs) associated with varying levels of character protection instead of an extreme or binary view of 'all or nothing'.

<sup>24</sup> Note that this long-run or equilibrium modelling is time agnostic. That is, it does not reveal a pathway, but instead it represents a long-run state. Thus, results cannot easily be interpreted in the context of progressive outcomes at given time steps.

## 2. The timeliness of effects

- a. A strong upzoning signal will result in near immediate price responses. Underdeveloped properties will appreciate strongly, reflecting their new development potential and relatively low opportunity costs of redevelopment. Existing high-density housing will experience depreciative effects as the market anticipates future increases in supply for these types of housing.
- b. Construction activity will start ramping up significantly following the enactment of upzoning policy.
- c. With respect to (b), post implementation increases in dwelling supply will support downward pressure in rental price growth. This should be a key result for policy makers considering the potential of upzoning to reduce high housing cost pressures.

## 3. Measuring effects

- a. It is important to understand the channels through which upzoning policy influences market outcomes. This spans multiple dimensions, including pre and post periods, along with housing market segments (e.g., ownership versus consumption) and different housing types.
- b. Using robust frameworks for assessment is critical. A challenge for policy makers is to estimate the direct effects of a policy, free from confounding influences and market trends. The literature discussed here provides an excellent basis for understanding these methods and stimulating discussion of their adoption in policy analysis.
- c. The literature demonstrates various methods for creating valid comparison ('baseline' or 'counterfactual') estimates for which to assess policy. These can come from within Auckland and

other regional areas within New Zealand. Policy makers can use these techniques to expand the tools at their disposal to understand and estimate the effects of zoning policy.

- d. Ex-ante analysis is required to inform policy decisions. Conceptual models can be used to quantify the trade-offs of policy options. The use of models, such as that developed in Greenaway-McGrevy (2023c), offer potential for investigation and incorporation into the policy analysis process.

## Overall conclusions

The emerging body of research outlined in this paper demonstrates that land use policy decisions can have powerful demand and supply side effects on land and housing markets. Where zoning policy is relaxed, housing supply becomes more flexible to respond to demand which facilitates an environment of lower housing prices than otherwise. This in turn benefits current and future residents' wellbeing and enhances Auckland's competitiveness, nationally and globally.

It is important to note that while this research is largely specific to the case of upzoning in Auckland, it is applicable to other urban jurisdictions and can be used as the basis to guide understanding of the likely impacts of upzoning policy. In saying this, not all jurisdictions should expect the same level of response and housing market outcomes as that experienced by Auckland owing to any combination of social, jurisdictional, topographical, and typological factors. However, such conclusions should only be made based on careful, critical engagement with the published literature base dedicated to understanding the effects of large-scale urban upzoning policy.

The research presented in this note represents the best current state of knowledge for which to initiate and base any such upzoning policy development.

## Disclaimer

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## References

- Cheung, K. S., Monkkonen, P., & Yiu, C. Y. (2023). The heterogeneous impacts of widespread upzoning: Lessons from Auckland, New Zealand. *Urban Studies*, Forthcoming.
- Cooper, G. C., & Namit, K. (2021). City with a billion dollar view. *New Zealand Economic Papers*, 55(1), 19-37.
- Cooper, G., Greenaway-McGrevy, R., & Jones, J. (2022). *Measuring the Cost of Land inputs to Housing Construction*. Auckland: Economic Policy Centre Working Paper No. 001. Retrieved from <https://www.auckland.ac.nz/assets/business/our-research/docs/economic-policy-centre/urban-and-spatial-economics/Measuring%20the%20cost%20of%20land%20inputs%20to%20housing%20construction.pdf>
- Greenaway-McGrevy, R. (2023). *Can Zoning Reform Reduce Housing Costs? Evidence from Rents in Auckland*. Auckland: Economic Policy Centre Working Paper No. 016. Retrieved from <https://www.auckland.ac.nz/assets/business/about/our-research/research-institutes-and-centres/Economic-Policy-Centre--EPC-/WP016%203.pdf>
- Greenaway-McGrevy, R. (2023a). *Can Zoning Reform Increase Housing Construction? Evidence from Auckland*. Auckland: Economic Policy Centre Working Paper No. 017. Retrieved from <https://www.auckland.ac.nz/assets/business/our-research/docs/economic-policy-centre/Working%20paper%2017.pdf>
- Greenaway-McGrevy, R. (2023b). *The Impact of Upzoning on Housing Construction in Auckland: Update and Extended Results*. Auckland: Economic Policy Centre Working Paper No. 015. Retrieved from <https://www.auckland.ac.nz/assets/business/about/our-research/research-institutes-and-centres/Economic-Policy-Centre--EPC-/WP015%20-%202.pdf>
- Greenaway-McGrevy, R. (2023c). *Evaluating the Long-Run Effects of Zoning Reform on Urban Development*. Auckland: Economic Policy Centre Working Paper No. 013. Retrieved from <https://www.auckland.ac.nz/assets/business/about/our-research/research-institutes-and-centres/Economic-Policy-Centre--EPC-/013WP%20-%202.pdf>
- Greenaway-McGrevy, R., & Jones, J. A. (2023). *Can zoning reform change urban development patterns? Evidence from Auckland*. Auckland: Economic Policy Centre Working Paper No. 012. Retrieved from <https://www.auckland.ac.nz/assets/business/012WP.pdf>
- Greenaway-McGrevy, R., & Jones, J. A. (2023a). *The Welfare Effects of Character Protections on Neighbourhoods*. Auckland: Economic Policy Centre Working Paper No. 014. Retrieved from <https://www.auckland.ac.nz/assets/business/about/our-research/research-institutes-and-centres/Economic-Policy-Centre--EPC-/014WP.pdf>
- Greenaway-McGrevy, R., & Phillips, P. (2023). The impact of upzoning on housing construction in Auckland. *Journal of Urban Economics*, 136.
- Greenaway-McGrevy, R., Pacheco, G., & Sorensen, K. (2021). The effect of upzoning on house prices and redevelopment premiums in Auckland, New Zealand. *Urban Studies*, 58(5), 959-976.
- Lees, K. (2029). Quantifying the costs of land use regulation: evidence from New Zealand. *New Zealand Economic Papers*, 53(3), 245-269.
- New Zealand Infrastructure Commission. (2022). *The decline of housing supply in New Zealand: Why it happened and how to reverse it*. Wellington: New Zealand Infrastructure Commission / Te Waihangā. Retrieved from <https://media.umbraco.io/te-waihangā-30-year-strategy/ekejy0t1/the-decline-of-housing-supply-in-new-zealand.pdf>
- Sorensen, K. (2020). *Essays on New Zealand Urban Housing Markets*. Auckland: PhD Thesis.