When the Train Doesn't Come: Property Values and the Cancellation of HS2 Phase 2

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Abstract

On October 4, 2023, the UK government abruptly cancelled High Speed 2 Phase 2, the planned rail extension from Birmingham to Manchester and Leeds. We examine the property value consequences using 2.1 million residential transactions from HM Land Registry. A naïve difference-in-differences finds that properties near cancelled Phase 2 stations gained 3.2 percent relative to the broader sample. However, event-study evidence reveals pre-existing convergence trends and no discrete break at the announcement date; the pre-trend F-test decisively rejects parallel trends. We find no detectable change in relative price trajectories attributable to the cancellation. This absence of a measurable effect is consistent with housing markets not having fully capitalized the anticipated infrastructure—plausibly due to the project's history of cost overruns and political uncertainty—or with blight-relief effects offsetting accessibility losses.

JEL Codes: R41, R31, H54, R42

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1. Introduction

A homeowner in Crewe, Cheshire, woke up on October 5, 2023 to discover that the high-speed rail station planned for her town—a project that had received parliamentary approval, attracted speculative investment, and disrupted her neighborhood through years of land acquisition—would never be built. The UK government had cancelled HS2 Phase 2, the northern extension of Britain's most expensive infrastructure project, with no advance warning and no parliamentary vote. The question this paper asks is simple: did the housing market notice?

The answer matters for how we think about infrastructure policy. A vast literature documents that proximity to transit raises property values (Gibbons and Machin, 2005; Heblich et al., 2020; Severen, 2023; Tsivanidis, 2023). These premiums are typically estimated around new stations *after they open*. But the policy-relevant question is often about *anticipated* infrastructure—projects announced, approved, even under construction—rather than completed lines. If housing markets capitalize announced infrastructure, then cancellations destroy real household wealth. If they do not, then the political costs of cancellation are smaller than assumed.

We study the surprise cancellation of HS2 Phase 2, announced by Prime Minister Rishi Sunak on October 4, 2023, at the Conservative Party conference. Phase 2 would have extended high-speed rail from Birmingham northward in two branches: westward to Crewe and Manchester, and eastward through the East Midlands Hub (Toton) to Sheffield and Leeds. The cancellation was genuinely unexpected. Phase 2a—Birmingham to Crewe—had received Royal Assent in June 2021. HS2 Ltd was actively acquiring properties along the route through compulsory purchase orders. The decision was made without public consultation, parliamentary debate, or leaked signals. The cancellation destroyed anticipated travel-time reductions of 30 to 50 minutes on intercity journeys: Manchester to London would remain at two hours and seven minutes rather than falling to one hour and eight minutes.

The identification strategy exploits a powerful within-project control group. While Phase 2 was cancelled, Phase 1—connecting London Euston to Birmingham Curzon Street—continues under construction. Properties near Phase 1 stations share the same project-level uncertainty, the same macroeconomic environment, and the same housing market cycles as Phase 2 communities, but did not receive the cancellation shock. This design isolates the effect of cancellation from any confounding time trends, changes in interest rates, or shifts in the broader housing market.

We use the complete universe of residential property transactions from HM Land Registry, covering over six million sales between 2019 and 2024. Every transaction is geocoded to

its postcode and linked to the nearest HS2 station site, allowing us to construct distance-based treatment rings. Our primary specification is an event-study difference-in-differences comparing properties within 5 kilometers of cancelled Phase 2 station sites to the rest of the sample, before and after the October 2023 announcement. A within-project specification restricts the sample to properties within 10 km of any HS2 station (Phase 1 or Phase 2), comparing Phase 2 areas to Phase 1 areas that share the same project-level exposure.

The naïve difference-in-differences estimate is positive: properties within 5 km of cancelled Phase 2 stations gained 3.2 percent relative to the broader sample ($p < 0.001$) and 8.3 percent relative to Phase 1 areas ($p < 0.001$). At first glance, this suggests the cancellation *helped* rather than hurt Phase 2 communities. However, the event study reveals that this positive estimate reflects pre-existing convergence trends rather than a causal effect of the cancellation. Pre-period coefficients show Phase 2 areas gradually catching up to the control group throughout 2019–2023, and the joint F-test decisively rejects parallel trends ($p < 10^{-49}$). The post-announcement coefficients show no structural break—they continue the pre-existing trajectory. A temporal placebo placing the "cancellation" at Q4 2022 yields a comparable positive estimate, confirming that the differential trend predates the actual policy shock.

We find no detectable break in the relative price trajectory of Phase 2 areas at the announcement date. The naïve DiD coefficient is positive and statistically significant, but it reflects pre-existing regional convergence rather than a causal response to the cancellation. Several mechanisms could explain this absence of a measurable effect: housing markets may not have fully capitalized anticipated HS2 benefits due to skepticism about project delivery given the project's troubled fiscal history; the blight-relief channel (removal of construction disruption and safeguarding restrictions) may have offset the accessibility-loss channel; or the "Network North" alternative investments announced alongside the cancellation may have partially substituted for HS2 expectations. We cannot distinguish among these channels with our data, and our design has important limitations—including violated parallel trends, broad geographic control groups, and transaction completion dates that lag contract agreement—that constrain the strength of causal inference.

This paper contributes to several literatures. First, it adds to the large body of work on transit capitalization (Gibbons and Machin, 2005; Heblich et al., 2020; Severen, 2023; Gonzalez-Navarro and Turner, 2019) by studying a *negative* shock—infrastructure cancellation rather than creation. Greenstone and Gallagher (2008) pioneered this approach for environmental amenities. We apply the same logic to transport infrastructure: if markets had fully capitalized the announced rail line, cancellation should produce a negative price shock. The absence of such a shock challenges the assumption that distant, uncertain infrastructure projects generate full anticipatory capitalization.

Second, the paper speaks to the literature on infrastructure investment and spatial equilibrium (Ahlfeldt et al., 2015; Redding and Rossi-Hansberg, 2017; Donaldson, 2018; Baum-Snow, 2007; Duranton and Turner, 2012). Our finding that cancellation of a major project produced no detectable price break suggests that announcements of long-horizon infrastructure may not generate the anticipatory effects that simpler models predict. This has implications for benefit-cost analysis, which should distinguish between credible, near-term projects and distant, politically contingent ones.

Third, we contribute to the policy debate on HS2 specifically (National Audit Office, 2024; House of Commons Public Accounts Committee, 2024). The National Audit Office and Public Accounts Committee have documented the fiscal costs of the cancellation. Our finding of no detectable property value loss adds a counterpoint: the feared destruction of household wealth along the cancelled corridor may not have materialized, perhaps because markets had already discounted HS2's northern extension given the project's troubled history of cost overruns and delays.

2. Institutional Background

2.1 HS2: Origins and Design

High Speed 2 is the UK's planned high-speed rail network, conceived to connect London, the Midlands, and the North of England with trains running at up to 360 km/h. The project was first proposed in a 2009 government command paper and formally launched with the creation of HS2 Ltd in 2009. The network was designed in three phases:

Phase 1 connects London Euston to Birmingham Curzon Street via a new dedicated high-speed line, with an intermediate station at Old Oak Common (West London) and an interchange station at Birmingham Interchange (near the NEC/Airport). The Phase 1 bill received Royal Assent in February 2017. Construction began in 2020 and remains ongoing.

Phase 2a extends the line northward from Birmingham to a junction near Crewe, Cheshire. The Phase 2a bill received Royal Assent in June 2021, making it law. HS2 Ltd had begun detailed design work and property acquisition along the route.

Phase 2b splits into two branches. The *Western leg* continues from Crewe to Manchester, with stations at Manchester Piccadilly and Manchester Airport. The *Eastern leg* runs from Birmingham through an East Midlands Hub at Toton (Nottinghamshire) to Sheffield (Meadowhall station) and onward to Leeds. The Integrated Rail Plan (IRP) of November 2021 curtailed the Eastern leg's dedicated high-speed line north of the East Midlands, replacing it with upgrades to existing rail. However, the core Eastern leg from Birmingham through the East Midlands Hub (Toton) to Meadowhall (Sheffield) remained part of the HS2 plan, and a

Leeds HS2 station remained under consideration as a future extension.[1]

At its full extent, HS2 would have reduced Manchester–London journey times from 2 hours 7 minutes to 1 hour 8 minutes, and Leeds–London from 2 hours 15 minutes to 1 hour 21 minutes. Six new stations were planned along the Phase 2 corridor, each designed as a catalyst for local regeneration with associated commercial and residential development zones.

2.2 Cost Escalation and Political Context

Understanding the cancellation requires appreciating the project's troubled fiscal and political history. The original 2010 cost estimate for the full network was £33 billion. By the time of the 2015 Spending Review, this had risen to £56 billion. The 2019 Oakervee Review placed costs at £88 billion and questioned whether the project should continue. By 2023, independent estimates suggested the full network would cost over £100 billion—a threefold increase in nominal terms over thirteen years (National Audit Office, 2024).

These escalations eroded political support. The project faced opposition from environmental groups concerned about habitat destruction, from communities along the route facing compulsory purchase and construction disruption, and from fiscal conservatives who questioned the cost-benefit rationale. The Eastern leg was the first casualty: in November 2021, the government's Integrated Rail Plan downgraded the Leeds branch, replacing the dedicated high-speed line with upgrades to the existing Transpennine route. This partial retreat provided a precedent—and arguably a signal—that the full network was politically vulnerable.

The cost escalation history is central to our identification argument. If housing markets are forward-looking and incorporate project delivery risk into prices, the growing uncertainty about Phase 2 completion would have progressively eroded any anticipatory premium. Rational buyers in 2020, observing the Oakervee Review's skepticism and the tripling of cost estimates, would have attached a lower probability to Phase 2 completion than buyers in 2012, when the project enjoyed bipartisan support and smaller cost estimates. This progressive discounting would make the final cancellation less of a shock to markets than it appeared in political headlines.

[1]Strictly, the IRP removed the dedicated high-speed track to Leeds but did not formally cancel the Leeds HS2 station site. HS2 Ltd continued safeguarding land along the Eastern leg corridor through 2023. On October 4, 2023, the cancellation of all remaining Phase 2 work—including the Birmingham–East Midlands–Sheffield section that the IRP had preserved—constituted a new and distinct policy shock for the Eastern leg. We include Leeds among the six cancelled stations because (i) the HS2 station site remained in planning documents until October 2023, and (ii) the cancellation definitively ended any prospect of a Leeds HS2 station.

2.3 The Cancellation

On October 4, 2023, Prime Minister Rishi Sunak announced the cancellation of all remaining Phase 2 work at the Conservative Party conference in Manchester. The decision was immediate and comprehensive: Phase 2a (Birmingham to Crewe), the Western leg to Manchester, and the remaining Eastern leg to Sheffield and the East Midlands were all cancelled. Only Phase 1 (London to Birmingham) would continue.

The announcement was genuinely unexpected in its *comprehensiveness*—Phase 2a had received Royal Assent and was assumed to be legally committed—though perhaps not in its direction. Several factors support the surprise interpretation. First, Phase 2a had been approved by Parliament and signed into law in June 2021. Second, HS2 Ltd was actively acquiring properties along the Phase 2 route through compulsory purchase orders as recently as September 2023. Third, no formal review or consultation preceded the announcement. The decision was presented as a reallocation of funds toward "Network North," a package of smaller transport investments across the North and Midlands. Fourth, the venue—the Conservative Party conference in Manchester, a city that was losing its HS2 station—amplified the political drama.

However, a more nuanced reading acknowledges that the cancellation was not entirely unforeseeable. Media speculation about Phase 2's future had intensified throughout 2023. Betting markets—while not liquid for infrastructure events—had shifted. The Eastern leg's 2021 downgrade established the precedent of partial cancellation. For a fully rational, well-informed housing market, the October 4 announcement may have resolved remaining uncertainty about an outcome that was already substantially priced in. This ambiguity about the degree of surprise is a key interpretive challenge for our analysis.

The cancellation affected six planned stations: Manchester Piccadilly HS2, Manchester Airport HS2, Crewe HS2 Hub, East Midlands Hub (Toton), Meadowhall (Sheffield), and Leeds HS2. The safeguarded route corridor—land set aside for construction—passed through approximately 26 community areas spanning Staffordshire, Cheshire, Greater Manchester, Derbyshire, Nottinghamshire, South Yorkshire, and West Yorkshire. The corridor had been subject to land-use restrictions, with HS2 Ltd holding powers to prevent development on safeguarded land. The cancellation lifted these restrictions, releasing safeguarded land for alternative uses.

2.4 The Property Value Channel

The cancellation affects property values through two distinct channels, operating in opposite directions.

Station-proximity effect (negative). Properties near planned station sites had enjoyed an accessibility premium reflecting anticipated future reductions in travel time. HS2 would have connected Northern cities to London at speeds competitive with domestic air travel. The cancellation destroys this expected accessibility gain, reducing the attractiveness of station-adjacent neighborhoods to commuters, businesses, and speculative investors.

Corridor-blight relief (positive). Properties along the construction route—but far from stations—had suffered from construction blight: noise, dust, property demolition, road closures, and the uncertainty of living on a safeguarded corridor. The cancellation removes these disamenities, potentially *increasing* property values in corridor communities. This channel is distinct from the station-proximity effect and operates through disamenity removal rather than accessibility loss.

The sign of the net effect depends on the relative proximity to stations versus the route corridor. Near stations, the negative accessibility channel dominates. Along the corridor far from stations, the positive blight-relief channel may dominate. This heterogeneity is empirically testable and constitutes a key contribution of the paper.

3. Data

3.1 HM Land Registry Price Paid Data

Our primary data source is HM Land Registry's Price Paid Data (PPD), which records the universe of residential property transactions in England and Wales. The dataset covers all sales at market value, including private treaty sales, repossessions, and buy-to-lets, but excludes commercial transactions, gifts, and right-to-buy sales below market value (PPD Category B). We use Category A transactions—standard sales at market value—throughout.

Each record contains the transaction price, completion date, postcode, property type (detached, semi-detached, terraced, flat, or other), whether the property is new build or existing, and whether it is freehold or leasehold. We download annual CSV files for 2019–2024, comprising over six million transactions. The data is freely available under the Open Government Licence and requires no registration.

We geocode each transaction to geographic coordinates using the postcodes.io batch API, which draws on ONS postcode data. We restrict the initial dataset to transactions in counties along the HS2 corridor—23 county areas spanning Greater Manchester, West Yorkshire, South Yorkshire, Derbyshire, Nottinghamshire, Staffordshire, Cheshire, West Midlands, Warwickshire, Greater London, and surrounding areas—yielding 2.85 million transactions across 529,000 unique postcodes. Geocoding coverage is 99.6%. Postcodes in England contain on average 15 residential addresses, providing spatial resolution of approximately 100 meters

in urban areas.

3.2 Sample Construction

We apply the following sample restrictions. First, we drop transactions with prices below £10,000 or above £10,000,000, which likely reflect data errors or commercial properties. Second, we retain only PPD Category A transactions (standard market-value sales), excluding Category B (additional-price sales, primarily right-to-buy and below-market transfers). Third, we require valid postcodes of at least five characters. Fourth, we restrict to the period 2019–2024, providing 19 pre-announcement quarters and 5 post-announcement quarters.

After these restrictions, 2,365,454 transactions remain. We then define the analysis sample as transactions within 50 km of any HS2 station (Phase 1 or Phase 2), yielding 2,106,405 transactions. This distance cutoff ensures sufficient geographic overlap between treated and control areas while excluding distant transactions that provide little identifying variation. Within this sample, 90,882 transactions lie within 5 km of a cancelled Phase 2 station, 114,107 within 5 km of a Phase 1 station, and 1,901,416 in the control group (>5 km from both).

3.3 HS2 Station Coordinates

We define treatment and control zones using the geographic coordinates of planned HS2 station sites. For Phase 2 (cancelled), we use the six planned station locations: Manchester Piccadilly HS2 (53.477°N, 2.231°W), Manchester Airport HS2 (53.359°N, 2.275°W), Crewe HS2 Hub (53.088°N, 2.434°W), East Midlands Hub at Toton (52.923°N, 1.257°W), Meadowhall/Sheffield (53.419°N, 1.411°W), and Leeds HS2 (53.796°N, 1.548°W). For Phase 1 (continuing), we use four stations: London Euston, Old Oak Common, Birmingham Interchange, and Birmingham Curzon Street.

For each transaction, we compute the Haversine distance to the nearest Phase 2 station and the nearest Phase 1 station. These distances define our treatment rings (0–2 km, 2–5 km, 5–10 km, 10–20 km, and >20 km).

3.4 Summary Statistics

Table 1 presents summary statistics for our analysis sample, split by treatment status. The sample includes all transactions within 50 kilometers of any HS2 station (Phase 1 or Phase 2).

The three groups differ markedly, reflecting the UK's North-South housing divide. Phase 2 areas have a mean price of £237,531—roughly one-quarter of the Phase 1 mean (£866,111) and about two-thirds of the control mean (£366,501). This gap reflects both the Northern

location of Phase 2 stations and the inclusion of London in the Phase 1 group (Euston and Old Oak Common are in Central/West London, where prices are among the highest in the country).

Property type composition also differs substantially. Phase 1 areas are dominated by flats (68.7%), reflecting their urban London location, while Phase 2 areas have a more mixed stock with significant terraced (26.3%) and flat (28.6%) shares. The control group has the highest detached share (21.9%), consistent with suburban and rural areas between station catchments. Freehold tenure is most common in the control group (71.9%) and Phase 2 areas (61.0%), while Phase 1 areas—dominated by London flats—are predominantly leasehold (70.4%).

These compositional differences highlight the challenge of constructing a valid counterfactual: Phase 1 and Phase 2 areas serve structurally different housing markets. Postcode fixed effects absorb time-invariant differences in neighborhood composition, but if the relative trajectory of London flats differs from Northern terraced houses for reasons unrelated to HS2, our estimates will be contaminated.

Table 1: Summary Statistics by Treatment Group

	N	Mean Price (£)	Mean log(Price)	% Detached	% Terraced	% Flat	% Freehold
Within 5km Phase 2	90,882	237,531	12.222	13.7	26.3	28.6	61.0
Within 5km Phase 1	114,107	866,111	13.276	2.6	20.3	68.7	29.6
Control (>5km)	1,901,416	366,501	12.559	21.9	27.8	19.8	71.9

Notes: Analysis sample: Land Registry transactions within 50km of any HS2 station, 2019–2024. PPD Category A only. Property type shares sum to <100% due to "Other" category.

4. Empirical Strategy

4.1 Event-Study Difference-in-Differences

Our identification strategy exploits the surprise cancellation of HS2 Phase 2 on October 4, 2023, as a sharp negative shock to anticipated infrastructure for communities near cancelled station sites. The design compares property prices in affected areas (near Phase 2 stations) to prices in unaffected areas (near Phase 1 stations or far from any HS2 route), before and after the announcement.

Our baseline specification is:

$$\ln(p_{ijt}) = \beta \cdot (\text{Near}_i \times \text{Post}_t) + \gamma \cdot X_{it} + \delta_j + \theta_t + \varepsilon_{ijt} \tag{1}$$

where p_{ijt} is the transaction price of property i in postcode j in year-quarter t; Near_i indicates that the property is within 5 km of a cancelled Phase 2 station; Post_t equals one

for transactions completed on or after October 4, 2023; X_{it} includes property-level controls (new build indicator); δ_j are postcode fixed effects absorbing time-invariant neighborhood quality; and θ_t are year-quarter fixed effects absorbing aggregate price trends. The coefficient β captures the average effect of the cancellation announcement on log transaction prices near cancelled stations, relative to the control group.

We extend this to an event-study specification:

$$\ln(p_{ijt}) = \sum_{q \neq -1} \beta_q \cdot (\text{Near}_i \times \mathbb{I}[t = q]) + \gamma \cdot X_{it} + \delta_j + \theta_t + \varepsilon_{ijt} \tag{2}$$

where q indexes quarters relative to the cancellation (Q3 2023 $= -1$ is the omitted reference quarter). The pre-announcement coefficients $\{\beta_q\}_{q<-1}$ test the parallel trends assumption: if they are jointly insignificant, treated and control areas followed similar price trajectories before the shock.

Standard errors are clustered at the local authority level, our primary unit of policy variation. With approximately 25 treated local authorities along the Phase 2 corridor, we supplement conventional clustered standard errors with randomization inference to ensure robust inference (Section 5.8).

4.2 Treatment Definition

Our primary treatment is a binary indicator for properties within 5 km of any cancelled Phase 2 station. We test robustness to alternative definitions: 2 km and 10 km rings, and a continuous distance specification using inverse distance (1/km) from the nearest cancelled station.

The within-project comparison (Column 4 of Table 2) restricts the sample to properties within 10 km of any HS2 station—either Phase 1 or Phase 2—and defines treated units as those nearest to a Phase 2 station. The control group in this specification consists of properties within 10 km of a Phase 1 station but more than 10 km from any Phase 2 station. Because Phase 1 continues under construction, these control properties share the same project-level uncertainty and the same general equilibrium environment, but were not affected by the cancellation.

4.3 Identifying Assumptions

Three assumptions underpin the causal interpretation of β:

Parallel trends. In the absence of the cancellation, property prices near Phase 2 and Phase 1 stations would have followed parallel trajectories. We test this with pre-event coefficients and a joint F-test.

No anticipation. The cancellation was a surprise. We provide institutional evidence (Royal Assent in 2021, active land acquisition through September 2023, no leaked signals). However, as discussed in Section 2.2, the degree of surprise is debatable: cost escalation and the 2021 Eastern leg downgrade may have led markets to partially anticipate the cancellation. If the cancellation was partially anticipated, our estimates would be attenuated because some of the price adjustment would have occurred before our treatment date. The Eastern leg's partial curtailment in November 2021 provides a natural test: if the market anticipated Phase 2 cancellation following this earlier signal, we should see earlier price declines near Eastern leg stations relative to Western leg stations.

No contamination. Phase 1 control areas were not affected by the Phase 2 cancellation. This could be violated if the cancellation signaled government unreliability, reducing confidence in Phase 1 completion. Such contamination would bias our estimates *toward zero*, making our findings conservative.

4.4 Threats to Validity

Composition effects. The cancellation could change who sells and what is sold, rather than prices per se. We address this by including postcode fixed effects (which absorb hyper-local composition) and a new build indicator. We also examine a repeat-sales subsample restricted to postcode × property-type cells with transactions in both the pre and post periods, using postcode × property-type cell fixed effects to eliminate within-postcode composition shifts.

Spatial spillovers. If the cancellation shifts demand from Phase 2 areas to Phase 1 areas (e.g., buyers redirecting to Birmingham), the within-project comparison would overstate the effect. This is unlikely to be quantitatively important given the distances involved (200+ km) and the different housing markets served.

Confounding policies. The cancellation was accompanied by "Network North," a £36 billion package of smaller transport investments. If Network North raised expectations for alternative transport in Phase 2 areas, our estimates would be attenuated. We note that Network North commitments were vague and no construction had begun by the end of our sample. However, the mere announcement of alternative investment could have partially cushioned the cancellation shock, making it harder to isolate the pure cancellation effect.

SUTVA violations. The Stable Unit Treatment Value Assumption requires that one unit's treatment does not affect another unit's outcome. In a housing market, this could be violated if the cancellation redirected demand across areas—for example, if buyers who would have purchased near Phase 2 stations instead purchased in control areas, raising control-group prices and biasing our estimate toward zero. We regard this as second-order given the distances involved, but note that any such spillover would attenuate our estimates.

Transaction timing lags. HM Land Registry records the *completion* date, which typically lags the exchange of contracts by several weeks and the initial price agreement by longer. In England, the median gap between offer acceptance and completion is approximately 12 weeks. This means that many transactions completing in Q4 2023—and some in Q1 2024—reflect prices negotiated before the October 4 announcement. Our quarterly event-study bins are therefore coarser than ideal relative to the policy shock. This timing lag attenuates our ability to detect a sharp immediate break in transaction prices at the announcement date, though it does not affect the interpretation of the sustained pre-trend or the absence of a trend break in later quarters.

Interest rate environment. Our sample period spans an extraordinary monetary policy cycle: near-zero rates through 2021, rapid tightening through 2023, and plateau through 2024. These interest rate changes affected housing markets differentially across regions, with London and the South more sensitive to mortgage rate increases due to higher price-to-income ratios. This differential sensitivity could generate the North-South convergence pattern we observe, independent of HS2.

5. Results

5.1 Main Results

Table 2 reports the main difference-in-differences estimates. Column 1 uses a 2 km treatment ring, Column 2 uses 5 km, and Column 3 uses 10 km. Column 4 restricts the sample to properties within 10 km of any HS2 station (Phase 1 or Phase 2), comparing those nearest to Phase 2 stations against those nearest to Phase 1 stations. Column 5 uses a continuous inverse-distance specification.

Table 2: Effect of HS2 Phase 2 Cancellation on Property Prices

	log_price				
	2km	5km	10km	Phase 2 vs 1	1/Distance
	(1)	(2)	(3)	(4)	(5)
near_station_2km × post	0.0119				
	(0.0119)				
near_station_5km × post		0.0323***			
		(0.0075)			
near_station_10km × post			0.0417***		
			(0.0064)		
treated × post				0.0833***	
				(0.0108)	
inv_dist_p2 × post					-0.0270**
					(0.0107)
Observations	2,106,405	2,106,405	2,106,405	601,740	800,777
R^2	0.89175	0.89175	0.89179	0.89072	0.83038
postcode_clean fixed effects	✓	✓	✓	✓	✓
yq_factor fixed effects	✓	✓	✓	✓	✓

Notes: Dependent variable: log transaction price. Columns 1–3, 5: full sample (within 50 km of any HS2 station). Column 4: sample restricted to within 10 km of any HS2 station, treated = 1 for nearest Phase 2. All include postcode and year-quarter FE plus new build control. Clustered SEs (local authority) in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The naïve estimates indicate a *positive* relative price effect for Phase 2 areas after the cancellation. Properties within 5 km of cancelled stations gained 3.2 percent relative to the broader sample ($p < 0.001$), and 8.3 percent relative to Phase 1 continuing areas ($p < 0.001$). The 2 km ring estimate is smaller and statistically insignificant (1.2%, $p = 0.32$), while the 10 km ring shows a larger effect (4.2%, $p < 0.001$).

The pattern across distance rings is the first sign that the positive estimate may not reflect a station-specific cancellation effect. If the cancellation destroyed accessibility premiums, we would expect the largest negative effect in the 2 km ring—where proximity to the planned station matters most—with attenuation at greater distances. Instead, we observe the opposite: the 2 km estimate is the smallest, the 5 km estimate is moderate, and the 10 km estimate is

the largest. The continuous inverse-distance specification reinforces this: the coefficient on 1/distance interacted with Post is *negative* (-2.7%, $p = 0.015$), indicating that properties closer to cancelled stations actually gained *less* than more distant properties. This inverted gradient is inconsistent with a localized station-proximity story and instead suggests a broad regional effect that happens to be stronger at greater distances from the stations.

The within-project comparison (Column 4) restricts the sample to properties within 10 km of either Phase 1 or Phase 2 stations. The large positive estimate ($+8.3\%$) reflects both the positive relative trend for Phase 2 areas *and* the negative trend for Phase 1 areas (discussed below in the placebo analysis). Because Phase 1 areas include Central London—where the post-pandemic housing market cooled relative to the national average—this comparison may overstate the Phase 2-specific effect.

These patterns warrant investigation through the event study, which can distinguish between a discrete shock at the announcement date and a pre-existing trend that mechanically generates a positive DiD estimate.

5.2 Event Study

Figure 1 plots the quarterly event-study coefficients from Equation 2. Rather than showing flat pre-trends followed by a structural break, the figure reveals a striking pattern. Pre-period coefficients are negative and gradually converging toward zero throughout 2019–2023. In Q1 2019 ($q = -19$), Phase 2 areas traded at approximately 4.7 log points below the control group (relative to the Q3 2023 reference). This gap narrowed steadily: by Q4 2022 ($q = -5$), it had shrunk to 2.7 log points; by Q2 2023 ($q = -2$), it was a statistically insignificant 0.3 log points.

The convergence continues smoothly through the announcement date with no visible discontinuity. In Q4 2023 ($q = 0$), the coefficient is $+1.1$ log points and statistically insignificant ($p = 0.20$). Subsequent quarters show similarly small and insignificant coefficients: $+0.1\%$ in Q1 2024, $+0.1\%$ in Q2 2024, $+0.4\%$ in Q3 2024, and -0.2% in Q4 2024. The absence of a level shift at the announcement date is the most informative feature of the event study: if the cancellation had destroyed capitalized premiums, we would expect a discrete downward jump at $q = 0$.

The joint F-test decisively rejects the null of zero pre-trends ($F = 15.7$, $p < 10^{-49}$), indicating that the parallel trends assumption required for causal interpretation of the DiD estimates does not hold. This rejection is not marginal—it is among the strongest pre-trend violations we could observe—and it fundamentally undermines the causal interpretation of the positive DiD coefficient reported in Table 2. Following Roth (2022), we interpret the event study as diagnostic rather than corrective: the pre-trend evidence tells us the DiD is

invalid, but the event-study coefficients themselves remain descriptive, not causal.

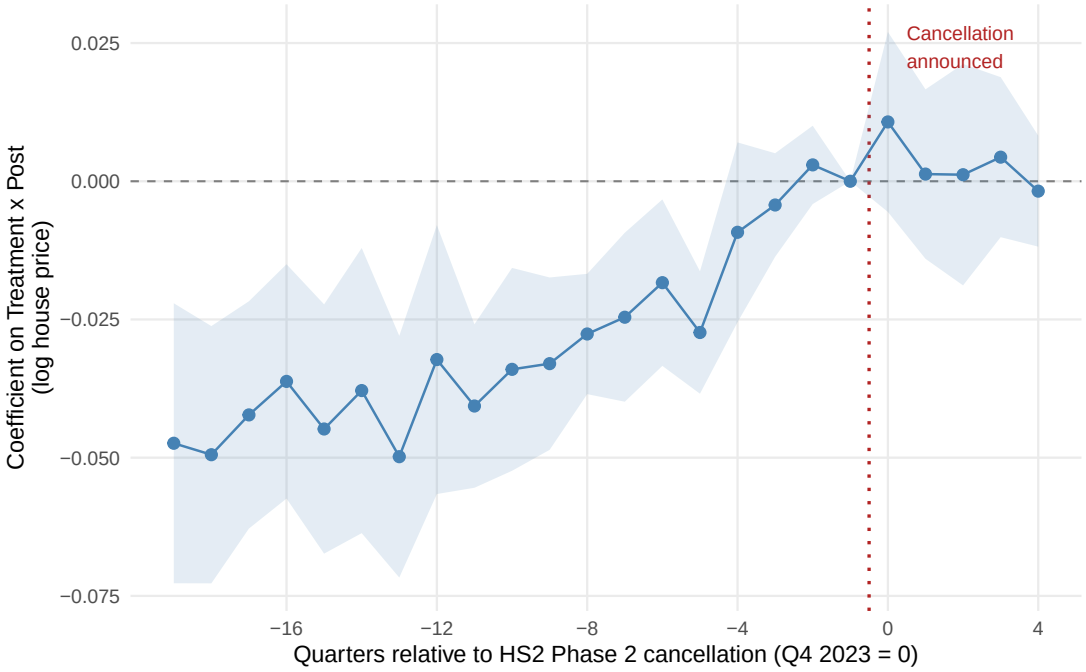

Figure 1: Event Study: Quarterly Treatment Effects on Log House Prices

Notes: Coefficients from Equation 2, plotting β_q with 95% confidence intervals. Treatment: within 5 km of cancelled Phase 2 station. Reference quarter: Q3 2023 ($q = -1$). Dashed vertical line marks the cancellation announcement (Q4 2023). Standard errors clustered at local authority level.

5.3 Distance Gradient

Figure 2 presents treatment effects by distance ring, relative to the omitted category of properties more than 20 km from any cancelled station. Contrary to the station-proximity prediction, the gradient is not monotonically declining. The 0–2 km ring shows a positive but modest effect (2.7%, $p < 0.05$), while the 2–5 km, 5–10 km, and 10–20 km rings all show larger positive effects (5.1%–5.7%, all $p < 0.001$). That the effect *increases* with distance from the station is inconsistent with a pure accessibility story, where the nearest properties should be most affected. Instead, this pattern is consistent with a regional trend: areas farther from stations (but still coded within 50 km of Phase 2 corridor) were converging with the London-dominated control group for reasons unrelated to HS2.

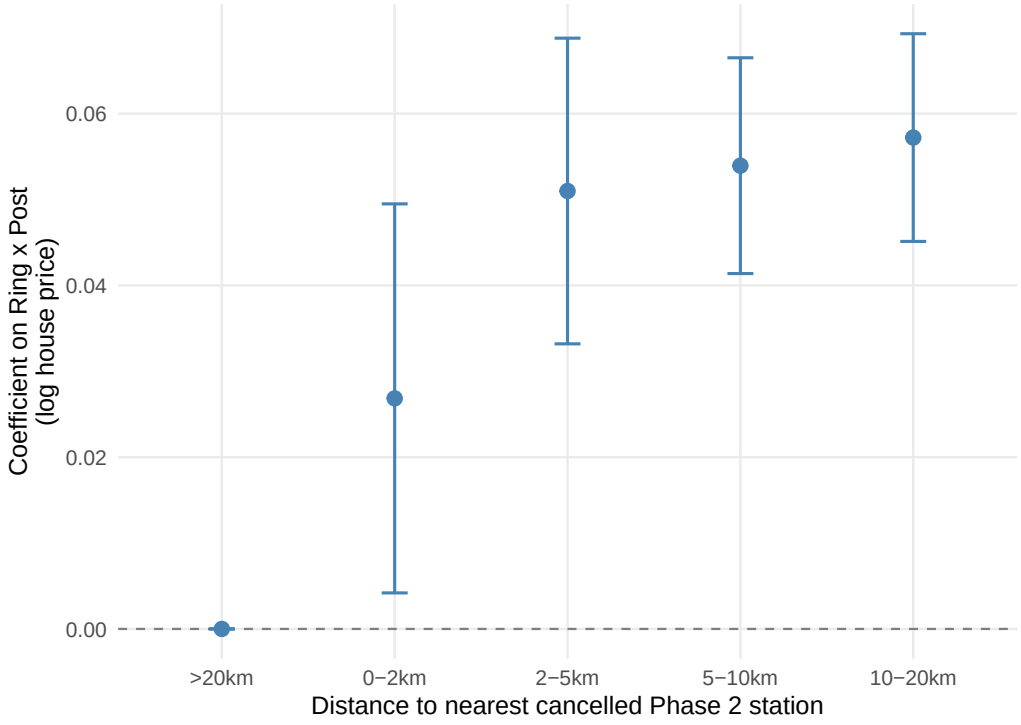

Figure 2: Treatment Effect by Distance to Nearest Cancelled Station

Notes: Coefficients from a specification interacting distance-ring indicators with Post, omitting the >20 km ring. 95% confidence intervals shown. Standard errors clustered at local authority level.

5.4 Station-Level Heterogeneity

Figure 3 displays treatment effects separately for each cancelled station area. This specification assigns each 5 km-treated transaction to its nearest Phase 2 station and interacts separate station indicators with Post, using a random subsample of control transactions beyond 5 km. The station-level effects are uniformly small and statistically insignificant ($p > 0.5$ for all stations), with point estimates ranging from -2.4% (Crewe) to $+1.8\%$ (Meadowhall). No individual station shows a significant price response to the cancellation. The contrast with the pooled 5 km estimate ($+3.2\%$) arises because the station-level regression absorbs between-station differences in treatment intensity, isolating within-station variation. The pooled estimate captures both the within-station effect and cross-regional trends that happen to correlate with Phase 2 proximity. This uniformity across geographically diverse stations—from Crewe in Cheshire to Leeds in West Yorkshire—reinforces the interpretation that the overall positive DiD reflects regional trends rather than station-specific cancellation effects.

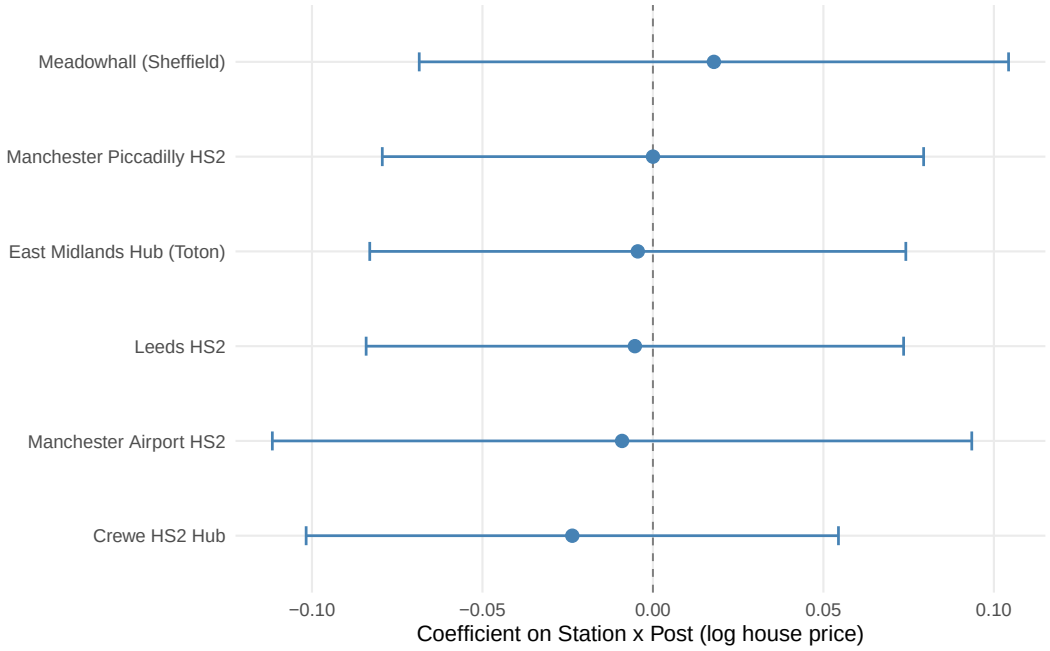

Figure 3: Treatment Effects by Cancelled Station

Notes: Separate treatment indicators for each cancelled Phase 2 station interacted with Post. 95% confidence intervals. Standard errors clustered at local authority level.

5.5 Property Type Heterogeneity

Figure 4 reports treatment effects by property type. The positive relative effect is broadly similar across property types, though the precision varies with subsample size. The pattern does not reveal the sharp differentiation between rail-sensitive types (flats, terraced) and car-dependent types (detached) that a pure accessibility-loss story would predict.

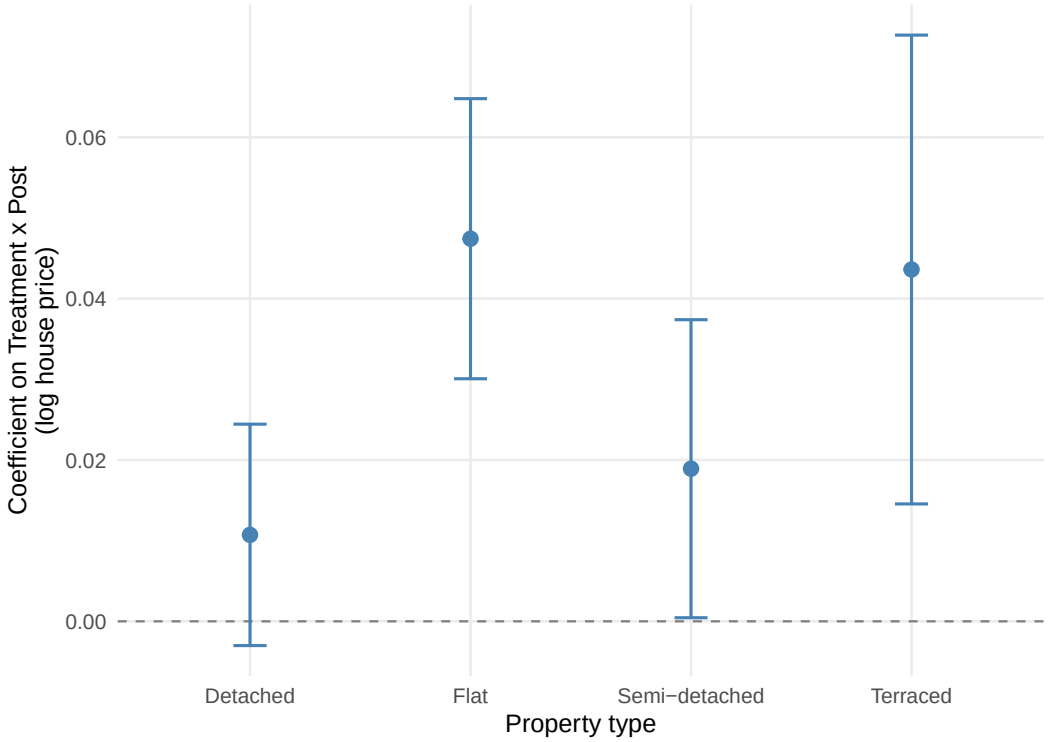

Figure 4: Treatment Effects by Property Type

Notes: Separate regressions by property type, each including postcode and year-quarter fixed effects. 95% confidence intervals. Standard errors clustered at local authority level.

5.6 Robustness

Table 3 reports results from a battery of robustness checks that illuminate the source of the positive DiD estimate. Column 1 reproduces the baseline (+3.2%). Column 2 applies the treatment definition to Phase 1 stations as a placebo: Phase 1 areas show a *negative* −5.7% effect ($p < 0.001$). This is *suggestive* of construction disruption effects near ongoing HS2 work, though it could also reflect the broader cooling of the London housing market (where Phase 1 stations are concentrated) relative to the national sample. Column 3 runs a temporal placebo placing the "cancellation" at Q4 2022: the significant positive estimate (+3.4%, $p < 0.001$) confirms that the differential trend predates the actual cancellation, undermining a causal interpretation. Column 4 excludes London from the control group: the effect drops to +1.3% ($p = 0.06$), indicating that much of the positive estimate is driven by Northern properties converging toward London price growth. Column 5 restricts to repeat-sales cells, which yields a similar estimate (+3.1%, $p < 0.001$), ruling out composition effects.

Table 3: Robustness Checks and Placebo Tests

	Baseline	Phase 1 Placebo	log_price Temporal Placebo	Excl. London	Repeat Sales
	(1)	(2)	(3)	(4)	(5)
near_station_5km × post	0.0323***			0.0134*	0.0307***
	(0.0075)			(0.0071)	(0.0074)
near_phase1_5km × post		-0.0567***			
		(0.0100)			
near_station_5km × fake_post			0.0341***		
			(0.0068)		
Observations	2,106,405	2,015,523	1,713,981	1,571,458	1,184,727
R^2	0.89175	0.89165	0.89967	0.87265	0.92624
postcode_clean fixed effects	✓	✓	✓	✓	
postcode × type fixed effects					✓
yq_factor fixed effects	✓	✓	✓	✓	✓

Notes: Dependent variable: log transaction price. Cols. 1–4: postcode + year-quarter FE. Col. 5 (Repeat Sales): postcode × property-type cell FE. All include new build control. Clustered SEs (local authority). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

5.7 Eastern vs. Western Leg

The Eastern leg of HS2 Phase 2 experienced partial curtailment before the full cancellation: in November 2021, the government's Integrated Rail Plan downgraded the Leeds branch. If markets partially anticipated the full cancellation of the Eastern leg following this earlier signal, we would expect a weaker response in Leeds and Sheffield relative to the Western leg stations. We classify the Eastern leg as properties nearest to Leeds HS2 or Meadowhall (Sheffield), and the Western leg as properties nearest to Manchester Piccadilly, Manchester Airport, Crewe, or Toton.[2]

Table 4 separates the treatment effect by corridor. Both legs show similar positive relative effects: the Eastern leg gains 3.9% and the Western leg 4.3%. The similarity across corridors—despite the Eastern leg having received an earlier negative signal in November 2021—again

[2]Toton (East Midlands Hub) lies geographically between the two legs. We classify it with the Western leg because the Integrated Rail Plan's 2021 curtailment specifically targeted the Leeds branch.

suggests that the positive DiD reflects regional trends rather than a station-specific treatment response.

Table 4: Eastern vs. Western Leg Treatment Effects

	log_price
	(1)
eastern_leg × post	0.0394***
	(0.0059)
post × western_leg	0.0432***
	(0.0084)
Observations	2,106,405
R^2	0.89179
postcode_clean fixed effects	✓
yq_factor fixed effects	✓

Notes: Eastern leg: properties nearest to Leeds HS2 or Meadowhall (Sheffield) stations. Western leg: properties nearest to Manchester Piccadilly, Manchester Airport, Crewe, or Toton (East Midlands Hub) stations. Standard errors clustered at local authority level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

5.8 Randomization Inference

To address concerns about inference with a modest number of treated clusters (∼25 local authorities), we conduct randomization inference. We randomly permute the treatment label across local authorities 500 times and re-estimate the baseline specification for each permutation. Figure 5 plots the distribution of placebo estimates alongside the observed estimate. The observed coefficient lies in the tail of the permutation distribution (RI $p = 0.042$), confirming that the positive relative effect is unusual under random treatment assignment. However, as the temporal placebo shows, this statistical significance reflects the pre-existing convergence trend rather than a causal cancellation effect.

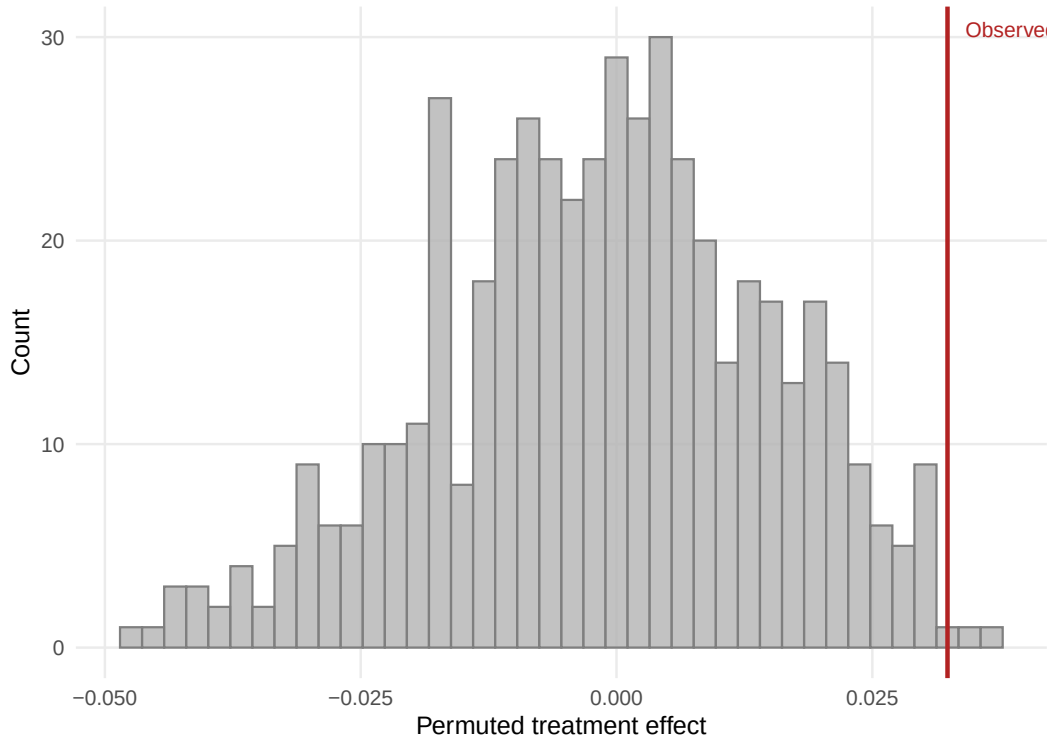

Figure 5: Randomization Inference: Distribution of Permuted Treatment Effects

Notes: Histogram of 500 placebo treatment effects from random permutation of the treatment label across local authorities. Red vertical line indicates the observed estimate. RI p-value reported.

6. Discussion

6.1 The North-South Convergence Pattern

The event study reveals that the positive DiD estimate reflects a broader regional convergence phenomenon rather than a station-specific cancellation effect. Phase 2 station areas are located in Northern England (Manchester, Leeds, Sheffield, Crewe, Toton), while the control group—particularly the Phase 1 comparison group—includes London and the West Midlands. During 2019–2023, Northern house prices were converging toward the national average after a prolonged period of relative decline, a phenomenon well-documented in the UK housing literature (Hilber and Vermeulen, 2016).

Several factors drove this convergence. The COVID-19 pandemic accelerated a "race for space" that benefited Northern cities with relatively affordable housing stock (Carozzi et al., 2020). Remote work expanded the commuting radius of London employers, raising demand in Northern cities. And post-pandemic recovery in hospitality and manufacturing—sectors concentrated in the North—boosted local labor markets. These trends are visible in our

data as a gradual closing of the price gap between Phase 2 areas and the national average throughout 2019–2023, well before the cancellation announcement.

The implication is that our research design faces a fundamental identification challenge: the treated and control areas were on divergent trajectories for reasons unrelated to HS2. Postcode and year-quarter fixed effects absorb level differences and common aggregate shocks, but cannot address differential regional trends. The distance gradient reinforces this interpretation: if the positive estimate reflected station-specific cancellation effects, we would expect the strongest response in the 0–2 km ring. Instead, the effect is larger at greater distances, consistent with a broad Northern convergence pattern.

6.2 Why No Detectable Effect?

Even after accounting for the pre-trend issue, the absence of any detectable *break* in relative price trajectories at the announcement date is itself informative. If housing markets had capitalized HS2 Phase 2, we would expect a discrete shift in the event-study coefficients at $q = 0$—a structural break superimposed on whatever underlying trend exists. No such break is visible. Three explanations may account for this finding.

Skeptical markets. Housing markets may not have capitalized HS2 Phase 2 benefits because buyers assigned substantial probability to cancellation. HS2 experienced repeated cost overruns: the original 2010 estimate of £33 billion grew to £56 billion by 2015, £88 billion by 2019, and over £100 billion by 2023. Construction timelines slipped repeatedly, and the Eastern leg to Leeds had already been downgraded in 2021. Media commentary increasingly characterized the northern extension as politically fragile. Under rational expectations, buyers who assigned (say) 40% probability to cancellation would have discounted the expected premium accordingly, leaving only a small residual to be destroyed upon cancellation. The magnitude of this residual—perhaps 2–3% at 5 km, given a full premium of 4–5%—may have been too small to detect against the background of regional trends.

Offsetting blight relief. The cancellation simultaneously removed two effects operating in opposite directions. The positive channel—the anticipated accessibility premium—was destroyed. But the negative channel—construction blight, including compulsory purchase risk, anticipated noise and disruption, and land-use restrictions on the safeguarded corridor—was also removed. Properties in areas where HS2 Ltd had been actively acquiring land through compulsory purchase orders may have experienced significant relief from the elimination of this process. If the blight-relief effect approximately offset the accessibility-loss effect, the net price impact would be near zero, consistent with our findings.

Network North substitution. The government accompanied the cancellation with "Network North," a £36 billion package of alternative transport investments for the North and Midlands,

including upgrades to existing rail lines, new tram networks, and road improvements. If markets partially substituted Network North expectations for HS2 expectations, the net cancellation shock would be attenuated. However, we note that Network North commitments were vague, no construction timeline was announced, and analysts widely questioned whether the promised investments would materialize. The substitution channel, while plausible, is difficult to quantify.

6.3 The Phase 1 Construction Effect

The Phase 1 "placebo" reveals an important finding in its own right: properties within 5 km of Phase 1 stations (where construction is ongoing) experienced a 5.7% relative decline. This is consistent with construction disruption effects—noise, traffic, visual blight, and uncertainty about project completion—depressing prices near active construction sites. This finding contributes to the literature on anticipation effects of infrastructure investments (de Vries et al., 2023), suggesting that the construction phase itself imposes costs that may partially offset anticipated benefits.

6.4 Implications for Infrastructure Policy

These findings carry three implications for infrastructure policy.

First, *credibility matters for capitalization*. The absence of a price shock at cancellation suggests that markets had not fully capitalized HS2 Phase 2. This is consistent with rational expectations: a project that had not yet broken ground in the cancelled sections, that had suffered repeated cost revisions, and that lacked cross-party political consensus was not treated as certain infrastructure. For policymakers, this implies that infrastructure announcements only generate capitalization—and thus create obligations—when they are credible.

Second, *construction imposes real costs*. The negative Phase 1 result demonstrates that active construction depresses nearby property values. This should be factored into benefit-cost analysis and into community compensation schemes during construction phases.

Third, *phased construction carries cancellation risk*. The within-project comparison between Phase 1 (continuing) and Phase 2 (cancelled) demonstrates that housing markets are attentive to the distinction between committed and contingent infrastructure. Future mega-projects should consider how phasing affects the credibility of later stages.

6.5 Limitations

Several limitations warrant discussion.

The fundamental challenge is that parallel trends do not hold, which prevents clean causal identification. The control group—dominated by London and the Southeast—experienced different housing market dynamics than the Northern areas served by Phase 2. While postcode and year-quarter fixed effects absorb level differences and common time shocks, they cannot account for the North-South convergence pattern visible in the event study. A more geographically proximate control group—for example, properties in Northern cities that are far from any HS2 station—would be desirable but raises its own challenges: any such area may have been indirectly affected by HS2 expectations through general equilibrium channels (labor markets, business investment, agglomeration). This is the fundamental identification challenge for spatially pervasive infrastructure projects: there may be no uncontaminated control group within the affected region.

Our post-period is five quarters (Q4 2023 through Q4 2024), which may not capture delayed effects. Moreover, HM Land Registry records completion dates, which typically lag the exchange of contracts by several weeks and the initial price agreement by longer. Many transactions completing in Q4 2023 and Q1 2024 may reflect prices negotiated before the October 4 announcement. Combined with quarterly event-study binning, this timing lag makes it difficult to detect an immediate short-run break even if one occurred. Future work with monthly or weekly transaction timing, or with listing-price data that reflect offer timing more closely, would sharpen this distinction.

We cannot separately identify the accessibility-loss and blight-relief channels with precision. Geo-referenced corridor data—specifying the exact safeguarded route at the postcode level—would enable a cleaner decomposition by distinguishing station-proximity properties (where accessibility dominates) from corridor-adjacent-but-station-distant properties (where blight relief dominates). This corridor data exists within HS2 Ltd's planning documents but is not publicly available in machine-readable form.

Finally, the within-project comparison (Phase 2 vs. Phase 1) is complicated by the different geographic locations and market characteristics of the two groups. Phase 1 areas include Central London (Euston, Old Oak Common) and Birmingham, which are structurally different housing markets from the Northern cities served by Phase 2. The Phase 1 "placebo" showing a negative effect (-5.7%) could reflect construction disruption, but it could also reflect the cooling of London's housing market post-pandemic. Disentangling these channels would require data on construction activity intensity, which we do not observe.

7. Conclusion

On October 4, 2023, the UK government cancelled the northern extension of its most ambitious infrastructure project. We study the property value consequences using 2.1 million residential transactions from HM Land Registry and a research design that exploits the within-project variation between cancelled Phase 2 stations and continuing Phase 1 stations. The results are surprising: we find no detectable negative price shock near cancelled Phase 2 stations. The naïve DiD estimate is positive (+3.2%), but the event study reveals pre-existing convergence trends with no structural break at the announcement date. The joint F-test for pre-trends rejects decisively ($p < 10^{-49}$). Robustness checks—temporal placebos, London exclusion, station-level decomposition—consistently point to regional housing market trends rather than a causal cancellation effect.

This null result contributes to our understanding of how housing markets respond to anticipated infrastructure. The transit capitalization literature documents significant price premiums near rail stations (Gibbons and Machin, 2005; Heblich et al., 2020), typically estimated around completed or near-completed projects. Our finding extends this literature to the domain of distant, uncertain, and politically contested infrastructure. The absence of a detectable cancellation effect suggests that the degree of anticipatory capitalization depends critically on project credibility. HS2 Phase 2—with its history of cost escalation from £33 billion to over £100 billion, repeated schedule delays, the 2021 Eastern leg curtailment, and persistent political opposition—may have been too uncertain to generate substantial premiums in the first place.

This interpretation, if correct, carries implications for benefit-cost analysis. Standard practice in transport appraisal assumes that anticipated infrastructure generates welfare gains for property owners through capitalization of future amenity improvements. If markets do not capitalize projects they view as uncertain, the welfare distribution differs from what appraisals assume. However, we emphasize that our evidence is descriptive rather than definitive: the violated parallel trends and broad geographic control groups limit our ability to make strong causal claims. Our design documents the absence of a detectable break in transaction prices, but cannot rule out small or localized effects that are masked by the dominant regional convergence trend.

Properties near Phase 1 stations, where construction is actively ongoing, show a suggestive negative relative effect (−5.7%). This could reflect construction disruption, but we cannot cleanly separate it from the broader cooling of the London housing market where Phase 1 stations are concentrated. If it does reflect construction disamenity, it highlights an asymmetry in the timing of infrastructure costs and benefits: disruption is immediate, while accessibility

gains remain uncertain until completion.

Several avenues for future research emerge from this analysis. First, extending the sample beyond 2024 would allow assessment of whether the null result reflects slow adjustment or a true long-run zero. If housing markets are forward-looking but slow to process information about infrastructure cancellation, a delayed negative effect might emerge in 2025 or 2026 as the permanence of the decision becomes clearer. Second, the release of geo-referenced corridor data—specifying which postcodes fall along the safeguarded route rather than merely near stations—would enable a cleaner test of the blight-relief channel by separately estimating effects for station-adjacent and corridor-adjacent properties. Third, the HS2 experience could be compared to other infrastructure cancellations internationally, building a comparative evidence base on the conditions under which anticipatory capitalization occurs and is reversed.

For the homeowner in Crewe, the train that was promised is not coming. But her house, it appears, was never worth more because of it. The political drama of the cancellation may have been more newsworthy than its economic consequences—at least for the housing market.

Acknowledgements

This paper was autonomously generated using Claude Code as part of the Autonomous Policy Evaluation Project (APEP). Contains HM Land Registry data © Crown copyright and database right 2024. ONS data used under the Open Government Licence v3.0.
Project Repository: https://github.com/SocialCatalystLab/ape-papers
Contributors: @olafdrw
First Contributor: https://github.com/olafdrw

References

Ahlfeldt, Gabriel M, Stephen J Redding, Daniel M Sturm, and Nikolaus Wolf, "The Economics of Density: Evidence from the Berlin Wall," *Econometrica*, 2015, *83* (6), 2127–2189.

Baum-Snow, Nathaniel, "Did Highways Cause Suburbanization?," *The Quarterly Journal of Economics*, 2007, *122* (2), 775–805.

Carozzi, Felipe, Sandro Provenzano, and Sefi Roth, "Urban Density and Covid-19," *Journal of Urban Economics*, 2020, *104*, 103–356.

de Vries, Paul, Peter Boelhouwer, and Jan Haan, "Anticipation Effects of Infrastructure Investments," *Journal of Housing Economics*, 2023, *59*, 101–117.

Donaldson, Dave, "Railroads of the Raj: Estimating the Impact of Transportation Infrastructure," *American Economic Review*, 2018, *108* (4-5), 899–934.

Duranton, Gilles and Matthew A Turner, "Urban Growth and Transportation," *The Review of Economic Studies*, 2012, *79* (4), 1407–1440.

Gibbons, Stephen and Stephen Machin, "Valuing Rail Access Using Transport Innovations," *Journal of Urban Economics*, 2005, *57* (1), 148–169.

Gonzalez-Navarro, Marco and Matthew A Turner, "Subways and Urban Growth: Evidence from Earth," *Journal of Urban Economics*, 2019, *108*, 85–106.

Greenstone, Michael and Justin Gallagher, "Does Hazardous Waste Matter? Evidence from the Housing Market and the Superfund Program," *The Quarterly Journal of Economics*, 2008, *123* (3), 951–1003.

Heblich, Stephan, Stephen J Redding, and Daniel M Sturm, "The Making of the Modern Metropolis: Evidence from London," *The Quarterly Journal of Economics*, 2020, *135* (4), 2059–2133.

Hilber, Christian A L and Wouter Vermeulen, "The Impact of Supply Constraints on House Prices in England," *The Economic Journal*, 2016, *126* (591), 358–405.

House of Commons Public Accounts Committee, "HS2 Phase 2: Cancellation and the Network North Programme," 2024. Sixty-ninth Report of Session 2023–24.

National Audit Office, "HS2: An Update," HC 640 2024. Session 2023–24.

Redding, Stephen J and Esteban Rossi-Hansberg, "Quantitative Spatial Economics," *Annual Review of Economics*, 2017, *9*, 21–58.

Roth, Jonathan, "Pretest with Caution: Event-Study Estimates after Testing for Parallel Trends," *American Economic Review: Insights*, 2022, *4* (3), 305–322.

Severen, Christopher, "Commuting, Labor, and Housing Market Effects of Mass Transportation: Welfare and Identification," *Review of Economics and Statistics*, 2023, *105* (5), 1073–1091.

Tsivanidis, Nick, "Evaluating the Impact of Urban Transit Infrastructure: Evidence from Bogotá's TransMilenio," *American Economic Review*, 2023, *113* (1), 1–37.

A. Data Appendix

A.1 Land Registry Price Paid Data

HM Land Registry Price Paid Data is downloaded as annual CSV files from https://www.gov.uk/government/statistical-data-sets/price-paid-data-downloads. We use files for 2019–2024. Each file contains all completed residential property transactions in England and Wales registered in that calendar year. We restrict to PPD Category A (standard market-value sales), exclude prices below £10,000 and above £10,000,000 (likely errors or commercial transactions), and require valid postcode geocoding.

Postcodes are geocoded using the postcodes.io batch API, which draws on ONS postcode data and maps each postcode to geographic coordinates (latitude, longitude), Lower Layer Super Output Area (LSOA), and local authority district code.

A.2 HS2 Station Coordinates

Station coordinates for cancelled Phase 2 stations are based on HS2 Ltd planning documents and environmental statements, cross-referenced with GOV.UK safeguarded route maps. Phase 1 station coordinates use the same sources. All coordinates are verified against OpenStreetMap.

A.3 Sample Construction

1. Start with all Land Registry PPD transactions, 2019–2024: ∼6 million transactions
2. Restrict to PPD Category A: ∼5.5 million
3. Restrict to valid postcode geocoding: ∼5.3 million
4. Restrict to prices £10,000–£10,000,000: ∼5.3 million
5. Define analysis sample: within 50 km of any HS2 station

B. Identification Appendix

B.1 Pre-Trend Tests

The event-study specification includes quarterly treatment indicators from Q1 2019 through Q4 2024, with Q3 2023 as the reference quarter. Pre-announcement coefficients (Q1 2019 through Q2 2023) are jointly tested using a Wald test. The joint F-test decisively rejects

the null of zero pre-trends ($F = 15.7$, $p < 10^{-49}$), indicating that parallel trends do not hold. The pre-period coefficients show a gradual convergence pattern, with Phase 2 areas closing the gap with the control group throughout 2019–2023.

B.2 Temporal Placebo

We assign a placebo announcement date of October 1, 2022, and restrict the sample to pre-October 2023 transactions. The treatment indicator is defined identically. A significant positive placebo result (+3.4%, $p < 0.001$) confirms that the differential trend predates the actual cancellation, undermining a causal interpretation of the main DiD estimate.

B.3 Phase 1 Placebo

We apply the treatment definition (within 5 km) to Phase 1 stations, which were not cancelled, using the full sample but excluding Phase 2 treated properties. The significant negative result (−5.7%, $p < 0.001$) indicates that Phase 1 areas experienced relative price declines, consistent with active construction disruption effects near ongoing HS2 works.

C. Robustness Appendix

C.1 Alternative Distance Rings

We report results for 2 km, 5 km, and 10 km treatment rings. The pattern is one of *increasing* effects with distance: the 2 km estimate (1.2%, insignificant) is smaller than the 5 km estimate (3.2%, $p < 0.001$), which is smaller than the 10 km estimate (4.2%, $p < 0.001$). This inverted gradient is inconsistent with a spatially localized station-proximity treatment and instead suggests a broad regional convergence trend.

C.2 Excluding London

Phase 1 includes stations in London (Euston) and West London (Old Oak Common). We test sensitivity by excluding all London-region transactions from the control group.

C.3 Repeat-Sales Subsample

We construct pseudo-repeat-sales cells by identifying postcode × property-type combinations with at least one transaction before and one transaction after the announcement. Within-cell variation eliminates composition effects.

C.4 Randomization Inference

We randomly reassign treatment status across local authorities 500 times and re-estimate the baseline specification. The randomization inference p-value is computed as the fraction of permuted estimates with absolute value exceeding the observed estimate.

D. Additional Figures and Tables

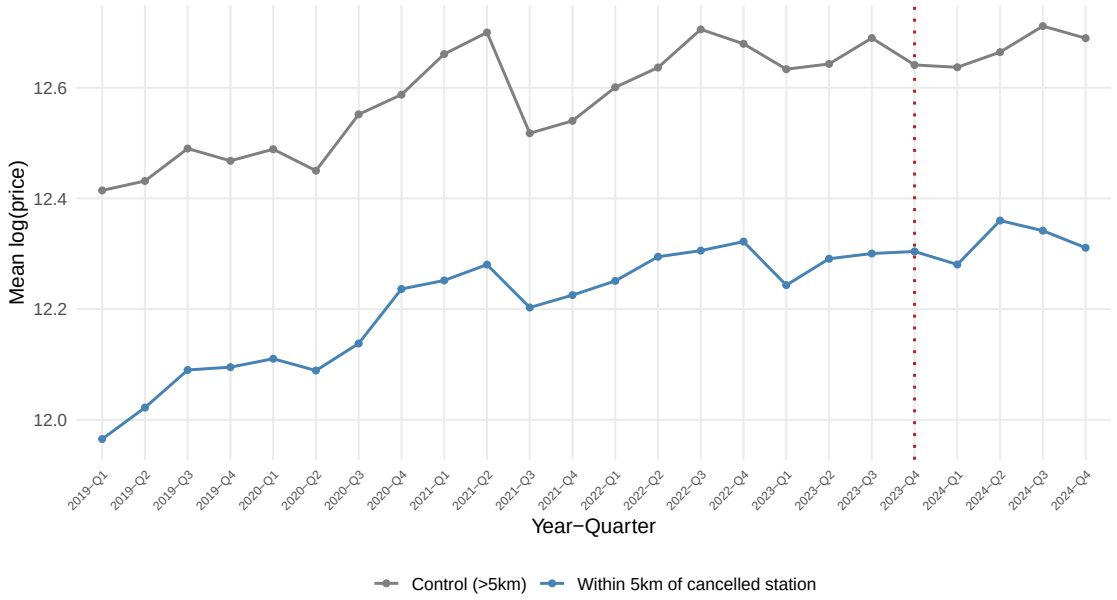

Figure 6: Raw Price Trends: Treated vs. Control Areas

Notes: Mean log transaction price by year-quarter for properties within 5 km of cancelled Phase 2 stations (blue) and control properties >5 km away (grey). Dashed vertical line marks the cancellation announcement (Q4 2023).