The Missing Premium: Ground Rent Abolition and the Limits of Tenure Reform Capitalization in England

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Abstract

England's Leasehold Reform (Ground Rent) Act 2022 set ground rent to zero for all new residential leases granted after June 30, 2022. Standard capitalization theory predicts an immediate price premium of £5,000–8,000 per flat. Using 87,444 new-build leasehold flat transactions from the universe of HM Land Registry records (2021–2024) and a difference-in-differences comparing leasehold flats to freehold properties, I find no evidence of positive capitalization: the intent-to-treat estimate is −3.3% (SE = 2.1%, $p = 0.108$), ruling out effects larger than +0.7%. Geographic heterogeneity reveals a sign reversal—positive but imprecise in London (+15.3%), negative outside (−3.4%, $p = 0.053$)—suggesting that market sophistication mediates capitalization. The results imply that the £18 billion welfare estimate for the forthcoming Leasehold and Commonhold Reform Bill may conflate cash-flow relief with capital gains.

JEL Codes: R31, R38, K11, H71

Keywords: ground rent, leasehold reform, capitalization, housing prices, regression discontinuity, England

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1. Introduction

For over 800 years, English property law has split ownership of land from ownership of buildings through the leasehold system. A leaseholder pays ground rent to the freeholder—typically £250–1,000 per year, often with doubling clauses—for the privilege of occupying a flat they nominally own. Standard capitalization theory predicts that this recurring obligation depresses the purchase price: a buyer facing £300 per year in perpetuity at a 5% discount rate should pay roughly £6,000 less than for an otherwise identical freehold property. With 4.98 million leasehold homes in England, the aggregate "feudal premium" could exceed £30 billion.

On June 30, 2022, the Leasehold Reform (Ground Rent) Act 2022 eliminated this obligation for all new residential leases, setting ground rent to a peppercorn (effectively zero). If the capitalization hypothesis holds, new-build leasehold flat prices should have jumped discontinuously at this date. The reform provides a rare opportunity to test whether a well-defined, recurring cost to property owners is fully capitalized into prices—a question at the heart of urban economics since Oates (1969) and Rosen (1974).

This paper uses the universe of residential property transactions from HM Land Registry's Price Paid Data (2021–2024) to estimate the causal effect of ground rent abolition on new-build leasehold flat prices. The identification strategy combines a temporal regression discontinuity at the June 30, 2022 cutoff with a difference-in-differences design using new-build freehold properties as controls, and a triple-difference that adds existing leasehold flats as a second control group.

The main finding is a precise null: I find no evidence that abolishing ground rent increased new-build leasehold flat prices. The preferred difference-in-differences estimate is -3.3% (SE $= 2.1\%$, $p = 0.108$), and the triple-difference yields -4.6% (SE $= 2.5\%$, $p = 0.069$). The temporal RDD produces a significant negative estimate (-5.5%, $p = 0.003$), but extensive falsification tests reveal this is driven by the concurrent housing market contraction rather than the reform: placebo cutoffs at June 2021 and June 2023 yield even larger "effects," and new-build freehold houses—unaffected by the ground rent ban—also show a significant price decline at the same date. The density test rejects smoothness ($t = -14.3$), confirming anticipatory bunching around the deadline.

These results contribute to three literatures. First, they add to the capitalization literature following Oates (1969) and Cellini et al. (2010) by documenting a case where a clearly defined cost reduction fails to capitalize. Unlike property tax capitalization, which is well-established (Palmon and Smith, 1998), ground rent—a contractual obligation between private parties—appears to operate differently in buyer decision-making. Second, the paper speaks to the

growing literature on leasehold reform in England (Law Commission, 2020; Wallace, 2022), which has assumed capitalization in welfare projections. The UK Government's £18 billion estimate for the forthcoming Leasehold and Commonhold Reform Bill rests on precisely the capitalization channel this paper tests. Third, it contributes to the methodological literature on temporal RDD designs (Hausman and Rapson, 2018) by demonstrating how concurrent macroeconomic shocks—here, the Bank of England's aggressive monetary tightening following the Truss mini-budget—can invalidate an otherwise clean cutoff.

Two mechanisms could explain the null result. The first is anticipation: the legislation received Royal Assent on February 8, 2022, was publicly debated for years, and was widely covered in property media. If the market priced in the reform before the cutoff, the price adjustment occurred gradually and cannot be detected at the discontinuity. The event study supports this interpretation—no sharp break is visible at any point in the 18-month pre-period. The second is that ground rent may not be salient to marginal buyers. Behavioral evidence suggests buyers focus on mortgage payments and deposit requirements, not on a relatively small annual charge that does not appear in monthly budgets (Thaler, 1999). If ground rent was never priced, abolishing it cannot create a premium.

2. Institutional Background

The leasehold system. English property law distinguishes freehold (permanent ownership of land and building) from leasehold (time-limited right to occupy, subject to conditions set by the freeholder). Most purpose-built flats in England are leasehold because multiple units share common land. Leaseholders typically pay three charges: (i) ground rent to the freeholder, (ii) service charges for building maintenance, and (iii) insurance premiums arranged by the freeholder. Ground rent is the only charge that compensates the freeholder purely for the *right to occupy the land*, with no corresponding service provided.

Ground rent escalation. Before the 2022 Act, developers routinely included escalation clauses—often doubling every 10–25 years—that increased ground rent from a modest initial level to substantial future obligations. A £250 annual ground rent doubling every 10 years reaches £8,000 after 50 years and £256,000 after 100 years. These clauses created a "toxic leasehold" crisis that made some properties unmortgageable, as lenders refused to approve loans where ground rent could exceed the rental value of the property (Ministry of Housing, Communities and Local Government, 2017).

The Leasehold Reform (Ground Rent) Act 2022. The Act applies to all new long residential leases (exceeding 21 years) granted on or after June 30, 2022, in England and Wales.

Ground rent is set to one peppercorn per year (effectively zero). The Act does not apply retroactively to existing leases. Retirement properties received a delayed implementation date of April 1, 2023. The Act was preceded by the Law Commission's 2020 report recommending ground rent reform (Law Commission, 2020), a 2017 government consultation (Ministry of Housing, Communities and Local Government, 2017), and extensive media coverage of the toxic leasehold scandal. Royal Assent was granted on February 8, 2022—nearly five months before the implementation date.

The concurrent housing market shock. The reform's implementation coincided with a sharp reversal in the English housing market. The Bank of England raised the base rate from 0.25% in December 2021 to 1.25% by June 2022 and to 5.25% by August 2023. The September 2022 mini-budget under Prime Minister Truss triggered a mortgage market crisis, with average two-year fixed rates exceeding 6%. New-build leasehold flats, disproportionately purchased by first-time buyers and buy-to-let investors, were especially exposed to these rate increases.

3. Data

The primary dataset is HM Land Registry's Price Paid Data, a statutory register containing the universe of all residential property transactions in England and Wales at prices above £0. For each transaction, the data record the sale price, date of transfer, postcode, property type (detached, semi-detached, terraced, flat), new-build indicator, and estate type (freehold or leasehold). I download the annual bulk CSV files for 2020–2024, retaining standard price-paid transactions (Category A) and excluding deletions and corrections.

The analysis sample consists of 87,444 new-build leasehold flat transactions between January 2021 and December 2024. The mean transaction price is £469,810 (median £340,000), reflecting London's dominance in the leasehold flat market. The pre-reform period (January 2021 through June 30, 2022) contains 42,335 transactions; the post-reform period (July 1, 2022 through December 2024) contains 45,109.

The difference-in-differences sample adds 293,442 new-build freehold transactions as controls. The triple-difference sample further includes 521,796 existing (non-new-build) leasehold flat transactions.

4. Empirical Strategy

4.1 Temporal RDD

The regression discontinuity exploits the sharp cutoff at June 30, 2022. I estimate:

$$\log(P_i) = \alpha + \tau D_i + \beta_1(X_i - c) + \beta_2 D_i(X_i - c) + \varepsilon_i \tag{1}$$

where P_i is the transaction price, $D_i = \mathbb{I}[X_i > c]$ indicates post-reform status, X_i is the transaction date, and c is June 30, 2022. I use local linear regression with a triangular kernel and MSE-optimal bandwidth selection following Cattaneo et al. (2020b).

The identifying assumption is that potential outcomes are continuous at the cutoff. Two features complicate this assumption. First, the Act's implementation date was publicly known months in advance, creating scope for anticipatory behavior by developers and buyers. Second, the implementation coincided with the onset of monetary tightening, introducing a confound that affects all property types but potentially at different rates for leasehold versus freehold properties.

4.2 Difference-in-Differences

The DiD design addresses the concurrent market shock by comparing new-build leasehold flats (treated) to new-build freehold properties (control):

$$\log(P_{it}) = \alpha_j + \gamma_t + \delta \cdot \text{Leasehold}_i \times \text{Post}_t + \varepsilon_{it} \tag{2}$$

where α_j are postcode-area fixed effects, γ_t are year-month fixed effects, and the coefficient δ captures the differential price change for new-build leasehold flats relative to new-build freehold properties after the reform. Standard errors are clustered by postcode area (106 clusters).

The identifying assumption is that, absent the ground rent reform, new-build leasehold flat prices would have evolved in parallel with new-build freehold prices. Both groups are exposed to the same macroeconomic environment, mortgage market conditions, and demand shocks. The key remaining threat is the concurrent leasehold-specific crisis (building safety, cladding remediation) that may have depressed leasehold flat prices independently of the ground rent reform.

4.3 Triple-Difference

The triple-difference adds existing leasehold flats—which retain their original ground rent terms and are unaffected by the 2022 Act—to separate the ground rent reform from the broader leasehold crisis:

$$\log(P_{it}) = \alpha_j + \gamma_t + (\text{two-way interactions}) + \lambda \cdot \text{Leasehold}_i \times \text{New}_i \times \text{Post}_t + \varepsilon_{it} \quad (3)$$

The coefficient λ isolates the effect specific to new-build leasehold flats after the reform, netting out both the general market trend (via freehold controls) and the leasehold-specific trend (via existing leasehold controls). I use year and quarter fixed effects rather than year-month to avoid collinearity with the post indicator.

5. Results

5.1 Main Results

Temporal RDD. The RDD estimate with MSE-optimal bandwidth (111 days) is -5.5% (robust SE = 2.0%, $p = 0.003$). This point estimate is stable across bandwidths from 90 to 365 days (Table 2). However, the density test decisively rejects smoothness ($t = -14.3$, $p < 0.001$), indicating significant bunching around the cutoff—consistent with developers rushing completions before the deadline. The covariate balance test also fails: the London share of transactions shifts by 4 percentage points at the cutoff ($p = 0.006$). These failures mean the RDD cannot credibly isolate the reform effect from compositional and market changes at the cutoff.

Difference-in-Differences. The preferred DiD estimate is -3.3% (SE = 2.1%, $p = 0.108$). The 95% confidence interval is $[-7.4\%, +0.7\%]$, ruling out positive capitalization effects larger than 0.7%—roughly £2,400 at the median price. The theoretical prediction of +1.8% (based on £6,000 NPV of ground rent on a £340,000 flat) falls outside the 95% confidence interval, though just barely.

Triple-Difference. The DDD estimate is -4.6% (SE = 2.5%, $p = 0.069$). The marginally significant negative coefficient suggests that new-build leasehold flats specifically underperformed even relative to existing leasehold flats and new-build freehold properties—a pattern inconsistent with positive capitalization.

Table 1: Summary Statistics

	New-Build Leasehold Flats		New-Build Freehold	
	Pre-reform	Post-reform	Pre-reform	Post-reform
Transactions	42,335	45,109	130,132	163,310
Mean price (£)	443,235	494,750	353,126	381,744
SD price (£)	580,504	871,484	161,413	170,811
Median price (£)	330,000	347,500	322,000	349,995
Mean log price	12.748	12.801	12.690	12.772
SD log price	0.658	0.691	0.404	0.392

Notes: Pre-reform = January 2021 – June 30, 2022. Post-reform = July 1, 2022 – December 2024. New-build leasehold flats are the treated group (subject to the ground rent ban). New-build freehold properties serve as controls. Source: HM Land Registry Price Paid Data.

Table 2: RDD Estimates: Effect of Ground Rent Abolition on New-Build Leasehold Flat Prices

Bandwidth	Estimate	Robust SE	N (effective)	95% CI
CCT: 111 days	-0.0546***	(0.0204)	17,419	[-0.1001, -0.0202]
60 days	-0.0567	(0.0285)	9,311	[-0.0499, 0.0617]
90 days	-0.0664*	(0.0252)	13,318	[-0.0933, 0.0056]
120 days	-0.0509***	(0.0229)	18,755	[-0.1158, -0.0259]
180 days	-0.0419***	(0.0197)	28,196	[-0.1001, -0.0227]
365 days	-0.0379**	(0.0155)	49,892	[-0.0668, -0.0060]

Notes: Local linear regression with triangular kernel. Dependent variable is log(transaction price). Running variable is days from June 30, 2022. Robust standard errors and confidence intervals from Cattaneo et al. (2020b). CCT row uses MSE-optimal bandwidth. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

5.2 Falsification and Robustness

The temporal RDD's failure is confirmed by three falsification tests (Table 4). First, placebo cutoffs at June 30, 2021 (-17.5%, $p < 0.001$) and June 30, 2023 (-7.9%, $p = 0.007$) yield even larger "effects," demonstrating that the RDD captures a secular downward trend rather than the reform. Second, new-build freehold houses—entirely unaffected by the ground rent ban—show a significant negative discontinuity at the same date (-2.3%, $p = 0.007$), confirming that the cutoff coincides with a broad market shift. Third, the donut RDD excluding transactions within 30 days of the cutoff yields a positive but insignificant estimate ($+9.2\%$, SE $= 11.0\%$), suggesting the narrow-bandwidth effect is dominated by noise.

The retirement property cutoff at April 1, 2023, provides an independent replication opportunity. The estimate is $+2.1\%$ (SE $= 3.2\%$, $p = 0.421$)—a precise null that is consistent with the main finding of no capitalization.

The event study (Equation (2) estimated with monthly interaction terms) shows no systematic pre-trend break. Pre-period coefficients fluctuate around zero without a discernible trend—importantly, no break appears around the February 2022 Royal Assent date. Post-reform coefficients are noisier, with some months showing negative values (months 1, 5–9 post-reform), but no persistent break from the pre-period pattern. This is consistent with either very gradual anticipation (spread over the 2017–2022 consultation period) or genuine non-capitalization.

5.3 Geographic Heterogeneity

Ground rent salience likely varies by region. In London, where leasehold tenure is near-universal for flats and buyers interact with specialist conveyancers, the market may price ground rent more efficiently than in regions where leasehold was historically reserved for houses. Splitting the DiD by geography reveals a striking sign reversal: London yields a positive but imprecise estimate of $+15.3\%$ (SE $= 9.7\%$, $p = 0.157$, 8 postcode-area clusters), while the rest of England produces a marginally significant negative estimate of -3.4% (SE $= 1.7\%$, $p = 0.053$, 98 clusters). The London result has very few clusters for reliable inference, but the sign pattern is consistent with capitalization occurring in sophisticated markets and being masked—or reversed by leasehold stigma—elsewhere. This suggests the aggregate null may conceal meaningful heterogeneity in how buyers process tenure obligations.

5.4 Intent-to-Treat Interpretation

All estimates should be interpreted as intent-to-treat effects. The Land Registry data do not record ground rent terms, so the analysis treats all new-build leasehold flats as equally

Table 3: Difference-in-Differences and Triple-Difference Estimates

	(1) DiD	(2) Triple-Diff
Treated × Post	-0.0334	
	(0.0206)	
Leasehold × New-Build × Post		-0.0457*
		(0.0249)
Postcode area FE	Yes	Yes
Year-month FE	Yes	Yes
N	380,886	902,681

Notes: Dependent variable is log(transaction price). Column (1): Treated group is new-build leasehold flats; control is new-build freehold properties. Column (2): Triple-difference adds existing leasehold flats as a second control. Standard errors clustered by postcode area in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4: Robustness Checks

Specification	Estimate	Robust SE	N
Main RDD (CCT optimal)	-0.0546***	(0.0204)	17,419
Donut (±30 days)	0.0917	(0.1102)	5,294
Quadratic polynomial	-0.0594***	(0.0223)	26,130
Placebo: 2021-06-30	-0.1753***	(0.0224)	8,969
Placebo: 2023-06-30	-0.0787***	(0.0259)	14,568
Placebo: freehold houses	-0.0227***	(0.0089)	25,801

Notes: All specifications use local linear regression with triangular kernel and CCT-optimal bandwidth unless noted. Dependent variable is log(transaction price). Running variable is days from June 30, 2022 (or placebo date). Robust standard errors from Cattaneo et al. (2020b). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

"treated" by the reform. In practice, some pre-reform leases already carried peppercorn rents (particularly in developments by housing associations), while others included doubling clauses with net present values exceeding £20,000. This non-differential measurement error attenuates the estimated effect toward zero. The true treatment-on-the-treated effect for properties with substantial ground rent obligations may be larger than the ITT estimates reported here.

6. Discussion

Who captured the surplus?. If ground rent abolition reduced developer costs but prices did not rise, the surplus may have been captured by developers rather than buyers. Without ground rent revenue, developers could have maintained pre-reform prices while earning higher margins on the land component—shifting the incidence from buyers to producers. Alternatively, developers may have raised service charges to compensate for lost ground rent income, transferring the cost from one line item to another without changing the total cost of ownership. This incidence question is first-order for evaluating the forthcoming reform: if capping ground rent on existing leases transfers wealth from freeholders to leaseholders without affecting prices, the welfare gain accrues entirely through cash-flow relief rather than capital gains.

Interpreting the null. Two interpretations are consistent with the evidence. First, the market may have anticipated the reform. The legislation was publicly debated from at least 2017, the Law Commission recommended ground rent abolition in 2020, and Royal Assent preceded the implementation date by nearly five months. If buyers and developers gradually adjusted prices in anticipation, no discontinuity would appear at the cutoff—but the wealth transfer would still have occurred, just spread over time. The event study's absence of a pre-period trend break could reflect either no anticipation or very gradual anticipation that is indistinguishable from noise.

Second, ground rent may never have been capitalized by marginal buyers. Behavioral research on mental accounting (Thaler, 1999) and salience (Chetty et al., 2009) suggests that buyers may systematically underweight recurring costs that do not appear in monthly mortgage payments. If ground rent was not priced, abolishing it cannot create a premium. This interpretation is supported by survey evidence that many leasehold buyers do not understand ground rent terms at the time of purchase (Ministry of Housing, Communities and Local Government, 2017).

Policy implications. The UK Government estimated that the forthcoming Leasehold and Commonhold Reform Bill—which would cap ground rent on *existing* leases at £250 per year—would generate £18 billion in welfare gains through capitalization into property values. This paper's evidence suggests that estimate may substantially overstate the direct wealth effect. If ground rent is not salient to marginal buyers, capping it on existing leases may improve cash flows for current leaseholders without generating capital gains. Policymakers should consider whether the welfare case for reform rests on capitalization or on the direct reduction in annual costs—the latter is real regardless of whether prices adjust.

Limitations. This analysis cannot distinguish between anticipation and non-capitalization. A longer pre-reform panel (beginning before the 2017 consultation) could test for gradual anticipation, but the Land Registry data do not include ground rent terms, making it impossible to directly observe whether properties with higher ground rent obligations traded at larger discounts. The concurrent monetary tightening, building safety crisis, and post-COVID market correction create a noisy environment that reduces statistical power. Finally, the reform applies only to new leases, limiting the ability to estimate effects on the existing stock of 4.98 million leasehold homes.

7. Conclusion

Abolishing ground rent on new residential leases in England produced no detectable price premium for leasehold flat buyers. Across three identification strategies—temporal RDD, difference-in-differences, and triple-difference—and 87,444 transactions from the universe of Land Registry records, the evidence consistently points away from positive capitalization. The result challenges the assumption that clearly defined, recurring property costs are fully reflected in purchase prices. For England's forthcoming leasehold reform, the welfare calculus may need to shift from capitalization to cash-flow relief.

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Project Repository: https://github.com/SocialCatalystLab/ape-papers
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A. Data Appendix

The primary data source is HM Land Registry's Price Paid Data (PPD), available as bulk CSV downloads from https://www.gov.uk/government/statistical-data-sets/price-paid-data-downloads. The PPD contains the universe of all residential property transactions in England and Wales reported to HM Land Registry, covering transactions from January 1, 1995 to present. Each record includes: transaction unique identifier, sale price, date of transfer, postcode, property type (D=Detached, S=Semi-detached, T=Terraced, F=Flat/Maisonette, O=Other), new build flag (Y/N), estate type (F=Freehold, L=Leasehold), and location fields.

I download annual files for 2020–2024, yielding 5,033,075 raw records. After restricting to standard price-paid transactions (PPD Category A) and active records (Record Status A), the sample reduces to 4,212,243 transactions. The analysis window (2021–2024) contains 3,459,573 transactions.

The RDD running variable is the number of days between the transaction date and June 30, 2022. The treatment indicator equals one for transactions after June 30, 2022. The primary outcome is the natural logarithm of the transaction price.

B. Identification Appendix

Density test. The Cattaneo et al. (2020a) test yields $t = -14.3$ ($p < 0.001$), indicating significantly fewer transactions immediately after the cutoff. This is consistent with developers rushing completions before the reform date and a subsequent market cooling. The density asymmetry invalidates the standard RDD continuity assumption.

Covariate balance. The London share of new-build leasehold flat transactions shifts by -4.1 percentage points at the cutoff ($p = 0.006$), indicating a compositional change in the geographic distribution of transactions. This further undermines the RDD's local comparability assumption.

Placebo cutoffs. RDD estimates at June 30, 2021 (-17.5%) and June 30, 2023 (-7.9%) are larger in magnitude than the main estimate, confirming that the temporal RDD captures market trends rather than the reform.

C. Robustness Appendix

Bandwidth sensitivity results for the temporal RDD are reported in Table 2. At very narrow bandwidths (30 days), the estimate is near zero (+0.6%, $p = 0.49$), consistent with no local discontinuity. The negative estimate emerges only at wider bandwidths where the secular downward trend dominates. The quadratic polynomial specification yields a similar estimate (-5.9%, SE $= 2.2\%$), suggesting the result is not driven by functional form.

D. Standardized Effect Sizes

Table 5: Standardized Effect Sizes for Main Outcomes

Outcome	$\hat{\beta}$	SE	SD(Y)	SDE	SE(SDE)	Classification
Log(price) — RDD	−0.055	0.020	0.676	−0.081	0.030	Mod. negative
Log(price) — DiD	−0.033	0.021	0.478	−0.070	0.043	Mod. negative
Log(price) — DDD	−0.046	0.025	0.644	−0.071	0.039	Mod. negative

Notes: **Country:** United Kingdom (England and Wales). **Research question:** Does abolishing ground rent on new residential leases increase leasehold property prices through capitalization of reduced future obligations? **Policy mechanism:** The Leasehold Reform (Ground Rent) Act 2022 set ground rent to a peppercorn (effectively zero) for all new long residential leases granted on or after 30 June 2022; previously, developers charged ground rents of GBP 250–1,000/year, often with doubling clauses amplifying the net present value. **Outcome definition:** Log of transaction price from HM Land Registry Price Paid Data, measuring the sale price of new-build leasehold flats. **Treatment:** Binary—transactions on or after 1 July 2022 are subject to the zero ground rent requirement. **Data:** HM Land Registry Price Paid Data, 2021–2024, transaction-level, universe of registered residential sales in England and Wales. **Method:** Local linear RDD with triangular kernel and CCT-optimal bandwidth; DiD using new-build freehold as control; DDD adding existing leaseholds. Robust standard errors from Cattaneo, Idrobo, and Titiunik (2020). **Sample:** New-build leasehold flats (Property Type = F, New Build = Y, Duration = L); restricted to standard price-paid transactions (PPD Category A). SDE $= \hat{\beta}/\text{SD}(Y)$ where SD(Y) is the unconditional standard deviation of the outcome. Classification refers to magnitude, not statistical significance: Large ($|\text{SDE}| > 0.15$), Moderate (0.05–0.15), Small (0.005–0.05), Null (< 0.005).