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Abstract

This paper proposes and implements a methodology for estimating the stock of dwellings in Auckland based on its district valuation roll (DVR). The DVR is an administrative dataset maintained by Auckland Council for the purpose of levying property taxes. The estimates imply that there were approximately 598,000 dwellings in Auckland as of February 2024, an increase of about 80,000 units – or 15% – since the Auckland Unitary Plan became operative in November 2016. The estimates are comparable to discontinued experimental estimates produced by Statistics New Zealand that were published until 2017.

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1 Introduction

Timely estimates of regional residential dwelling stocks are unavailable in New Zealand. Estimates of dwelling stocks are included in the census, but these occur on a five-year cycle. Statistics New Zealand published experimental estimates on a quarterly basis until March 2017, after which the series was discontinued.

Regularly updated estimates of regional dwelling stocks would be helpful for a variety of reasons, including the evaluation of policies intended to encourage housing supply. For example, Auckland upzoned approximately three quarters of its residential land in November 2016 under the Auckland Unitary Plan (AUP) to support medium and high density housing in residential areas.¹ While this zoning reform preceded a significant increase in new dwelling consents ([Greenaway-McGrevy, 2023](#)), it also enabled teardown or removal of existing dwellings, meaning that the net effect of policy on the city’s housing stock is difficult to infer on the basis of consents alone. Demolitions of buildings under three storeys do not require a consent, meaning that there is no direct administrative record of gross reductions to the dwelling stock from redevelopment. In addition, a consent does not necessarily result in a completed dwelling, although historically this is less of a concern. This is because estimates of completion rates range between approximately 91 to 96% for New Zealand and Auckland, depending on how a completed dwelling is defined (for a detailed discussion, see [Greenaway-McGrevy and Jones, 2023](#)).

In this paper we use Auckland Council’s district valuation roll (DVR) to estimate the changes in the city’s dwelling stock. These administrative data are kept for the purposes of levying municipal taxes. Because separate inhabited dwellings are recorded as different units, the DVR can be repurposed to produce estimates of the dwelling stock.

We produce estimates for the 2013 to February 2024 period. Our DVR-based estimates are very close to discontinued experimental estimates provided by Statistics New Zealand (SNZ) over the period that the two time series overlap, from 2013 to 2017. The SNZ experimental estimates also align with census-based estimates for the relevant quarter. DVR-based estimates are consistently 1.5 to 1.8% smaller than the experimental estimates, suggesting that the two measures differ by a small and stable relative factor. Potential reasons for the discrepancy are the tax incentive for owners to not correct undercounts, and the time lag associated with updates to the DVR.

The DVR-based estimate is that Auckland’s housing stock was 598,263 units as of February 2024. This implies a net addition of approximately 80,000 dwellings since the Auckland Unitary Plan became operative in November 2016, an increase of approximately 15%.²

DVR-based measures may also prove useful in other districts that have pursued increases in

¹The zoning reform began to have an impact from September 2013 under the Auckland Housing Accord, which allowed developers to build under the relaxed regulations of the “Proposed” AUP in exchange for a ten percent affordable housing provision. See [Greenaway-McGrevy and Jones \(2023\)](#) for details.

²Many of these dwellings would have been consented prior to the AUP becoming operative, but after the Auckland Housing Accord that enabled upzoning under the Proposed AUP (see footnote 1). It is difficult to ascertain how many net additions were consented under the new regulations due to the significant delay between consent applications and a property appearing on the district valuation roll and the lack of an identifier to match consents to property ratings valuations.

housing supply through redevelopment. Lower Hutt has implemented a sequence of zoning changes to encourage medium and high density housing, while Upper Hutt has recently implemented an “Intensification Planning Instrument” to comply with directives from central government. DVR-based measures for these authorities may assist in assessing the extent to which these policies have encouraged increases in the housing stock.

The remainder of this paper is as follows. In section 2 we describe the institutional features of administrative data collection and how the estimates are constructed. Section 3 presents the results, and compares the totals to other discontinued measures of the dwelling stock. Section 4 concludes.

2 Methodology

This study estimates the change in residential dwelling stock in Auckland using changes in the number of residential properties recorded over time in databases maintained by Auckland Council.

2.1 Rating Valuations

Under section 5 of the Rating Valuations Act 1998 (RVA), territorial authorities in New Zealand are required to maintain records of land and property valuations for every property in their district in a District Valuation Roll (DVR). These datasets are collected and kept according to a set of implementation rules (the “Ratings Valuation Rules”) drafted by the Valuer General and published by Land Information New Zealand (LINZ).³

The primary purpose of the DVR is to form the basis of municipal taxes, referred to as council rates. These are applied to all the properties, or “rating units”, within the council’s jurisdiction.⁴ A rating unit generally refers to a portion of land or a property with an individual “record of title”, which is a legal record held by LINZ that describes the legal owner(s), boundaries, rights, and restrictions applied to a property.⁵ A record of title can encompass multiple properties, for example, one legal property that contains multiple, separate dwellings. These are generally entered as one rating unit in the DVR, and assigned multiple “units of use” corresponding to the total number of separately used or inhabited parts (SUIPs) of the property. This is discussed in more detail in subsection 2.1.1 below.

Rates are made up of general rates and specific targeted rates. For each category, the total amount to be raised is set in a regional budget according to funding requirements and strategic plans. The proportion of these rates levied against a specific rating unit is determined by its land

³The most recent version of these rules is the 2010 issue of the Ratings Valuation Rules 2008 (LINZS30300, October 2010). See <https://www.linz.govt.nz/resources/regulatory/rating-valuations-rules-2008-version-date-1-october-2010-linzs30300> [accessed 15/02/2024]

⁴Some properties are exempt from paying rates, such as universities, schools, public hospitals and churches. If commercial activity takes place on these properties, such as a cafe in a hospital, rates are collected on the proportion of the property used for this purpose. These exemptions do not apply to residential dwellings.

⁵In some cases land without a record of title can still be classified as a rating unit. For example land in the process of subdivision and development that has not yet been issued with new property titles.

use,⁶ the total number of units of use on the property, and the relative valuation of the rating unit compared to the valuation of all other properties.⁷ General rates are applied to all rateable properties and used to fund a wide range of local council services. Targeted rates may raise revenue ring-fenced for specific purposes (such as to fund climate mitigation), be applied to properties in certain sub-regional areas (such as to provide local infrastructure or investment), or be applied only to specific properties (for example to fund the cost of inspections of safety features on private pools by levying a special rate against properties with private swimming pools).

Determining fair property valuations is a core function of the rating process. The purpose of the implementation rules produced by the Valuer General is to ensure that this system is “nationally consistent, impartial, independent, and equitable”. These rules outline specific pieces of information required to be recorded for each rating unit, such as the valuation, the legal owner, the registered ratepayer and the property’s address. The salient information for this study is the “units of use” and “actual property use” fields, which are defined below.

2.1.1 Units of Use

The RVA allows for multiple “units of use” to be applied to an individual rating unit. This accords with local councils generally needing to provide services on a per unit of use basis, rather than per legal property or per entry in the DVR.

Auckland Council classifies units of use based on the “separately used or inhabited parts” (SUIPs) of a property. An SUIP is defined as “any part of a rating unit that is separately used or inhabited by the ratepayer, or by any other person having a right to use or inhabit that part by virtue of a tenancy, lease, licence or any other agreement”.⁸ Under this definition, parts of a rating unit will be treated as “separately used” if they have different use categories. For example, a shop with accommodation above will be treated as two rating units. Similarly, multiple instances of the same use category will also be classified as separately used, for example if a property contains multiple commercial outlets, such as a food court or shopping centre. In the same vein, a residential property with a separate dwelling, such as a self-contained “granny flat”, will be classified as having two SUIPs.⁹

⁶For example, the rates charged against commercial or business properties are different to rates charged against residential properties. These differences represent the different costs of council services provided to each type of property.

⁷To be specific, part of the rates are charged in a uniform manner, applied equally to all rateable units in the region, and part of the rates are applied as a proportion of the value of the property, and at a differential rate according to its use. The former cannot exceed 30% of total rates revenue. For additional details, see page 90 of <https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/budget-plans/Documents/annual-budget-2023-24-volume-1.pdf>, [accessed 20/02/2024].

⁸Auckland Council’s definition of an SUIP differs slightly from the definition of a unit of use under section C.4(b) of the RVA, which states “Each physical component within a rating unit, which is capable of separate use, constitutes a single unit of use.” The units of use field in Auckland Council’s DVR roll follows the SUIP classification, and as such, “SUIP” and “units of use” are used interchangeably throughout the paper. Other districts may employ a slightly different definition of a unit of use to Auckland.

⁹Note that, for the purposes of the DVR, vacant land is also defined as a type of “use”.

If the separate parts of a rateable unit are contiguous,¹⁰ and used by the same owner(s) as a single unit, then they are classified as one SUIP. For example, a residential property with a self-contained granny flat will count as one SUIP if the flat is internally accessible from the main residence, and both parts are used together as a single family home.

Commercial accommodation, such as motels, hotels, and some rest homes, are treated as having one SUIP, regardless of the number of rooms. If there are multiple businesses within the unit, for example if the accommodation has a commercial cafe, then it would be treated as having two SUIPs. Retirement villages or rest homes that have “licence to occupy” titles are treated as having an SUIP for each part of the property covered by a separate licence to occupy.¹¹

The total number of residential SUIPs is a better reflection of the total number of dwellings than the count of rateable units because it addresses the circumstances where multiple dwellings are covered by the same title. However this is still potentially an undercount of total dwellings in a region due to the incentives for property owners to minimise their tax liabilities. Council rates are charged per unit of use, and, to maintain low rates bills, individual owners may not be forthcoming if council has missed the fact that parts of their property are used as separate dwellings. Similarly, owners may structure their property so that it technically counts as one dwelling, despite having multiple units of use.

It is also possible that units of use overstate the number of dwellings. This would occur, for example, if a property used to be multiple units, was rated as such, but is now being used as one contiguous dwelling. Note that the property owner can object to their valuation and reduce their rates bill to accord with their actual units of use. Hence for units of use to over-count the number of dwellings, the current owners would need to be either unaware that they are overpaying or indifferent to overpaying.¹² The recent roll-out of the green food-waste bins in Auckland provides insight into this issue. These bins were provided on a per unit of use basis, so owners may have found that they had more bins than they expected. Indeed, anecdotal reports suggest that this may be the case. However, while no record has been kept of the number of owners who objected to their valuation specifically on the basis of paying for too many units, the total number of requests for review of a property’s rates (for any reason) since 1/06/23, which covers green bin roll out, is approximately 450 out of about 540,000 residential rating units. This represents a miniscule proportion of all residential dwellings.

Based on the incentives for property owners to leave under-counted units of use uncorrected, and the relatively small number of over-counted units of use indicated by the roll-out of the green bins in Auckland, it is reasonable to conclude that the number of units of use are likely under-counted in the DVR data. Unfortunately this is a limitation of the DVR, although there is no reason to

¹⁰Note that the RVA classifies land that is part of the same title and “separated only by a road, railway, drain, water race, river, or stream” as contiguous.

¹¹For additional details, see page 92 of <https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/budget-plans/Documents/annual-budget-2023-24-volume-1.pdf>, [accessed 20/02/2024].

¹²Cases where owners are aware that they are overpaying their property taxes, but choose not to reduce their bill, are considered unlikely.

believe that this undercount will vary systematically over time, and hence it should not undermine the usefulness of the estimates. Comparisons demonstrating the closeness of the DVR estimates with estimates of total dwellings derived from other sources, such as Statistics New Zealand census and experimental estimates of dwelling stocks, are presented in section 3.

2.1.2 Actual Property Use

Each record within the DVR is assigned an “actual property use”. This field allows us to distinguish residential units from units used for other purposes, such as commercial. The implementation rules produced by the Valuer General to direct councils in producing the DVR contain prescriptive categories to describe the actual property use of a rating unit. This is defined as “the activity, or group of interdependent activities having a common purpose, performed on land or building floor space at the date of inspection”. This is captured through a two-character numerical code referring to the primary and secondary level. The primary code refers to the broad classification, such as rural, industrial, commercial or residential. The secondary codes are subcategories within the broad classification. For example, within the primary level code 9, which denotes “Residential”, there are secondary codes referring to if the property is a single unit or part of a multi-unit complex.¹³ Table 1 presents the actual property use codes and their descriptions.

Specific codes exist to capture situations of “multi-use”, where the multiple uses for a rating unit do not fall within the same use category. When multi-use occurs within a broad use category, such as “commercial” or “residential”, the secondary code will indicate multi-use. For example a commercial property with two separate commercial uses, such as retail and offices, would be classified as code 80. This is made up of primary code 8 for “Commercial” and secondary code 0 for “Multi-use within commercial”.¹⁴

Primary code 0 refers to the situation where multiple uses occur at the broad classification level. For example, commercial shops on the ground floor of a building with residential accommodation above. In these cases, the secondary code refers to “major-use”, which is the broad use category which contributes the greatest proportion of assessed rental.¹⁵ If assessed rents are equal, the use with the greatest floor area is determined to be the major use. For example, in the case of the shops with accommodation, the code would be 08 for commercial or 09 for residential, depending on which category – commercial or residential – represented the major use.

Although the categories are prescriptive, the ratings valuation rules provide no specific definitions on how to classify a property use into each category. This lack of guidance is arguably less relevant for the primary level categories, such as commercial or residential, which have self-evident definitions. But it is relevant for the secondary classification code. In practice, classification is generally left to the ratings valuers, who have typically taken a “common sense” approach to determining the appropriate use category. For Auckland Council, various internal guidance docu-

¹³For more details, see section C.3 of the ratings valuation rules: <https://www.linz.govt.nz/resources/regulatory/rating-valuations-rules-2008-version-date-1-october-2010-linzs30300> [accessed 15/02/2024].

¹⁴Note that if the commercial property was solely retail or solely offices, it would be coded 81 or 84, respectively.

¹⁵Rental refers to the estimated market value to rent that part of the unit for its current usage.

Table 1: Rating Units Categories

Primary Category		Secondary Category		Example	NVR
Code	Description	Code	Description		
0	Multi-use at the primary level	0	Vacant or intermediate		No
		1	Rural industry		No
		2	Lifestyle		Yes
		3	Transport		No
		4	Community services		No
		5	Recreational		No
		6	Utility services		No
		7	Industrial		No
		8	Commercial		No
		9	Residential		Yes
1	Rural industry		All categories		No
2	Lifestyle	0	Multi-use within lifestyle		Yes
		1	Single unit	Single dwelling on lifestyle property over 1ha	Yes
		2	Multi-unit	More than one dwelling on lifestyle property over 1ha	Yes
		9	Vacant	Vacant land	No
3	Transport		All categories		No
4	Community services		All categories		No
5	Recreational		All categories		No
6	Utility services		All categories		No
7	Industrial		All categories		No
8	Commercial		All categories		No
9	Residential	0	Multi-use within residential		Yes
		1	Single unit excluding bach	Stand alone dwelling on single lot	Yes
		2	Multi-unit	Cross-leased properties, units, flats, town-houses, multiple houses	Yes
		3	Public communal unlicensed	Motels, Holiday parks, Camp grounds, Guest houses	No
		4	Public communal licensed	Restaurant & Function Centre, Hotel	No
		5	Special accommodation	Retirement Villages, Rest homes, Accommodation for the disabled, Council housing for elderly	Yes
		6	Communal residence dependent on other use	Convent, Presbytery	No
		7	Bach	Single dwelling, inferior quality or for part-time usage	Yes
		8	Car parking	Car parking	No
		9	Vacant	Vacant land	No

Notes: Rating unit category of use code for primary and secondary use, with examples. NVR stands for “Non-vacant residential” and refers to categories that have been determined to reflect residential uses for the purpose of counting total dwellings in this study. Vacant land is excluded. For more details on the use codes, see section C.3 of the ratings valuation rules: <https://www.linz.govt.nz/resources/regulatory/rating-valuations-rules-2008-version-date-1-october-2010-linzs30300> [accessed 15/02/2024].

ments have been produced over the years to assist valuers in determining a property’s use. These have informed the examples of each use category we list in table 1 and which we use to base our classification of non-vacant residential dwellings in the DVR roll. For example, in this study, the individual units within a rest-home would be considered residential dwellings, while the rooms of a hotel or motel would not, since the former represents long-term residences, and the latter generally temporary accommodation.

2.1.3 Rating Valuers

The collection of rating information and property valuation is either performed by specialist teams within local councils or outsourced to companies with expertise in valuation services. These companies will undertake the evaluations under the supervision of the council teams, who then maintain and update the DVR.

For clarity, an evaluation performed for the purposes of determining council rates will be referred to as a “rating valuation”. These are generally not conducted to the same standard as a “registered valuation”, which is usually commissioned on an individual property basis, typically by the property owner, or another invested party, in order to get an accurate market valuation. In contrast, rating valuations are generally undertaken on a mass appraisal basis. They are usually “desk” evaluations, conducted remotely and based on property characteristics derived from the LINZ property information, building consents, or other records where appropriate. In rarer cases, on-site inspections are conducted. Values are determined based on property sales of similar properties in the local area. Unlike rating valuations, registered valuations must be performed by registered valuers,¹⁶ usually require a site visit, and take account of substantial individual characteristics of the specific property. It is worth noting that many companies specialising in registered valuations also perform rating valuations for local councils, and registered valuers are often involved in the mass appraisals process, however it is not a legal requirement that registered valuers perform the council ratings valuations.¹⁷

2.1.4 Timing and Triggers for updates to the DVR

The RVA obligates local councils to undertake mass revaluations of all properties on their DVR every three years. Subsequently, significant revaluations and updates to the roll occur on this cycle. However, local councils also require their DVRs to be up-to-date with new construction or changes to existing properties. Hence a number of events can trigger an update of the DVR at any point in time. For example, entries to the DVR may be created or updated: when LINZ registers a property transfer, e.g. through a sale; when an owner objects to their valuation or notifies the council of some change to their circumstance; or when mandatory council inspections reveal that various stages of consented building work are completed, such as demolition, closing up of internal

¹⁶Registered valuers must be a member of the New Zealand Institute of Valuers. They must adhere to national standards and are regulated by the Valuers Registration Board under the Valuers Act 1948.

¹⁷For more details, see https://propertyinstitute.nz/Category?Action=View&Category_id=1587 [accessed 2/03/2024]

walls, the undertaking of the final inspection, or the issuance of a code of compliance certificate (which signifies that the construction is complete).

Local councils have annual rating periods for the purpose of levying taxes. For Auckland Council this runs from the 1st of July to the 30th of June. This annual cycle results in significant updates to the Auckland DVR between April and June each year, in time for the new ratings period beginning July 1st. Generally, no matter when in the year a new property is added to the roll, the owner does not begin to be charged until the start of the next rates year. So new properties completed in July or August might have a significant grace period before receiving their first rates invoice in the following July.

There is no set period for a recently created property to appear on the DVR. Factors can include how much detail is needed to ascertain a valuation for that specific property, and the current workload of the valuations team and corresponding subcontractors. A new property may show up relatively quickly, particularly if it is part of a sale of a number of similar properties which could aid in desk valuations. However, the entry may still take some time to appear on the roll. New entries are more likely to be added during the next April to June updating cycle.

When an entry to the DVR is created or updated, the valuers are required to check and review all valuation data. Hence any valuation review of a property should include a review of the fields relevant to this study, such as actual property use and the units of use. These also may be reviewed as part of the general revaluation or in other specific instances where necessary, for example following changes to rating policy.

2.2 Data

2.2.1 Auckland's District Valuation Roll

The data are extracts of the Auckland DVR at a specific point in time in each year between 2013 and 2024. From August 2017, this data are available at a monthly frequency. Prior to this, only one extract for the roll is available in each year, namely July 2013, September 2014, January 2015 and August 2016. As noted in section 2.1.4, while the roll can be updated at any time, a large number of updates are likely to occur between April and June in order to meet the July 1st start date for the rating year. Thus the January 2015 extract is likely to undercount the true number of new properties created since the September 2014 extract. The other three extracts occur soon after the July 1st deadline. From August 2017 onwards, when extracts are available for any month, we select extracts from August, for two reasons. First, this matches the month of the one extract available for 2016. Second, August is immediately after the start of the ratings cycle on July 1st, and thus it will include all the updates to the DVR between April and June. Using August also ensures that we capture any updates that may have just missed the July 1st deadline.¹⁸

Extracts provided to us from before 2013 are not in a format consistent with subsequent extracts, and are formatted in a way that makes it impossible to produce accurate estimates of the total

¹⁸The exact dates are 01/07/2013, 12/01/2015, 29/08/2016, 28/08/2017, 13/08/2018, 19/08/2019, 17/08/2020, 15/08/2021, 15/08/2022, 15/08/2023 and 15/02/2024. The date for the September 2014 extract was not recorded.

number of SUIPs. For example, there is an extract from 2012 that has over 550,000 rateable units, which is far in excess of the 520,000 rateable units from the July 2013 extract, suggesting that there are duplicate entries. However, unlike subsequent extracts, the 2012 extract data do not have legal property description or unit numbers for multiple addresses at the same street number, making it impossible to tell whether multiple entries at the same street address are duplicates or not.

As discussed above, ratings units contain properties that are used for a variety of purposes in addition to residential dwellings. Our estimate of the number of dwellings is comprised of codes 02, 09, 20, 21, 22, 90, 91, 92, 95 and 97. The estimate of residential dwellings is comprised of the SUIPs in these codes. See Table 1 above.

3 Residential Dwelling Estimates

This section presents DVR-based estimates of the dwelling stock, and compares them to experimental and census estimates provided by Statistics New Zealand.

Table 2 exhibits the estimates. We include counts of all rateable units alongside counts of units that we classify as residential. The DVR-based measure of the dwelling stock is given by the final column, which is the sum of all SUIPs classified as non-vacant residential units. In August 2016, three months prior to the AUP becoming operative, the dwelling count was 518,045. By February 2024 it had reached 598,263, an increase of approximately 80,000 dwellings.¹⁹

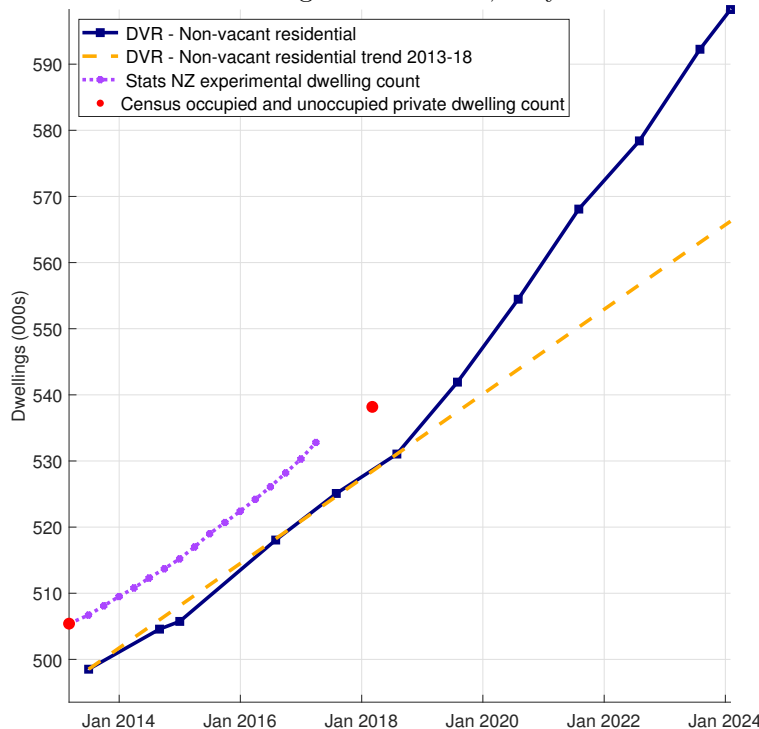
Table 2: Rateable Units, 2013 to 2024

Year	Month of extract	All rateable units		Non-vacant residential units	
		count	sum of SUIPs	count	sum of SUIPs
2013	July	521,661	592,922	453,241	498,516
2014	September	528,413	600,956	458,680	504,575
2015	January	529,651	602,252	459,807	505,744
2016	August	541,216	617,012	470,177	518,045
2017	August	548,799	626,277	475,461	525,091
2018	August	559,716	636,929	483,346	531,048
2019	August	569,023	649,630	491,976	541,924
2020	August	578,576	662,137	501,813	554,461
2021	August	590,607	675,459	513,421	568,088
2022	August	601,243	687,669	522,754	578,400
2023	August	616,063	704,077	535,266	592,257
2024	February	620,580	709,395	540,512	598,263

Notes: The DVR-based measure of the dwelling stock is given by the final column, which is the sum of the separately used or inhabited parts (SUIPs) of all non-vacant residential rateable units. See Table 1 for the categories of non-vacant residential units and section 2.1.1 for additional information on SUIPs.

¹⁹Unfortunately there is no extract closer to November 2016, when the AUP became operative.

Figure 1: Estimates of dwellings in Auckland, July 2013 to February 2024



Notes: DVR-based estimates are the the sum of separately used or inhabited parts (SUIPs) of all non-vacant rating units that are used for residential purposes. DVR-based estimates for September 2014 and January 2015 are likely to be biased downwards as these observations are not taken immediately after the beginning of the annual ratings cycle on July 1st. Stats NZ dwelling counts are the experimental estimates that ended in March 2017. The DVR trendline is fit to the July 2013 and August 2018 observations.

Figure 1 plots the estimates of the dwelling stock over time. For comparison, we also include experimental and census estimates of Auckland’s dwelling stock from Statistics New Zealand. Census estimates are updated on a five year cycle, while the experimental estimates were provided on a quarterly basis from 2001 to Q1, 2017. We also superimpose a trend on the DVR-based estimates that passes through the July 2013 and August 2018 observations.

DVR estimates are slightly lower than SNZ experimental estimates, but the difference is rather consistent, ranging from 1.53 to 1.84%. The SNZ estimate for the end of Q2, 2013 is 506,700. The DVR estimate for July, 2013 is 1.62% smaller, at 498,516. The SNZ estimate for Q3, 2014 is 513,700. The DVR estimate for September, 2014 is 1.78% smaller, at 504,575. The SNZ estimate for the end of Q4, 2014 is 515,200. The DVR estimate for January, 2015 is 1.84% smaller, at 505,744. Finally, the SNZ estimate for Q2, 2016 is 526,100, while the DVR estimate for August, 2016 is 1.53% smaller, at 518,045. Notably, the differences are larger for measurements taken later in the ratings year, namely September and January. As noted earlier, measurements taken right after the July 1st start of the ratings period are likely to be the most accurate, given the substantial updates to the roll between April and June.

The discrepancy between the DVR estimates and the census-based estimates may be due to

the financial incentive for property owners to not correct undercounts (see the discussion above in section 2.1.1). It may also be an artefact of the delay in new properties being added to the DVR, whereas census counts are a direct, up to date measure at a point in time. Because the number of dwellings in Auckland is growing over the sample period, a delayed measure will always lag an up to date count.

The potential drawback of using extracts from early in the calendar year is apparent when comparing the estimates to the 2013 to 2018 trend: The January 2015 extract is below trend, whereas the July and August measurements are remarkably close to trend. The September extract is also slightly below trend. This accords with the premise that extracts from soon after the beginning of the valuation cycle on July 1st are likely to be more accurate.

There is a notable change in trend from August 2018 onwards. Apart from the September 2014 and January 2015 measurements, estimates between 2013 and 2018 almost exactly fit a linear trend that corresponds to an increase of about 6,400 dwellings added per year. After 2018 there is an abrupt shift in the trend, which almost doubles to about 12,200 dwellings added per year. This is likely to reflect the impact of the AUP becoming operative in November 2016. The median time to completion is about 1.06 to 1.27 years (or 387 to 464 days).²⁰ However, the completed dwelling may not show up on the DVR until April, May or June following completion. Thus consents issued after the AUP became operative in November 2016 are likely to start showing up in our dwelling stock estimates on or after the August 2018 extract date. The break in trend from this point onwards accords with the timing of the full implementation of the AUP. Using the 2013 to 2018 trend as a crude counterfactual implies that the zoning reform almost doubled the rate to which the housing stock was being added. This accords with results from [Greenaway-McGrevy \(2023\)](#), who found that the reform increased the number of consents issued by about 80% between 2017 and 2022.

3.1 Comparison to Consents

It would be useful to match additions to the DVR to building consents in order to assess how much of the increase in the dwelling stock occurred under the more relaxed regulations of the Auckland Unitary Plan. Unfortunately matching the data is exceedingly difficult because there is no identifier linking consents to unit records on the valuation roll.

As discussed above, consents issued after November 2016 (when the AUP became operative) are likely to start showing up in the DVR-based dwelling stock estimates on or after the August 2018 observation date. Assuming a two year lag between consent to a dwelling appearing in the DVR provides a very rough indication of how many consents result in additions to the estimated dwelling stock. Between August 2018 and February 2024, the dwelling stock estimate increased by 67,215 units. This compares to a total of 82,447 dwellings consented between September 2016 and

²⁰Source: Authors' calculations based on matched consent-to-CCC data used in [Greenaway-McGrevy and Jones \(2023\)](#). Calculations are based on dwelling consents issued in Auckland in 2018 and 2019. Matched consent-to-CCC data are not available for earlier years. The higher estimate of 1.27 is the median weighted by number of dwellings in the consent. It is slightly longer than Statistics New Zealand estimates of weighted median completion times for the country as a whole, which typically range between 1 to 1.2 years. See <https://www.stats.govt.nz/experimental/experimental-building-indicators-march-2022-quarter> [accessed 15/03/2023].

February 2022.²¹ Assuming a 95% completion rate on consented dwellings implies that one dwelling was demolished for every seven constructed, on average. However, this estimate of the “teardown ratio” may be biased downwards due to the surge in additions to the valuation roll prior to the July 1st start of the valuation cycle. Between August 2018 and August 2023, the dwelling stock estimate increased by 61,209 units. This compares to 72,377 dwellings consented between September 2016 and August 2021. This implies that one dwelling was demolished for every nine constructed, on average, assuming a 95% completion rate on consented dwellings. Estimated teardown ratios are higher if a lower completion rate is assumed.²²

4 Concluding Remarks

This paper proposes and implements a method for estimating changes in Auckland’s dwelling stock using the district valuation roll (DVR) for the region. The estimates indicate that the region’s dwelling stock has increased by about 80,000 dwellings since passing a widespread zoning reform in 2016. This is equivalent to a 15% increase in the dwelling stock to date.

We anticipate that the DVR will continue to provide timely estimates of the region’s dwelling stock. The data are feasibly available at any frequency, although the annual tax cycle indicates that the measure will be most accurate immediately after the beginning of the tax period on July 1st each year. The approach may also be extended to other districts in order to analyse how their housing policies affect housing stocks.

²¹Source: Author’s calculations from Statistics New Zealand’s monthly building consents by territorial authority, available at <https://infoshare.stats.govt.nz/> [accessed 15/03/2024].

²²Table 3 in [Greenaway-McGrevy and Jones \(2023\)](#) provides completion rates by year of consent in Auckland. By June 2023, 91.74 and 89.17% of dwellings consented in 2018 and 2019, respectively, had a CCC issued, while 93.03 and 91.61% had a final inspection. Meanwhile, 95.47 to 96.35 of dwellings consented between 2018 and 2021 had a first inspection.

References

- GREENAWAY-MCGREVY, R. (2023): “Can Zoning Reform Increase Housing Construction? Evidence from Auckland,” *Economic Policy Centre Working Paper 017*. [2](#), [12](#)
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