Where Housing Wealth Sits? Shaping Geography through Distant Assets and Transfers in France

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Abstract

Housing wealth is a critical yet spatially uneven driver of inequality. While prior work has mostly focused on housing values, the role of distant assets from the main home in shaping urban wealth disparities remains unclear. Drawing on linked cadastral and transaction records (2011–2022) from France, we construct the first annual, georeferenced panel of housing wealth for all French homeowners. Our analysis reveals that housing wealth declines with distance from city centers but rises with urban attractiveness, although long-distance assets dampen between-urban area heterogeneity. Transfers disproportionately benefit individuals living in central and high-attractiveness urban areas, whereas they partially redistribute wealth to first suburbs, reflecting the spatial distribution of homeowners and housing market dynamics.

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1 Introduction

Stimulated by the contribution of Piketty and Zucman (2014), research on wealth inequality has expanded rapidly. Recent evidence from the top of the distribution shows a sustained rise in wealth inequality in the United States (Saez and Zucman, 2016), the United Kingdom (Alvaredo, Atkinson and Morelli, 2018), and France (Garbinti, Goupille-Lebret and Piketty, 2021). Looking at the bottom and middle of the distribution, housing occupies a distinctive place in household wealth portfolios as it is simultaneously a consumption good and an investment vehicle. It therefore constitutes households' largest single asset (Jordà et al., 2019). Because housing prices also reflect the bundle of local amenities and public goods available at each location, they vary sharply across space (Kiel and Zabel, 2008). Urban centers command the highest prices, whereas many rural areas have stagnated or declined (Ahlfeldt, Heblich and Seidel, 2023; Eggum and Røed Larsen, 2024).

Although micro-geographic housing-market dynamics are increasingly well documented, the geography of housing wealth itself remains poorly understood. Yet, mapping that geography is essential for at least two reasons. First, it can uncover spatial channels through which wealth inequality evolves. Owners often reside in locations different from those of their rental and second homes properties, so that the pattern of wealth accumulation need not mirror the geography of price growth in combination with the spatial pattern of homeownership. Prior work has examined how the distance between the main home and additional assets shapes transaction prices via information asymmetries (see e.g. Cvijanović and Spaenjers, 2021; Ling, Naranjo and Scheick, 2021), but far less is known about how it affects capital gains and wealth accumulation. The distance between the main home and their other housing assets might export and import capital gains across space, affecting the spatial pattern of wealth accumulation. Second, the distribution of housing wealth likely interacts with local economic activity and amenity provision. Tenure status influences consumption (Sodini et al., 2023), and the settlement choices and purchasing power of wealthy households shape demand and thus prices (Guerrieri, Hartley and Hurst, 2013). Conversely, depressed markets can trap residents and reinforce wealth inequalities. A fine-grained account of the spatial heterogeneity of housing wealth, both cross-sectionally and over time, is therefore required to understand the feedback loop between wealth concentration and local housing markets.

Additionally, the dissimilarity between the geographies of housing wealth and housing value can be fostered through family transfers. Housing represents the main asset in households' portfolios, and despite potential desaccumulation strategies over a lifetime (Yuji Horioka and Ventura, 2024), it remains the main asset to be transferred at death. Family transfers are a powerful driver of inequality persistence (De Nardi, 2004; Boserup,

Kopczuk and Kreiner, 2016; Morelli et al., 2025), although the local consequences of these transmissions remain to be unveiled. We estimate that housing transfers represent one-third of housing mutation in France, supporting a potential large-scale impact on wealth inequality and spatial reallocation. It can affect the spatial distribution of wealth in various ways. Considering that the likelihood of receiving a transfer is conditional on income (Morelli et al., 2021), it may reinforce the pre-existing spatial sorting of income and wealth. Second, accounting for the spatial distribution of homeowners, housing transfers may reallocate wealth spatially through a volume channel, reinforcing the share of distant assets in specific locations. Yet, little attention has been paid to the spatial consequences of housing transfers.

In this broad context, we contribute to the wealth-inequality literature by providing the first nationwide portrait of the spatial distribution of housing wealth in France over 2011-2022 that we apprehend by separating *within*-city from *between*-city patterns. To disentangle these two patterns, we adopt a two-dimensional framework. First, the within-urban dimension is measured by the Euclidean distance between the main residence of each homeowner and the geometric center of her urban area, consistent with the monocentric model in urban economics (Liotta, Viguié and Lepetit, 2022). Second, the *between* urban areas component is captured by an attractiveness rank approach, proxied by the average price per square meter in 2011. Whereas wage and productivity increase with agglomeration size (Graham et al., 2010; Combes et al., 2012; Garcia Marin et al., 2020), we question whether it also conditions wealth accumulation. These two dimensions are complementary, as the polarization of homeownership through space is a major determinant of wealth inequality (Parkhomenko, 2025). Analyzing these axes jointly reveals how housing wealth is organized both within and across urban areas, yielding a portable approach that can be replicated in other countries.

Our empirical evidence is based on a newly constructed original annual panel that links every dwelling in the French cadastral register, which contains the universe of housing units and their homeowners, to its owner for the period 2011-2022. Building on the panelization procedure of Lei et al. (2024), we further extend their procedure in two ways. First, we assess the contemporaneous values for each housing unit every year, accounting for spatial heterogeneity in both cross-sectional and temporal dimensions using flexible specifications with spatial smoothing splines (Wood, 2017), thereby recovering a time-consistent measure of gross housing wealth that omits mortgage debts. Second, we track portfolio adjustments and distinguish pecuniary transactions from non-pecuniary transfers, including bequests and gifts. The resulting dataset offers three decisive advantages. First, because both dwellings and owners are geolocated at the parcel level, we avoid the modifiable areal unit problem as we do not rely on broad administrative boundaries (see e.g. Domènech-Arumí and Gobbi, 2023). Second, we face no representativeness issues

regardless of the dimension of interest due to comprehensiveness. Whereas our data are still imperfect at the top of the distribution, as we do not observe housing held through companies, we can consistently derive results along the spatial dimension for the vast majority of households. Third, the joint observation of residential and asset locations allows us to analyze where wealth matters as opposed to where it sits: economic consequences materialize where owners live (Guerrieri, Hartley and Hurst, 2013; Aiello, Kotter and Schubert, 2022), yet they depend on the geography of the portfolio. Observing owner-asset distances, therefore, unlocks new insights into how housing markets feed back into the distribution of wealth.

Our new evidence is as follows. First, similarly to income, average gross housing wealth declines monotonically with distance from the urban center, yet rises with the attractiveness rank of the city. Over our study period, all locations benefited from housing wealth appreciation between 2011 and 2022, although the magnitude is higher for central areas and top urban areas. Second, we show that spatial diversification, which is owning at least one dwelling outside the main home urban area, distorts the spatial pattern of wealth accumulation. It doubles the annual capital gain of households in the bottom city decile and halves the return gap with top-tier cities previously documented. Short-distance assets chiefly reshape appreciation within urban areas, providing greater wealth accumulation compared to owner-occupiers. Third, and turning to housing transfers, both their probability and their average value fall with distance from the center but rise with city rank. Fourth, non-pecuniary transfers reallocate dwellings away from central and top-ranked markets toward first-ring suburbs and mid-ranked cities. We expect rental housing coming from the best locations to be transferred to individuals living in peripheral areas. Taken together, the first evidence documents where inequality stands, the second stylized fact shows how private investment choices may dampen it, while the last two stylized facts reveal how transfers may reinforce or redirect it.

Our main contribution to the literature is fourfold. First, we extend recent work on the spatial distribution of housing wealth (Hochstenbach, 2018; Arundel and Hochstenbach, 2020; Hochstenbach, 2023) by documenting both within- and between-city disparities for France and showing that the last decade's capital gains have reinforced pre-existing heterogeneity, echoing income patterns (Gaigné et al., 2022). These stylized facts feed the theoretical literature modelling the interactions between location choices, investment decisions, and wealth (Ortalo-Magné and Prat, 2016; Bilal and Rossi-Hansberg, 2021; Brunetti, Gaigné and Moizeau, 2024; Parkhomenko, 2025). Our results are consistent with their predictions, including spatial wealth sorting. Second, we contribute to the literature on bequests and gifts (De Nardi, 2004; Boserup, Kopczuk and Kreiner, 2016; Benhabib, Bisin and Luo, 2017; Nekoei and Seim, 2023), by mapping how these transfers redistribute housing wealth across space and may affect local amenities through con-

sumption or anticipation effects. Family transfers of housing assets are not marginal, which supports the potential for wealth concentration over time. Third, we contribute to studies of buyer-property distance: while distant investors pay an information premium (Cvijanović and Spaenjers, 2021; Ha, Hilber and Schöni, 2021; Ling, Naranjo and Scheick, 2021; Li and Chau, 2023; Kim, 2024) and thus typically buy locally (Peris and Casanova Enault, 2023), we show that long-distance holdings ultimately yield higher wealth accumulation for less attractive places. The wealth accumulation trade-off between a higher purchase price and greater wealth accumulation depends on the holding horizon. Fourth, we provide a reproducible data pipeline to study housing wealth inequality for countries with consistent cadastral and transaction datasets. This blueprint can be applied in any country with comparable administrative microdata.

The paper proceeds as follows. Section 2 describes the cadastral and transaction data as well as the construction of our owner–dwelling panel. Section 3 presents the four stylised facts in turn. Section 4 concludes and outlines avenues for future research.

2 Data construction

To analyze the spatial distribution of housing wealth in France between 2011 and 2022, we mobilize two nationwide fiscal datasets that jointly cover the entire universe of dwellings and their private owners. Starting from the cadastral register (*Fichiers Fonciers*) and the transaction file (DV3F) (Section 2.1), we enrich the database by estimating contemporaneous market values for every unit and flagging transfers (Section 2.2). The resulting annual owner–dwelling panel provides the micro-geographic precision and longitudinal depth required for distributional analysis.

2.1 Data sources

We rely on two complementary administrative sources compiled for tax purposes—property-tax files and transaction records.

Property-tax files (*Fichiers Fonciers*) This register, supplied by the CEREMA[1] lists for every parcel, the property rights attached to land and buildings. Leveraging the individual identification procedure according to the structure type (public, private, social landlords) developed by Lei et al. (2024), we link each right to its holder and obtain a complete inventory of housing assets per person, including gender, age, and municipality of main residence. Dwellings are richly described with features including

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relevant characteristics for tax assessment (floor area, type, year of construction, ancillary facilities such as swimming pool, cellar, or parking lot), and each unit is geolocated at the parcel centroid. Given that 99% of built-up parcels are smaller than 1.38 ha, spatial imprecision is negligible.

Housing Transaction Dataset Since 2010, every conveyance of residential real estate, i.e., sales, exchanges, and expropriations, has been recorded in DV3F.[2] The file adopts the same unit definitions and identifiers as *Fichiers Fonciers*, allowing for seamless linkage. For each event, we observe the date, legal nature, and price, information that underpins our hedonic revaluation of the stock.

Together, these sources deliver complete population coverage, parcel-level spatial accuracy, and matched owner-asset information.

2.2 Data contribution

Our data contribution is twofold. We first impute a market value for every housing unit each year and thereby construct an annual measure of gross housing wealth for every French owner. Second, we exploit the panel dimension to identify ownership changes that arise from non-pecuniary transfers, i.e., gifts and bequests, rather than from market transactions.

Estimation of Individual Housing Wealth. To account for heterogeneity in housing characteristics that affect market value, in particular the characteristics related to housing, we exploit the transaction dataset to set up a mass appraisal model. The model relates the unit price y_{it} of dwelling i at quarter t to its location and its structural characteristics using Equation (1).

$$y_{it} = \alpha + h(z_i, t) + \sum_{j=1}^{J} f_j(x_{jt}) + \mathbf{X}\beta + \varepsilon_{it} \tag{1}$$

with z_i are the spatial coordinates for the location of housing i; x_{jt} is the *j-th* housing characteristics; and ε_{it} is the i.i.d error term.

To model the spatial heterogeneity of housing prices both through the cross-sectional and longitudinal dimensions, we include the spatial coordinates in a bivariate smoothing function (h function) with spatial coordinates as arguments to capture cross-sectional

[2]Only the region Alsace-Moselle is not available due to historical reasons. These areas have an alternative system, named *Livre Fonciers*, inherited from a German law in 1896, as Alsace-Moselle belonged to Germany between 1870 and 1918.

heterogeneity without relying on any spatial boundaries as in fixed effect models. In addition, we interact the spatial smoothing function with time using a quarter discretization to capture heterogeneity through the longitudinal dimension. This mass appraisal model is estimated using penalized Ordinary Least Squares with an endogenous definition of degree of freedom for the spatial smoothing function (Wood, 2017). We also introduce spline functions for structural characteristics (the f_k function) to account for potential non-linearity in variables' contributions. The results' specification is highly flexible.

We estimate the housing value for each housing unit of the entire stock in France annually. Based on the estimation of the market value of each unit, we infer gross housing wealth at the individual level.[3] The implied distributions of gross housing wealth and housing values are shown Appendix A.1. The log-distribution in Appendix A.1 shows a Pareto-like right tail, consistent with Frémeaux and Leturcq (2020). This implies that equal-split imputation understates the top tail but leaves the body of the distribution intact.

Identifying Housing Transfers. We flag a housing unit as transferred in year t when its owner list changes, yet the unit does not appear in DV3F as sold during that year. Housing mutation (regardless of whether it is a sale or a transfer) must be declared to the fiscal administration to be valid. Consequently, the cadastre is updated accordingly to the ownership changes, including both sales and housing transfers. We consider it a housing transfer mutation, any ownership changes that are not triggered by a sale. Reverse matching with the transaction dataset supports our identification method, as more than 99% of sales are matched with an ownership mutation.

The rule provides a conservative count, as transfers followed by an immediate resale are excluded from the calculation. Yet, it guarantees that every event we retain is a genuine non-pecuniary mutation. Tracking these events from 2011 onwards yields the first nationwide dynamic map of transfers of residential property.

2.3 A two-dimension definition for location.

Our spatio-temporal econometric framework exploits the parcel-level accuracy of the cadastral files to locate every owner and every dwelling along two axes: within-urban distance and between-urban attractiveness. This dual lens allows us to separate local effects from wider urban-system heterogeneity.

[3] As we do not observe how housing units are shared among their owners, we assume an equal split of the market value between owners. For instance, if a housing being valued at 200k is shared by four owners, each owner receives 50k.

Urban boundaries. We adopt the delineation of functional urban areas (*aires d'attraction des villes*) from the French National Institute of Economics Studies and Statistics (hereafter INSEE), which groups municipalities according to commuting intensity. Compared with boundaries based on the physical continuity of buildings, we expect this definition to have two main advantages. First, as housing markets and labor markets are closely related, the intensity of commuting is a better proxy to delineate spatial housing markets. Despite the recent development of remote work, housing markets and labor are still likely to overlap spatially. Second, the spatial continuity criterion is less informative, especially in middle and low-density areas where relationships between municipalities do not follow the continuity of spatial buildings.

Residents of the 8,910 rural municipalities that fall outside any functional area, 8.1% of homeowners in 2022, are excluded. Because these places combine low prices with considerable heterogeneity, treating them as a single "residual" area would bias our between-city results. Their omission may therefore slightly understate national wealth dispersion. Sample sizes along each spatial axis are reported in Appendix A.2 and confirm that core and periphery cells remain well populated, being consistent with housing density.

Within-city dimension: distance to the center. In line with the monocentric city model (Fujita, 1989), we measure the Euclidean distance between each observation and the geometric center of its urban area (centroid of the core city defined by the INSEE) and normalize it by the maximum radius so that 0% denotes the core and 100% the periphery. This relative metric abstracts from city size differences and yields a comparable gradient across France. Although the attractiveness of locations depends on accessibility and amenities, a unidimensional quality index can capture the attractiveness of locations within cities (Gaigné et al., 2022). This distance-based definition considers that commuting costs drive most of the quality index.

Between-city dimension: urban attractiveness. The between-urban heterogeneity in housing wealth is a major determinant of wealth inequality (Parkhomenko, 2025). Whereas the biggest cities provide, on average, better wages and better labor productivity due to agglomeration externalities (see e.g. Combes et al., 2012), we empirically test whether it provides better wealth accumulation. To rank cities, we compute the mean 2011 transaction price per square meter from our hedonic model and interpret it as a composite index of accessibility (Gibbons and Machin, 2005) and quality of local amenities, including public goods (Hilber and Mayer, 2009; Banzhaf and Farooque, 2013), providing a proxy of attractiveness. We then assign each functional urban area to one of the 100th percentile groups. This percentile scale captures the full urban hierarchy, from Paris down to small regional centers. Figure 1 provides summary results about the classification process.

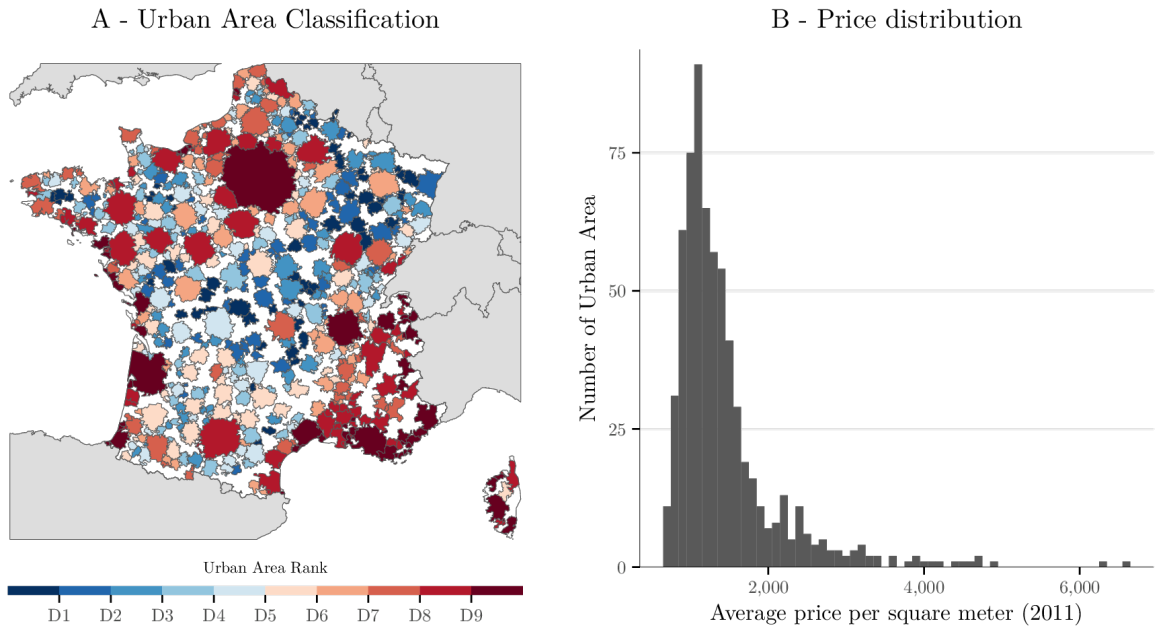

Figure 1: Urban area classification

Notes: This figure shows the classification of urban areas based on the price per square meter in 2011. The left panel shows the entire set of French urban areas and classifies them using a decile rank approach. The right panel shows the distribution of the average price per square meter in 2011.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

2.4 Summary statistics

Housing Market Dynamics. Aggregate real-estate prices dipped slightly between 2011 and 2014 in the wake of the global financial crisis[4] and then rebounded steadily from 2015 onwards, surpassing their pre-crisis peak by 2019. Cumulative appreciation over 2011-2022 outpaced household-income growth, implying a sustained decline in affordability.[5]

Figure 2 visualizes the geography of housing value levels (left panel - A) and growth (right panel - B). First, within functional urban areas, mean values fall monotonically with distance from the center, in line with the monocentric model. Second, between cities, mean values rise with urban attractiveness; Paris tops the hierarchy, followed by Bordeaux and Lyon, both belonging to the top of urban area attractiveness. Moreover, spatial polarization has intensified: the large urban areas recorded average gains exceeding 20% over the decade, whereas many rural markets stagnated or declined, reinforcing the pre-existing dispersion.

[4] See Appendix A.3 for the full time-series of mean, median, and decile price levels.

[5] Appendix A.1 documents the heavy right tail of the 2021 wealth and housing value distributions and motivates our log scaling in Section 3.

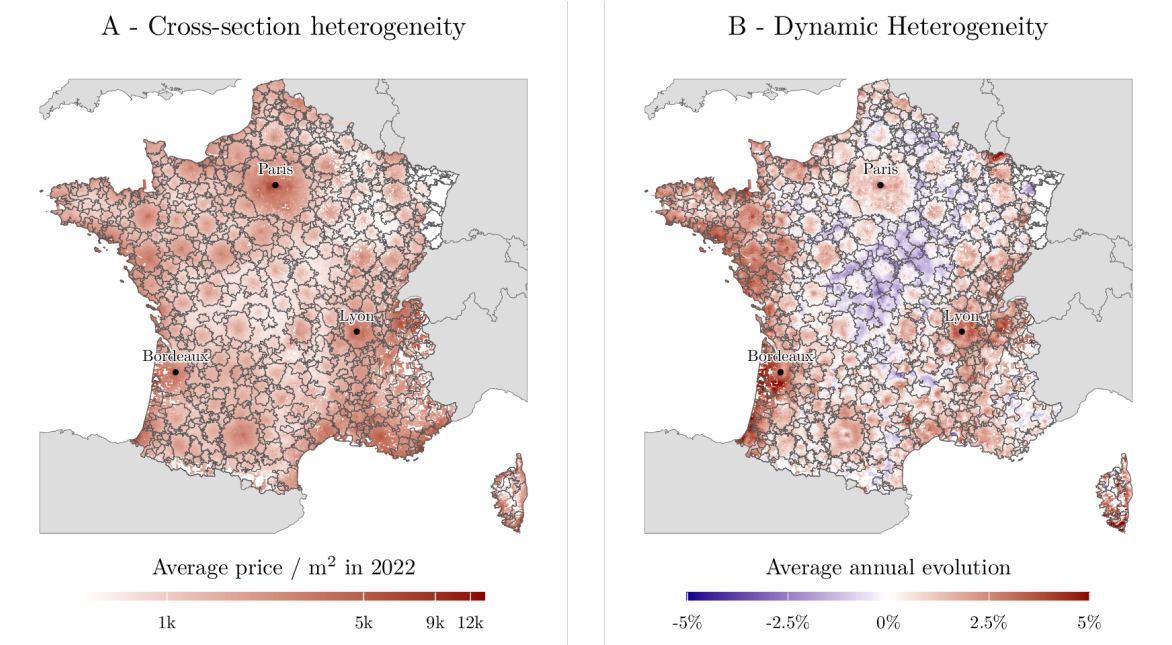

Figure 2: Spatial Distribution of Housing Value and Average Valuation per Year

Notes: The left graph represents the average price per square meter in January 2022, using 1 km-square spatial delineation. The right graph represents the average evolution (geometric average) of price per square meter across space between 2011 and 2022. These values are obtained through the estimation of mass appraisal accounting for housing characteristics and spatial heterogeneity using spatial smoothing splines endogenously defined through Generalized Additive Models (GAM). *Sources:* Authors' calculation based on DV3F and *Fichiers Fonciers*.

Validation with the Wealth Survey. We benchmark our gross wealth estimates against the 2014 and 2020 waves of the French Household Wealth Survey. A percentile-by-percentile comparison (see Appendix A.4) shows close agreement up to the 90th percentile; modest underestimation at the very top reflects the exclusion of property held through investment companies, which are disproportionately owned by the wealthiest households.

Housing Transfers The number of housing mutations that do not correspond to a sale is not negligible, as roughly one-third of ownership changes between natural persons from 2011 to 2022 were gifts or inheritances rather than market sales (Figure 3), a share that remained stable throughout the cycle. Because these events are driven mainly by demographic factors and the inheritance-tax schedule, they potentially introduce a sizable, business-cycle-insulated channel through which wealth is redistributed across space.

These descriptive facts motivate the stylized-fact analysis that follows. In particular, the pronounced core-periphery and between-urban gradients documented here set the stage for Section 3's investigation of how portfolio choices and family transfers shape the evolution of housing-wealth inequality.

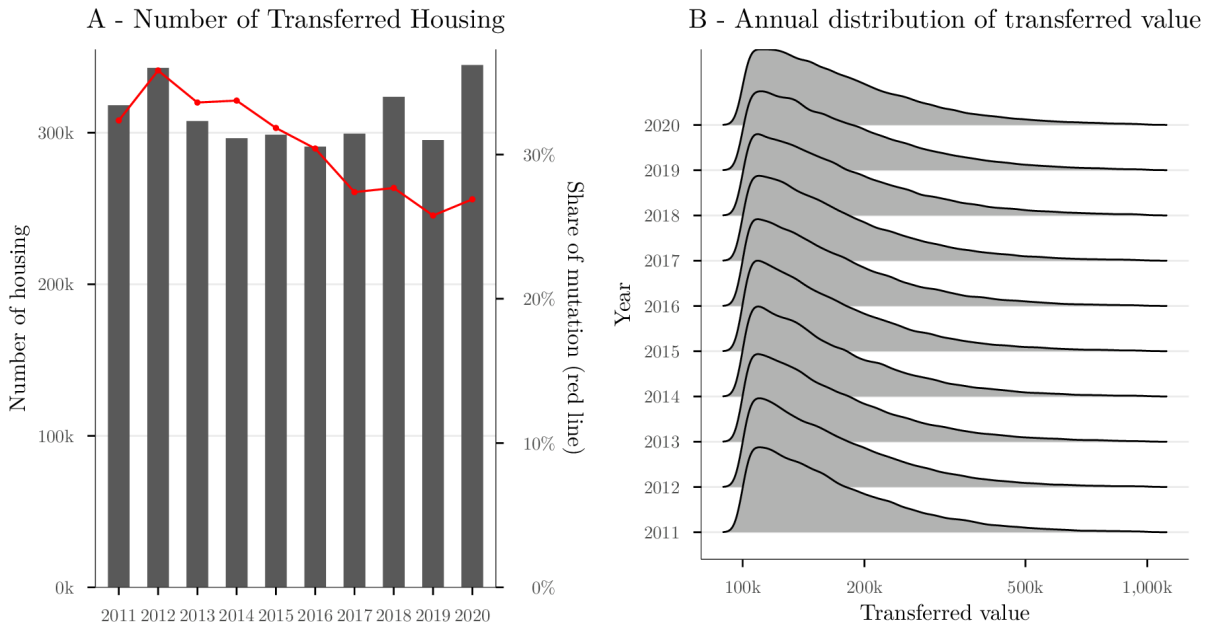

Figure 3: Summary statistics about housing transfers between natural persons

Notes: This figure shows the number of housing units being transferred between individuals (left panel) and the annual distribution of transmission flows (right panel). Transmissions are defined as non-pecuniary housing mutation. We add the share of transmission in the overall number of mutations (adding the sales) in a red line (right axis). For the right panel, values are expressed in euros.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

3 Stylized facts

We document four stylized facts (SF) on the geography of housing wealth in France and its underlying dynamics during 2011-2022. **SF1** locates the inequality: average wealth falls with distance to the urban center but rises with a city's attractiveness rank. **SF2** shows that spatial diversification, i.e., holding at least one dwelling outside the home urban area, doubles the mean annual capital gain for households in the bottom city decile and halves the return gap with top-tier cities. **SF3** reveals that both the probability and the average amount of housing transfers decrease from core to periphery, yet increase with city rank. **SF4** demonstrates that transfers shift housing wealth away from centers and lead markets toward first-ring suburbs and mid-ranked cities. Taken together, SF1 provides the diagnostic, SF2 a market response, and SF3–SF4 two family channels that may amplify or redirect the spatial gradient.

3.1 The spatial distribution of housing wealth

We compute gross housing wealth for every owner in 2011 and 2022 and tabulate the results along the within-between cities definition provided in Section 2.3. We compute these figures for the period 2011-2022 and provide the main results in Figure 4 and

Figure 5.

First, Figure 4 illustrates a clear monocentric pattern for cross-sectional distribution. We identify two parts for the gradient, i.e., the slope of the curve linking average housing wealth with distance to the city center. The average housing wealth decreases sharply with distance from the core of the urban area, up to 20 kilometers. The housing wealth decreased by nearly 100k euros in 2022 between the center of the urban area and locations at 10% of the maximum distance (left panel). After this sharp decrease, the decline becomes more gradual. The same two-slope profile already prevailed in 2011. Dispersion mirrors the mean from the center, although we uncover in this case a U-shaped pattern for the entire distribution (right panel, Figure 4).

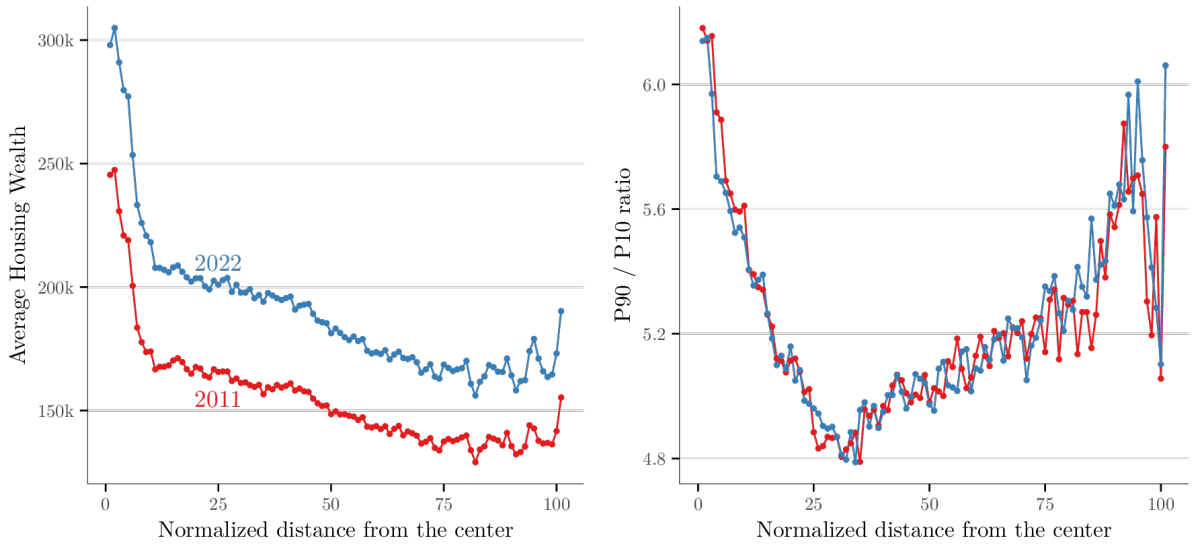

Figure 4: Conditional Housing Wealth Distribution According to Distance from the Center of the urban Area

Notes: This figure shows the heterogeneity for the average (Panel A) and the dispersion (Panel B) of housing wealth based on the location of homeowners within the urban area. We define the location within the urban area as the distance from the core center. The distribution is conditional on the between-urban area location. We take the P90 urban areas as a reference. To account for heterogeneity in the size of the urban area, we normalize this distance. The 0% is the core center of the urban area, while the 100% is the most distant location. Values are expressed in euros.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

When considering the evolution of housing wealth, the increase in average housing wealth documented previously is more pronounced in the city center (a 2.2% annual average, compared to 1.6% in the most distant locations) and in the top-tier urban areas (see in Appendix B.1 for more details). We highlight an increase in wealth levels between 2022 and 2011, regardless of the location of homeowners within the urban area. On the contrary, the local dispersion of housing wealth remains stable.

Second, Figure 5 shows that the gross housing wealth increases monotonically with the attractiveness of the urban areas of the main home. Whether we consider 2011 or 2022, the mean housing wealth increases continuously to reach nearly 300k per homeowner in the

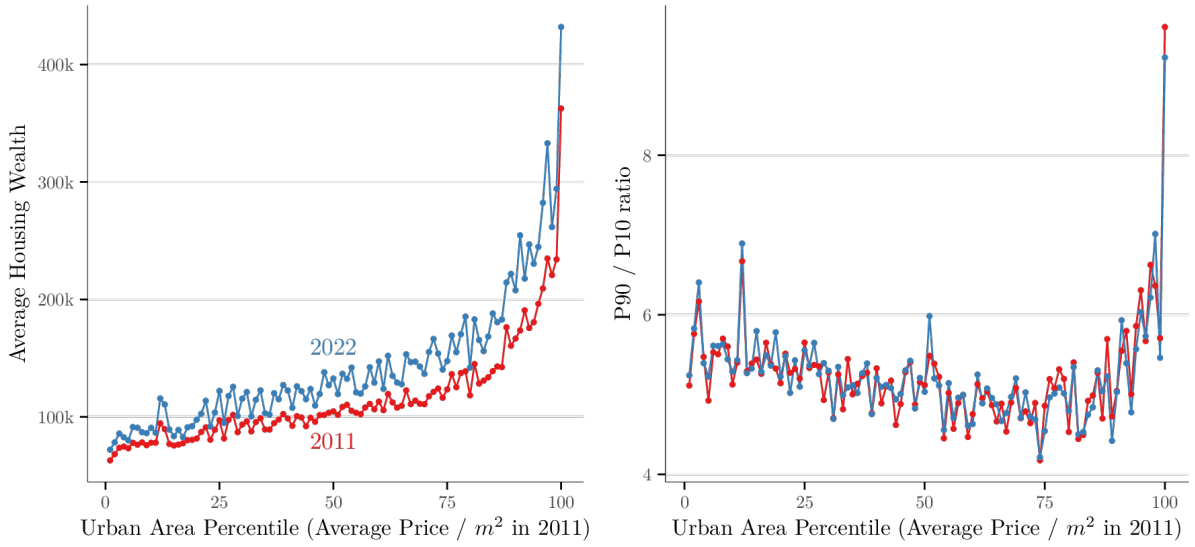

Figure 5: Conditional Housing Wealth Distribution According to Attractiveness of the Urban Area

Notes: This figure shows the distribution for the average (Panel A) and the dispersion (Panel B) of housing wealth based on the location of homeowners between urban areas, conditional on their location within the urban area. We take the 10% distance from the center as a reference for the location within the urban area. The percentile rank is based on the average price per square meter in 2011. Values are expressed in euros.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

top urban areas (left panel, Figure 5). Dispersion follows a U-shaped pattern (right panel), indicating that large, expensive markets contain both very wealthy owner-occupiers and more modest investors. Over the decade, appreciation was strongest in high-ranked cities, widening the gap with medium and low-ranked areas.

Overall, location is therefore pivotal: central urban households and residents of attractive cities hold markedly more housing wealth, and recent price dynamics have reinforced these two axes of inequality. Additional housing assets to the main home exacerbate spatial heterogeneity in housing prices. In the remainder of the section, we examine whether portfolio choices based on the distance between assets and the main home (SF2) and between-generational transfers (SF3 and 4) sharpen or soften the disparities documented here.

3.2 Long-distance assets: Boosting returns and narrowing between-urban gaps

We next ask whether homeowners export or import capital gains across space by holding properties outside their city of residence. For that purpose, we compute the annual appreciation for housing wealth at the individual level between 2011 and 2022 for three groups of homeowners. First, we consider owner-occupiers. Their housing wealth is only derived from their main home. Second, we consider homeowners with short-distance assets

in addition to their main home. This group is composed of homeowners who are owner-occupiers, while they own additional housing assets only within the same urban areas where they live. Third, we consider homeowners with long-distance assets in addition to their main home. These individuals are owner-occupiers and hold at least one asset in an alternative urban area to the one they live in. We restrict our sample to individuals who experience no changes in their portfolio to avoid capturing changes for residential mobility and portfolio increase. For this analysis, we group urban areas according to their decile rank rather than percentile one for clarity reasons.

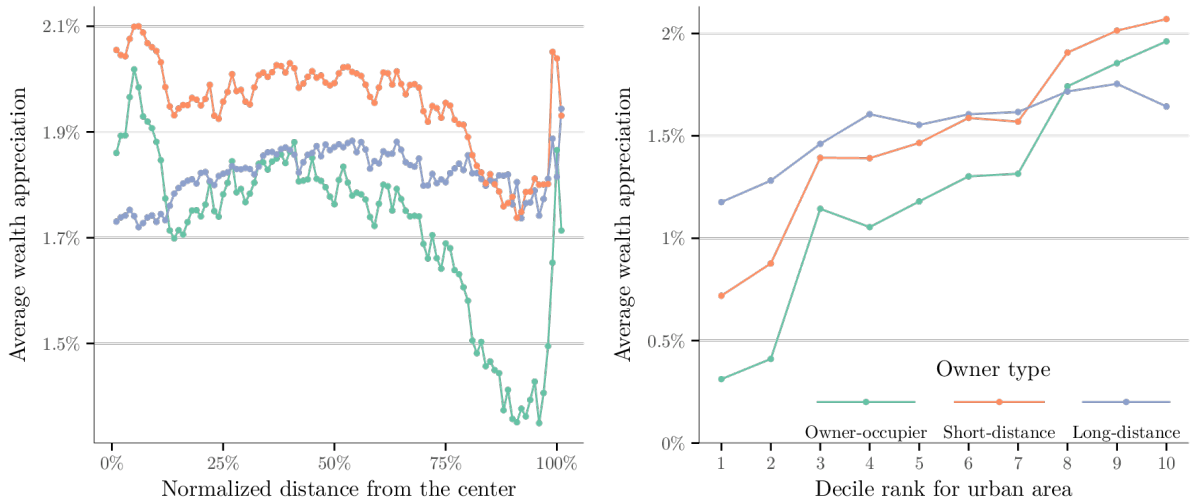

Figure 6: Average wealth appreciation according to location and owner category

Notes: This figure shows the average annual wealth appreciation between 2011 and 2022 based on the location of individuals. The left panel focuses on the within-urban-area distribution, while the right panel focuses on the between-urban-area heterogeneity. Our sample of individuals is restricted to individuals who do not change their portfolio allocation between n and $n+1$. We then compute the individual wealth appreciation. We aggregate the wealth appreciation based on the location for all years between 2011 and 2022. We distinguish homeowners according to whether they have only a main residence, short-distance assets, or long-distance assets in their portfolios.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

Focusing first on long-distance homeowners, we find that whatever the distance to the city, these owners benefit from the highest wealth appreciation. The difference is particularly pronounced in the urban areas that belong to the bottom 20 (right panel, Figure 6). The wealth appreciation for owner-occupiers (that benefit only from the local dynamics) is lower than 0.5%, whereas it is above 1% for individuals having distant housing assets. The difference between assets' locations and the main home enables homeowners to benefit from alternative local dynamics, providing greater wealth returns than their local counterparts. We still observe a gap between individuals having distant housing assets in the middle of the distribution; however, the difference is smaller. Finally, for homeowners living in the top urban areas, local owner-occupiers and short-distance investors benefit from greater wealth accumulation. As a consequence, the between-urban return gap identified in SF1 shrinks by roughly one-half once portfolio geography is taken into account.

Short-distance assets also affect the wealth appreciation heterogeneity within urban areas (left panel, Figure 6). Regardless of the distance from the center, individuals with short-distance assets in their portfolios benefit from higher returns than owner-occupiers. We expect these short-distance assets to be located in the center of urban areas and placed on the rental market. Considering that the value appreciation is higher in the center (see owner-occupier line, left panel, Figure 6), it increases wealth appreciation. In the meantime, there is a significant between-urban return gap for these short-distance owners and owner-occupiers (right panel).

Holding the horizon, therefore, matters: short-distance purchases sharpen within-city inequality, whereas long-distance diversification levels returns between cities. Indeed, spatial diversification reallocates capital from markets with sluggish growth to those with stronger fundamentals, such as large employment bases or powerful amenity bundles, thereby allowing owners in lagging areas to import returns generated elsewhere. Portfolio geography thus could be viewed as a market hedge that partially offsets the spatial gradient in housing-wealth growth documented in Section 3.1.

In sum, SF2 reveals an active behavioral channel that tempers between-urban inequality: long-distance assets lift returns for the bottom of the city hierarchy and hence compress the national distribution of capital gains. The next two sections turn to transfers to see whether they amplify, neutralize, or counteract this market-based convergence.

3.3 Wealth Locked In: Housing Transfers Favor Attractive Places

Non-market transfers are a major non-market conduit through which housing wealth moves between households. Exploiting the matched owner–dwelling panel described in Section 2), we compute—by location and year—the frequency with which a homeowner receives a dwelling from family and the average (and median) value of such transfers.

Figure 7 reveals strong heterogeneity in the likelihood of receiving a transfer according to homeowners' location within an urban area. The frequency is highest in the center of the urban area (A Panel), while it sharply decreases until reaching 10% of the size of the urban area. Differences are highly significant, as the frequency is above 5% in the core center, whereas it is under 1% after 10%. From 10%, we find no further evolution in the frequency of receiving housing from family.

Computing the average and the median values received from family for homeowners receiving a housing transfer (right panel, Figure 7), we find a similar pattern. Homeowners living in the center of the urban area receive, on average, higher values than their counterparts in the periphery. The average value then decreases continuously with distance. The pattern is similar when considering the median value. Hence, homeowners living in the center of the urban area are more likely to receive a transfer and benefit from a higher

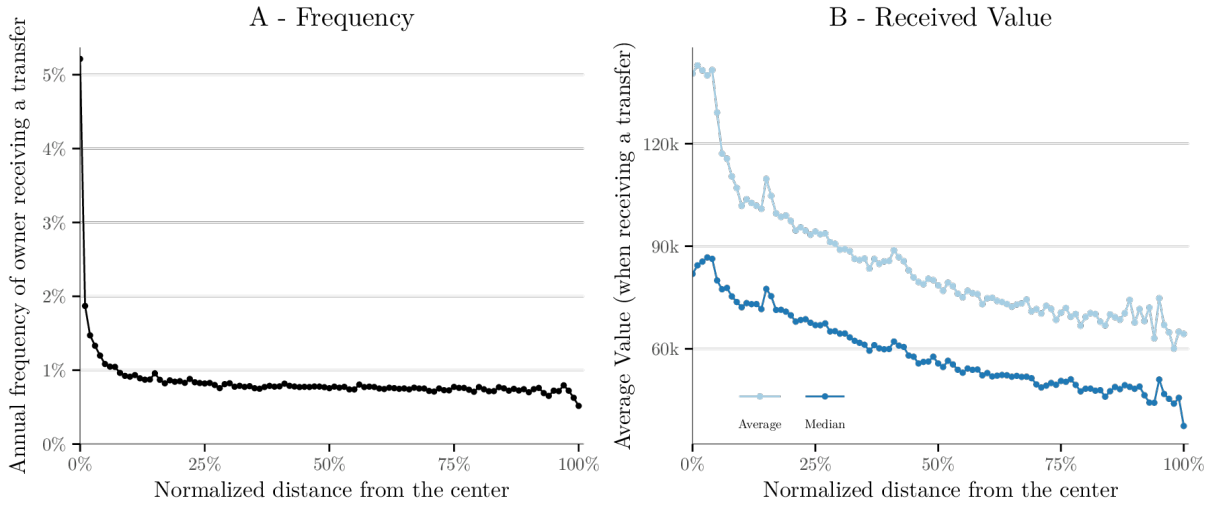

Figure 7: Heterogeneity in housing transmission within urban areas

Notes: This figure shows both the frequency (Panel A) and the value (Panel B) pattern according to homeowners' location within urban areas. The frequency is computed as the average ratio per year between the number of recipients and the total number of homeowners for each location. The value pattern is computed by restricting our sample to individuals who receive a housing transfer. The light blue line is the average, whereas the dark blue line represents the median. To account for heterogeneity in the size of urban areas, we normalize the distance. Values are expressed in euros.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

transfer than other homeowners.

Turning to the between-urban dimension, we compute how both frequency and transmission value are distributed between urban areas (Figure 8). First, the frequency increases with the attractiveness of the urban areas (Panel A), although variations along the gradient are higher compared to the within distribution. The heterogeneity between urban areas is more modest than the heterogeneity we highlight within urban areas. The top frequency reaches nearly 1.2%, far below the 5% within-city maximum.

However, the between-urban heterogeneity is more important when considering the value of the housing transfer (right panel, Figure 8). The transfer value increases continuously with the urban area percentile, and exhibits a stronger increase among the top urban areas. Then, transfers to residents of Paris and other top-ranked areas exceed those to households in the bottom quartile by a factor of four. Hence, location within the city chiefly governs whether one receives a transfer, whereas the city's position in the urban system dictates how much is received.

Overall, SF3 thus uncovers an off-market mechanism that can reinforce the gradients documented in SF1. While long-distance investments (SF2) help compress between-urban return gaps, the geographic skew in transfer channels adds additional housing wealth toward already advantaged central districts and highly ranked cities. The next section focuses on the spatial reallocation of housing wealth.

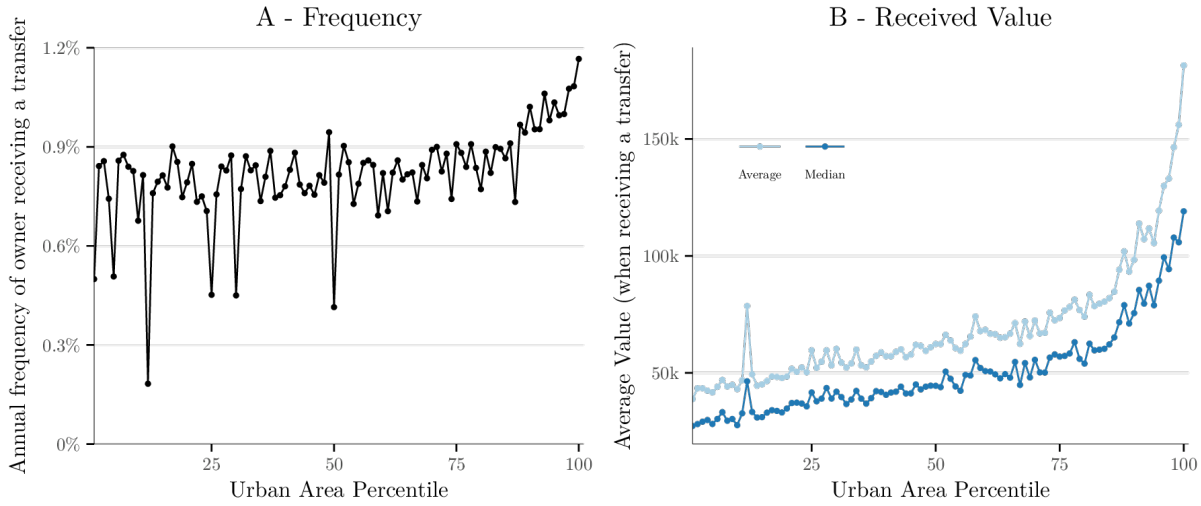

Figure 8: Heterogeneity in housing transmission between urban areas

Notes: This figure shows both the frequency (Panel A) and the value (Panel B) pattern according to homeowners' location between urban areas. The frequency is computed as the average ratio per year between the number of recipients and the total number of homeowners for each location. The value pattern is computed by restricting our sample to individuals who receive a housing transfer. The light blue line is the average, whereas the dark blue line represents the median. The percentile rank is based on the average price per square meter in 2011. Values are expressed in euros.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

3.4 The spatial reallocation of housing wealth through transfers

Whereas a homeowner's location is a major determinant for both frequency and value being transmitted, housing transmissions might reallocate housing assets to alternative locations. Despite heterogeneity in frequency highlighted in SF3, the volume of homeownership and related family transfers may change how wealth is distributed overall. Hence, we compute for each location the outgoing value, i.e., housing assets in the location being transferred to individuals living in an alternative location, and the ingoing value, i.e., housing assets located in an alternative location being transferred to individuals living in the location of interest.

First, we highlight an imbalance between urban areas (left panel, Figure 9). The top 5% of urban areas accounted for 28% of all transfers but received only 12% of inherited inflows, implying a marked net outflow toward mid-ranked cities. Considering the within-urban area pattern (right panel, Figure 9), the center of the urban area is loss-making while the first periphery (from 10% to 30% from the center) highlights positive value differentials. The location at the largest distance from the center is also loss-making. Consequently, cores export both physical dwellings and capital gains to their immediate periphery. These results are confirmed by the map (bottom panel, Figure 9), as we demonstrate that the balance for the center of the top urban areas between ingoing and outgoing flows is negative. Conversely, the first periphery mostly exhibits a positive balance.

Focusing on Paris more specifically, we compute both outgoing and ingoing flows resulting

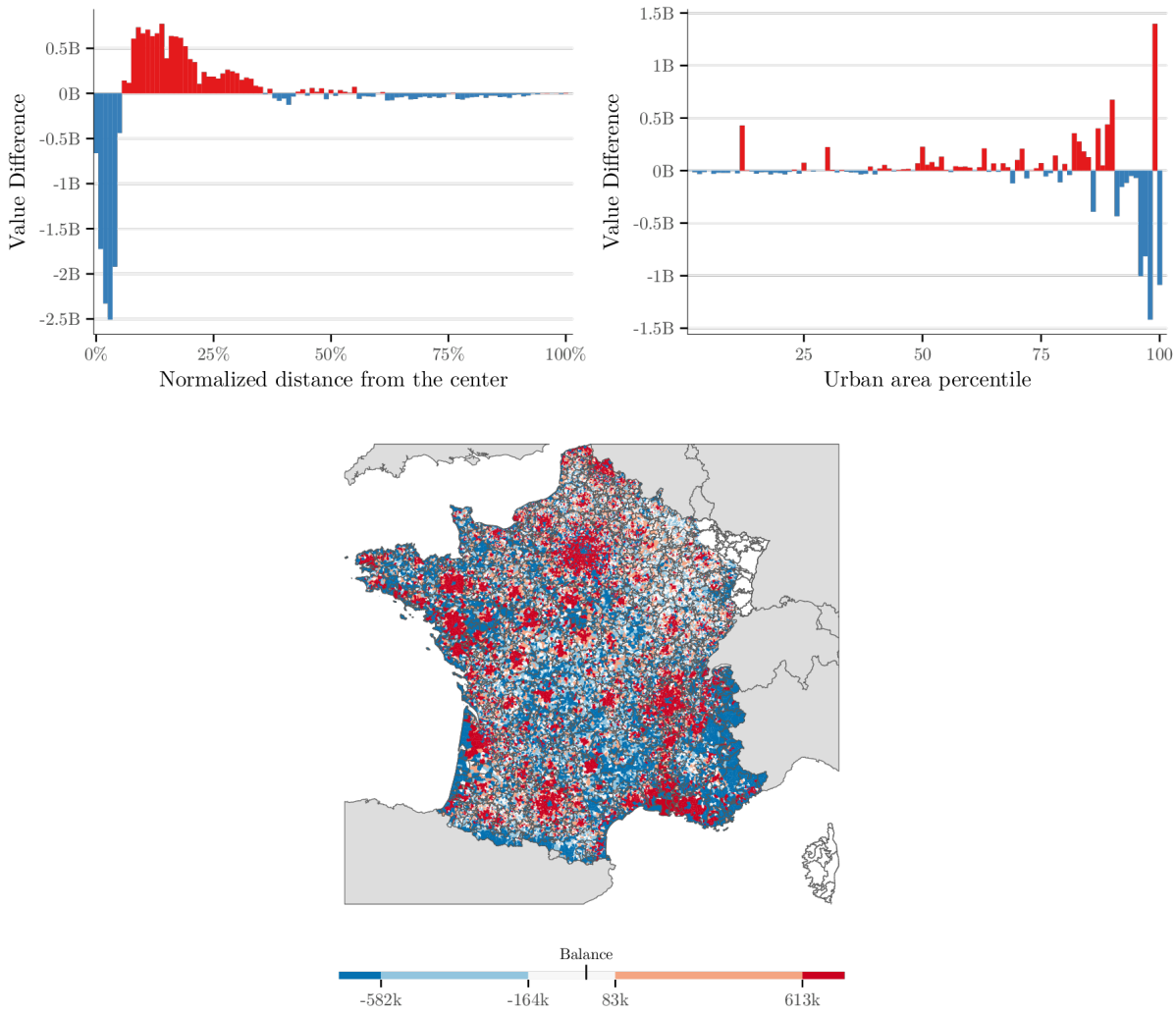

Figure 9: Value differential between housing location and recipients' location

Notes: Panel A represents the difference at the municipality level between the ingoing value (housing units being located outside the municipality being received per individuals living inside the municipality) and the outgoing value (housing units being located in the municipality being transferred to recipients living outside the municipality). Red values (respectively blue) indicate that ingoing flows are higher (respectively lower) than outgoing flows, i.e., a concentration of housing wealth based on inheritance. The B panel represents the monetary flows distribution associated with housing inheritance according to distance. We use a logarithm transformation for the x-axis.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

from transfers (Figure 10). Spatial flows concern the entire country, with specific relationships with big regional urban areas. In addition, we highlight a significant flow coming from the French Riviera, which might result from second homes.

The major singularity of Paris concerns the connection with the entire country, unlike alternative urban areas (see from Appendix B.2 to Appendix B.4 for equivalent maps centered on Lyon, Marseille-Aix, and Lille). Inheritance flows for medium-sized urban areas mainly concern the closest urban areas, which might indicate a regional similarity between individuals and housing assets from their parents. Paris is the exception, which might be explained by the higher mobility rate in this urban area, thus mitigating the relationship between the parents' location and the children's location.

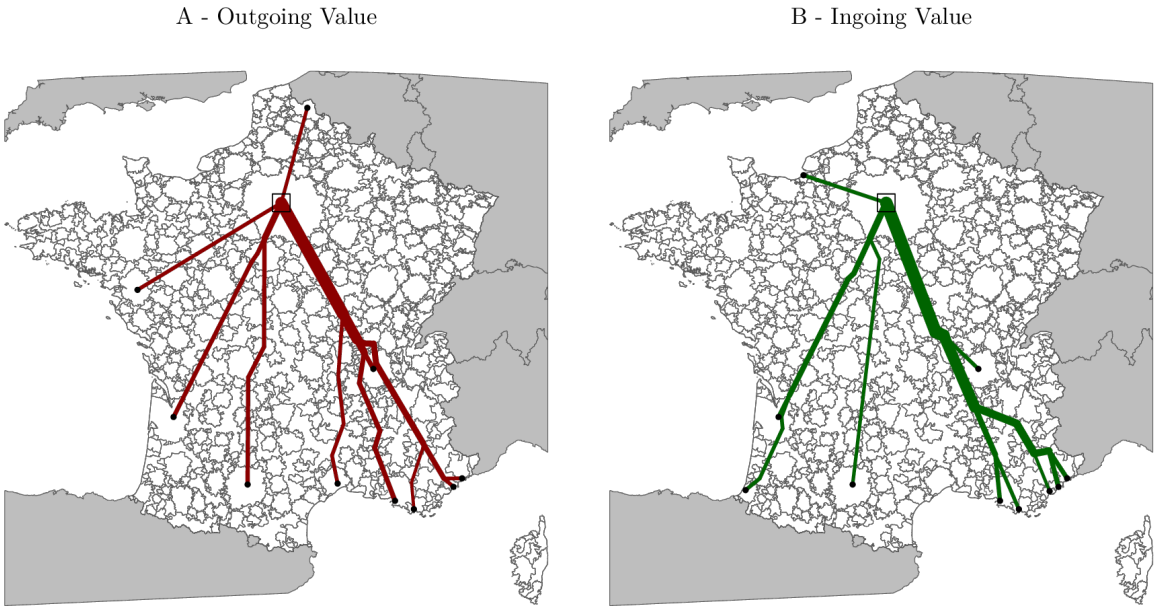

Figure 10: Main ingoing and outgoing flows for inheritance associated with Paris

Notes: The A panel (respectively the B panel) represents the main outgoing (respectively ingoing) flows coming from the urban area of interest, i.e., housing located inside (respectively outside) the Paris urban area being transferred to individuals living outside (respectively inside) the Paris urban area. The linewidth is proportional to the monetary flows. Results for alternative urban areas are available from Appendix B.2 to Appendix B.4.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

4 Conclusion and discussion

This paper has provided the first nationwide portrait of the geography of housing wealth in France for the period 2011-2022, using geo-referenced cadastral and transaction data enhanced by the linkage procedure of Lei et al. (2024). The resulting owner–dwelling panel enables us to locate every asset and owner at the parcel level, track individual capital gains over time, and distinguish between pecuniary and non-pecuniary ownership changes. Leveraging these features, we have documented four stylized facts that illuminate how market behavior and transfers jointly shape spatial inequality.

First, average gross housing wealth declines monotonically with distance from the urban center, yet rises with a city's attractiveness rank; dispersion is highest in the cores of top-ranked areas. Second, spatial diversification—owning at least one dwelling outside the home urban area—doubles annual capital gains for owners in bottom-tier markets and thus halves the between-urban return gap, whereas additional local holdings mainly sharpen the core–periphery gradient. Third, the likelihood and mean amount of housing transfers peak for residents of central districts and attractive cities, potentially reinforcing the gradients revealed in Fact 1. Fourth, transfers move dwellings from central and top-ranked markets toward first-ring suburbs and mid-ranked cities. Together, these facts show where inequality stands, how portfolio choices can temper it, and how channels such

as housing transfers may amplify or redirect it.

Our methodological approach in distinguishing "within-city" and "between-city" wealth accumulation patterns provides a nuanced understanding of spatial inequalities in housing wealth. The use of the Euclidean distance to measure within-urban wealth dynamics, grounded in the monocentric model of urban economics, allows us to capture the degree to which capital gains are concentrated in central locations. This is complemented by the attractiveness rank approach, which considers differences in housing prices across urban areas as a function of their rank, helping to uncover the broader forces that shape wealth accumulation between cities. While this method is robust in revealing the spatial heterogeneity of wealth, it remains one of many possible empirical approaches. Alternative models, such as those incorporating agglomeration externalities more directly or using finer-grained spatial units, could further enrich our understanding. However, the "within" and "between" distinction offers clear advantages in terms of interpretability and comparability across locations, facilitating insights into how spatial sorting and investment choices drive wealth inequalities. The joint use of these dimensions, while comprehensive, may also obscure some more localized dynamics, especially in cities with complex spatial structures or in the presence of overlapping residential and commercial markets.

The focus on housing wealth as a primary indicator of wealth inequality, while valuable, also warrants careful consideration of its limitations. By concentrating on real estate as a central asset class and ignoring other forms of wealth, such as financial assets or business ownership, we inevitably present an incomplete picture of overall wealth disparities. Furthermore, our analysis of gross housing wealth, excluding the costs of mortgages and other liabilities, may underestimate the true net wealth of homeowners. Given that housing is often leveraged, the exclusion of mortgage debt likely inflates the wealth values, particularly for younger households or those in high-debt regions. Additionally, by treating housing wealth as a uniform asset, we do not account for the potential diversity in asset composition across owners, such as whether they hold additional assets outside the housing market. These omissions, however, should not diminish the significance of our findings; rather, they suggest that the disparities we observe may be even more pronounced when considering these other factors. In fact, accounting for such dimensions would likely reinforce the spatial inequalities we describe, as those with greater leverage or more diversified portfolios may experience more pronounced wealth concentration in urban centers, exacerbating spatial wealth divides.

The findings raise three directions for future research. First, the generalization of our results to other contexts might suffer from differences between countries. Considering that we rely only on cadastral data and transaction datasets, it would be of interest to assess whether we find similar spatial structures in other countries to clarify whether the French pattern is exceptional or typical. Second, because housing value capitalizes local

amenities and public goods, the geography of wealth may itself reshape neighborhood quality; measuring these externalities is crucial for place-based policy. Finally, as homeownership becomes harder to attain, it remains to be tested whether access to opportunity-rich areas is driven more by current income or by parental housing wealth. Answering these questions will deepen our understanding of the nexus between housing markets, spatial development, and wealth inequality.

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Appendices

A Descriptive Statistics

A.1 Distribution of Wealth and Housing Value in 2021

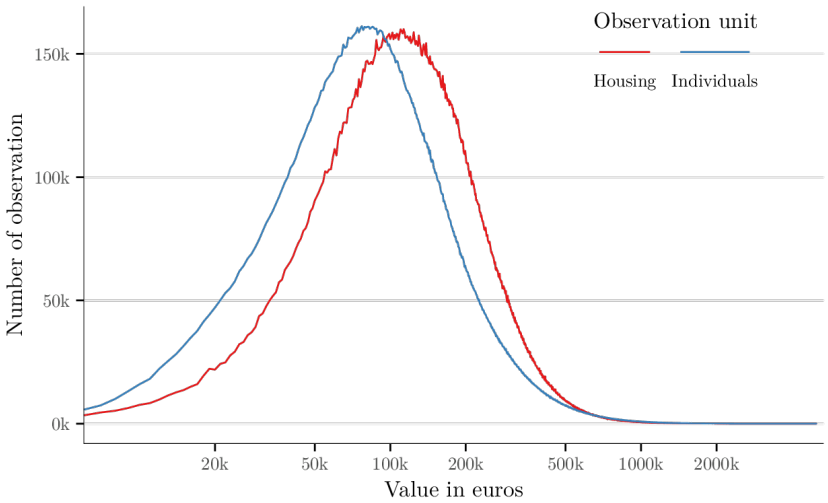

Figure A.1.1: Log-distribution of individuals' gross housing wealth and housing value in 2021

Notes: This figure shows the log-distribution of gross housing wealth (blue line) and housing value (red line) in 2021. This distribution is derived from the property tax files enhanced with housing value estimation. The distribution is restricted to natural persons. The gross housing wealth is restricted to housing units directly held. Hence, it does not include housing wealth detained through companies. We count individuals using an aggregation of 1k width.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

A.2 Number of individuals and housing units per location

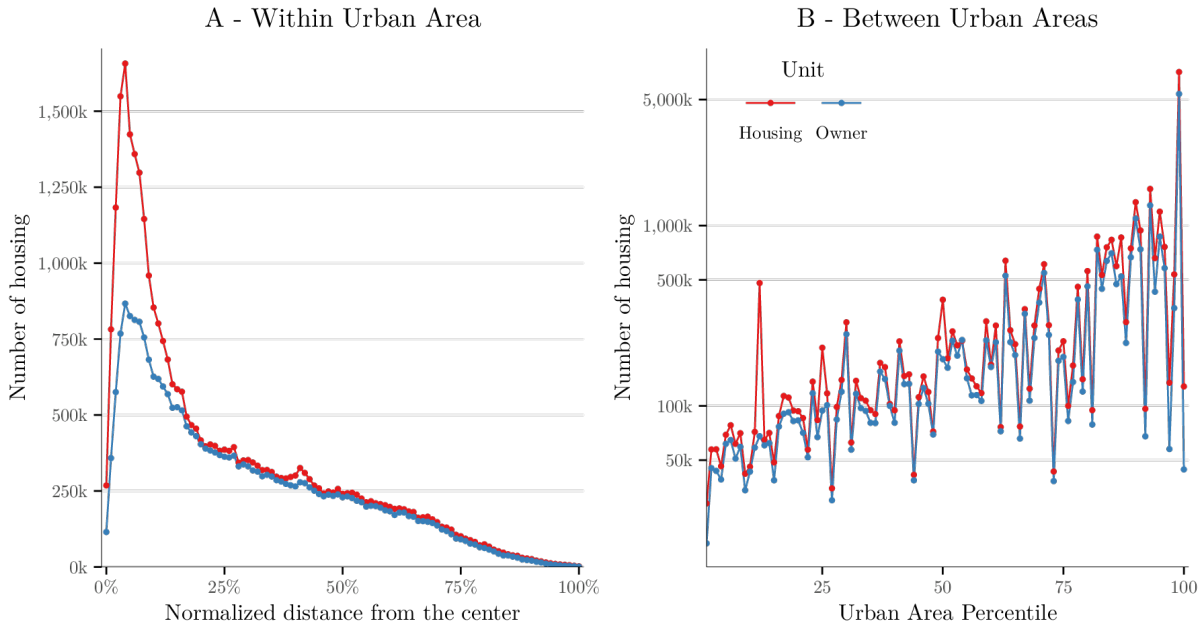

Figure A.2.1: Number of individuals and housing units per location in 2022

Notes: This figure shows both the number of owners and housing units in each location, considering our two-dimensional definition for space. The left panel considers the within-urban area location, with distance ranging from 0 (the center of the urban area) to 100% (the most distant location). The right panel considers the dimension between urban areas. Urban area is grouped according to the percentile of average price per square meter in 2011.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

A.3 Evolution of Housing Price (Aggregate Measure)

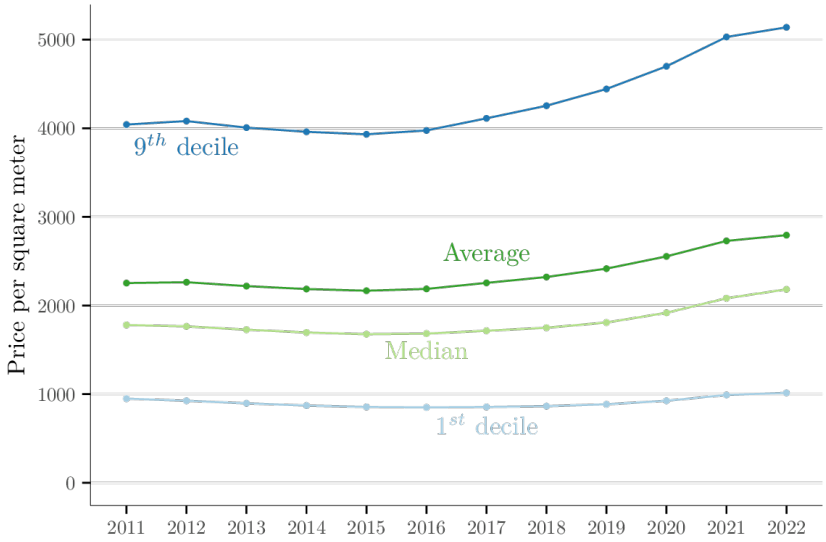

Figure A.3.1: Evolution of housing price per square meter in France

Notes: This figure provides for each year key metrics about the price per square meter distribution. It includes the average (dark green), the median (light green), the 9^{th} decile (dark blue), and the 1^{st} decile (light blue). These metrics are derived from the assessment of housing value. Values are expressed in euros per square meter.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

A.4 Validation with the Wealth Survey

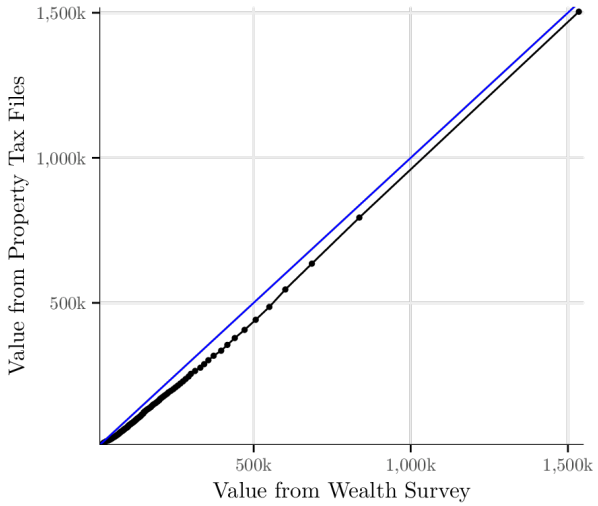

Figure A.4.1: Validation of Gross Housing Wealth Measure

Notes: This figure shows the correlation between gross housing wealth derived from the wealth survey (x-axis) and our value derived from property tax data improvements (y-axis). Each point represents a percentile. The blue line represents the identity function. Values are expressed in euros. The R-squared for the univariate regression equals 0.997.
Authors' calculation based on DV3F and Fichiers Fonciers, and wealth survey.

B Additional Results

B.1 Heterogeneity in Wealth Appreciation

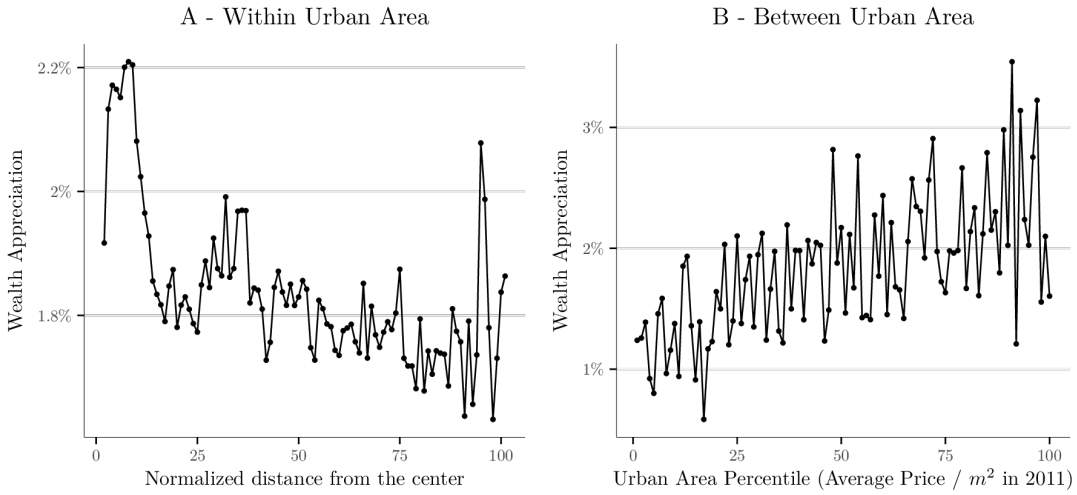

Figure B.1.1: Heterogeneity in Housing Wealth Appreciation According to Owners' Location

Notes: This figure shows the heterogeneity for the wealth appreciation between 2022 and 2011 for within-urban area location (Panel A) and between-urban area (Panel B). We define the location within the urban area as the distance from the core center. The location between urban areas is defined using an urban rank, based on the average price per square meter in 2011. To account for heterogeneity in the size of the urban area, we normalise this distance. The 0% is the core center of the urban area, while the 100% is the most distant location. Values are expressed in overall percentage evolution.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

B.2 Spatial Flows of Housing Inheritance (1)

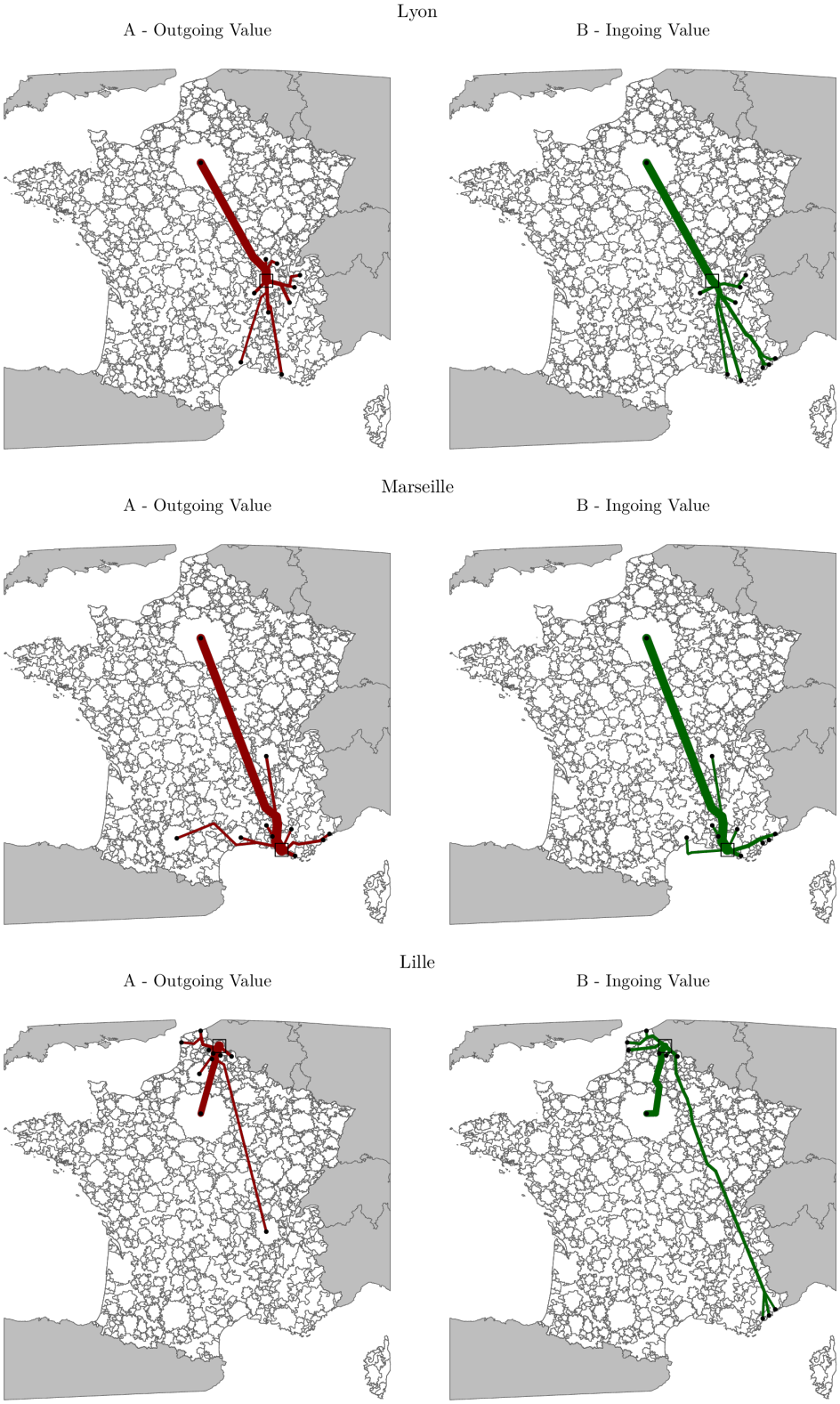

Figure B.2.1: Spatial Flows of Housing Inheritance (Part 1)

Notes: The A panel (respectively the B panel) represents the main outgoing (respectively ingoing) flows coming from the urban area of interest, i.e., housing located inside (respectively outside) the urban area being transferred to individuals living outside (respectively inside) the urban area. The linewidth is proportional to the monetary flows.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

B.3 Spatial Flows of Housing Inheritance (2)

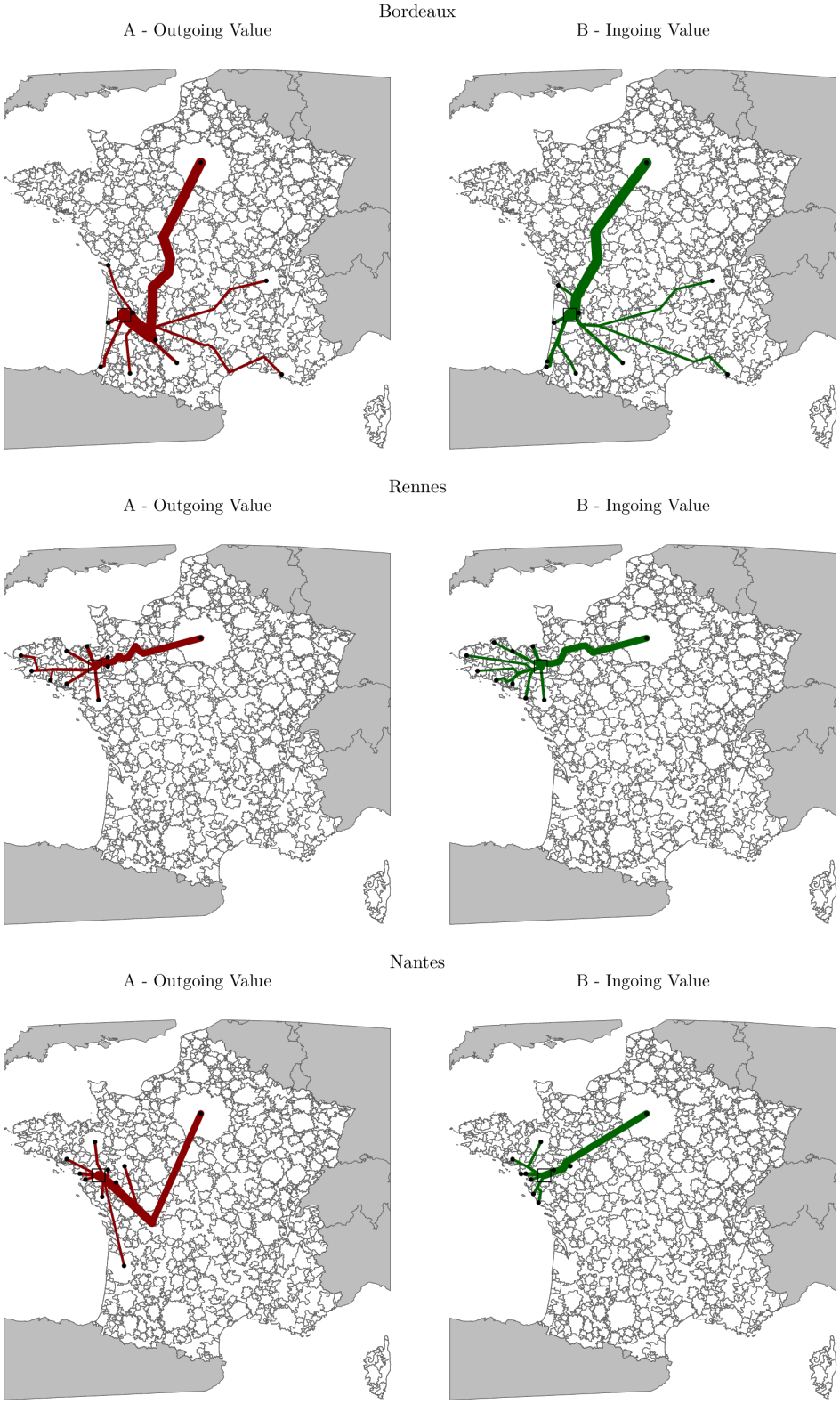

Figure B.3.1: Spatial Flows of Housing Inheritance (Part 2)

Notes: The A panel (respectively the B panel) represents the main outgoing (respectively ingoing) flows coming from the urban area of interest, i.e., housing located inside (respectively outside) the urban area being transferred to individuals living outside (respectively inside) the urban area. The linewidth is proportional to the monetary flows.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

B.4 Spatial Flows of Housing Inheritance (3)

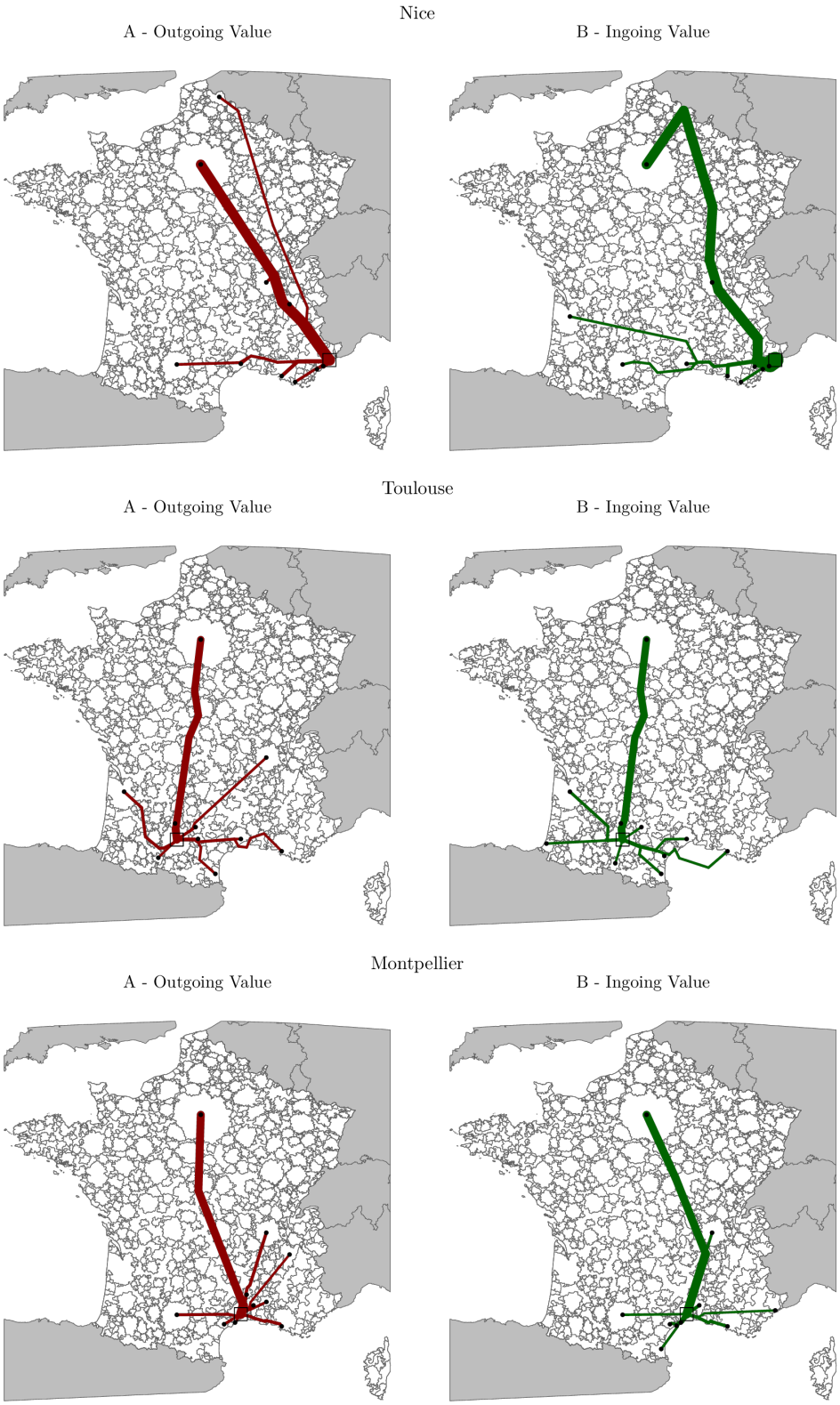

Figure B.4.1: Spatial Flows of Housing Inheritance (Part 3)

Notes: The A panel (respectively the B panel) represents the main outgoing (respectively ingoing) flows coming from the urban area of interest, i.e., housing located inside (respectively outside) the urban area being transferred to individuals living outside (respectively inside) the urban area. The linewidth is proportional to the monetary flows.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.