Places Stay, Workers Leave: Political Persistence Without Political Continuity

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Abstract

Political persistence is not puzzling when neighborhoods retain their residents, but Munich's voting patterns survived 68 years (1893–1961) despite near-total population replacement. This pattern could either reflect places changing people, or people choosing places. I separate neighborhood characteristics from resident composition to distinguish between them. Munich's address books record every resident's occupation and address, allowing me to estimate each neighborhood's independent contribution to occupational status and trace that contribution to observable amenities. I then test whether the same amenities explain voting patterns. They do: the amenity-vote link survives across all 18 elections, even as the amenity-occupation link dissolves after wartime destruction and refugee inflows — ruling out institutional survival. The link exists only where the population turned over, ruling out transmission. It vanishes where postwar housing was administratively allocated: persistence exists only where residents sorted into neighborhoods whose observable amenities matched their political type. Political persistence can operate without institutional survival or social transmission: it requires only stable observable amenities against which people can sort.

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1 Introduction

Political persistence is among the most robust findings in political economy (Dell, 2010; Voigtländer and Voth, 2012; Acharya et al., 2016; Spenkuch and Tillmann, 2018; Ochsner and Roesel, 2020). Yet persistence alone is not puzzling: if social structures remain stable, persistent voting patterns require no explanation beyond demographic continuity. But can persistence emerge even where there is no continuity in demographics? And if so, what could cause it?

Studying this question requires a panel of preferences and demographics, consistently captured across time and through shocks. Munich provides this setting. First, I show that neighborhood-level voting patterns barely moved over 68 years: rank correlations between 1893 and 1961 exceed 0.80. Yet wartime bombing destroyed roughly a third of the housing stock (Haus der Bayerischen Geschichte, 2024), and fewer than 1% of 1912 residents remained at the same address by 1953. The population that had produced those votes was largely gone, yet the spatial pattern of voting persisted.

Second, I show that persistence can operate through residential sorting: each postwar cohort selected into neighborhoods whose physical characteristics (pubs, churches, housing density, factory proximity) matched their political type, reproducing the same voting patterns. As long as people can choose where to live, persistence requires no transmission between individuals. It requires only stable features against which people can sort.

That persistence can operate through sorting rather than transmission is not a new idea (Cantoni and Yuchtman, 2021). Isolating it empirically is. Neighborhoods that retain their physical character also retain residents with similar characteristics. A precinct that keeps voting the same way after its population turns over could reflect the neighborhood shaping newcomers, or newcomers who already held those preferences choosing that neighborhood. This distinction matters: if persistence runs through institutions or social transmission, it can be disrupted; if it runs through sorting against physical features, it regenerates whenever people can choose where to live.

I can distinguish these explanations because workers choose neighborhoods not only by occupation but also by political preference. Munich's address books record every resident's occupation and address, allowing me to exploit this sorting over time. If persistence runs through people, a shock that reshuffles who lives where should break both channels together. If occupational sorting breaks while voting persists, persistence must run through places.

I use a standard decomposition from labor economics (AKM) to separate individual from neighborhood influences on occupational status (Abowd et al., 1999) or political preferences (Cantoni and Pons, 2022). Workers who move between precincts identify each neighborhood's contribution. A LASSO then predicts this place component from 40 pre-WWI neighborhood characteristics, producing an amenity-based index of each precinct's character. The index may capture the literal amenities or a broader neighborhood character they proxy for; the design does not require distinguishing these. What matters is that the index enables two tests: does the amenity-occupation link break while the amenity-vote link survives (temporal dissociation)? And does the amenity-vote link require residential choice? A single-outcome decomposition — whether of occupational status or of voting — cannot answer either question, because person and place effects co-move within each domain. The cross-domain design can, because it allows one link to break while the other survives.

The amenity index predicts both occupational sorting and voting, but the two links diverge over time. By the 1950s, the labor market that had created the amenity landscape no longer pinned workers to the same neighborhoods: wartime destruction and refugee inflows severed the wage-housing match, and pre-WWI amenities no longer predict which precincts attract higher-status workers. Yet the same index predicted SPD vote share at $p < 0.001$ in every election from 1893 to 1961. The landscape outlasted the labor market that produced it. This dissociation suggests that persistence runs through spatially structured neighborhood characteristics, not through the residents who revealed them.

The temporal dissociation narrows persistence to places rather than current residents, but "places" is not a single explanation: formal institutions that survived the war, transmission from incumbents to newcomers, and residential sorting against physical characteristics could each produce persistent voting patterns. Destruction does not weaken the link between amenities and voting, inconsistent with institutional survival. The link exists only where the population turned over, not where incumbents remained, inconsistent with transmission.

But does persistence require people to choose their places, or do places shape whoever arrives? Munich's postwar housing office provides exogenous variation in residential choice. It allocated a share of housing administratively, placing residents independently of their preferences and, critically, independently of the pre-WWI amenity bundle that predicted voting and occupational sorting. If persistence operated through place-based treatment, the link between amenities and voting should survive regardless of how residents arrived. It does not: the link vanishes where residents were placed rather than self-sorted.

What remains is residential sorting: each new cohort selects into neighborhoods whose physical characteristics match their political type. The mechanism requires no institutional survival and no human continuity, only stable physical features against which people can sort. Pubs, churches, housing stock, and spatial position survive when people do not. While reduced-form persistence designs cannot isolate this channel because places and residents co-move, observing occupational and political sorting separately and testing where they diverge narrows this gap. Why new arrivals sorted as they did, whether through preference, price, or networks, is a question the design identifies but does not answer. The evidence is sharpest for the SPD, whose amenity bundle (pubs, housing density, factory proximity) operates through class. For the Catholic center party, where confessional markers anchor both sorting and institutional networks, the two channels are harder to separate.

This paper connects to three literatures. The first establishes that historical events generate persistent spatial differences in political and economic outcomes. Boundary designs at the mita border (Dell, 2010), medieval pogrom sites (Voigtländer and Voth, 2012), and colonial institutions (Acemoglu et al., 2001) identify sharp reduced-form effects but cannot isolate the channel: at every boundary, institutions, infrastructure, and population composition differ simultaneously. Acharya et al. (2016) and Spenkuch and Tillmann (2018) extend this approach to political preferences and religious institutions. A related literature in spatial economics shows that places recover their economic size after temporary shocks (Davis and Weinstein, 2002; Bleakley and Lin, 2012), but the mechanism there is agglomeration, not political sorting. Heblich et al. (2021) show that historical pollution patterns drove persistent neighborhood sorting in English cities long after the pollution source disappeared, establishing that stable physical features can anchor residential sorting across generations. This paper extends their logic to political outcomes and adds a test that shuts down sorting directly, taking persistence as given and asking what sustains it.

The second literature exploits population shocks to narrow the set of explanations. Ochsner and Roesel (2020) show that preferences persist at the Habsburg border after postwar population mixing. Alesina and Fuchs-Schündeln (2007) document East-West German preference gaps surviving reunification. These studies demonstrate that persistence survives demographic upheaval (see Bisin and Verdier 2001 for the theoretical framework), but displacement is partial, stayer transmission cannot be excluded, and the evidence comes from a single outcome observed before and after the shock. Bazzi et al. (2020) decompose persistence of frontier individualism into selective migration and causal exposure, finding both channels at work. This paper tests the sorting channel separately: the admin-placement test shows that the amenity–vote gradient vanishes when residential choice is removed, suggesting exposure alone does not sustain the pattern. The cross-domain design adds a second channel that can break independently.

Third, the neighborhood effects literature estimates place effects on individuals from movers (Chetty and Hendren, 2018) or quasi-random assignment (Damm and Dustmann, 2014; Chyn and Haggag, 2023). Cantoni and Pons (2022) apply an analogous decomposition directly to political outcomes, showing that place effects explain a substantial share of geographic variation in U.S. voting behavior. Their design identifies that place effects exist but cannot distinguish whether they operate through sorting, treatment, or institutions. Decomposing occupation rather than voting creates a cross-domain test: if the place component of occupational sorting predicts voting, and the two links can break independently, the identification gains a dimension that a single-outcome decomposition cannot provide. Yet these movers designs answer a different question from this paper: whether places change the people who live in them. A place could have zero treatment effect on any individual and still sustain aggregate persistence through sorting, which is consistent with the residential selection result in this paper. A related tradition in residential economics estimates sorting equilibria structurally: Bayer et al. (2007) and Diamond (2016) model neighborhood choice with heterogeneous preferences and estimate willingness to pay for local amenities. The historical data constraints here preclude structural estimation — address books record occupations and addresses but not stated preferences, choice sets, or rents. The cross-domain identification strategy substitutes for the choice model by exploiting the observable overlap between occupational and political sorting, and the admin-placement test provides exogenous variation in residential assignment that a structural model would need to assume.

Section 2 describes Munich's political geography and the shocks that transformed it. Section 3 develops a sorting framework that generates three testable predictions. Section 4 presents the data. Section 5 establishes the persistence fact. Section 6 builds the AKM estimation and LASSO decomposition. Section 7 tests the temporal dissociation. Section 8 identifies the mechanism.

2 Historical Background

Munich grew from 350,000 residents in 1890 to over 800,000 by 1933, driven by industrialization that transformed a royal capital into a manufacturing center. Growth was spatially uneven. Working-class districts expanded east and south along rail corridors and factory sites; bourgeois quarters concentrated near the Isar and the city center; Catholic parishes, predominantly in the old town and western neighborhoods, maintained their own dense institutional infrastructure of churches, schools, and associational life. By the turn of the century, Munich's neighborhoods were socially distinct, each with a characteristic mix of occupations, confessions, and institutions.

Two parties anchor the analysis because they are the only ones that survived all four regimes. The SPD (Social Democrats) drew its support from trade unions, workers' associations, and the industrial working class. Its vote share tracked the geography of factories, pubs, and dense working-class housing. The Catholic center party (Zentrum nationally, the Bavarian People's Party (BVP) after 1918, the Christian Social Union (CSU) after 1945) was rooted not in class but in confession. Its organizational base was the parish: Catholic associational networks (clubs, charities, newspapers) mobilized voters through institutional channels that operated independently of the labor market. The other parties that appear in Munich elections (liberals, communists, the NSDAP) either did not exist across all four regimes or lacked the institutional anchoring that sustains precinct-level persistence.

Between 1893 and 1961, Munich experienced four regime changes and three shocks. World War I ended the Empire and produced the Weimar Republic, which brought universal suffrage and a new party system but did not redraw Munich's social geography. The Nazi seizure of power in 1933 suppressed free elections for sixteen years. The period between 1933 and 1949 is the most severe disruption to the social composition of Munich's neighborhoods: Allied bombing destroyed between 27 and 31 percent of Munich's housing stock (Haus der Bayerischen Geschichte, 2024), the regime murdered or expelled virtually the entire Jewish population, wartime evacuation and postwar refugee inflows reshuffled the city's residents, and the currency reform of 1948 reset economic life. When democratic elections resumed in 1949, the people voting in Munich's precincts were largely different from those who had voted in the same precincts before the war.

3 Framework

Political persistence is usually attributed to institutions that survive across regimes or to social transmission from one generation to the next. Both require human continuity: someone or something must carry the information forward. Formal models of cultural transmission (Bisin and Verdier, 2001) show how preferences can persist through intergenerational socialization even without institutional enforcement, but the mechanism still requires overlap between transmitters and receivers — parents, neighbors, or community members who interact with the next generation. Sorting adds a complementary logic (Tiebout, 1956). If neighborhoods have stable physical characteristics and different types of people value those characteristics differently, each cohort of new arrivals may sort into the same neighborhoods as the cohort before. The spatial pattern of political preferences could regenerate not because anyone transmits it, but because the same physical features attract the same types of people.

Consider a city where neighborhoods differ in observable amenities — pub density, church proximity, housing stock, factory proximity — and where workers can choose their neighborhood. Workers differ in what they earn and what they prefer. The housing market allocates them: prices adjust until each neighborhood attracts workers whose willingness to pay matches the local amenity bundle. In equilibrium, occupational sorting emerges because a worker's wage determines which neighborhoods are within reach. The empirical design tests the outcome of sorting — who lives where and how they vote — not the price mechanism that may produce it. Precinct-level rent data do not exist for prewar Munich, so the design cannot separate sorting on amenity visibility from sorting on price gradients correlated with amenities.[1] Factory-adjacent, pub-dense neighborhoods are affordable for lower-wage workers, who concentrate there; church-adjacent neighborhoods attract higher-wage workers who can afford the higher rents.

Political sorting operates over the same amenities but through a different channel. Occupational sorting requires the labor market to channel workers by wage into specific neighborhoods: factories must be nearby, commuting must be costly, and local wages must pin workers to local housing. Political sorting requires only that amenities remain visible and retain their political meaning: a pub signals working-class sociability regardless of whether the nearest factory still employs local residents, and a parish church signals Catholic community regardless of who can afford the surrounding housing. Because both channels operate over the same amenity vector, observing occupational sorting in a stable equilibrium reveals political sorting. But the two channels rest on different foundations: occupational sorting pins workers to neighborhoods through wages and commuting costs, while political sorting pins residents through cultural legibility. A shock to the labor market (industrial suburbanization, cheaper commuting, refugee inflows that scramble the wage-housing match) severs the first set of ties without disturbing the second, because the amenities themselves do not move.

This generates three testable predictions:

Prediction 1: Persistence under replacement. If amenities are stable and a new population can choose their neighborhood, the sorting pattern re-emerges even if the new population has a different aggregate composition (Section 5).

Prediction 2: Cross-domain identification. Both occupational and political sorting respond to the same spatial variation in neighborhood characteristics — whether mediated by housing prices, direct preferences, or social networks. An econometrician who observes only occupational sorting can therefore back out which amenities matter for po-

[1] The destruction test provides indirect evidence: if destruction changed rents enough to disrupt sorting, the amenity–vote gradient should weaken in destroyed precincts. It does not (Table 5).

litical sorting (Section 6).

Prediction 3: Dissociation. The pre-WWI labor market created the amenity landscape: factories attracted workers, workers demanded pubs, dense cheap housing was built around employment sites, and parishes anchored confessional neighborhoods. Once built, these physical features outlast the labor market conditions that produced them. A shock to the labor market (industrial suburbanization, cheaper transport, population displacement) severs the wage-housing match that pins workers to specific neighborhoods, breaking the occupational link. But the built environment remains standing and legible: pubs, churches, and housing density signal political type without requiring a functioning local labor market. The amenity–occupation link should dissolve while the amenity–vote link persists (Section 7).

The mechanism tests in Section 8 ask whether the data are consistent with sorting rather than institutional survival or social transmission.

4 Data

Directories Munich's municipal address books (*Adressbücher*) list every household head by name, occupation, and street address. I digitize eleven editions spanning three political regimes: Imperial Germany (1893, 1895, 1900, 1905, 1910), the Weimar Republic (1919, 1924, 1929, 1933), and the Federal Republic (1953, 1961). Each edition records between 100,000 and 240,000 household heads. Because each record pairs an occupation with a precise address, the same source identifies both where people vote and how they sort by occupational status. I classify each occupation using HISCAM, a social-stratification scale that measures occupational standing (not income) on a German-specific scale from 42 to 98 (Lambert et al., 2013).[2]

[2]The classification pipeline predicts standardized HISCO codes from raw German occupation strings using the OccCANINE machine-learning model (Dahl et al., 2024), then maps HISCO codes to HISCAM scores via the crosswalk in Van Leeuwen et al. (2002). HISCAM covers 93.4% of occupation strings by frequency.

Voting Data The election data span 18 contests across the same four regimes: five Imperial Reichstag elections (1893–1912), eight Weimar Reichstag elections (1919–1932), the March 1933 election, and four Federal elections (1949–1961). I focus on the two parties that persist across all four regimes: SPD (Social Democrats) and the Catholic center party (ZENT/BVP/CSU). Vote shares equal party votes divided by valid votes cast.

Since *Stimmbezirk* boundaries were redrawn for each election, precincts are administrative slices of the city's geography, not units into which residents could sort. All precinct-level data are harmonized to 1933 boundaries, which provide the finest consistent geography across the panel. The crosswalk maps each year's addresses to their 1933 precinct using the 1933 address book as the reference, yielding a panel of 380 precincts observed across 18 elections.

Amenities I construct 40 precinct-level pre-WWI amenity variables from six sources: address books (establishment densities, housing quality), the 1910 municipal census (population, demographics, religion), parish records (church locations), school records, a 1912 factory directory (211 firms, 86% geocoded), and a 1900 tramline shapefile. Distance variables measure the mean Euclidean distance from all addresses in a precinct to the nearest instance of each amenity (churches, schools, pubs, factories, tram stops, post offices, and others). Summary statistics appear in Tables A.1–A.2.

Destruction I measure wartime destruction as the percentage change in listed households between the 1933 and 1949 address books. Precincts that lost a larger share of their listed population suffered more physical damage, an approach that captures destruction at precinct resolution without relying on retrospective surveys or aggregate bomb-damage assessments. The measure conflates bombing damage with deportation, evacuation, and voluntary wartime migration; it should be read as a composite shock to the local population rather than a measure of physical destruction alone.[3]

5 The Persistence Fact

Precinct-level vote shares in Munich barely moved over 68 years.[4] Figure 1 plots 1912 precinct vote-share ranks against period-average ranks for three periods. Rank correlations are 0.85 during the Weimar period and 0.80 after World War II, with slopes near one: close to rank-preserving from Empire through Republic, dictatorship, and Federal Republic.[5][6] Ranks rather than levels are the right metric: aggregate SPD vote shares shift across regimes, so comparing raw shares would conflate persistence with level shifts (Figure A.2).

The address books reveal the scale of population replacement behind this persistence. Of 95,727 uniquely identifiable individuals in the 1912 address book, fuzzy name-matching locates only 25.7% in Munich's 1953 address book.[7] Fewer than 1% remain at the same address. The population turned over almost entirely. The vote-share rankings did not.

How much of this persistence can observable precinct characteristics explain? If persistence reflects stable neighborhood characteristics, controlling for those characteristics should absorb the persistence coefficient. Table 1 regresses period-average SPD vote

[3]The mean change is -17.4% (sd = 29.5%), with 65.5% of precincts showing net population loss. The hardest-hit precincts lost all listed households; some peripheral precincts gained population through refugee settlement.

[4]Each precinct aggregates fewer than 1,000 voters on average, so these are neighborhood-level patterns, not district-level aggregates.

[5]BVP/CSU persistence is weaker ($r = 0.27$ by post-WWII, compared with 0.80 for SPD). The asymmetry is structural: the SPD amenity bundle (pub density, housing characteristics, factory proximity) provides clean tests of place-based mechanisms, while the BVP/CSU bundle is dominated by Catholic share, where place-based and compositional persistence are observationally equivalent. BVP/CSU serves throughout the paper as a contrast case that reveals both the reach and the limits of the design.

[6]Other precinct characteristics do not persist at comparable rates. Density, household counts, and mean occupational status all disperse after WWII, and household counts reverse entirely: the largest precincts in 1912 became the smallest by the 1950s (Figure A.1).

[7]Matching uses exact last names and Jaro-Winkler first-name similarity ≥ 0.90, restricted to individuals with a unique first-name–last-name combination in the 1912 address book (95,727 of 167,234 records, or 57%; another 13,843 names appear exactly twice, so names with at most two occurrences cover 90% of all records). The 25.7% is an upper bound on true persistence: some matches may be sons or relatives sharing the same name, and many 1912 residents died before 1953.

shares on 1912 SPD vote shares, progressively adding six groups of controls. The bivariate coefficient is 0.445 for Weimar and 0.412 for post-WWII (Col. 1). With all 40 controls, the coefficients fall to 0.252 and 0.176 (Col. 7), but remain significant at $p < 0.01$ in every specification. Controls reduce persistence but cannot eliminate it.

Since the share of the variation explained (R^2) rises from 0.73 to 0.84 (Weimar) and 0.62 to 0.81 (post-WWII), controls explain cross-precinct level differences but do not absorb the persistence channel. Whatever produces persistence is not fully captured by observable precinct characteristics.[8]

The persistence coefficient survives 40 controls, but controls that correlate with voting cannot tell us whether persistence runs through neighborhoods or through the people who live in them.

6 From Occupational Sorting to Place Characteristics

Because workers sort across neighborhoods by occupation and by political preference, I can characterize each neighborhood's contribution to occupational sorting and ask whether the same features also predict voting. I do this in two steps. First, an AKM model decomposes occupational status into person and place components using workers who move between precincts. Second, a LASSO selects the observable amenities that predict the place component, splitting it into an observable part and an unobservable residual.

The AKM framework I estimate:

$$\text{HISCAM}_{it} = \alpha_i + \psi_{j(i,t)} + \gamma_t + \varepsilon_{it} \tag{1}$$

where α_i is a person fixed effect, $\psi_{j(i,t)}$ is a precinct fixed effect, and γ_t is a year effect. In labor economics, ψ_j estimates a causal firm wage premium, and exogenous mobility

[8]Results are robust to district fixed effects (Table A.3) and to restricting the sample to precincts with complete covariate data (Table A.4).

is required for consistency (Abowd et al., 1999).[9] Here, I use ψ_j descriptively: it summarizes which precincts attract higher-status workers in equilibrium. Whether a precinct confers occupational status or attracts workers who already have it is irrelevant to the paper's purpose. The LASSO then asks which observable amenities predict this assignment. Endogenous sorting does not bias a summary of the sorting equilibrium; it *reflects* the equilibrium.

Identification requires movers: individuals observed in at least two precincts, whose changes in occupational status when they move reveal what each precinct contributes.[10] No election data enter the estimation, so the amenity bundle is fixed before the political test begins.

I link individuals across three pre-WWI address book pairs (1895→1900, 1900→1905, 1905→1910) by exact last name and Jaro-Winkler first-name similarity $\geq$ 0.90. I enforce one-to-one matching and restrict the sample to unique name pairs (approximately 87% of all pairs) to eliminate ambiguous matches.[11] Non-labor-market occupations (retirees, pensioners, rentiers, widows) are excluded. Stacking the three pairs yields 79,612 unique individuals (171,037 person-year observations) and 39,718 cross-precinct movers. Appendix B describes the linking protocol.

For the AKM to produce consistent estimates of neighborhood effects, the data must contain enough movers connecting most precincts. Table 2 confirms that they do. The 49.9% mover share (Panel A) reflects the high residential mobility of early-twentieth-century cities.[12] Panel B confirms that the mobility graph is well connected: 345 of 350

[9]Cantoni and Pons (2022) estimate an analogous person–place decomposition for voting outcomes directly. I decompose occupational status rather than voting to create a cross-domain test: if both channels respond to the same amenities but only one breaks, the identification gains a dimension that a single-outcome decomposition cannot provide.

[10]Under endogenous sorting, ψ_j captures a mix of neighborhood contributions and selection. The LASSO decomposition splits this mix into amenity-correlated and amenity-uncorrelated components. The paper's conclusions hold as long as the amenity-correlated component captures what people sort on, which the admin-placement test confirms: the gradient requires residential choice (Section 8).

[11]Results are stable when I instead require exact first-name matches, which reduces the sample but eliminates fuzzy-matching concerns. See Appendix B.

[12]This is roughly twice the 28% reported in Card et al. (2013) for modern German social security data. High mobility is typical of early-twentieth-century German cities, where annual gross migration rates rou-

precincts belong to the largest connected set, with a median of 245 movers per precinct. Panel C reports the place component. The interquartile range of 1.2 HISCAM points implies that moving from a 25th- to a 75th-percentile precinct shifts expected occupational standing by more than one point on the 42–98 scale, holding the individual constant ($\sigma(\psi_j) = 1.424$).

The place component raises a concern about limited mobility bias, since the median precinct pair connects through just one mover.[13] Appendix C addresses this by replacing the ∼68,000 person fixed effects with 12 HISCLASS occupation-group effects (Van Leeuwen and Maas, 2011), which eliminates the thin-connections problem: with 12 group effects, every precinct pair is connected by hundreds of movers. The HISCLASS specification produces a larger place premium ($\sigma(\psi_j) = 1.97$), triples the LASSO cross-validated R^2 (0.059 → 0.160), and yields the same qualitative conclusion across temporal cross-validation, forward-tracking, and vote decomposition (Table A.17). Appendix C replicates all main results under this specification; conclusions that hold in both are robust to the thin-connections concern.

Lasso decomposition The place component ψ_j summarizes each precinct's contribution to occupational status in a single number. The next step asks which observable amenities account for it. OLS on 40 covariates produces unstable coefficients that flip sign across specifications (Figure A.3; Table A.6, Col. 1), and I want to include pairwise interactions (820 features on 298 precincts), which OLS cannot estimate. I use LASSO with 10-fold cross-validation ($\alpha = 1$, λ_{min}). LASSO selects 37 features with a cross-validated R^2 of 0.059 (Table A.6, Col. 3).

tinely reached 40–60% of the urban population (Hochstadt, 1999). Jaro-Winkler matching on common surnames could produce false movers that inflate this rate, but the unique-pair restriction (87% of all pairs) eliminates most ambiguous matches, and results are stable under exact first-name matching, which further reduces spurious links at the cost of sample size.

[13]The small place share ($\text{Var}(\psi_j)/\text{Var}(\text{HISCAM}) = 0.5\%$) is expected given the outcome variable. In standard labor AKM, firm effects explain 15–25% of wage variance because wages vary continuously within occupations. HISCAM is a deterministic function of occupation title, so ψ_j is identified only from individuals who change both precinct and occupation simultaneously; pure residential movers contribute no variation. The small variance share reflects the discreteness of the outcome, not the irrelevance of neighborhoods.

The LASSO fitted values define the observable component of ψ_j: the part of each precinct's contribution to occupational status that can be traced to specific amenities. Figure 2 (first panel) ranks the selected coefficients. The largest absolute predictors are Catholic share and the pub distance–military interaction; the largest positive predictor is the church distance–Catholic share interaction ($\hat{\beta} = 0.164$), where the church–status gradient steepens in more Catholic precincts. Everything the LASSO cannot explain is the unobservable residual.

The cross-validated R^2 is modest. The relevant question is not whether neighborhoods explain much of occupational status (they do not), but whether the slice they do explain is spatially structured in a way that also predicts voting. It is. One could skip the AKM and regress votes directly on amenities. The cross-domain design adds one thing that direct prediction cannot: a channel that can break independently. If amenities predicted votes but had never predicted occupational sorting, they would be good controls, not evidence of a sorting mechanism. That they predicted both, and that the occupation link dissolved while the vote link survived, is what separates sorting from a stable correlation.

This decomposition only works if the amenities that predict occupational sorting also predict voting. The cross-domain identification assumes that the amenity vector that sorts workers by occupation also sorts them by political preference. If people sort on dimensions orthogonal to both, the cross-domain link is attenuated but not biased. Figure 2 runs the same LASSO independently on three outcomes: the place component ψ_j, pre-WWI SPD vote share, and pre-WWI BVP/CSU vote share. Pub density and Catholic share rank among the top predictors in both the occupational and SPD domains (Table A.8). The overlap confirms that the decomposition captures spatial variation relevant to both channels; whether that overlap survives across decades is the test of the next section.[14][15]

[14]Table A.11 confirms that OLS and LASSO decompositions yield the same forward-tracking results, including with district fixed effects. Abandoning the LASSO machinery still delivers the same conclusion.

[15]BVP/CSU selects a distinct set: church distance, number of churches, and fragmentation, physical markers of Catholic neighborhood character that do not sort workers by occupational status. The BVP/CSU amenity bundle thus operates through a different channel than the SPD bundle, a distinction that recurs throughout the mechanism tests in Section 8.

7 Sorting Breaks, Voting Persists

Section 5 established a strong correlation between preferences across time, robust to a battery of control variables. The implicit assumption is that the relationship between neighborhood characteristics and outcomes is stable. If it is, both the amenity-occupation and amenity-vote links should be equally durable: neither should break without the other. If, however, the amenity-occupation link breaks after historical shocks while the amenity-vote link survives, persistence is anchored in place characteristics rather than in the workers who revealed them. The LASSO decomposition (Section 6) splits each precinct's place premium into an observable amenity component and an unobservable residual.

Figure 3 tests whether pre-WWI amenities continue to predict occupational sorting after historical shocks.[16] In early Weimar (1919–1924), the pre-WWI amenity bundle still predicts which precincts attract higher-status workers ($\hat{\beta} \approx 0.6$): the spatial equilibrium that had formed before the war largely survived it. By 1929–1933, the coefficient halves. The Depression and the destruction of Munich's Jewish community began to reshuffle who lived where. By 1953–1961, the coefficient reaches zero. Knowing that a precinct had pubs, factories, and dense housing pre-WWI no longer predicts anything about its residents' occupational status in the 1950s. The labor market that had created the amenity landscape changed: postwar Munich's industrial employment suburbanized, public transport expanded commuting ranges, and refugee inflows scrambled the prewar match between wages and housing. Workers no longer needed to live near the factories that employed them. The occupation channel broke, but the landscape remained.

Yet the voting channel persisted.[17] The observable component is a fixed pre-WWI spatial index. Its interpretation does not require the occupational channel to remain ac-

[16] I re-estimate the AKM for four post-WWI periods using fresh movers from separate address book pairs (Table A.7), then regress each new place component on the pre-WWI observable amenities.

[17] This dissociation also addresses the concern that the LASSO is fitting noise in ψ_j to amenities. If the "observable component" were a mechanical correlate of population composition rather than a meaningful spatial index, the occupation and vote links should break together after a composition shock. They do not. Noise in ψ_j cannot generate a dissociation.

tive; it requires only that the amenities it captures remained standing and politically legible. Pubs remained markers of working-class sociability; churches remained anchors of Catholic parish life; dense housing remained affordable to left-leaning households. These associations do not depend on the local labor market.

Figure 4 regresses precinct-level SPD vote share on the two components of the LASSO decomposition, separately for each election from 1893 to 1961. The observable component predicts SPD vote share at $p < 0.001$ in every election across 68 years. The residual, which captures everything about a neighborhood that the amenities cannot explain, never reaches significance, though this null alone is not conclusive: measurement error in ψ_j, LASSO shrinkage, and limited cross-sectional power could suppress a true residual effect. What the null does establish is that the observable component carries the spatially structured signal. The sharper test of whether persistence requires residential choice comes in Section 8. Pre-WWI amenities stopped sorting residents by occupation but never stopped sorting them by political preference. That the SPD's voter base broadened from manual workers to a wider left-of-center coalition after 1945 reinforces this result: the spatial markers that had attracted industrial workers before the war attracted left-leaning voters of all occupations after it, because sorting operated through the built environment rather than through the labor market.

Table 3 tests whether this result survives demanding controls. I progressively add district fixed effects (Column 2), contemporaneous HISCAM (occupational prestige) and population density (Column 3), and the 1912 vote share directly (Column 4).[18] The amenity component predicts both SPD and BVP/CSU ($p < 0.05$) across all four specifications. Even in the most demanding specification, which asks whether amenities carry predictive power beyond historical persistence itself, the observable component remains significant.

[18]These are bad controls in the sense of Angrist and Pischke (2009): post-WWII occupational composition is itself shaped by the amenities under study, so conditioning on it absorbs part of the channel rather than removing a confounder. That the amenity coefficient survives this absorption is evidence of an independent effect.

The dissociation narrows the explanation to place characteristics rather than current residents, but it does not resolve the mechanism. It is consistent with sorting, institutional survival, and neighborhood reputation alike. The temporal pattern could also be explained by differential measurement in the post-war address books, though data-quality diagnostics argue against this reading: within-precinct HISCAM variance and occupation-change rates among movers are comparable across periods, and the place-premium variance is larger, not smaller, in the 1950s (Table A.15). Still, the sharpest identification comes from the administrative placement test in Section 8, which does not depend on the temporal pattern.

8 Mechanisms: Places Stay, Workers Leave

The dissociation between the amenity-occupation and amenity-vote links rules out contemporaneous composition as the channel, but "places" is not a mechanism. Three channels could explain how places sustain political preferences across population turnover. First, formal institutional infrastructure (churches, party offices, associational networks) that anchors political organization independently of who lives nearby. Second, transmission from incumbent residents to newcomers: stayers who socialize arrivals into local political norms. Third, residential selection: spatial amenities that attract politically similar movers, reproducing neighborhood composition without requiring either institutional persistence or human continuity. Each mechanism test interacts the observable amenity component, the part of a precinct's character that a prospective resident could see before moving in, and the unobservable residual with a treatment variable. If persistence operates through sorting on visible features, it should load on the observable component and require residential choice.

The same physical object can operate through different channels. A church is an institution if its parish actively shapes the preferences of whoever lives nearby; it is an amenity if its visible presence signals neighborhood type and attracts residents who already hold matching preferences. The distinction is testable. If churches operate as institutions, persistence should survive even when residents are exogenously placed in a neighborhood, and should be strongest where incumbents remained to do the socializing. If churches operate as amenities, persistence should vanish where residential choice is removed and should be strongest where newcomers replaced the prior population. The design cannot distinguish sorting on the physical church from sorting on parish-adjacent signals: visible churchgoing, confessional shop fronts, street-level markers of Catholic life. But whatever the signal, the tests below ask whether it operates through choice or through exposure.

8.1 Institutional Survival

Catholic share and church distance dominate the observable component (Table 4): excluding religion is the only variable group exclusion that activates the residual. This tells us what people sort on, not how the sorting works. Confession was Munich's deepest social cleavage, so the physical markers of that cleavage carry the most information for residential choice. Churches are landmarks visible from blocks away; Catholic share summarizes the confessional character of a neighborhood. Both are features a prospective resident can observe before moving in. That religion dominates is what a sorting model predicts. Whether these markers operate as amenities or as institutions is the question the next three tests answer.

For BVP/CSU, the physical structures that anchor Catholic neighborhoods survived the war largely intact, so the destruction test has limited power. The remaining tests therefore use the SPD channel as the primary test, with BVP/CSU as a contrast case. The SPD amenity bundle includes pub density, housing characteristics, and spatial position, features that destruction and turnover can plausibly disrupt.[19]

[19] Table A.9 confirms that SPD results survive when all religion variables are excluded from the LASSO decomposition.

If persistence runs through formal institutions (parish infrastructure for BVP, party organization for SPD), then wartime destruction should attenuate the amenity-vote gradient in heavily affected precincts. Table 5 interacts the amenity and residual components with destruction, measured as the percentage change in listed households between the 1933 and 1949 address books.[20]

All specifications include district fixed effects. Munich has 30 districts, each averaging 12 precincts and 4,500 households. Within such a small area, precincts share proximity to strategic targets, housing stock, and socioeconomic composition. Residual variation in which precincts burned reflects wind patterns, bombing accuracy, and fire spread rather than political composition.

For BVP/CSU, the amenity $\times$ destruction interaction is significant (-0.052, $p < 0.01$). Because destruction is negative in the hardest-hit precincts, the interaction *amplifies* the amenity-BVP gradient: Catholic neighborhoods that lost the most population vote more BVP relative to their amenity prediction, not less. The most likely explanation is that the population shock dislodged the least anchored residents while retaining those most tied to the parish: homeowners who rebuilt, families with local roots, parishioners. If BVP persistence required functioning institutional infrastructure, destruction should have weakened the gradient, not sharpened it.

For SPD, the amenity $\times$ destruction interaction is insignificant (0.021): the population shock neither amplifies nor attenuates the amenity-SPD gradient. The contrast between the two parties is itself informative. BVP/CSU persistence interacts with destruction through observable amenities; SPD persistence does not.[21]

Neither party's amenity channel is weakened by destruction. The institutional reading predicts the opposite: if parish infrastructure transmitted preferences to whoever lived

[20] Because the address books record individual buildings, this is a building-level measure: I observe which houses lost their residents and which did not, rather than relying on aggregate damage proxies interpolated from district reports.

[21] The residual $\times$ destruction interaction is significant for SPD (0.022, $p < 0.05$), the only specification in the paper where the residual reaches significance. What unobserved neighborhood characteristic drives this is beyond the scope of this test.

nearby, destroying neighborhoods should weaken the amenity-vote link. It does not. BVP persistence intensified in destroyed precincts, consistent with selective retention of the most parish-attached residents, not with institutional transmission to newcomers. SPD persistence was unaffected. The built environment that the pre-WWI labor market created survived the war, and movers sorted against what remained.

8.2 Sorting, Not Transmission

If persistence instead runs through transmission from incumbents to newcomers, the amenity-vote link should be strongest where incumbents remained. Turnover provides the test. Munich absorbed refugees and expellees from Eastern Europe after 1945, and the turnover rate (share of 1953 addresses occupied by a different household head than in 1933) captures the intensity of this replacement at precinct level. Table 6 interacts the amenity component with turnover.[22]

The opposite holds. The amenity $\times$ turnover interaction is significant in both panels (-0.343, $p < 0.05$ for SPD; 0.339, $p < 0.01$ for BVP/CSU), and the main amenity effect is entirely absorbed by the interaction. The link exists only where the population turned over, not where incumbents remained. The residual $\times$ turnover interaction is never significant (Columns 3–4).

The turnover main effect is negative for SPD (-0.798) and positive for BVP/CSU (0.546), reflecting the composition of the postwar inflow: predominantly Catholic refugees who shifted Munich's aggregate vote toward the CSU. The interaction captures a different margin: within Munich, new arrivals ended up in amenity-matched neighborhoods, though whether by choice or by circumstance remains open. Arrivals in Catholic precincts voted BVP/CSU, whereas arrivals in working-class precincts voted SPD.

This is difficult to reconcile with any mechanism that requires human continuity, in-

[22]Pre-WWI amenities also predict post-WWII turnover (Table 8, Columns 3–4), so the interaction could partly reflect amenities generating turnover rather than turnover revealing sorting. Section 8.4 controls for turnover directly and the result survives.

cluding institutional transmission through parishes.[23] If Catholic parishes socialized newcomers into BVP voting, the amenity-BVP gradient should be strongest where parishioners remained to do the socializing. It is strongest where they left. New arrivals in church-adjacent precincts voted BVP/CSU without needing to be converted by incumbent parishioners. If persistence depended on stayers socializing newcomers or transmitting local norms, the link between amenities and voting should be strongest where incumbents remained. It is weakest there.[24]

The evidence is inconsistent with stayer transmission, but two stories remain. New arrivals in amenity-matched precincts could have been *treated* by those amenities: exposed to local institutions, social networks, or neighborhood cultures that shaped their political behavior. Or they could have *sorted* by type: workers who already leaned SPD chose dense, pub-rich neighborhoods; Catholics who already leaned BVP chose parishes. Both stories predict the same interaction sign. Distinguishing them requires variation in whether residents chose their neighborhood.

8.3 Sorting, Not Treatment

Postwar Munich provides an unusually direct test. The municipal housing office (*Wohnungsamt*) allocated a substantial share of postwar housing through administrative channels, placing residents independently of their neighborhood preferences.[25] The admin-

[23]An alternative measure of population continuity (the share of 1953 household heads whose last name appeared in the same precinct in 1912) confirms the pattern. On average, 14.6% of 1953 names can be traced to a 1912 precinct match (sd = 8.6%). The observable amenity gradient for SPD is robust regardless of lastname ancestry; the interaction between ancestry and the residual component is negative and significant. Table A.12 reports the full specification.

[24]The same pattern addresses a concern about the BVP result. If BVP persistence were compositional (the same Catholic families continuously replacing departing Catholics), higher turnover should weaken the amenity-BVP gradient. Instead, precincts with the most replacement show the strongest gradient.

[25]Under Kontrollratsgesetz Nr. 18 (1946), the Wohnungsamt assigned applicants to specific addresses through billeting orders (*Einweisungsverfügungen*) based on a need-based priority hierarchy; applicants did not choose neighborhoods. By 1948, over 93,000 applications competed for roughly 12,000 annual assignments. Administrative channels include government-requisitioned apartments (Stadt München, Land Bayern, Bundesrepublik), nonprofit housing associations (*gemeinnützige Wohnungsbaugesellschaften*), and housing cooperatives (*Baugenossenschaften*). The 1953 address book identifies building owners, allowing me to classify each resident as living in administratively allocated or privately owned housing. Appendix E

allocated share averages 11.0% across the 296 precincts in the regression sample (sd = 16.6%; Figure A.11).

Administrative placement does not correlate with the amenity bundle that predicts voting (Table A.13). This is the key condition: if the housing office had placed residents near amenities that matched their type, the test would be contaminated. The near-zero correlation means that admin-allocated precincts received residents whose neighborhood preferences were not accommodated, providing variation in whether residents chose their neighborhood that is independent of the amenities under study.

If persistence operated through place-based treatment, the amenity-vote link should survive regardless of how residents arrived. If it operated through sorting, the link should vanish where residents were placed. Table 7 interacts the amenity and residual components with admin-allocated share. The amenity $\times$ admin-allocated interaction has the opposite sign to the main amenity effect in both panels: for SPD, the main coefficient is -0.067 ($p < 0.01$) and the interaction is $+0.079$ ($p < 0.01$); for BVP/CSU, 0.046 and -0.048 (both $p < 0.01$). At full administrative allocation, the link is eliminated. The attenuation is monotonic across the distribution of admin-allocated share: Figure A.11 splits precincts into quintiles and shows the amenity coefficient declining smoothly from the lowest to the highest admin share.[26]

The link between amenities and voting exists where residents chose their neighborhood. That it vanishes where they were placed is inconsistent with place-based channels that do not require active choice. Heblich et al. (2021) show that amenity-driven sorting persists but cannot test whether persistence survives when sorting is disabled. The administrative allocation result provides this test. The strongest candidate for place-based transmission is surviving neighborhood institutions: pubs, parish groups, local associations that could socialize newcomers regardless of turnover. But admin-placed residents

documents the legal framework, allocation mechanism, and institutional details.

[26]Table A.14 decomposes the admin-allocated category into government, nonprofit, and cooperative housing. Nonprofit (0.236, $p < 0.01$) and cooperative (0.225, $p < 0.01$) housing drive the SPD attenuation; government housing shows the same direction but is less precise.

lived alongside the same institutions as self-selected residents. If these institutions shaped preferences through exposure, they would shape placed residents too. The gradient's elimination is inconsistent with this channel.

Two further concerns strengthen the result. First, admin-placed residents (refugees, bombed-out families) could differ systematically from market-choice residents. Within precincts, however, the two groups are occupationally indistinguishable ($\hat{\beta} = -0.37$, $p = 0.15$; Table A.20), and controlling for the composition of placed residents does not change the interaction coefficient (0.081 vs. 0.079; Table A.22). Second, admin-placed residents had 5–15 years of neighborhood exposure by the time of the 1949–1961 elections, exceeding the timescales at which the adult neighborhood effects literature finds treatment effects for quasi-randomly placed adults (Damm and Dustmann, 2014). What remains is that persistence requires residents to select into neighborhoods based on something they can observe about them.[27]

One caveat qualifies this interpretation. The admin-allocated category includes housing cooperatives (*Baugenossenschaften*), some of which had confessional membership criteria (e.g., the Katholisches Siedlungswerk, 1,816 units). Under §4 of the Erstes Wohnungsbaugesetz (1950), cooperatives with restricted membership could allocate outside the Wohnungsamt system, so the attenuation could reflect provider sorting rather than the absence of individual choice. Three features limit this concern: the confessional cooperatives were small relative to the secular, city-owned GEWOFAG and GWG (76,000 units combined); publicly subsidized cooperative units remained under Wohnungsamt allocation regardless of membership; and nonprofit housing associations, which allocated through waitlists rather than political membership, show the same attenuation pattern (Table A.14). Redefining admin-allocated as government plus nonprofit only (exclud-

[27]One might worry that residents retained some choice even within the administrative system. Two features mitigate this concern. First, Munich faced acute postwar housing shortages, limiting residents' ability to choose among allocated options. Second, residual sorting within the admin system would bias toward finding a gradient, not toward eliminating one; that the gradient vanishes entirely suggests any such bias is small. Administrative courts upheld the Wohnungsamt's allocation decisions in 98.7% of appeals (1950–1952); see Appendix E.

ing cooperatives entirely), the SPD amenity interaction is virtually unchanged (0.077, $p < 0.01$; Table A.22). Appendix E documents the cooperative sector in detail.

What the design identifies. The amenity bundle captures physical characteristics of precincts, but residents may sort on features the bundle does not measure: neighborhood reputation, social networks, ethnic composition, informal labor-market connections. If these latent characteristics are spatially correlated with the amenity bundle, the observable component absorbs them, and the residual's insignificance reflects this absorption rather than a true absence of unobserved channels. This concern is valid as a critique of the decomposition alone. But the results above do not rest on the decomposition alone. The elimination of the gradient under exogenous placement asks a different question: does the amenity-vote link require residential choice? If persistence operated through any latent neighborhood characteristic, it would function as place-based treatment, shaping preferences regardless of how residents arrived. Admin-placed residents are exposed to the same reputation, the same cultural memory, and the same informal institutions as self-selected residents. That the gradient vanishes argues against such channels. Neighborhood reputation is the most plausible alternative sorting criterion. Reputation is typically anchored to visible characteristics: a neighborhood "looks" working-class because of its housing stock and streetscape. The contribution is therefore that persistence requires residential selection, whether the selection criterion is physical, reputational, or both.

8.4 Places Stay, Workers Leave

If places persist while workers leave, pre-WWI amenities should predict post-WWII voting even after controlling for every worker-side variable that changed between the two periods. Table 8 runs this test. The premise is that the labor market reshuffled: pre-WWI amenities predict both the change in precinct mean HISCAM (Columns 1–2) and post-WWII turnover (Columns 3–4). Workers moved; the question is whether the amenity-vote link survived their departure.

Columns (5)–(6) test whether amenities predict voting after absorbing every worker-side variable that changed between the two periods. They do. After controlling for ΔHISCAM, turnover, the post-WWII AKM observable, and destruction, a one-SD increase in the amenity component shifts post-WWII vote shares by -4.1 percentage points for SPD ($p < 0.01$) and $+2.9$ percentage points for BVP/CSU ($p < 0.01$). The post-WWII observable enters at zero (0.007 for SPD, -0.002 for BVP/CSU, both insignificant).[28] By the 1950s, the channel from amenities to votes bypasses the labor market entirely: current occupational sorting adds nothing beyond what pre-WWI amenities already predict.

Selective residential sorting is what remains, and the admin-placement test confirms it directly: persistence requires residential choice.[29] The evidence weighs against three channels: destruction of neighborhood infrastructure does not weaken the amenity-vote link, inconsistent with formal institutional persistence; the link exists only where the population turned over, inconsistent with stayer-to-newcomer transmission; and most directly, the link vanishes where residents were administratively placed rather than self-selected, inconsistent with place-based treatment effects.

9 Conclusion

Political persistence in Munich need not require institutional survival, social transmission, or human continuity. It can rest on stable physical features against which people can sort.

Place effects estimated from occupational sorting predict voting, but the two channels separate over time: the labor market that created the amenity landscape dissolved, yet

[28]The post-WWII observable is the LASSO projection of the 1953–1961 AKM place premium onto the same pre-WWI amenity set used for the pre-WWI LASSO decomposition. The near-zero CV R^2 (0.006) confirms that these amenities no longer predict occupational sorting by the 1950s, consistent with the temporal cross-validation result (Figure 3).

[29]Table A.10 reports standardized coefficients for all mechanism specifications.

the landscape never stopped predicting voting. That dissociation cannot be generated by compositional persistence. It requires that places carry information independently of who lives in them. The amenity bundle may proxy for a richer set of neighborhood characteristics than any data set can measure. But the gradient vanishes when residential choice is removed: whatever those characteristics are, they operate through sorting, not through exposure.

Three mechanism tests confirm the channel: the link between amenities and voting survives destruction, exists only where the population turned over, and vanishes where residents were administratively placed rather than self-sorted. Remove the choice, and the pattern breaks.

The mechanism requires three conditions: stable physical amenities that survive shocks, residential choice through a functioning housing market, and a legible mapping from amenities to political type. Munich satisfies all three. The design identifies sorting most cleanly for the SPD, whose amenity bundle (pubs, dense housing, factory proximity) operates through class rather than confession. The BVP/CSU results illustrate the mechanism's limits: where the amenity bundle is dominated by confessional markers that also anchor institutional networks, sorting-based and institution-based persistence are observationally equivalent. Settings without dense amenity variation (rural areas), without residential choice (pervasive housing allocation), or without spatially embedded political cleavages would not produce this pattern.

The workers left, the places stayed. Why new arrivals sorted as they did — whether through preference, price, or networks — remains an open question.

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10 Figures and Tables

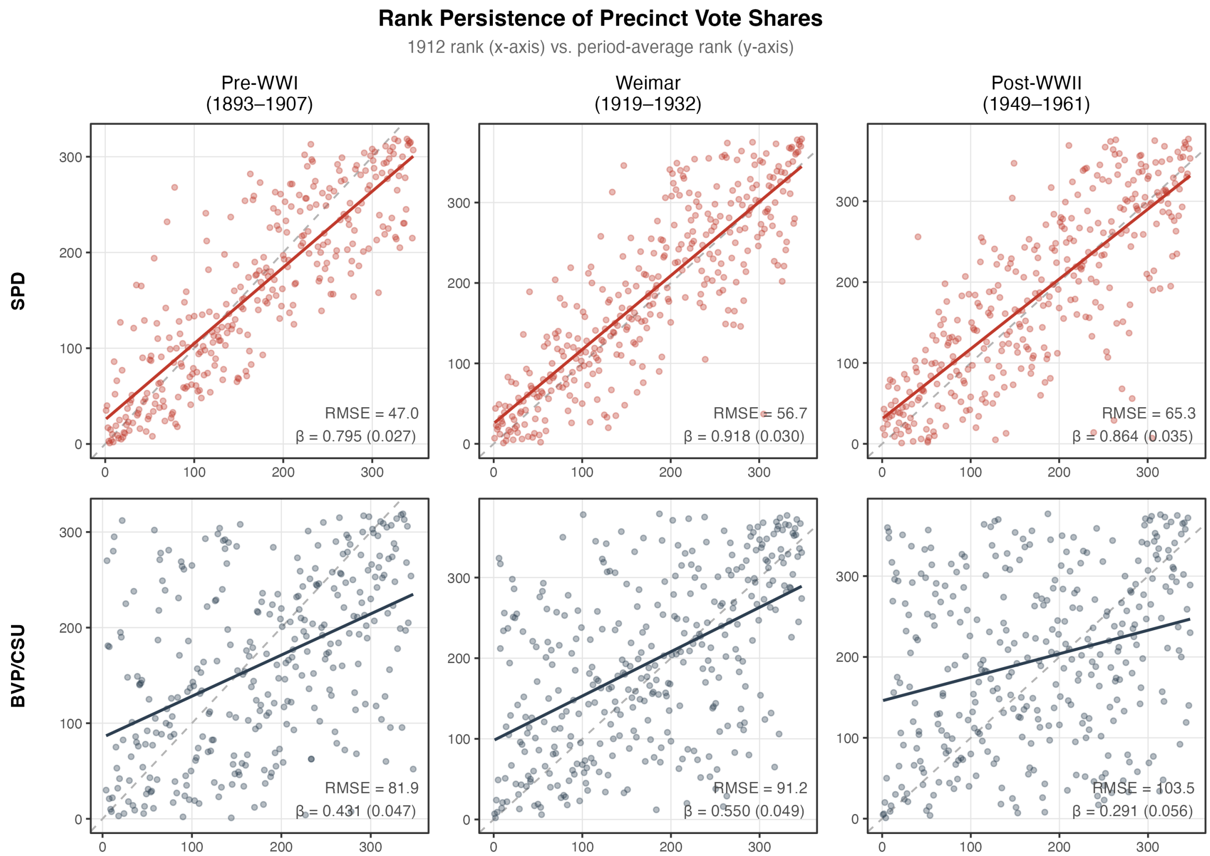

Figure 1: Rank Persistence of Precinct Vote Shares

Notes: Each panel plots the within-year percentile rank of a precinct's vote share in 1912 (x-axis) against its rank averaged over the indicated period (y-axis). Period averages are computed from raw vote shares, then ranked. Top row: SPD (Social Democrats). Bottom row: BVP/CSU (Bavarian People's Party and its postwar successor, the Christian Social Union). Pre-WWI averages pool 1893, 1898, 1903, and 1907; Weimar averages pool all Reichstag elections 1919–1932; Post-WWII averages pool 1949, 1953, 1957, and 1961. Dashed line: 45-degree line (perfect persistence). Solid lines: OLS fits. Each panel reports the Pearson correlation coefficient (r) and the OLS slope (β) with its standard error. Up to 348 precincts harmonized to 1933 boundaries; variation in n reflects missing returns in individual elections.

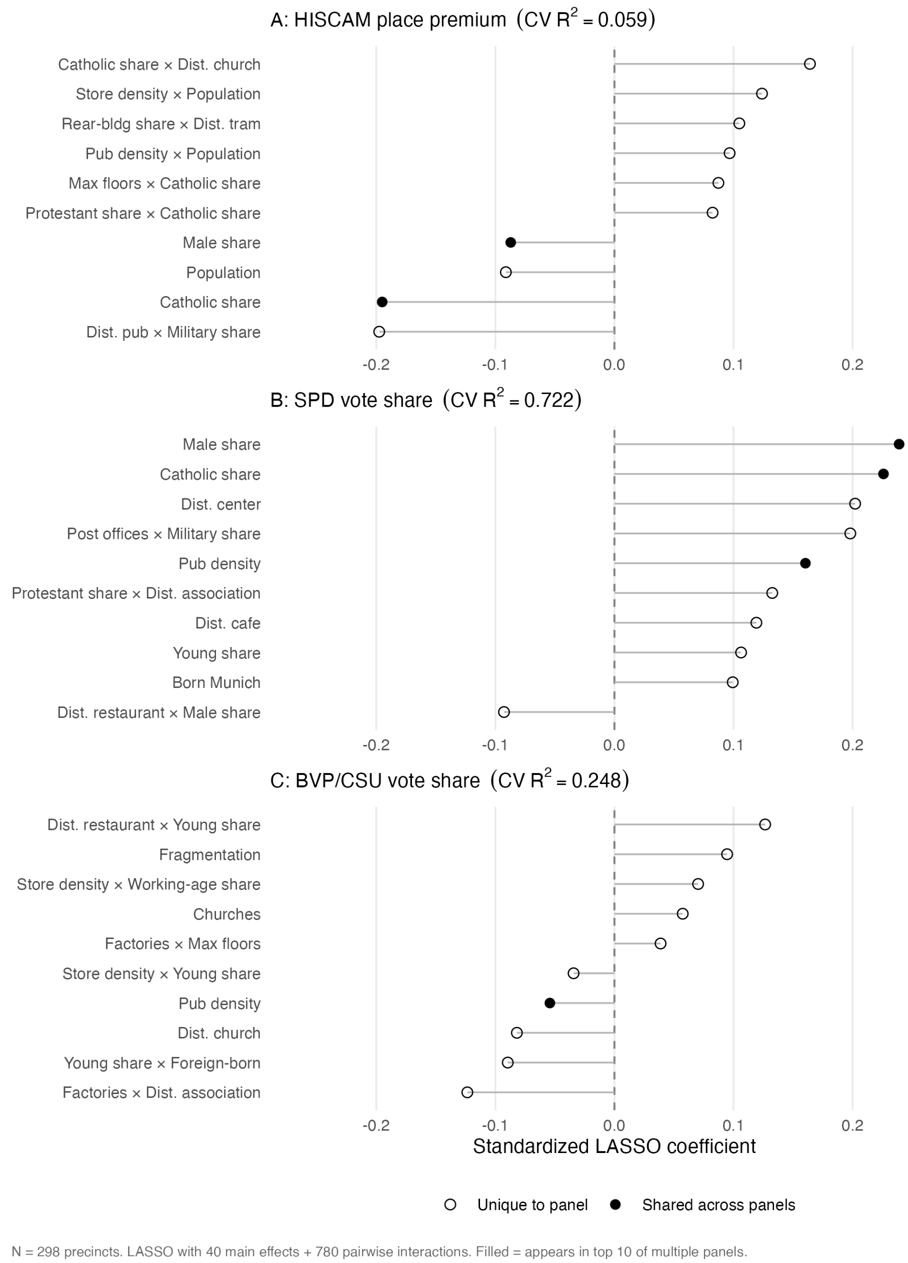

Figure 2: LASSO Coefficient Comparison: Top Predictors Across Three Domains

Notes: Top 10 LASSO-selected predictors (by $|\hat{\beta}|$) from 40 amenity main effects plus 780 pairwise interactions (820 features; $\alpha = 1$, λ_{min}, 10-fold CV). An AKM (Abowd-Kramarz-Margolis) model decomposes each resident's HISCAM occupational prestige score (a social-stratification scale, range 42–98) into a person component and a precinct "place premium" ψ_j, using workers who moved between precincts in address books (1895–1910). Panel A: predictors of ψ_j, estimated entirely from occupational sorting with no voting data. Panels B–C: predictors of pre-WWI average SPD and BVP/CSU vote shares (1893–1912). All variables standardized. $N = 298$ precincts. Full coefficient table in Table A.8.

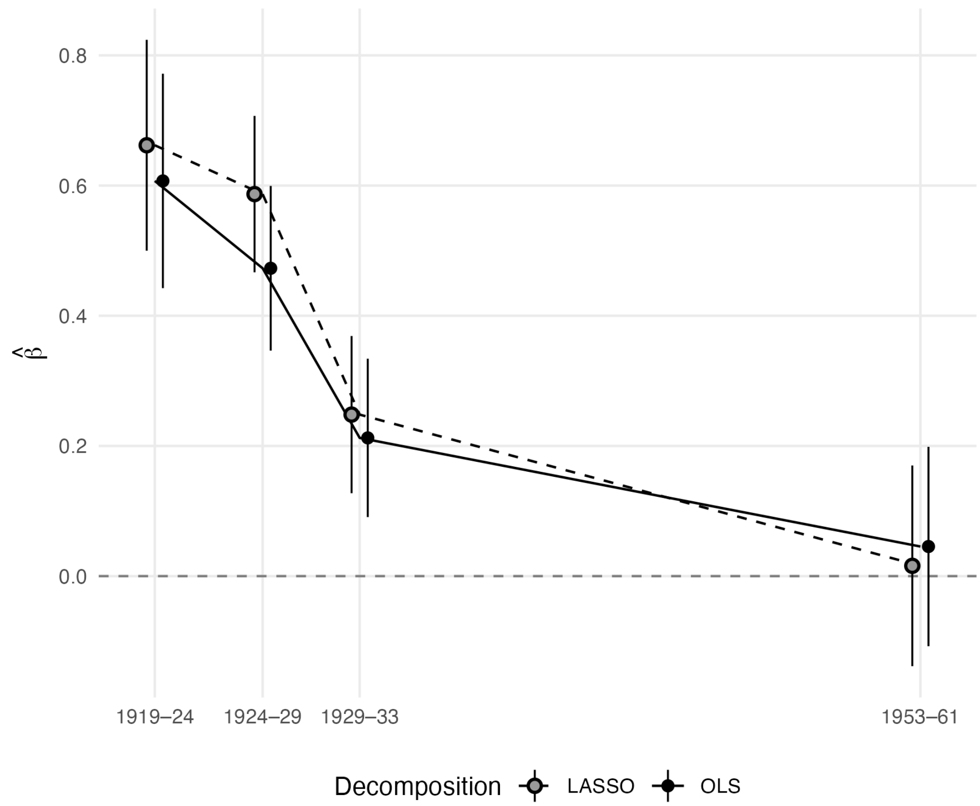

Figure 3: Temporal Cross-Validation: Amenity Component of HISCAM Persistence

Notes: Each point plots $\hat{\beta}$ from regressing a post-WWI HISCAM place premium on the pre-WWI amenity component: $\psi_j^{\text{post}} = \beta \cdot \hat{\psi}_j^{\text{pre WWI}} + u_j$. The HISCAM place premium ψ_j is a precinct fixed effect from an AKM model that separates occupational prestige into person and place components using residential movers. The amenity component is the part of ψ_j predicted by observable neighborhood characteristics (church density, housing stock, demographics, etc.) via OLS or LASSO. Post-WWI AKM effects are re-estimated for each period using cross-precinct movers in address books. Solid line: OLS decomposition (40 amenity variables); dashed line: LASSO (pairwise interactions, 37 selected features). Vertical bars: 95% CIs.

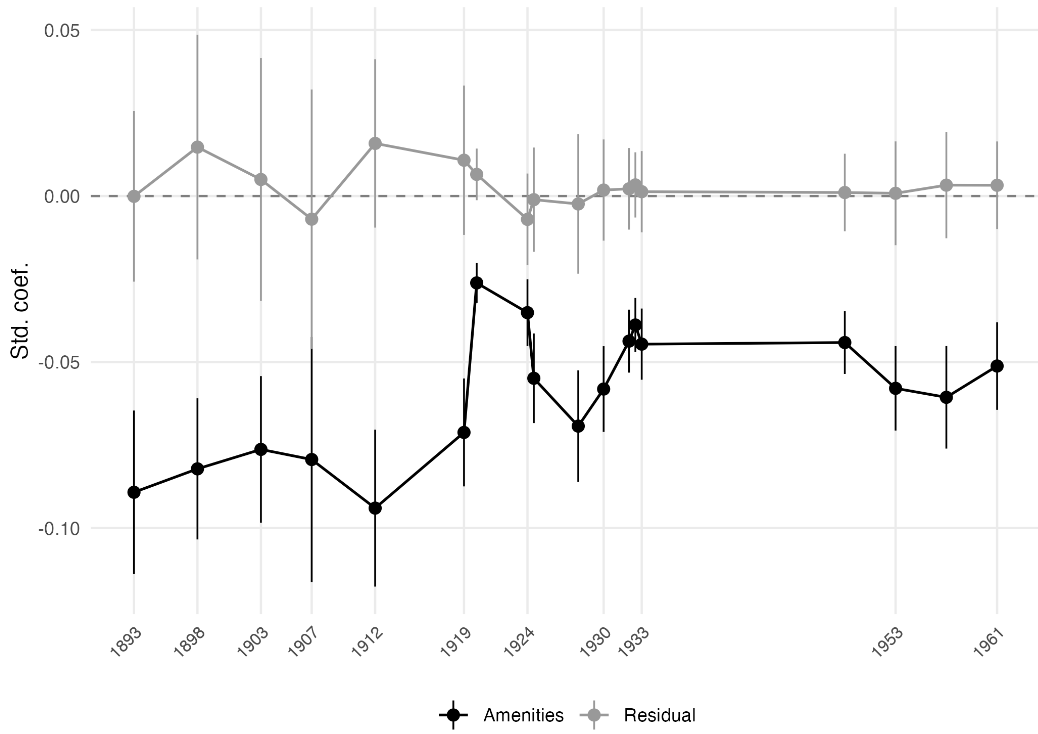

Figure 4: Cross-Domain Prediction: Amenity Component of HISCAM Premium and SPD Vote Share

Notes: Cross-domain prediction test. The HISCAM place premium ψ_j (a precinct fixed effect from an AKM estimation of occupational prestige, estimated on pre-WWI residential movers with no voting data) is split into an amenity component (LASSO-predicted from 40 neighborhood characteristics and their interactions) and a residual (the part not explained by observables). For each election year (1893–1961), standardized coefficients from regressing precinct SPD vote share on these two components. Standard errors clustered at precinct level. Vertical bars: 95% CIs. See Figure A.4 for both parties and both decomposition methods.

Table 1: Persistence of Precinct Vote Shares — Regression Evidence

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: SPD							
DV: Weimar average (1919–1932)							
SPD share 1912	0.445***	0.409***	0.402***	0.350***	0.346***	0.341***	0.252***
	(0.013)	(0.017)	(0.020)	(0.026)	(0.031)	(0.031)	(0.037)
R^2	0.733	0.751	0.765	0.794	0.805	0.813	0.835
DV: Post-WWII average (1949–1961)							
SPD share 1912	0.412***	0.397***	0.399***	0.288***	0.242***	0.241***	0.176***
	(0.016)	(0.019)	(0.022)	(0.029)	(0.033)	(0.033)	(0.038)
R^2	0.623	0.661	0.681	0.753	0.786	0.787	0.807
N	346	346	346	316	314	314	299
Panel B: BVP/CSU							
DV: Weimar average (1919–1932)							
BVP/CSU share 1912	0.744***	0.488***	0.504***	0.562***	0.541***	0.552***	0.541***
	(0.096)	(0.085)	(0.082)	(0.060)	(0.063)	(0.063)	(0.072)
R^2	0.227	0.446	0.466	0.620	0.689	0.696	0.723
DV: Post-WWII average (1949–1961)							
BVP/CSU share 1912	0.438***	0.169**	0.179**	0.334***	0.267***	0.264***	0.265***
	(0.098)	(0.077)	(0.077)	(0.068)	(0.069)	(0.070)	(0.075)
R^2	0.088	0.330	0.407	0.642	0.708	0.709	0.754
N	346	346	346	316	314	314	299
Densities & Counts		✓	✓	✓	✓	✓	✓
Housing			✓	✓	✓	✓	✓
Religion				✓	✓	✓	✓
Distances					✓	✓	✓
Services						✓	✓
Demographics							✓

Notes: OLS regressions of period-average vote share on 1912 vote share with progressive controls. Control groups added cumulatively from left to right. Densities & Counts: pub, store, restaurant, and café densities; church, school, and factory counts. Housing: rear-building share, mean max. floors, address fragmentation, household density. Religion: Protestant, Jewish, and Catholic shares. Distances: mean distance to 14 amenity types. Services: pharmacy, bath house, bank, and post office counts. Demographics: population, sex ratio, military share, age structure, birthplace shares. Variable definitions and sources in Tables A.1–A.2. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 2: Mobility and the Connected Set

Panel A: Address-book sample	
Person-year observations	171,037
Unique individuals	79,612
Individuals with $\geq$2 observations	68,645
Cross-precinct movers	39,718
Stayers	39,894
Mover share	49.9%
Panel B: Mobility graph	
Precincts in panel	350
Precincts in connected set	345
Movers per precinct (median)	245
Movers per precinct (mean)	245
Unique precinct pairs	17,435
Pairs with $\geq$5 movers	2,172
Pairs with $\geq$10 movers	802
Movers per pair (median)	1
Movers per pair (mean)	2.6
Panel C: HISCAM place premium (ψ_j)	
SD(HISCAM, person-level)	10.95
SD(ψ_j)	1.424
IQR(ψ_j)	1.177
$\sigma(\psi_j)/\sigma(\text{HISCAM})$	0.130

Notes: Descriptive statistics for the AKM estimation sample. The panel pools four Munich address books (1895, 1900, 1905, 1910), linked by exact last name and Jaro-Winkler first-name similarity $\geq$0.90. Cross-precinct movers are individuals observed in at least two distinct precincts (harmonized to 1933 boundaries). The connected set comprises all precincts linked by at least one mover chain. HISCAM is a social-stratification scale (range 42–98) assigned to each occupation; ψ_j is the precinct fixed effect from the AKM decomposition $\text{HISCAM}_{it} = \alpha_i + \psi_{j(i,t)} + \varepsilon_{it}$.

Table 3: Cross-Domain Prediction: Place Premium → Post-WWII Voting

	(1)	(2)	(3)	(4)
Panel A: SPD				
Amenities ($\hat{\psi}_j^{\text{pre WWI}}$)	−0.054***	−0.027***	−0.010***	−0.007**
	(0.006)	(0.006)	(0.003)	(0.004)
Residual ($\hat{\psi}_j^{\text{pre WWI}}$)	0.002	−0.001	0.002	0.003
	(0.007)	(0.004)	(0.003)	(0.002)
N	297	297	297	297
Adj. R^2	0.345	0.663	0.831	0.856
Panel B: BVP/CSU				
Amenities ($\hat{\psi}_j^{\text{pre WWI}}$)	0.040***	0.020***	0.008**	0.008**
	(0.005)	(0.005)	(0.004)	(0.004)
Residual ($\hat{\psi}_j^{\text{pre WWI}}$)	0.000	0.002	0.000	0.000
	(0.005)	(0.003)	(0.003)	(0.002)
N	297	297	297	297
Adj. R^2	0.332	0.583	0.733	0.758
District FE		✓	✓	✓
Controls			✓	✓
1912 vote share				✓

Notes: Each column regresses post-WWII average precinct vote share (1949–1961) on the standardized amenity and residual components of the HISCAM place premium ψ_j. Amenities = LASSO fitted value from pairwise interactions of amenity variables (Table A.6, Col. 3). Residual = LASSO residual. Controls: contemporaneous period-average HISCAM and population density. Column (4) additionally controls for the 1912 vote share (coefficient not reported). Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4: LASSO Decomposition: Excluding Variable Groups

	Variable group excluded from LASSO					
	Religion (1)	Dens./Counts (2)	Housing (3)	Distances (4)	Services (5)	Demog. (6)
Panel A: SPD vote share (post-WWII)						
Amenities	−0.021***	−0.025***	−0.029***	−0.030***	−0.027***	−0.022***
	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)
Residual	−0.010*	−0.003	0.001	−0.007	−0.001	−0.006
	(0.006)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)
N	297	297	297	297	297	297
Adj. R^2	0.670	0.657	0.674	0.679	0.662	0.644
Panel B: BVP/CSU vote share (post-WWII)						
Amenities	0.016***	0.018***	0.020***	0.021***	0.020***	0.017***
	(0.004)	(0.006)	(0.005)	(0.004)	(0.005)	(0.006)
Residual	0.009*	0.003	0.001	0.007	0.002	0.005*
	(0.005)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)
N	297	297	297	297	297	297
Adj. R^2	0.594	0.579	0.590	0.600	0.583	0.572
LASSO features	1	34	40	5	35	49
LASSO CV R^2	0.016	0.050	0.102	0.049	0.070	0.072
District FE	✓	✓	✓	✓	✓	✓

Notes: Dependent variable: average post-WWII vote share (1949–1961). Each column re-estimates the LASSO decomposition of the HISCAM place premium ψ_j (a precinct fixed effect from an AKM decomposition of occupational prestige) after excluding the indicated variable group and all pairwise interactions involving those variables. "Religion": Catholic, Protestant, and Jewish shares; church count and distance. "Dens./Counts": pub, store, restaurant, and café densities; school and factory counts. "Housing": rear-building share, max floors, fragmentation, household density. "Distances": all distance-to-amenity measures (excluding church distance, which is in Religion). "Services": pharmacies, public baths, banks, post offices. "Demog.": population, age structure, birthplace composition. "Amenities" = LASSO fitted value; "Residual" = LASSO residual. All columns include district (Stadtbezirk) fixed effects. Standard errors clustered at precinct level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: Destruction Interactions: Amenities vs. Residual Place Premium

	(1)	(2)	(3)	(4)
Panel A: SPD				
Amenities	−0.046***	−0.043***	−0.046***	−0.043***
	(0.011)	(0.011)	(0.010)	(0.011)
Amenities × Destruction		0.026		0.021
		(0.022)		(0.022)
Residual			−0.000	−0.000
			(0.004)	(0.004)
Residual × Destruction			0.024**	0.022**
			(0.010)	(0.010)
Destruction (% HH Δ)	0.030**	0.029*	0.033**	0.032**
	(0.014)	(0.015)	(0.014)	(0.014)
N	297	297	297	297
Adj. R^2	0.668	0.668	0.669	0.669
Panel B: BVP/CSU				
Amenities	0.034***	0.027***	0.033***	0.027***
	(0.009)	(0.008)	(0.009)	(0.008)
Amenities × Destruction		−0.055***		−0.052***
		(0.016)		(0.016)
Residual			0.002	0.003
			(0.003)	(0.003)
Residual × Destruction			−0.018*	−0.011
			(0.011)	(0.010)
Destruction (% HH Δ)	−0.034***	−0.031**	−0.037***	−0.033***
	(0.013)	(0.012)	(0.012)	(0.012)
N	297	297	297	297
Adj. R^2	0.593	0.607	0.595	0.606
District FE	✓	✓	✓	✓

Notes: Dependent variable: average post-WWII vote share (1949–1961). "Amenities" is the LASSO-predicted component of the pre-WWI HISCAM place premium ψ_j (a precinct fixed effect from an AKM decomposition of occupational prestige, estimated on residential movers in 1895–1910 address books). "Residual" is the LASSO residual. Destruction is % change in households 1933–1949 (negative = bombing losses). Amenity and residual components standardized to mean zero, unit variance. All columns include district (Stadtbezirk) fixed effects. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: Turnover Interactions: Amenities vs. Residual Place Premium

	(1)	(2)	(3)	(4)
Panel A: SPD				
Amenities	−0.039***	0.011	−0.038***	0.012
	(0.010)	(0.027)	(0.010)	(0.028)
Amenities × Turnover		−0.343**		−0.353**
		(0.156)		(0.158)
Residual	−0.000	−0.001	−0.011	−0.014
	(0.004)	(0.003)	(0.019)	(0.018)
Residual × Turnover			0.078	0.099
			(0.135)	(0.131)
Turnover rate	−0.773***	−0.798***	−0.786***	−0.815***
	(0.130)	(0.122)	(0.123)	(0.117)
N	297	297	297	297
Adj. R^2	0.726	0.731	0.726	0.731
Panel B: BVP/CSU				
Amenities	0.028***	−0.021	0.028***	−0.023
	(0.009)	(0.021)	(0.009)	(0.021)
Amenities × Turnover		0.339***		0.350***
		(0.129)		(0.131)
Residual	0.002	0.003	0.013	0.016
	(0.003)	(0.003)	(0.016)	(0.016)
Residual × Turnover			−0.080	−0.101
			(0.126)	(0.122)
Turnover rate	0.521***	0.546***	0.534***	0.564***
	(0.116)	(0.107)	(0.112)	(0.104)
N	297	297	297	297
Adj. R^2	0.632	0.640	0.632	0.640
District FE	✓	✓	✓	✓

Notes: Dependent variable: average post-WWII vote share (1949–1961). "Amenities" is the LASSO-predicted component of the pre-WWI HISCAM place premium ψ_j (a precinct fixed effect from an AKM decomposition of occupational prestige, estimated on residential movers in 1895–1910 address books). "Residual" is the LASSO residual. Turnover is the share of 1953 addresses occupied by a different household head than in 1933. Amenity and residual components standardized to mean zero, unit variance. All columns include district (Stadtbezirk) fixed effects. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Administrative Housing Allocation: Amenities vs. Residual Place Premium

	(1)	(2)	(3)	(4)
Panel A: SPD				
Amenities ($\hat{\psi}_j^{\text{pre WWI}}$)	−0.045***	−0.068***	−0.047***	−0.067***
	(0.010)	(0.010)	(0.009)	(0.010)
Amenities × Admin-allocated		0.089***		0.079***
		(0.018)		(0.018)
Residual ($\hat{\psi}_j^{\text{pre WWI}}$)	−0.002	−0.002	−0.010*	−0.008
	(0.004)	(0.005)	(0.006)	(0.006)
Residual × Admin-allocated			0.057**	0.035
			(0.029)	(0.023)
Admin-allocated share	0.010	0.027	0.006	0.023
	(0.024)	(0.021)	(0.024)	(0.020)
N	296	296	296	296
Adj. R^2	0.659	0.680	0.667	0.683
Panel B: BVP/CSU				
Amenities ($\hat{\psi}_j^{\text{pre WWI}}$)	0.033***	0.047***	0.034***	0.046***
	(0.009)	(0.009)	(0.009)	(0.009)
Amenities × Admin-allocated		−0.054***		−0.048***
		(0.015)		(0.017)
Residual ($\hat{\psi}_j^{\text{pre WWI}}$)	0.003	0.003	0.008*	0.006
	(0.003)	(0.004)	(0.005)	(0.005)
Residual × Admin-allocated			−0.034	−0.021
			(0.024)	(0.021)
Admin-allocated share	0.008	−0.002	0.011	0.001
	(0.021)	(0.020)	(0.022)	(0.021)
N	296	296	296	296
Adj. R^2	0.579	0.591	0.583	0.592
District FE	✓	✓	✓	✓

Notes: Dependent variable: average post-WWII vote share (1949–1961). "Amenities" is the LASSO-predicted component of the pre-WWI HISCAM place premium; "Residual" is the LASSO residual. Admin-allocated share is the fraction of 1953 residents living in buildings owned by government (city, state, federal), non-profit housing associations (*gemeinnützige Wohnungsbaugesellschaften*), or housing cooperatives (*Baugenossenschaften*). Tenants in these buildings were assigned through the municipal housing office (*Wohnungsamt*), not through market selection. Column (1): amenities, residual, and admin-allocated share. Column (2) adds the amenities × admin-allocated interaction. Column (3) adds the residual × admin-allocated interaction. Column (4) includes both interactions. Amenity and residual components standardized to mean zero, unit variance. All columns include district (Stadtbezirk) fixed effects. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 8: Places Stay, Workers Leave

	ΔHISCAM		Turnover		Vote Share	
	(1)	(2)	(3)	(4)	(5) SPD	(6) BVP/CSU
Amenities	−1.541***	−1.237***	0.009***	0.009***	−0.041***	0.029***
	(0.313)	(0.317)	(0.003)	(0.003)	(0.011)	(0.009)
Residual		−0.977***		0.001	−0.003	0.004
		(0.250)		(0.002)	(0.004)	(0.003)
ΔHISCAM					−0.002*	0.002*
					(0.001)	(0.001)
Turnover					−0.790***	0.535***
					(0.127)	(0.111)
Amenities ($\hat{\psi}_j^{\text{post}}$)					0.007	−0.002
					(0.016)	(0.020)
Destruction (% HH Δ)	−0.535	−0.242	−0.020**	−0.021***	0.013	−0.021*
	(0.759)	(0.702)	(0.008)	(0.008)	(0.013)	(0.012)
N	297	297	297	297	296	296
Adj. R^2	0.444	0.494	0.362	0.361	0.725	0.632
District FE	✓	✓	✓	✓	✓	✓

Notes: "Amenities" and "Residual" are the LASSO-predicted and residual components of the pre-WWI HISCAM place premium ψ_j — a precinct fixed effect from an AKM decomposition of occupational prestige, estimated on residential movers in 1895–1910 address books. ΔHISCAM is the change in precinct mean HISCAM (post-WWII minus pre-WWI). Turnover is the share of 1953 addresses with a different household head than 1933. Amenities ($\hat{\psi}_j^{\text{post}}$) is the observable component of a post-WWII AKM place premium (1953–1961 movers), projected onto pre-WWI amenities via LASSO (CV $R^2 = 0.006$). Destruction is % change in households 1933–1949. Amenity and residual components standardized to mean zero, unit variance. All columns include district (Stadtbezirk) fixed effects. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Online Appendix

Not intended for publication.

This appendix contains the following sections:

A. Additional Figures and Tables: summary statistics, persistence robustness, LASSO coefficients, mechanism standardized effects.

B. AKM Estimation Details: record linking, connected set, amenity decomposition, temporal cross-validation, and data quality diagnostics.

C. Limited Mobility Bias and the HISCLASS Robustness Check.

D. Robustness to HISCO Corrections: LLM-validated recoding of occupation strings.

E. Postwar Housing Allocation in Munich: institutional detail, identifying assumptions, and threats.

A Additional Figures and Tables

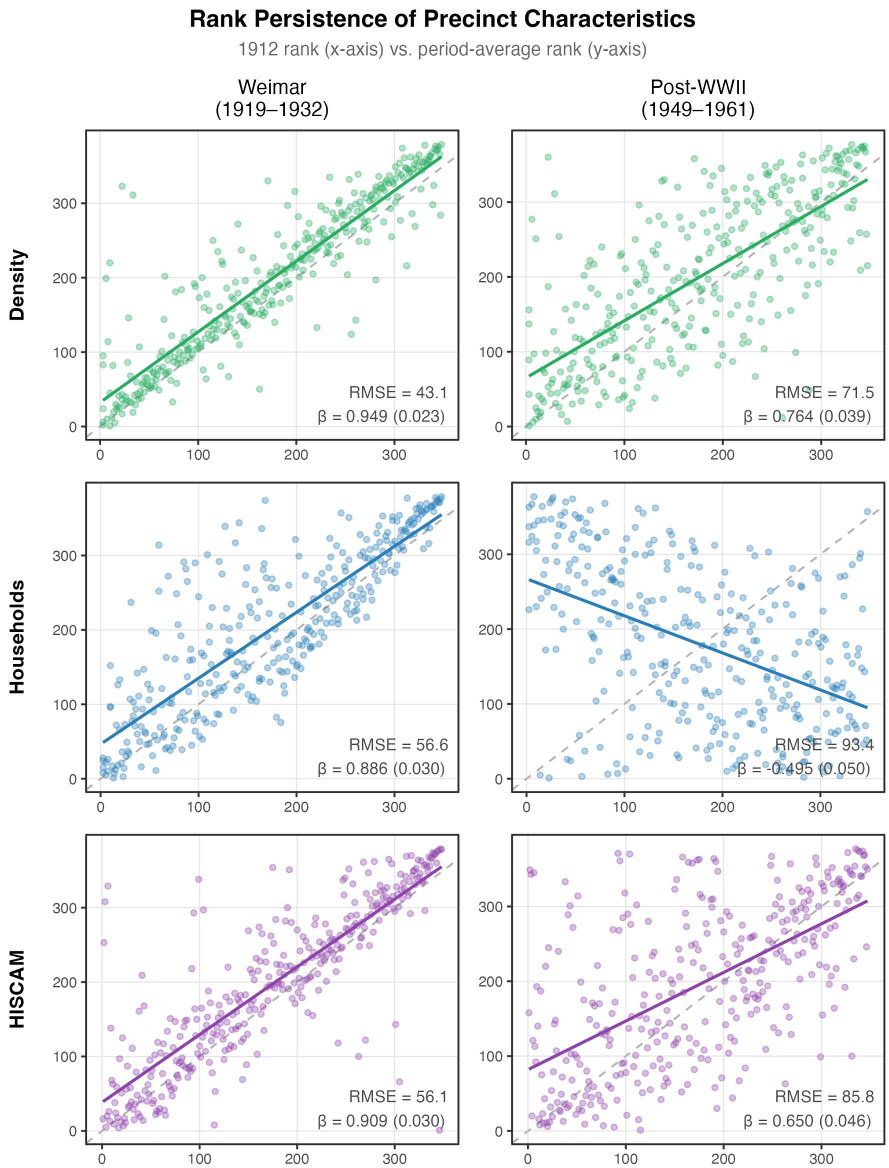

Figure A.1: Rank Persistence of Precinct Characteristics

Notes: Same construction as Figure 1, for precinct characteristics rather than vote shares. 1912 precinct rank (x-axis) vs. period-average rank (y-axis) for density (households per building), number of households, and mean HISCAM occupational prestige. RMSE measures average rank displacement.

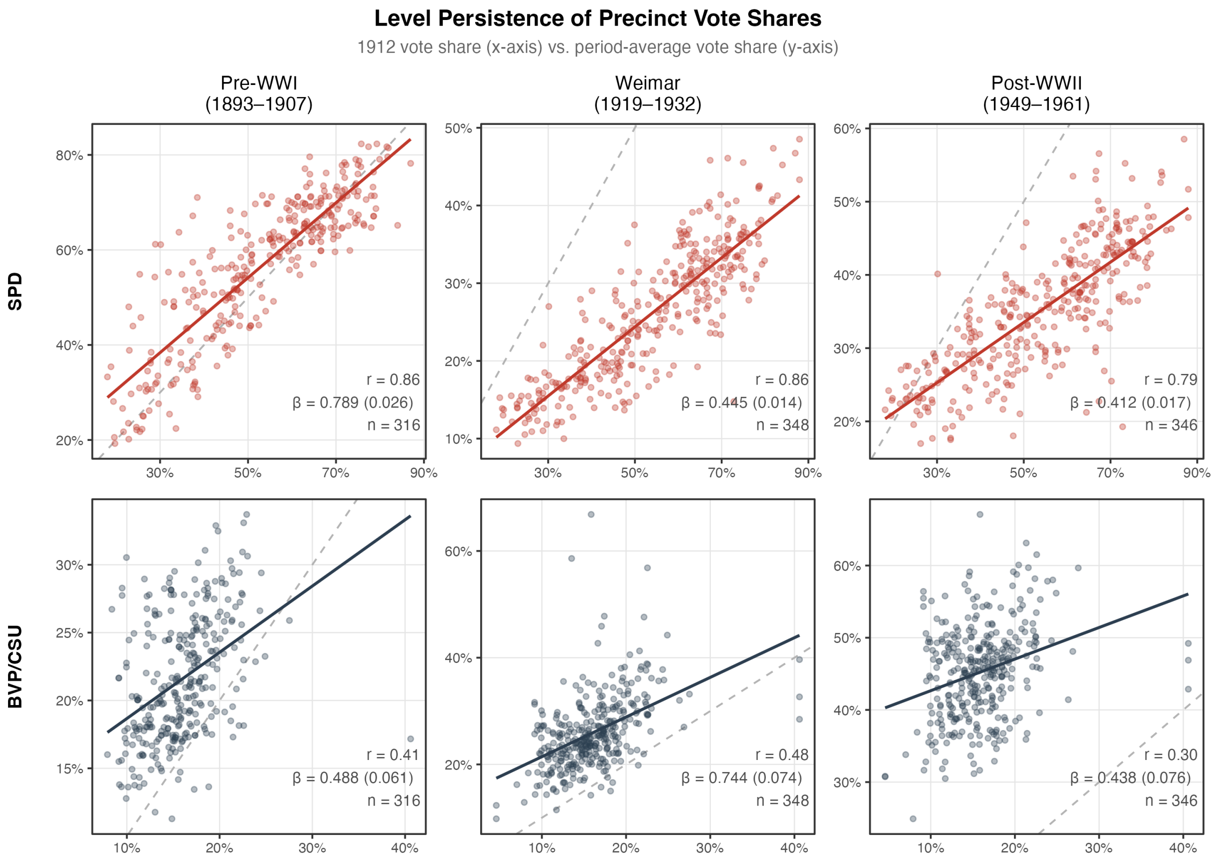

Figure A.2: Level Persistence of Precinct Vote Shares

Notes: Same construction as Figure 1, but plotting raw vote shares rather than ranks. 1912 vote share (x-axis) vs. period-average vote share (y-axis). The 45-degree line marks perfect level persistence. Aggregate SPD vote shares fall from 20–80% (pre-WWI) to 20–55% (post-WWII), pulling the OLS line below the diagonal even though the spatial ranking is preserved ($r = 0.79$).

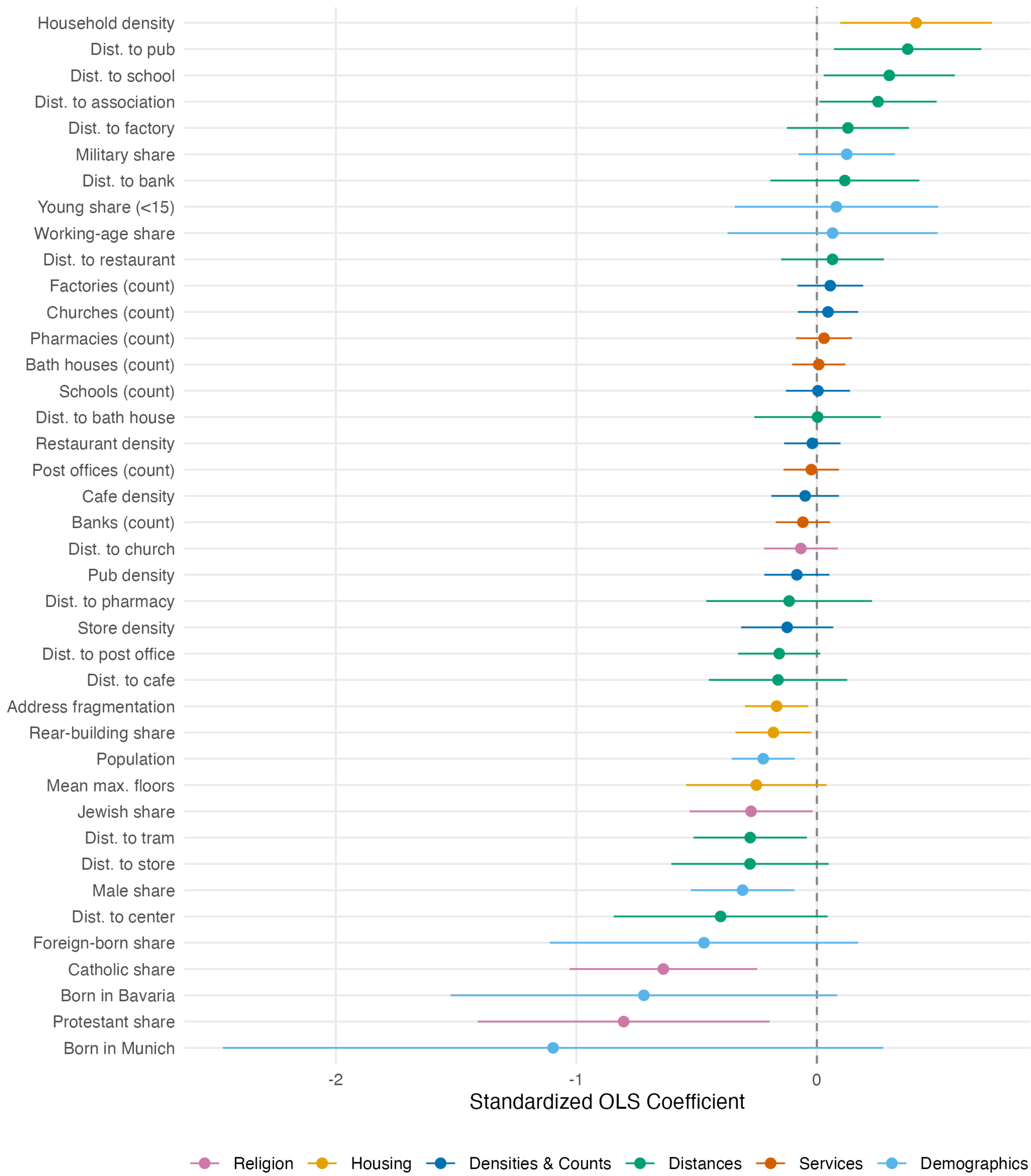

Figure A.3: OLS Decomposition of the HISCAM Place Premium

Notes: Standardized OLS coefficients from regressing the HISCAM place premium ψ_j — a precinct fixed effect from an AKM model on residential movers in pre-WWI Munich address books — on 40 amenity variables. Each coefficient: change in ψ_j (in SDs) per one-SD increase in the covariate. Horizontal bars: 95% CIs. Colors indicate variable groups. $N = 298$ precincts; $R^2 = 0.350$, Adj. $R^2 = 0.249$. Variable definitions in Tables A.1–A.2.

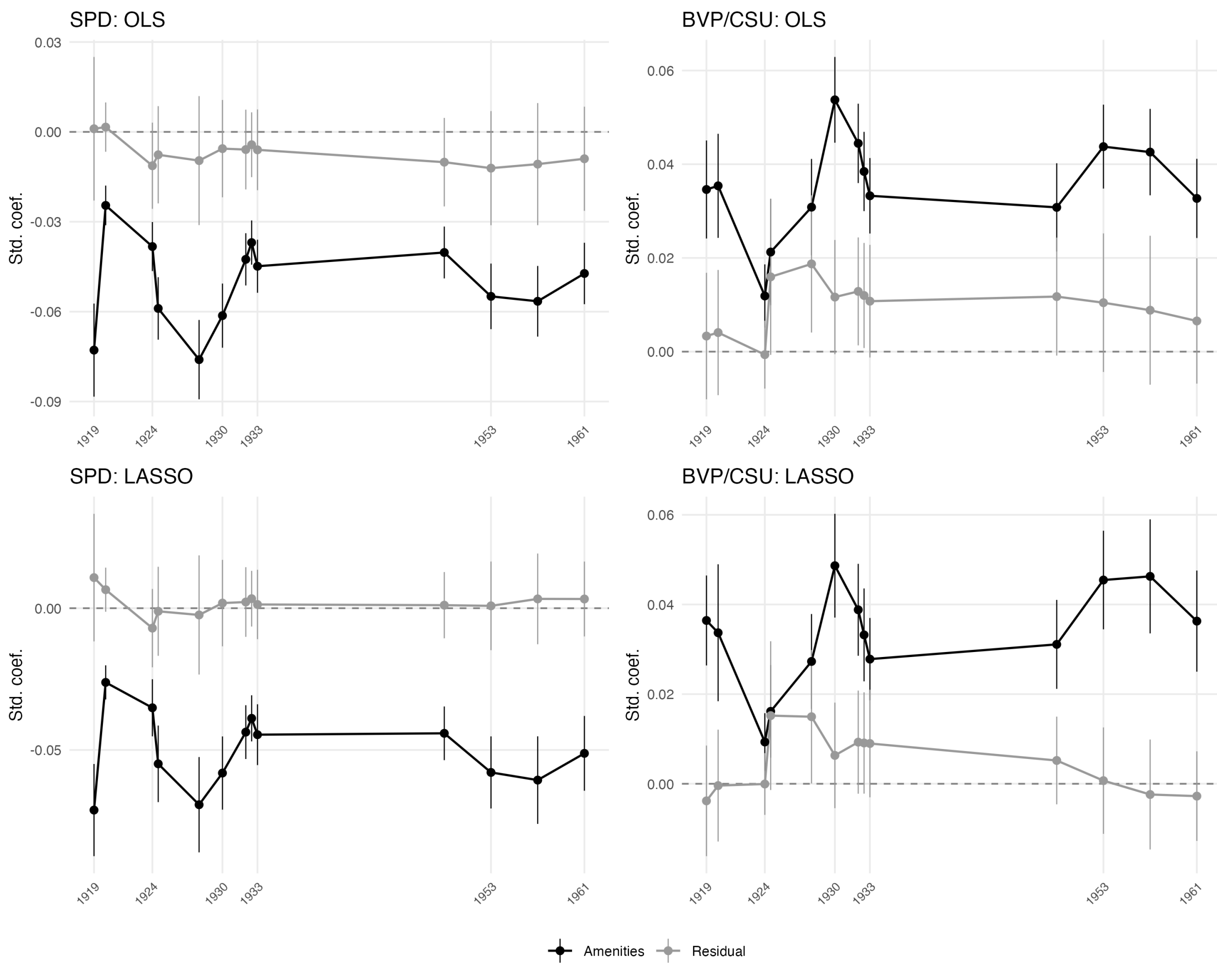

Figure A.4: Amenities vs. Residual HISCAM: Vote Decomposition by Election Year

Notes: Extended version of Figure 4, showing both parties and both decomposition methods. For each election (1919–1961), standardized coefficients from regressing precinct vote share on the amenity and residual components of the HISCAM place premium ψ_j: $\text{Vote}_{jt} = \beta_1 \hat{\psi}_j^{\text{amenity}} + \beta_2 \hat{\psi}_j^{\text{residual}} + \varepsilon_{jt}$. Top row: OLS decomposition; bottom row: LASSO. Left panels: SPD; right panels: BVP/CSU. Clustered SEs. Vertical bars: 95% CIs. No district fixed effects. Regression coefficients in Table 3.

Table A.1: Summary Statistics — Precinct Covariates (I)

	N	Mean	P10	P50	P90
Densities & Counts					
Pub density	352	0.075	0.000	0.062	0.159
Store density	352	0.079	0.000	0.060	0.178
Restaurant density	352	0.017	0.000	0.000	0.051
Café density	352	0.005	0.000	0.000	0.021
Churches (count)	352	0.244	0.000	0.000	1.00
Schools (count)	352	0.844	0.000	0.000	2.00
Factories (count)	352	0.514	0.000	0.000	1.00
Housing					
Rear-building share	352	0.078	0.000	0.064	0.167
Mean max. floors	352	2.55	1.11	2.86	3.53
Address fragmentation	352	0.040	0.000	0.001	0.121
Household density	352	10	4.16	11	16
Religion					
Protestant share	317	0.143	0.072	0.134	0.205
Jewish share	317	0.018	0.002	0.011	0.048
Catholic share	349	0.824	0.742	0.832	0.902
Dist. to church (m)	352	381	171	320	631

Notes: N reports non-missing observations across 352 precincts harmonized to 1933 boundaries. *Densities & Counts:* Densities are the number of establishments (identified by occupation string in address books) divided by total unique establishment addresses in the precinct, averaged across the 1895, 1900, 1905, and 1910 address books. Church locations from the 1933 parish register; school locations from municipal records; factory counts from the 1912 factory survey. *Housing:* Rear-building share is the fraction of address-book entries located in a Rückgebäude (rear courtyard building). Mean max. floors is the average maximum floor number observed per address, a proxy for building height. Address fragmentation is the share of addresses with letter-subdivided house numbers (e.g., 41a, 41b), indicating residential subdivision of plots. Household density is the number of listed persons per unique address. All housing variables from address books, averaged across 1895–1910. *Religion:* From the 1910 Census, aggregated at the district (Stadtbezirk) level.

Table A.2: Summary Statistics — Precinct Covariates (II)

	N	Mean	P10	P50	P90
Distances					
Dist. to school (m)	349	255	80	170	504
Dist. to pub (m)	349	118	28	58	183
Dist. to store (m)	349	119	14	43	225
Dist. to restaurant (m)	349	258	60	145	467
Dist. to café (m)	349	541	91	339	1,239
Dist. to center (m)	349	2,347	875	2,201	3,732
Dist. to factory (m)	349	348	94	227	611
Dist. to tram (m)	349	395	53	180	869
Dist. to association (m)	347	655	163	450	1,292
Dist. to pharmacy (m)	349	477	138	267	958
Dist. to bath house (m)	349	641	223	489	1,174
Dist. to bank (m)	349	1,252	356	1,043	2,254
Dist. to post office (m)	349	513	170	395	948
Services					
Pharmacies (count)	352	0.159	0.000	0.000	1.00
Bath houses (count)	352	0.074	0.000	0.000	0.000
Banks (count)	352	0.040	0.000	0.000	0.000
Post offices (count)	352	0.128	0.000	0.000	1.00
Demographics					
Population	327	1,429	328	1,574	2,239
Male share	325	0.470	0.401	0.477	0.515
Military share	325	0.014	0.000	0.000	0.010
Young share (<15)	317	0.250	0.158	0.269	0.323
Working-age share (15–60)	317	0.599	0.545	0.598	0.673
Born in Munich share	317	0.397	0.340	0.405	0.486
Born in Bavaria share	317	0.478	0.443	0.481	0.534
Foreign-born share	317	0.050	0.030	0.038	0.073

Notes: N reports non-missing observations across 352 precincts harmonized to 1933 boundaries. *Distances:* Mean Haversine distance (in meters) from all geocoded addresses in a precinct to the nearest amenity of each type. Amenity locations from address books (pubs, stores, restaurants, cafés), the 1933 parish register (churches), municipal records (schools), the 1912 factory survey (factories), and the 1900 tramline shapefile (tram stops). Center distance measured to Marienplatz. *Services:* Counts of pharmacies, bath houses, banks, and post offices per precinct, geocoded from the 1914 municipal directory. *Demographics:* Population from the 1910 Census matched to 1933 precincts via address crosswalk (77% match rate). Shares (age, birthplace) from the 1910 Census at the district level.

Table A.3: Persistence with District Fixed Effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: SPD							
DV: Weimar average (1919–1932)							
SPD share 1912	0.411***	0.375***	0.369***	0.360***	0.343***	0.336***	0.235***
	(0.022)	(0.025)	(0.026)	(0.027)	(0.032)	(0.032)	(0.035)
R^2	0.808	0.820	0.827	0.832	0.843	0.850	0.861
DV: Post-WWII average (1949–1961)							
SPD share 1912	0.318***	0.283***	0.284***	0.288***	0.230***	0.228***	0.156***
	(0.027)	(0.028)	(0.029)	(0.034)	(0.034)	(0.035)	(0.036)
R^2	0.764	0.781	0.787	0.785	0.831	0.833	0.842
N	345	345	345	316	314	314	299
Panel B: BVP/CSU							
DV: Weimar average (1919–1932)							
BVP/CSU share 1912	0.720***	0.557***	0.574***	0.594***	0.545***	0.549***	0.539***
	(0.108)	(0.103)	(0.097)	(0.074)	(0.081)	(0.080)	(0.079)
R^2	0.461	0.603	0.629	0.679	0.721	0.727	0.746
DV: Post-WWII average (1949–1961)							
BVP/CSU share 1912	0.414***	0.291***	0.286***	0.280***	0.236***	0.232***	0.220***
	(0.079)	(0.073)	(0.074)	(0.086)	(0.084)	(0.085)	(0.081)
R^2	0.613	0.674	0.686	0.690	0.757	0.759	0.781
N	345	345	345	316	314	314	299
Densities & Counts		✓	✓	✓	✓	✓	✓
Housing			✓	✓	✓	✓	✓
Religion				✓	✓	✓	✓
Distances					✓	✓	✓
Services						✓	✓
Demographics							✓
District FE	✓	✓	✓	✓	✓	✓	✓

Notes: OLS regressions of period-average vote share on 1912 vote share with district (Stadtbezirk) fixed effects and progressive controls. Standard errors clustered at precinct level in parentheses. R^2 is the within-district R^2. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.4: Persistence — Balanced Sample

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: SPD							
DV: Weimar average (1919–1932)							
SPD share 1912	0.438***	0.402***	0.383***	0.342***	0.332***	0.326***	0.253***
	(0.013)	(0.017)	(0.020)	(0.027)	(0.033)	(0.033)	(0.037)
R^2	0.738	0.757	0.775	0.785	0.798	0.807	0.834
DV: Post-WWII average (1949–1961)							
SPD share 1912	0.408***	0.391***	0.387***	0.274***	0.212***	0.211***	0.176***
	(0.016)	(0.019)	(0.025)	(0.031)	(0.034)	(0.035)	(0.038)
R^2	0.645	0.679	0.697	0.755	0.786	0.787	0.807
N	299	299	299	299	299	299	299
Panel B: BVP/CSU							
DV: Weimar average (1919–1932)							
BVP/CSU share 1912	0.810***	0.549***	0.538***	0.562***	0.528***	0.536***	0.565***
	(0.092)	(0.069)	(0.073)	(0.062)	(0.063)	(0.063)	(0.066)
R^2	0.270	0.498	0.547	0.627	0.688	0.694	0.732
DV: Post-WWII average (1949–1961)							
BVP/CSU share 1912	0.482***	0.194**	0.170**	0.303***	0.223***	0.218***	0.265***
	(0.113)	(0.088)	(0.086)	(0.067)	(0.068)	(0.069)	(0.075)
R^2	0.104	0.354	0.443	0.643	0.712	0.714	0.754
N	299	299	299	299	299	299	299
Densities & Counts		✓	✓	✓	✓	✓	✓
Housing			✓	✓	✓	✓	✓
Religion				✓	✓	✓	✓
Distances					✓	✓	✓
Services						✓	✓
Demographics							✓

Notes: OLS regressions restricted to the 299 precincts with complete data across all covariates. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.5: Variance Decomposition of HISCAM Scores

	Variance	Share (%)
Panel A: Variance decomposition		
Var(HISCAM$_{it}$)	119.209	100.0
Var(α_i)	103.086	86.5
Var(ψ_j)	0.544	0.5
Var(γ_t)	0.048	0.0
2 Cov(α_i, ψ_j)	2.768	2.3
Var(ε_{it})	12.893	10.8
Panel B: Sorting		
Cor(α_i, ψ_j)		0.185
SD(α_i)		10.153
SD(ψ_j)		1.424
IQR(ψ_j)		1.177
$\sigma(\psi_j)/\sigma$(HISCAM)		0.130
Panel C: Model fit		
Adjusted R^2		0.810
Person-year observations		159,777
Unique individuals		68,533
Precincts		345

Notes: Variance decomposition from the AKM model HISCAM$_{it} = \alpha_i + \psi_{j(i,t)} + \gamma_t + \varepsilon_{it}$, where α_i is a person fixed effect, ψ_j is a precinct fixed effect (the "place premium"), and γ_t is a year effect. HISCAM is a social-stratification scale (range 42–98) measuring occupational standing in the German historical labor market. Variance shares computed at the person-year level. Year and cross-term covariances involving γ_t are negligible (<0.1% each) and omitted. Sample: four Munich address books (1895–1910), linked by exact last name and Jaro-Winkler first-name similarity $\geq$0.90.

Table A.6: Decomposition of Precinct Effects

	(1) OLS	(2) LASSO	(3) LASSO
Main effects			
Protestant share	-0.803**		
Born Bavaria	-0.719*		
Catholic share	-0.638***	-0.106	-0.195
HH density	0.413**		
Distance: center	-0.400*		
Distance: pub	0.378**		
Male share	-0.309***	-0.149	-0.087
Distance: school	0.301**		
Distance: store	-0.278*		
Distance: tram	-0.277**		
Jewish share	-0.274**		
Distance: association	0.254**		
Max floors	-0.252*		
Population	-0.223***	-0.005	-0.091
Rear-bldg share	-0.181**		
Fragmentation	-0.167**		
Distance: café			-0.049
Distance: post office	-0.157*		
Pub density		-0.030	-0.058
Interactions			
Distance: pub × Military share			-0.198
Catholic share × Distance: church			0.164
Store density × Population			0.124
Rear-bldg share × Distance: tram			0.105
Pub density × Population			0.097
Max floors × Catholic share			0.087
Protestant share × Catholic share			0.082
Rear-bldg share × Distance: church			0.082
Rear-bldg share × Population			0.081
Distance: bath house × Military share			-0.059
Churches × Distance: store			0.057
Pub density × Distance: factory			0.051
Jewish share × Distance: post office			-0.046
Max floors × Male share			0.042
Churches × Male share			-0.036
Fragmentation × Population			0.036
Catholic share × Male share			0.035
Churches × Population			-0.033
HH density × Male share			0.031
Store density × Fragmentation			0.030
Churches × Max floors			-0.028
Distance: church × Distance: restaurant			0.027
Restaurant density × Distance: pub			-0.025
Churches × Catholic share			-0.022
Features	40	40	820
Selected/Significant	17	4	37
R^2	0.349	0.126	0.464
N	298	298	298

Notes: Dependent variable: HISCAM precinct effect ψ_j from the AKM model (Table A.5). All variables standardized to mean zero, unit variance. Column (1) reports OLS coefficients significant at $p < 0.10$; all 40 variables included but only significant ones shown. Columns (2)–(3) report LASSO coefficients at $\lambda_{\min}$ (10-fold CV); only selected (non-zero) variables shown. Column (2): main effects only. Column (3): main effects + pairwise interactions. R^2 reported for OLS (Col. 1) is in-sample; for LASSO (Cols. 2–3), in-sample at $\lambda_{\min}$. No imputation; observations with missing values dropped (N = 298 precincts). Variable definitions in Tables A.1–A.2.

Table A.7: Post-WWI Movers: AKM Sample Size by Period

Period	HH (year 1)	HH (year 2)	Stayers	Cross-Pct Movers	Movers/HH
Pre-WWI (3 pairs)	—	—	—	39,731	—
1919–1924	185,671	213,320	113,576	12,009	6.5%
1924–1929	213,320	221,722	103,014	16,661	7.8%
1929–1933	221,722	213,984	93,444	18,135	8.2%
1953–1961	235,661	326,242	95,400	9,196	3.9%

Notes: Sample sizes for the AKM estimation across periods. The AKM model decomposes occupational prestige (HISCAM) into person and precinct components using cross-precinct movers. Cross-precinct movers are individuals matched across address books who change 1933-harmonized precinct. Matching: exact last name, Jaro-Winkler first-name similarity $\geq$0.90. Pre-WWI pools three address-book pairs (1895–1900, 1900–1905, 1905–1910). Post-WWI movers are used for the temporal cross-validation in Figure 3.

Table A.8: LASSO Variable Selection: AKM-Based vs. Direct Vote Prediction

	(1) HISCAM ψ_j	(2) SPD share	(3) BVP/CSU share
Densities & Counts			
Pub density	-0.058	0.160	-0.054
Store density		-0.069	
Restaurant density		-0.004	
Café density		-0.005	
Churches			0.057
Housing			
Rear-bldg share		0.029	
Max floors		-0.012	
Fragmentation			0.095
HH density		0.045	
Religion			
Catholic share	-0.195	0.226	0.032
Distance: church			-0.082
Distances			
Distance: café	-0.049	0.119	
Distance: center		0.202	
Distance: tram			-0.009
Distance: pharmacy		-0.071	
Distance: post office		0.045	-0.002
Services			
Demographics			
Population	-0.091		
Male share	-0.087	0.239	
Young share		0.106	
Born Munich		0.099	
Born Bavaria		-0.006	0.004
Top interactions (by $\lvert\hat{\beta}\rvert$)			
Post offices × Military share		0.198	
Distance: pub × Military share	-0.198		
Catholic share × Distance: church	0.164		
Protestant share × Distance: association		0.133	
Distance: restaurant × Young share			0.127
Store density × Population	0.124		
Factories × Distance: association		0.029	-0.124
Rear-bldg share × Distance: tram	0.105		
Pub density × Population	0.097		
Distance: restaurant × Male share		-0.093	
Young share × Foreign-born			-0.090
Distance: factory × Military share		0.079	
Store density × Working-age share			0.070
Banks × Population	0.012	-0.068	
Factories × Max floors			0.039

Table A.9: SPD Persistence Without Religion Variables

	(1)	(2)	(3)	(4)
Amenities	−0.243***	−0.055*	0.022*	−0.001
	(0.070)	(0.028)	(0.012)	(0.019)
Residual	−0.023***	−0.009*	−0.001	−0.000
	(0.009)	(0.005)	(0.003)	(0.002)
SPD share 1912			0.275***	0.247***
			(0.020)	(0.023)
Amenities × Destruction				−0.107*
				(0.055)
Residual × Destruction				0.013
				(0.008)
N	297	297	297	297
Adj. R^2	0.240	0.625	0.802	0.809
Controls		✓	✓	✓
SPD 1912			✓	✓
Destruction interactions				✓

Notes: The LASSO decomposition of the pre-WWI HISCAM place premium ψ_j is re-estimated after excluding all church and religion variables (`n_churches`, `kath_share`, `prot_share`, `jewish_share`, `dist_to_church_mean`) and their pairwise interactions. Dependent variable: post-WWII average SPD vote share (1949–1961). "Amenities" = LASSO fitted value from remaining amenity variables; "Residual" = LASSO residual (now absorbs church variation). Controls: contemporaneous HISCAM and density. All variables in original units. All columns include district (Stadtbezirk) fixed effects. Standard errors clustered at precinct level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.10: Decomposing Persistence: Standardized Coefficients

	(1)	(2)	(3)	(4)
Panel A: Post-WWII SPD shares				
SPD share 1912	0.067***	0.058***	0.042***	0.038***
	(0.003)	(0.004)	(0.003)	(0.003)
Amenities pre-WWI		-0.018***	-0.007*	-0.007**
		(0.006)	(0.003)	(0.003)
Amenities × Destruction				0.002
				(0.002)
N	297	297	297	297
Adj. R^2	0.654	0.679	0.805	0.811
Panel B: Post-WWII BVP/CSU shares				
BVP/CSU share 1912	0.021***	0.018***	0.015***	0.013***
	(0.005)	(0.004)	(0.004)	(0.003)
Amenities pre-WWI		0.038***	0.019***	0.019***
		(0.005)	(0.004)	(0.003)
Amenities × Destruction				-0.010***
				(0.002)
N	297	297	297	297
Adj. R^2	0.107	0.408	0.622	0.676
Controls			✓	✓
Destruction interactions				✓

Notes: Standardized coefficients (all regressors mean zero, unit variance) for post-WWII vote shares. "Amenities pre-WWI" is the LASSO-predicted component of the pre-WWI HISCAM place premium ψ_j. Controls: contemporaneous HISCAM and population density. Destruction is % change in households 1933–1949. All columns include district (Stadtbezirk) fixed effects. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.11: Cross-Domain Prediction: OLS vs. LASSO Decomposition (District FE)

	OLS Decomposition			LASSO Decomposition		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: SPD						
Amenities ($\hat{\psi}_j^{\text{pre WWI}}$)	−0.050***	−0.018***	−0.007**	−0.054***	−0.024***	−0.010***
	(0.005)	(0.005)	(0.003)	(0.006)	(0.005)	(0.003)
Residual ($\hat{\psi}_j^{\text{pre WWI}}$)	−0.010	−0.005	−0.001	0.002	0.003	0.002
	(0.009)	(0.006)	(0.003)	(0.007)	(0.005)	(0.003)
N	297	297	297	297	297	297
Adj. R^2	0.308	0.637	0.828	0.345	0.659	0.831
Panel B: BVP/CSU						
Amenities ($\hat{\psi}_j^{\text{pre WWI}}$)	0.038***	0.017***	0.006*	0.040***	0.021***	0.008**
	(0.004)	(0.004)	(0.003)	(0.005)	(0.005)	(0.004)
Residual ($\hat{\psi}_j^{\text{pre WWI}}$)	0.009	0.006	0.003	0.000	−0.000	0.000
	(0.007)	(0.005)	(0.003)	(0.005)	(0.004)	(0.003)
N	297	297	297	297	297	297
Adj. R^2	0.300	0.547	0.731	0.332	0.568	0.733
Controls		✓	✓		✓	✓
District FE			✓			✓

Notes: Same specification as Table 3, comparing OLS and LASSO decompositions. Columns (3) and (6) add district fixed effects. OLS decomposition: ψ_j regressed on all 40 amenity variables. "Amenities" = fitted value; "Residual" = residual. Controls: contemporaneous period-average HISCAM and population density. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.12: Lastname Ancestry Interactions: Amenities vs. Residual Place Premium

	(1)	(2)	(3)	(4)
Panel A: SPD				
Amenities	−0.039***	−0.031*	−0.042***	−0.037**
	(0.010)	(0.017)	(0.010)	(0.018)
Amenities × Ancestry		−0.075		−0.040
		(0.099)		(0.103)
Residual	0.000	−0.001	0.012**	0.011**
	(0.004)	(0.004)	(0.006)	(0.006)
Residual × Ancestry			−0.101**	−0.097**
			(0.044)	(0.044)
Lastname ancestry share	0.155***	0.134**	0.149**	0.138**
	(0.057)	(0.063)	(0.058)	(0.064)
N	296	296	296	296
Adj. R^2	0.668	0.668	0.672	0.671
Panel B: BVP/CSU				
Amenities	0.028***	0.023	0.029***	0.026*
	(0.008)	(0.015)	(0.008)	(0.015)
Amenities × Ancestry		0.042		0.025
		(0.085)		(0.090)
Residual	0.002	0.002	−0.004	−0.004
	(0.004)	(0.003)	(0.004)	(0.005)
Residual × Ancestry			0.050	0.047
			(0.035)	(0.037)
Lastname ancestry share	−0.118**	−0.106*	−0.115**	−0.108*
	(0.049)	(0.056)	(0.049)	(0.057)
N	296	296	296	296
Adj. R^2	0.587	0.586	0.588	0.587
District FE	✓	✓	✓	✓

Notes: Dependent variable: average post-WWII vote share (1949–1961). "Amenities" is the LASSO-predicted component of the pre-WWI HISCAM place premium ψ_j; "Residual" is the LASSO residual. Lastname ancestry is the share of 1953 household heads in a precinct whose last name also appeared in the same precinct in 1912 — a proxy for family continuity. All columns include district (Stadtbezirk) fixed effects. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.13: Balance: Predictors of Admin-Allocated Housing Share

	(1)	(2)	(3)
Amenities ($\hat{\psi}_j^{\text{pre WWI}}$)	0.005		−0.024
	(0.040)		(0.036)
Residual ($\hat{\psi}_j^{\text{pre WWI}}$)	0.038*		0.008
	(0.022)		(0.015)
Share destroyed (>50%)		0.110	0.108
		(0.156)	(0.155)
HH change 1933–49 (%)		0.061	0.057
		(0.087)	(0.085)
Dist. to city center (m)		−0.000	−0.000
		(0.000)	(0.000)
N	297	296	296
Adj. R^2	0.151	0.125	0.123
District FE	✓	✓	✓

Notes: Dependent variable: share of 1953 precinct residents in admin-allocated housing (government, non-profit, or co-operative ownership). Column (1): LASSO-predicted and residual components of the pre-WWI HISCAM place premium. Column (2): wartime destruction and distance to city center. Column (3): all predictors combined. "Share destroyed" is the fraction of precinct addresses with >50% household loss between 1933 and 1949. All columns include district (Stadtbezirk) fixed effects. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.14: Ownership Subcategories: Government, Non-Profit, and Cooperative

	(1) All admin	(2) Government	(3) Non-profit	(4) Cooperative
Panel A: SPD				
Amenities ($\hat{\psi}_j^{\text{pre WWI}}$)	-0.067^{***}	-0.057^{***}	-0.056^{***}	-0.060^{***}
	(0.010)	(0.011)	(0.009)	(0.010)
Amenities × Share	0.079^{***}	0.077^{**}	0.236^{***}	0.225^{***}
	(0.018)	(0.033)	(0.059)	(0.041)
Residual ($\hat{\psi}_j^{\text{pre WWI}}$)	-0.008	-0.000	-0.004	-0.003
	(0.006)	(0.005)	(0.005)	(0.005)
Residual × Share	0.035	-0.014	0.139^{***}	-0.018
	(0.023)	(0.024)	(0.036)	(0.042)
Ownership share	0.023	-0.014	-0.025	0.047
	(0.020)	(0.021)	(0.050)	(0.030)
N	296	296	296	296
Adj. R^2	0.683	0.663	0.680	0.683
Panel B: BVP/CSU				
Amenities ($\hat{\psi}_j^{\text{pre WWI}}$)	0.046^{***}	0.036^{***}	0.042^{***}	0.044^{***}
	(0.009)	(0.010)	(0.008)	(0.009)
Amenities × Share	-0.048^{***}	-0.025	-0.218^{***}	-0.155^{***}
	(0.017)	(0.040)	(0.058)	(0.034)
Residual ($\hat{\psi}_j^{\text{pre WWI}}$)	0.006	0.001	0.004	0.004
	(0.005)	(0.004)	(0.004)	(0.004)
Residual × Share	-0.021	0.023	-0.080^{**}	0.006
	(0.021)	(0.031)	(0.037)	(0.030)
Ownership share	0.001	0.012	-0.033	0.023
	(0.021)	(0.025)	(0.046)	(0.027)
N	296	296	296	296
Adj. R^2	0.592	0.578	0.604	0.602
District FE	✓	✓	✓	✓

Notes: Dependent variable: average post-WWII vote share (1949–1961). Each column uses the full specification (Col. 4 of Table 7) with a different ownership share measure. Column (1): combined admin-allocated share (government + non-profit + cooperative). Columns (2)–(4): individual subcategories. All columns include district (Stadtbezirk) fixed effects. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

B Appendix: AKM Estimation Details

Record linking

The linking procedure matches individuals across three consecutive address book pairs: 1895→1900, 1900→1905, and 1905→1910. For each pair, I block on exact last name and first letter of first name, then compute Jaro-Winkler similarity on first names, retaining matches with JW ≥ 0.90. I enforce one-to-one matching: when multiple candidates survive the threshold, I retain only the highest-scoring match. I further restrict to unique name pairs within each address book—approximately 87% of entries—to guarantee that each match is unambiguous. Non-labor-market occupations (retirees, pensioners, rentiers, widows, and similar) are excluded, since their HISCAM scores do not reflect labor-market sorting. All addresses are geocoded and mapped to 1933 precinct boundaries via the address–precinct crosswalk.

The three pair-level panels are unified into a single stacked panel by assigning each individual a unique identifier that persists across pairs. An individual observed in all four address books (1895, 1900, 1905, 1910) contributes four person-year observations and up to three cross-precinct moves. The final sample comprises 79,612 unique individuals, 171,037 person-year observations, and 39,718 cross-precinct movers across 350 precincts.

Connected set and estimation

The AKM model (equation 1) requires that precincts be linked by mover chains—sequences of movers connecting any two precincts through intermediate moves. The largest connected set contains 345 of 350 precincts. I estimate the model by OLS on the full connected set, absorbing person, precinct, and year fixed effects.

The variance decomposition (Table A.5) allocates total HISCAM variance as follows: person effects account for 86.5%, precinct effects for 0.5%, and twice the person–place covariance for 2.3%. The small precinct share is expected given that occupational standing is overwhelmingly a person-level characteristic, and raises concerns about limited mobility bias (Andrews et al., 2008; Kline et al., 2020). Section C addresses this with the HISCLASS grouped fixed effects specification.

Amenity decomposition

I decompose the estimated precinct effect ψ_j into observable and unobservable components using two approaches. The OLS decomposition regresses ψ_j on 40 amenity main effects (Figure A.3); the best specification (30 variables, excluding density/count measures redundant with distances) achieves $R^2 = 0.285$. The strongest OLS predictors are distance to post office, male share, and rear-building share—higher-status precincts sit closer to post offices, have fewer men (reflecting worker dormitories), and contain fewer rear buildings.

The LASSO decomposition (Table A.6) expands the feature space to 820 variables (40 main effects plus all pairwise interactions) and selects features via 10-fold cross-validation ($\alpha = 1$, $\lambda_{\min}$). LASSO selects 37 features with an in-sample R^2 of 0.464. The fitted value from each decomposition defines the "observable" amenity component; the residual defines the "unobservable" component. Both components are standardized to mean zero and unit variance before entering the forward-tracking regressions.

Temporal cross-validation

I re-estimate the AKM model for four post-WWI periods—1919–1924, 1924–1929, 1929–1933, and 1953–1961—using fresh movers identified from the corresponding address book pairs (Table A.7). Mover counts range from 9,196 (1953–1961) to 18,135 (1929–1933). Each period's AKM estimation is self-contained: person, precinct, and year effects are estimated from the period-specific mover panel alone.

The temporal cross-validation regresses each period's estimated ψ_j^{post} on the pre-WWI observable component from either the OLS or LASSO decomposition. This is a genuine out-of-sample test across time—not a k-fold partition within a single period—because the post-WWI AKM effects are estimated from entirely different movers and address books.

Data quality across periods

The decay in predictability documented in Figure 3 could reflect deteriorating data quality rather than genuine dissolution of the spatial equilibrium. Table A.15 reports four diagnostics across periods that argue against this reading.

Within-precinct HISCAM variance, which determines the identifying variation for the AKM, is comparable across all periods ($\sim$100–107). The share of cross-precinct movers who also changed occupation does not collapse post-war; it rises from 30% (pre-WWI) to 52% (1953–1961). Because HISCAM is deterministic in occupation, only these occupation-changers identify ψ_j, so the post-war AKM has more identifying variation per mover, not less. HISCAM coverage remains above 99.7% throughout. The place-premium variance $\sigma(\psi_j)$ is larger in 1953–1961 (1.57) than in 1929–1933 (1.14), ruling out signal attenuation. These patterns are inconsistent with measurement degradation.

A placebo confirms the point. Pre-WWI amenities predict precinct-level *mean* HISCAM at $R^2 \approx 0.56$ even in the 1950s, comparable to the 1920s ($R^2 \approx 0.66$–0.70). The cross-sectional correlation between amenities and occupational prestige is durable. What breaks is the AKM place premium: amenities still predict who lives where, but they no longer predict how much each neighborhood adds to occupational status beyond what residents bring with them.

Table A.15: Data Quality Diagnostics by Period

Period	Within-Precinct Var(HISCAM)	Between-Precinct Var(HISCAM)	Occupation Changers (%)	HISCAM Coverage (%)
Pre-WWI	99.9	20.1	30.3	99.8
1919-1924	104.2	18.3	43.2	99.8
1924-1929	107.3	17.8	48.2	99.8
1929-1933	100.2	10.4	41.9	99.8
1953-1961	101.4	9.1	51.8	99.7

Notes: Within-precinct variance is the mean of precinct-level Var(HISCAM). Between-precinct variance is the variance of precinct means. Occupation changers: share of cross-precinct movers who also changed HISCO occupation code between address books. HISCAM coverage: share of person-year observations with a non-missing HISCAM score. Pre-WWI pools 1895–1910 address book pairs; post-WWI periods use the indicated pair. All statistics for fn90 threshold.

C Appendix: Limited Mobility Bias and the HISCLASS Robustness Check

The baseline AKM estimates person fixed effects for every individual in the sample. With thin precinct-to-precinct connections, this risks overfitting and inflating the estimated place premium. This section shows the main results hold under a specification that eliminates the thin-connections problem.

The baseline AKM estimates ∼68,000 person fixed effects alongside 345 precinct effects from a connected set where the median precinct pair has just one mover. With connections this thin, precinct effects are imprecisely estimated and their variance is biased upward (Andrews et al., 2008; Kline et al., 2020). The reported $\text{Var}(\psi_j)/\text{Var}(\text{HISCAM}) = 0.5\%$ may overstate the true place component, and $\text{Cor}(\alpha_i, \psi_j) = 0.185$ is attenuated.

A subtler issue compounds the problem. Because HISCAM is a deterministic function of occupation, α_i in this setting captures each person's occupation trajectory, not unobserved ability as in a wage AKM. Identification of ψ_j therefore depends entirely on individuals who change *both* precinct and occupation simultaneously—pure residential movers (same occupation, different precinct) contribute no variation to ψ_j.

These concerns affect the variance decomposition (Table A.16, Panel C) and the worker–place sorting correlation directly. They do *not* invalidate the cross-domain prediction results: when ψ_j enters as a regressor in Tables 3–A.17, measurement error attenuates coefficients toward zero, so significant results are conservative.

The HISCLASS grouped fixed effects solution

I address limited-mobility bias by replacing person fixed effects with HISCLASS group fixed effects (Van Leeuwen and Maas, 2011):

$$\text{Baseline:} \quad \text{HISCAM}_{it} = \alpha_i + \psi_{j(i,t)} + \gamma_t + \varepsilon_{it} \qquad \text{(68,000 person FEs)} \tag{2}$$

$$\text{Robustness:} \quad \text{HISCAM}_{it} = \alpha_{g(i)} + \psi_{j(i,t)} + \gamma_t + \varepsilon_{it} \qquad \text{(12 HISCLASS FEs)} \tag{3}$$

HISCLASS assigns each HISCO-coded occupation to one of 12 social classes based on manual/non-manual status, skill level, supervision, and economic sector. Within each class, meaningful HISCAM variation remains—a locksmith and a watchmaker both fall among medium-skilled workers but carry different prestige scores. This within-group variation identifies ψ_j.

The key advantage: reducing person-side parameters from 68,000 to 12 eliminates the thin-connections problem, because identification no longer depends on tracking individuals across precincts. HISCLASS is an established classification in historical stratification research (Van Leeuwen and Maas, 2011), so the grouping choice introduces no researcher degrees of freedom. In urban Munich (1895–1910), the farm-related classes (HISCLASS 8, 10, 12) are near-empty, leaving $\sim$9 effective groups.

Results

The HISCLASS precinct effect captures more between-precinct variation ($\sigma = 1.97$ vs. 1.42; Table A.16), consistent with 12 broad classes absorbing far less within-precinct heterogeneity than 68,000 person identities. The HISCLASS premium is also more predictable from observable amenities: LASSO cross-validated R^2 rises from 0.059 to 0.160, with fewer features selected (4 vs. 37; Figure A.5). The observable amenity component persists longer across the temporal cross-validation—at $\hat{\beta} = 0.29$ in 1953–1961 under HISCLASS, the amenity–occupation link remains detectable where the person FE specification drops to near zero (Figure A.6).

Cross-domain prediction confirms the pattern. Both specifications show that the amenity component of ψ_j predicts SPD vote shares across the full 1893–1961 span, while the residual never reaches significance (Figure A.7). In the forward-tracking regressions, the HISCLASS amenity coefficient is strongly significant without controls ($p < 0.01$) and with district fixed effects ($p < 0.01$), but attenuates once contemporaneous controls and 1912 vote shares are added—reaching marginal significance in column (3) and zero in column (4) (Table A.17). The baseline person FE observable, by contrast, remains significant at $p < 0.05$ through all four columns. This divergence is consistent with the HISCLASS LASSO selecting only 4 features (vs. 37 for person FE): the coarser decomposition captures the dominant amenity signal but lacks the granularity to survive aggressive controls. The residual component never reaches significance in either specification once district fixed effects are included.

These results confirm that the cross-domain prediction is not an artifact of the person fixed effect structure. Coarse occupation classes leave more neighborhood-level amenity variation in the precinct effect rather than absorbing it into person identity, which strengthens the observable channel while leaving the key finding intact.

Table A.16: Mobility and the Connected Set: Person FE vs. HISCLASS FE

	Person FE	HISCLASS FE
Panel A: Address-book sample		
Person-year observations	171,037	
Unique individuals	79,612	
Individuals with ≥2 observations	68,645	
Cross-precinct movers	39,718	
Stayers	39,894	
Mover share	49.9%	
Panel B: Mobility graph		
Precincts in panel	350	
Precincts in connected set	345	
Movers per precinct (median)	245	
Movers per precinct (mean)	245	
Unique precinct pairs	17,435	
Pairs with ≥5 movers	2,172	
Pairs with ≥10 movers	802	
Panel C: HISCAM place premium (ψ_j)		
SD(HISCAM, person-level)	10.95	
SD(ψ_j)	1.424	1.972
IQR(ψ_j)	1.177	2.049
$\sigma(\psi_j)/\sigma(\text{HISCAM})$	0.130	0.180

Notes: Two AKM specifications compared. Person FE ($\alpha_i + \psi_j + \gamma_t$): ∼68,000 person fixed effects. HISCLASS FE ($\delta_c + \psi_j + \gamma_t$): 12 broad occupation classes from the HISCLASS scheme. Panels A–B: common estimation sample. Panel C: place premiums from each specification.

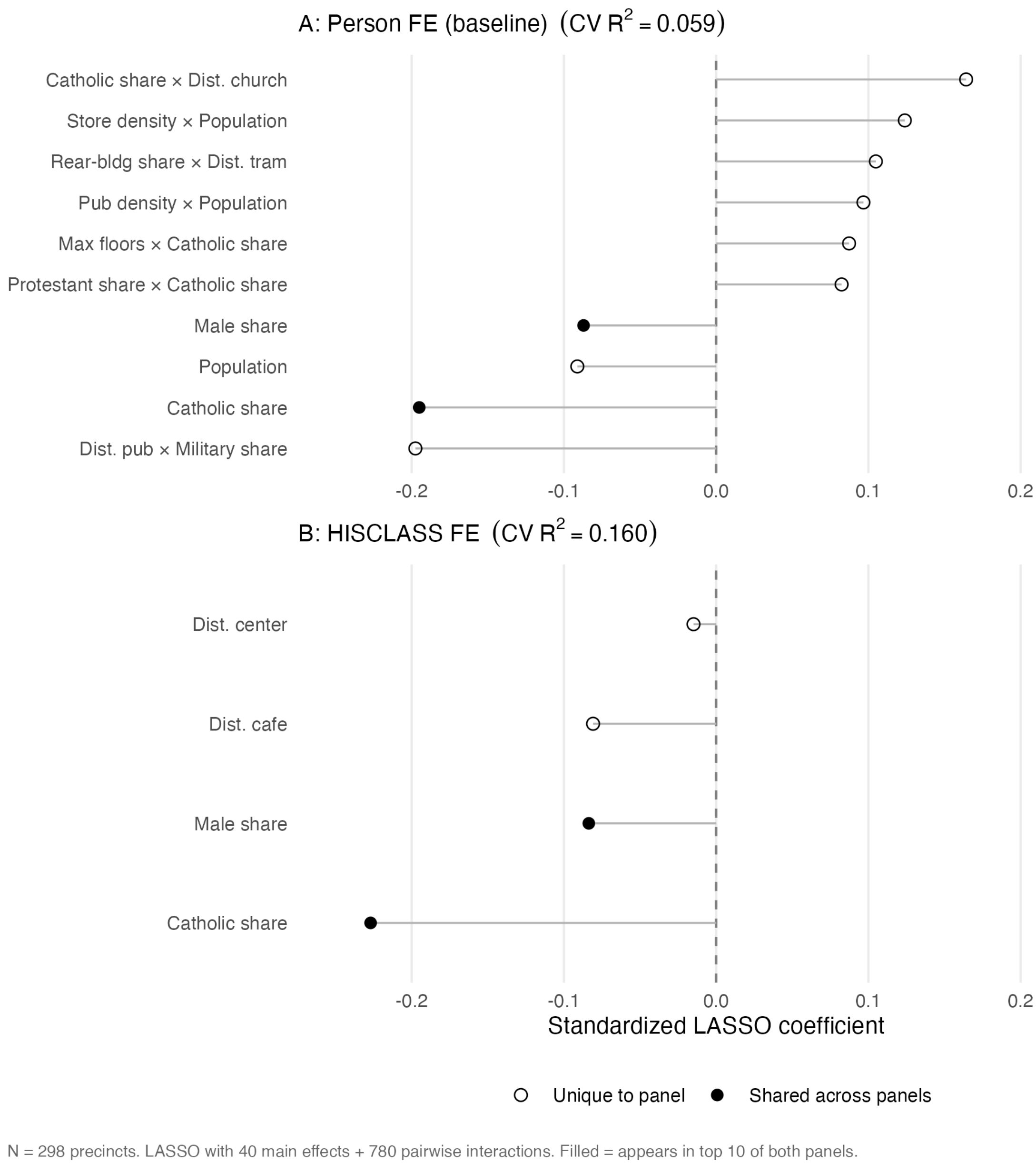

Figure A.5: LASSO Coefficient Comparison: Person FE vs. HISCLASS FE

Notes: Top 10 LASSO-selected predictors (by $|\hat{\beta}|$) from regressing the HISCAM place premium ψ_j on 39 amenity main effects plus 741 pairwise interactions ($\alpha = 1$, $\lambda_{\min}$, 10-fold CV). Panel A: baseline person FE (CV $R^2 = 0.059$, 37 selected). Panel B: HISCLASS FE (CV $R^2 = 0.160$, 4 selected). All variables standardized. $N = 298$ precincts.

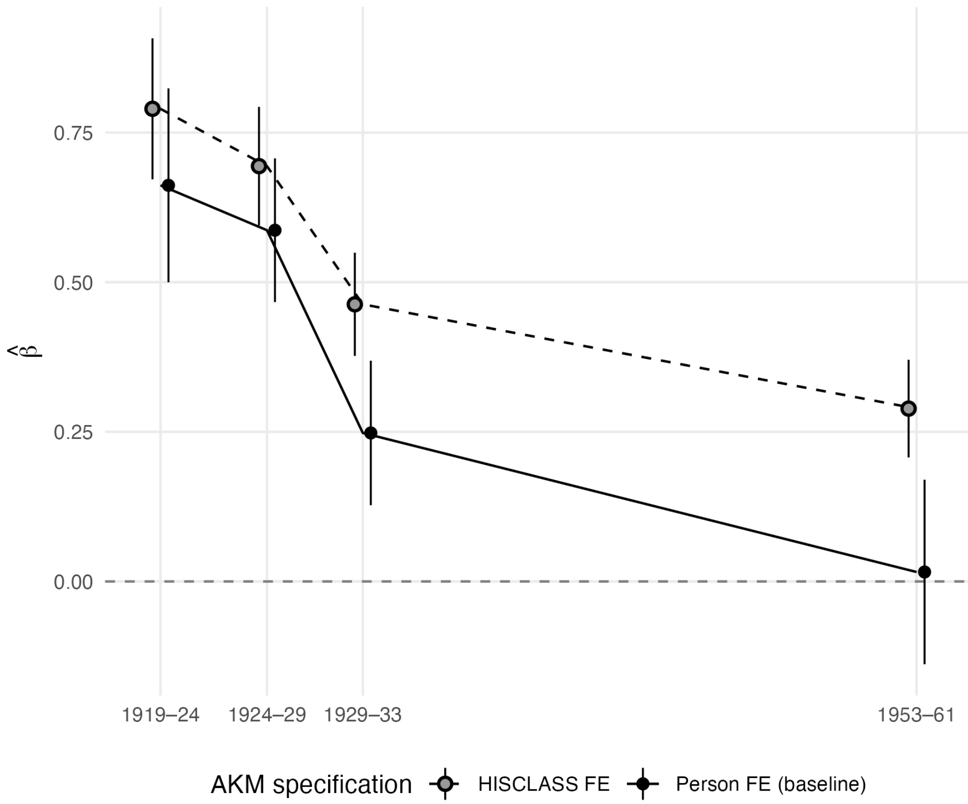

Figure A.6: Temporal Cross-Validation: Person FE vs. HISCLASS FE

Notes: Same specification as Figure 3. Solid line: baseline person FE. Dashed line: HISCLASS FE. Post-WWI AKM effects re-estimated for each period using cross-precinct movers. Vertical bars: 95% CIs.

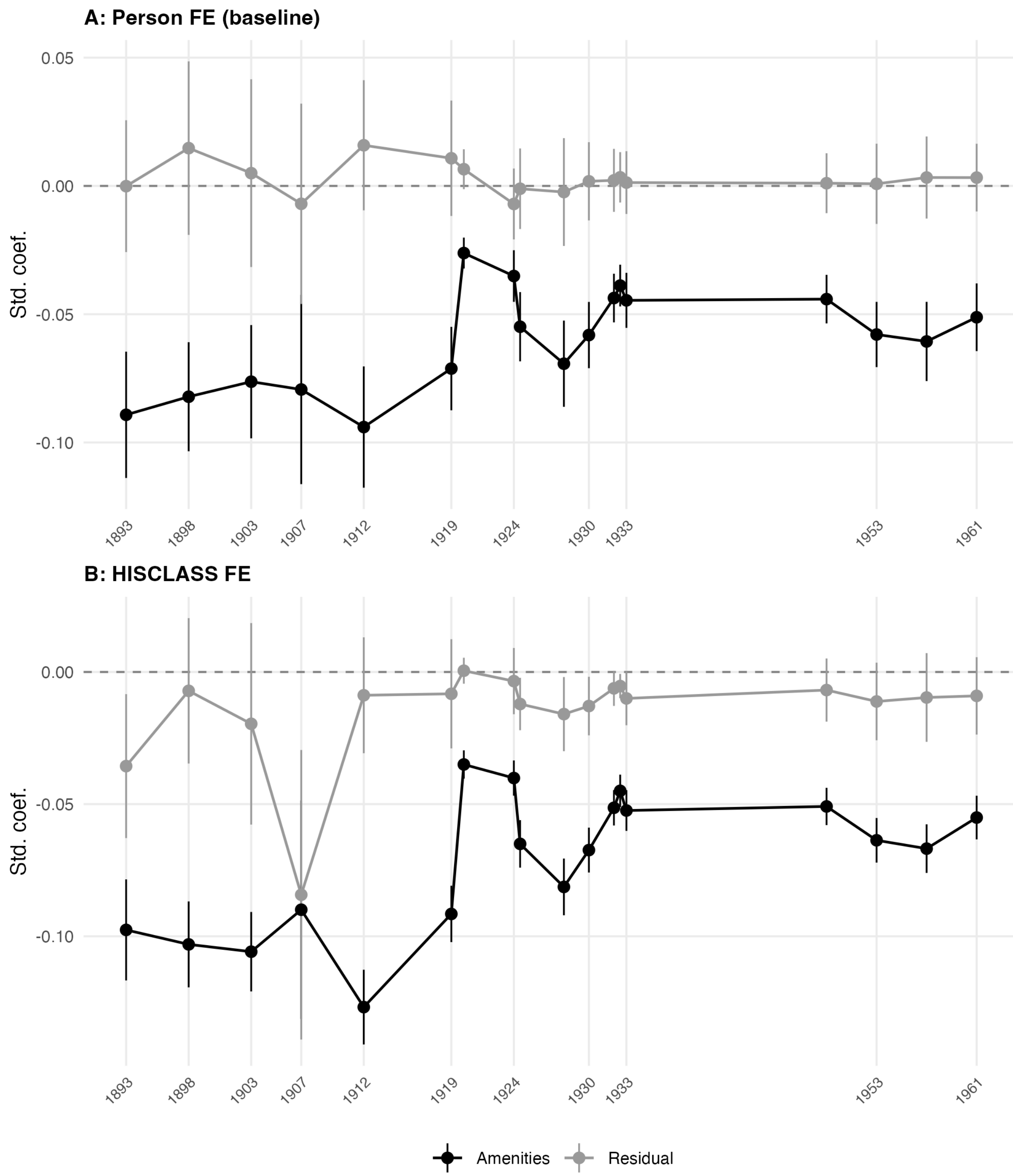

Figure A.7: Cross-Domain Prediction: Person FE vs. HISCLASS FE

Notes: Same specification as Figure 4. Panel A: baseline person FE. Panel B: HISCLASS FE. Clustered standard errors at precinct level. Vertical bars: 95% CIs.

Table A.17: Cross-Domain Prediction: Person FE vs. HISCLASS FE

	(1)	(2)	(3)	(4)
Panel A: Person FE (baseline)				
Amenities	−0.054***	−0.027***	−0.010***	−0.007**
	(0.006)	(0.006)	(0.003)	(0.004)
Residual	0.002	−0.001	0.002	0.003
	(0.007)	(0.004)	(0.003)	(0.002)
N	297	297	297	297
Adj. R^2	0.345	0.663	0.831	0.856
Panel B: HISCLASS FE				
Amenities	−0.059***	−0.038***	−0.015*	−0.000
	(0.004)	(0.012)	(0.009)	(0.008)
Residual	−0.009	−0.012**	−0.002	0.002
	(0.007)	(0.006)	(0.004)	(0.003)
N	297	297	297	297
Adj. R^2	0.540	0.651	0.829	0.852
District FE		✓	✓	✓
Controls			✓	✓
1912 vote share				✓

Notes: Each column regresses post-WWII average SPD vote share (1949–1961) on the standardized amenity and residual components of the HISCAM place premium ψ_j. Amenities = LASSO fitted value from pairwise interactions (Figure A.5). Residual = LASSO residual. Panel A uses the baseline person FE specification ($\alpha_i + \psi_j + \gamma_t$); Panel B uses HISCLASS FE ($\delta_c + \psi_j + \gamma_t$, 12 occupation classes). Controls: contemporaneous period-average HISCAM and population density. Column (4) additionally controls for the 1912 SPD vote share (coefficient not reported). Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

D Appendix: Robustness to HISCO Corrections

The HISCAM scores used throughout the paper depend on HISCO codes predicted by OccCANINE (Dahl et al., 2024). If systematic misclassifications correlate with precinct amenities, the decomposition and cross-domain prediction could be contaminated. This appendix re-estimates the full pipeline—AKM, LASSO decomposition, temporal cross-validation, and cross-domain prediction—with LLM-validated corrected HISCO codes (251 corrections affecting 6.1% of records, mean $|\Delta| = 10.7$ HISCAM points) and compares every result side-by-side with the baseline. The corrected codes are not used as the main specification because OccCANINE is a deterministic model with fixed weights, making the baseline fully reproducible. LLM-based corrections depend on API outputs that vary across runs and model versions.

Method

The corrected pipeline swaps HISCAM scores in the existing linked panel using the 251 validated corrections, then re-runs the AKM estimation and LASSO decomposition from scratch. Matching proceeds via the original HISCO code retained in the corrected crosswalk file. Post-WWI temporal cross-validation uses the corrected pre-WWI decomposition against existing post-WWI AKM estimates. All figures and tables load both original and corrected decomposition files and produce side-by-side comparisons.

Results

The corrected precinct premium correlates 0.924 with the original (Table A.18). Dispersion increases: $\sigma(\psi_j)$ rises from 1.42 to 1.59, and the IQR from 1.18 to 1.22, consistent with misclassification acting as measurement error that attenuated true place differences. The ratio $\sigma(\psi_j)/\sigma(\text{HISCAM})$ increases from 0.130 to 0.145.

The LASSO selects fewer features from the corrected ψ_j (24 vs. 37), and cross-validated

R^2 drops from 0.059 to 0.050 (Figure A.8). This pattern is consistent with corrections removing spurious correlations between misclassified occupations and amenity variables—the signal-to-noise ratio in ψ_j improves, but the amenity-predictable share of the now-larger variance is smaller. Eight variables appear in both top-10 lists, including the leading predictor (church distance $\times$ Catholic share).

The temporal cross-validation tells a coherent story (Figure A.9). Both versions show strong early-Weimar persistence ($\hat{\beta} \approx$ 0.6–0.7) that decays through 1929–33. Both drop to near zero by 1953–61 ($\hat{\beta} = 0.03$ corrected vs. 0.02 original), confirming that the temporal breakdown reflects genuine dissolution of the spatial equilibrium rather than classification noise.

The cross-domain prediction—the paper's central result—strengthens slightly under correction (Figure A.10). In the forward-tracking regressions, amenity coefficients remain significant through all four columns in both panels (Table A.19). The corrected estimates are marginally larger in magnitude (-0.031 vs. -0.027 with district FE; -0.013 vs. -0.010 with controls) and achieve higher R^2 in the district FE column (0.682 vs. 0.663), suggesting corrected scores better capture amenity-correlated sorting. The residual component remains insignificant in both versions.

Issues from the correction process

Three issues surfaced during validation. First, OccCANINE confidence scores do not discriminate accuracy—*Maurer* (bricklayer, confidence $=$ 0.27) is correctly coded while *Sanitätsrat* (medical councillor, confidence $=$ 0.59) is wrong. Confidence reflects model uncertainty about the specific HISCO digit sequence, not semantic correctness, so a separate semantic validation step is necessary.

Second, both OccCANINE and Gemini systematically ignore German status-diminishing suffixes (*-gehilfe*, *-diener*, *-wart*) that modify occupational rank. A *Stationsgehilfe* (station helper) gets coded as "Railway Station Master" (HISCAM +26.9); a *Bankdiener* (bank attendant) as "Bank Manager" (+21.3). Ten such overcorrections were excluded from the safe set, identified by HISCAM delta $> +15$ combined with a status-diminishing suffix.

Third, Bavarian dialect forms occasionally defeat OccCANINE—*Schäffler* (cooper) was coded as "Sheep Farm Worker"—though the Gemini correction pass catches most of these. Twenty entries received no correction due to a JSON parse error in one API batch.

Table A.18: Mobility and the Connected Set: Original vs. Corrected HISCO

	Original HISCO	Corrected HISCO
Panel A: Address-book sample		
Person-year observations	171,037	
Unique individuals	79,612	
Individuals with ≥2 observations	68,645	
Cross-precinct movers	39,718	
Stayers	39,894	
Mover share	49.9%	
Panel B: Mobility graph		
Precincts in panel	350	
Precincts in connected set	345	
Movers per precinct (median)	245	
Movers per precinct (mean)	245	
Unique precinct pairs	17,435	
Pairs with ≥5 movers	2,172	
Pairs with ≥10 movers	802	
Panel C: HISCAM place premium (ψ_j)		
SD(HISCAM, person-level)	10.95	
SD(ψ_j)	1.424	1.589
IQR(ψ_j)	1.177	1.219
$\sigma(\psi_j)/\sigma(\text{HISCAM})$	0.130	0.145

Notes: Same specification as Table 2, comparing original OccCANINE HISCO codes and LLM-validated corrected codes (251 corrections affecting 6.1% of records). Panels A–B: common estimation sample (identical across specifications). Panel C: place premiums from the AKM model. Both use person fixed effects ($\alpha_i + \psi_j + \gamma_t$).

Table A.19: Cross-Domain Prediction: Original vs. Corrected HISCO

	(1)	(2)	(3)	(4)
Panel A: Original HISCO				
Amenities	−0.054***	−0.027***	−0.010***	−0.007**
	(0.006)	(0.006)	(0.003)	(0.004)
Residual	0.002	−0.001	0.002	0.003
	(0.007)	(0.004)	(0.003)	(0.002)
N	297	297	297	297
Adj. R^2	0.345	0.663	0.831	0.856
Panel B: Corrected HISCO				
Amenities	−0.056***	−0.031***	−0.013***	−0.009***
	(0.004)	(0.005)	(0.003)	(0.003)
Residual	−0.002	−0.002	0.002	0.003
	(0.007)	(0.004)	(0.003)	(0.003)
N	297	297	297	297
Adj. R^2	0.392	0.682	0.835	0.858
District FE		✓	✓	✓
Controls			✓	✓
1912 vote share				✓

Notes: Same specification as Table 3, comparing original OccCANINE HISCO codes (Panel A) and LLM-validated corrected codes (Panel B; 251 corrections, 6.1% of records). Controls: contemporaneous period-average HISCAM and population density. Column (4) additionally controls for 1912 SPD vote share (not reported). Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

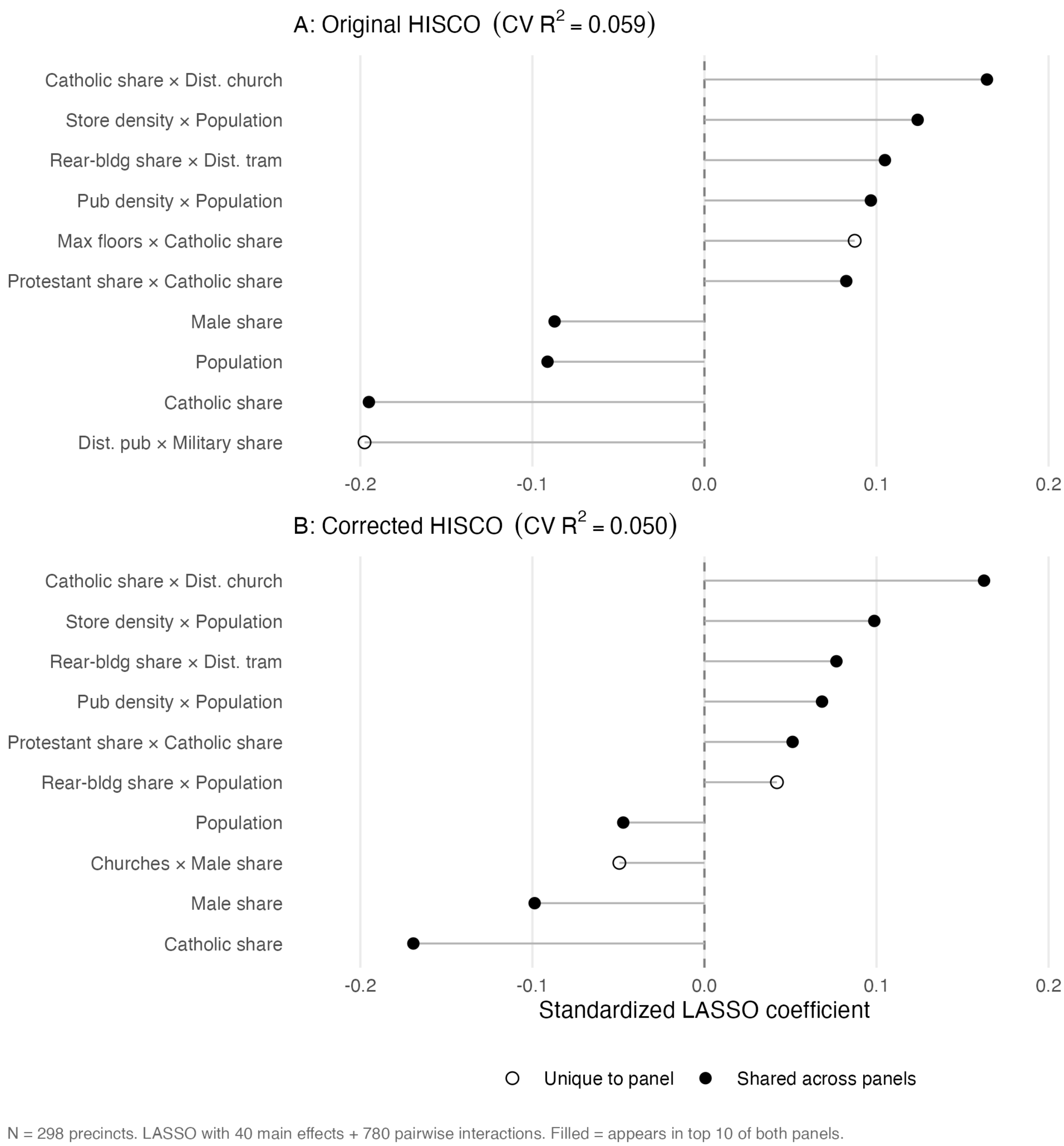

Figure A.8: LASSO Coefficient Comparison: Original vs. Corrected HISCO

Notes: Top 10 LASSO-selected predictors (by $|\hat{\beta}|$) of the HISCAM place premium ψ_j. Left panel: original OccCANINE HISCO codes. Right panel: LLM-validated corrected codes (251 corrections affecting 6.1% of records). See Figure 2 for the baseline specification.

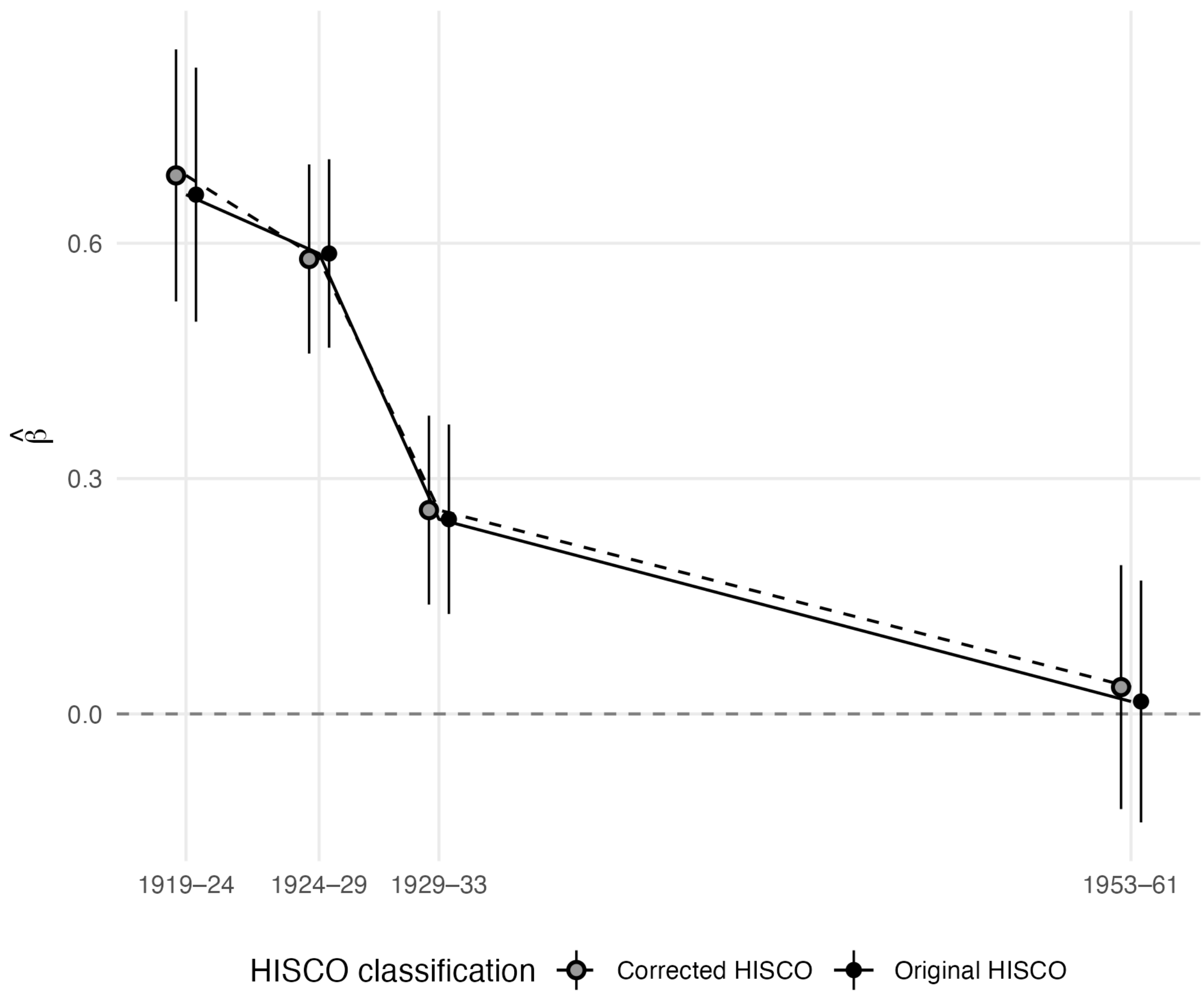

Figure A.9: Temporal Cross-Validation: Original vs. Corrected HISCO

Notes: Same specification as Figure 3, comparing original OccCANINE HISCO codes and LLM-validated corrected codes (251 corrections affecting 6.1% of records).

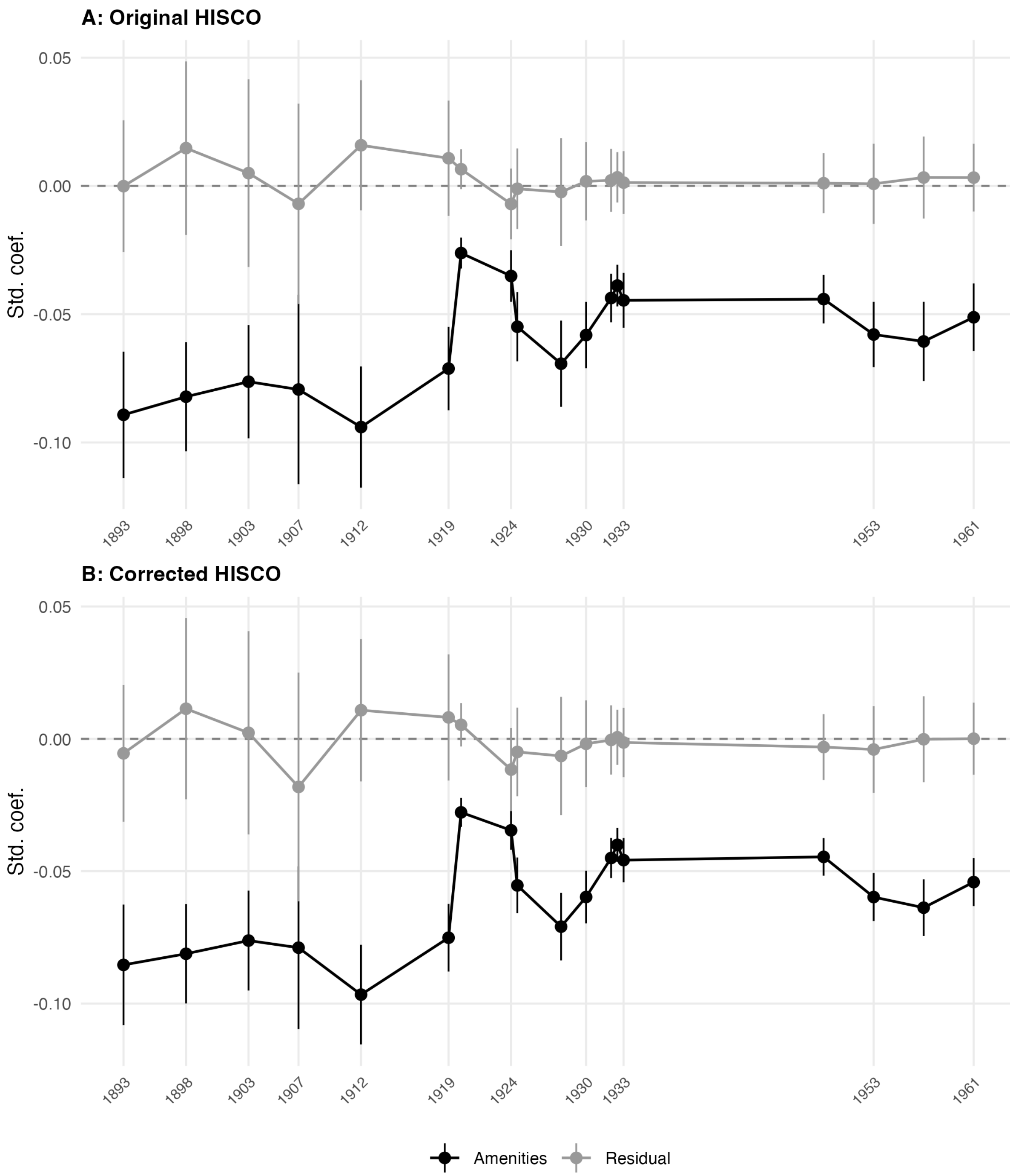

Figure A.10: Cross-Domain Prediction: Original vs. Corrected HISCO

Notes: Same specification as Figure 4, comparing original OccCANINE HISCO codes and LLM-validated corrected codes (251 corrections affecting 6.1% of records).

E Appendix: Postwar Housing Allocation in Munich

The administrative allocation test (Table 7) requires that residents in admin-allocated housing were placed independently of the pre-WWI amenity bundle that predicts voting. Two conditions must hold: (1) assignment was driven by need and availability, not by neighborhood characteristics, and (2) applicants could not select into neighborhoods that matched their political type. This appendix documents why both conditions are met.

Assignment was need-based and availability-driven

Munich's Wohnungsamt allocated housing through a ranked Dringlichkeitsliste (urgency list) that ordered all applicants by severity of need (Landeshauptstadt München, Sozialreferat, 2011). Under Kontrollratsgesetz Nr. 18 (1946), applicants were assigned to specific addresses through Einweisungsverfügungen (billeting orders) whenever a vacancy was identified (Alliierter Kontrollrat, 1946). The priority hierarchy was codified in Article VIII: victims of National Socialism first, then the disabled and elderly, large families, and essential workers. Article VIII(1)(d) prohibited preferential treatment based on social or financial standing. By 1948, over 93,000 applications competed for roughly 12,000 annual assignments. Refusal of an assigned unit cost one's place on the list. Between 1946 and 1968, virtually the entire existing housing stock was under compulsory management; there was no free market for existing apartments (Egner, 2014).

The assignment rule matched applicants to vacancies, not applicants to neighborhoods. What determined where a person lived was which unit happened to become available when their urgency ranking was reached. The Wohnungsamt's objective was maximum utilization of scarce space, not residential matching (Kohl, 2017). Administrative courts upheld these allocation decisions in 98.7% of appeals (1950–1952), confirming that applicants had effectively no recourse to override their assignment (Landeshauptstadt München, Sozialreferat, 2011). A Zuzugssperre (ban on in-migration) further constrained self-selection into Munich itself: from August 1945 through the early 1950s, only Soviet zone refugees, Berlin residents, and ethnic German expellees could enter the city.

Assignment was independent of the amenity bundle

The amenity bundle that predicts voting—pub density, church proximity, housing density, factory distance—reflects pre-WWI neighborhood character. The Wohnungsamt's allocation criteria (urgency, family size, housing loss, employment status) are orthogonal to this bundle by design: nothing in the priority hierarchy references the physical characteristics of the assigned neighborhood. Table A.13 confirms this empirically: the amenity component of the HISCAM place premium does not predict admin-allocated share at the precinct level.

Two institutional features reinforce this independence. First, Munich's reconstruction under Stadtbaurat Karl Meitinger preserved the medieval street plan and rebuilt destroyed buildings in place (Haus der Bayerischen Geschichte, 2024), so the pre-WWI amenity landscape was largely intact when the Wohnungsamt made its assignments. The amenity bundle did not change between the period when it was measured and the period when allocation occurred. Second, the Wohnungsamt assigned applicants to addresses across the entire city. Refugees and bombed-out families were housed wherever intact structures existed, and the city actively prevented spatial concentration (Historisches Lexikon Bayerns, 2024). The resulting distribution of admin-allocated housing across precincts reflects the geography of surviving and reconstructed buildings, not the geography of political preferences.

Threats to the identifying assumption

Three features of the institutional setting could compromise independence. Each is addressed in turn.

Cooperative housing. Under §4 of the Erstes Wohnungsbaugesetz (1950), housing cooperatives whose statutes restricted membership could allocate units outside the Wohnungsamt system. Confessional cooperatives existed in Munich: the Katholisches Siedlungswerk (1,816 units, 1949–1959), the Verein für Volkswohnungen (Catholic workers' associations), and the Evangelisches Siedlungswerk (Protestant, focused on refugees). If these cooperatives placed members in ideologically matched neighborhoods, the attenuation could reflect provider sorting rather than the absence of individual choice. Three features limit this concern. The confessional cooperatives were small: 1,816 Catholic units against 76,000 units managed by the secular, city-owned GEWOFAG and GWG (Rädlinger, 2003). Publicly subsidized cooperative units remained under Wohnungsamt allocation regardless of membership. Table A.14 shows that nonprofit associations, which allocated through waitlists rather than membership criteria, produce the same attenuation as cooperatives. Redefining admin-allocated as government plus nonprofit only (excluding cooperatives entirely), the SPD amenity interaction is virtually unchanged (0.077, $p < 0.01$; Table A.22, Col. 3). Of the 15,589 residents in cooperative housing in the 1953 address book, all cooperatives are occupational (railway, postal, civil service) or geographic; none have confessional membership criteria.

Post-allocation apartment swaps. The Wohnraumbewirtschaftungsgesetz (§12(4)) permitted apartment swaps (Wohnungstausch) with minimal friction: permission was deemed approved if not rejected within two weeks. If admin-placed residents swapped into preferred neighborhoods after initial assignment, self-selection would re-enter the sample. This concern biases *against* the paper's result. If placed residents swapped into neighborhoods matching their political type, the amenity-vote gradient should survive in admin-allocated precincts, not vanish. That the gradient is eliminated despite the swap provisions makes the result conservative.

Compositional differences. Admin-placed residents (refugees, bombed-out families, returning POWs) may differ from market-choice residents in ways that correlate with voting independently of neighborhood characteristics. Three tests address this. First, pre-war vote shares do not predict admin-allocated share: neither SPD nor BVP vote shares (pre-WWI) are significant (Table A.21, Col. 2). Pre-war occupational score does predict admin share ($\hat{\beta} = 0.193$, $p < 0.01$; Col. 3), meaning higher-status precincts received more admin housing, but this biases *toward* finding an amenity-vote gradient in admin precincts, not toward eliminating one.

Second, admin-placed and private residents differ modestly in occupational composition across the city: admin-placed residents have slightly lower HISCAM (62.3 vs. 63.2, $p < 0.01$ with precinct-clustered standard errors) and slightly higher blue-collar share (25.3% vs. 21.1%). The difference is less than one point on a 42–98 scale. Crucially, this cross-precinct difference vanishes within precincts: adding precinct fixed effects, admin-placed and private residents in the same neighborhood are occupationally indistinguishable ($\hat{\beta} = -0.37$, $p = 0.15$; Table A.20). The cross-city difference reflects where admin housing was built, not who was placed in it.

Third, controlling for the mean HISCAM and blue-collar share of admin-placed residents in each precinct does not change the interaction coefficient: the SPD amenity × admin interaction is 0.081 ($p < 0.001$) with composition controls versus 0.079 ($p < 0.001$) at baseline (Table A.22, Cols. 1–2). The gradient vanishes not because placed residents differ, but because they did not choose.[30]

[30] If confessional composition of placed residents drove the attenuation, it should concentrate where Catholic inflows most altered the confessional mix. It does not: the attenuation is stronger in already-Catholic districts (0.283, $p < 0.001$) than in high-Protestant districts (0.097, $p < 0.001$). The triple interaction Amenity × Admin × High-Protestant is -0.194 ($p < 0.001$), the wrong sign for the confessional flooding story (Table A.23).

Historical background

Munich's postwar housing crisis was among the most severe in Western Europe. Allied bombing destroyed 45% of the city's building substance and 27–31% of its housing stock (approximately 81,500 of 260,000 prewar apartments). Only 2.1% of buildings survived the war completely undamaged (Haus der Bayerischen Geschichte, 2024; Landeshauptstadt München, Sozialreferat, 2011). The population, which had dropped to roughly 479,000 in May 1945, rebounded sharply: 769,000 by end of 1946, 824,000 by the 1950 census, and past one million on December 15, 1957. By 1950, Munich had regained its prewar population but not its prewar housing stock, producing a structural deficit of over 80,000 apartments (Landeshauptstadt München, Sozialreferat, 2011).

The legal framework governing allocation evolved through four principal statutes. Kontrollratsgesetz Nr. 18 (March 1946) established compulsory housing management across all occupation zones (Alliierter Kontrollrat, 1946). The Erstes Wohnungsbaugesetz (April 1950) shifted emphasis toward construction and carved out cooperatives with restricted membership from general allocation. The Wohnraumbewirtschaftungsgesetz (March 1953) translated the occupation-era framework into federal law, introducing two allocation mechanisms: the Benutzungsgenehmigung (§14, owner proposes tenant, Wohnungsamt can override) and the Zuweisung (§15, forced assignment). The Abbaugesetz (June 1960) initiated stepwise dismantling through a hardship classification; Munich retained full controls until December 31, 1968, alongside Hamburg, Bonn, and West Berlin (Egner, 2014).

Munich's largest housing providers were city-owned: GEWOFAG (founded 1928, $\sim$36,000 units) and GWG (founded 1918, $\sim$40,000 units), both secular municipal institutions whose tenants were allocated through the Wohnungsamt (Rädlinger, 2003). The trade-union sector (Neue Heimat Bayern, DGB-owned) constructed major postwar settlements including Parkstadt Bogenhausen ($\sim$2,000 units, 1955–56), Hasenbergl (8,125 units, 1960–68), and Neuperlach ($\sim$24,600 units, 1967–92). Refugees and expellees, who constituted 10.3% of Munich's population by the 1950 census, were managed through a separate Münchner Flüchtlingsverwaltung and housed primarily in peripheral settlements on repurposed military infrastructure (Siedlung Ludwigsfeld, Funkkaserne, Neuaubing). No ethnic enclaves formed; Allied dispersal policy prevented residential concentration by origin group (Historisches Lexikon Bayerns, 2024; Bauer, 1982).

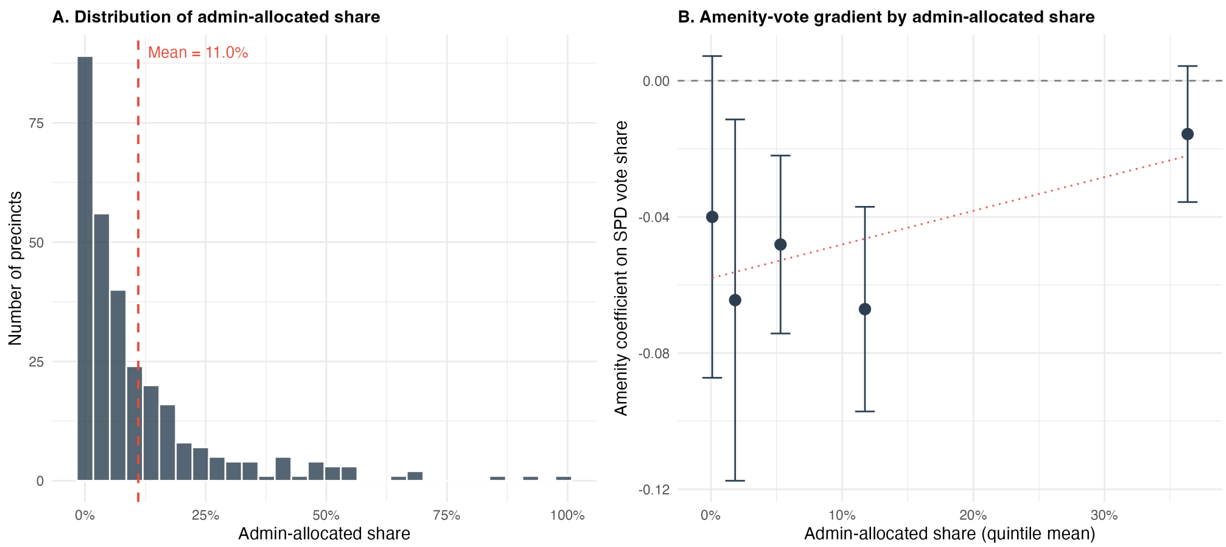

Figure A.11: Distribution of Admin-Allocated Share and Amenity-Vote Gradient by Quintile

Notes: The main interaction test (Table 7) reports that the amenity-vote gradient attenuates as a precinct's admin-allocated share rises. This figure examines whether that attenuation is robust across the support. Panel A shows the distribution of admin-allocated share (government + nonprofit + cooperative housing) across 296 precincts: admin share is heavily right-skewed, with a mean of 11.0%, a median of 5.4%, and an IQR of [1.1%, 13.6%]. Only a handful of precincts exceed 50%. The linear extrapolation to 100% admin allocation in Table 7 is therefore well outside the observed support. Panel B splits precincts into quintiles of admin-allocated share and estimates the amenity $\rightarrow$ SPD vote coefficient separately within each quintile (all specifications include district FE; robust SEs; vertical bars: 95% CIs). If the interaction were driven by outliers or functional-form misspecification, the gradient would not attenuate smoothly. The coefficient is large and negative in the lowest four quintiles (-0.04 to -0.07) and attenuates toward zero in the top quintile (mean admin share $= 36\%$), confirming that the interaction reflects a genuine gradient rather than leverage from extreme precincts. The dotted line shows a linear fit through the quintile means.

Table A.20: Occupational Composition: Admin-Placed vs. Private Residents

	(1) Cross-precinct	(2) Within-precinct
Admin-allocated	−0.891***	−0.367
	(0.291)	(0.253)
N	194,968	194,965
Adj. R^2	0.001	0.050
Precinct FE		✓
SE clustered by precinct	✓	✓

Notes: Dependent variable: individual HISCAM score (occupational prestige, scale 42–98). Unit of observation: individual resident in the 1953 address book. "Admin-allocated" indicates residence in a building owned by government, non-profit housing association, or cooperative. Col. (1): cross-precinct comparison. Col. (2): within-precinct comparison (precinct FE). SEs clustered at precinct level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.21: Expanded Balance: Predictors of Admin-Allocated Housing Share

	(1)	(2)	(3)	(4)	(5)
Amenities ($\hat{\psi}_j^{\text{pre WWI}}$)	0.005				−0.022
	(0.040)				(0.033)
Residual ($\hat{\psi}_j^{\text{pre WWI}}$)	0.038*				−0.001
	(0.022)				(0.014)
SPD vote share (pre-WWI)		−0.115			0.025
		(0.128)			(0.170)
BVP vote share (pre-WWI)		0.047			0.085
		(0.324)			(0.328)
Mean occ. score (pre-WWI)			0.193***		0.184***
			(0.059)		(0.059)
Blue-collar share (pre-WWI)			0.061		0.060
			(0.096)		(0.144)
Household density (pre-WWI)			−0.010**		−0.007**
			(0.004)		(0.003)
Share destroyed (>50%)				0.110	0.074
				(0.156)	(0.145)
HH change 1933–49 (%)				0.061	0.019
				(0.087)	(0.084)
Dist. to city center (m)				−0.000	−0.000
				(0.000)	(0.000)
N	297	297	297	296	296
Adj. R^2	0.151	0.108	0.194	0.125	0.185
District FE	✓	✓	✓	✓	✓

Notes: Dependent variable: share of 1953 precinct residents in admin-allocated housing. Column (1): LASSO components of the pre-WWI HISCAM place premium. Column (2): pre-WWI vote shares. Column (3): pre-WWI occupational composition. Column (4): wartime destruction and geography. Column (5): all predictors combined. All columns include district (Stadtbezirk) fixed effects. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.22: Admin-Allocated Housing: Robustness to Resident Composition and Cooperative Exclusion

	SPD			BVP/CSU		
	(1) Baseline	(2) +Composition	(3) No coop.	(4) Baseline	(5) +Composition	(6) No coop.
Amenities ($\hat{\psi}_j^{\text{pre WWI}}$)	−0.067***	−0.066***	−0.060***	0.046***	0.044***	0.040***
	(0.010)	(0.012)	(0.011)	(0.009)	(0.011)	(0.009)
Amenities × Admin	0.079***	0.081***	0.077***	−0.048***	−0.047**	−0.040
	(0.018)	(0.019)	(0.025)	(0.017)	(0.018)	(0.030)
HISCAM (admin residents)		−0.001			0.001	
		(0.001)			(0.001)	
Blue-collar (admin residents)		0.001			0.001	
		(0.020)			(0.019)	
N	296	238	296	296	238	296
Adj. R^2	0.683	0.688	0.668	0.592	0.582	0.581
District FE	✓	✓	✓	✓	✓	✓

Notes: DV: average post-WWII vote share (1949–1961). Cols. (1),(4): baseline from Table 7, Col. 4. Cols. (2),(5): add mean HISCAM and blue-collar share of admin-placed residents. Cols. (3),(6): admin = government + nonprofit only (cooperatives excluded). All columns include amenity, residual, admin share, and both interactions; only amenity×admin and composition controls shown. District FE throughout. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.23: Confessional Composition Test: Protestant Share Split

	SPD			BVP/CSU		
	(1) Hi-Prot	(2) Lo-Prot	(3) Triple	(4) Hi-Prot	(5) Lo-Prot	(6) Triple
Amenities ($\hat{\psi}_j^{\text{obs}}$)	−0.094***	−0.088***	−0.088***	0.085***	0.065***	0.066***
	(0.010)	(0.012)	(0.012)	(0.009)	(0.010)	(0.010)
Amenities × Admin	0.097***	0.282***	0.287***	−0.079***	−0.220***	−0.226***
	(0.016)	(0.055)	(0.055)	(0.019)	(0.057)	(0.058)
Amenities × Admin × Hi-Prot			−0.194***			0.153**
			(0.057)			(0.060)
Admin share	0.064**	0.078**	0.082**	−0.011	−0.058*	−0.064**
	(0.026)	(0.039)	(0.038)	(0.027)	(0.034)	(0.033)
High Protestant			−0.076***			0.038***
			(0.009)			(0.007)
Amenities × Hi-Prot			−0.006			0.019
			(0.016)			(0.013)
Admin × Hi-Prot			−0.020			0.055
			(0.046)			(0.043)
N	128	168	296	128	168	296
Adj. R^2	0.434	0.202	0.605	0.431	0.170	0.501

Notes: DV: average post-WWII vote share (1949–1961). Cols. (1),(4): precincts in districts with above-mean Protestant share (≥ 14.5%). Cols. (2),(5): below-mean Protestant share. Cols. (3),(6): triple interaction on full sample. High Protestant = 1 for districts with Protestant share ≥ sample mean. Protestant share is from the 1910 Census (district level). Residual and residual interactions included but not shown. All specifications include district (Stadtbezirk) fixed effects. Standard errors clustered at precinct level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.