Where Housing Wealth Sits? Evidence from a Linked Owner-Dwellings Database, France 2011–2022

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Abstract

Drawing on linked cadastral and transaction records that cover the universe of French homeowners from 2011 to 2022, we construct an annual, geo-referenced panel of housing wealth for each owner by valuing every dwelling with a hedonic mass-appraisal model, accounting for spatial heterogeneity both in cross-section and dynamic dimensions. We document four stylized facts. First, within urban areas, average housing wealth declines monotonically with distance between owner main home and city centre, while between urban areas it rises with a price-based index of market attractiveness. Second, households that hold at least one property outside their main urban area earn, on average, twice the annual capital gains of similar owners in bottom-tier markets, cutting the inter-urban return gap by one-half. Third, both the probability and the average value of inter-vivos housing transfers peak for residents of central and top-ranked urban areas. Fourth, these transfers redistribute housing wealth from city centres and leading markets to first-ring suburbs and mid-ranked urban areas. Taken together, these findings map the geography of French housing wealth and show how portfolio choices and transfers shape its evolution.

JEL classification: R31 ; R12 ; D31 ; C21

Keywords: housing wealth; administrative micro-data; capital gains; inheritances; spatial inequality.

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1 Introduction

Stimulated by the seminal contribution of Piketty and Zucman (2014), research on wealth inequality has expanded rapidly. Recent evidence shows a sustained rise in 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), with particular attention to the top of the distribution. Housing occupies a distinctive place in household wealth portfolios: it is simultaneously a consumption good and an investment vehicle, and 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). Metropolitan xcentres command the highest prices, whereas many rural areas have stagnated or declined. These spatial price gradients translate into heterogeneous capital gains and, ultimately, divergent paths of wealth accumulation (Wind and Hedman, 2018).

Although micro-geographic housing-market dynamics are increasingly well documented (see e.g. Ahlfeldt, Heblich and Seidel, 2023; Eggum and Røed Larsen, 2024), the geography of housing wealth itself remains poorly understood. Yet, mapping that geography is essential for two reasons. First, it can uncover spatial channels through which wealth inequality evolves. Owners often reside in locations different from those of their rental properties, so the pattern of wealth accumulation need not mirror the geography of price growth in combination to the spatial pattern of homeownership. Prior work has examined how buyer-property distance 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 such spatial diversification affects capital gains. 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.

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. To disentangle *within*-city from *between*-city patterns, we adopt a two-dimensional framework. First, the intra-metropolitan dimension is measured by the Euclidean distance between the main residence of each homeowner and the geometric centre of her urban area, consistent with the monocentric model in urban economics (Liotta, Viguié and Lepetit, 2022). Second, the *between* metropolitan areas component is captured by an attractiveness rank approach,

proxied by the average price per square meter in 2011. Whereas productivity and labour income increases with agglomeration size (Graham et al., 2010; Combes et al., 2012; Garcia Marin et al., 2020), we question whether the most attractive cities provide greater level of wealth accumulation. Analysing these axes jointly reveals how housing wealth is organised both inside and across markets, and yields a portable approach that can be replicated in other countries.

Our empirical evidence rests on a newly constructed 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 2011-2022. Building on the panelisation procedure of Lei et al. (2024), we extend these improvements in two ways. First, we assess the contemporaneous values for each housing unit every year, accounting for spatial heterogeneity both in a cross-sectional and the temporal dimensions using flexible specifications with spatial smoothing splines (Wood, 2017), thereby recovering a time-consistent measure of gross housing wealth. 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 and remain independent of 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, we can consistently derive results along the spatial dimension. Third, the joint observation of residential and asset locations allows us to analyse where wealth matters as opposed to where it sits: economic consequences materialise 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 stylised facts are as follows. First, similarly to income, average gross housing wealth declines monotonically with distance from the metropolitan centre, yet rises with the attractiveness rank of the city. Moreover, over our study period, all locations benefit from 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 home urban area, i.e., assets located in another urban area than the homeowner lives in, doubles the annual capital gain of households in the bottom city decile and halves the return gap with top-tier cities identified in Stylized Fact 1. Short-distance additions, by contrast, chiefly reshape appreciation within urban areas. Third, and turning to potential mechanisms, both the probability and the average value of housing transfers fall with distance from the centre but rise with city rank. Fourth, 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 stylized fact 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). Second, we speak 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 consumption or anticipation effects. 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—a trade-off that depends on holding horizon. Fourth, we provide a reproducible data pipeline to study housing wealth inequality for countries having consistent cadastral and transaction datasets. This blueprint can be applied in any country with comparable administrative micro-data.

The paper proceeds as follows. Section 2 describes the cadastral and transaction data and 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 analyse the spatial distribution of housing wealth in France between 2011 and 2022, we mobilise 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 relevant characteristics for tax assessment (floor area, type, year of construction, ancillary facilities such as swimming pool, cellar, 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, ie, sales, exchanges, expropriations, has been recorded in DV3F.[2] The file adopts the same unit definition and identifiers as *Fichiers Fonciers*, allowing seamless linkage. For each event, we observe the date, legal nature, and price, information that underpins our hedonic revaluation of the stock and the distinction between pecuniary transactions and non-pecuniary transfers.

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. Building on the enriched cadastre assembled by Lei et al. (2024), we first impute a market value for every housing unit each year and thereby construct an annual measure of gross housing wealth for every owner. Second, we exploit the panel dimension to identify ownership changes that arise from non-pecuniary transfers, ie. 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,

[1] *Centre d'Expertise sur les Risques, l'Environnement, la Mobilité et l'Aménagement.*

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

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 and its location 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 idiosyncratic 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 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 annually the housing value for the entire housing stock in France. Based on the estimation of the market value of each asset, we infer gross housing wealth at the individual level. As we do not observe how housing units are shared among their owners, we assume an equal split of the market value between owners.[3] We acknowledge that this assumption slightly understates the very top tail and gender gaps, but it still reproduces the overall wealth distribution with high fidelity. The implied distributions of individual gross housing wealth and housing values is shown Appendix A.1. The log-distribution in Appendix A.1 show a Pareto-like right tail, consistent with Frémeaux and Leturcq, 2020. This reassures us that equal-split imputation understates the top tail but leaves the body of the distribution intact.

Identifying Housing Transfers We flag a dwelling as transferred in year t when its owner list changes, yet the unit does not appear in DV3F as sold during that year. The rule furnishes a conservative count as transfers followed by an immediate resale are missed. 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.

[3]For instance, if a housing being valued at 200k is shared by four owners, each owner receives 50k.

2.3 A two-dimension definition for location

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

Metropolitan boundaries We adopt the functional urban areas (*aires d'attraction des villes*) delineated by INSEE, which group municipalities according to commuting intensity. Compared with boundaries based on the physical continuity of buildings, we expect the first definition to have two main advantages. First, as housing markets and labour 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 labour 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. The same holds for housing (Appendix A.3).

Between-city dimension: metropolitan attractiveness To rank cities, we compute the mean 2011 transaction price per square metre 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 100 percentile groups. This percentile scale captures the full urban hierarchy, from Paris down to small regional centres. Figure 1 provides summary results about the classification process.

Within-city dimension: distance to the centre In line with the monocentric city model (Fujita, 1989), we measure the Euclidean distance between each observation and the geometric centre of its metropolitan area (centroid of the INSEE city core) and normalise 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.

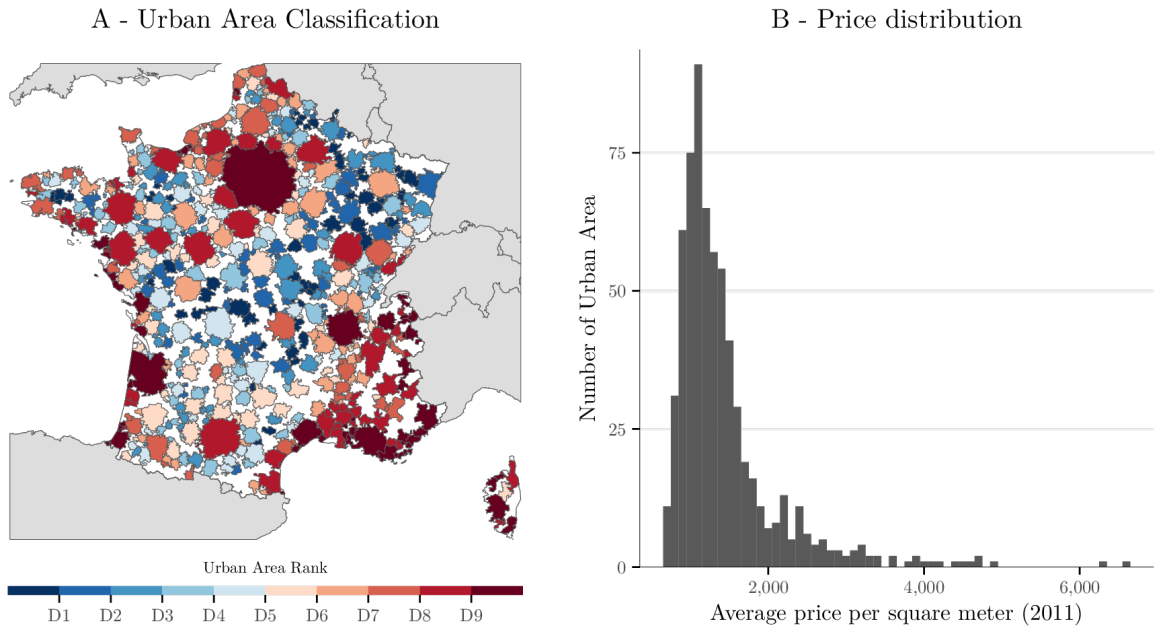

Figure 1: Urban area classification

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 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 visualises 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 centre, in line with the monocentric model. Second, between cities, mean values rise with metropolitan attractiveness; Paris tops the hierarchy, followed by Bordeaux and Lyon. Moreover, spatial polarisation has intensified: the large metropolitan areas recorded average gains exceeding 20% over the decade, especially in Paris, Bordeaux, and Lyon, whereas many rural markets stagnated or declined, reinforcing the pre-existing dispersion.

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-

[4] see Appendix A.4 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.

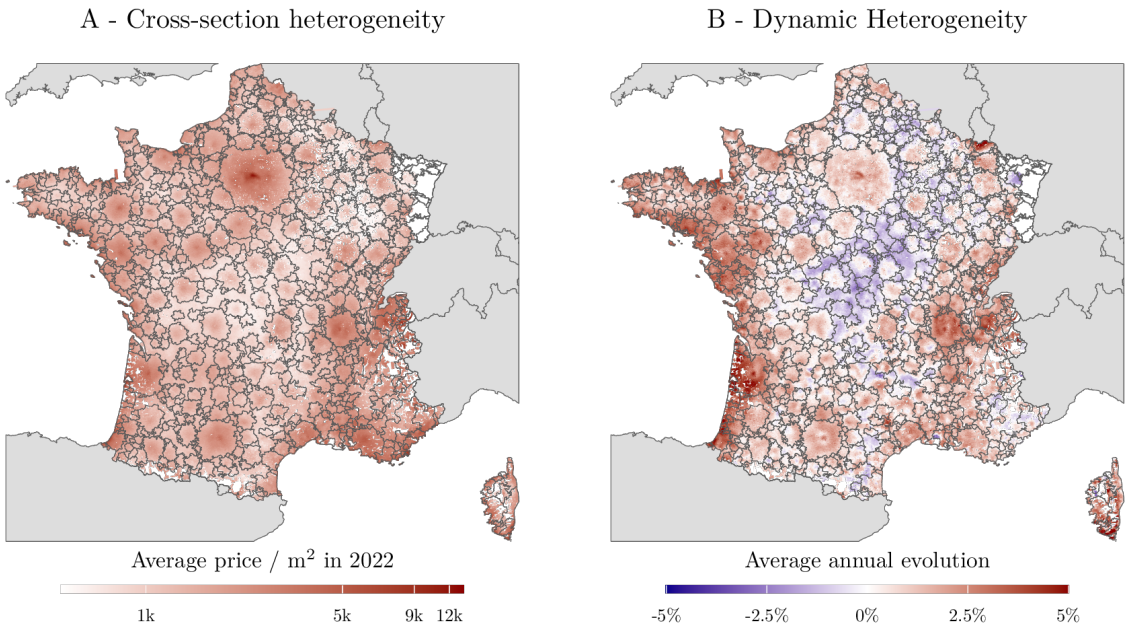

Figure 2: Spatial Distribution of Housing Value and Average Valuation per Year

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 GAM.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

by-percentile comparison (see on Appendix A.5) 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 over 2011-2022 were gifts or inheritances rather than market sales (Figure 3), a share that remained stable through the cycle. Because these events are driven mainly by demographic factors and the inheritance-tax schedule, they introduce a sizeable, business-cycle-insulated channel through which wealth is redistributed across space, as we show below.

These descriptive facts motivate the stylised-fact analysis that follows. In particular, the pronounced core-periphery and inter-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.

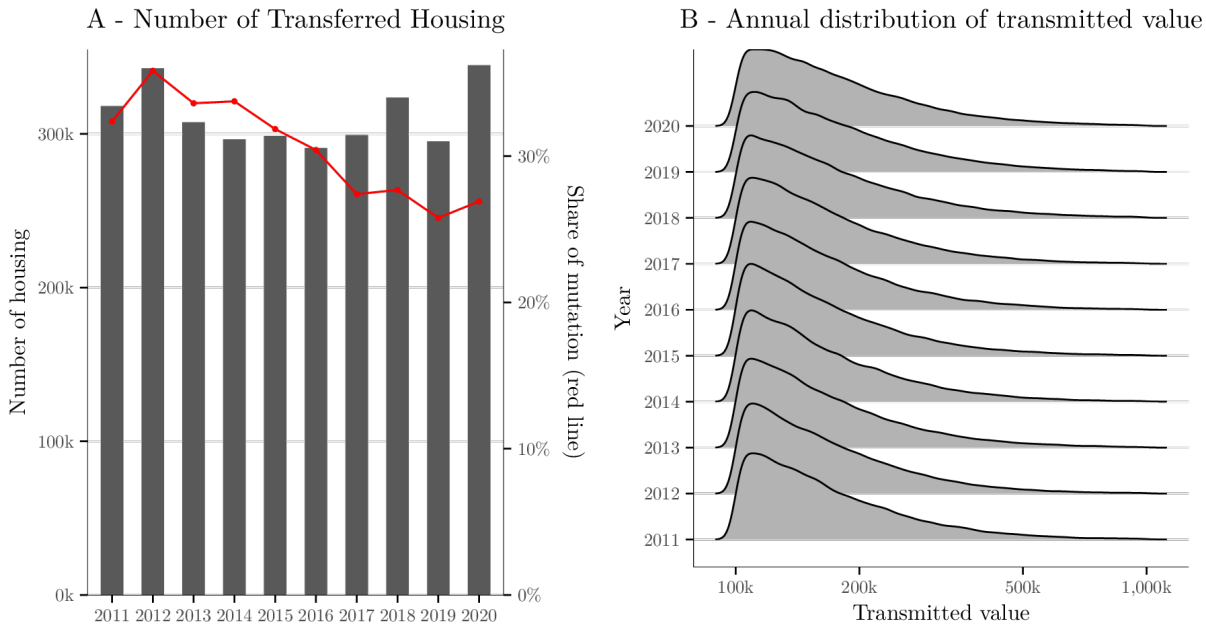

Figure 3: Summary statistics about housing transfers between natural persons

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 mutation (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 stylised facts (SF) on the geography of housing wealth in France during 2011-2022. **SF1** locates the inequality: average wealth falls with distance to the metropolitan centre 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 centres and leading 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 two-dimensional spatial grid defined in Section 2.3. We compute these figures for the period 2011-2022 and provide main results in Figure 4 and Figure 5.

First, Figure 4 illustrates a clear monocentric pattern. More precisely, we identify two parts for the gradient, i.e. the slope of the curve linking average housing wealth with distance to the city center. First, the average housing wealth decreases sharply with distance in the core of the urban area. The housing wealth decreased by nearly 100k euros in 2022 between the center of 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: the centre exhibits high dispersion, which hosts both the wealthiest and the poorest owners (right panel, Figure 4).

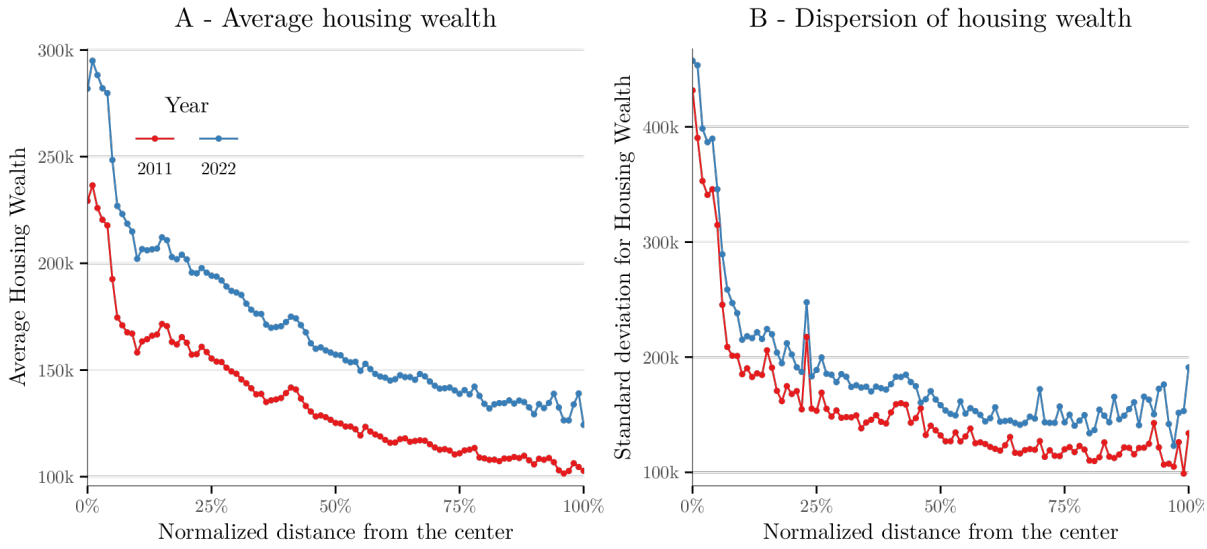

Figure 4: Heterogeneity in Housing Wealth According to Distance from the Center of the Metropolitan Area

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. 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 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 quite evenly distributed (see in Appendix B.1 for more details). We highlight an increase in wealth level between 2022 and 2011, regardless of the location of homeowners within the urban area. Similarly, the dispersion increases between 2022 and 2011 for all locations, although the center of the urban area seems to be slightly less affected.

Second, the gross housing wealth increases monotonically with the attractiveness of the urban areas where the homeowners live (Figure 5). Whether we consider 2011 or 2022, the mean housing wealth increases continuously to reach nearly 300k per homeowner in the top urban areas (left panel, Figure 5). Consequently, the heterogeneity is more pronounced between urban areas than within urban areas. Dispersion follows the same

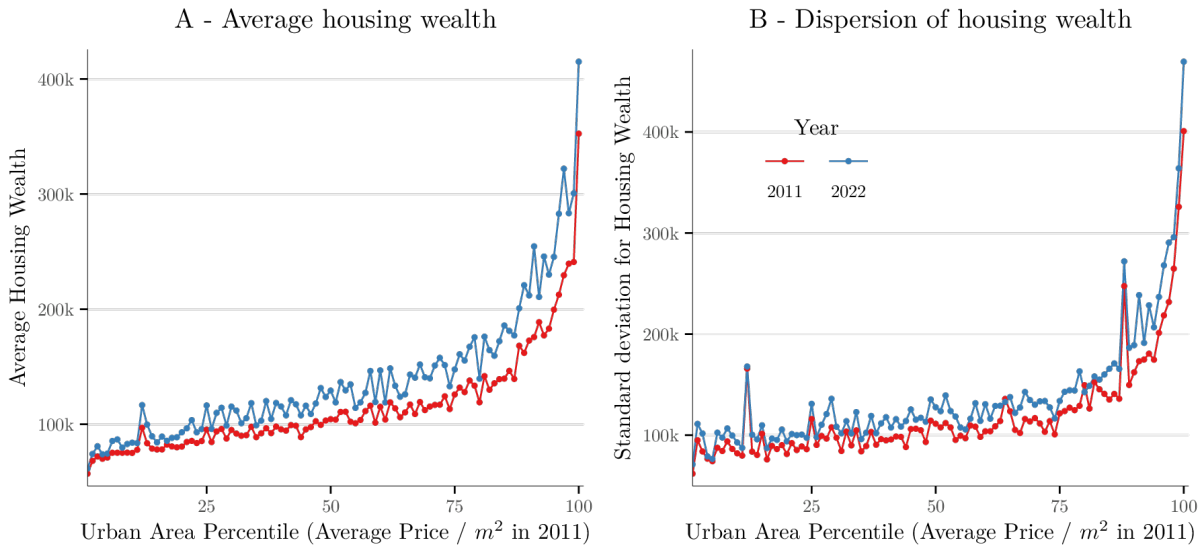

Figure 5: Heterogeneity in Housing Wealth According to Attractiveness of the Urban Area

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 between urban areas. 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*.

upward trend (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. In the remainder of the section, we examine whether portfolio choices (SF2) and inter-generational transfers (SF3 and 4) sharpen or soften the disparities documented here.

3.2 Long-distance assets: Boosting returns and narrowing inter-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 residence. Second, we consider homeowners with short-distance assets in addition to their main residence. 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 residence. 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. For this analysis, we group urban areas according to their decile rank rather than percentile one for clarity reasons. Figure 6 displays the results.

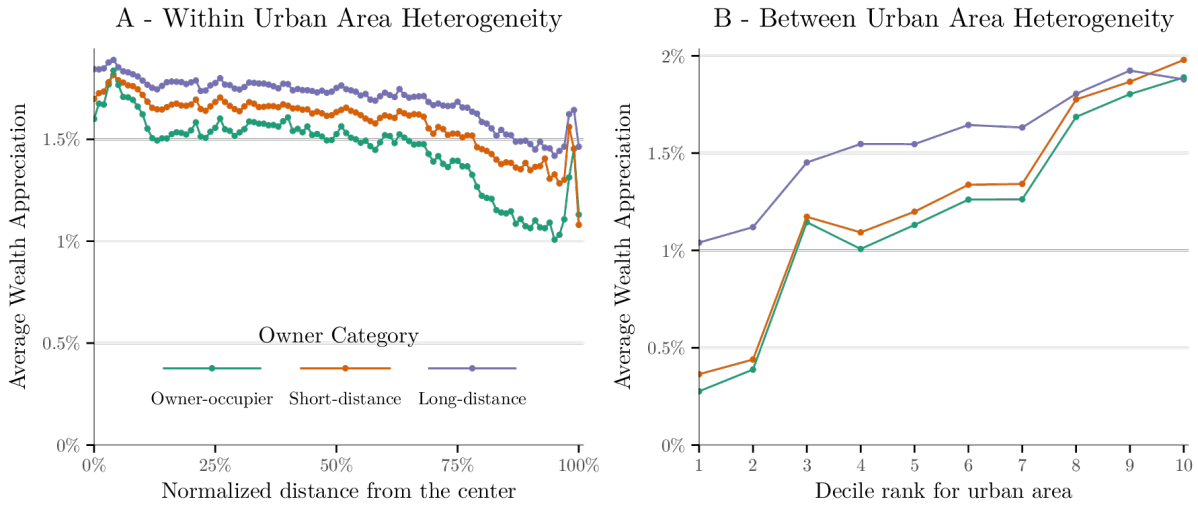

Figure 6: Average wealth appreciation according to location and owner category

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 spatial diversification of the portfolio then enables homeowners to benefit from alternative local dynamics, providing greater wealth returns. We still observe a gap between individuals having distant housing assets for the middle of the distribution, yet the difference is smaller. Finally, for homeowners living in urban areas belonging to the top of the distribution, differences between the two groups are marginal. As a consequence, the inter-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 having 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 the wealth appreciation. However, there is no significant inter-urban return gap between these short-distance owners and owner-occupiers (right panel).

Holding horizon therefore matters: short-distance purchases sharpen intra-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 acts 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 behavioural channel that tempers inter-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, neutralise or counteract this market-based convergence.

3.3 The uneven distribution of transfer's recipients over space

While previous papers highlight the importance of intergenerational transmission to explain the level of wealth inequality, the spatial distribution of recipients and related housing flows remains to be unveiled. Indeed, 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 frequency of transmission of the homeowners' location within an urban area. The frequency is the 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 value being 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 transfer than other homeowners. These patterns help explain why wealth remains highly

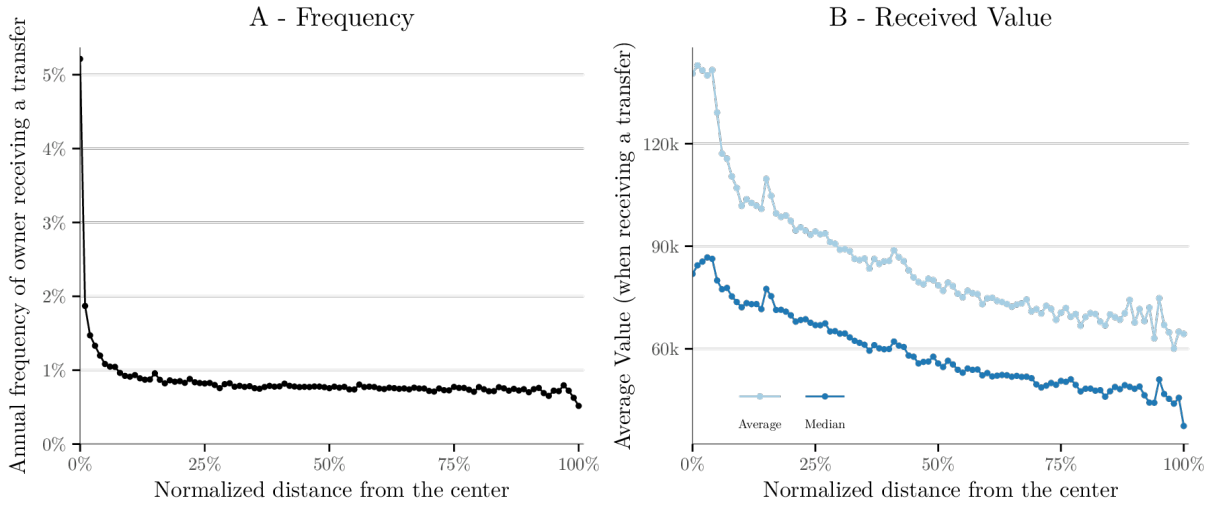

Figure 7: Heterogeneity in housing transmission within urban areas

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*.

concentrated in city centres even after controlling for local price appreciation.

Turning to the inter-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 the variations are less consistent compared to the within distribution. The heterogeneity between urban areas is more modest as the one we highlight within urban areas. The top frequency reaches nearly 1.2%, far below the 5% the within-city maximum.

However, the inter-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 a non-market mechanism that can reinforce the gradients documented in SF1. While long-distance investments (SF2) help compress inter-urban return gaps, the geographic skew in transfers channels additional housing wealth toward already advantaged central districts and highly ranked cities. The next section focuses on the spatial reallocation of housing wealth.

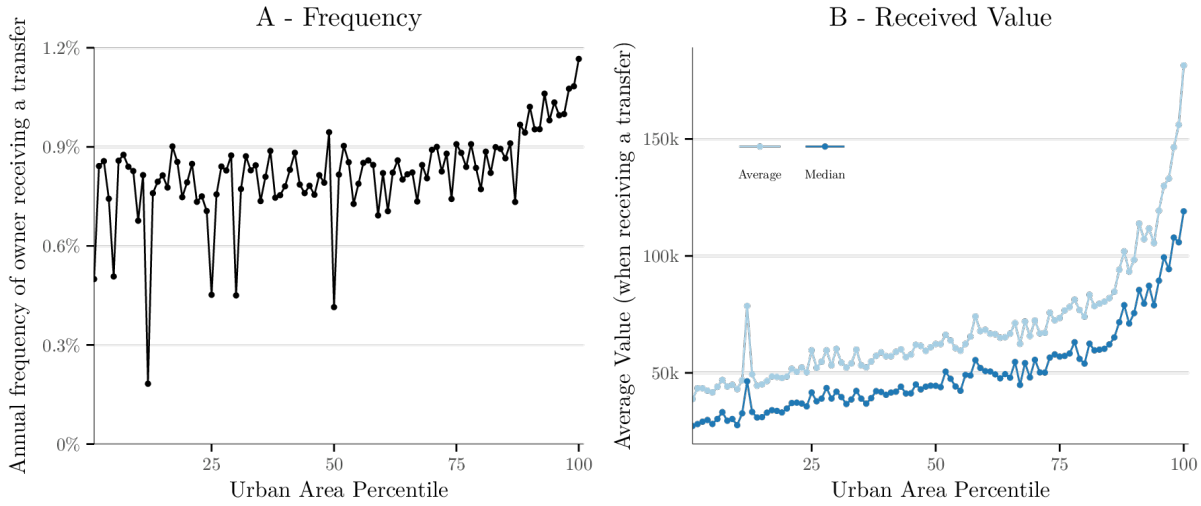

Figure 8: Heterogeneity in housing transmission between urban areas

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 homeowners' location is a major determinant for both frequency and value being transmitted, housing transmissions might reallocate housing assets to alternative locations. 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 functional 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 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 from transfers (Figure 10). Spatial flows concern the entire country, with specific relationships with medium-sized metropolitan areas such as Lyon, Marseille. In addition,

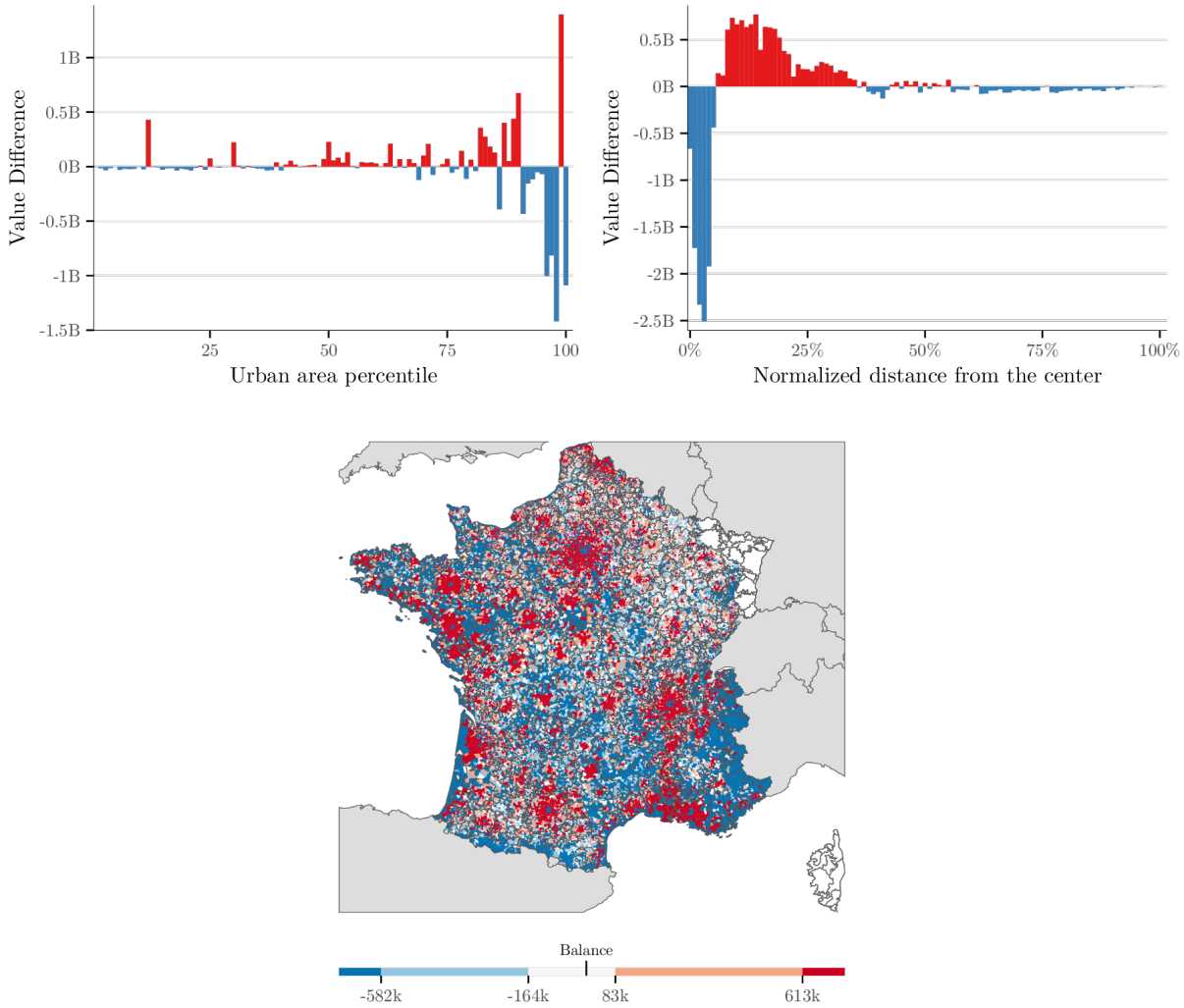

Figure 9: Value differential between housing location and recipients' location

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*.

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 metropolitan area, thus mitigating the relationship between the parents' location and the children's location.

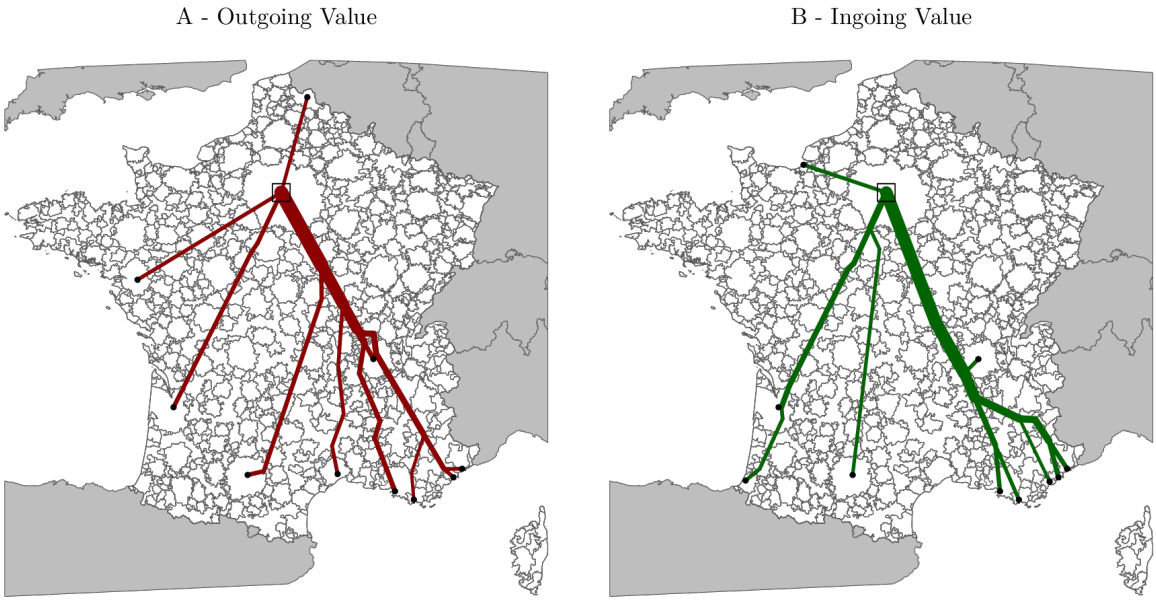

Figure 10: Main ingoing and outgoing flows for inheritance associated with Paris

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

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

First, average gross housing wealth declines monotonically with distance from the metropolitan centre, 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 inter-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 family

channels may amplify or redirect it.

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 capitalises local amenities and public goods, the geography of wealth may itself reshape neighbourhood quality; measuring these externalities is crucial for place-based policy. Finally, as home-ownership 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.

References

Ahlfeldt, Gabriel M., Stephan Heblich and Tobias Seidel (2023), 'Micro-Geographic Property Price and Rent Indices'. *Regional Science and Urban Economics* 98.103836.

Aiello, Darren, Jason D. Kotter and Gregor Schubert (2022), 'Housing Wealth and Overpayment: When Money Moves In'. *SSRN Electronic Journal*.

Alvaredo, Facundo, Anthony B. Atkinson and Salvatore Morelli (2018), 'Top Wealth Shares in the UK over More than a Century'. *Journal of Public Economics* 162, pp. 26–47.

Arundel, Rowan and Cody Hochstenbach (2020), 'Divided Access and the Spatial Polarization of Housing Wealth'. *Urban Geography* 41.4, pp. 497–523.

Banzhaf, H. Spencer and Omar Farooque (2013), 'Interjurisdictional Housing Prices and Spatial Amenities: Which Measures of Housing Prices Reflect Local Public Goods?' *Regional Science and Urban Economics* 43.4, pp. 635–648.

Benhabib, Jess, Alberto Bisin and Mi Luo (2017), 'Earnings Inequality and Other Determinants of Wealth Inequality'. *American Economic Review* 107.5, pp. 593–597.

Boserup, Simon H., Wojciech Kopczuk and Claus T. Kreiner (2016), 'The Role of Bequests in Shaping Wealth Inequality: Evidence from Danish Wealth Records'. *American Economic Review* 106.5, pp. 656–661.

Combes, Pierre-Philippe, Gilles Duranton, Laurent Gobillon, Diego Puga and Sébastien Roux (2012), 'The Productivity Advantages of Large Cities: Distinguishing Agglomeration From Firm Selection'. *Econometrica* 80.6, pp. 2543–2594.

Cvijanović, Dragana and Christophe Spaenjers (2021), '"We'll Always Have Paris": Out-of-Country Buyers in the Housing Market'. *Management Science* 67.7, pp. 4120–4138.

De Nardi, Mariacristina (2004), 'Wealth Inequality and Intergenerational Links'. *The Review of Economic Studies* 71.3, pp. 743–768.

Domènech-Arumí, Gerard and Paula E. Gobbi (2023), *Housing Inequality and How Fiscal Policy Shapes It: Evidence from Belgian Real Estate*. SSRN Scholarly Paper. Rochester, NY.

Eggum, Terje and Erling Røed Larsen (2024), 'Is the Housing Market an Inequality Generator?' *Review of Income and Wealth* 70.3, pp. 697–722.

Frémeaux, Nicolas and Marion Leturcq (2020), 'Inequalities and the Individualization of Wealth'. *Journal of Public Economics* 184, pp. 104–145.

Fujita, Masahisa (1989), *Urban Economic Theory: Land Use and City Size*. 1st ed. Cambridge University Press.

Gaigné, Carl, Hans R.A. Koster, Fabien Moizeau and Jacques-François Thisse (2022), 'Who Lives Where in the City? Amenities, Commuting and Income Sorting'. *Journal of Urban Economics* 128, p. 103394.

Garbinti, Bertrand, Jonathan Goupille-Lebret and Thomas Piketty (2021), 'Accounting for Wealth-Inequality Dynamics: Methods, Estimates, and Simulations for France'. *Journal of the European Economic Association* 19.1, pp. 620–663.

Garcia Marin, Alvaro, Andrei V. Potlogea, Nico Voigtländer and Yang (2020), *Cities, Productivity, and Trade*. Working Paper.

Gibbons, Stephen and Stephen Machin (2005), 'Valuing Rail Access Using Transport Innovations'. *Journal of Urban Economics* 57.1, pp. 148–169.

Graham, Daniel J., Patricia S. Melo, Piyapong Jiwattanakulpaisarn and Robert B. Noland (2010), 'Testing for Causality Between Productivity and Agglomeration Economies'. *Journal of Regional Science* 50.5, pp. 935–951.

Guerrieri, Veronica, Daniel Hartley and Erik Hurst (2013), 'Endogenous Gentrification and Housing Price Dynamics'. *Journal of Public Economics* 100, pp. 45–60.

Ha, Sejeong, Christian A.L. Hilber and Olivier Schöni (2021), 'Do Long-Distance Moves Discourage Homeownership? Evidence from England'. *Journal of Housing Economics* 53.101766.

Hilber, Christian A.L. and Christopher Mayer (2009), 'Why Do Households without Children Support Local Public Schools? Linking House Price Capitalization to School Spending'. *Journal of Urban Economics* 65.1, pp. 74–90.

Hochstenbach, Cody (2018), 'Spatializing the Intergenerational Transmission of Inequalities: Parental Wealth, Residential Segregation, and Urban Inequality'. *Environment and Planning A: Economy and Space* 50.3, pp. 689–708.

Hochstenbach, Cody (2023), 'Networked Geographies of Private Landlordism: Mapping Flows of Capital Accumulation and Rent Extraction'. *Housing Studies* 0.0, pp. 1–26.

Jordà, Òscar, Katharina Knoll, Dmitry Kuvshinov, Moritz Schularick and Alan M Taylor (2019), 'The Rate of Return on Everything, 1870–2015'. *The Quarterly Journal of Economics* 134.3, pp. 1225–1298.

Kiel, Katherine A. and Jeffrey E. Zabel (2008), 'Location, Location, Location: The 3L Approach to House Price Determination'. *Journal of Housing Economics* 17.2, pp. 175–190.

Kim, Hayoung (2024), 'Homebuyers' Geographic Proximity as a Predictor of Future Housing Price Growth'. *Real Estate Economics* 52.4, pp. 1140–1158.

Lei, Rémi, Laure Casanova Enault, Antoine Peris and Martin Bocquet (2024), 'Évolution de La Structure de La Propriété Immobilière En France: Apports Des Fichiers Fonciers Enrichis Pour Analyser Les Patrimoines Des Individus'. *Revue d'Économie Régionale & Urbaine* Juin.3, pp. 375–400.

Li, L. and K. W. Chau (2023), 'Information Asymmetry with Heterogeneous Buyers and Sellers in the Housing Market'. *The Journal of Real Estate Finance and Economics*.

Ling, David C., Andy Naranjo and Benjamin Scheick (2021), 'There Is No Place like Home: Information Asymmetries, Local Asset Concentration, and Portfolio Returns'. *Real Estate Economics* 49.1, pp. 36–74.

Liotta, Charlotte, Vincent Viguié and Quentin Lepetit (2022), 'Testing the Monocentric Standard Urban Model in a Global Sample of Cities'. *Regional Science and Urban Economics* 97, p. 103832.

Nekoei, Arash and David Seim (2023), 'How Do Inheritances Shape Wealth Inequality? Theory and Evidence from Sweden'. *The Review of Economic Studies* 90.1, pp. 463–498.

Peris, Antoine and Laure Casanova Enault (2023), 'Proximity or Opportunity? Spatial and Market Determinants of Private Individuals' Buy-to-Let Investments'. *Environment and Planning B: Urban Analytics and City Science*, p. 23998083231217014.

Piketty, Thomas and Gabriel Zucman (2014), 'Capital Is Back: Wealth-income Ratios in Rich Countries 1700–2010'. *Quarterly Journal of Economics* 129.3, pp. 1255–1310.

Saez, Emmanuel and Gabriel Zucman (2016), 'Wealth Inequality in the United States since 1913: Evidence from Capitalized Income Tax Data'. *Quarterly Journal of Economics* 131.2, pp. 519–578.

Sodini, Paolo, Stijn Van Nieuwerburgh, Roine Vestman and Ulf von Lilienfeld-Toal (2023), 'Identifying the Benefits from Homeownership: A Swedish Experiment'. *American Economic Review* 113.12, pp. 3173–3212.

Wind, Barend and Lina Hedman (2018), 'The Uneven Distribution of Capital Gains in Times of Socio-Spatial Inequality: Evidence from Swedish Housing Pathways between 1995 and 2010'. *Urban Studies* 55.12, pp. 2721–2742.

Wood, Simon N. (2017), *Generalized Additive Models: An Introduction with R*. 2nd ed. Chapman and Hall/CRC.

A Descriptive Statistics

A.1 Distribution of Wealth and Housing Value in 2021

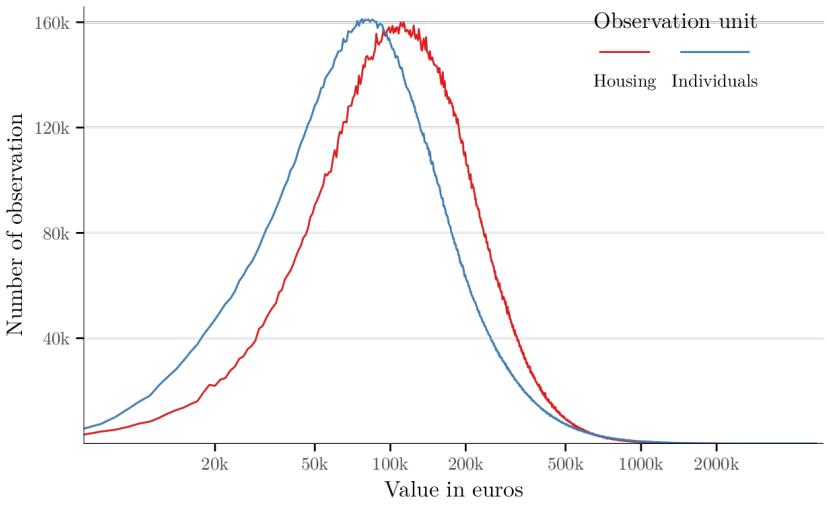

Figure A.1: Log-distribution of individuals' gross housing wealth and housing value in 2021

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 unit directly held. Hence, it does not include housing wealth detained through companies. We count individual using an aggregation of 1k width.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

A.2 Number of individuals per location

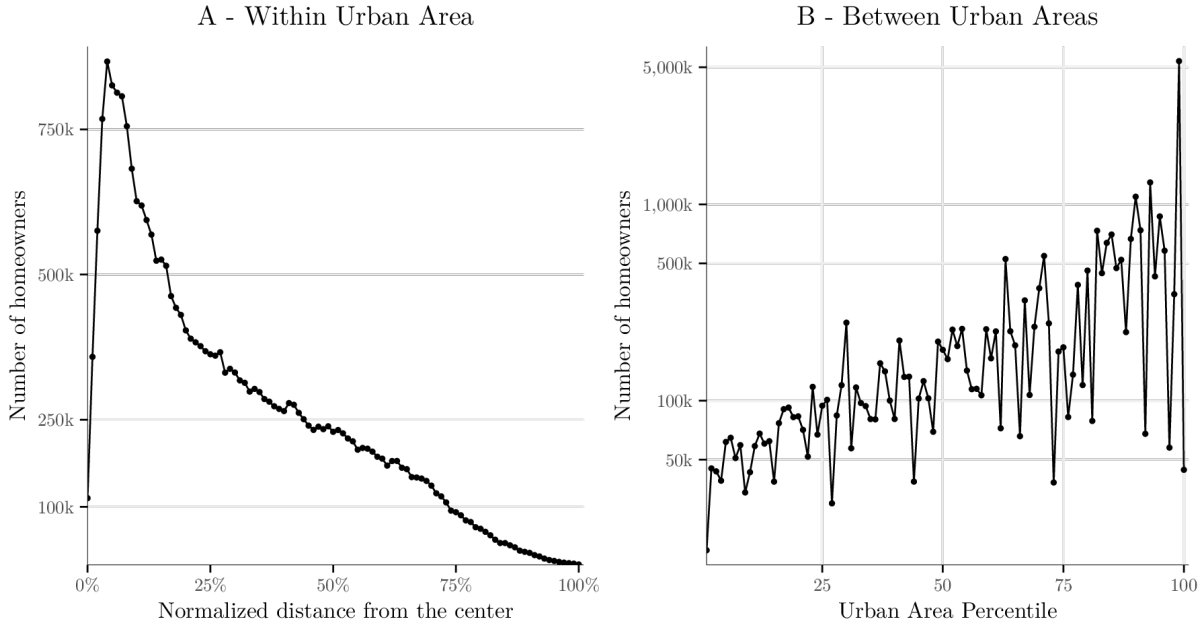

Figure A.2: Number of individuals per location in 2022

Notes: This figures shows the number of homeowners in each location, considering our two-dimension 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 between urban areas dimension. 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 Number of housing per location

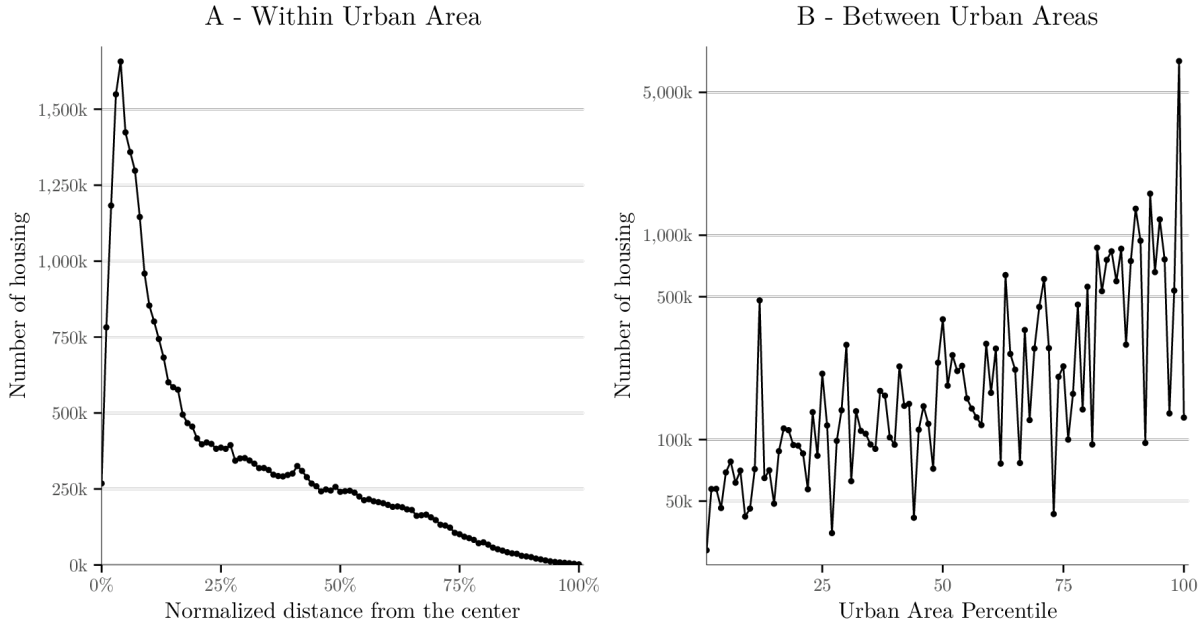

Figure A.3: Number of housing per location in 2022

Notes: This figures shows the number of housing units in each location, considering our two-dimension 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 between urban areas dimension. 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.4 Evolution of Housing Price (Aggregate Measure)

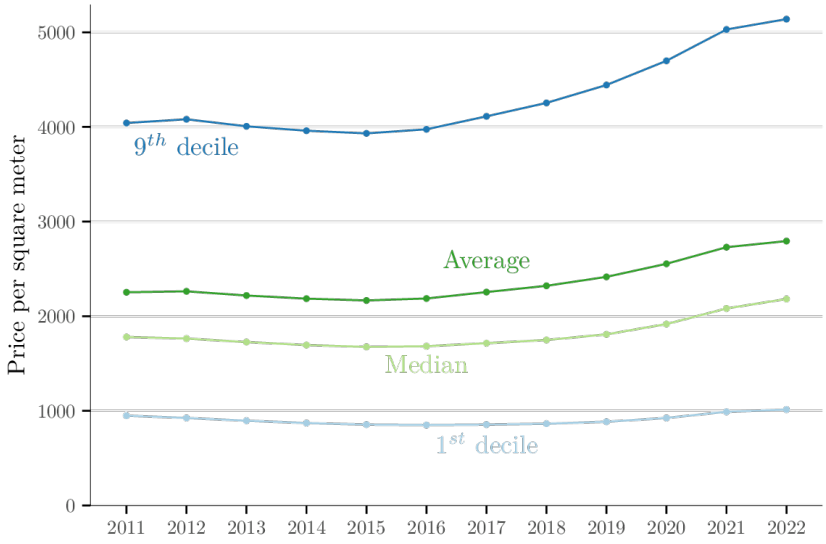

Figure A.4: Evolution of housing price per square meter in France

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 derived from the assessment of housing value. Values are expressed in euro per square meter.
Sources: Authors' calculation based on DV3F and *Fichiers Fonciers*.

A.5 Validation with the Wealth Survey

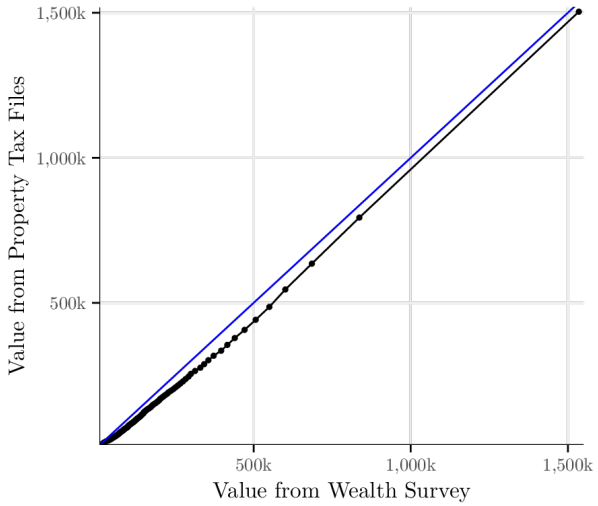

Figure A.5: Validation of Gross Housing Wealth Measure

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

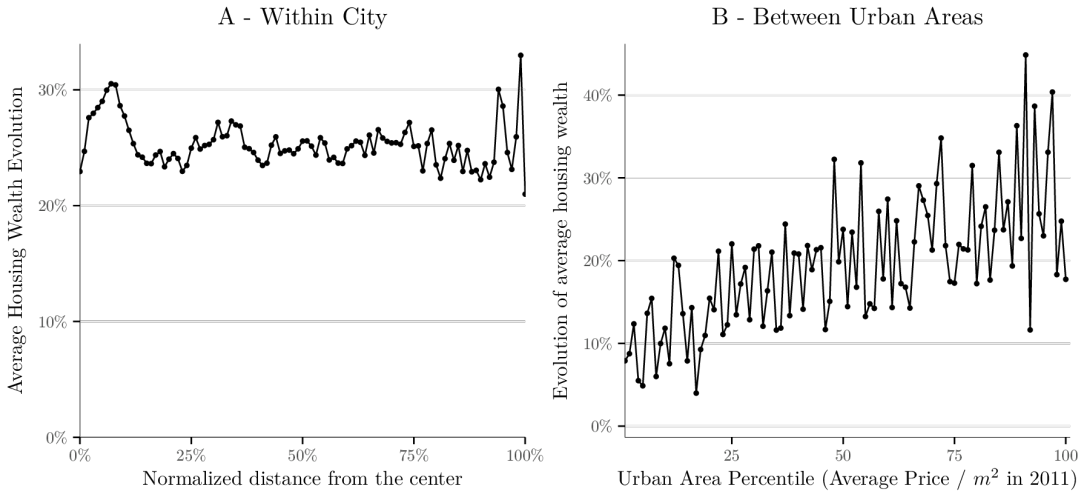

Figure B.1: Heterogeneity in Housing Wealth Appreciation According to Owners' Location

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 area 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

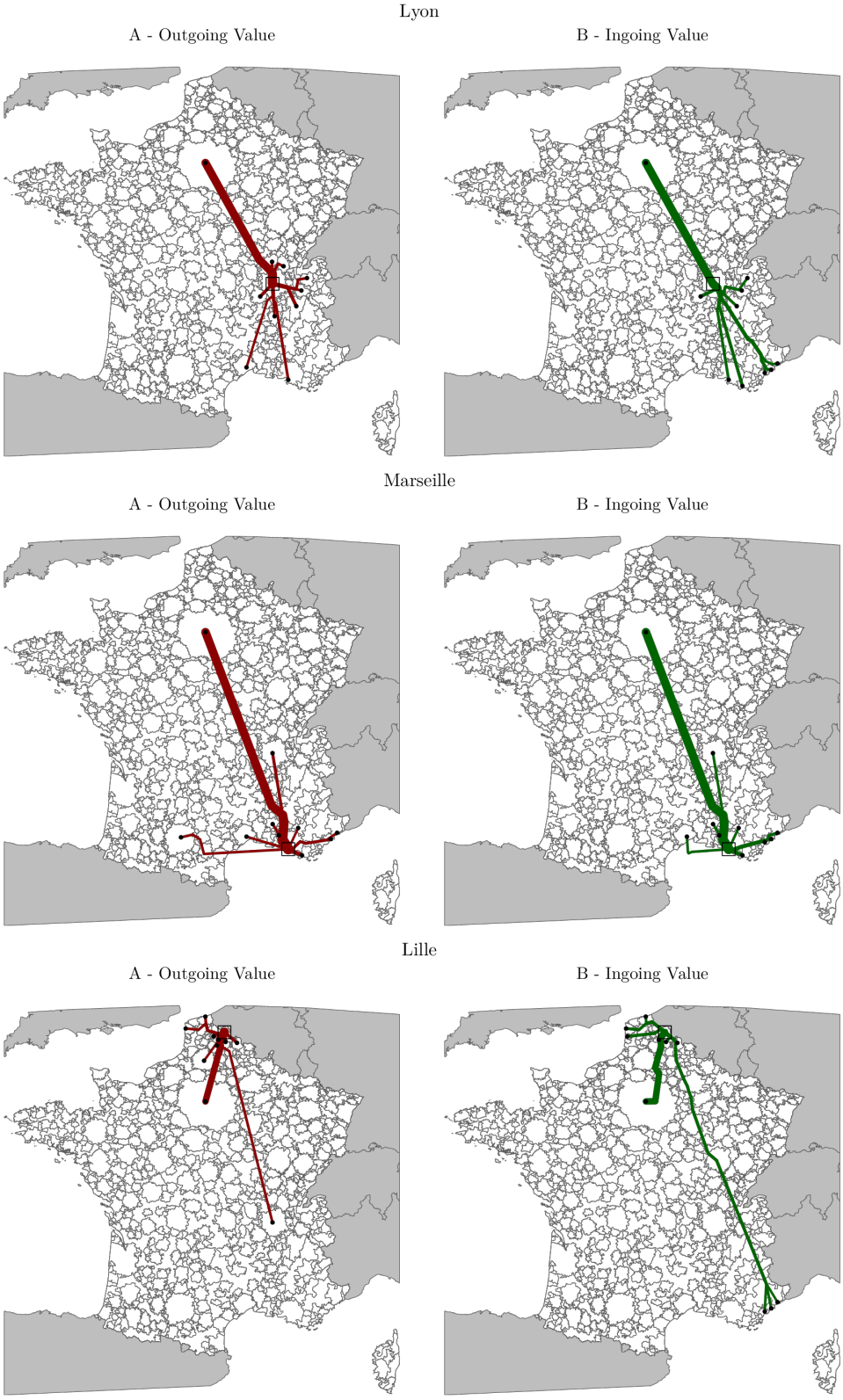

Figure B.2: Spatial Flows of Housing Inheritance (Part 1)

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

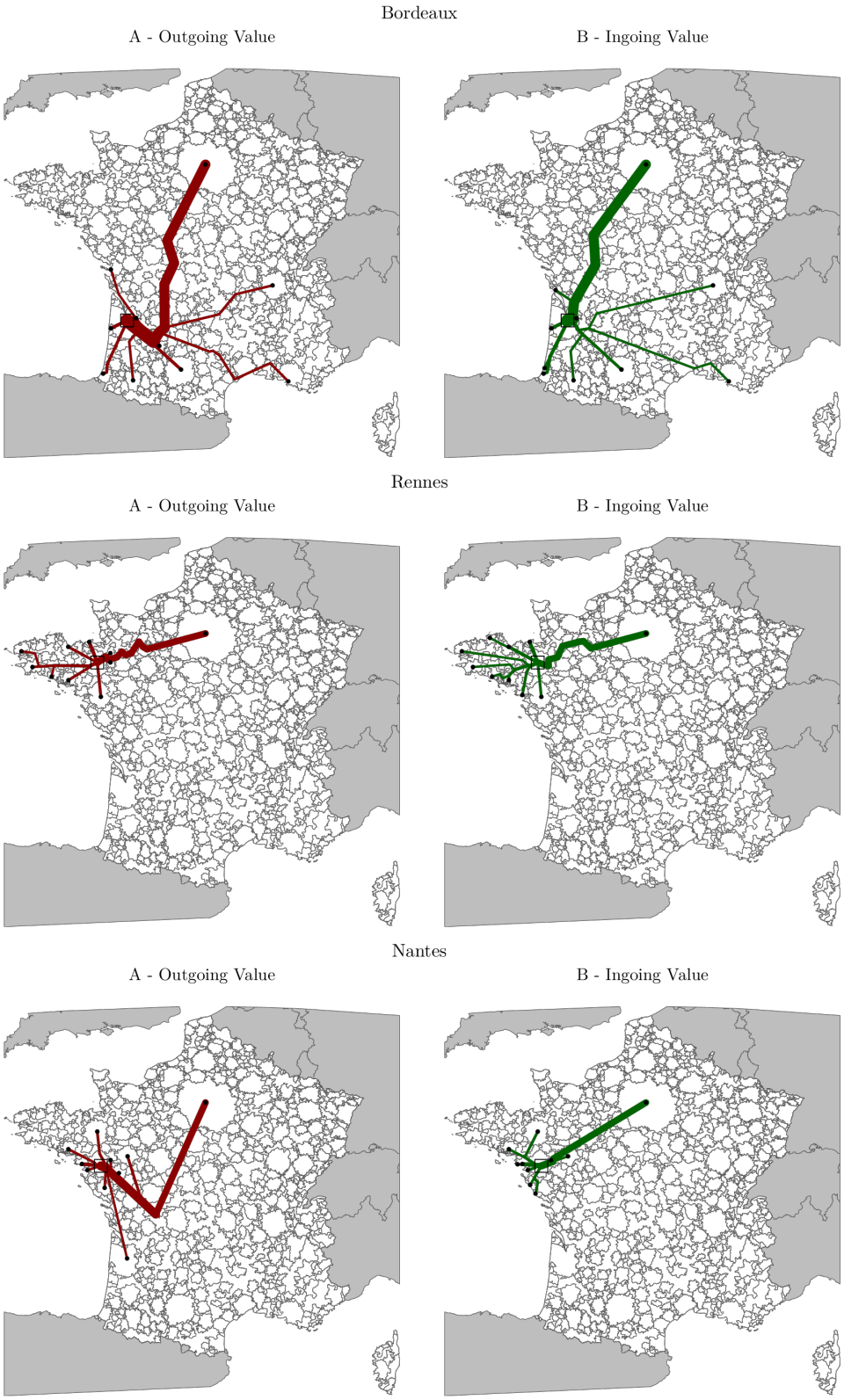

Figure B.3: Spatial Flows of Housing Inheritance (Part 2)

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

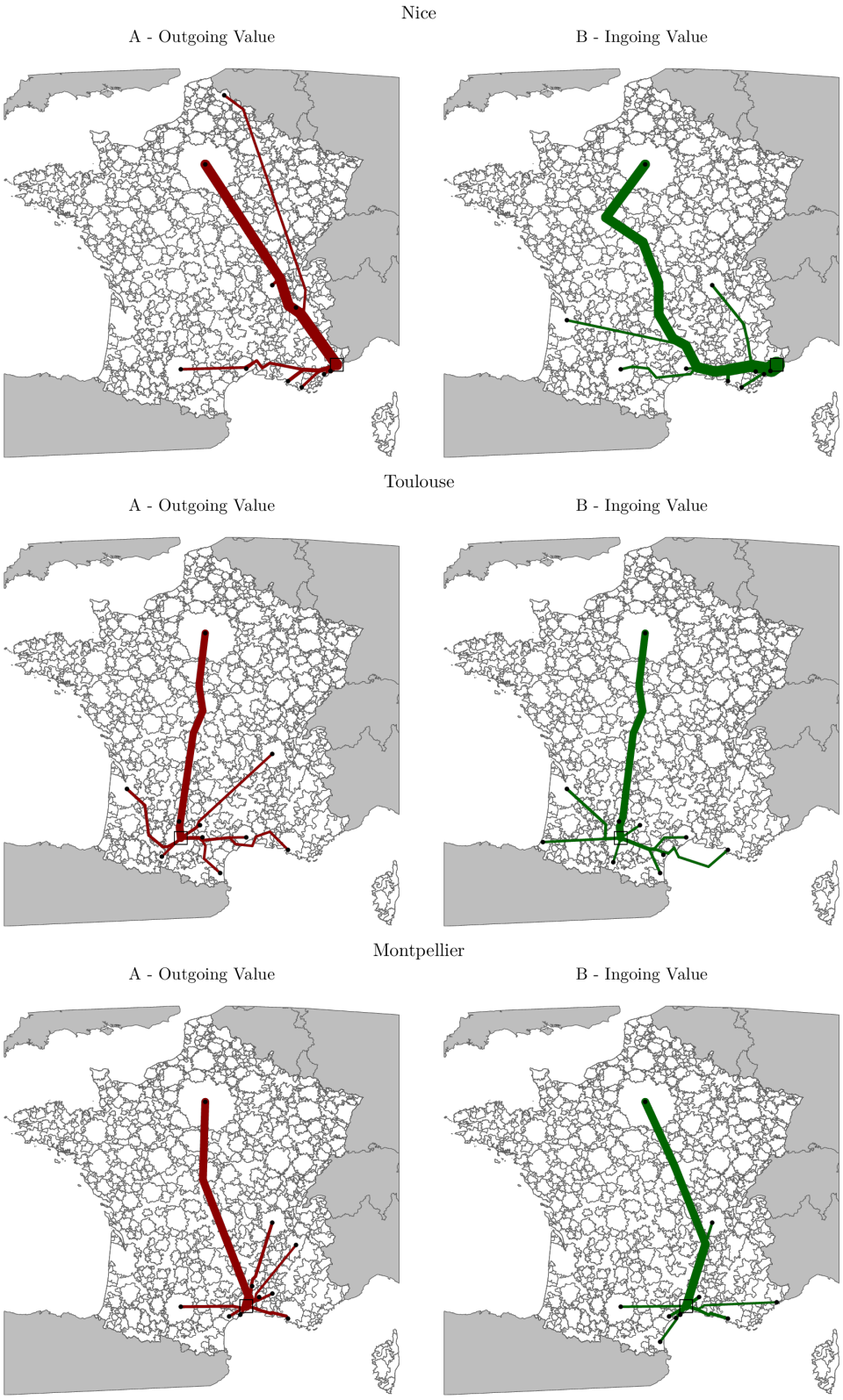

Figure B.4: Spatial Flows of Housing Inheritance (Part 3)

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*.