What Local Land Use Reform Does, and Doesn't, Do

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Abstract

What happens when part of a city cuts minimum lot sizes? We study a 2014 reform where a council in Adelaide cut them from 350 sqm to as low as 150 sqm, until the policy was partly reversed in 2019. The reform increased building approvals by 67 per cent, driven entirely by townhouses and rowhouses; the reversal returned the treatment effect to insignificant levels, providing dose-response evidence that lot-size regulation was a binding constraint. Established local firms already producing medium-density housing primarily built the new homes, with no evidence of capacity diversion. Movers into new housing were predominantly households in their prime family-formation years, upgrading out of cheaper rental housing. Using linked Census microdata, we trace the movement chains they set off: each mover typically vacates a cheaper dwelling, occupied by a household further down the income distribution. Chains also track the lifecycle: occupants further along the chain are younger and more often renting, with age composition explaining part of the income gradient. Concerns about amenity costs drove the reform's reversal; across the outcomes we can measure we find little deterioration.

Keywords: Zoning reform, Minimum lot sizes, Housing supply, Urban infill, Moving chains, Neighbourhood effects.

JEL Codes: R31, R52, R21, R23

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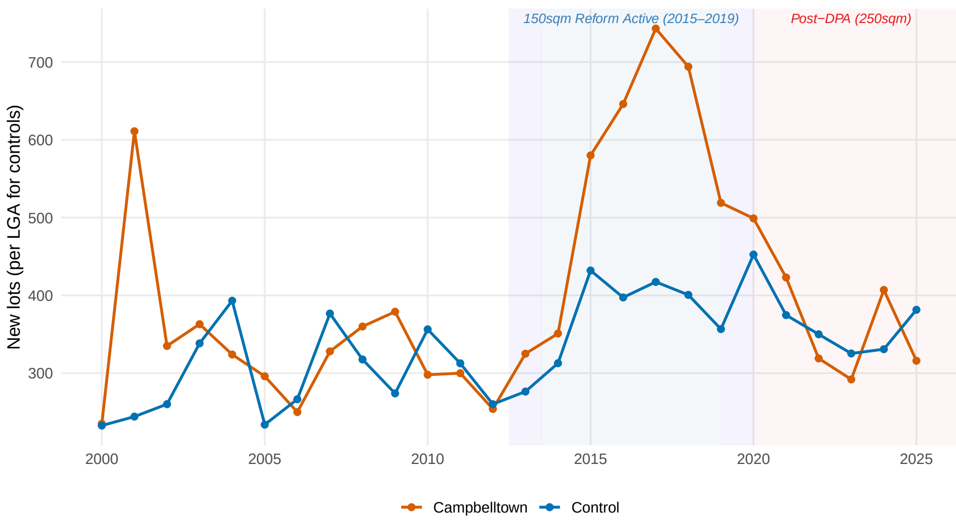
1 Introduction

A growing body of quasi-experimental evidence shows that land-use regulations are a binding constraint on the amount of new housing built: reforms in New Zealand, New York, São Paulo, and Zurich have generated large increases in construction (Greenaway-McGrevy and Phillips, 2023; Maltman and Greenaway-McGrevy, 2025; Liao, 2026; Rollet, 2025; Anagol et al., 2024; Büchler and Lutz, 2024). But knowing that upzoning increases construction is not sufficient for policy. Policymakers need to understand the full costs and benefits of densification: who builds the new housing and on what terms; who benefits directly from the new stock and how those benefits propagate through the broader housing market; and whether the local costs cited by opponents - traffic congestion, loss of neighbourhood character, declining quality of life - actually materialize. Credible evidence on these questions remains scarce, in part because few settings offer both a clearly identified supply shock and sufficiently detailed data to trace its downstream effects.

This paper provides such evidence using a natural experiment in Adelaide, Australia. In 2014, Campbelltown[1], a middle-ring suburban area within metropolitan Adelaide, cut minimum lot sizes from 350 sqm near centres and transport corridors (500 sqm elsewhere) to as low as 150 sqm for townhouses and rowhouses, while surrounding councils did not. In 2019, the reform was partially reversed, raising minimums back up to 250 sqm.

Figure 1: New lots from land division per year: Campbelltown vs. control councils



Notes: Control = per-LGA average across six inner/middle Adelaide LGAs (Burnside, Charles Sturt, Mitcham, Tea Tree Gully, Unley, West Torrens). Purple shading = FY2014 announcement and FY2020 grandfathering; blue shading = reform active (2015–2019); red shading = post-reversal (2021+). Source: SA land division applications register.

Figure 1 shows the effect in the raw data: new residential lots created in Campbelltown

[1]In Australia, a *local government area* (LGA), also called a council, is the lowest tier of government, roughly comparable to a borough or municipality. Campbelltown covers 24 km^2 with 47,000 residents. Until 2021, each South Australian LGA maintained its own statutory Development Plan governing land use and development parameters.

roughly doubled relative to comparable councils after 2014, before converging back after the 2019 reversal.[2]

This sequence of reform followed by reversal lets us observe the treatment switching on, its effects accumulating, and then partly switching off. We exploit this variation using difference-in-differences and event study specifications, comparing Campbelltown to the rest of Adelaide. We find the reform increased total building approvals by 67 per cent (approximately 270 additional approvals per year on average across the seven reform-active years, entirely townhouses and rowhouses), increasing Campbelltown's housing stock by roughly 6 per cent. After the 2019 reversal, the total treatment effect falls to statistically insignificant levels. The additional construction largely came from established firms, with those already building medium-density housing elsewhere supplying most of the new output. Market concentration stayed low throughout. We find no evidence of displacement: neighbouring councils saw no offsetting drop in approvals, and individual firms did not scale back elsewhere when they entered Campbelltown.

The reform operated through a subdivision wedge: smaller lots command disproportionately higher per-square-metre prices, so developers profited by subdividing large lots. Minimum lot sizes prior to the reform blocked the subdivision sizes where this was most profitable, since the price schedule is steepest below 250 sqm. The 2014 reform, permitting 150 sqm lots, triggered a large increase in subdivision activity; the 2019 reversal to a 250 sqm floor cut off that profitable range again.

We use this supply shock to examine who benefits from new housing construction and zoning reform. Linking Census microdata to individual dwelling identifiers, we observe not only who moves into the new stock but what happens to the housing they leave behind. When a household moves into a new dwelling, it vacates an existing one, which another household can then fill, setting off a chain of moves that can reach well beyond the initial occupants (Mast, 2023; Bratu et al., 2023; Kindström and Liang, 2024; Fang et al., 2026; Kluser and Hauck, 2025). Consistent with this literature, we find that these chains reach progressively lower-income households: mean family income falls 19.5 per cent from new-housing movers to the third round of the chain, and mean weekly rent falls 12.4 per cent.

We also identify a lifecycle angle. Over successive rounds, occupants become younger (median age falls from 37 to 31), more likely to rent (the owner-occupier share drops from 68 to 38 per cent), and less likely to have dependent children. Age composition accounts for roughly a quarter of the observed income gradient. The remainder reflects genuine reallocation within age cohorts. Both the traditional channel and the lifecycle channel appear to operate simultaneously. The lifecycle channel in particular helps explain how

[2] A neighbouring council, the City of Norwood, Payneham and St Peters (NPSP), undertook a smaller parallel reform around the same time. We exclude NPSP from the main analysis; Appendix E shows that the pooled treatment effect is qualitatively similar but somewhat attenuated, reflecting NPSP's later and weaker construction response.

new market-rate construction can reach the rental market quickly: the vacated stock is already rental-suited, rather than needing to depreciate into the rental segment over time.

The reform was ultimately reversed in 2019 following sustained community opposition over the perceived costs of densification. We test whether these costs actually materialized, assembling a panel of neighbourhood outcomes. Across these measures we find little sign of the amenity deterioration that opponents anticipated. Traffic volumes, vegetation greenness, land surface temperature, and school composition show no statistically significant divergence from control areas, and reported crime did not increase. Business registrations rose, particularly in consumer-facing sectors such as food services and retail, and public transport patronage increased, though the patronage divergence partly reflects differential recovery from COVID-19.

On-street parking, the complaint residents raised most often, is also among the hardest to pin down: it is felt street by street rather than suburb by suburb, at a spatial scale finer than public data can resolve. In a future revision of this working paper, we will assess these impacts and whether they materialized for incumbent residents.

The reform's benefits were broad and largely invisible to policymakers. They went to the households who moved into the new dwellings and, through the movement chains, to the younger and lower-income renters further down them, spread thin across the metropolitan area. Its costs were narrow and salient, concentrated on the residents living beside new construction, who experienced the change directly. The benefits also arrived late: the younger households who moved into new housing and the lower-income renters who reached the vacated stock were in Campbelltown only after the reform took effect, and so had little voice in the politics that preceded its reversal (Einstein et al., 2019; Brouwer and Trounstine, 2024). A reform whose gains are diffuse and deferred while its frictions are immediate and local is politically fragile, regardless of how the costs and benefits net out.

This paper makes four contributions. First, we exploit a reform *and* its partial reversal. Quasi-experimental evidence on the construction effects of a *tightening* of residential land use restrictions is scarce. The 2019 reversal lets us observe the same regulatory constraint switch on and then partly off in one setting: because the construction response and the bunching of new lot sizes track each regime's minimum, we can pin down where the constraint binds and identify lot-size regulation itself, rather than some unobserved correlate, as the binding constraint. Our council-level treatment is also a useful middle ground between the city-wide reforms studied in New Zealand and the parcel- and corridor-level variation used in New York and São Paulo: large enough to generate detectable neighbourhood-level effects, localized enough to permit clean within-city counterfactuals. That said, not all settings find a construction response (Freemark, 2020).

Second, we link the upzoning literature to the movement chain literature (Mast, 2023; Bratu et al., 2023; Kindström and Liang, 2024; Fang et al., 2026; Kluser and Hauck, 2025).

Existing chain studies trace the moves set off by endogenous new construction; ours is the first to use a policy-induced supply shock. Because our linked Census microdata carry age, family structure, tenure, and income, we also show that chains run not only down the income distribution but track the lifecycle, reaching younger, more often renting occupants within a few links. Our closest comparison is Mense (2025), who documents an ownership-to-rental channel from new construction in Germany.

Third, we document who built the new housing using development application records linked to firm identities, the first use of such microdata to study the construction response to upzoning. The response came from established local firms expanding an existing product line, with no firm gaining meaningful market share, pointing to regulation rather than construction capacity as the binding constraint (Maltman, 2025). We note this is evidence about a council-scale reform; a metropolitan-wide upzoning could press against labor and materials constraints that a single-council reform does not.

Fourth, we provide quasi-experimental evidence on how a community changes after upzoning. Most existing evidence on local amenity effects comes from large apartment buildings (Asquith et al., 2023; Pennington, 2021); our setting is townhouses and small-scale infill on subdivided suburban lots, a margin closer to the gentle density now contemplated in many established neighbourhoods. We assemble a broad panel of neighbourhood outcomes and find that the disamenities opponents cited are, where we can measure them, small or absent.

2 Institutional Context

This section provides a summary of our setting and the policy shocks exploited in this paper. Appendix A provides more in-depth institutional detail, including full policy-area parameters, more detail on parallel reforms in the City of Norwood, Payneham and St Peters (NPSP) - that we exclude from our main results - and context surrounding the political economy of the 2019 rollback.

2.1 Setting

Adelaide is the capital of South Australia, with a metropolitan population of approximately 1.3 million. In Australia, local governments (councils) are the lowest tier of government, responsible for local planning, roads, and community services. Until March 2021, residential development in South Australia was governed by council-level Development Plans: statutory documents prescribing zoning, permitted land uses, and quantitative development parameters for each parcel.[3] Parameters were legally binding: councils

[3]For detail, see Parliament of South Australia (1993) and City of Norwood Payneham & St Peters (2012, pp. 3–4).

could not refuse compliant proposals.[4] In March 2021, all 72 council Development Plans were replaced by a single state-wide Planning and Design Code.

This paper focuses on the City of Campbelltown, a middle-ring local government area (LGA) in Adelaide's eastern suburbs, roughly 10 km from the CBD. In 2011, Campbelltown had a population of 46,681, a median household income close to the Greater Adelaide median, and a median age of 41. The area is characterised by detached houses on large lots, tree-lined streets, and good access to schools and parks.

2.2 The 2014 Reform

Before the reform, the Residential Zone set a blanket 500 sqm minimum (350 sqm near centres), with no dwelling-type-specific parameters for medium-density housing. In 2014, Campbelltown's Development Plan was amended to permit medium-density housing at substantially reduced lot sizes.[5] The change was released for public consultation in October 2012 and formally consolidated on 31 July 2014. Because the reform parameters were publicly known from late 2012, developers could anticipate the new regime before its formal commencement.

The 2014 amendment introduced explicit lot sizes for different housing types and reduced minimums in two 'policy areas' covering most of the LGA to levels that made medium-density development feasible on standard suburban lots. The lowest minimums were applied to areas within 400m of designated centres or major transport corridors, which comprised roughly half of the LGA's residential zone: row dwellings and apartments could be built on lots as small as 150 sqm. A further quarter of the zone, beyond the buffer, received higher but still reduced minimums. The final quarter was downzoned into three Character-Protection Policy Areas, where minimums were tightened to 500–750 sqm and restricted to detached dwellings only (Table 1; Appendix A.3).

[4] As Campbelltown's Mayor noted, the council was "powerless to refuse compliant applications because councils must follow development rules set by Government" (ABC News, 2019).

[5] The reform implemented the state government's 30-Year Plan target that 70 per cent of new housing be built within the existing urban footprint, with a particular focus on the inner east of Adelaide (Government of South Australia, 2010).

Table 1: Minimum lot sizes (Within 400 m of centres/corridors)

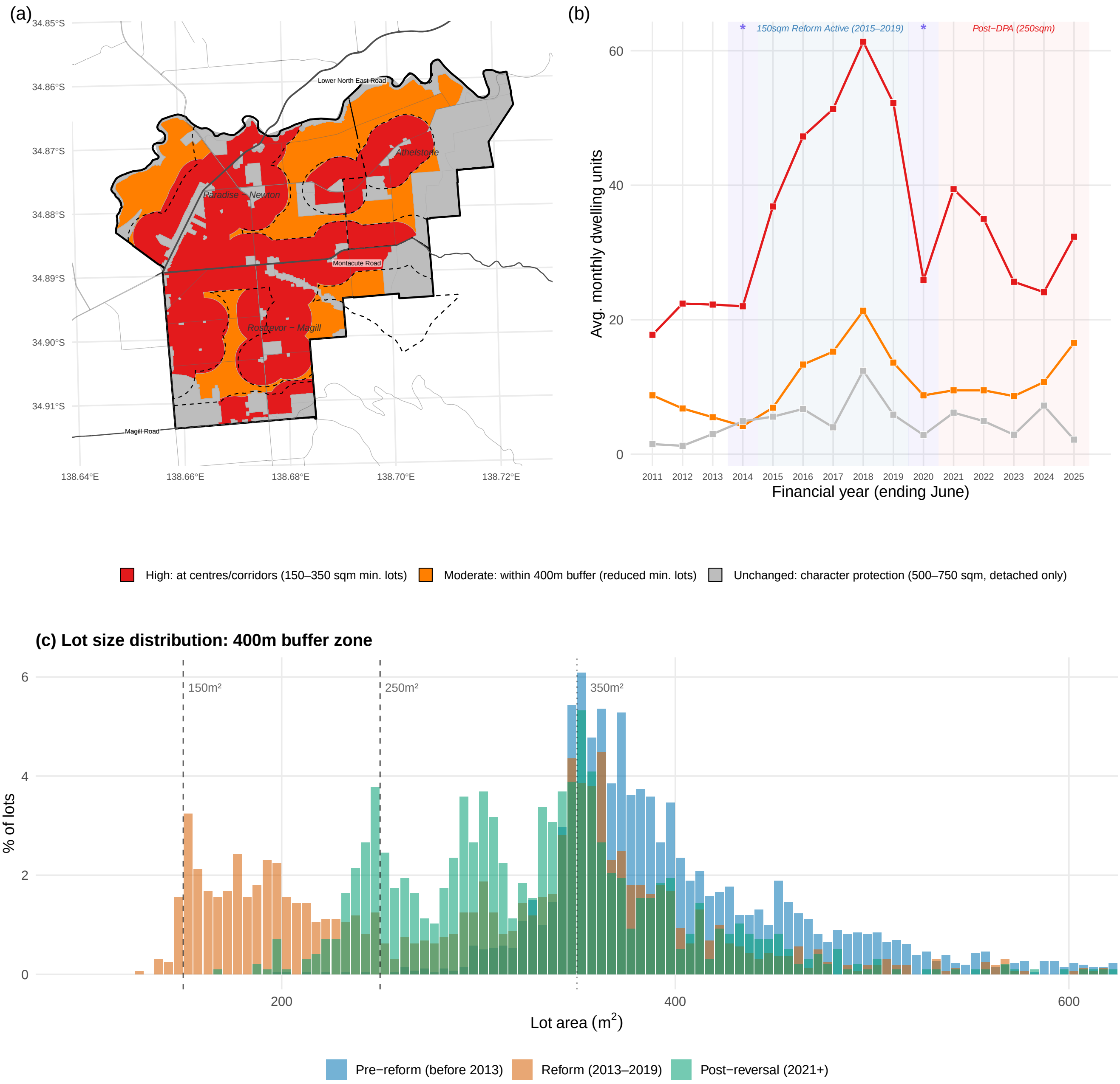
Dwelling type	Pre-2014	2014–2019	Post-2019
Detached	500 sqm (350 near centres)	300–350 sqm	300–350 sqm
Semi-detached	—	250–300 sqm	250–300 sqm
Group dwelling	—	250–300 sqm	250–300 sqm
Residential flat	—	150 sqm avg	250 sqm avg
Row dwelling	—	150–200 sqm	250 sqm

Notes: "—" indicates no dwelling-type-specific minimum was specified under the pre-reform regime. Ranges reflect variation across policy areas (Regeneration PA 3 and Suburban PA 4). The 400 m buffer was created by the 2014 DPA and so applies only to the last two columns; the pre-reform plan contains no distance-based buffer, and its 350 sqm concession was tied to a 300 m radius stated in the zone's Desired Character rather than to an operative development-control provision. Pre-reform values from the January 2012 consolidated Development Plan (City of Campbelltown, 2012); 2014 values from the July 2014 consolidation (City of Campbelltown, 2014); 2019 values from the September 2019 DPA (City of Campbelltown, 2019). Full policy area parameters are reported in Appendix A.3.

Figure 2 maps the spatial extent of the reform and the development response. Panel (b) shows that the development response was concentrated in the areas that received the lowest minimums, with little change in the Character-Protection Policy Areas.

The reform's impact on land subdivision confirms that lot-size minimums were a binding constraint. Panel (c) of Figure 2 shows the distribution of output lot sizes from approved residential land divisions in Campbelltown's 400 m buffer zone across the three policy regimes. Pre-reform, lot sizes cluster sharply at the 350 m^2 minimum. During the reform, the distribution shifts leftward, with substantial mass between 150 and 250 m^2, consistent with developers subdividing to the new, lower minimums. After the 2019 reversal, lot sizes bunch at 250 m^2, the new binding floor.

Figure 2: Campbelltown zoning reform and land division response



Notes: Panel (b): months where DA register unavailable excluded as incomplete. Panel (c) shows output lot sizes from approved residential land divisions in Campbelltown's 400 m buffer zone. Sources: Campbelltown Development Plan zoning layers, council DA registers, SA land division approvals, and OpenStreetMap road network.

Political and community opposition to the reform grew over 2014–2019 as the development pipeline enabled by the reforms translated into new dwellings. Mayor Whittaker noted that following the reform "it took a couple of years before the issues around the size of blocks in a number of the zones called regeneration areas became apparent. The aim was to increase housing diversity but the road and other infrastructure hasn't been coping" (Whittaker, 2019). Complaints centred on overshadowing, parking overflow onto streets, removal of trees and gardens, and visible transformation of streetscape character (PlanningAlerts, 2021). Mayor Whittaker acknowledged that infill had "brought some wonderful people into the city" but also "a huge number of problems as far as traffic is concerned, parking is concerned, there are disputes over fences ..." (ABC News, 2019). Appendix A.6 documents the community opposition in detail.

We digitise 335 Campbelltown council and Development Assessment Panel agendas spanning 2014 to 2020 to systematically characterise formal opposition. Of 182 residential DAs assessed during the reform period, 102 attracted at least one formal objection from a neighbour. The most frequently cited concerns were parking (41 per cent of DAs), traffic (34 per cent), character, bulk and scale (32 per cent), and privacy and overlooking (30 per cent); see Appendix A.6, Table A4. Despite this opposition, the independent-majority assessment panel granted 91 per cent of represented DAs. This structural disconnect, between a council increasingly opposed to infill and an assessment panel that continued to approve compliant proposals, meant that amending the Development Plan itself was the only mechanism available to reduce development.

The political trigger for reversal was the statewide grandfathering to a new Planning and Design Code proposed to take place in July 2020.[6] In February 2019, Mayor Whittaker noted there was a "small window of opportunity" to change Campbelltown's zoning, with any amendments needing to be in place by the middle of 2019 (Whittaker, 2019).

In September 2019, a Development Plan Amendment raised the minimum lot size for apartments from 150 sqm to 250 sqm, and for row dwellings from 150–200 sqm to 250 sqm (James, 2019).[7] As Panel (b) of Figure 2 shows, development subsequently contracted sharply in the high-treatment areas that were downzoned by the change. Applications already lodged were grandfathered, so we include FY2020 in the reform-active treatment period to account for this pipeline effect.

In March 2021, a single state-wide Planning and Design Code replaced all 72 council Development Plans, converting existing zones to a standardised statewide framework. For Campbelltown it changed little, mostly codifying the 250 sqm minimums that the 2019 rollback had already put in place.

3 Data and Method

3.1 Data

Our primary data source is the Australian Bureau of Statistics (ABS) Building Approvals collection, which records the number and value of residential building approvals by Sta-

[6]The Code was originally scheduled for July 2020 but was delayed until March 2021 (Richardson, 2020).
[7]The DPA also introduced a 1,200 sqm total site area requirement for multi-dwelling developments in Suburban PA 4 and tightened the 400 m buffer definition. See Appendix A.4 for full detail on the before-and-after comparison.

tistical Area Level 2 (SA2). SA2s are the smallest geographic unit at which building approval data are published, containing around 10,000 residents each.

Building approval counts are disaggregated into two categories: *houses* (detached dwellings) and *other dwellings* (semi-detached, rowhouses, townhouses, flats, and apartments).[8] The panel covers financial years 2008–2024 (ending June 30), combining three ABS releases: the *National Regional Profile* (FY2008–2012), *Data by Region* (FY2013–2020), and the ABS Data API (FY2021–2024).[9] The final panel comprises the 110 SA2s in Greater Adelaide observed over 17 years (FY2008–2024), yielding 1,864 SA2-year observations.[10] The Adelaide CBD SA2 is excluded from the control group due to its distinct development dynamics. The three NPSP SA2s are excluded from both treatment and control groups, since NPSP also undertook a (smaller) parallel reform during this period. This yields 106 SA2s (3 treated, 103 control) in the main sample.[11]

We classify three SA2s within Campbelltown as treated: Paradise–Newton, Rostrevor–Magill, and Athelstone. All remaining Adelaide SA2s serve as controls. Treatment intensity varies within treated SA2s: Paradise–Newton and Rostrevor–Magill have 82 and 77 per cent of their land area in the High or Moderate treatment categories, while Athelstone had 56 per cent in those categories and 44 per cent in character-protection zones. Accordingly, we observe larger effects in Paradise–Newton and Rostrevor–Magill than in Athelstone (Figure B1).

To examine the broader effects of the reform, we construct a separate panel at the LGA level drawing on a range of ABS and administrative sources, which are discussed at the beginning of each relevant section. The LGA-level analysis of these broader outcomes uses 12 inner and middle Adelaide LGAs as controls: Adelaide, Burnside, Charles Sturt, Holdfast Bay, Marion, Mitcham, Port Adelaide Enfield, Prospect, Tea Tree Gully, Unley, Walkerville, and West Torrens.

[8]In a small number of observations, total building approvals exceed the sum of houses and other dwellings, reflecting dwelling conversions and additions that the ABS classifies separately. This affects approximately 15 per cent of SA2-year observations, with a mean discrepancy of 9.3 dwellings where it occurs, and is confined to the *Data by Region* and API vintages; the NRP years contain no discrepancies. The discrepancy is not differential by treatment (a difference-in-differences on the discrepancy itself gives 0.22, SE 0.89). Results are robust to using the sum of houses and other dwellings as the dependent variable instead of total dwellings.

[9]The NRP reports "total private sector houses," excluding public sector houses, while the *Data by Region* product reports total houses. Public sector houses account for a negligible share of approvals in the Adelaide SA2s studied. Where the underlying geography changed between ASGS 2016 and ASGS 2021 editions, we use ABS-published correspondence ratios to map back to consistent 2016 boundaries; two SA2s that were split between editions are aggregated back to their 2016 boundaries using these ratios.

[10]Two SA2s are not covered by the NRP for FY2008–2010, so these six observations are missing; the panel is otherwise balanced.

[11]Results are effectively unchanged when the CBD is included. Appendix E reports pooled results that include NPSP's three SA2s in the treatment group. Several Ministerial DPAs created Urban Corridor Zones in control LGAs during the study period; to the extent these boosted control-group approvals, they bias our estimates downward. Results are robust to excluding the affected LGAs from the control group (Figure B8); see Appendix A.8 for detail.

Conventions for figures. In all event study and trend figures, the dashed vertical line marks 2013, the year before the reform took effect. Blue shading indicates the reform-active period (FY2015–FY2020), red shading the post-reversal period (FY2021 onward), and purple shading the FY2014 announcement and FY2020 grandfathering years.

Development applications. For the builder-level analysis in Section 5.1, we use Development Application (DA) records from seven Adelaide LGAs: Campbelltown (treatment) and Burnside, Charles Sturt, Mitcham, Port Adelaide Enfield, Tea Tree Gully, and Walkerville (control), covering 2010–2025. These data were extracted from PDF public registers and online development tracking portals published on council websites; for historical periods, archived versions were retrieved via the Wayback Machine. Each DA record includes the applicant name, address, dwelling type, estimated number of units, and lodgement date. See Appendix F.1 for details on extraction and applicant-name standardisation.

The development pipeline. An important feature of housing supply policy is the substantial lag between regulatory change and observable neighbourhood-level effects. A zoning change does not produce new dwellings immediately: developers must first identify sites, assemble financing, and prepare plans before lodging a DA; the DA then undergoes council assessment and approval; and only after approval does physical construction begin, typically taking one to two years for medium-density projects. Moreover, not all DAs are approved, and not all approved projects are acted upon, so there is leakage at each stage of the pipeline. Figure 3 illustrates this sequencing for Campbelltown using three of our sources: DAs lodged with council, ABS building approvals, and annual population change from the Estimated Resident Population. DAs - the earliest observable indicator of development intent - begin rising immediately after the reform took effect in FY2014, increasing from around 380 units in FY2013 to around 1,100 in FY2018. Building approvals follow with a lag of roughly one year. Population growth, which requires dwellings to be physically constructed and occupied, lags further still: Campbelltown's annual population increase does not accelerate markedly until 2017–2018, roughly three to four years after the reform. This sequencing implies that when assessing the broader effects of the reform on prices, traffic, business activity, and neighbourhood amenity, we should expect measurable impacts to emerge only from approximately 2018 onward.

Figure 3: The development pipeline: DAs, building approvals, and population growth in Campbelltown

Notes: Missing months in the DA register excluded; annualized from remaining months. Blue shading = reform-active (2015–2019); red = post-reversal (2021–2025); purple = announcement/grandfathering. Sources: Campbelltown council DA register, ABS Building Approvals, ABS Estimated Resident Population.

It is sometimes argued that high DA approval rates demonstrate that the planning system is not a binding constraint on housing construction, that because councils approve the vast majority of applications and do so in reasonable timeframes, regulation cannot be blamed for undersupply (Phibbs and Gurran, 2021; Murray, 2021). This reasoning is flawed: approval rates are endogenous to the regulatory environment, since developers only lodge applications for projects that are permissible under current rules. A reform that expands what is permitted should therefore increase the *volume* of applications without necessarily changing the rate at which they are approved.

We test this prediction directly by matching individual lodged DAs to Campbelltown's separate monthly "approved" register, which records each application's decision outcome.[12] Of all DAs lodged with Campbelltown, 87 per cent subsequently appear in the approved register, a rate that was essentially unchanged between the pre-reform (84.8 per cent) and reform (87.7 per cent) periods. Median processing time rose from 26 to 42 days, consistent with the compositional shift toward more complex medium-density proposals (Figure D7). The reform's effect on construction operated entirely through the volume of applications: dwelling units applied for nearly doubled, from roughly 360 per year pre-reform to 680 per year during the reform period; these figures cover the matched-register years, and Figure 3 shows DA volumes reaching roughly 1,100 units per year by FY2018 once all years are included. Approval rates, high both before and after the reform, were simply uninformative about whether regulation constrained construction.

[12] The approved register covers December 2009 to June 2021. We restrict the matching analysis to years with complete coverage of both registers (2010–2011, 2013–2017), excluding 2012 (incomplete lodged register) and 2018 onward (gap in the approved register from March to October 2019). See Appendix D.6.

3.2 Empirical Strategy

We estimate the effect of the 2014 minimum lot size reform on building approvals using a difference-in-differences (DiD) design with two-way fixed effects. We use a two-period specification separating the treatment period (including the grandfathering year) from the post-DPA period:

$$Y_{it} = \alpha_i + \gamma_t + \beta_1 \cdot (\text{Treated}_i \times \text{Post}_t^{14\text{–}20}) + \beta_2 \cdot (\text{Treated}_i \times \text{Post}_t^{21+}) + \varepsilon_{it} \qquad (1)$$

where Y_{it} is the number of building approvals in SA2 i in financial year t, α_i are SA2 fixed effects, γ_t are year fixed effects, $\text{Post}_t^{14\text{–}20}$ indicates the treatment period (FY2014–2020) including the grandfathering year following the September 2019 DPA, and Post_t^{21+} indicates the post-DPA period (FY2021–2024). To examine the dynamics of the treatment effect, we estimate an event study specification:

$$Y_{it} = \alpha_i + \gamma_t + \sum_{k \neq -1} \beta_k \cdot (\text{Treated}_i \times \mathbf{1}[t - 2014 = k]) + \varepsilon_{it} \qquad (2)$$

where k indexes years relative to the reform, with $k = -1$ (FY2013) as the reference period. The coefficients β_k for $k < 0$ test for parallel pre-trends, while β_k for $k \geq 0$ trace out the dynamic treatment effect.

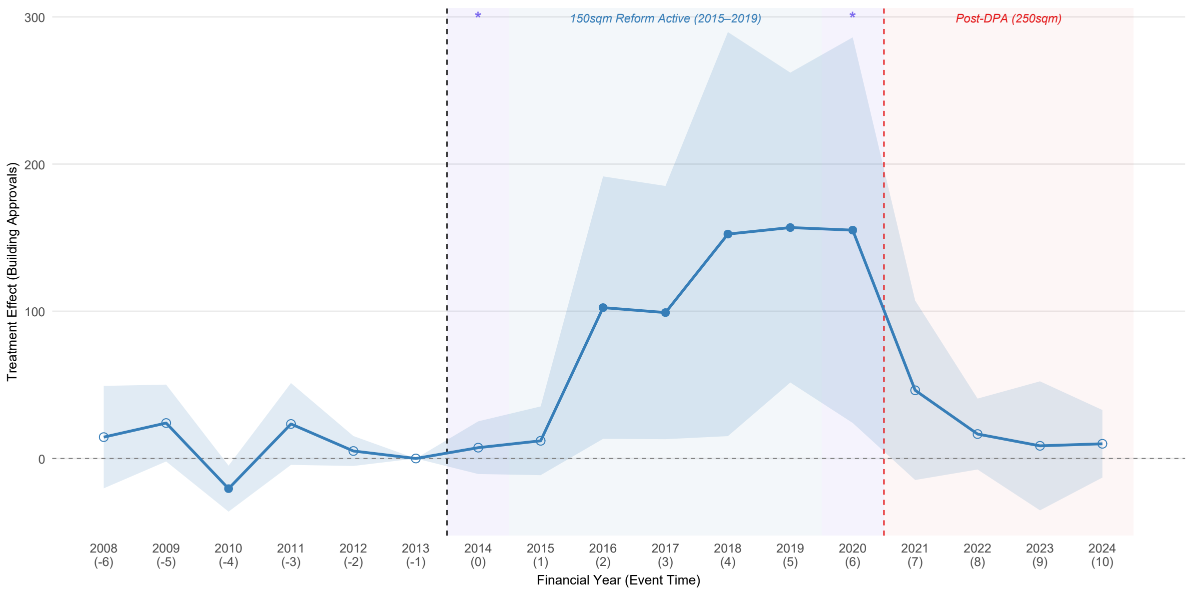
Because treatment is assigned to a small number of units (three SA2s in one LGA), conventional clustered standard errors rest on asymptotics that do not apply (Conley and Taber, 2011; Ferman and Pinto, 2019); throughout the paper we therefore report Fisher randomization-inference p-values alongside conventional ones wherever treatment varies at the level of one or a few units, and Appendix B.7 reports design-based inference for the headline construction results.

4 Construction Effects

4.1 Event Study Estimates

Figure 4 reports the event study coefficients β_k from Equation 2 for total building approvals. The treatment effect rises sharply while the 150 sqm reform is active (blue shading) and fades after the 2019 reversal (red shading), converging back toward zero by FY2024.

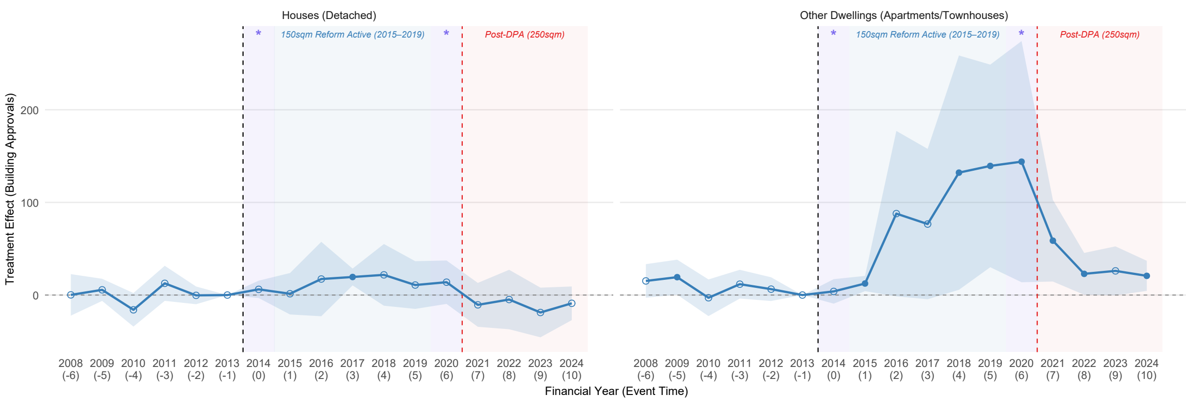
Figure 4: Event study: total building approvals (FY2008–2024)



Notes: SA2 FE + Year FE, clustered SE. Filled dots = $p < 0.05$. Blue shading = reform-active (2015–2019); red = post-reversal (2021–2024); purple = FY2014 announcement & FY2020 grandfathering. Source: ABS Building Approvals, SA2 panel.

Figure 5 decomposes the effect by housing type. The treatment effect is concentrated entirely in other dwellings (apartments, townhouses, and rowhouses). The effect on detached houses is small and statistically insignificant.

Figure 5: Event study by housing type (FY2008–2024)



Notes: Common y-axis across panels. SA2 FE + Year FE, clustered SE. Blue shading = reform-active (2015–2019); red = post-DPA (2021–2024); purple = announcement/grandfathering. Source: ABS Building Approvals, SA2 panel.

Table 2 reports the corresponding two-period DiD estimates. Panel A reports level specifications, Panel B reports Poisson pseudo-maximum likelihood (PPML) estimates, which handle zero counts naturally and provide semi-elasticity interpretations. The post-reversal total effect is a reasonably tight null: its interval (−18 to +27 per cent) rules out more than half the reform-era effect persisting. A modest positive effect persists for other dwellings in the post-reversal period. This likely reflects two factors: the partial nature of the reversal, since the 250 sqm minimums remain below the pre-reform minimum of 350 sqm near centres and corridors, so some medium-density development that would not have been feasible before 2013 remains permissible; and the development pipeline, as some reform-era DAs were not converted to building approvals until after FY2020. This residual is measured against the pre-reform baseline, however, and on its own understates the reversal: because the reform-active and post-reversal periods share the same pre-reform benchmark, the reform-era build-up in attached approvals nets against the post-reversal decline.

Table 2: Two-period difference-in-differences results (FY2008–2024)

	SA2 Level			*LGA Level*		
	Total	Houses	Other	Total	Houses	Other
Panel A: Levels						
Treated × Post (2014–2020)	90.1**	12.6	76.9**	249.7***	23.5	228.3***
	(34.5)	(8.0)	(35.2)	(33.0)	(25.9)	(16.5)
Treated × Post (2021–2024)	12.5	−11.1	23.8***	1.2	−74.3*	78.7***
	(9.8)	(9.1)	(5.9)	(44.1)	(41.5)	(16.3)
Panel B: Poisson PPML						
Treated × Post (2014–2020)	0.51***	0.08	1.36***	0.51***	0.07	1.34***
	(0.09)	(0.10)	(0.23)	(0.09)	(0.11)	(0.15)
Treated × Post (2021–2024)	0.02	−0.24*	0.72***	0.02	−0.24**	0.74***
	(0.11)	(0.13)	(0.14)	(0.11)	(0.12)	(0.16)
Fixed effects		SA2 + Year			LGA + Year	
Observations (Panel A)		1,796			357	
Observations (Panel B)	1,728	1,728	1,643	340	340	340
Units (treated/ctrl)		106 (3/103)			21 (1/20)	
Ctrl treatment-period mean (2014–20)	79.9	55.9	21.9	411	288	112

Notes: SE clustered at SA2 level (cols 1–3) or LGA level (cols 4–6). $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. Post (2014–2020) includes the grandfathering year; Post (2021–2024) = post-DPA. Panel B: Poisson PPML. Adelaide CBD excluded. LGA columns aggregate the SA2 panel to LGA level (Greater Adelaide excluding the CBD LGA and NPSP), a broader control set than the 12 inner/middle LGAs used in Section 6. Source: ABS Building Approvals, FY2008–2024.

Figure B5 reports a leave-one-out exercise that re-estimates the main specification three times, each dropping one of the treated SA2s. The treatment effect is driven primarily by Paradise–Newton and Rostrevor–Magill. Athelstone, where only 56 per cent of land was in the High or Moderate treatment categories (44 per cent in character-protection zones), contributes a smaller share (see Figure B1).

The estimate is robust to two alternative control sets. The first matches each treated SA2 to its nearest control SA2 within Adelaide on pre-treatment approval levels (2008–

2013) and proximity to the CBD (Figure B9). The second matches treated Adelaide SA2s to comparable SA2s in Sydney, Melbourne, Brisbane and Perth on pre-treatment characteristics, restricting the control pool to SA2s within 30 km of each city's CBD (Figure B10).

With three treated SA2s, the clustered standard errors in Table 2 should be read with caution, so we complement them with design-based inference (Appendix B.7). Reassigning placebo treatment to each control LGA's SA2s yields $p = 0.045$, the smallest value 21 assignments allow (the coefficient of 90.1 also exceeds every placebo). A random three-SA2 placebo set gives $p = 0.016$, and synthetic difference-in-differences (Arkhangelsky et al., 2021) yields 92.4 approvals per treated SA2-year (placebo SE 27.3), nearly identical to the DiD estimate.

Summing the event study coefficients over the seven reform-active years (FY2014–2020) yields approximately 685 cumulative additional building approvals per treated SA2. With three treated SA2s and an assumed 90 per cent completion rate (Saunders and Tulip, 2019), this implies roughly 1,850 additional dwellings constructed, about 8 per cent of Campbelltown's 2021 Census dwelling stock of 22,732. This is a gross figure. Because the reform proceeds by subdivision, a typical project demolishes an existing dwelling before rebuilding several attached dwellings on the lot, so the effect on the net stock is smaller. Attached-dwelling projects in the development-application data average 3.7 dwellings each, implying roughly one demolition for every four attached dwellings added. Applying this ratio to the 1,850 reform-induced dwellings implies around 460 associated demolitions and a net addition of roughly 1,390 dwellings, or about 6 per cent of the 2021 stock.[13]

As an independent check that building approvals translated into actual dwellings, we use the ABS address register to observe the change in occupied new addresses. Figure H3 plots the rate of new addresses per 1,000 existing addresses for Campbelltown and controls. Prior to the reform, Campbelltown's addition rate tracks the control-group mean closely. From 2014 onward it rises sharply: 9.4 per cent of Campbelltown's stock was first occupied after 2013, compared with 5.2 per cent for controls. This roughly 80 per cent higher rate of new occupation is concentrated in 2016–2019, consistent with the development pipeline in Figure 3.

[13]The net estimate is not sensitive to the underlying assumptions. Varying the approval-to-completion rate over 85–95 per cent moves the gross figure to roughly 1,750–1,950, and varying the teardown ratio over 0.24–0.27 (the range spanned by the bundled demolish-and-build applications and the full set of attached-dwelling applications) moves net additions to roughly 1,300–1,450, or about 5.5 to 6.5 per cent of the 2021 stock. Allowing that some subdivisions demolish multiple existing dwellings while others build on vacant or already-cleared lots shifts the ratio in offsetting directions. As an extreme lower bound, attributing every demolition recorded in the development-application data over the reform period (roughly 1,150) to the reform, so that Campbelltown is assumed to have demolished nothing in its absence, lowers the net figure to about 685 dwellings, or roughly 3 per cent of the 2021 stock. Control councils demolish at a comparable baseline rate.

4.2 Spillovers

We test for spillovers at two spatial scales, using two different outcome measures: hyperlocal displacement within and immediately around Campbelltown using geocoded development application records, and broader regional displacement to neighbouring LGAs using the SA2-level building approval data from the main analysis.

To examine how the treatment effect varies within the treated area and whether development was displaced from immediately adjacent streets - both within Campbelltown and just outside - we construct a panel at the Meshblock level.[14] Each geocoded DA is assigned to a Meshblock, and we compute the signed distance (km) from each Meshblock centroid to the outer boundary of the upzoned area, with positive values indicating locations inside the treated area. We then estimate a distance-bin difference-in-differences:

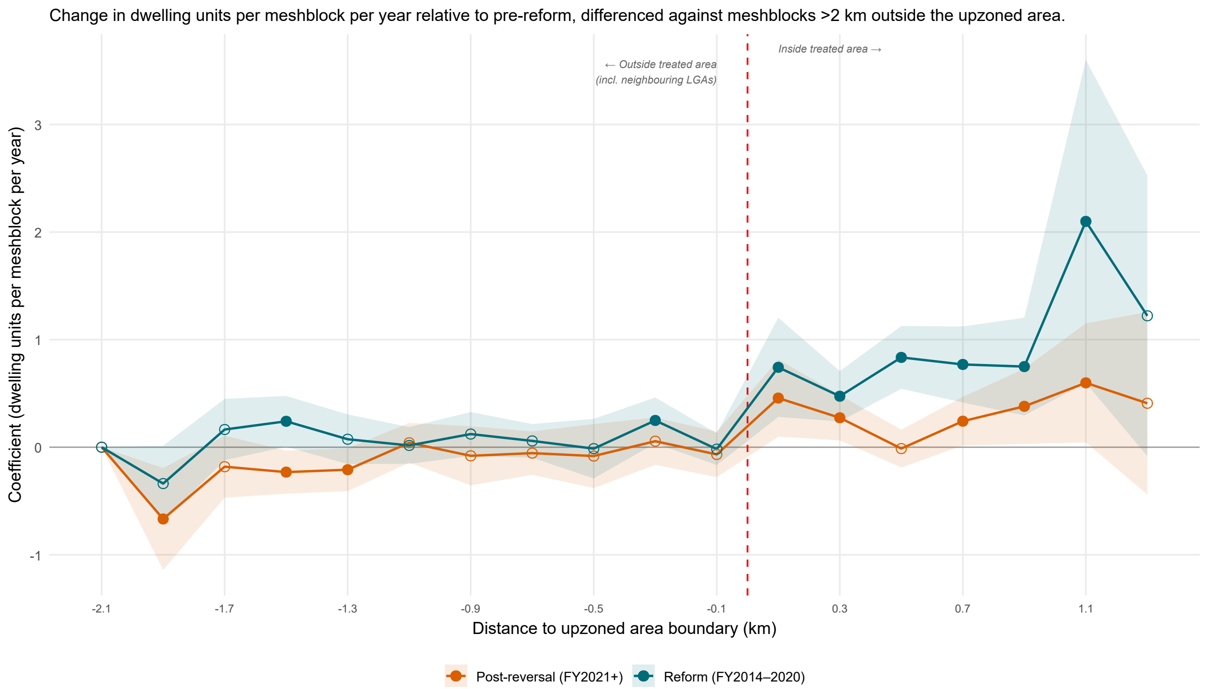
$$Y_{it} = \sum_b \beta_b^R \cdot (\mathbf{1}[\text{bin}_i = b] \times \text{Reform}_t) + \sum_b \beta_b^P \cdot (\mathbf{1}[\text{bin}_i = b] \times \text{PostRev}_t) + \alpha_i + \gamma_t + \varepsilon_{it} \quad (3)$$

where Reform_t indicates the reform-active period (FY2014–2020, including the grandfathering year), PostRev_t indicates the post-reversal period (FY2021 onward), bins are 200m intervals of signed distance, α_i are Meshblock fixed effects, γ_t are year fixed effects, and the reference category is Meshblocks more than 2 km outside the boundary.

Figure 6 reports the results. Inside the upzoned area, the treatment effect is large and statistically significant in every 200m bin except the innermost (1.2–1.4 km, containing only five Meshblocks), rising from roughly +0.5 dwelling units per Meshblock per year near the boundary to over +2.0 in the interior. This reflects the spatial composition of the reform: meshblocks near the boundary predominantly received moderate lot-size reductions (around 48 per cent in the high-treatment category), while those further from the boundary were overwhelmingly in the most permissive zone (84 per cent; Table D1). This compositional gradient also explains why an Anagol et al. (2024)-style diff-in-discontinuities approach, which identifies off variation *at* the boundary, yields a smaller estimate in our setting ($\hat{\beta} = 1.13$, SE 0.53; see Figure D3). On the control side, no bin from -2 km to the boundary is significantly negative and two are significantly positive, giving no evidence of displacement; the most negative bin bounds any hyperlocal displacement at 0.68 dwelling units per Meshblock per year. Summing the bin-level coefficients across the 506 treated Meshblocks in Campbelltown implies roughly 375 additional DA dwelling units per year inside the treated area. This is somewhat larger than the building approvals implied by the SA2-level estimates in Table 2, which is to be expected: not all DAs convert to building approvals.

[14] Meshblocks are the smallest geographic unit defined by the ABS, roughly corresponding to a city block. The sample comprises all residential Meshblocks within 5 km of the upzoned-area boundary, spanning Campbelltown and adjoining parts of the surrounding LGAs (principally Tea Tree Gully, Port Adelaide Enfield, and Burnside). NPSP Meshblocks are excluded from both the treatment and control groups, consistent with the main analysis.

Figure 6: Hyperlocal spillover gradient



Notes: Reference: Meshblocks >2 km outside boundary. Meshblock + year FE; SE clustered by Meshblock. Filled markers = $p < 0.05$. Teal = reform-active (FY2014–2020); orange = post-reversal (FY2021+). Dashed line = upzoned area boundary. Sources: geocoded council DA registers, ABS Mesh Blocks (2021), and Campbelltown zoning classification layers.

To test whether the reform displaced development to neighbouring LGAs more broadly, we use a distance-based ring design on SA2-level building approvals (Butts, 2021). SA2s are classified into concentric rings based on centroid distance from the treated region boundary: Ring 1 (0–5 km), Ring 2 (5–10 km), and a control ring (10–15 km); SA2s with fewer than 100 total approvals are excluded. The ring classification map is shown in Figure D5.

Figure D6 reports the event-study coefficients for each ring. Individual coefficients are insignificant in every reform year, implying no strong evidence for spillovers. With 18 nearby Ring 1 SA2s and 22 additional Ring 2 SA2s, any displacement spread across neighbouring areas would necessarily be small at the individual SA2 level. To fully offset the estimated treatment effect would require an average reduction of around 15 approvals per year in each Ring 1 SA2 if spillovers were confined to the closest ring, or around 7 approvals per year in each SA2 if displacement were spread across both rings. By contrast, our aggregated estimates imply that, at the bottom of our 95 per cent confidence interval, a negative spillover is at most 3 approvals per year per SA2.

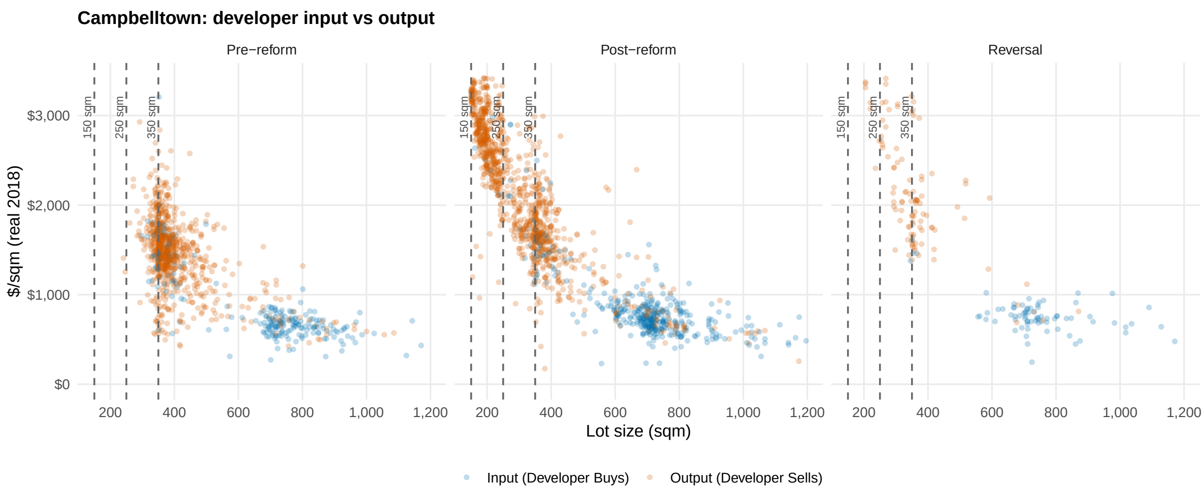
4.3 Why the Reform Bound: The Subdivision Wedge

The increase in construction documented above is large. This section explores the mechanism behind this: a price wedge between large parent lots and smaller subdivided lots that minimum lot size regulation prevents developers from exploiting. The 2014 reform unlocked this wedge, while the 2019 reversal closed it. The mechanism is the one emphasized in the broader literature on land-use regulation and housing supply, and our data let us measure both sides of the wedge directly.

We measure the subdivision wedge by linking REA Group property transaction records covering all residential sales across seven Adelaide LGAs (2007–2024) to South Australian Land Division registers. Matching sales to land divisions by address, spatial coordinates, and temporal proximity classifies each transaction as a *developer input* (a parent lot purchased prior to a subdivision application), a *developer output* (a child lot sold after subdivision), or an ordinary non-developer transaction.

Figure 7 plots per-square-metre prices against lot size for Campbelltown across the three reform periods for developer transactions. Blue dots are inputs: large parent lots (typically 600–1,000 sqm) purchased before subdividing. Orange dots are developer outputs: the smaller child lots sold after subdivision, clustered near the binding minimum. The key feature is the convexity of the schedule: per-square-metre prices rise steeply as lots fall below roughly 400 sqm, because buyers pay primarily for a dwelling, its location, and local amenity rather than for raw land area (a 200 sqm lot does not sell for half the price of a 400 sqm lot). The schedule is steepest in the 150–250 sqm range the reform opened up, where developer outputs cluster and the per-square-metre premium is largest; inputs sit in the flat portion.

Figure 7: Developer transactions on the Campbelltown price-size schedule



Notes: Blue = developer inputs (parent lots); orange = developer outputs (child lots). Real 2018 AUD. Developer transactions matched via REA Group sales × SA Land Division registers. Dashed lines mark the 150, 250, and 350 sqm thresholds.

Consider a developer who purchases a parent lot of size L at total price $p_L \cdot L$, subdivides it into n child lots of size $\ell = L/n$, builds a dwelling of floor area $f(\ell)$ on each at construction cost c per square metre of gross floor area, and sells each finished dwelling at price $p_D^{\text{new}}(\ell)$. Net project revenue is $R = n \cdot p_D^{\text{new}}(\ell) \cdot (1 - s)$, where s is the sales commission. Total cost is:

$$C = c \cdot n \cdot f(\ell) + F(n) + D + p_L \cdot L + T(p_L \cdot L) + \text{FIN},$$

where $F(n)$ captures fixed costs that rise with the number of new lots (DA fees, surveying, utility connections), D is the one-off cost of demolishing the existing dwelling on the parent lot (incurred once regardless of n), $T(\cdot)$ collects transaction taxes on the land acquisition, and FIN is interest on project finance. A project is feasible if the developer's margin $\mu = R/C - 1$ exceeds a hurdle rate $\bar{\mu}$. The regulatory constraint is $n \leq \lfloor L/\bar{\ell} \rfloor$, where $\bar{\ell}$ is the minimum lot size; since the unconstrained optimum typically calls for many small lots, the constraint binds and developers build exactly $n = \lfloor L/\bar{\ell} \rfloor$.[15]

Two empirical facts make subdivision profitable when this constraint is relaxed. First, $p_D(\ell)$ is convex in lot size when expressed per square metre, as shown in Figure 7. Second, construction cost $c \cdot f(\ell)$ scales with floor area, not lot area, so per-dwelling cost is approximately constant in ℓ. Total revenue therefore rises with n while cost rises less than proportionally, with per-dwelling fixed costs $F(n)$ preventing the developer from choosing arbitrarily small lots.[16]

For an 800 sqm parent lot, cutting the minimum from 350 to 150 sqm raises the maximum number of dwellings from two to five, potentially transforming an infeasible project into one with substantial returns. Using the calibrated price-size schedule from Figure 7, that same 800 sqm parent generates gross revenue of \$1.14 million at a 350 sqm minimum (two dwellings at \$568,000 each), \$1.58 million at 250 sqm (three dwellings at \$527,000), and \$2.40 million at 150 sqm (five dwellings at \$480,000). The revenue gain from lowering the minimum from 250 to 150 sqm (\$820,000) is nearly double the gain from 350 to 250 sqm (\$445,000), because each additional child lot in the 150–250 sqm range sits in the steepest part of the price-size schedule. The three panels of Figure 7 confirm this in the data: post-reform, developer outputs shift heavily into the 150–250 sqm range, precisely the steepest part of the schedule where per-square-metre premiums are largest. After the 2019 reversal raised the minimum to 250 sqm, it is not possible to build in this range.

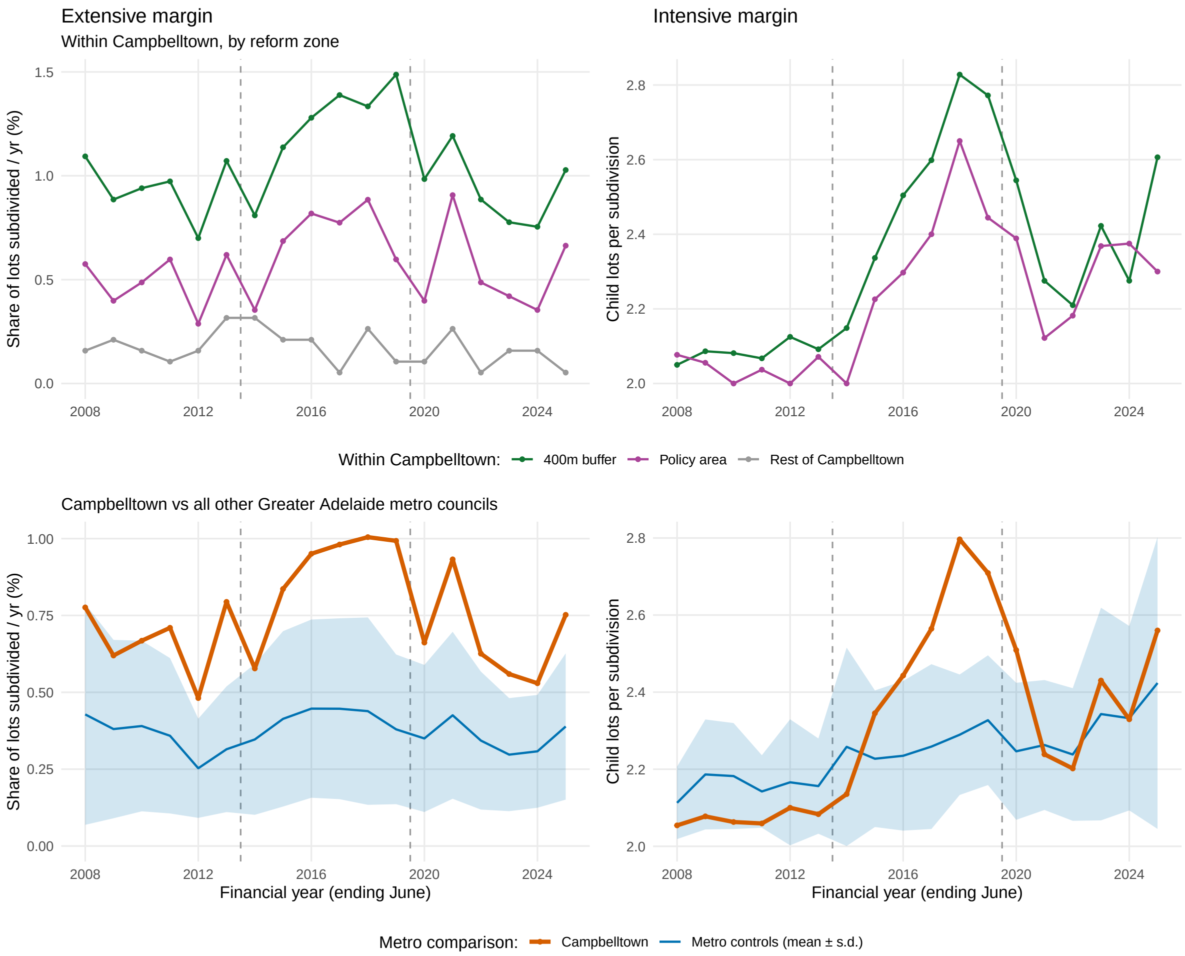
Unlocking this wedge moved subdivision behaviour on both the extensive and the intensive margin (Figure 8). On the extensive margin, the annual share of large lots subdivided in the 400 m transit buffer rose from roughly 0.8 to 1.0 per cent per year after the reform (and from 0.9 to 1.2 per cent restricting to lots of size 400–2,000 sqm), against

[15] We treat both the price-size schedule and parent lot prices as fixed from the developer's perspective. In general equilibrium, increased developer demand for large parent lots would bid up input prices, and increased supply of small subdivided lots would depress output prices, gradually compressing the wedge. Section 4.4 provides direct evidence that input land prices rose only 0–7% on average in Campbelltown post-reform, suggesting these general-equilibrium feedbacks were modest over the reform period.

[16] At sufficiently small lot sizes, per-dwelling revenue would also decline: a lot too small to support a livable dwelling would find few buyers. We do not observe lots small enough for this to bind in our data, but in principle the revenue side also limits how small lots can get.

a flat 0.3 per cent in the untreated remainder of Campbelltown. On the intensive margin, conditional on subdividing, buffer lots per division rose from 2.23 to 2.63, and the share of divisions creating three or more child lots rose from 7 to 33 per cent – the direct signature of the 150 sqm minimum binding. Both margins rise after 2014 and retreat after the 2019 reversal.

Figure 8: Subdivision response on the extensive and intensive margin



Notes: Conventional (freehold) land divisions. *Extensive margin* (left): annual share of 400–2,000 sqm lots subdivided per year. *Intensive margin* (right): child lots created per subdivision. *Top row:* within Campbelltown, by reform zone (400 m buffer, policy area, and the untreated remainder of Campbelltown). *Bottom row:* Campbelltown against the mean ± s.d. of all other Greater Adelaide metro councils. Source: SA land division applications register.

The wedge also predicts *which* lots get divided: large parcels that can be divided into many child lots, and cheap-per-square-metre land where the convex price schedule delivers the largest premium (Figure B4 shows development rates by lot size and price quintiles). Subdivision probability rises monotonically with lot size – across Campbelltown as a whole, about 1.1 per cent per year for the largest-lot quintile against 0.16 per cent for the smallest – and falls in price per square metre – 1.1 per cent for the cheapest quintile against 0.26 per cent for the most expensive.

The buffer still held a large stock of subdividable land when the reform was reversed in September 2019. Subdivision is slow – parent lots in the buffer are divided at only about 1.2 per cent per year – so even after five years of the 150 sqm regime, only around 600 of the roughly 9,100 buffer lots sized 400–2,000 sqm had been subdivided. The fall in approvals after 2019 was therefore caused by the reversal itself, not by the reform running out of lots to develop: had the supply response instead petered out because the profitable opportunities were used up, approvals would have declined with or without the reversal, yet a substantial amount of developable stock remained. By raising the buffer minimum back to 250 sqm, the reversal cut off a large standing inventory of subdividable land – enough, at the buffer's observed pace, to have supplied decades of further construction under the 150 sqm regime.

4.4 Land Prices

Relaxing land use constraints can capitalise into property values, generating windfall gains for landowners who can do more with their land. Greenaway-McGrevy et al. (2021) show that upzoning in Auckland significantly increased redevelopment premiums, with the effect concentrated among underdeveloped properties with the greatest potential for intensification. We test for land price capitalisation using a difference-in-differences design on house price sales across Campbelltown and control LGAs from 2008 to 2023, with specifications ranging from raw repeat-sales to hedonic cross-sections split by lot characteristics (Table C1). The reform-period capitalisation estimates are positive - ranging from zero to 7 per cent in the cross-section - but reasonably small, and only marginally significant. The upper bound of the range comes from matched developer inputs (parent lots that were subsequently divided into 2 or more child lots), which show a 6.6 per cent post-reform increase, significant when standard errors are clustered at the LGA level but not from randomization inference ($p = 0.43$). Larger lots and lots with a higher predicted development probability also see stronger price growth. After 2019, prices in Campbelltown declined by 2–7 per cent relative to controls across most specifications, concentrated among lots in the 400–800 sqm range most affected by the minimum lot size change.

For a typical reform-period parent lot of 700 sqm purchased at \$800/sqm and divided into 4 townhouses, this increase is equal to just \$9,200 per dwelling. To place this in the context of typical development costs, this is substantially less than the sales commission on completed townhouses.[17] Overall, this suggests the impact of the policy on land prices was relatively small, and that the increased development rights did not meaningfully capitalise into higher land values.

[17] A 3% agent fee on a 175 sqm townhouse sold at \$2,500/sqm is approximately \$13,000 per dwelling.

5 Direct Effects: Who Builds and Who Moves In

The construction results in Section 4 establish that the reform generated a large, sustained increase in medium-density housing. We now examine the direct participants in this market: who supplied the housing, who moved into it, what happened to the population as a result, and what they paid. Section 5.1 documents who builds the housing; Section 5.2 traces who moves in through movement chains and the aggregate demographic consequences; and Section 5.3 examines prices and rents.

5.1 Who Builds After Upzoning?

We trace the construction response using development application records from seven Adelaide LGAs: Campbelltown (treatment) and six controls (Burnside, Charles Sturt, Mitcham, Port Adelaide Enfield, Tea Tree Gully, Walkerville), with our data covering 2010–2025.[18]

Each development application names the *applicant*: the party lodging the application, which may be a building company, a design firm acting on behalf of a client, or a private individual. Because both design firms and individuals may be using a developer or construction firm that we cannot identify, we drop them from our main sample.[19] We also drop firms with fewer than 10 lifetime dwelling units over our entire observation window. Our results are qualitatively unchanged when we relax any of these sample restrictions (Appendix F.2). We use DAs rather than building approvals because they are the only data source that identifies the applicant firm, which is the object of interest in this section.

Our main sample comprises firms with at least 10 lifetime dwelling units across the eight LGAs for which we collected registers (the seven analysis LGAs plus NPSP, which counts toward the sample threshold but is excluded from the treatment and control groups). Of these, 118 were active in Campbelltown during the reform period. Even with our sample restrictions, DAs are heavily right-skewed: the top decile (12 firms) produced 55 per cent of all treatment-area dwelling units during the reform, while the bottom half produced just 7 per cent.

Firms with some pre-reform building activity accounted for 87 per cent of treatment-area DAs, so the construction response was driven by established builders. Of the 118 reform-era firms in the main sample, 38 were incumbents already active in Campbelltown before the reform, and a further 37 entrants had been building in other Adelaide councils. The remaining 43 firms had no observable pre-reform activity at all; linking these to

[18] Development Registers for most LGAs largely do not exist prior to 2010, with a few exceptions. Some LGAs, like Salisbury, are excluded in this analysis as the Development Register does not record the name of applicant.

[19] Individuals account for 29 per cent of treatment-area dwelling units during the reform; many likely engaged a builder but lodged the application themselves. Design firms lodge on behalf of clients and account for a further 17 per cent.

their Australian Business Numbers (ABNs), we find that only 17 (14 per cent of reform-era firms) had ABN registrations dating from after 2013. Builders appeared immediately rather than gradually over several years (Figure F1), consistent with existing firms having the capacity to deliver housing but being constrained by regulatory settings prior to the reform.

Nor were these firms new to the product. Thirty-eight per cent of the 118 treatment-era firms were already producing medium-density housing[20] elsewhere in Adelaide before the reform began, and this share rises sharply with firm size: 88 per cent of the largest firms (500+ lifetime units) had pre-reform medium-density experience, compared with only 7 per cent of the smallest (10–20 units). Experienced firms produced 62 per cent of all treatment-area dwelling units during the reform, and 55 per cent of the medium-density units specifically. The remaining 62 per cent of firms had no observable medium-density experience, but account for 38 per cent of treatment-area lodged units.

Concentration in Campbelltown was low before the reform (HHI of 420) and remained low during it (492), despite a large increase in units. The three-firm concentration ratio rose from 22 to 29 per cent during the reform and fell back to 23 per cent after the reversal (Table 3). No single firm held more than 17 per cent of treatment-area market share in any period.[21] That the infill market is so unconcentrated, with dozens of experienced firms already competing across LGA boundaries, helps explain the speed with which firms flooded the new market once the regulatory barrier was removed.

Section 4 showed no aggregate displacement of construction to neighbouring areas. A natural follow-up is whether this holds at the firm level: did individual firms scale back elsewhere to build in the treatment areas? If firms were capacity-constrained, we would expect their non-Campbelltown DA activity to decline when they entered Campbelltown, and to rebound when the reform was reversed. We find neither pattern. Because firms enter Campbelltown at different times, we use the Callaway and Sant'Anna (2021) estimator to formally test for displacement under staggered treatment timing, defining treatment as a firm's first Campbelltown DA and using 134 firms that never entered Campbelltown as the never-treated control group.

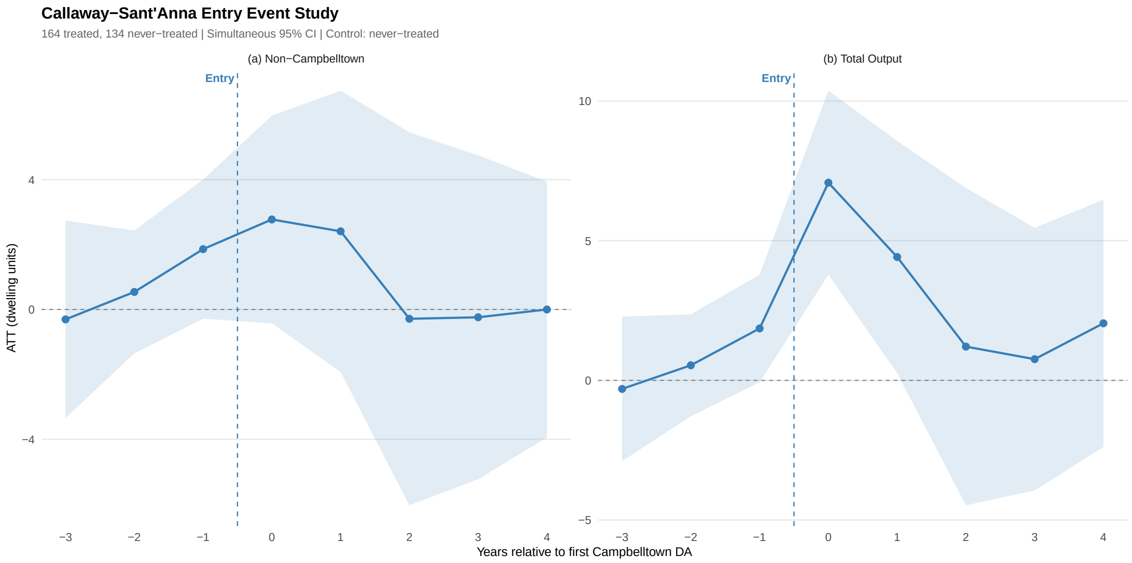
Figure 9 reports the results. The ATT on non-Campbelltown output is small, but is importantly positive: firms that entered Campbelltown did not reduce their activity elsewhere (+0.93 units per firm-year, 95 per cent CI −2.2 to +4.1). The control group is imperfect, since firms that never enter Campbelltown or enter later likely differ from early entrants, but the absence of any decline elsewhere is suggestive that firms did not

[20] We define medium density as semi-detached, row/townhouse, or residential flat building DAs with 30 or fewer units, excluding high-density towers.

[21] Design firms (17 per cent of treatment-area units during the reform, up from 9 per cent pre-reform; Figure 10, right panel) lodge on behalf of developer clients, so measured concentration could under- or overstate the number of independent decision-makers. Individuals account for a further 29 per cent of units, with likely measurement error since many engaged a builder.

simply substitute between areas.

Figure 9: Callaway–Sant'Anna entry event study: effect of first Campbelltown DA on firm output



Notes: Callaway and Sant'Anna (2021) event study estimates. Treatment: year of firm's first Campbelltown DA. Control group: 134 firms that never lodge a Campbelltown DA. 164 treated firms, of which 32 already treated in the first period (2010) are dropped, leaving 132 with staggered entry. Bands show simultaneous 95% confidence intervals. Standard errors clustered at firm level. Source: council development application registers, eight Adelaide LGAs, 2010–2025.

Of the 118 firms active in Campbelltown during the reform, 62 had stopped working there by the post-reversal period, an exit rate of 53 per cent that is higher than the general exit rate of 33 per cent in other, non-treated LGAs without a policy reversal.[22] What distinguished Campbelltown was the behaviour of the 56 firms that stayed. These continuing firms cut their medium-density units from 117 to 24 units per year (a 79 per cent reduction), while their detached-house lodgements were largely unchanged (134 to 118 units per year). Overall, the majority of the total decline in treatment areas was attributable to this intensive-margin response rather than the extensive margin (Appendix F.6). This reversion mirrors the building-approvals dose-response documented in Section 4: once the regulatory permission to build at higher density was removed, both the *level* and *composition* of construction activity reverted toward pre-reform norms.

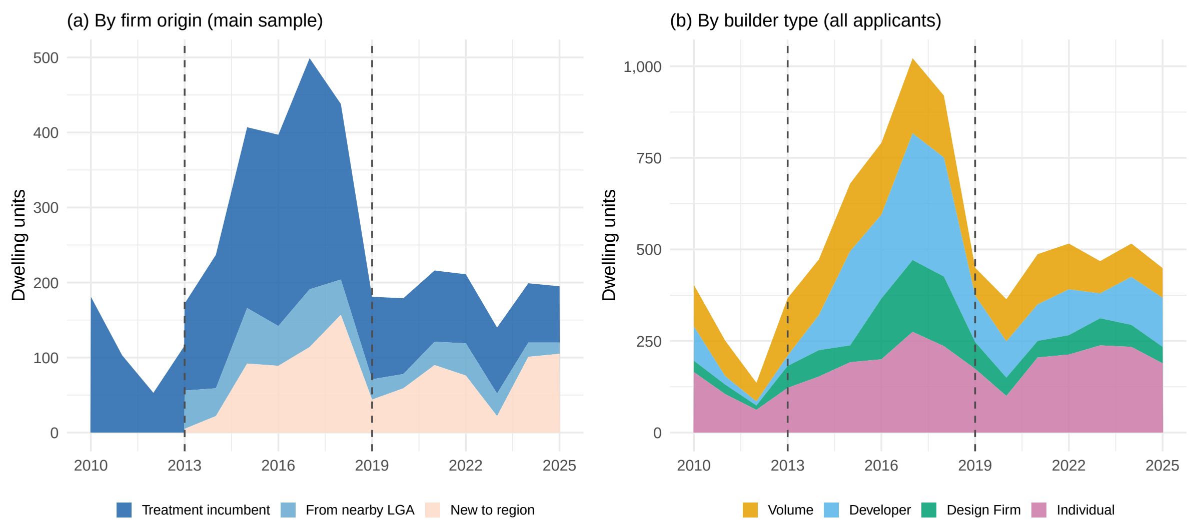
[22]The treatment exit rate is mechanically higher because many firms entered during the reform with small projects and naturally churned out.

Table 3: Builder concentration across three periods

	Units (avg. p.a.)			Firms (avg. p.a.)			MD %			HHI			CR3 (%)		
	Pre	Ref.	Post	Pre	Ref.	Post	Pre	Ref.	Post	Pre	Ref.	Post	Pre	Ref.	Post
Campbelltown	112	333	190	16	17	15	3.9	49.2	19.8	420	492	392	22	28.7	22.6
NPSP	41	82	97	12	11	12	20.3	28.2	31.7	461	295	306	27.6	17.7	18.6
Tea Tree Gully	115	269	284	15	15	16	8.7	21.5	15.3	828	441	322	38.1	25.1	19.7
Burnside	71	74	98	13	10	10	24.4	13.2	9.9	549	507	960	30.5	32	42.4
Region (mean)	171	294	280	16	14	14	17.1	24.8	19.3	559	497	490	29	27.7	26.5
Region (pooled)	1370	2352	2237	39	30	36	18.5	20	15.8	339	341	251	23.2	23.9	17.2

Notes: Non-individual, non-design-firm applicants with ≥10 lifetime units (see text). Pre = 2010–2012; Reform = 2013–2019; Post = 2020–2025. MD = medium density (≤30 units/DA). HHI and CR3 pooled across years within each period. Region (mean) averages LGA-level statistics; Region (pooled) treats all 8 LGAs as a single market. HHI below 1,500 indicates an unconcentrated market. NPSP undertook a parallel reform and is shown for comparison; it is excluded from the treatment and control groups.

Figure 10: Dwelling output in Campbelltown by firm origin and builder type



Notes: Left panel main sample: non-individual, non-design-firm applicants with ≥10 lifetime units. Treatment incumbents = ≥1 DA in Campbelltown before 2013; nearby LGA = DAs elsewhere but not Campbelltown before 2013; new to region = not observed in any sample LGA before 2013. Source: council development application registers, eight Adelaide LGAs.

5.2 Who Moves Into New Housing?

Section 4 established a large, exogenous shock to housing supply. We now ask who moves into this newly constructed housing, and who indirectly benefits through the movement chains it sets in motion. Our central finding is that the reform's distributional impact ran through *quantity*: it set off more of the same kind of movement chains that Adelaide's housing market produces routinely, and those chains reach younger, lower-income, more often renting households within a few links.

The direct beneficiaries of new housing are straightforward to identify: the households who move in. But housing is an integrated market. When one household moves into a new dwelling it vacates another, which someone else can then occupy, triggering a chain of moves that propagates benefits beyond the occupants of the new dwelling. A growing international literature traces these chains and finds that they reach lower-income households within a few links even when the initial construction is market-rate (Mast, 2023; Bratu et al., 2023; Kindström and Liang, 2024; Fang et al., 2026; Kluser and Hauck, 2025). The standard mechanism is straightforward: when new, higher-quality stock is built, higher-income households move into it and free up their existing dwellings for households further down the income distribution. We use linked Census microdata to provide, to our knowledge, the first chain analysis anchored to a policy-induced supply shock, complementing the broader Australian housing supply literature (Hansen and Rambaldi, 2022; Palm et al., 2021).

We construct movement chains using 2021 Census microdata for Greater Adelaide, accessed via the ABS DataLab and linked using deidentified Address Register identifiers (Australian Bureau of Statistics, 2025). The Address Register lets us track which dwellings are newly built (proxied by their identifier first appearing from 2016 onward) and which households occupied each dwelling on census night. We anchor the chains at new dwellings within Campbelltown and define a *mover into new housing* (Round 0) as a household where all members reported being new to that address within the past five years ($N =$ 1,440 such households).

Formally, the chain construction is recursive. Let $\mathcal{D}_0$ denote the set of new dwellings in Campbelltown. For each $d \in \mathcal{D}_0$, observe the household $h_0(d)$ that occupies it at Census night and identify each member's previous address from administrative records.[23] Round 1 dwellings $\mathcal{D}_1$ are this set of prior addresses. Round k proceeds analogously by tracing previous addresses of round-$k{-}1$ occupants. To trace a chain one round further back from a given dwelling, we require that all current occupants moved in during the intercensal period, so that the dwelling was fully vacated by its previous household. Without this restriction, a move out of a shared household (e.g., leaving a spare bedroom in a sharehouse) would be indistinguishable from a full dwelling vacancy, and we would be unable to identify who moved into the freed space. We therefore trace backward only through dwellings that experienced complete turnover. Moves involving family formation (where a mover leaves a parental household) are permitted at the entry point. For each round, we observe the demographic and economic characteristics of the occupants of the vacated dwellings.

The chain attenuates from 1,440 Round 0 movers to 340 by Round 3, for two reasons that are both a result of the chain construction. First, the whole-household restriction

[23]Previous addresses are drawn from administrative data linked via the ABS Address Register. In principle these capture address changes as they occur, but in practice individuals may take a year or two to update their registered address, introducing lag. This measurement lag may contribute to higher observed chain attenuation over the five-year intercensal window than would otherwise be the case.

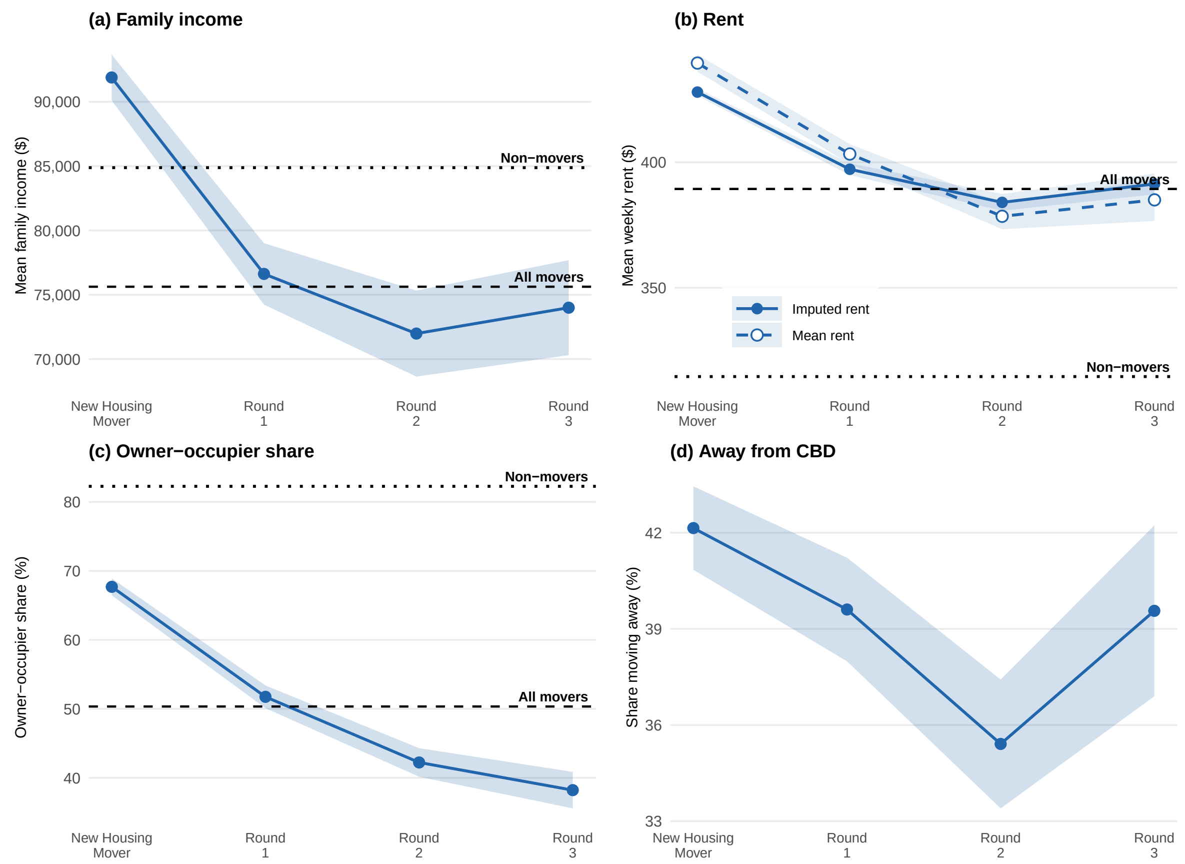
excludes dwellings where any incumbent remains across the intercensal window: when a round-k household vacates an address that is then partly re-occupied by an existing resident (a household member who stayed), we cannot identify the next link cleanly. Second, because we anchor chains at the 2021 Census (the only point at which we observe the characteristics of individuals), and are identifying chains set off by construction since 2016, some moves may still have been in progress at Census night. Both forces make our observed chain a lower bound on the true extent of reallocation. We can, however, characterise some of the ways chains terminate or leak. Household-formation events (where a mover appears to have left a parental household) account for 10–12 per cent of moves at each round; international migrants account for a rising share of later-round occupants (4.3 per cent at Round 0 rising to 14.5 per cent at Round 3). Chains therefore absorb in-migration and new household formation as well as redistributing existing households; they are not closed loops within the existing population.

Consistent with the international literature, the movement chains emanating from Campbelltown's new housing reach progressively lower-income households. Mean family income falls 19.5 per cent from new-housing movers (Round 0) to Round 3, and mean weekly rent at the occupied dwelling falls 12.4 per cent.[24] Figure 11 shows the raw gradients across chain rounds, and Figure 12 reports regression coefficients from a specification comparing the characteristics of each round's occupants to new-housing movers (Round 0 is the reference category). The income gradient is large and statistically significant (Figure 12; Table H2). The rent gradient is shown in Figure 11, panel (b).

Alongside the income gradient, occupants further along the chain sit at earlier lifecycle stages. Movers into new housing (Round 0) are at a specific stage of life: median age 37, two-thirds owner-occupiers, 64.7 per cent partnered, 56.7 per cent with dependent children. By Round 3, occupants are younger (median age 31), more likely to be renting, less likely to be partnered, and less likely to have dependent children. Owner-occupier share drops from 67.7 to 38.2 per cent: by Round 2 the chain has crossed from the owner-occupier into the rental segment of the market (Figure 11, panel (c); Table H2). Roughly a quarter of the observed income gradient is attributable to differences across lifecycle stages: of the \$10,401 gap in median personal income between Round 0 and Round 3, approximately \$2,365 reflects the fact that later-round occupants are younger and therefore at an earlier point in their earnings profile. The remaining \$8,036 reflects reallocation within age cohorts. Both channels appear to operate simultaneously.

[24]We report means when describing aggregate gradients (matching Figure 11) and medians when describing typical occupants (Table H1); income is labelled as personal or family throughout.

Figure 11: Movement chains from Campbelltown's new housing: raw outcomes

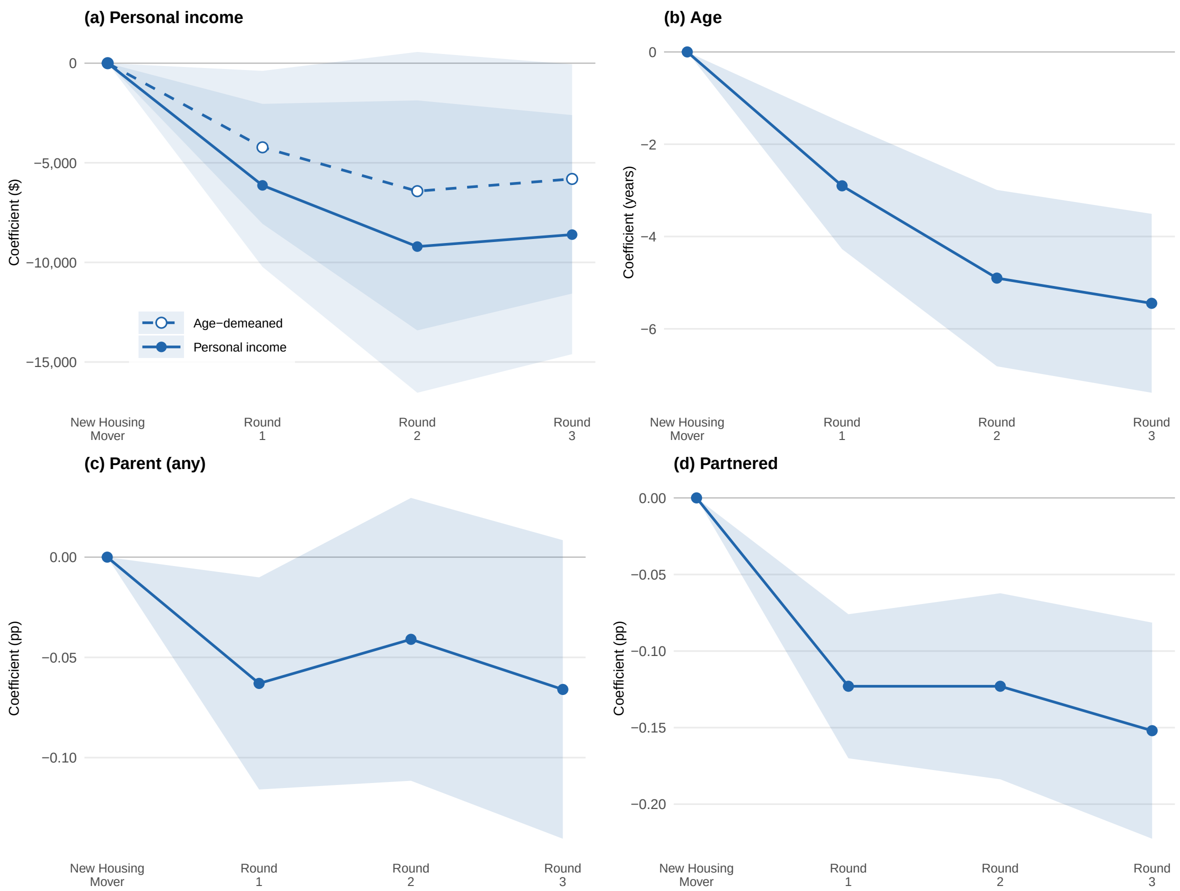


Notes: Ribbons = ±1 SE. Horizontal lines = all-mover (dashed) and non-mover (dotted) benchmarks. Family income annualized. Source: ABS DataLab.

New dwellings in Campbelltown attract upgraders whose existing dwellings (smaller, often rented homes) are no longer suited to the household they are forming. When the upgraders move, the stock they vacate is likely already rental-suited[25], which may help explain how new market-rate construction can reach the rental market without the new stock itself needing to depreciate into the rental segment. In the Adelaide data, quality-adjusted rents decline by roughly 1.5 per cent per year of dwelling age (Figure H1), so depreciation-based filtering would take decades to move new stock into the affordable rental segment. The movement chain mechanism operates on a much shorter timescale by reallocating *existing* rental-suited stock rather than waiting for *new* stock to age into it. Mense (2025) documents a closely related ownership-to-rental channel from new construction in Germany, finding that even apartment construction primarily relieves pressure in the rental segment via vacated existing dwellings rather than by directly adding new rentals.

[25] We observe the tenure status of the dwellings in the movement chain in 2021 but cannot directly verify whether the upgrading household was itself renting or owning prior to 2021. We therefore assume that 2021 rentals were previously rentals, or at least "rental suited" stock.

Figure 12: Movement chain regressions: coefficients relative to new-housing movers



Notes: Panel (a): solid = personal income, dashed = age-demeaned. Ribbons = 95% CI. Round 0 (new-housing movers) is the reference category. Source: ABS DataLab.

Because the reform's construction response was almost entirely in attached housing (townhouses and rowhouses), the structure of attached chains is particularly relevant. Movers into new attached dwellings in Campbelltown are 3.4 years younger and \$9,593 lower in personal income than movers into new detached dwellings, and 16 percentage points less likely to be owner-occupiers (Appendix H). Attached housing therefore enters the market closer to the rental segment to begin with, and the lifecycle anchor sits earlier. The income gradient within attached chains is correspondingly shallower: by Round 3, the gap between attached and detached chain occupants narrows substantially. Detached construction initiates longer chains with steeper income gradients because the anchor sits higher on the income distribution; attached construction initiates chains with shallower gradients that nonetheless converge to a similar endpoint.

The chain results above describe the demographic composition of Campbelltown's moves but do not yet isolate the causal effect of the reform. The relevant counterfactual is the chain that would have unfolded in Campbelltown absent the reform. We approximate this counterfactual by treating attached new dwellings as policy-induced construction (almost all of the construction response in Section 4 came in attached forms) and detached new dwellings as inframarginal, the construction that would have occurred regardless. This assumption is imperfect. Some attached construction would have occurred anyway, and Census dwelling-type classification adds noise (some structures classified as medium-density in development applications appear as separate houses in the Census when they sit on subdivided lots without shared walls). With these caveats, the attached–detached comparison is the cleanest causal cut available.

In spirit, this functions like a triple-difference design:

$$Y_{rcd} = \alpha_r + \alpha_c + \alpha_d + \beta_1(r \times c) + \beta_2(r \times d) + \beta_3(c \times d) + \gamma(r \times c \times d) + \varepsilon_{rcd}, \quad (4)$$

where Y_{rcd} is the round-r mean of an outcome (personal income, age, owner-occupier share, rent) for chains anchored at dwellings of type $d \in \{\text{attached}, \text{detached}\}$ in location $c \in \{\text{Campbelltown}, \text{rest of Adelaide}\}$; α_r, α_c, α_d are round, location, and dwelling-type fixed effects; and γ is the triple-interaction coefficient. We difference out detached-Campbelltown chains under the assumption that detached construction was inframarginal to the reform (it would have occurred regardless), so it captures whatever is Campbelltown-specific about chains generally, leaving γ to isolate the chains set off by the policy-induced attached construction. This asks whether attached chains in Campbelltown evolved differently from attached chains elsewhere in Adelaide, over and above any Campbelltown-specific or attached-specific round effects.

The triple-interaction coefficients at Rounds 1 and 2 are small and statistically insignificant: at Round 1, the Campbelltown $\times$ attached interaction is $-\$3{,}035$ for personal income ($t = 0.58$) and $-\$15$ per week for imputed rent ($t = 1.26$); at Round 2 the income coefficient is $-\$6{,}455$ ($t = 0.55$) and rent $-\$21$ ($t = 1.38$). We restrict interpretation to these rounds. At Round 3 the Campbelltown-attached cell contains only about 70 chains, and the coefficients there (Table H4) are estimated too imprecisely to interpret so we do not read them. These are weak nulls, and we read them as such: the Round 1 income interval ($-\$13{,}400$ to $+\$7{,}300$) admits composition effects twice the size of the Round 1 gradient itself, so only large compositional differences are ruled out. Confining attention to the well-populated rounds, the evidence points to the policy-induced construction not attracting a markedly different type of mover or generating structurally different chains from those attached construction generates elsewhere. On this reading, the reform's distributional impact ran primarily through *quantity*, not *composition*: it produced more of the same kind of chain that Adelaide's housing market produces routinely, and those chains reach younger, lower-income, more rental-oriented households within a few links.

Only 36 per cent of movers into new housing came from elsewhere in Campbelltown; the rest came from across Adelaide. The largest origin LGAs were Tea Tree Gully (9.6 per cent), Port Adelaide Enfield (7.7 per cent), and Norwood, Payneham and St Peters (6.7 per cent). New housing in Campbelltown therefore draws and redistributes movers from across the metropolitan area, not just its immediate surrounds.

The influx of younger households is visible in aggregate statistics. We compare Campbelltown against a control group of 12 inner and middle Adelaide LGAs. Population growth rose above the control mean from 2017 onwards, and median age, which had been rising in line with other LGAs, flattened and then declined (Figure C2). Event study estimates for residential mobility confirm large, statistically significant increases in the share of recent movers by 2021 (Figure C3).

We do not examine whether incumbent lower-income renters were displaced from Campbelltown following the reform, as identifying displacement would require tracking individual tenants over time, which is not possible with our data. Our setting also differs from the contexts in which displacement is most commonly studied. The redevelopment we observe primarily involves the demolition of detached houses on large lots, rather than the replacement of apartment buildings or purpose-built low-income housing that often accompanies gentrification in higher-density urban settings. Nevertheless, understanding whether and how displacement occurred remains an important question for future research.

5.3 Prices and Rents

A growing literature documents hyperlocal rent effects of new construction within a few hundred metres of a new building (Asquith et al., 2023; Pennington, 2021), while other work identifies aggregate city-level price effects of large increases in construction (Greenaway-McGrevy and So, 2025). Our setting falls between these two scales: an LGA-level reform within a broader metropolitan area. The within-metro nature of the shock means we should not expect a detectable Campbelltown-versus-control price or rent effect even if the policy did affect overall affordability. Adelaide is an integrated housing market: households move easily between adjacent LGAs, and any construction-driven price or rent effect of Campbelltown's additional dwellings would be expected to dissipate across the broader metropolitan area rather than sustain a persistent Campbelltown–control differential. Even where supply responds, local price and rent effects are often muted because they dissipate across an integrated metropolitan market (Büchler and Lutz, 2024; Anenberg and Kung, 2020; Been et al., 2019).

The cleanest tests of city-wide increases in construction exploit comparisons across metropolitan areas (Greenaway-McGrevy and So, 2025; Maltman and Greenaway-McGrevy, 2025); we cannot, however, use such comparisons in our setting. Additionally, Maltman and Greenaway-McGrevy (2025) show that upzoning mechanically increases raw price and rent levels relative to quality-adjusted measures, because the additional construction consists disproportionately of new, well-located dwellings that transact at a premium. Naive comparisons of median prices before and after upzoning will overstate any price increase (or understate any price decline), and quality adjustment by dwelling size alone does not resolve this. The natural empirical strategy is therefore to construct several complementary price and rent indices and read the divergence between them as informative about composition.

We construct three complementary indices at the LGA level: a raw median index, a hedonic index controlling for observable dwelling characteristics,[26] and a repeat-sales (or repeat-rents) index that tracks the same properties over time. For each, we run an event study comparing Campbelltown to the control group, with 2012 as the base year. Figure C4 presents the results.

The three indices diverge. The raw median for Campbelltown rises modestly relative to control LGAs in the early post-reform years, perhaps reflecting increased land values or a compositional shift toward transactions of larger, more developable blocks, before dissipating by 2018. The hedonic index shows Campbelltown prices roughly 3–5% above control LGAs over the post period. The repeat-sales index is flat throughout.

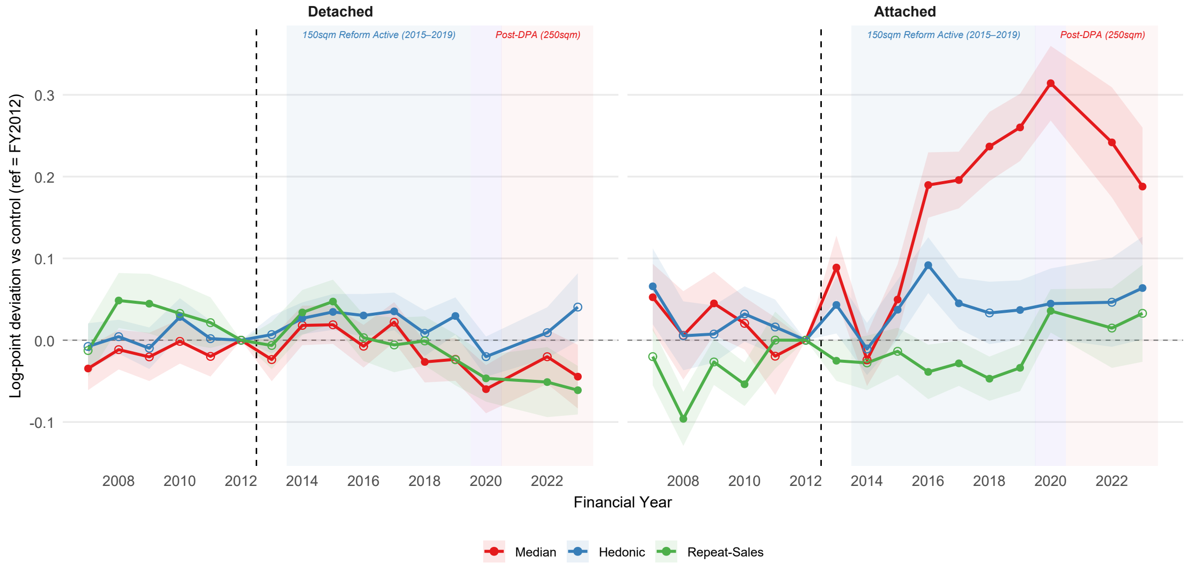
Rents show the same pattern more sharply. Median rents climb steadily over the post-reform period, reaching approximately 9% above control by 2023 (relative to 2012), and hedonic rents rise by around 5%. This runs opposite to the naive expectation that new supply lowers local rents. We read it as composition rather than a true local increase, because tracking the same dwellings over time leaves rents flat across the entire period.

A more direct test of the compositional reading removes the new stock itself, rather than inferring its influence from the wedge between indices. Overlaying the two event studies (Appendix Figure C5), excluding new construction pulls the reform-period hedonic premium down from about 3.8 to 2.3 log points and leaves the repeat-sales index at essentially zero.

The compositional effect is confined to attached dwellings (Figure 13). Detached prices track the control group across all three indices, with no post-reform divergence, unsurprising since detached construction was largely inframarginal to the reform. The attached segment tells a very different story. The raw median index for attached dwellings spikes dramatically, reaching roughly 30 log points above control by 2020, and the hedonic index rises modestly; but the repeat-sales index, which follows the same attached dwellings over time, stays essentially flat throughout. The reform flooded the attached segment with new, well-located dwellings that transact at a premium, mechanically inflating the raw median without any true increase in the price of a given attached dwelling.

[26]Bedrooms, bathrooms, car spaces, floor area, lot area, and dwelling type. The specification does not include dwelling age.

Figure 13: House-price event studies by dwelling type: attached versus detached



Notes: Median, hedonic, and repeat-sales price indices for Campbelltown relative to control LGAs, by dwelling type, in log-point deviations relative to FY2012. Filled points $p < 0.05$. Shading: reform-active FY2014–19, FY2020 grandfathering, post-DPA. Source: REA Group transaction records, matched to ABS SA2–LGA correspondences.

The absence of a detectable LGA-level effect does not imply that the policy had no effect on prices or rents at the metropolitan scale. It means the effect cannot be identified at this level of aggregation without a structural model, because the relevant counterfactual price and rent paths run across cities, not across LGAs within a city. As noted in Section 5.2, movement chains initiated in Campbelltown involved movers from various LGAs across the Adelaide metropolitan area, which would have contributed to price and rent effects dissipating across the city.

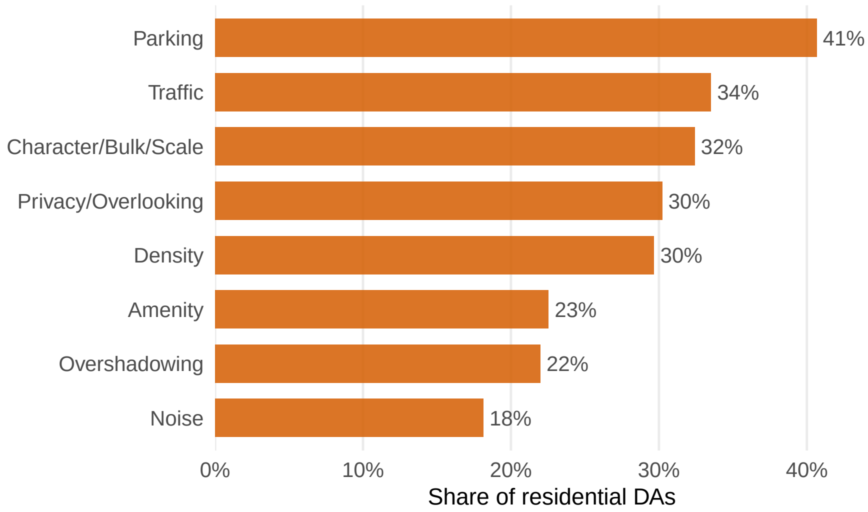
6 Neighborhood Effects

The reform added roughly 1,390 dwellings net, about a 6 per cent increase in the housing stock (Section 4), and drew in a corresponding influx of younger households (Section 5.2). We treat this densification as a policy-induced shock to the local area and ask what it did to the existing community: whether the additional people, dwellings, and consequent demand for on-street parking generated the congestion and amenity costs that opponents anticipated.

Figure 14 shows the categories of formal complaints lodged on residential development applications that were referred to the Development Assessment Panel during the reform period. Opponents raised four main classes of disamenity: parking pressure (41 per cent of DAs), traffic congestion (34 per cent), character, bulk and scale (32 per cent), and privacy and overlooking (30 per cent). A growing literature documents that political opposition to additional housing is often driven by an unrepresentative subset of existing residents, particularly older, wealthier homeowners who participate disproportionately in local permitting processes (Einstein et al., 2019; Brouwer and Trounstine, 2024). Few papers, however, examine whether the disamenities cited by opponents actually materialize under quasi-experimental conditions. We attempt to fill this gap.

In a forthcoming revision to this working paper, we will comment more directly on parking and tree loss at a hyperlocal scale, since both are felt lot by lot rather than suburb by suburb. These results will allow us to fully unpack the amenity effects of the policy.

Figure 14: Community complaints on residential development applications, 2014–2019



Notes: $N = 182$ reform-period DAs. Each DA can raise multiple categories. Categories assigned by keyword classification of formal representations in DAP/CAP agenda papers. Source: 335 digitised Campbelltown council and development assessment panel agenda papers, 2014–2019.

6.1 Traffic and Parking Congestion

Traffic and parking were among the most prominent complaints cited by opponents of the reform (Figure 14). Parking is the harder of the two to measure. On-street parking changes block by block, and the systematic data available to us cover designated monitoring segments on arterial roads, not the residential side streets where parking pressure is felt. We will comment on this in a future revision to this paper. For now, the rest of this section turns to the outcomes for which consistent data exist: traffic volumes on the monitored road network and public transport patronage.

We test traffic congestion using annual average daily traffic (AADT) estimates from the South Australian Department for Infrastructure and Transport (DIT), which records volume estimates for 925 road segments (2012–2024). We estimate a segment-level difference-in-differences specification with segment and year fixed effects, defining treatment as segments located within the Campbelltown LGA boundary (33 segments).

The estimated treatment effect is +2.7%, which is not statistically significant.[27] The

[27] $p = 0.192$ under LGA-clustered standard errors, $p = 0.462$ under randomization inference (Campbell-

95 per cent interval runs from -1.6 to $+7.3$ per cent, so we cannot rule out traffic rising in proportion to the roughly 6 per cent increase in the dwelling stock. One concern is that increased traffic in Campbelltown may spill over onto roads in adjacent LGAs, so we also re-estimate excluding from the control group all road segments in LGAs that share a boundary with Campbelltown. The point estimate rises to +3.6%, consistent with some traffic spillover to adjacent areas, but is still not statistically significant ($p = 0.364$ under randomization). The event study (Figure C9) shows that traffic volumes in Campbelltown track control LGAs closely through 2018, with a modest positive divergence emerging around 2019–2020, consistent with the timing at which construction activity would begin generating additional vehicle trips, but the coefficients remain individually insignificant throughout.

An important limitation is that the DIT data cover designated monitoring segments on arterial and major roads, not residential side streets. Community complaints often focus on local streets experiencing increased through-traffic and parking pressure, for which systematic data do not exist. Our null result therefore applies to the arterial network, so we cannot rule out localized congestion effects on smaller roads.

We also examine public transport patronage using stop-level metroCARD validation data from Adelaide Metro (2016–2025). Because metroCARD data are only available from 2016, two years after the reform, we cannot estimate a full event study with pre-treatment periods. We map 4,462 bus, train, and tram stops to the 13 study LGAs via spatial coordinates, and index each LGA's quarterly boardings per stop to its same-quarter 2016 value to account for seasonality and LGA size differences. Figure C10 shows that Campbelltown's patronage tracks the control mean closely through 2016–2018, before diverging upward from approximately 2019. By 2023, Campbelltown's boardings per stop had grown roughly 10 index points faster than the control group average. This gap persists through 2024–2025. Raw boarding levels are presented in Figure C11. We note that the relative increase reflects Campbelltown recovering faster from the COVID-19 ridership collapse rather than an increase in absolute boarding levels; aggregate patronage across all study LGAs remained well below 2019 levels through 2025, consistent with the shift toward remote work.

6.2 Tree Canopy

Trees are a valued neighbourhood amenity that capitalizes into house prices (Han et al., 2025). Tree loss was among the concerns raised against development applications in the reform period (Figure 14), and like parking it is felt lot by lot rather than suburb by suburb.

At the suburb level we find no sign of disproportionate greenery loss. Aerial laser

town ranks 6th of 13). A map of segment-level traffic changes is presented in Appendix C.

scanning (LiDAR) surveys from Green Adelaide (2018 and 2022) put Campbelltown's canopy cover close to the control-group average in both years, with no evidence of disproportionate net tree loss (Figure C12). Satellite measures tell the same story: annual summer indices of vegetation greenness (NDVI) and land surface temperature, built from Landsat imagery (30 m resolution) from 2010–11 through 2023–24, show no systematic post-reform divergence between Campbelltown and control LGAs (Figure C13).

These measures speak to net canopy across the suburb, not to the fate of individual mature trees on lots that were redeveloped. A development can remove a large established tree while leaving suburb-wide greenness essentially unchanged, and it is that visible, lot-level loss that residents objected to. Measuring it would require tracking canopy at the level of individual lots over time, which we will comment on in a future revision.

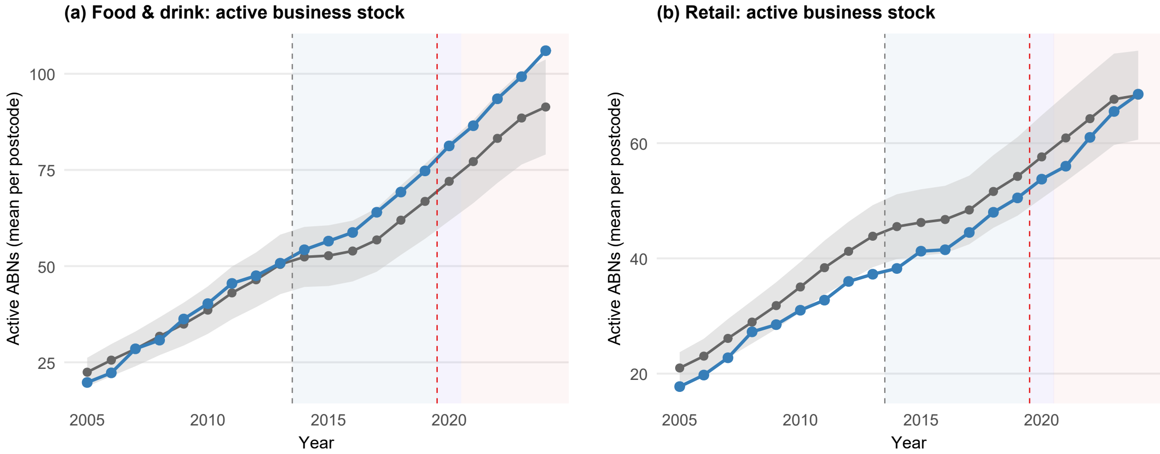
6.3 Local Business Activity

Unlike the disamenities examined above, local business activity is not a source of community complaints against densification. However, higher density and population growth can make businesses that depend on foot traffic, such as cafes and retail, more viable. We test for this and find that business registrations in Campbelltown increased after the reform, with the effect concentrated in consumer-facing sectors. Figure C6 presents SA2-level business counts (2009–2024) decomposed by industry. Raw trends show Campbelltown SA2s diverging upward from controls after 2013, and SA2-level event studies confirm statistically significant increases in Accommodation & Food Services and Retail Trade, with weaker effects in other industries. Randomization inference on the LGA-level business-count DiD gives $p = 0.15$ for accommodation and food services (rank 2 of 13) and $p = 0.23$ for retail. The effect is concentrated in Paradise–Newton and Rostrevor–Magill - the two SA2s where over three-quarters of land was upzoned - while Athelstone, with its larger share of character-protection zoning, shows little divergence from the control mean.

We complement the ABS data with the Australian Business Register (ABR), which records the universe of ABN registrations and allows us to classify businesses by industry using keyword patterns applied to business names.[28] We estimate postcode-level difference-in-differences specifications comparing the four Campbelltown postcodes against control postcodes in 11 LGAs (2005–2024).

[28] An Australian Business Number (ABN) is a unique 11-digit identifier issued to all business entities operating in Australia. Details of the classification method, including web-search verification of ambiguous cases, are provided in Appendix G.

Figure 15: ABN active business stock: raw postcode-level trends



Notes: Blue = Campbelltown (postcodes 5073–5076); gray = control mean ± 1.96 SE. Dashed line marks the 2014 reform. Source: Australian Business Register bulk extract.

Figure 15 shows that food and drink businesses in Campbelltown postcodes diverge upward after the reform; retail stock shows a similar, if more modest, pattern. In the log specification, food and drink stock increased by approximately 11 per cent ($p < 0.01$) after the reform (Table G1). Retail and total stock show positive point estimates but do not reach conventional significance. Event study estimates (Figure G1) confirm parallel pre-trends and post-reform divergence for food and drink businesses.

The ABN-based retail result is weaker than the ABS evidence in Appendix Figure C6. This likely reflects ABN geography: each ABN corresponds to a legal entity registered at a single address, so when a chain retailer opens a new store in Campbelltown, no additional ABN appears in the local postcode because the business operates under a single national registration. The establishment-based ABS data do not have this limitation.

Beyond the count of food and drink businesses, we examine whether densification also expanded the *variety* of dining options. Using web-scraped cuisine classifications for food-related ABNs, we construct postcode-year measures of cuisine diversity. Between 2008 and 2024, the average number of distinct cuisine types per Campbelltown postcode grew from 7.8 to 13.0 (67 per cent), compared with 8.8 to 13.8 (56 per cent) for control postcodes. The average count of ethnic restaurants (those offering a specific non-generic cuisine) per postcode grew from 18.8 to 43.2 in treated postcodes versus 16.4 to 32.9 in control postcodes.[29] These patterns suggest that upzoning attracted not only more food businesses but a broader range of cuisines, consistent with densification supporting a more diverse local amenity mix.

[29] The average Campbelltown postcode hosted 50.8 food businesses in 2008 and 109.5 by 2024; the corresponding control averages are 58.5 and 98.4.

6.4 Crime and Education

We examine two further potential externalities of densification: reported crime and school outcomes. For crime, we use suburb-level offence counts from the South Australia Police (SAPOL) for financial years 2011–2025. For education, we use school-level data from the Australian Curriculum, Assessment and Reporting Authority (ACARA) for 2008–2025, including enrolments and a measure of socio-educational advantage (ICSEA). Table C2 reports difference-in-differences estimates with unit and year fixed effects, clustering standard errors at the LGA level.

Point estimates for crime all go in the same direction: total reported offences fell by roughly 23 per suburb per year in Campbelltown relative to controls, with declines in both offences against the person and against property (Table C2). We do not interpret these declines causally, for three reasons. First, the conventional p-values rest on a single treated LGA cluster. Randomization inference, permuting which LGA is treated, yields $p = 0.85$, 0.54, and 1.00 for the log specifications of total, person, and property offences respectively. Second, the event-study coefficients (Figure C14) show the decline appearing immediately in 2014–2015, before the construction enabled by the reform could plausibly have changed the neighbourhood. Third, log specifications are weaker than levels, suggesting the levels results are partly driven by larger suburbs. The robust conclusion is the one that matters for the amenity question: reported crime did not increase despite substantial densification. Education outcomes show no significant change in school enrolments or socio-educational advantage (Table C2).

6.5 Council Rates Revenue

More housing mechanically means more rateable properties, and therefore more rates revenue unless rates per property fall to compensate. We examine this using data from the South Australian Local Government Grants Commission Database Reports (FY2009–2022).[30] Campbelltown's rateable residential properties grew by 14 per cent from FY2014 to FY2022, about 2.5 percentage points above the control mean. General rates revenue grew by 40 per cent, roughly 7 percentage points above the control mean (Figure C15). On balance, there is suggestive evidence of a modest fiscal dividend, but the effects are not precisely estimated enough to draw strong conclusions.

6.6 Neighborhood Satisfaction

The preceding subsections have examined a range of objective neighbourhood outcomes (traffic volumes, crime rates, school performance, tree canopy, surface temperature, and council finances) and found no evidence that the reform generated detectable disamenities.

[30]The FY2022–23 report was not publicly available at the time of writing, so the panel ends at FY2022.

But objective measures may miss dimensions of neighbourhood quality that matter to residents. We therefore turn to subjective assessments, using data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The sample comprises 11,189 person-year observations across 13 Adelaide LGAs. We estimate person-level difference-in-differences models with person and year fixed effects, clustering standard errors at the LGA level. The Campbelltown treatment group is small ($<$ 100 unique individuals across the full 13-wave panel, yielding 500 person-year observations), so the analysis is necessarily low-powered and best read as a check on whether the objective null results are echoed in residents' reported experience.

Figure C16 presents event studies for five key neighbourhood outcomes. The point estimates all lie in the benign direction: neighbourhood satisfaction (+0.24, on a 0–10 scale), community satisfaction (+0.47), and perceived safety (+0.22) are positive, while traffic noise (-0.06, on a 1–5 scale) and rubbish and litter (-0.21) are flat to negative. With only 13 LGA clusters we judge significance by randomization inference (smallest attainable $p = 0.077$). The randomization-inference p-values run from 0.15 (community satisfaction) to 0.77 (traffic noise). We therefore read none of these as a detectable effect. The subjective measures echo the objective nulls: where they move at all the point estimates lean toward mild improvement rather than the disamenities opponents feared, but none is statistically distinguishable from zero (Appendix C).

7 Conclusion

The policy lessons from Campbelltown's experiment are direct. Minimum lot sizes were a binding constraint on housing supply: cutting them increased approvals by 67 per cent and added roughly 6 per cent to the housing stock. The response was delivered by established local firms with no special capacity required, and the partial reversal pulled construction straight back, with new lots re-bunching at the new floor. The benefits of the new supply spread well beyond its buyers: each round of moves freed a cheaper dwelling for a younger, lower-income, and more often renting household, dispersing the gains across the metropolitan area.

Policymakers need to trade off these benefits against the disamenities reported by incumbent residents, or find levers to manage reported parking congestion and reduced greenery.

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A Institutional Detail

This appendix provides an account of the policy framework, the regulatory parameters, the community response, and the political economy underlying the three policy shocks exploited in this paper.

A.1 The 30-Year Plan for Greater Adelaide

The 30-Year Plan for Greater Adelaide, released in 2010 by the SA Labor Government, set an explicit target that 70 per cent of new housing in Greater Adelaide be built within the existing urban footprint (Government of South Australia, 2010). This was subsequently increased to 85 per cent in the 2017 Update, with a requirement that at least 60 per cent of new infill housing be located in transit corridors and targeted regeneration areas (Government of South Australia, 2017).[31]

The Plan identified three rationales: reducing urban sprawl and protecting agricultural land designated as Environment and Food Production Areas; leveraging existing public transport infrastructure by increasing residential density in its catchments; and providing a more diverse range of housing options for Adelaide's aging population and shrinking average household size. The targets were implemented through council-level Development Plan Amendments, the mechanism described below.

In March 2025, the Greater Adelaide Regional Plan replaced the 30-Year Plan, notably removing the 85 per cent infill target and stating that "no new general infill development areas have been planned" (SA Planning Commission, 2025).

A.2 The Development Plan Amendment Process

Under the SA Development Act, each council maintained a statutory Development Plan setting out zoning, permitted land uses, and parameters for every parcel of land. DPAs could be initiated by either the council or the Minister for Planning. The process required a Statement of Intent agreed by the Minister, a period of investigations and drafting, formal public consultation (minimum four weeks), a public meeting, ministerial approval, and parliamentary review (City of Norwood Payneham & St Peters, 2012, pp. 3–4).

Councils were legally obliged to assess development applications against the parameters in their Development Plan. A council could not refuse an application that complied with the relevant zone and policy area requirements, regardless of community opposition.

[31]SA Planning Commission (nd) notes that "residential infill represents around one-third of the total dwelling stock growth in metropolitan Adelaide each year."

A.3 The Campbelltown Residential DPA: Full Policy Area Parameters

The Campbelltown (City) Residential DPA was released for public consultation from 18 October to 14 December 2012 and took effect in 2014 (Somersoft Property Forum, 2012).

The pre-reform regime. The January 2012 consolidated Development Plan, the last version before the DPA, prescribed a single Residential Zone covering the vast majority of the council area, with two character sub-areas (Poets Corner 750 Policy Area 3 and Poets Corner 620 Policy Area 4). The zone's Desired Character statement envisaged that "residential development will continue to be of low density detached dwellings, on sites with a size greater than 500 square metres, other than within 300 metres of Neighborhood and District Centres, major public transport routes, and large parcels of usable public open space, where sensitive infill of a mix of dwelling types on sites of not less than 350 square metres may be contemplated" (City of Campbelltown, 2012, p. 124). PDC 19 set a minimum site area of 500 sqm with a 7 m frontage for detached dwellings (City of Campbelltown, 2012, p. 129). PDC 9 permitted dwellings on allotments as small as 350 sqm only if they met all three criteria: a minimum site area of 350 sqm, no more than 50 per cent site coverage, and a minimum 7 m road frontage (City of Campbelltown, 2012, p. 127). The Poets Corner policy areas imposed higher minimums: 750 sqm (PA 3, pp. 132–133) and 620 sqm (PA 4, p. 135), both detached only. The pre-reform plan contained no dwelling-type-specific lot size tables: medium-density housing types had no dedicated minimum site area parameters.

The post-reform structure. The DPA restructured the Residential Zone into seven Policy Areas. Its critical design feature was a 400-metre buffer rule: areas within 400m of an existing neighbourhood or district centre, or a major public transport route (Montacute Road, Magill Road, and Lower North East Road) received lower minimum allotment sizes (City of Campbelltown, 2014, Suburban Policy Area 4, PDC 4–5, pp. 138–140). All parameter values below are drawn from this document.

Regeneration Policy Area 3 was the most intensely densified area. Table A1 reports the full parameters.

Table A1: Regeneration Policy Area 3: minimum site areas (2014 regime)

	Within 400m of centres/corridors		Outside 400m	
Dwelling type	Site area	Frontage	Site area	Frontage
Detached	300 sqm	7 m	350 sqm	7 m
Semi-detached	250 sqm	7 m	300 sqm	7 m
Group dwelling	250 sqm	7 m	300 sqm	7 m
Residential flat	150 sqm avg	15 m	150 sqm avg	15 m
Row dwelling	150 sqm	5 m	200 sqm	7 m
Affordable housing (all locations):				
Detached	300 sqm minimum; 1 car space; 24 sqm private open space			
Semi-detached	250 sqm minimum; 1 car space; 24 sqm private open space			
Group dwelling	150 sqm minimum; 1 car space; 24 sqm private open space			
Residential flat	150 sqm average; 1 car space; 24 sqm private open space			
Row dwelling	150 sqm minimum; 1 car space; 24 sqm private open space			

Source: Campbelltown Council Development Plan, consolidated 31 July 2014, Regeneration Policy Area 3, PDCs 5–7, pp. 134–136.

Suburban Policy Area 4 covered the largest geographic area. Outside the 400m buffer, only detached and semi-detached dwellings at 350 sqm were envisaged; group dwellings, row dwellings, and residential flat buildings were not contemplated. Within the buffer: detached 350 sqm, semi-detached 300 sqm, group 300 sqm, residential flat 150 sqm avg, row 200 sqm (City of Campbelltown, 2014, Suburban Policy Area 4, PDCs 4–5, pp. 138–140).

Downzoned / character protection areas. Three Policy Areas were simultaneously tightened:

- **Leabrook Drive PA 5**: 500 sqm minimum, 20m frontage, detached only (City of Campbelltown, 2014, PDC 4–5, pp. 142–143).
- **Foothills PA 6**: 500 sqm minimum, 10m frontage, detached only (City of Campbelltown, 2014, PDC 4–5, pp. 144–146).
- **Low Density PA 7**: Area A at 750 sqm (14m frontage), Area B at 620 sqm (13m frontage), both detached only. Area A required "red brick, stone and masonry building materials" with "terracotta tiles or red painted corrugated iron" roofing, and preservation of listed contributory items (City of Campbelltown, 2014, Low Density Policy Area 7, PDC 4–6, pp. 147–150).

Suburban Activity Node Zone. A distinct zone around Paradise Interchange (O-Bahn BRT) permitted residential flat buildings up to 3 stories / 12.5m, with ground-floor shops (up to 1,000 sqm), offices, and "outdoor dining areas" explicitly envisaged to "add vitality to the street" (City of Campbelltown, 2014, Suburban Activity Node Zone, pp. 154–159).

A.4 The 2019 Rollback: Before-and-After Comparison

On 26 September 2019, a DPA endorsed by Planning Minister Stephan Knoll raised minimum lot sizes for the dwelling types most associated with community opposition (James, 2019). Table A2 compares the 2014 and 2019 parameters, drawn from the two versions of the consolidated Development Plan.

Table A2: Before and after the September 2019 rollback (within 400m of centres/corridors)

Policy Area	Dwelling type	2014 min.	2019 min.	Change
Regeneration PA 3				
	Detached	300 sqm	300 sqm	—
	Semi-detached	250 sqm	250 sqm	—
	Group dwelling	250 sqm	250 sqm avg	+18m site frontage
	Residential flat	**150 sqm avg**	**250 sqm avg**	**+67%**; +18m frontage
	Row dwelling	**150 sqm**	**250 sqm**	**+67%**; 5m→7m frontage
Suburban PA 4				
	Detached	350 sqm	350 sqm	—
	Semi-detached	300 sqm	300 sqm	—
	Group dwelling	300 sqm	300 sqm avg	+1,200 sqm total site; +18m
	Residential flat	**150 sqm avg**	**250 sqm avg**	**+67%**; +1,200 sqm site; +18m
	Row dwelling	**200 sqm**	**250 sqm**	**+25%**
Affordable housing (PA 3)				
	Group, row, flat	150 sqm	150 sqm	**No change**

Source: Campbelltown Council Development Plan, consolidated 31 July 2014 (Regeneration PA 3, PDC 5–6, pp. 134–136; Suburban PA 4, PDC 4–5, pp. 138–140) and consolidated 26 September 2019 (Regeneration PA 3, PDC 5–7, pp. 143–146; Suburban PA 4, PDC 4–5, pp. 147–149).

Key features of the rollback: (i) it targeted exactly the dwelling types that generated the most opposition, row dwellings and residential flat buildings, while leaving detached and semi-detached parameters untouched; (ii) it exempted affordable housing, which retained 150 sqm minimums with 1 parking space; (iii) the new 1,200 sqm total site requirement for group/RFB in PA 4 effectively required lot amalgamation, since a standard 700 sqm suburban lot could no longer support a residential flat building; and (iv) the 400m buffer definition was tightened to require the *entire* allotment to fall within the catchment, measured by straight line to the nearest applicable zone boundary (City of Campbelltown, 2019, Regeneration Policy Area 3, PDC 6, p. 145).

A.5 Norwood, Payneham and St Peters

The adjacent City of Norwood, Payneham and St Peters (NPSP) consulted on its own Residential Development (Zones and Policy Areas) DPA from 15 November 2012 to 31 January 2013, running concurrently with Campbelltown, but did not receive ministerial approval until June 2015 (City of Norwood Payneham & St Peters, 2012, p. 1). NPSP adopted a fundamentally different approach. Where Campbelltown used a distance-based buffer within a single Residential Zone, NPSP replaced seven existing zones with three character-based zones: a Residential Character Zone (7 policy areas), a Residential Character (Norwood) Zone, and a Residential Zone with a Medium Density Policy Area (City of Norwood Payneham & St Peters, 2015, Attachment A). The framework explicitly distinguished "areas where the existing character should be protected, areas where some character change can occur and areas where a new character, possibly at higher densities, will be encouraged" (City of Norwood Payneham & St Peters, 2012, p. 8).

The two councils are otherwise closely comparable. The NPSP council area covers 15.1 km^2 with approximately 16,500 households, a population of 36,500 and median household income similar to Campbelltown's (City of Norwood Payneham & St Peters, 2012, p. 12). The border suburbs (Hectorville and Magill in Campbelltown versus Firle and Marden in NPSP) share similar housing stock vintage and demographics but were subject to different policy treatments at different times.

NPSP minimum lot sizes. Table A3 summarizes the minimum site areas under the NPSP reform, drawn from the final consolidated Development Plan (City of Norwood Payneham & St Peters, 2021). The Residential Zone (PDC 7, pp. 93–94) applied across areas designated for moderate change, while the Medium Density Policy Area (PDC 5, p. 101) applied to areas near centres and transport corridors where higher densities were encouraged. The Residential Character Zone (pp. 110–120) imposed substantially higher minimums (400–500 sqm for detached dwellings depending on suburb) and generally did not envisage medium-density dwelling types.

Table A3: NPSP minimum lot sizes by zone (post-2015 DPA)

Dwelling type	Residential Zone	Medium Density PA
Detached (double garage)	350 sqm	—
Detached (single garage)	330 sqm	—
Semi-detached (single garage)	300 sqm	—
Row dwelling	250–300 sqm	200 sqm
Group dwelling	325 sqm avg	200 sqm avg
Residential flat building	250 sqm avg	No minimum

Source: Norwood Payneham and St Peters (City) Development Plan, consolidated 11 February 2021. Residential Zone: PDC 7, pp. 93–94. Medium Density Policy Area: PDC 5, p. 101. Residential flat buildings in the Medium Density PA had no minimum site area; instead, minimum floor areas per dwelling applied (studio 40 sqm, 1-bed 50 sqm, 2-bed 70 sqm, 3+ bed 100 sqm; PDC 6, p. 101).

A notable feature of the NPSP reform is that the Medium Density Policy Area imposed *no minimum site area* for residential flat buildings, more permissive in this specific dimension than Campbelltown's 150 sqm. Instead, NPSP relied on minimum floor area requirements per dwelling and design controls to manage density outcomes (City of Norwood Payneham & St Peters, 2021, PDC 5–6, p. 97). NPSP's DPA also imposed substantially stronger amenity protections than Campbelltown's (City of Norwood Payneham & St Peters, 2015, Attachment A). In the final consolidated plan, the key provisions were:[32]

- Mandatory 3 hours of winter sunlight to north-facing habitable room windows of adjacent dwellings, and 50 per cent of main living area window surfaces, between 9am and 5pm on the winter solstice (PDC 195, p. 42).
- At least half of ground-level private open space to receive 2 hours of direct sunlight between 9am and 3pm on 21 June (PDC 196, p. 42).
- Single-width driveway crossovers, appropriately separated, and the number minimized to maintain streetscape character, preserve street trees and optimize the provision of on-street visitor parking (PDC 198, p. 42).
- Parking reductions permitted only where they would not result in a greater demand for on-street car parking on existing streets in the locality (PDC 122(g), p. 28).

For NPSP, the 2021 standardisation was particularly consequential, replacing a bespoke character-based framework with standardised zone policies. The NPSP council's 2023 submission highlighted "Loss of Local Policy" as a key concern (City of Norwood Payneham & St Peters, 2023). The standardisation provides an additional explanation for the convergence of construction across regions after 2021.

[32] PDC numbers refer to the consolidated plan (City of Norwood Payneham & St Peters, 2021). The original DPA instrument (City of Norwood Payneham & St Peters, 2015, Attachment A) uses different numbering.

A.6 Community Opposition and Political Economy

The period 2013–2019 saw sustained community opposition to the intensification enabled by the Campbelltown DPA. Complaints, documented on PlanningAlerts.org.au and in media reporting, included: overshadowing from two-story townhouses built close to boundaries; parking overflow from dwellings with single-garage provision onto streets not designed for medium-density; cumulative removal of mature trees and gardens on redeveloped lots; and visible transformation of streetscape character.[33] Mayor Whittaker acknowledged that infill had "brought some wonderful people into the city" but also "a huge number of problems as far as traffic is concerned, parking is concerned, there are disputes over fences" (ABC News, 2019). As the Mayor noted, "it took a couple of years before the issues around the size of blocks in a number of the zones called regeneration areas became apparent. The aim was to increase housing diversity but the road and other infrastructure hasn't been coping" (Whittaker, 2019).

Assessment panel data. To systematically characterise the nature and intensity of community opposition, we digitise Campbelltown City Council and Development Assessment Panel agendas spanning 2014 to 2020 (335 documents totalling over 25,000 pages), extracting formal representations on individual development applications. This yields 194 residential DAs assessed by the DAP/CAP over the full 2014–2020 period. Of the 182 assessed during the reform period (2014–2019), 102 attracted at least one formal representation. Table A4 reports the complaint categories raised. Parking was the most frequent concern (cited in 41 per cent of reform-period residential DAs), followed by traffic (34 per cent), character, bulk and scale (32 per cent), and privacy and overlooking (30 per cent). Several of these categories map directly to outcomes tested in Section 6.

[33]Public comments on PlanningAlerts.org.au for Campbelltown City Council applications include: "It seems there will be no space to the boundary and the structures will impose on neighbours yards like a concrete monolith blocking all sun" and "I fear that this suburb will ultimately be bare of any trees and instead will be wall to wall concrete" (PlanningAlerts, 2021).

Table A4: Complaint categories in formal representations on residential DAs, 2014–2019

Category	DAs with complaint	% of DAs
Parking	74	41%
Traffic	61	34%
Character / bulk / scale	59	32%
Privacy / overlooking	55	30%
Density	54	30%
Amenity	41	23%
Overshadowing	40	22%
Noise	33	18%
Setbacks	31	17%
Safety	20	11%
Property values	20	11%
Tree loss / canopy	11	6%

Notes: $N = 182$ reform-period DAs (FY2014–FY2019). Each DA can raise multiple categories. Categories were assigned by reading each application's formal representations and coding the concerns residents actually raised, excluding matters appearing only in officer site descriptions or referrals; three DAs whose agendas contain no representation text could not be coded. Source: 335 digitised Campbelltown council and development assessment panel agenda papers.

Despite this opposition, the panel granted 85 of the 93 represented DAs for which a decision is recorded in the minutes (91 per cent); only 8 were refused. Granted DAs averaged slightly *more* representations (3.3) than refused DAs (2.8), indicating that opposition volume did not predict refusal. This reflects the structural independence of the assessment panel: independent expert members outnumbered elected councillors and applied the Development Plan criteria as written, criteria that, following the 2014 DPA, generally supported higher-density development. Staff recommendations were overwhelmingly for approval, and independent members rarely departed from staff advice. The result was a fundamental disconnect: the political arm of council grew increasingly hostile to infill, while the quasi-judicial assessment panel continued to approve virtually all compliant proposals.

The DPA's effect on assessable development was immediate and legally precise. At 13 & 15 Piccadilly Crescent, Paradise, the DAP refused a 16-dwelling development on 17 June 2014, six weeks before the DPA took effect, finding the proposal "at odds with the Desired Character of the Zone"; the approval motion "lapsed for want of a Seconder" (Campbelltown City Council, 2014a, pp. 14–17). At the same panel's next meeting on 19 August 2014, the assessing officer noted that "if the applicant was to withdraw this application and lodge a new application of similar design the proposal would be consistent with the desired character for that policy area" (Campbelltown City Council, 2014b, p. 17). The same development type went from non-compliant to compliant in six weeks, illustrating that the DPA did not gradually shift incentives but rather created a discrete legal discontinuity in what could be built.

Council spent 2015 and 2016 trying to claw back standards. In September 2015, councillors identified a "building boom occurring in Campbelltown City as a result of the changes made to the Development Plan in 2014" (Campbelltown City Council, 2015a, p. 17). The attempt took the form of a Miscellaneous DPA proposing increased minimum site areas (200 sqm, up from 150 sqm), tighter privacy setbacks, and height controls near open space. The Department of Planning, Transport and Infrastructure (DPTI) blocked almost every proposal: "DPTI staff indicated they would not be supportive of this amendment as opportunities for higher density development were integral to the intent of the regeneration policy area" (Campbelltown City Council, 2015b, SPDPC Minutes, p. 47). The DPA was adjourned three times and shelved entirely in October 2016 (Campbelltown City Council, 2016a, p. 22). The only DPA the state would approve was one promoting growth: Council's Activity Centres DPA had to be repackaged as the "Employment Growth DPA" because the Council believed the Government would only approve DPAs that "deliver infill and investment outcomes" (Campbelltown City Council, 2016b, p. 321).

By 2017, community opposition had grown from individual complaints into coordinated action. Infill was by then operating at scale: 288 dwelling applications and 183 subdivisions creating 340 new allotments in 2016 alone (Campbelltown City Council, 2017, p. 11). Planning assessment was also a fiscal burden: assessment cost Council $1,053,500 in FY2015 but generated only $439,200 in application fees, a $614,300 annual deficit (Campbelltown City Council, 2016c, p. 21). Council was subsidizing the assessment of development it did not want. A May 2018 Planning Workshop for elected members crystallized five themes: parking, built form, vegetation, character, and stormwater. The workshop minutes included concerns about "incoming and uncaring residents" and a desire to "slow the change to a rate acceptable to existing residents" (Campbelltown City Council, 2018a, p. 166). Vincent Tarzia MP (Member for Hartley) independently surveyed his electorate, drawing over 200 responses identifying parking congestion and site areas as the most significant issues (Campbelltown City Council, 2018b, p. 74).

The impending statewide grandfathering to a new Planning and Design Code, originally scheduled for July 2020, triggered the rollback. Mayor Whittaker publicly identified a "small window of opportunity" to amend Campbelltown's zoning before the Code locked in the existing parameters (Whittaker, 2019). The March 2018 SA state election, which brought the Liberal Party to power and Stephan Knoll to the planning portfolio, created a political opening the previous Labor government would not have provided. Council also rejected a $20,000 infill education campaign that would have funded "best practice" exhibition homes and community workshops; the proposer argued that "infill development is here to stay and education programs that encourage acceptance ... will help us in the grandfathering period," but council resolved not to allocate the funds (Campbelltown City Council, 2019, p. 195). In September 2019, a Development Plan Amendment raised the minimum lot size for apartments from 150 sqm to 250 sqm, and for row dwellings from 150–200 sqm to 250 sqm, introduced a 1,200 sqm total site area requirement for multi-dwelling developments in Suburban Policy Area 4, and tightened the 400 m buffer definition (James, 2019). A councillor described the Planning Minister's endorsement as an "early Christmas present" for residents (Barbaro, 2019).

Even after the reversal, the assessment panel's independent majority meant elected members could not block individual DAs that met the (now tightened) criteria. In January 2020, an elected member moved to refuse an 11-dwelling development at Lennox Street, Campbelltown; the motion "lapsed for want of a Seconder" from the independent panel members (Campbelltown City Council, 2020).

A.7 Broader National Context

The Campbelltown experiment sits within a broader national conversation about the costs of restrictive land-use regulation. Coates et al. (2025) document that approximately 80 per cent of residential land near Australian CBDs is restricted to three stories or fewer, and that minimum lot size and density controls are among the most binding constraints on construction in established suburbs. Their modelling suggests that a nationally co-ordinated medium-density reform - permitting townhouses and low-rise apartments in well-located suburbs - could lift construction by approximately 67,000 additional homes per year and reduce rents by around 12 per cent in the long run. Campbelltown's experience provides direct quasi-experimental evidence on the local effects of exactly this type of reform: the 67 per cent increase in building approvals documented in Section 4, driven by townhouses and row dwellings on lots as small as 150 sqm, is precisely the construction response that national modelling predicts but that has rarely been observed under controlled conditions in an Australian setting.

A.8 Ministerial DPAs Affecting Control LGAs

In addition to the council-initiated residential DPAs that form the treatment in this paper, the SA Minister for Planning initiated several DPAs during the study period that created new Urban Corridor Zones along major arterial roads in inner and middle Adelaide. These Ministerial DPAs implemented the 30-Year Plan's corridor densification strategy and affected multiple control LGAs. They are distinct from the Campbelltown and NPSP residential DPAs in both scope and mechanism: rather than reducing minimum lot sizes across a broad residential zone, they rezoned specific corridors and large catalyst sites from residential or commercial zones into new Urban Corridor Zones permitting medium-to-high density mixed-use development (typically 3–7 stories).

The **Inner Metropolitan Growth DPA** (approved 2013) amended the Burnside and Prospect Development Plans (Minister for Planning, 2013). In Burnside, it created an Urban Corridor Zone along sections of Greenhill Road and Fullarton Road, permitting development up to 6–7 stories with ground-floor commercial uses. In Prospect, it created Urban Corridor Zones along Main North Road and Churchill Road with similar provisions. The DPA was consulted concurrently with the Campbelltown residential DPA (December 2012 to February 2013), meaning its effects overlap temporally with the treatment period. Both Burnside and Prospect are control LGAs in our estimation sample.

The **Inner and Middle Metropolitan Corridor (Sites) DPA** (approved December 2017) amended the Development Plans for NPSP, Unley, and West Torrens (Minister for Planning, 2017). It investigated twelve specific large sites and rezoned eight of them into Urban Corridor Zone policy areas. Four sites fell within NPSP: the Hackney Hotel site on Hackney Road (Site 1), a Rundle Street site in Kent Town (Site 2), a site on Beulah Road in Norwood (Site 3), and the former Caroma Industries site on Magill Road in Norwood (Site 4). Two further NPSP sites (The Parade, Norwood and the Otto Timber site on Magill Road, Stepney) were removed from the final DPA on heritage and interface grounds, and two sites outside NPSP (Unley Road, Malvern and Railway Terrace, Mile End) were removed following community opposition. The remaining sites were in Unley (Glen Osmond Road, Anzac Highway) and West Torrens (Richmond Road), all control LGAs. The DPA enabled building heights of 3–6 stories on these catalyst sites, with specific design policies tailored to each site's context.

These Ministerial DPAs have two implications for our identification strategy. First, to the extent that corridor rezonings increased building approvals in Burnside, Prospect, Unley, and West Torrens, they inflate the control group's post-period outcomes and bias our treatment effect estimates *downward*, making our results conservative. Second, the four NPSP sites rezoned by the 2017 Sites DPA could contribute a small number of additional approvals within NPSP from approximately 2018 onward. However, since NPSP is excluded from both the treatment and control groups in the main building-approvals analysis (Section 3), these sites do not affect the main estimates. In Appendix E, where NPSP is included in a pooled treatment group, their contribution to aggregate SA2-level approvals is likely modest relative to the hundreds of medium-density approvals driven by the 2015 NPSP residential DPA.

A.9 Summary Timeline

Table A5: Key dates in the Campbelltown upzoning experiment

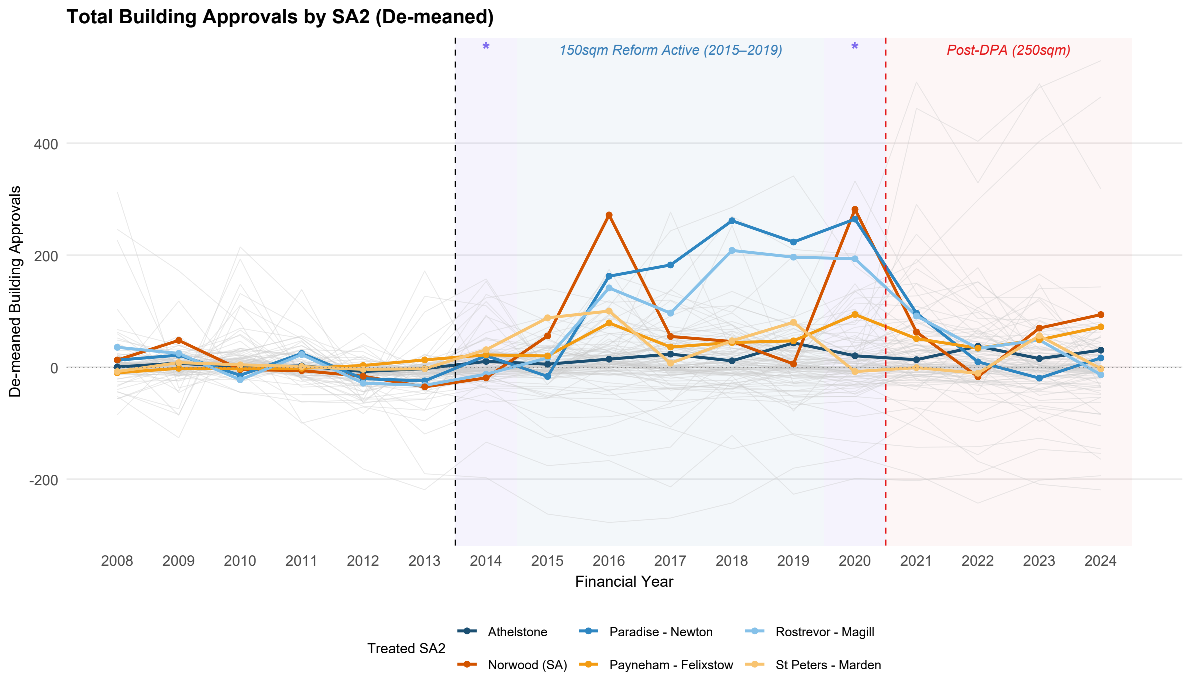
Date	Event
2010	30-Year Plan released (70% infill target)
Oct–Dec 2012	Campbelltown Residential DPA public consultation
Nov 2012–Jan 2013	NPSP Residential DPA public consultation
2013	Inner Metropolitan Growth DPA: Urban Corridor Zones in Burnside, Prospect
Jul 2014	Campbelltown DPA takes effect (150 sqm minimums)
Jun 2015	NPSP DPA approved by Minister
2017	30-Year Plan updated (85% infill target)
Dec 2017	Inner & Middle Metropolitan (Sites) DPA: catalyst sites in NPSP, Unley, W. Torrens
Mar 2018	Marshall Liberal government elected; Knoll becomes Planning Minister
Nov 2018	State Planning Commission announces phased rollout of Planning and Design Code; Greater Adelaide councils targeted for mid-2020 but later delayed
Sep 2019	Campbelltown rollback: 150 sqm → 250 sqm (row dwellings and RFB)
Oct 2019–Feb 2020	Phase Three (Urban Areas) Code public consultation
Dec 2019	ABC reports Adelaide "experiencing a subdivision revolution"
Mar 2021	Planning and Design Code takes effect; replaces all urban council Development Plans in Greater Adelaide
Mar 2025	Greater Adelaide Regional Plan removes 85% infill target

Notes: Sources: Campbelltown Development Plan consolidations, SA Government Gazette notices, State Planning Commission publications, and contemporaneous media reporting.

B Additional Quantity Results

B.1 SA2-Level Raw Data

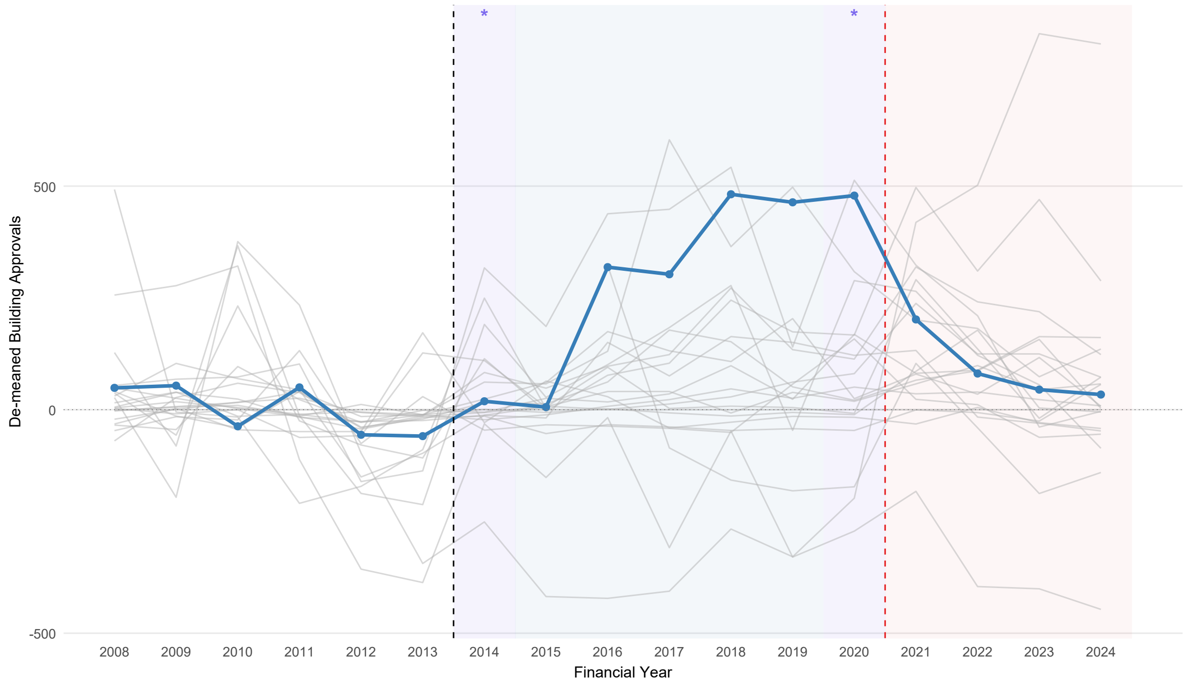
Figure B1: Total building approvals by SA2, de-meaned (FY2008–2024)



Notes: De-meaned by pre-treatment (FY2008–2013) average. Gray = controls; blue = treated Campbelltown SA2s. Purple shading = FY2014 announcement and FY2020 grandfathering; blue shading = reform active (FY2015–FY2019); red shading = post-reversal (FY2021–FY2024). The reform was formally consolidated on 31 July 2014, at the start of FY2015, so we treat FY2014 as the announcement year and FY2020 as the grandfathering year following the September 2019 reversal. Source: ABS Building Approvals, SA2 panel.

B.2 LGA-Level Raw Data

Figure B2: Total building approvals by LGA, de-meaned (FY2008–2024)

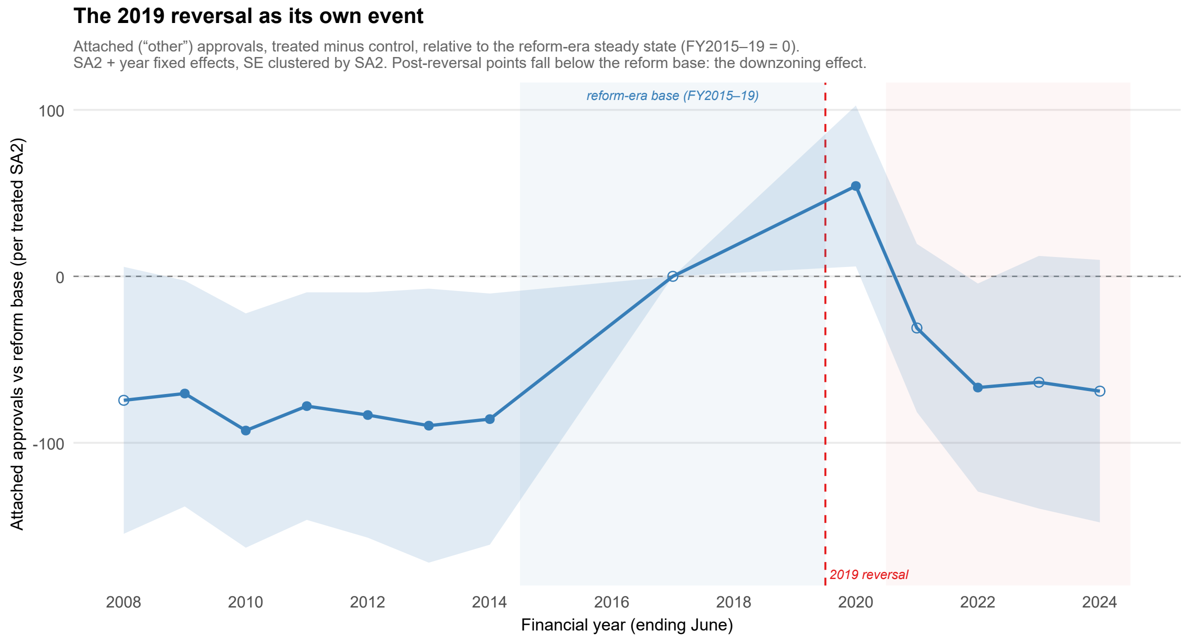


Notes: De-meaned by pre-treatment (FY2008–2013) average. Gray = controls; blue = Campbelltown. Blue shading = reform-active (2015–2019); red = post-DPA (2021–2024); purple = announcement/grandfathering. Source: ABS Building Approvals, aggregated to LGA.

B.3 The 2019 Reversal as Its Own Event

The treatment is non-absorbing: the reform switched on in 2014 and partly off in 2019. The two-period specification measures both the reform-active and post-reversal periods against the pre-reform baseline, so the reform-era build-up and the post-reversal decline net out, leaving only the small positive residual in Table 2. To isolate the reversal we re-centre the event study on the 2019 reversal and measure attached approvals against the *reform-era* steady state (FY2015–2019) rather than the pre-reform baseline (Figure B3).

Figure B3: The 2019 reversal as its own event

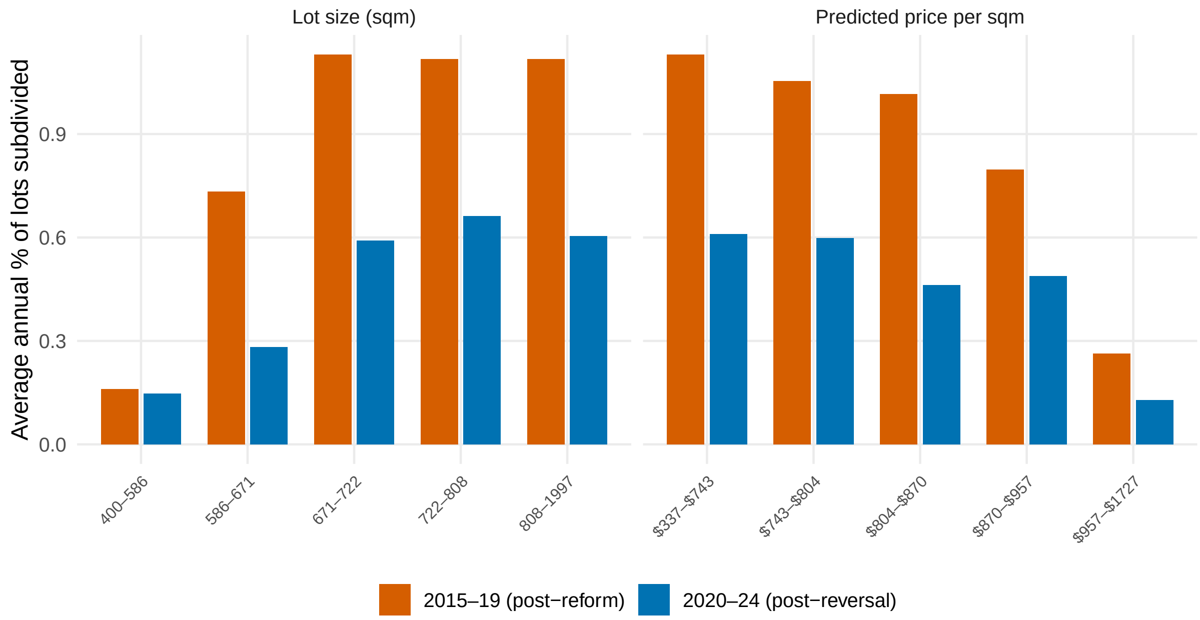


Notes: Event study of attached ("other") building approvals, treated (Campbelltown) minus control SA2s, measured relative to the reform-era steady state (FY2015–2019 = 0, shaded). SA2 and year fixed effects, standard errors clustered by SA2; filled points significant at 5 per cent. Source: ABS Building Approvals, SA2 panel.

B.4 Which Lots Got Developed

Figure B4 sorts every Campbelltown lot (400–2,000 sqm) into quintiles of lot size and predicted price per square metre, and plots the average annual share subdivided in the post-reform (2015–19) and post-reversal (2020–24) windows. The share rises monotonically with lot size and falls monotonically with price per square metre, and is uniformly faster post-reform than post-reversal. These are exactly the lots the subdivision wedge (Section 4.3) makes most profitable to divide: large parcels that the binding minimum splits into many child lots, and cheap-per-square-metre land where the convex price-size schedule delivers the largest premium.

Figure B4: Development rates by lot size and price per square metre



Notes: Annualized share of all lots (400–2,000 sqm) subdivided over each window, by characteristic quintile and period. Orange = 2015–19 (post-reform); blue = 2020–24 (post-reversal). Sources: REA Group transaction records and SA land division applications register.

B.5 Robustness: Log Specification Dropping Zeros

As a robustness check on the Poisson PPML specification in Table 2, we estimate a two-period DiD using log(total dwellings), dropping SA2-year observations where total dwellings = 0 (approximately 6.7 per cent of the sample). Results are qualitatively consistent with the PPML estimates.

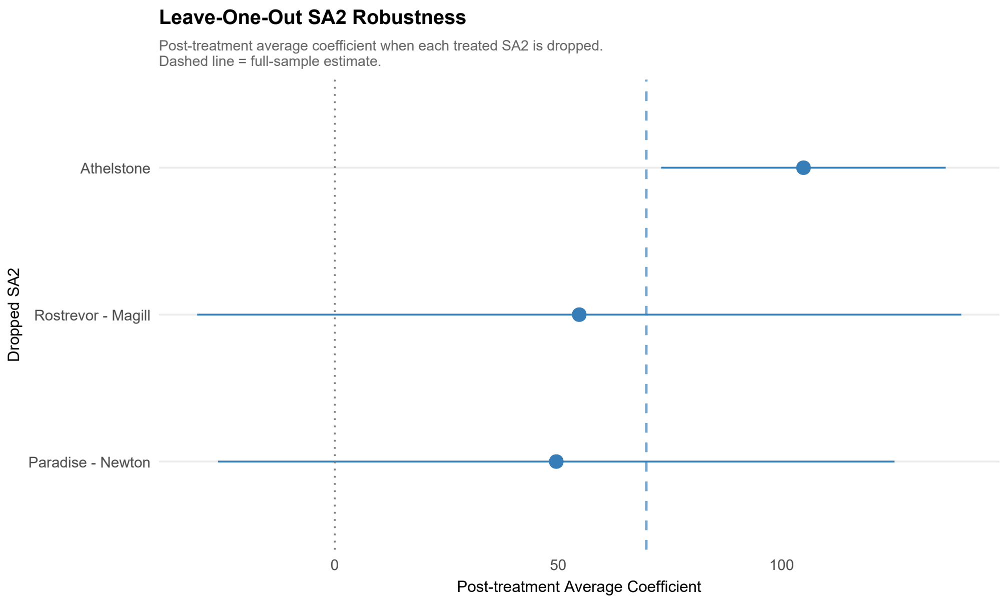
Table B1: Two-period DiD: log(total dwellings), dropping zeros (FY2008–2024)

	SA2 Level	LGA Level
Treated × Post (2014–2020)	0.43***	0.38***
	(0.08)	(0.08)
Treated × Post (2021–2024)	0.17	−0.12
	(0.14)	(0.11)
Fixed effects	SA2 + Year	LGA + Year
Observations	1,672	340

Notes: Dependent variable is log(total dwellings). Observations with total_dwellings = 0 are dropped. Standard errors clustered at the SA2/LGA level. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. Source: ABS Building Approvals, FY2008–2024.

B.6 Leave-One-Out SA2 Robustness

Figure B5: Leave-one-out SA2 robustness



Notes: Whiskers = ±1.96 SE. Dashed line = full-sample estimate. Source: ABS Building Approvals, SA2 panel.

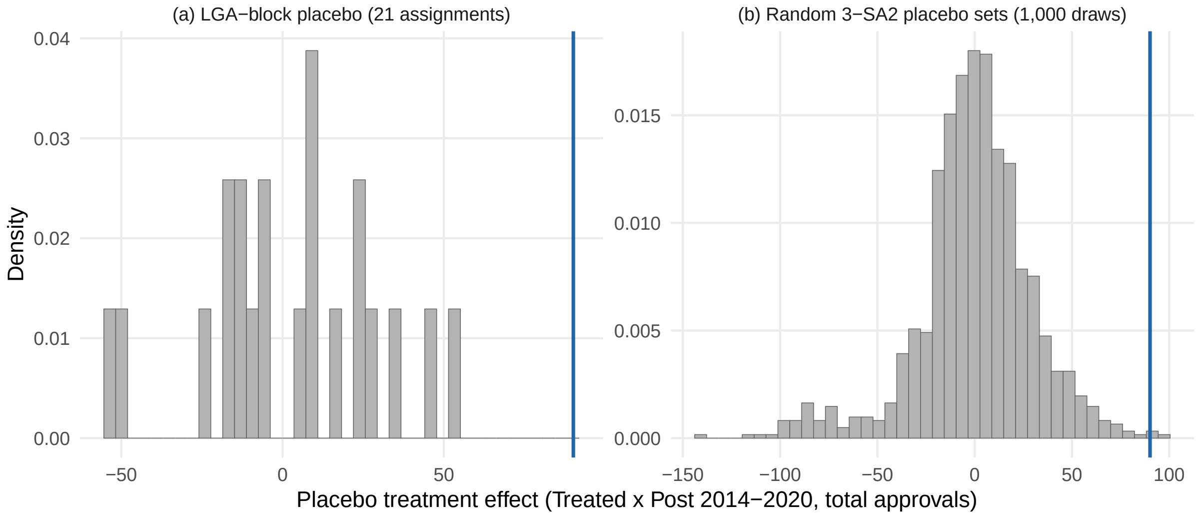
B.7 Inference with Few Treated Units

The construction analysis has three treated SA2s within a single treated LGA, a configuration in which cluster-robust standard errors are unreliable (Conley and Taber, 2011; Ferman and Pinto, 2019; MacKinnon et al., 2023). This appendix reports design-based inference for the Treated × Post (2014–2020) coefficient on total approvals from Table 2.

We reassign placebo treatment and re-estimate Equation 1, building the distribution of the estimate under the sharp null. Two assignment schemes respect different features of the design. The first assigns treatment to all SA2s of each control LGA in turn, mirroring the council-level assignment of the actual reform; Campbelltown's SA2s are dropped from placebo runs. The actual estimate exceeds all 21 placebo estimates, giving $p = 0.045$, the smallest value attainable with 21 assignments. The second draws 1,000 random sets of three control SA2s, giving $p = 0.016$. Figure B6 plots both placebo distributions. The aggregated test discards the within-LGA variation that the SA2-level design exploits, which is why the SA2-level analysis is our primary specification. Randomization inference on the PPML semi-elasticity is weaker (LGA-block $p = 0.29$) because proportional swings are common in small-baseline LGAs even when level changes are modest; the levels result is the appropriate basis for judging the magnitude of the response.

As a complementary estimator suited to few treated units, we apply synthetic difference-in-differences (Arkhangelsky et al., 2021) to the balanced FY2008–2020 panel, with treatment from FY2014. The estimated effect is 92.4 additional approvals per treated SA2-year (placebo-in-space standard error 27.3), nearly identical to the two-way fixed effects estimate. We do not report a pure synthetic control estimate: with six pre-treatment years, the unit weights are fit on too few observations for the resulting estimator to be reliable.

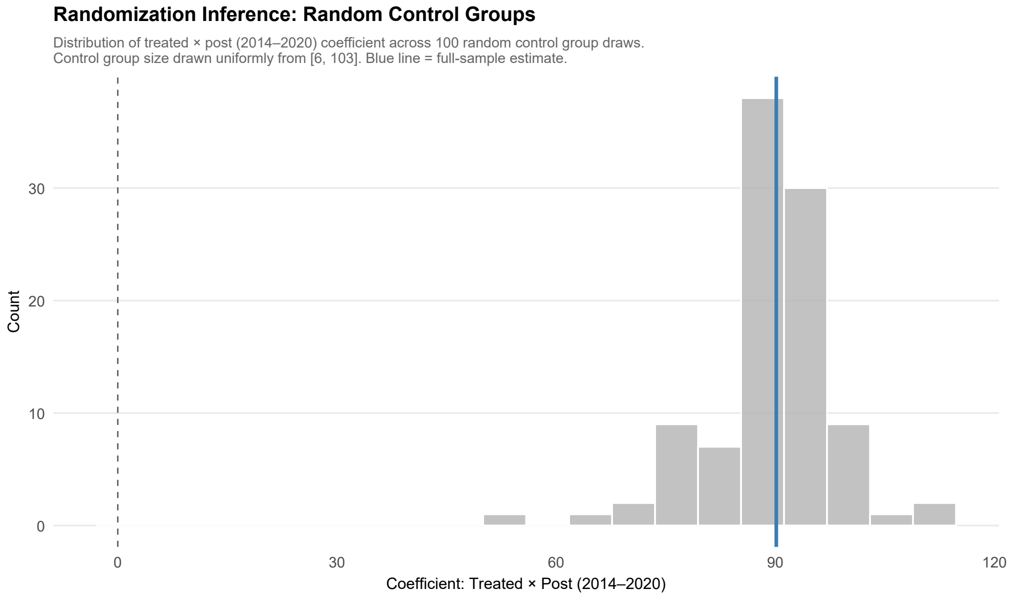
Figure B6: Randomization inference: placebo distributions for the headline construction estimate



Notes: Panel (a): treatment reassigned to all SA2s of each control LGA (21 assignments). Panel (b): 1,000 random three-SA2 placebo sets. Blue line = actual estimate (90.1). Campbelltown SA2s excluded from placebo runs. Source: ABS Building Approvals, SA2 panel.

A separate question is whether the estimate depends on the particular control set. In each of 100 iterations we draw a random subset of the 103 control SA2s (with subset size drawn uniformly from 6 to 103) and re-estimate the two-period DiD; the distribution is tightly centred on the full-sample estimate with all draws positive (Figure B7). This speaks to control-set composition rather than to the sampling distribution of the estimator, which is why we treat the randomization tests above as the primary inference exercise.

Figure B7: Control-group composition: random control subsets



Notes: $N = 100$ draws, $k \sim \text{Uniform}[6, 103]$ control SA2s per draw. Blue line = full-sample estimate. Source: ABS Building Approvals, SA2 panel.

B.8 Corridor DPA Robustness

Figure B8: Robustness to excluding corridor-affected control LGAs

Notes: Orange = control group excludes ministerial corridor LGAs (Burnside, Prospect, Unley, West Torrens). Blue = full-sample estimate. NPSP already excluded. Source: ABS Building Approvals, SA2 panel.

B.9 Matched Control SA2s

Tables B2 and B3 report the matched SA2 pairs and their pre-treatment characteristics. Each of the three treated Campbelltown SA2s is matched without replacement to its nearest control on pre-treatment approval levels (2008–2013), the pre-treatment mean, and (for Adelaide matches) proximity to the CBD. Interstate controls are drawn from SA2s within 30 km of each city's CBD.

Table B2: Matched Adelaide controls: treated and matched SA2 characteristics

		Pre-treatment	Approvals					
SA2	LGA	Mean	2008	2009	2010	2011	2012	2013
Panel A: Treated SA2s								
Athelstone	Campbelltown	31.5	32	39	31	34	24	29
Paradise–Newton	Campbelltown	143.3	156	165	129	168	123	119
Rostrevor–Magill	Campbelltown	165.3	201	190	143	188	137	133
Panel B: Matched control SA2s								
Happy Valley	(Control)	28.5	37	34	27	30	20	23
Mitchell Park	(Control)	124.8	127	133	134	154	100	101
Enfield–Blair Athol	(Control)	188.3	228	195	235	153	156	163

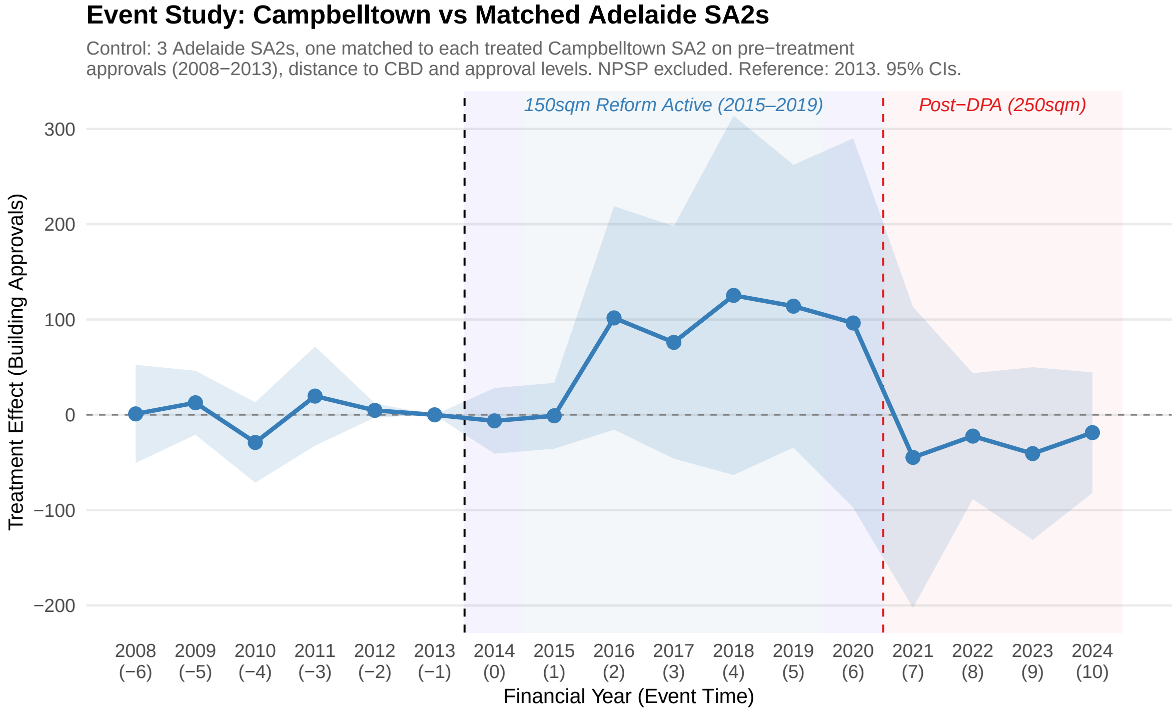
Notes: Matched on FY2008–2013 approvals, pre-treatment mean, and CBD distance. Source: ABS Building Approvals, SA2 panel.

Table B3: Matched interstate controls: treated and matched SA2 characteristics

			Pre-treatment	Approvals					
SA2	LGA	City	Mean	2008	2009	2010	2011	2012	2013
Panel A: Treated SA2s									
Athelstone	Camp.	Adelaide	31.5	32	39	31	34	24	29
Paradise–Newton	Camp.	Adelaide	143.3	156	165	129	168	123	119
Rostrevor–Magill	Camp.	Adelaide	165.3	201	190	143	188	137	133
Panel B: Matched control SA2s									
Hillarys		Perth	32.0	38	29	35	30	28	32
Mulgrave		Melbourne	136.8	156	138	120	135	137	135
Morley		Perth	172.0	153	146	164	200	163	206

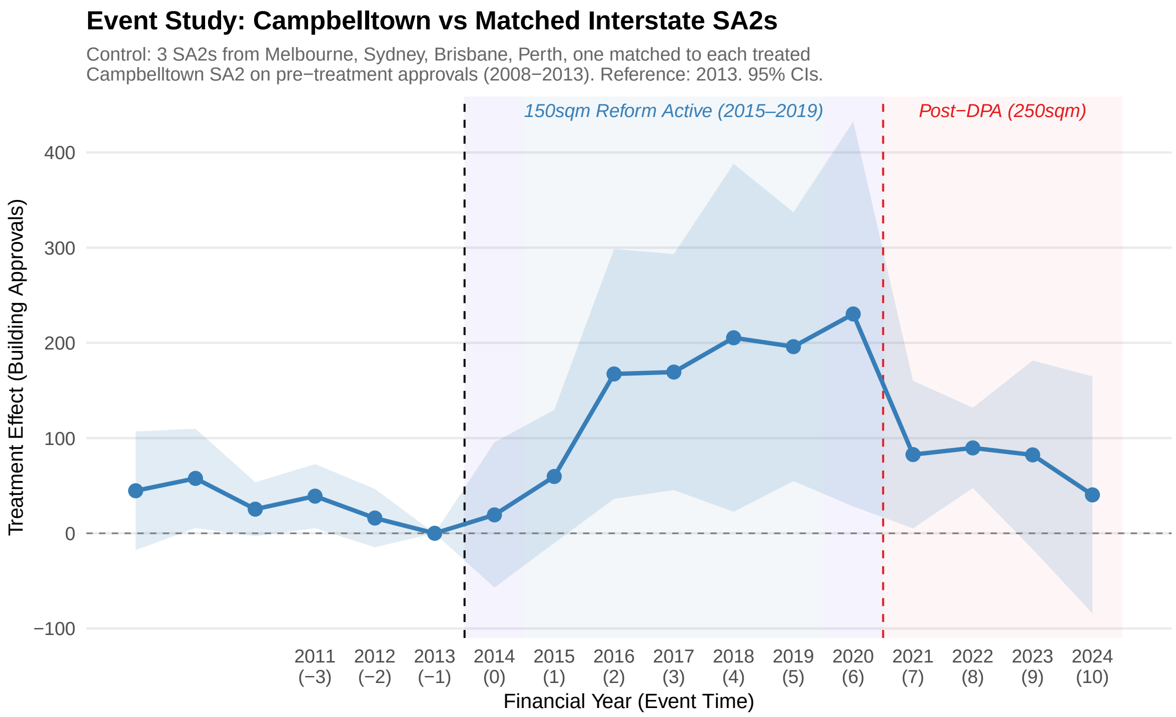
Notes: Matched on FY2008–2013 approvals and pre-treatment mean. Control pool: SA2s within 30 km of each city CBD. Source: ABS Building Approvals, SA2 panel, all capital cities.

Figure B9: Matched Adelaide controls: treatment effect by SA2 (FY2008–2024)



Notes: 95% CIs. Blue shading = reform-active (2015–2019); red = post-DPA (2021–2024); purple = announcement/grandfathering. Source: ABS Building Approvals, SA2 panel.

Figure B10: Matched interstate controls: treatment effect by SA2 (FY2008–2024)



Notes: Control pool: SA2s within 30 km of Melbourne, Sydney, Brisbane, Perth CBDs. 95% CIs. Blue shading = reform-active (2015–2019); red = post-DPA (2021–2024); purple = announcement/grandfathering. Source: ABS Building Approvals, SA2 panel, all capital cities.

C Additional Figures and Tables

This appendix presents additional analyses supporting the results in Sections 4 and 6. In all LGA-level figures, Campbelltown is shown in blue and the control group mean in gray, with the shaded area representing a 95 per cent confidence interval (± 1.96 standard errors) around that mean across 12 inner/middle Adelaide control LGAs.

C.1 Land Price Capitalization

Table C1 reports difference-in-differences estimates of the reform's effect on residential property prices. We use REA Group transaction records for all house sales across Campbelltown and control LGAs from 2008 to 2023. The treatment variable *Camp* $\times$ *Post* equals one for Campbelltown sales after July 2013; *Camp* $\times$ *Reversal* equals one for Campbelltown sales after January 2020. All specifications include LGA and year fixed effects.

Panel A estimates the reform effect on *price growth* using repeat sales (properties sold at least twice). Column 1 uses all repeat sales; columns 2 and 3 restrict to lots with low floor-to-land ratios and high predicted subdivision probability, respectively, to isolate lots most suitable as developer inputs. Panel B estimates the effect on *price levels* (log sale price). Column 4 is the full sample; column 5 restricts to matched developer inputs (parent lots of observed subdivisions); columns 6–9 split at the median predicted subdivision probability, with and without hedonic controls. Panel C splits by lot size to test whether capitalisation concentrates in the 400–800 sqm range where subdivision is most feasible. Panel D splits sales at the Campbelltown median predicted development uplift ($\Delta\mu$) from a feasibility model, testing whether capitalisation was concentrated among lots with the highest potential gain from the reform.

Under LGA-clustered standard errors and randomization inference, the robust finding is the reversal: prices declined 2–7 per cent after 2019 across nearly all specifications, with the largest declines among 400–800 sqm lots and repeat sales, and the reversal effects in specifications (1)–(3) and (11) exceed the corresponding placebo effect in every control LGA. The reform-period capitalisation estimates are positive but modest (zero to 7 per cent in the cross-section) and most do not survive design-based inference. Panel D shows the same asymmetry: high-uplift lots show a 2.0 per cent hedonic increase ($p = 0.006$) versus 1.3 per cent for low-uplift lots, while the reversal declines are significant in both groups. The magnitude of any capitalisation is small relative to the gross subdivision margins implied by the price-size schedule (Section 4.3).

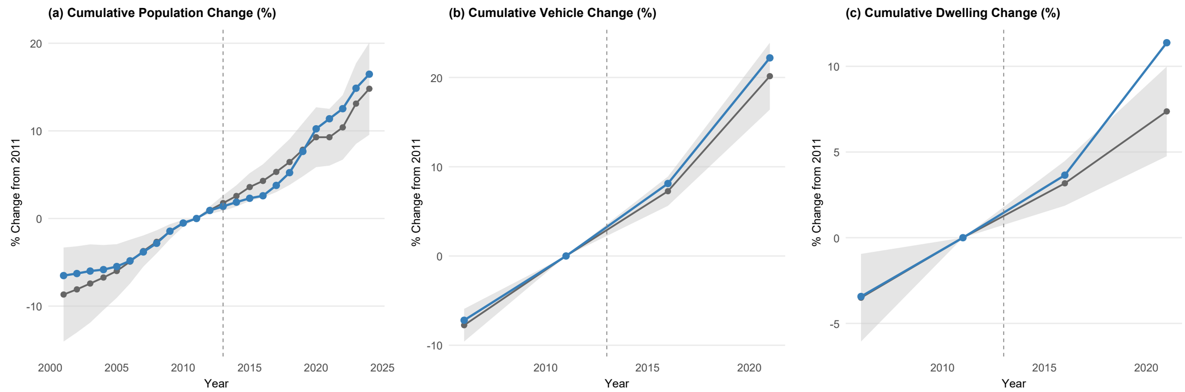
Table C1: Difference-in-differences: Campbelltown vs. control LGAs, houses only (2008–2023)

Specification		Camp. × Post		Camp. × Reversal		
		$\hat{\beta}$	SE	$\hat{\beta}$	SE	N
Panel A: Repeat sales						
(1)	All pairs	0.009	(0.016)	−0.046***	(0.010)	32,411
(2)	Low floor/land ratio	0.061**	(0.027)	−0.067***	(0.016)	16,196
(3)	High subdiv. probability	0.047**	(0.022)	−0.064***	(0.017)	14,436
Panel B: Level prices						
(4)	All houses	0.001	(0.010)	−0.017**	(0.006)	131,845
(5)	Developer inputs (2+ lots)	0.066***	(0.017)	−0.040*	(0.020)	4,655
(6)	Raw: high probability	0.026*	(0.011)	−0.021***	(0.004)	65,663
(7)	Raw: low probability	−0.004	(0.013)	−0.016*	(0.008)	65,658
(8)	Hedonic: high probability	0.031***	(0.009)	−0.007	(0.006)	62,819
(9)	Hedonic: low probability	0.010	(0.008)	−0.031***	(0.008)	62,181
Panel C: By lot size						
(10)	< 400 sqm	0.000	(0.007)	−0.030***	(0.006)	36,488
(11)	400–800 sqm	0.012	(0.013)	−0.048***	(0.006)	71,288
(12)	800+ sqm	0.023**	(0.008)	0.025***	(0.006)	24,063
Panel D: By predicted development uplift ($\Delta\mu$, median split)						
(13)	High uplift: raw	0.009	(0.008)	−0.046***	(0.010)	56,349
(14)	High uplift: hedonic	0.020***	(0.007)	−0.033***	(0.009)	54,081
(15)	Low uplift: raw	0.012	(0.010)	−0.055***	(0.009)	61,927
(16)	Low uplift: hedonic	0.013	(0.009)	−0.032***	(0.008)	59,523
(17)	High uplift: repeat sales	0.002	(0.017)	−0.030*	(0.015)	14,105
(18)	Low uplift: repeat sales	−0.010	(0.032)	−0.068***	(0.016)	14,881

Notes: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$. Pre-reform (before July 2013) is the omitted baseline. All specifications include LGA and year fixed effects. Panel A repeat-sales standard errors are clustered by address; Panels B–D cluster by LGA (nine clusters; eight in specification (5), which has no matched developer-input sales in NPSP). Given the small number of clusters, the text reports randomization-inference p-values for the key specifications; the smallest attainable randomization p-value with eight placebo LGAs is 0.111, which the reversal effects in specifications (1)–(3) and (11) attain. Randomization inference is not computed for Panel D. Panel D splits sales at the Campbelltown median $\Delta\mu = \mu(\bar{\ell} = 150) - \mu(\bar{\ell} = 350)$ computed from our forthcoming feasibility model. Source: REA Group house sale transaction records, 2008–2023.

C.2 Cumulative Growth

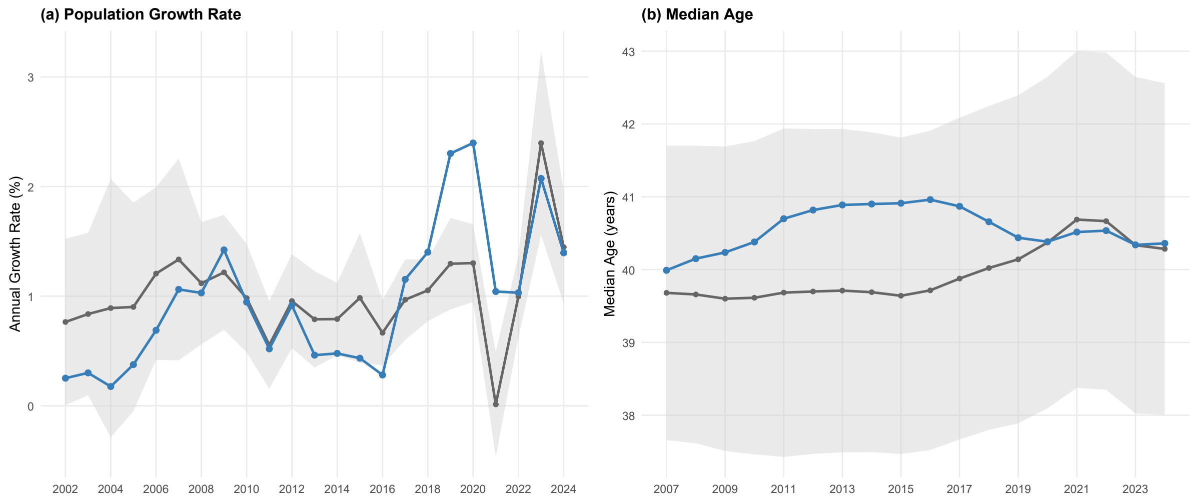
Figure C1: Cumulative change since 2011



Notes: All indexed to 2011 = 0. Gray = control mean ± 95% CI. Dashed line marks the 2014 reform. Source: ABS Census 2011–2021.

C.3 Population Growth, Age, and Migration

Figure C2: Population growth and median age



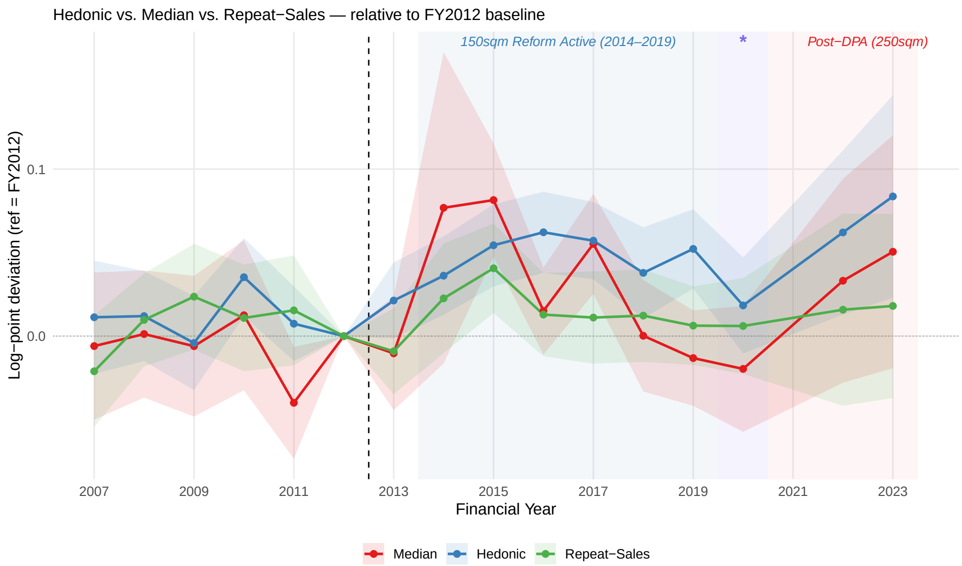
Notes: Blue = Campbelltown; gray = control mean ± 1.96 SE. Source: ABS ERP and Regional Statistics.

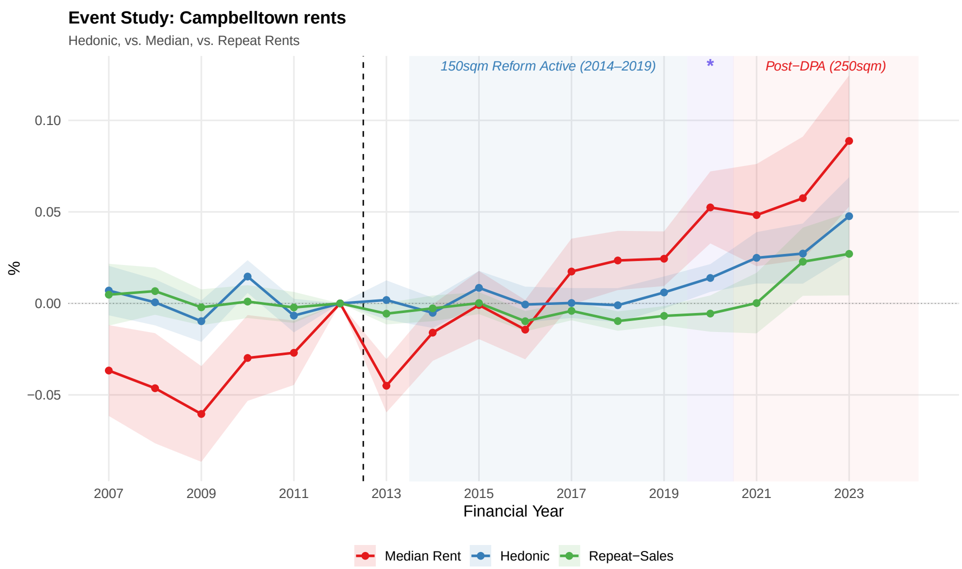
Figure C3: Population growth and migration

Notes: Right panels: event study coefficients for the share of residents living at a different address one and five years earlier, ref = 2011. Filled dots = $p < 0.05$. Source: ABS Census 2006–2021.

C.4 Prices and Rents

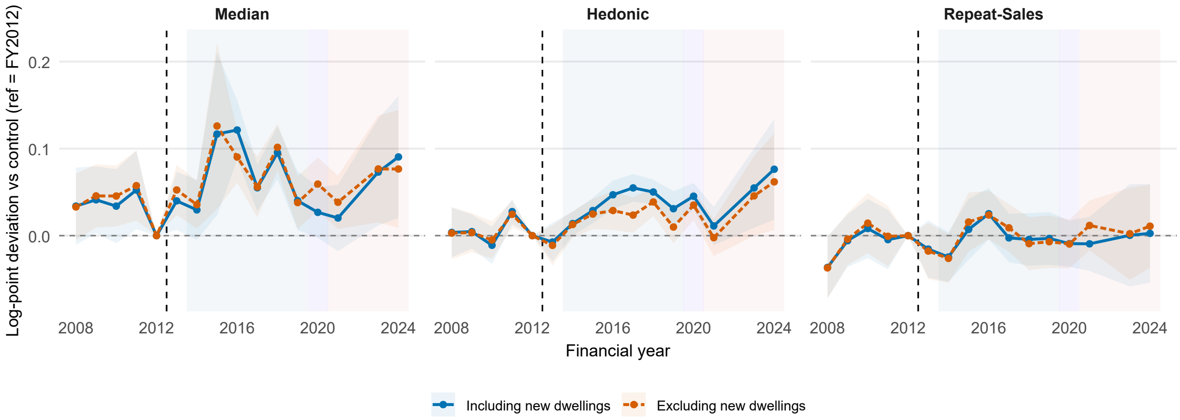
Figure C4: LGA-level event studies for price indices (top) and rent indices (bottom)





Notes: Ref = 2012. Red: raw median. Blue: hedonic index (bedrooms, bathrooms, car spaces, floor area, lot area, dwelling type). Green: repeat-sales/repeat-rents. Dashed line marks the 2014 reform. Source: REA Group transaction and rental listing records.

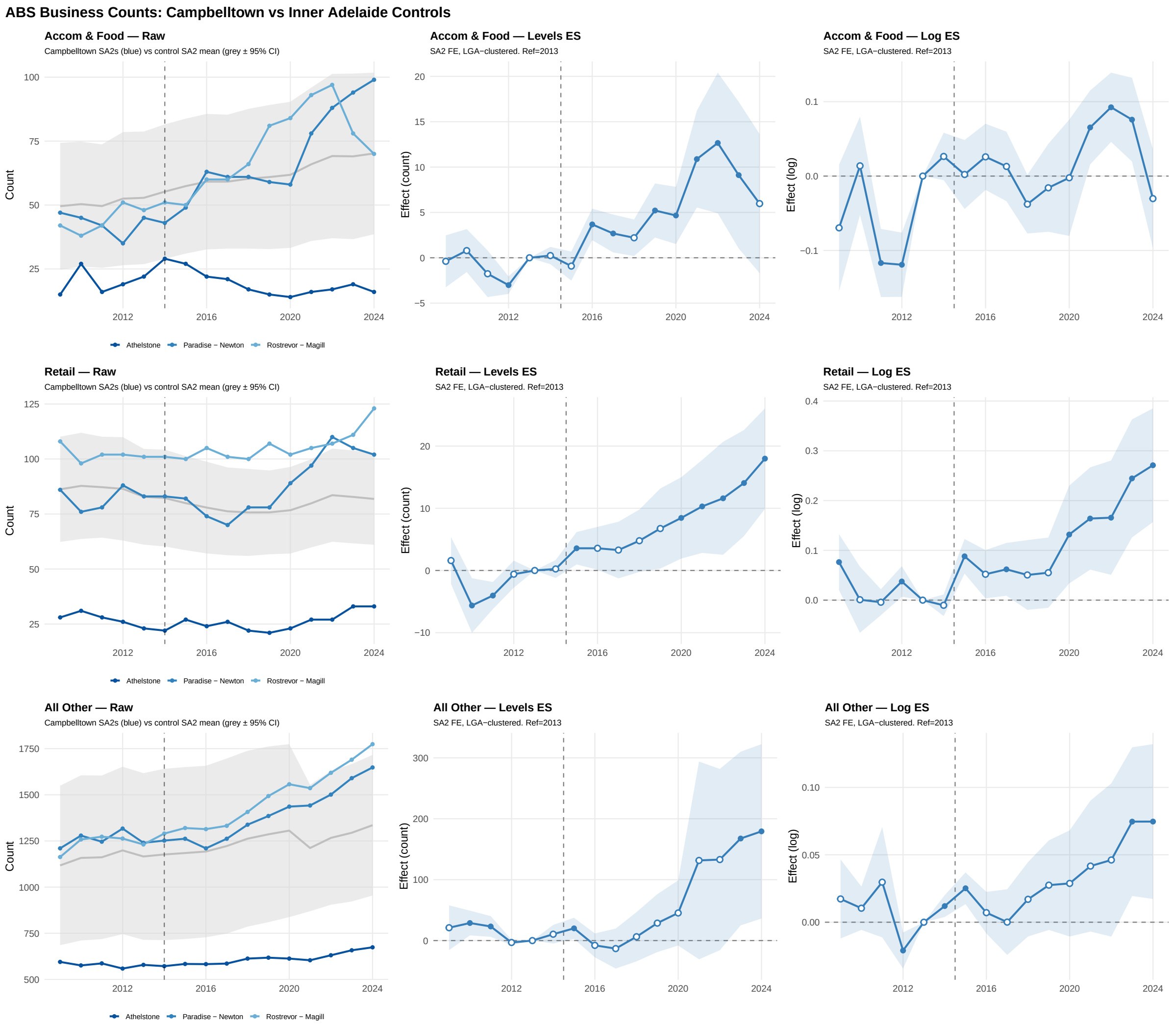
Figure C5: Price event studies including versus excluding newly-built dwellings



Notes: Median, hedonic, and repeat-sales price indices for Campbelltown relative to twelve control LGAs, in log-point deviations relative to FY2012. Each panel overlays two event studies: the full sample (solid, "including new dwellings") and the sample that drops every dwelling first built in or after 2014 from both the treated and control groups (dashed, "excluding new dwellings"). Build year is taken from the state-wide geocoded completions register unioned with reform-era land-division outputs. Shading marks the reform-active, grandfathering, and post-reversal periods. Source: REA Group transaction records.

C.5 Business Activity: SA2-Level Decomposition

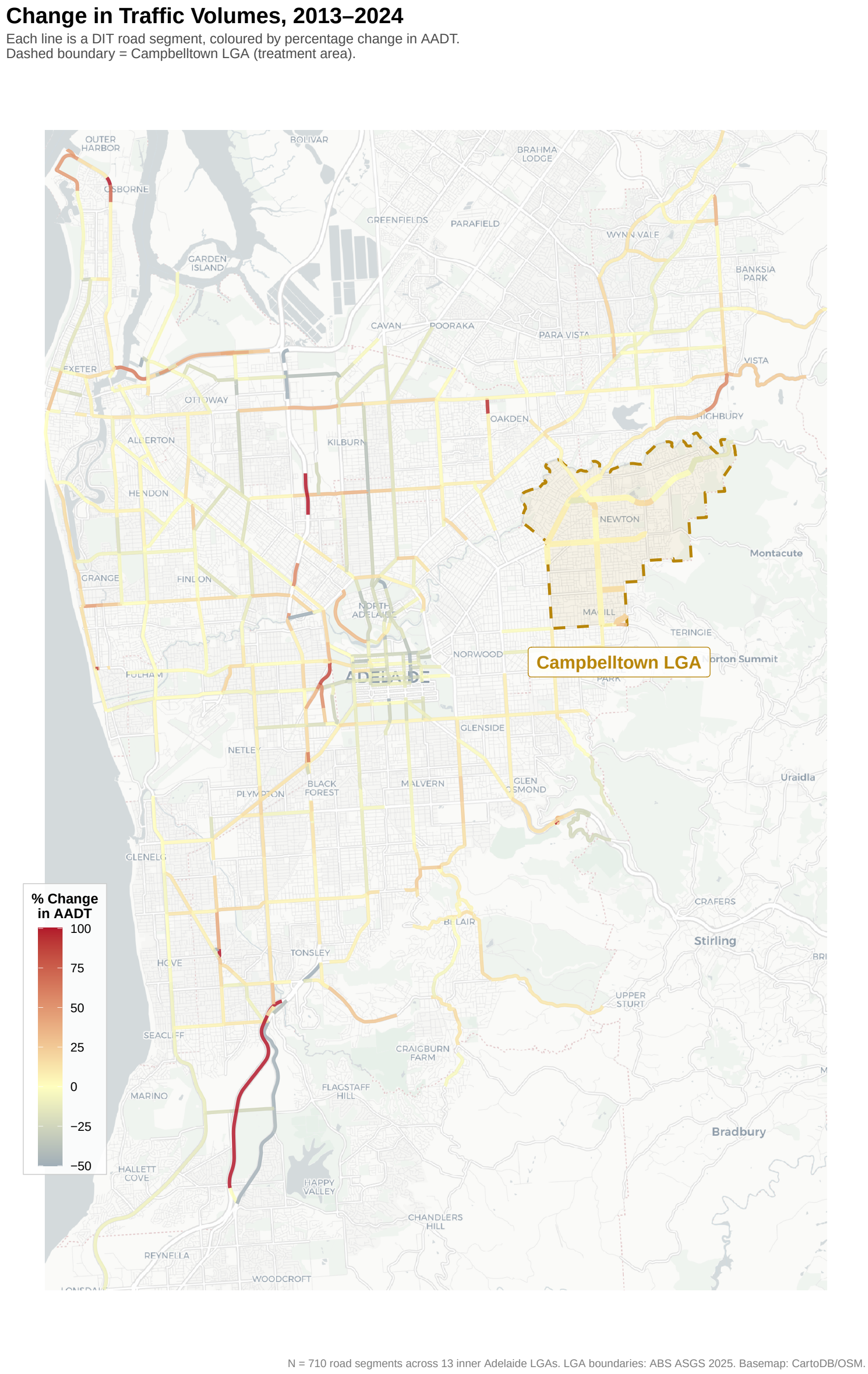
Figure C6: Business counts: SA2-level analysis



Notes: SA2 + year FE, LGA-clustered SEs. Ref = 2013. SA2s with pre-period mean < 5 excluded. Filled dots = $p < 0.05$. Dashed line marks the 2014 reform. Source: ABS Counts of Australian Businesses.

C.6 Traffic Volume Map

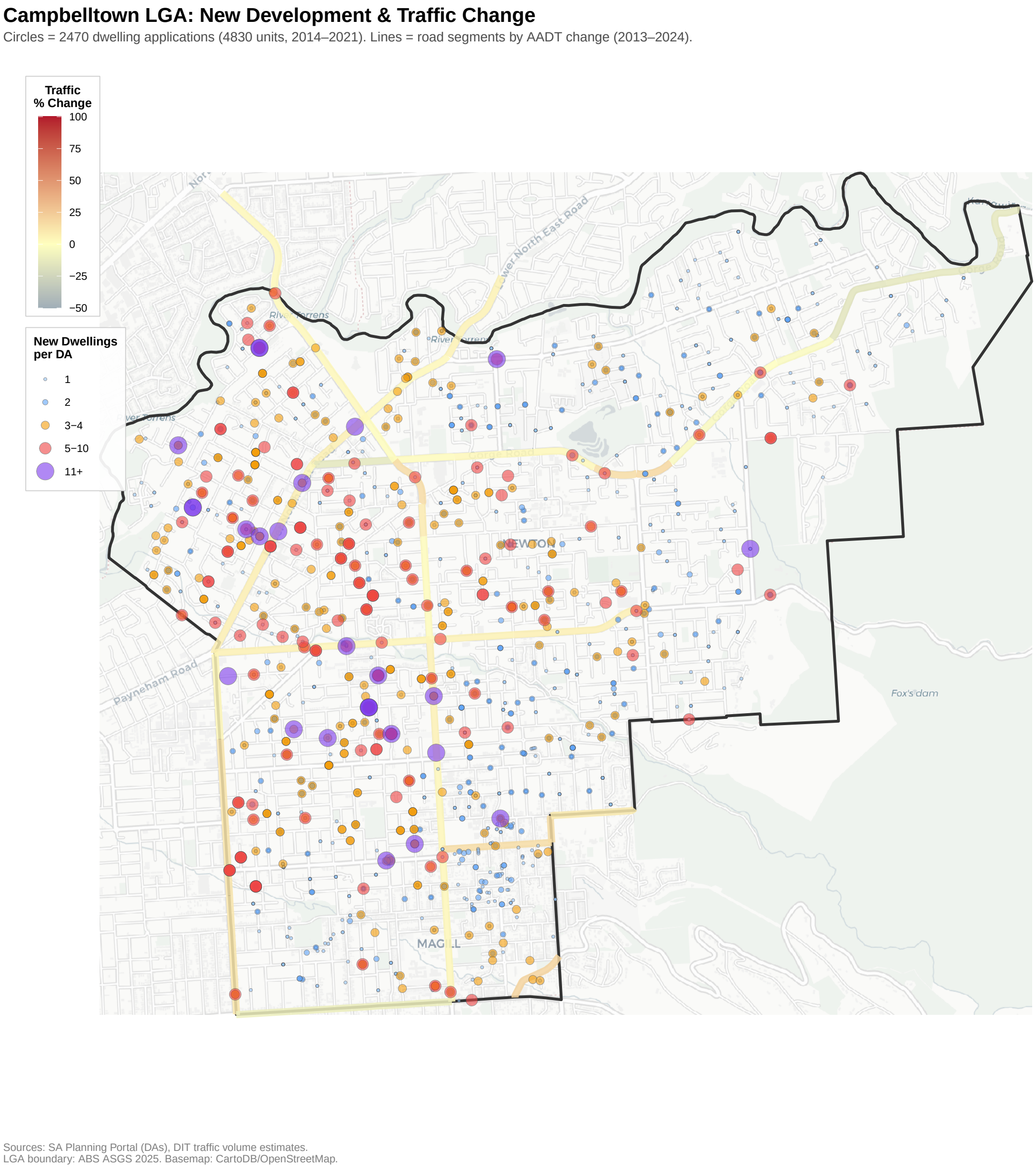
Figure C7: Road segment traffic volume changes, 2013–2024



Notes: Dashed boundary = Campbelltown LGA. Values capped at [−50%, +100%]. The map shows the 710 of the 925 monitored segments with a computable 2013–2024 change; segments missing a volume estimate in either year are omitted. Source: DIT Traffic Volume Estimates.

C.7 Campbelltown Development Applications and Traffic

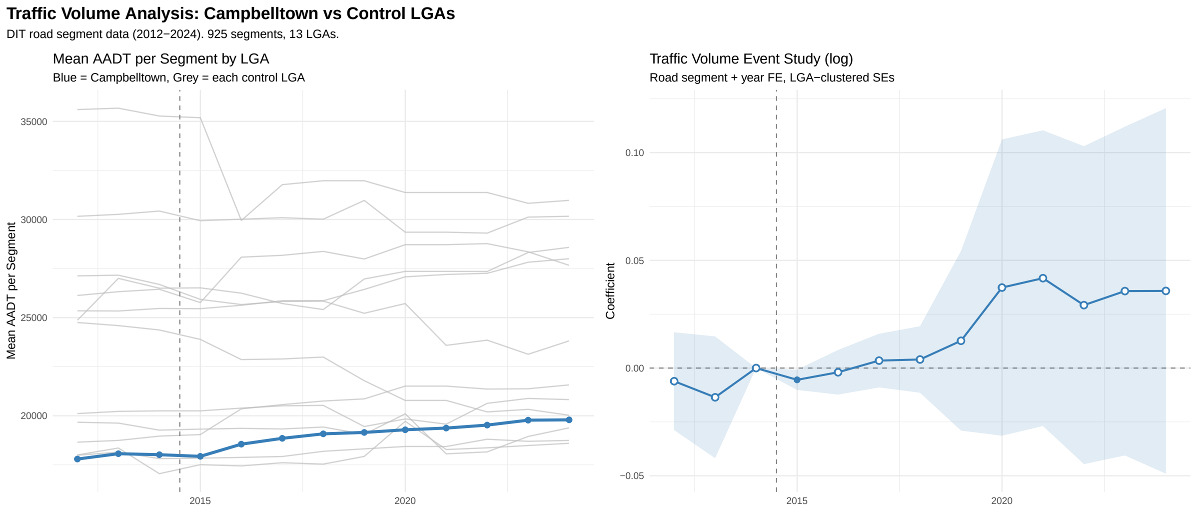
Figure C8: Campbelltown LGA: new development and traffic change



Notes: Circles = DAs (sized by units). Lines = road segments (AADT change 2013–2024). Sources: SA Planning Portal, DIT.

C.8 Traffic Volume DiD

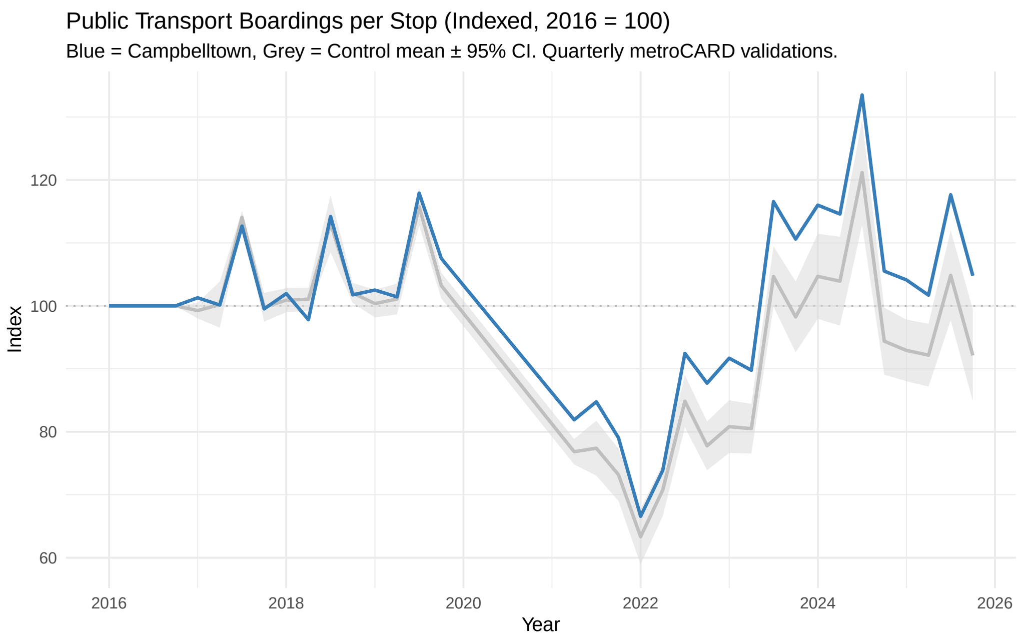
Figure C9: Traffic volume analysis: Campbelltown vs control LGAs



Notes: Blue = Campbelltown (33 segments); gray = control LGAs. Segment + year FE, LGA-clustered SEs. Ref = 2014. Filled dots = $p < 0.05$. Randomization inference $p = 0.462$. Source: DIT Traffic Volume Estimates 2012–2024.

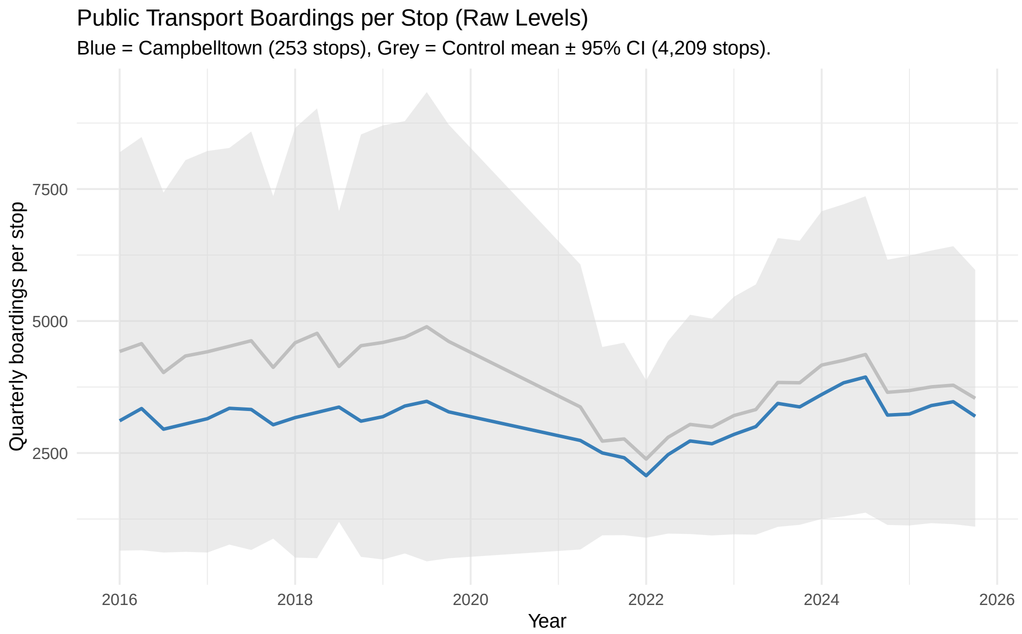
C.9 Public Transport

Figure C10: Public transport patronage: boardings per stop (indexed, 2016 = 100)



Notes: Indexed to same quarter 2016 = 100. Blue = Campbelltown (253 stops at peak; 248–253 across quarters); gray = control mean ± 95% CI. 2020 unavailable (COVID). Source: Adelaide Metro metroCARD validations.

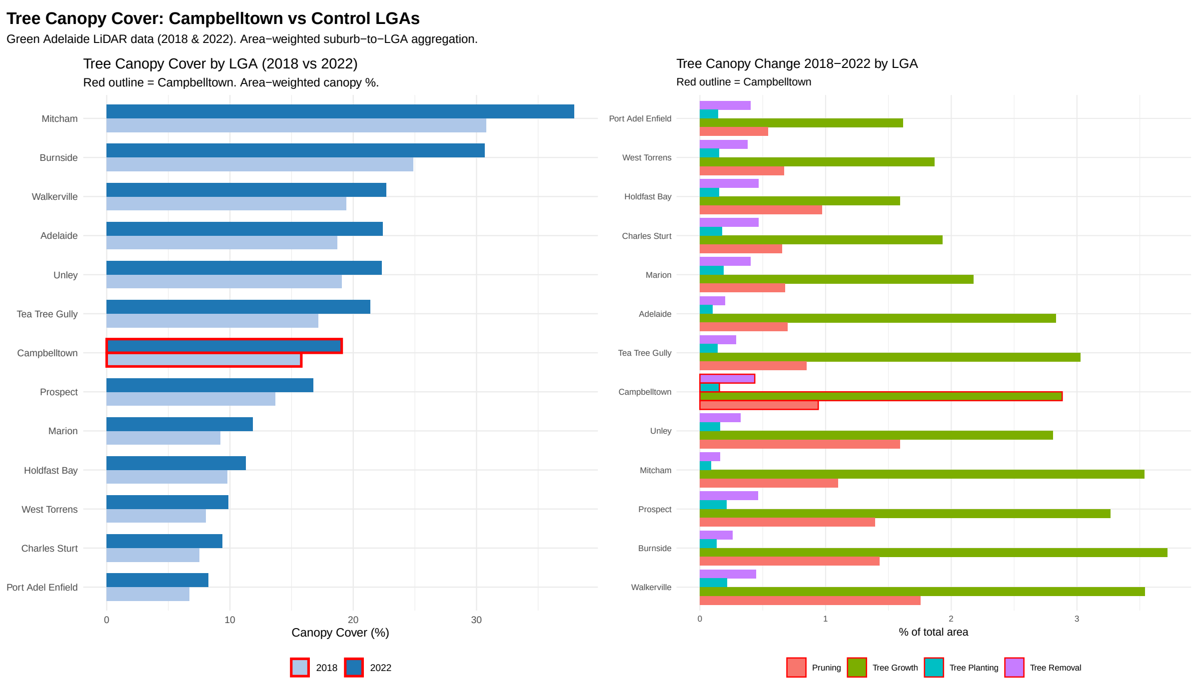
Figure C11: Public transport boardings per stop (raw levels)



Notes: Blue = Campbelltown (253 stops at peak; 248–253 across quarters); gray = control mean ± 95% CI. 2020 unavailable. Source: Adelaide Metro metroCARD validations.

C.10 Tree Canopy Cover

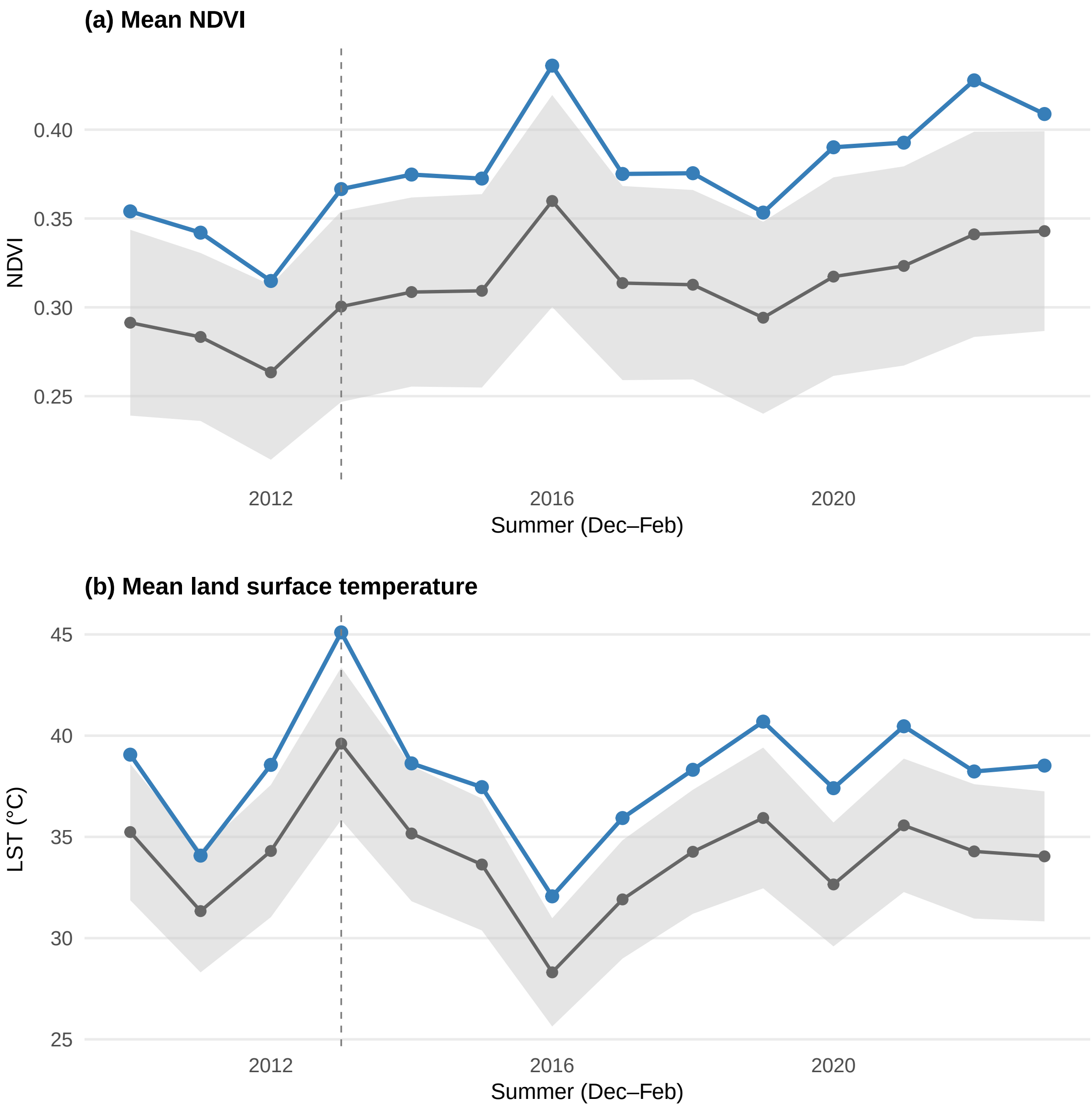
Figure C12: Tree canopy cover by LGA (2018 vs 2022) and change detection



Notes: Red outline = Campbelltown. Source: Green Adelaide LiDAR surveys.

C.11 Satellite Vegetation and Surface Temperature

Figure C13: Satellite NDVI and land surface temperature: Campbelltown vs control LGAs (2010–2023)



Notes: Summer (Dec–Feb) composites. Blue = Campbelltown; gray = control mean ± 95% CI. Dashed line marks the 2014 reform. Descriptive series: no difference-in-differences estimates are reported from these data, for the reasons given in Section 6.2. Source: Landsat Collection 2 Level 2 via Microsoft Planetary Computer.

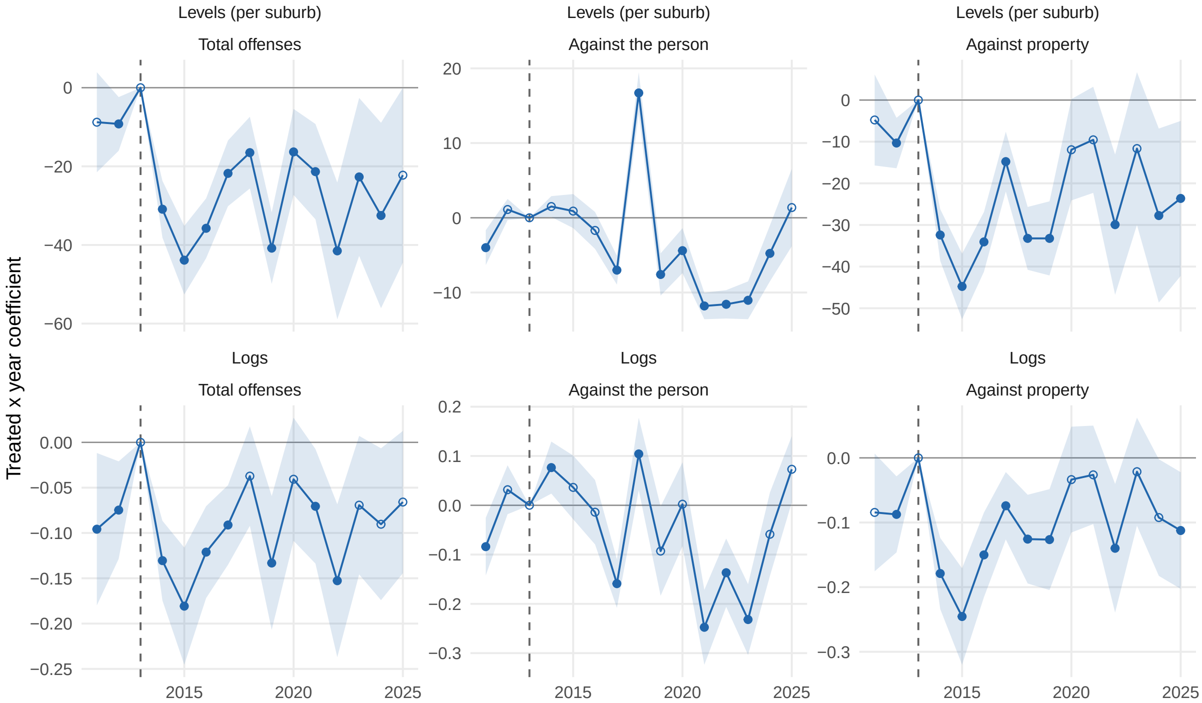
C.12 Crime and Education: Regression Results

Table C2: Other effects of the minimum lot size reform: crime and education

Outcome	Log	Levels	Source
Panel A: Reported crime (suburb-FY, 2011–2025)			
Total offences	−0.042	−22.860***	SAPOL
	(0.035)	(4.272)	
Against person	−0.037	−2.320**	SAPOL
	(0.027)	(0.953)	
Against property	−0.053	−20.541***	SAPOL
	(0.038)	(3.839)	
Panel B: School outcomes (school-year, 2008–2025)			
Enrolments	0.016	−20.249	ACARA
	(0.012)	(14.252)	
Socio-educational advantage	—	2.630	ACARA
		(3.473)	

Notes: SE clustered at LGA level. Crime: suburb × FY (8 Campbelltown, 269 control suburbs, 15 years; N = 4,144). Education: school × year (14 Campbelltown, 243 control schools, 18 years; N = 4,455 for enrolments, 4,310 for ICSEA). Post = FY2014 onwards. ICSEA = Index of Community Socio-Educational Advantage (mean 1,000, SD 100). $^{*}p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$. Sources: SAPOL reported offences (FY2011–2025); ACARA school-level data (2008–2025).

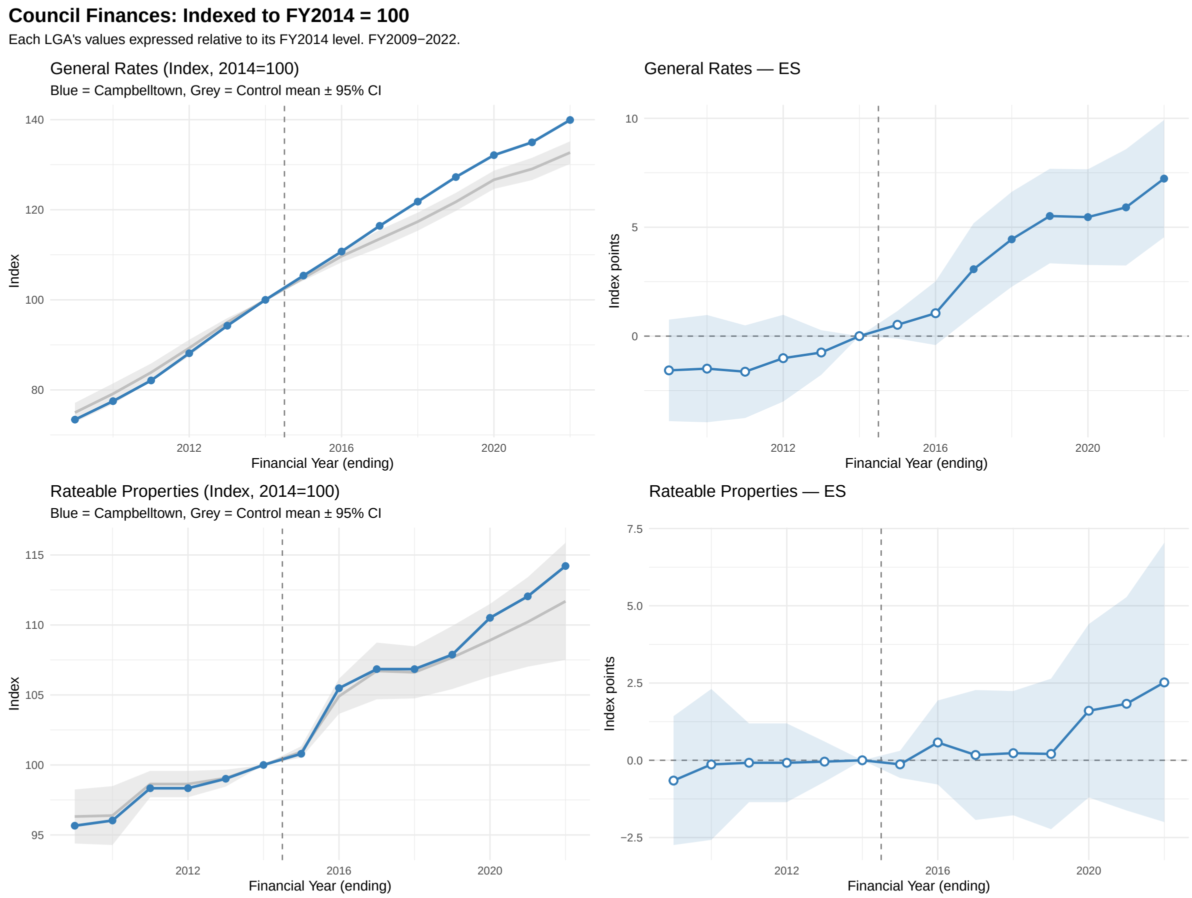
Figure C14: Crime event studies: Campbelltown vs control LGAs



Notes: Treated × year coefficients, suburb + FY fixed effects, ref = FY2013, SEs clustered at LGA level. Filled dots = $p < 0.05$. Top row: levels per suburb; bottom row: logs. Source: SAPOL reported offences, FY2011–2025.

C.13 Council Rates Revenue

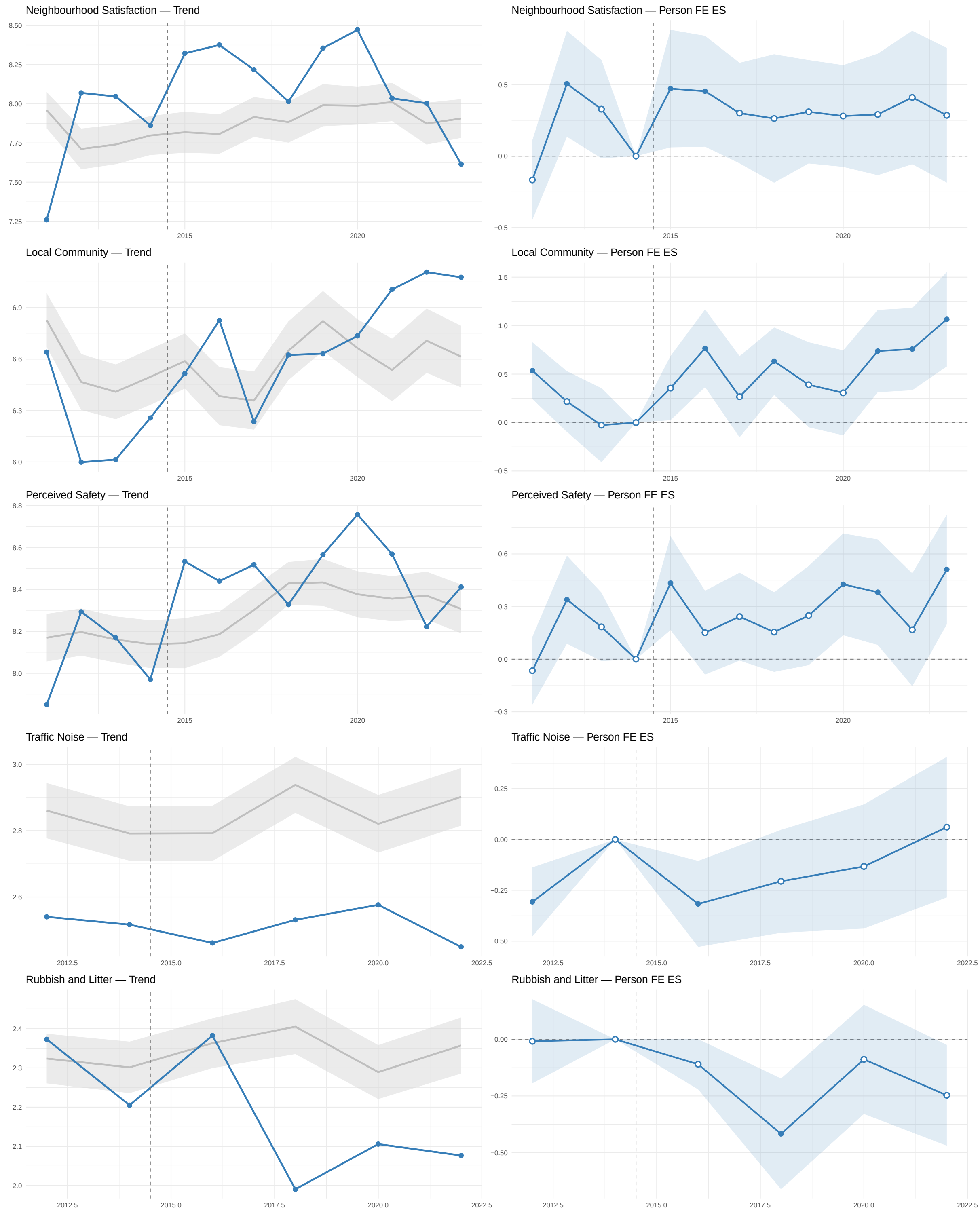
Figure C15: Council rates and properties: indexed to FY2014 = 100



Notes: Indexed to FY2014. Source: SA Grants Commission Database Reports.

C.14 Neighborhood Satisfaction

Figure C16: HILDA neighbourhood amenity: Campbelltown vs inner Adelaide controls



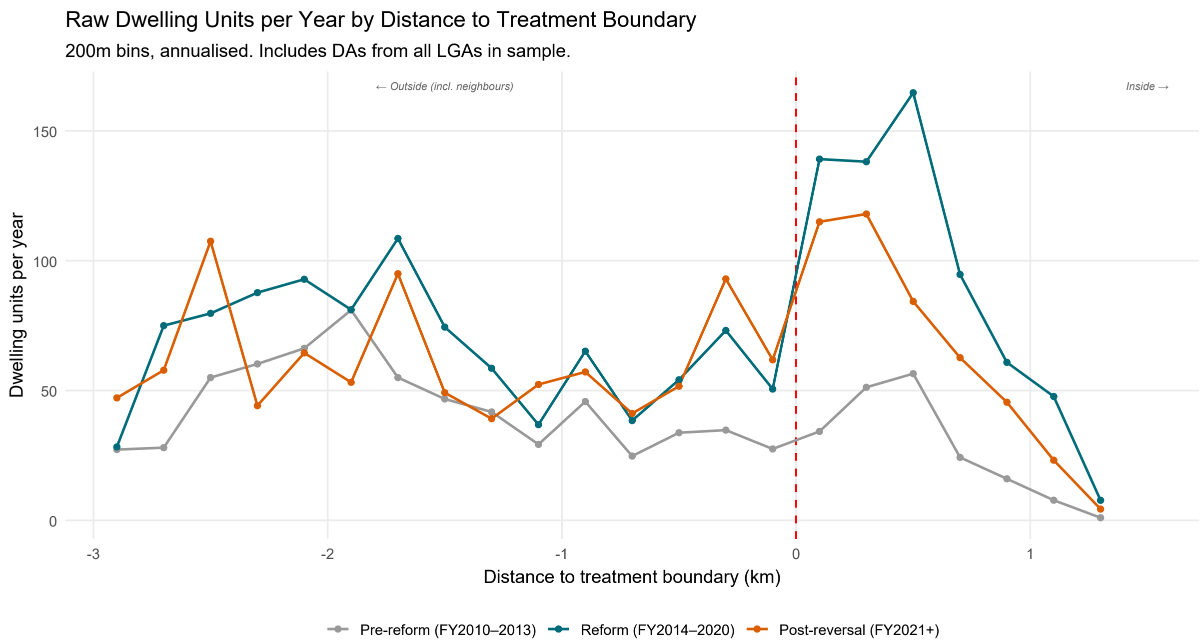
Notes: Blue = Campbelltown; gray = control mean ± 95% CI. Event studies: person + year FE, LGA-clustered SEs. Ref = 2014. Filled dots = $p < 0.05$. Source: HILDA Survey waves k–w (2011–2023), restricted-access data.

D DA-Level Spatial Analysis: Supporting Evidence

This appendix provides supporting evidence for the meshblock-level spillover gradient analysis described in Section 4.2. The sample comprises all residential meshblocks within 5 km of the upzoned-area boundary, spanning Campbelltown and adjoining parts of the surrounding LGAs; NPSP meshblocks are excluded, consistent with the main analysis. Geocoded development applications are assigned to meshblocks via point-in-polygon matching. The running variable is signed distance (km) from each meshblock centroid to the outer boundary of the upzoned area.

D.1 Raw Density by Distance

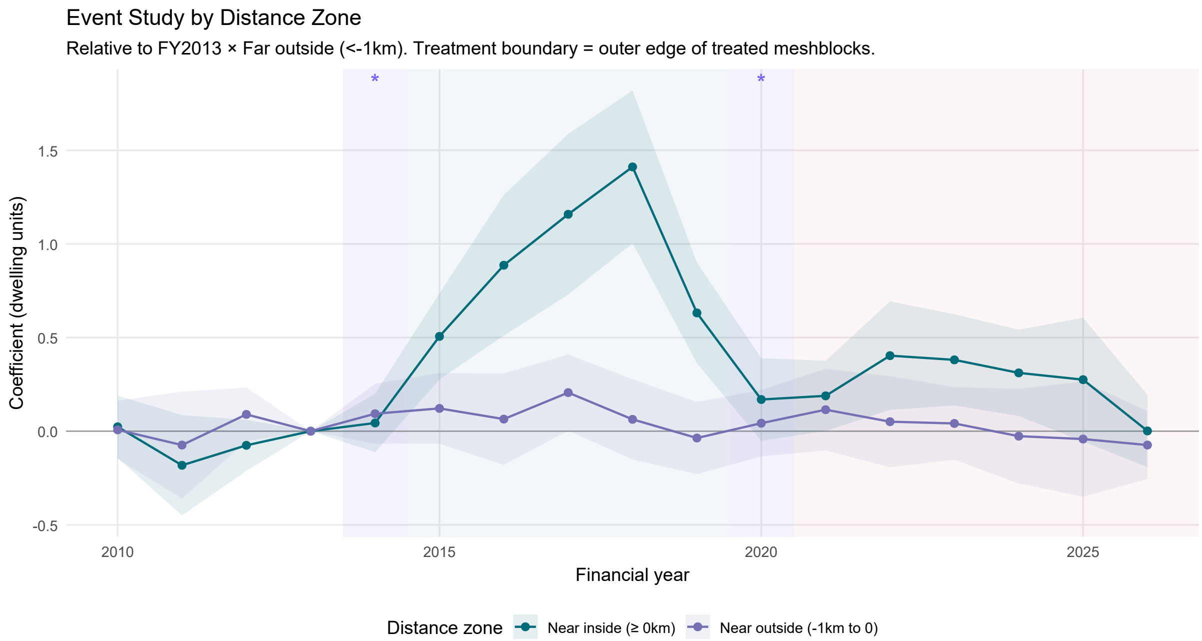
Figure D1: Raw dwelling units per year by distance to treatment boundary



Notes: 200m bins, annualized. Gray = pre-reform (FY2010–2013); teal = reform-active (FY2014–2020); orange = post-reversal (FY2021+). Dashed line marks the upzoned area boundary. Sources: geocoded council DA registers and ABS Mesh Blocks (2021).

D.2 Event Study by Distance Zone

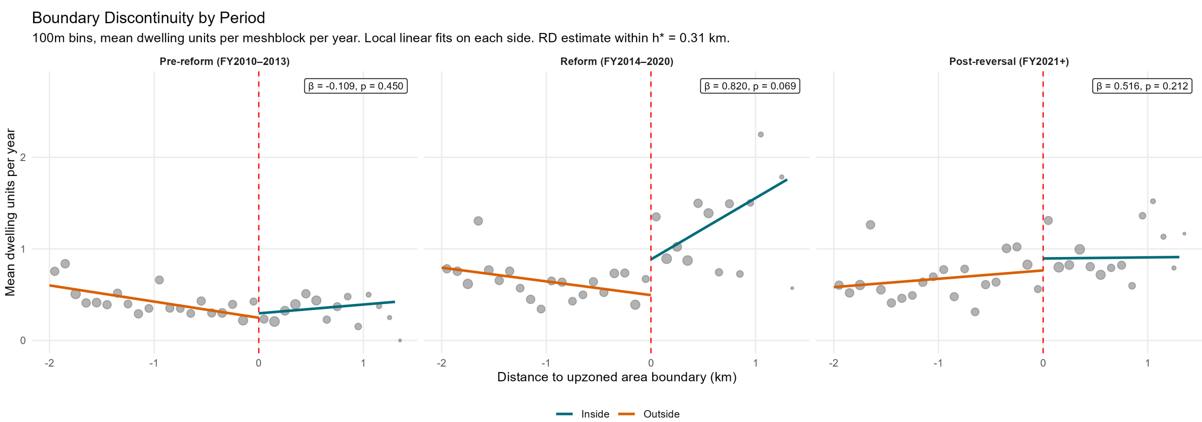
Figure D2: Event study by distance zone



Notes: Teal = inside treated area ($\geq$ 0 km); purple = near outside (-1 to 0 km). Ref = FY2013, meshblocks $>$ 1 km outside. Bands = 95% CI. Blue shading = reform-active (2015–2019); red = post-reversal (2021+); purple = announcement/grandfathering. Sources: geocoded council DA registers and ABS Mesh Blocks (2021).

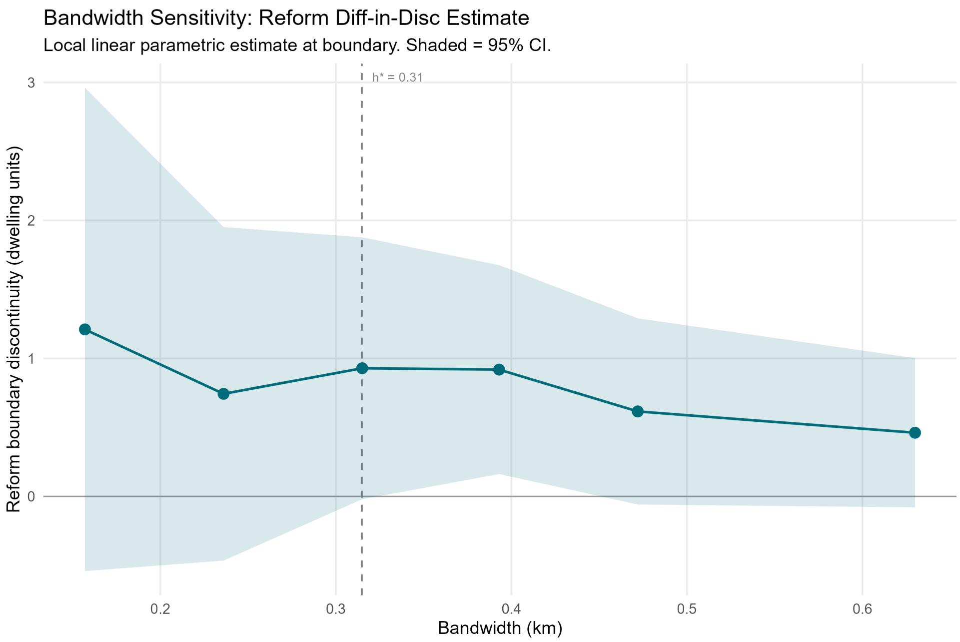
D.3 Boundary Discontinuity (Anagol-Style RD)

Figure D3: Boundary discontinuity by period



Notes: Local linear fit within MSE-optimal bandwidth $h^* = 0.30$ km. Sources: Geocoded council DA registers and ABS Mesh Blocks (2021).

Figure D4: Bandwidth sensitivity: reform diff-in-disc estimate



Notes: Shaded region = 95% CI. Sources: geocoded council DA registers and ABS Mesh Blocks (2021).

D.4 Zone Composition of Treated Bins

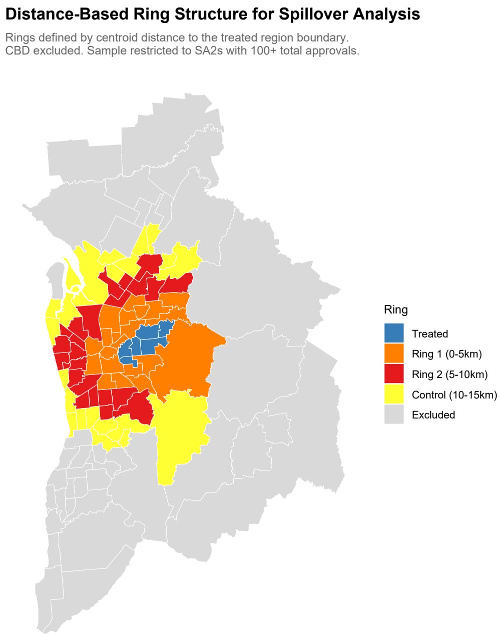
Table D1: Area-weighted zone composition of treated distance bins

Distance bin (inside)	N meshblocks	% High (area)	% Moderate (area)
$[0.0, 0.2)$	119	32.7	31.3
$[0.2, 0.4)$	128	61.2	35.1
$[0.4, 0.6)$	112	66.6	29.8
$[0.6, 0.8)$	77	84.6	13.9
$[0.8, 1.0)$	47	83.8	13.8
$[1.0, 1.2)$	18	73.8	25.1
$[1.2, 1.4)$	5	79.4	20.6

Notes: Sources: Campbelltown zoning classification layers and ABS Mesh Blocks (2021).

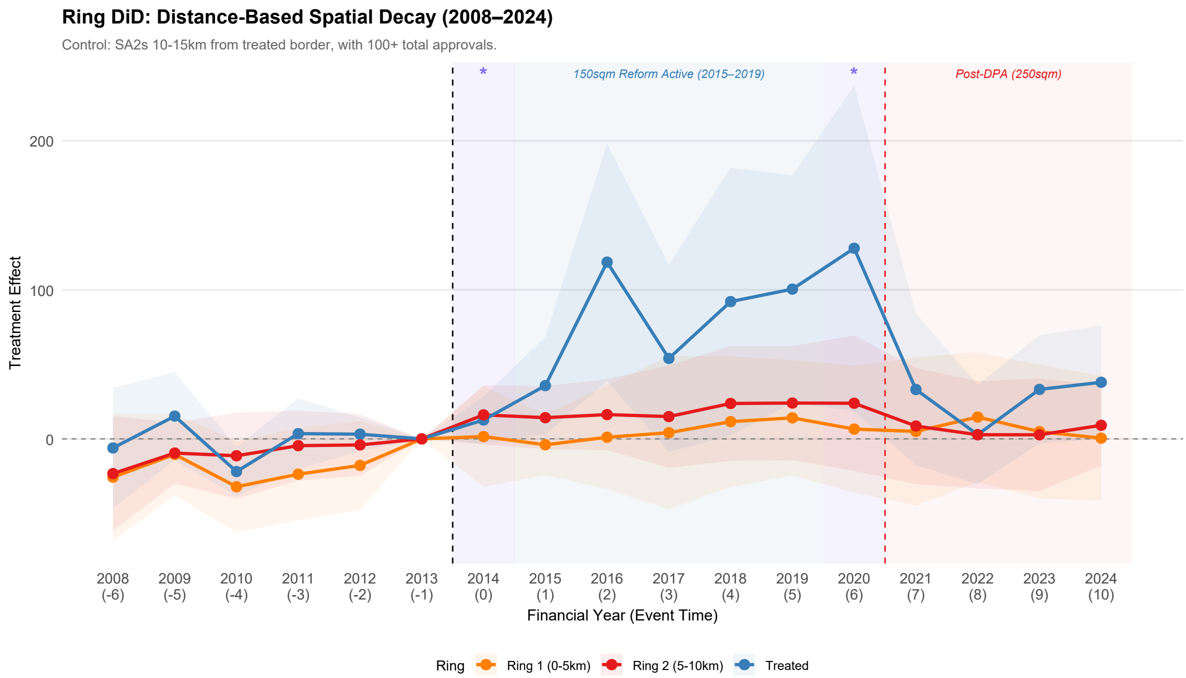
D.5 SA2-Level Ring Analysis

Figure D5: Ring structure for SA2-level spillover analysis



Notes: CBD excluded. SA2s with <100 total approvals excluded. Sources: ABS Building Approvals and ABS SA2 boundaries (2021).

Figure D6: Ring DiD: spatial decay of treatment effects (FY2008–2024)



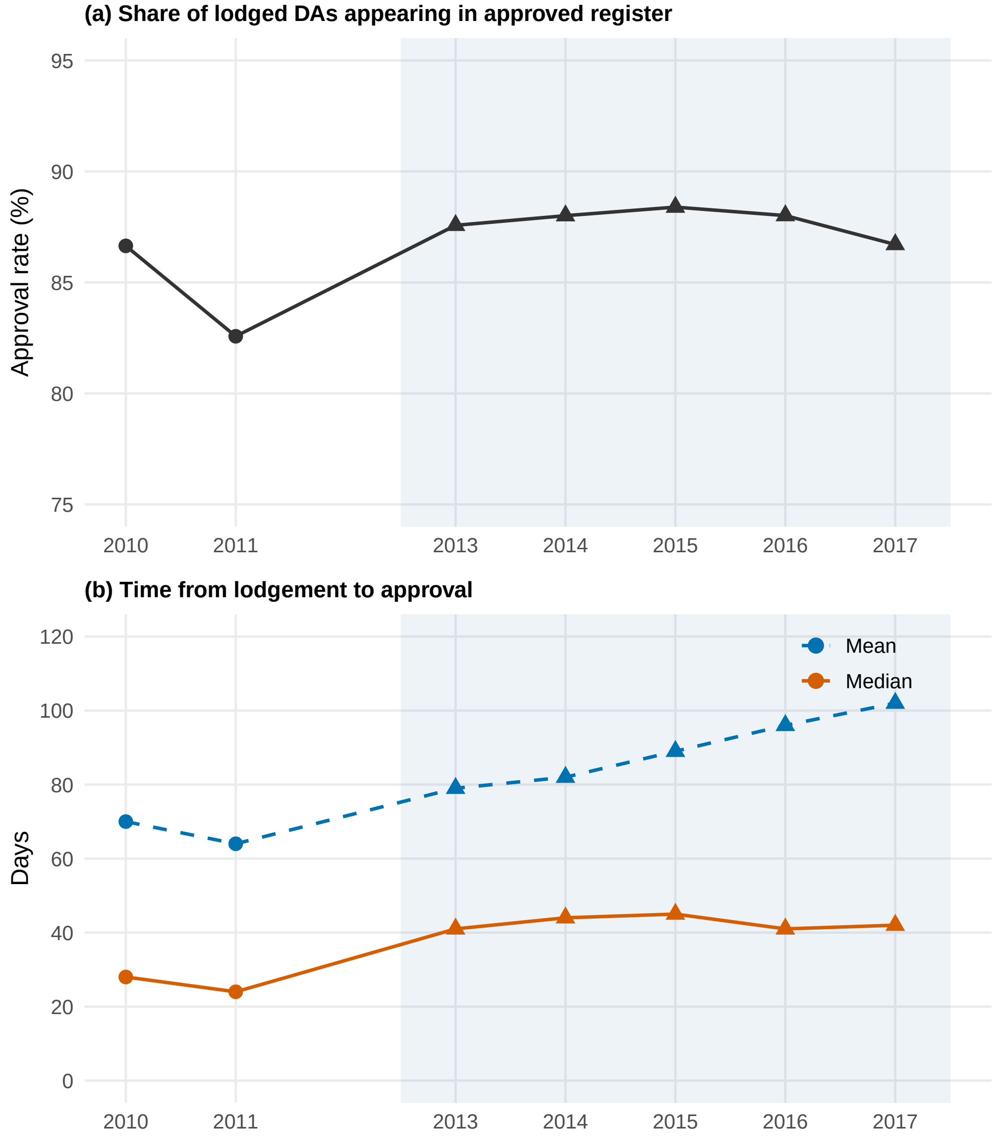
Notes: Control ring: SA2s 10–15km from boundary with 100+ approvals. SA2 FE + Year FE, clustered SE. Ref = FY2013. Blue shading = reform-active (2015–2019); red = post-DPA (2021–2024); purple = announcement/grandfathering. Source: ABS Building Approvals, SA2 panel.

D.6 DA Approval Rates and Processing Times

Campbelltown published separate monthly registers for lodged and approved development applications, enabling us to match individual DAs across registers by application number and observe both the decision outcome and the time elapsed between lodgement and approval. The approved register covers December 2009 to June 2021 (117 monthly PDFs). We restrict the analysis to years with complete coverage of both the lodged and approved registers: 2010–2011 (pre-reform) and 2013–2017 (reform period). The year 2012 is excluded due to incomplete lodged-register coverage, and 2018 onward is excluded because a gap in the approved register from March to October 2019 creates right-censoring of slow decisions.

Figure D7 reports the results. Panel (a) shows the approval rate, the share of lodged DAs that subsequently appear in the approved register. The rate is stable at 83–88 per cent across both periods. Panel (b) shows median and mean processing times (days from lodgement to the month of the approved-register publication). Median time rose from 26 days pre-reform to 42 days during the reform, while the mean rose from 67 to 90 days. The long right tail (mean well above median) reflects a minority of complex applications requiring extended assessment.

Figure D7: DA approval rates and processing times in Campbelltown

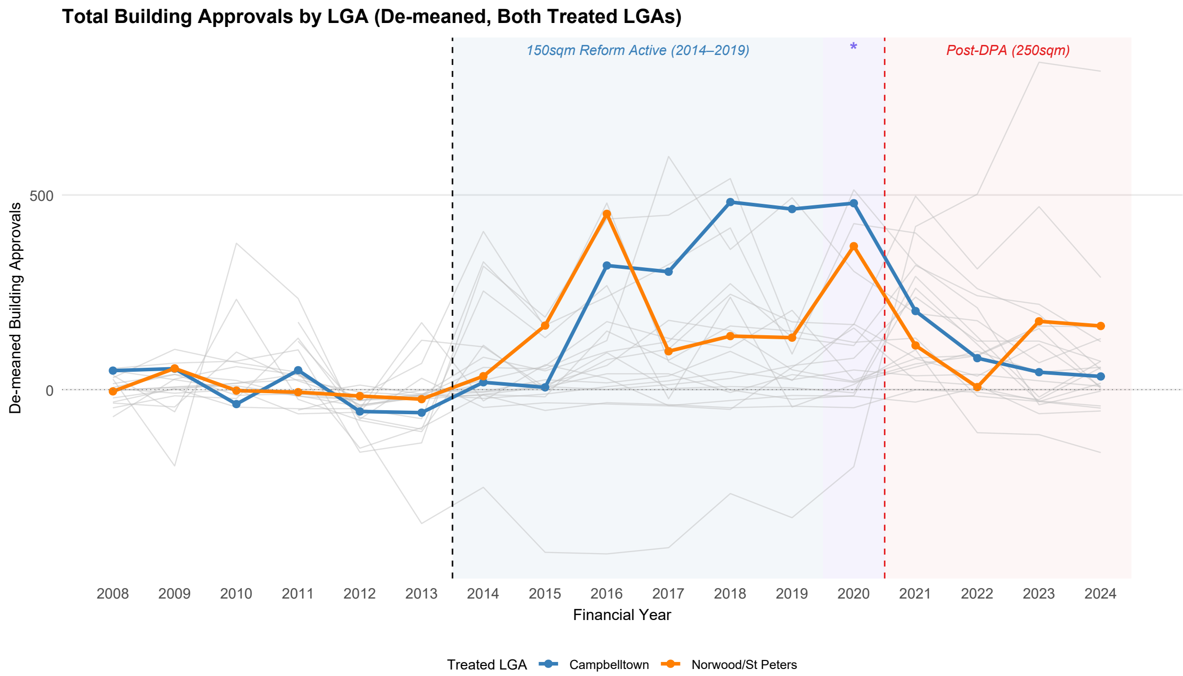


Notes: Years with incomplete register coverage excluded (2012, 2018+). Circles = pre-reform; triangles = reform period. Blue shading = reform period. Source: matched Campbelltown lodged and approved development application registers, 2010–2017.

E Pooled Treatment: Campbelltown and NPSP

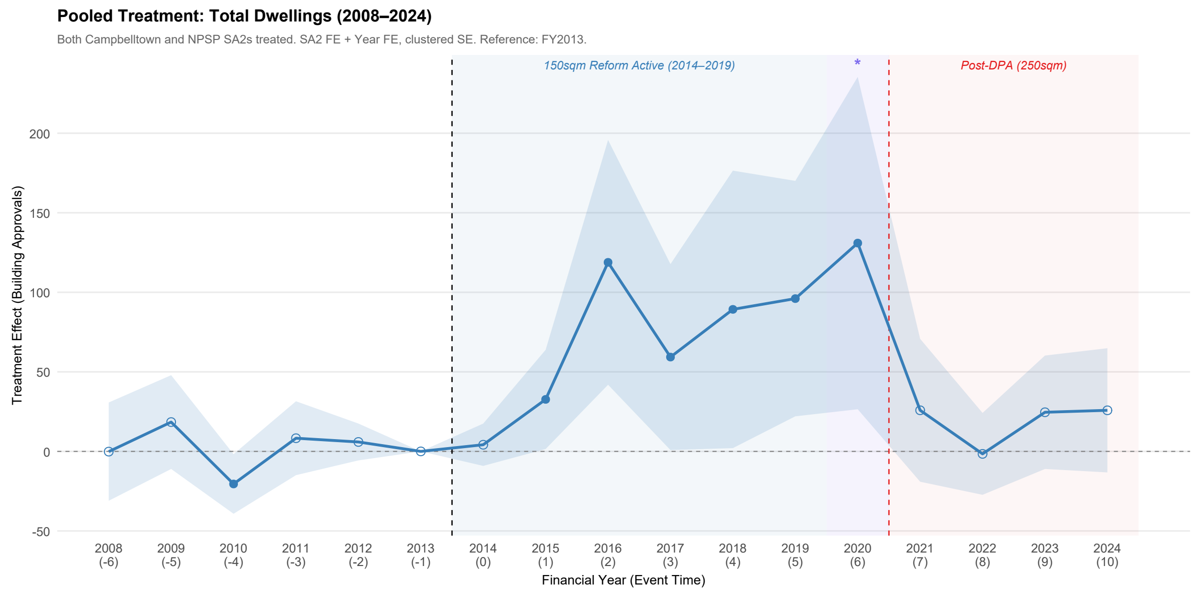
This appendix reports the main building-approvals results when NPSP's three SA2s are included alongside Campbelltown in the treatment group. The pooled treatment effect is qualitatively similar to the Campbelltown-only estimates in Section 4 but somewhat attenuated, reflecting NPSP's later reform approval (June 2015 vs. 2014) and more restrained parameter choices.

Figure E1: Pooled treatment: LGA-level spaghetti plot (de-meaned)



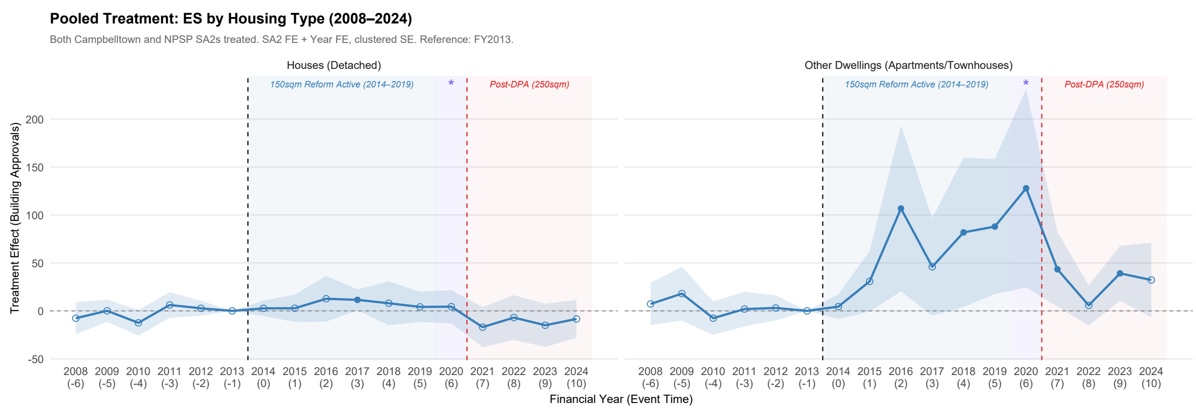
Notes: Blue = Campbelltown; orange = NPSP. De-meaned by pre-treatment (FY2008–2013) average. Source: ABS Building Approvals, aggregated to LGA.

Figure E2: Pooled treatment: event study, total building approvals



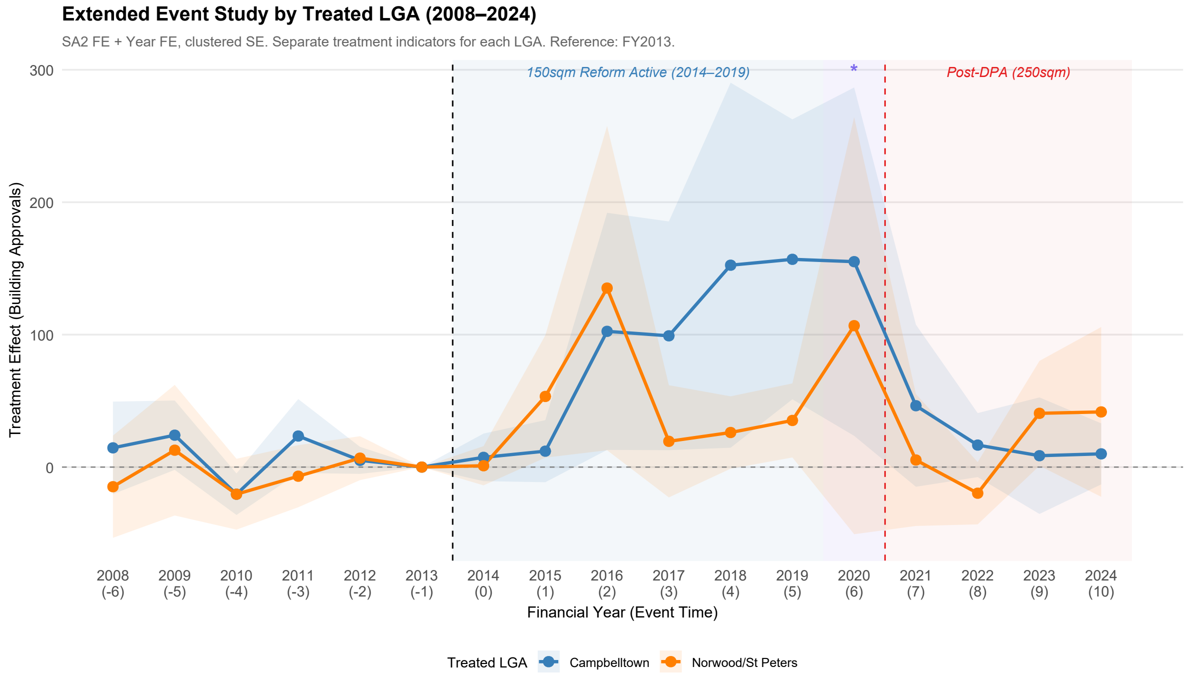
Notes: All 6 SA2s (3 Campbelltown + 3 NPSP) classified as treated. SA2 FE + Year FE, clustered SE. Reference: FY2013. Source: ABS Building Approvals, SA2 panel.

Figure E3: Pooled treatment: event study by housing type



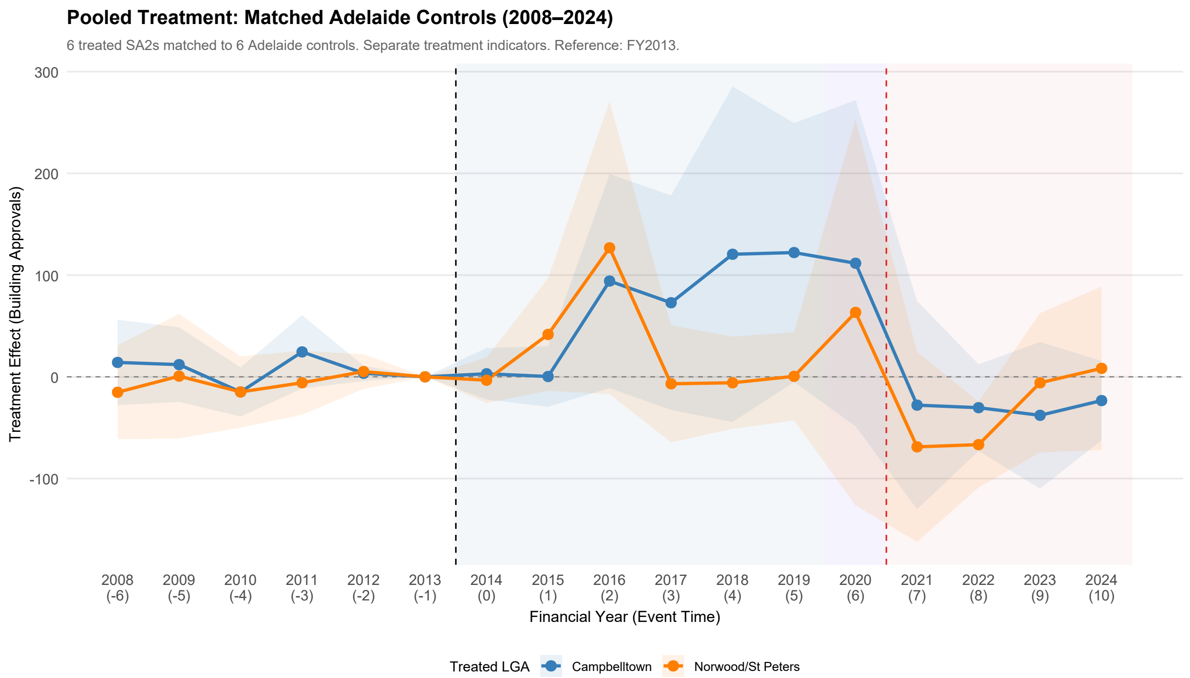
Notes: All 6 SA2s treated. SA2 FE + Year FE, clustered SE. Reference: FY2013. Source: ABS Building Approvals, SA2 panel.

Figure E4: Pooled treatment: event study by treated LGA



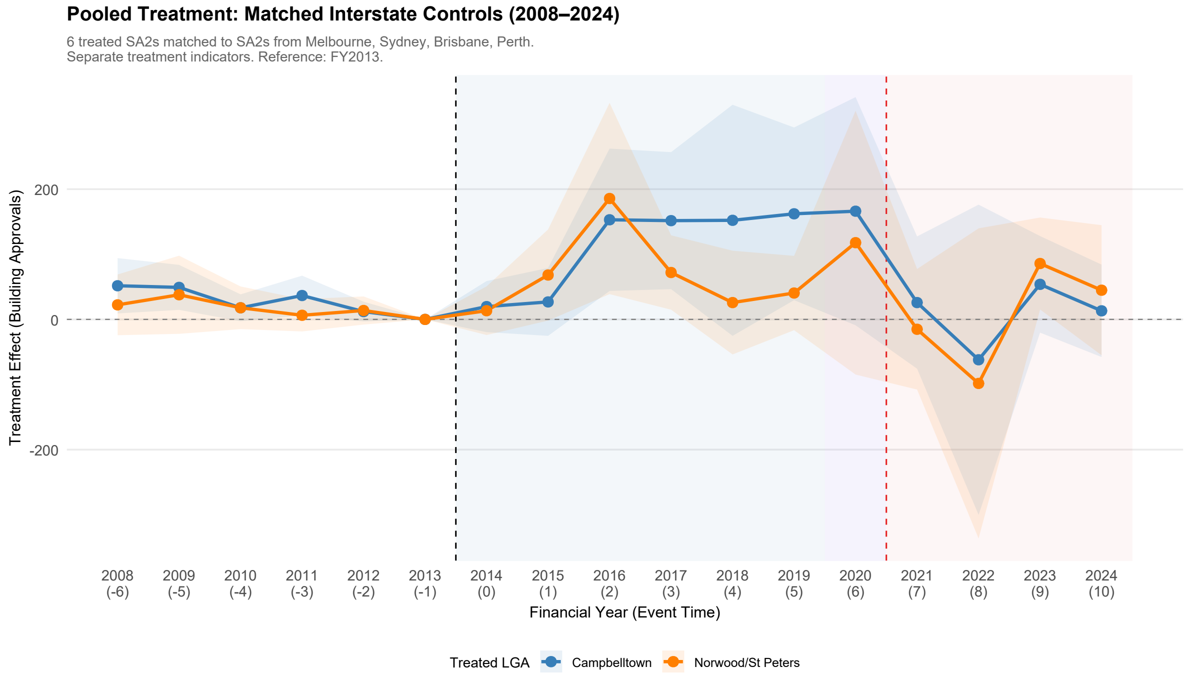
Notes: Separate treatment indicators for Campbelltown (blue) and NPSP (orange). SA2 FE + Year FE, clustered SE. Reference: FY2013. Source: ABS Building Approvals, SA2 panel.

Figure E5: Pooled treatment: matched Adelaide controls



Notes: 6 treated SA2s matched to 6 Adelaide control SA2s. Separate treatment indicators for Campbelltown (blue) and NPSP (orange). Reference: FY2013. Source: ABS Building Approvals, SA2 panel.

Figure E6: Pooled treatment: matched interstate controls



Notes: 6 treated SA2s matched to interstate SA2s from Melbourne, Sydney, Brisbane, Perth. Separate treatment indicators for Campbelltown (blue) and NPSP (orange). Reference: FY2013. Source: ABS Building Approvals, SA2 panel, all capital cities.

F Builder Analysis: Data and Supporting Evidence

This appendix supports the builder-level analysis in Section 5.1.

F.1 Data and Entity Standardization

Development application records identify the party lodging each application, typically the builder, but sometimes a design firm or architect acting on behalf of a client. Raw applicant names are noisy, so we standardise names through automated and manual consolidation, cross-referencing against Australian Business Number (ABN) records where possible. We use data from eight Adelaide LGAs with consistent coverage from 2010 to 2025: Campbelltown (treatment), Burnside, Charles Sturt, Mitcham, Port Adelaide Enfield, Tea Tree Gully, and Walkerville (control), and NPSP. NPSP is excluded from both treatment and control groups, consistent with the building-approvals analysis, but its DAs count toward firm lifetime-unit totals when constructing the sample. The pre-period is 2010–2012; the reform-active period is 2013–2019; the post-reversal period is 2020–2025. Our main sample comprises firms classified as developers or volume builders (excluding individuals and design firms) with at least 10 lifetime dwelling units across the eight LGAs. Medium density is defined as semi-detached, row/townhouse, or residential flat building DAs with 30 or fewer units, excluding high-density apartment towers.

F.2 Robustness Across Sample Definitions

Table F1 reports summary statistics across four sample definitions: the main sample (excluding individuals and design firms, ≥10 lifetime units), and three alternatives that progressively include design firms, individuals, or both.

Table F1: Robustness of builder-level results across sample definitions

Sample	N	Treat. MD/yr		Camp. HHI	Exit
		Pre	Reform	(Reform)	rate (%)
Main (no indiv/design, ≥10)	298	4	164	492	53
Include design firms (≥10)	378	8	234	319	54
Include individuals (≥10)	627	10	217	342	54
Full sample (≥10)	707	13	287	243	55

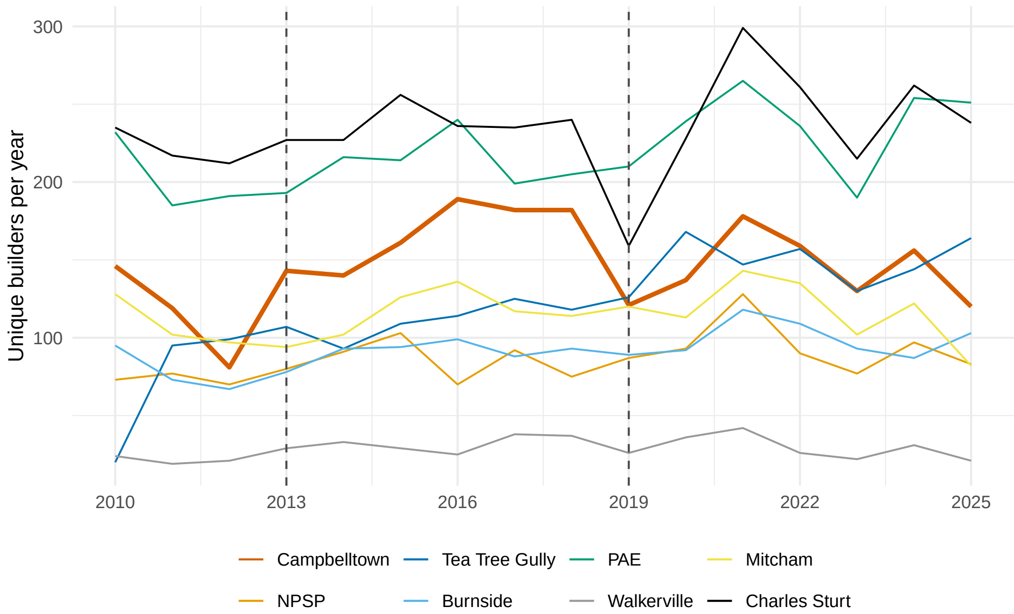
Notes: Each row defines the sample differently. Treat. MD/yr = average annual medium-density units in Campbelltown. Camp. HHI = Herfindahl-Hirschman Index for Campbelltown during the reform period. Exit rate = share of reform-period treatment-LGA firms not observed post-reversal.

The treatment-LGA medium-density increase, HHI, and exit rates are qualitatively unchanged across all four samples. Including design firms raises treatment medium-density output because design firms lodge applications on behalf of developer clients, but HHI falls, consistent with design firms fragmenting measured concentration. Including individuals raises output further but leaves exit rates essentially unchanged.

F.3 Unique Builders Over Time

Figure F1 plots the number of unique builders active per year by LGA. Campbelltown's builder count rose sharply after the reform. Control LGAs showed flat or modest trends. The speed of the response is consistent with existing firms entering a new market rather than new firm formation.

Figure F1: Unique builders active per year by LGA



Notes: Source: council development application registers, eight Adelaide LGAs, 2010–2025.

F.4 Market Structure

The Herfindahl-Hirschman Index (HHI) remained below 1,500 in every LGA-period combination. In Campbelltown, HHI was 420 pre-reform, rose to 492 during the reform, and fell to 392 post-reversal (Table 3). When firms are pooled across all eight LGAs (reflecting the fact that builders routinely operate across LGA boundaries), the region-level HHI was 341 during the reform period and fell to 251 post-reversal. This stability holds year-by-year, not merely in period averages.

F.5 Reallocation Evidence

Figure 9 in the main text reports the Callaway and Sant'Anna (2021) event study estimates for firm-level reallocation. Treatment is defined as a firm's first Campbelltown DA, with 134 firms that never lodge a Campbelltown DA serving as the never-treated control group. Of the 164 treated firms, 32 that were already active in Campbelltown in 2010 (the first year of the panel) are dropped because they have no pre-treatment period. The doubly robust estimator is used with the default inverse probability weighting adjustment. Standard errors are clustered at the firm level, and confidence intervals are simultaneous (accounting for multiple testing across event-time coefficients).

F.6 Intensive vs Extensive Margin

Of the 118 firms active in Campbelltown during the reform, 62 (53 per cent) exited after the reversal, higher than the general exit rate of 33 per cent in non-treatment LGAs. The distinctive treatment-area response was on the intensive margin: among the 56 continuing firms, medium-density output fell from 117 to 24 units per year (a 79 per cent reduction), while their detached-house lodgements were largely unchanged. The majority of the total medium-density decline in Campbelltown was driven by stayers cutting back rather than firms exiting.

G ABN Data

We construct business activity measures from the Australian Business Register (ABR) Bulk Extract, a publicly available dataset containing the universe of Australian Business Number (ABN) registrations. For each ABN, we observe: registration date, cancellation date (if applicable), entity type (e.g., individual, private company, trust, superannuation fund), legal name, trading name(s), postcode, and GST registration status. We map postcodes to study LGAs using the ABS Postcode-to-LGA correspondence (2021 Postcodes to 2022 LGAs), assigning each postcode to its highest-population-weight study LGA. The four Campbelltown postcodes (5073–5076) form the treatment group; postcodes whose primary LGA is NPSP are excluded to avoid contamination from the parallel reform.

We classify businesses by industry using a keyword-based approach applied to legal and trading names. The classification system assigns each ABN to one of approximately 30 categories, with priority given to specific matches (e.g., "cafe," "restaurant," "pizza") before broader patterns (e.g., "food," "catering"). Food and drink categories comprise: cafes, restaurants, takeaways, bakeries, other food businesses, and bars/pubs. For ambiguous food classifications, we conducted web-search verification of approximately 1,600 businesses, reclassifying those confirmed as non-food (e.g., "food equipment suppliers"). As an additional robustness check, we systematically audited the keyword classifications by reviewing business names across all industry categories, reclassifying misidentified businesses (e.g., pharmacies incorrectly classified as health care rather than retail, or computer shops classified as IT rather than retail). This audit produced approximately 25,000 reclassifications across the full dataset. Businesses registered as sole traders (entity type IND) or self-managed superannuation funds (entity type SMF) are identifiable and can be excluded as a robustness check.

Active business stock in year t is defined as the count of ABNs registered on or before year t and not cancelled before year t. New registrations in year t count ABNs with registration year equal to t.

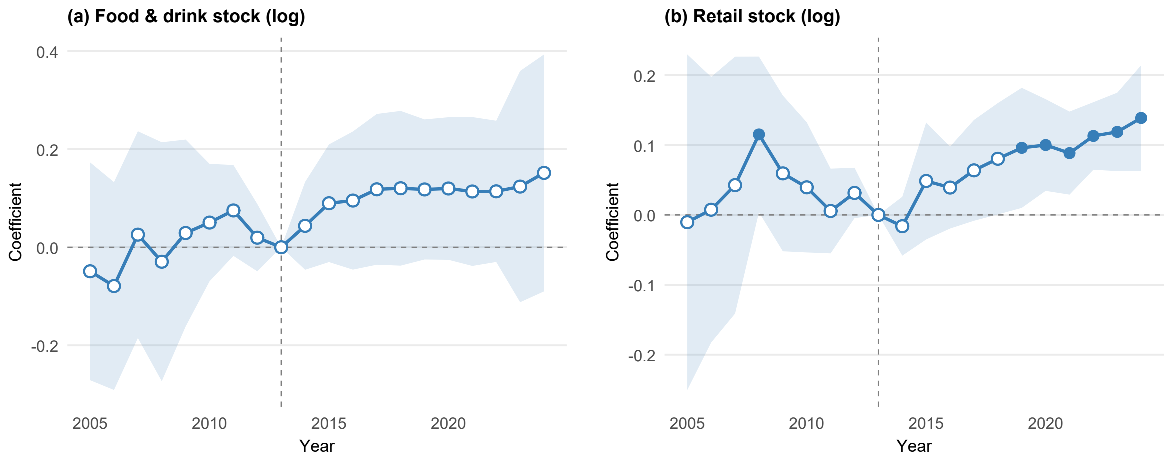
G.1 Baseline DiD Estimates

Table G1: ABN business stock: difference-in-differences estimates

	Food/Drink	Retail	Total
Panel A: Active business stock (log)			
Campbelltown × Post	0.105***	0.047	0.049
	(0.025)	(0.066)	(0.033)
Observations	1,120	1,120	1,120
Panel B: Active business stock (levels)			
Campbelltown × Post	7.935	0.160	24.939
	(7.012)	(4.457)	(189.862)
Observations	1,120	1,120	1,120
Postcode FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Clustering	Postcode	Postcode	Postcode

Notes: Postcode-level DiD using ABR Bulk Extract data (2005–2024). Treatment: 4 Campbelltown postcodes (5073–5076) vs control postcodes in 11 LGAs. Panel A: dependent variable is log(active ABN stock). Panel B: dependent variable is active ABN stock in levels. Standard errors clustered at postcode level in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$.

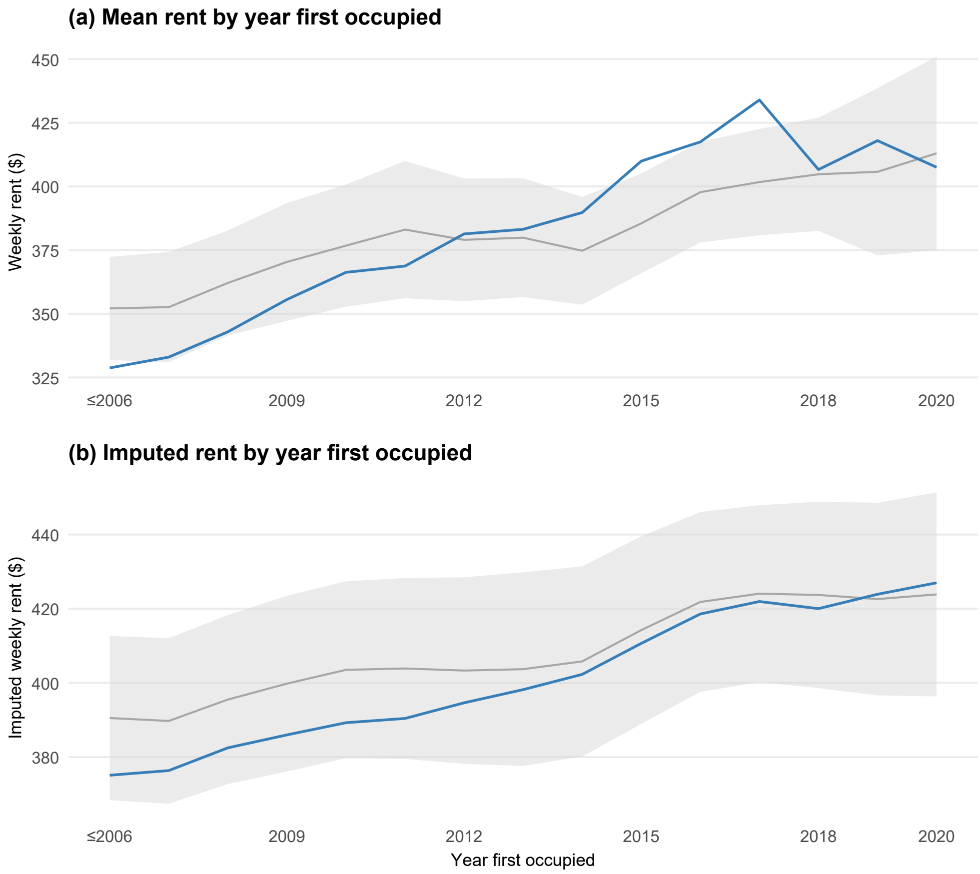
Figure G1: ABN active business stock: event study estimates (log)



Notes: Postcode + year FE, postcode-clustered SEs. Ref = 2013. Filled dots = $p < 0.05$. Ribbon = 95% CI. Dashed line marks the 2014 reform. Source: Australian Business Register bulk extract, 2005–2024.

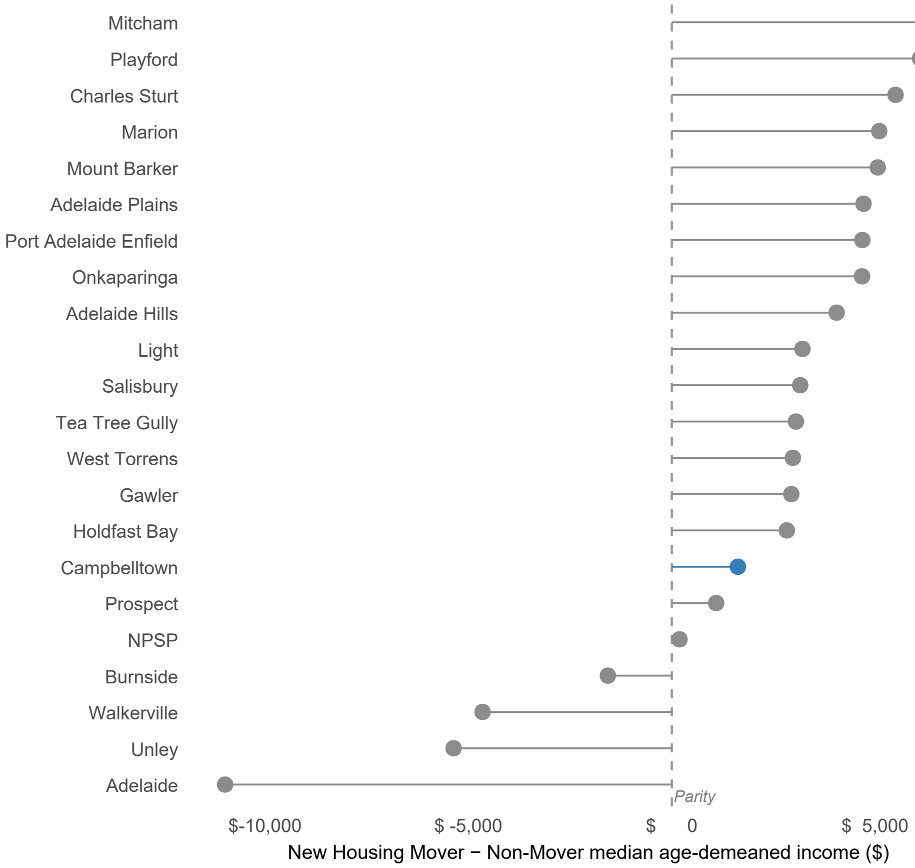
H Movement Chains: Additional Evidence

Figure H1: Quality-adjusted weekly rent by dwelling age, Adelaide LGAs



Notes: Source: 2021 Census via ABS DataLab.

Figure H2: Age-demeaned income difference: new housing movers vs incumbents, by Adelaide LGA



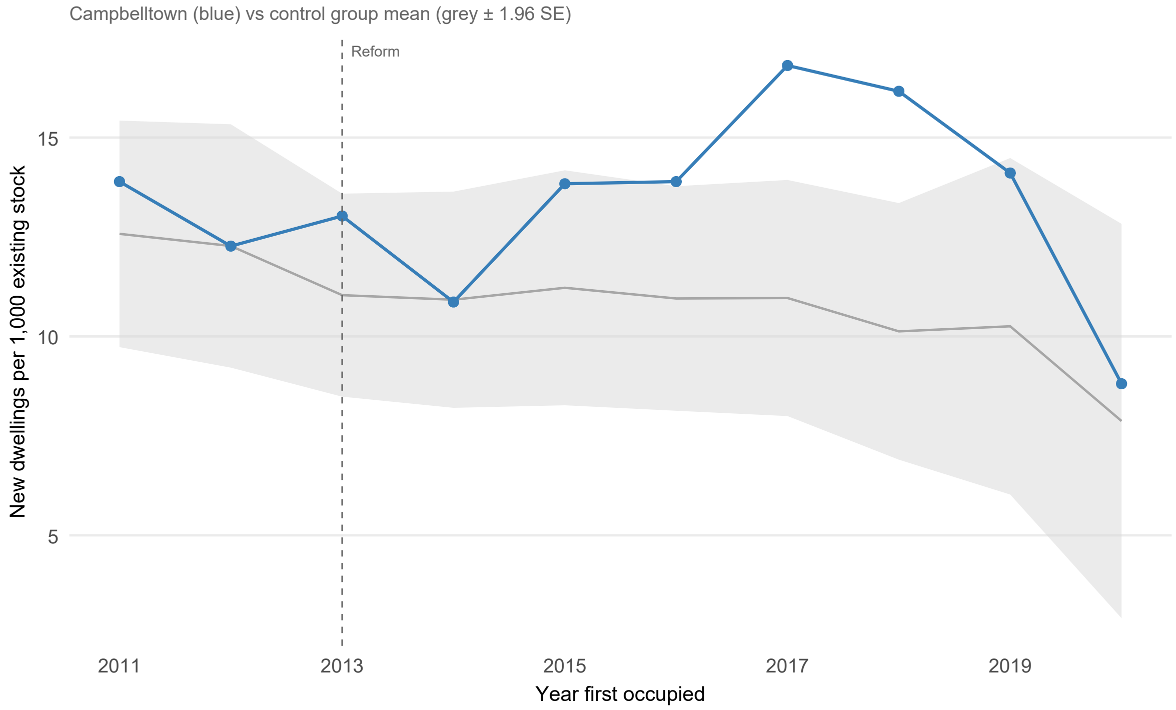
Notes: Age-demeaned income = personal income minus five-year age-cohort mean. Campbelltown highlighted. Source: 2021 Census.

Table H1: Movement chain summary statistics, Campbelltown

	New Housing	Round 1	Round 2	Round 3	Mover	Non-Mover
N	1,440	920	570	340	14,000	27,000
Age	37	32.5	32	31	36	54
Family income ($/yr)	80,247	58,066	51,952	57,723	59,723	65,223
Personal income ($/yr)	48,998	39,003	34,876	38,597	40,373	41,845
Demeaned income ($/yr)	+3,847	−2,097	−7,032	−4,189	−2,927	+20
Rent ($/wk)	453	394	368	366	385	320
Imputed rent ($/wk)	422	389	381	387	389	389
Owner (%)	67.7	51.7	42.2	38.2	50.3	82.3
Partnered (%)	64.7	55.0	54.4	51.5	55.7	48.0
Has children (%)	56.7	48.3	51.4	49.5	51.4	50.2

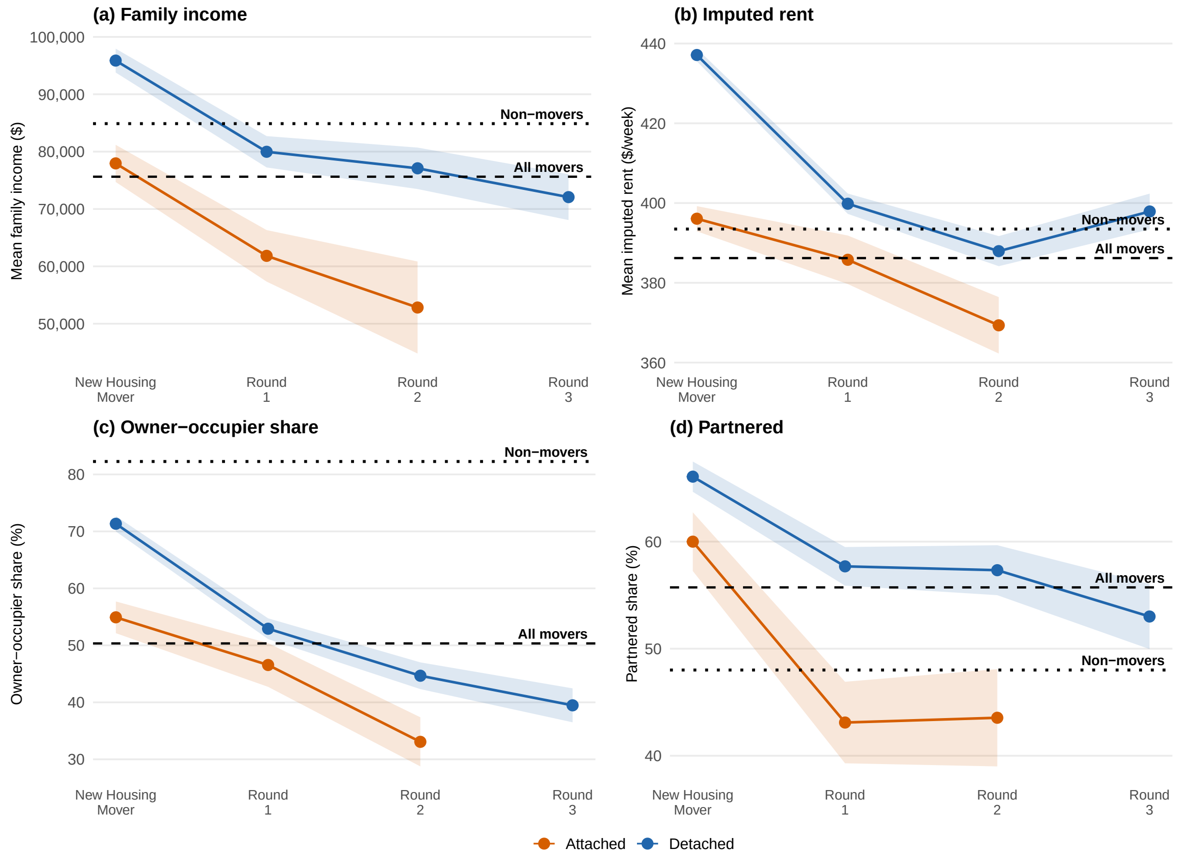
Notes: All values are medians except percentages. Income annualized (5-year total divided by 5). Demeaned income = personal income minus age-cohort mean. Imputed rent = predicted weekly rent from hedonic model including SA2 fixed effects. Source: 2021 Census via ABS DataLab.

Figure H3: New dwelling additions per year: Campbelltown vs control group



Notes: Year of first occupation = year the Address Register identifier first appears. Blue = Campbelltown; gray = control mean ± 1.96 SE. Dashed line marks the 2014 reform. Source: 2021 Census via ABS DataLab.

Figure H4: Movement chains by dwelling type: attached vs detached



Notes: Vermillion = attached; blue = detached. Ribbons = ±1 SE. Panel (b): solid = imputed rent, dashed = actual rent. Horizontal lines = all-mover (dashed) and non-mover (dotted) benchmarks. Family income annualized. Source: 2021 Census via ABS DataLab.

Table H2: Within-Campbelltown regressions: coefficients by chain round

	Round 1	Round 2	Round 3
Age (years)	-2.90^{***}	-4.90^{***}	-5.45^{***}
	(0.70)	(0.98)	(0.99)
Personal income ($/yr)	$-6{,}134^{***}$	$-9{,}206^{**}$	$-8{,}606^{***}$
	(2,088)	(3,744)	(3,062)
Pers. income, age-demeaned ($/yr)	$-4{,}223^{**}$	$-6{,}424^{*}$	$-5{,}810^{**}$
	(1,958)	(3,566)	(2,936)
Family income ($/yr)	$-14{,}347^{***}$	$-18{,}861^{***}$	$-17{,}130^{***}$
	(3,734)	(5,962)	(5,665)
Owner	-0.147^{***}	-0.250^{***}	-0.292^{***}
	(0.027)	(0.034)	(0.043)
Partnered	-0.123^{***}	-0.123^{***}	-0.152^{***}
	(0.024)	(0.031)	(0.036)
Parent (any)	-0.063^{**}	-0.041	-0.066^{*}
	(0.027)	(0.036)	(0.038)

Notes: Round 0 omitted. Standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Income annualized. Source: 2021 Census via ABS DataLab.

Table H3: Attached vs detached: level differences and round interactions

	Attached	Rd 1 × Att.	Rd 2 × Att.	Rd 3 × Att.
Age (years)	-3.36^{***}	0.65	1.11	4.97^{*}
	(1.02)	(1.71)	(2.39)	(2.65)
Personal income ($/yr)	$-9{,}593^{***}$	1,977	3,361	$20{,}518^{**}$
	(2,866)	(4,454)	(11,479)	(8,214)
Pers. income, age-demeaned ($/yr)	$-8{,}833^{***}$	4,090	5,566	$19{,}342^{***}$
	(2,647)	(4,132)	(11,144)	(7,423)
Family income ($/yr)	$-17{,}387^{***}$	658	$-3{,}375$	$31{,}220^{**}$
	(5,449)	(7,735)	(14,781)	(14,953)
Owner	-0.160^{***}	0.096	0.062	0.116
	(0.041)	(0.066)	(0.082)	(0.104)
Partnered	-0.041	-0.041	-0.048	0.026
	(0.039)	(0.059)	(0.077)	(0.077)
Parent (any)	-0.054	-0.074	0.040	-0.060
	(0.042)	(0.068)	(0.084)	(0.087)

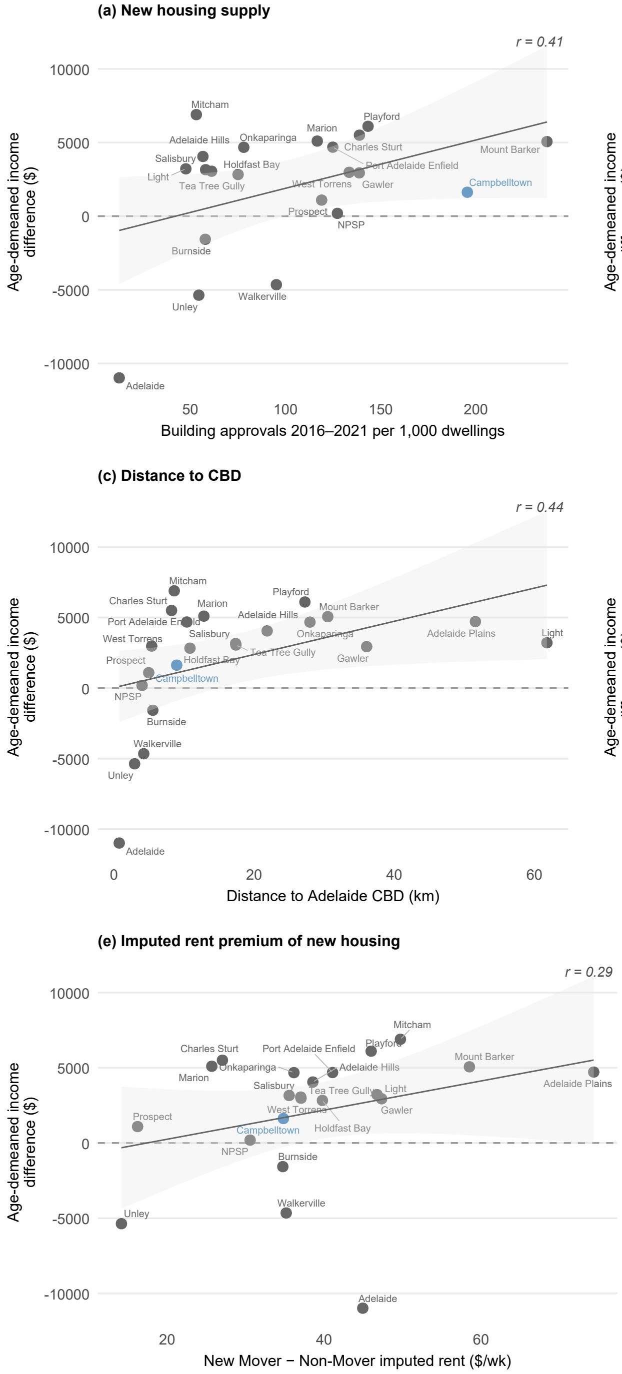
Notes: "Attached" = level difference at Round 0. Interaction columns = change in gap at subsequent rounds. Standard errors in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Income annualized. Source: 2021 Census via ABS DataLab.

Table H4: Triple difference: round × attached × Campbelltown

	Rd 1 × A × T	Rd 2 × A × T	Rd 3 × A × T
Age (years)	2.51	2.88	7.11***
	(1.92)	(2.50)	(2.74)
Personal income ($/yr)	−3,035	−6,455	17,694**
	(5,266)	(11,789)	(8,804)
Pers. income, age-demeaned ($/yr)	−1,078	−4,183	15,333*
	(4,893)	(11,411)	(7,998)
Family income ($/yr)	−13,582	−24,344	22,995
	(9,104)	(15,884)	(16,002)
Imputed rent ($/wk)	−14.96	−21.45	−22.16
	(11.86)	(15.59)	(23.27)
Rent ($/wk)	−51.19**	−6.09	−5.52
	(23.29)	(29.30)	(38.90)
Owner	−0.079	−0.166*	−0.082
	(0.072)	(0.087)	(0.111)
Partnered	−0.059	−0.105	−0.025
	(0.063)	(0.082)	(0.082)
Parent (any)	−0.142*	−0.098	−0.176*
	(0.073)	(0.091)	(0.101)

Notes: A = Attached, T = Campbelltown. Triple interaction coefficients from a regression including round, attached, and Campbelltown indicators with all lower-order interactions. SEs in parentheses. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. Income annualized. Source: 2021 Census via ABS DataLab.

Figure H5: What predicts the age-demeaned income gap across LGAs?



Notes: Campbelltown highlighted. Gray = OLS fit with 95% band. (a) approvals 2016–2021 per 1,000 dwellings, (b) median weekly rent, (c) distance to CBD, (d) non-mover renter share. Source: 2021 Census, ABS Building Approvals.

ABS Disclaimer

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

HILDA Disclaimer

This paper uses unit record data from Household, Income and Labour Dynamics in Australia Survey [HILDA] conducted by the Australian Government Department of Social Services (DSS). The findings and views reported in this paper, however, are those of the authors and should not be attributed to the Australian Government, DSS, or any of DSS' contractors or partners. DOI: 10.26193/GMYVPW.