

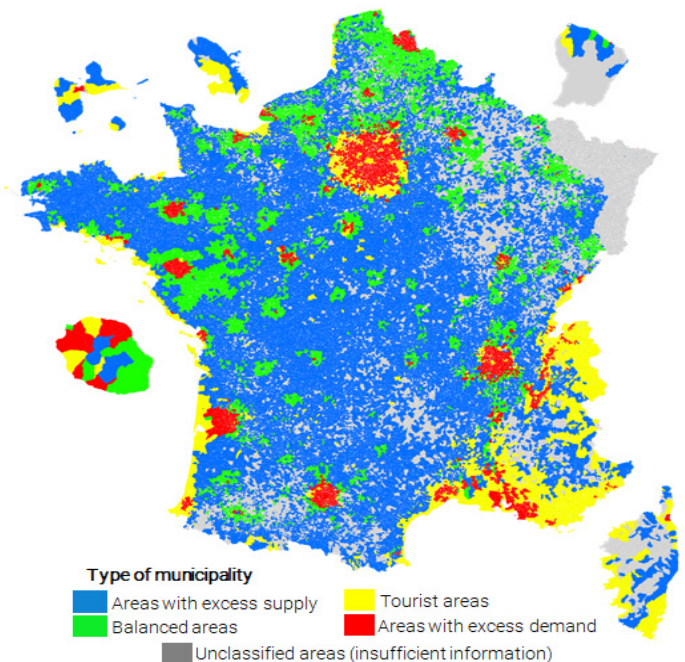
Trésor-economics

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Private housing construction and renovation in France

- In 2018, France had 29 million households and roughly 36 million housing units. This suggests that nearly 2 out of 10 dwellings are not used by a household as a primary residence. On the basis of housing price data between 2014 and 2018 and occupancy rates in 2010, we can divide France's municipalities into four types of areas that experienced differing price trajectories between 2010 and 2015, but all of which witnessed fall-offs in occupancy rates, reflecting rising imbalances in the housing market.
- In municipalities where housing prices are low, construction rates remains high in absolute terms, because renovating existing housing is more expensive than investing in new construction. This necessarily leads to a significant drop in the occupancy rate. In areas with excess demand, transactional barriers (transaction time-frames, information asymmetries, etc.) and the proliferation of various housing uses (secondary/occasional residences, seasonal rentals) are likely the source of lower occupancy rates.
- These developments are not consistent with housing policy objectives: curbing prices and rents in areas where they are high, countering the depopulation of urban centres in areas with excess supply, and reducing land artificialisation and carbon emissions. To address these issues, several measures have recently been put in place, which could be supplemented with various economic and regulatory instruments.
- In the medium and long term, expansion of housing stock could be curtailed and gradually limited to areas with excess demand and possibly to tourist areas through space-saving schemes. This would significantly boost growth in the residential housing sector, driven by a robust renovation sector rather than by new construction.

Classification of municipalities according to price and occupancy rate



Source: INSEE, DVF (Demandes de valeurs foncières - real estate transactions) datasets (excluding Alsace and Moselle, municipalities that merged over the period 2010-2016, and municipalities with fewer than 10 real estate transactions over the period 2014-2018). Chart by DG Trésor using IGN software.

1. Analysis of new housing starts¹

1.1 Changes in housing stocks and occupancy rates

Between 2010 and 2017, France's housing stock expanded by an average of more than 370,000 units per year² as a result of new housing starts, while the number of primary residences, or the equivalent number of households, increased by only 240,000 units per year,³ reflecting, in roughly equal proportions, population growth and a decline in household sizes. The stock of dwellings not occupied as primary residences has thus increased by about 130,000 units per year, and the occupancy rate has fallen from 84 per cent to 82 per cent in seven years. As a result, in 2018, there are more than 6.5 million dwellings not occupied as primary residences, of which 8.4 per cent are vacant and 9.7 per cent are secondary or occasional residences.

Housing was often built on unconstructed land on the outskirts of already urbanised areas, where land for construction had become scarce. This sprawl is also marked by a low density: 41% of the dwellings built in 2018 are single-family homes, but they account for more than 93% of the consumption of land used for housing.⁴

1.2 Recent developments in property prices and the rental market

Property prices in France rose sharply between 2000 and 2007, before falling precipitously in the wake of the financial crisis. By 2018, property prices in constant euros had generally returned to their pre-crisis levels throughout the country.⁵ At the same time, since 2000, rent increases have been much more constant and moderate, staying relatively

close to the rate of inflation, due to the pegging of rents to the rent reference index (IRL), which is simply inflation excluding tobacco and rent prices. This gap between price and rent dynamics is largely due to the falling interest rates on housing loans, which increases, in constant monthly payments, households' borrowing capacity.⁶

2018 set a record for housing sales, with more than 983,000 real estate transactions (a 17% increase over 2007), for a housing stock turnover rate⁷ of 2.7%, also linked to very low interest rates. The turnover rate on the rental market is more than twice as high as that of the housing stock, due to the very high mobility of vacant rental housing.⁸

1.3 A regional analysis

Housing markets are marked by deep territorial inequalities. The housing occupancy rate (defined as the share of primary residences in the housing stock) varies from 10% to 94% depending on the municipality (see Chart 1), and average municipal prices for housing range from less than €500/m² to more than €12,000/m² (see Chart 2). Demographics, which is an important factor in demand, also varies – between 2010 and 2015, the number of households decreased in 8,400 municipalities despite an increase of almost 1% at national level.

If we cross-reference the parameters of average housing prices between 2014 and 2018 (price per square metre greater or less than €2,000/m²) and occupancy rates in 2010 (rate of occupied dwellings greater or less than 90%), it is possible to distinguish 4 main types of situations (see chart on first page).

Table 1: The 4 types of municipalities based on the local housing market

Price	Occupancy rate	Low (<90%)	High (>90%)
High (>€2,000/m ²)		Tourist areas	Areas with excess demand
Low(<€2,000/m ²)		Areas with excess offer	Balanced areas

Source: DG Trésor.

(1) The analyses presented here focus on a period that predates the covid-19 pandemic, the effects of which on the housing market and housing policies it is too early to predict.

(2) Net rate of demolitions. Source: INSEE, revised data as of actual date.

(3) Source: Insee, Tableaux de l'économie française, 2014 and 2019 editions.

(4) Sources: Objectif « zéro artificialisation nette », Éléments de diagnostic, *Théma*, Octobre 2018, CGDD; L'artificialisation des terres de 2006 à 2014: pour deux tiers sur des espaces agricoles, *Agreste Primeur* n° 326 (2015). Individual housing thus consumes 15 times more land than collective housing.

(5) This analysis does not take into account the impact of the 2020 coronavirus pandemic.

(6) Source: Diagnostic des risques dans le secteur de l'immobilier résidentiel, HCSF 2019.

(7) The real estate turnover rate is the number of real estate transactions out of the total number of dwellings.

(8) Source: Parc locatif: un rôle majeur dans les trajectoires résidentielles, Insee, 2018.

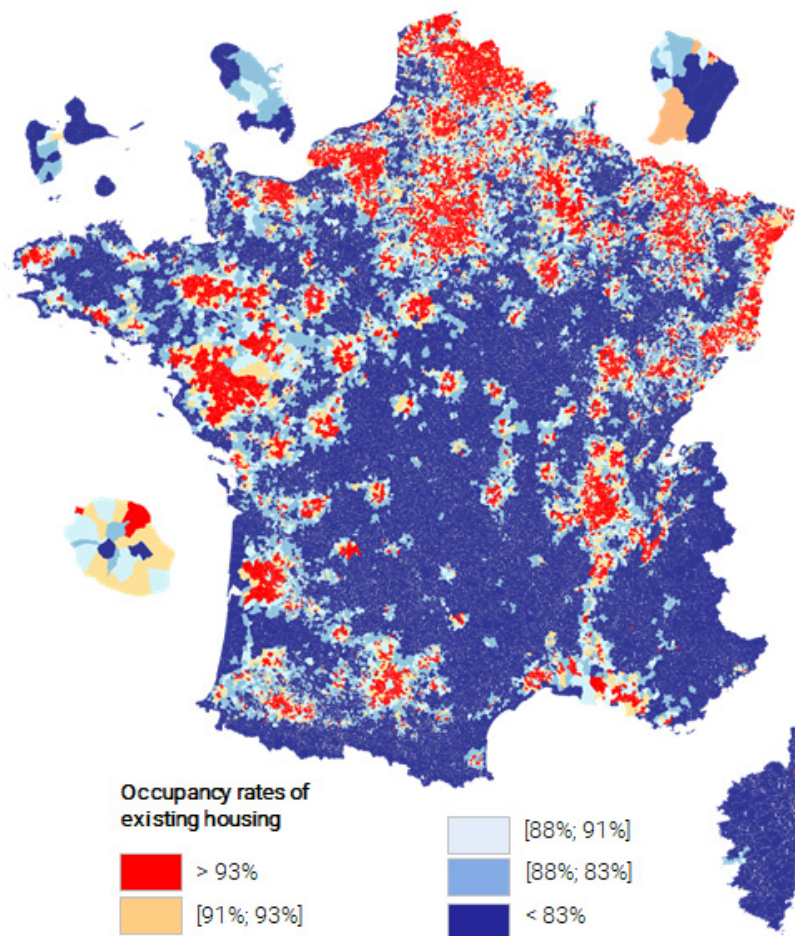
According to this ranking, two types of municipalities display housing prices that are higher than the median price weighted by the number of inhabitants⁹ (€2,000/m²), reflecting a region's high level of appeal:

- Areas with excess demand: when the rate of occupied dwellings is high (>90%¹⁰), the housing market can be described as tight and the construction of new dwellings may be necessary to meet rising demand.
- Tourist areas: when the level of housing occupancy is low, municipalities can be classified as tourist areas, since a large proportion of dwellings there are used as secondary or occasional residences.

Conversely, there are two other situations in municipalities where housing prices are low (below the median price of €2,000/m²), indicating a lesser appeal or an over-abundant supply of housing:

- Areas with excess supply: when the rate of occupied dwellings is relatively low (<90%). In these municipalities, the existing housing stock, which could be upgraded if necessary, could easily absorb a significant increase in demand without requiring new housing.
- Balanced areas: in municipalities where the vacancy rate is low but prices are moderate, the housing stock is proportionate to demand.

Chart 1 : Housing occupancy rates in France, excluding Mayotte (2010)



Source: INSEE data. Chart: DG Trésor using IGN software.

(9) One out of two households lives in a municipality where the price of housing is on average above €2,000/m².

(10) This value corresponds to the population-weighted median of the occupancy rates: one out of two households lives in a municipality where the rate of primary residences is over 90%.

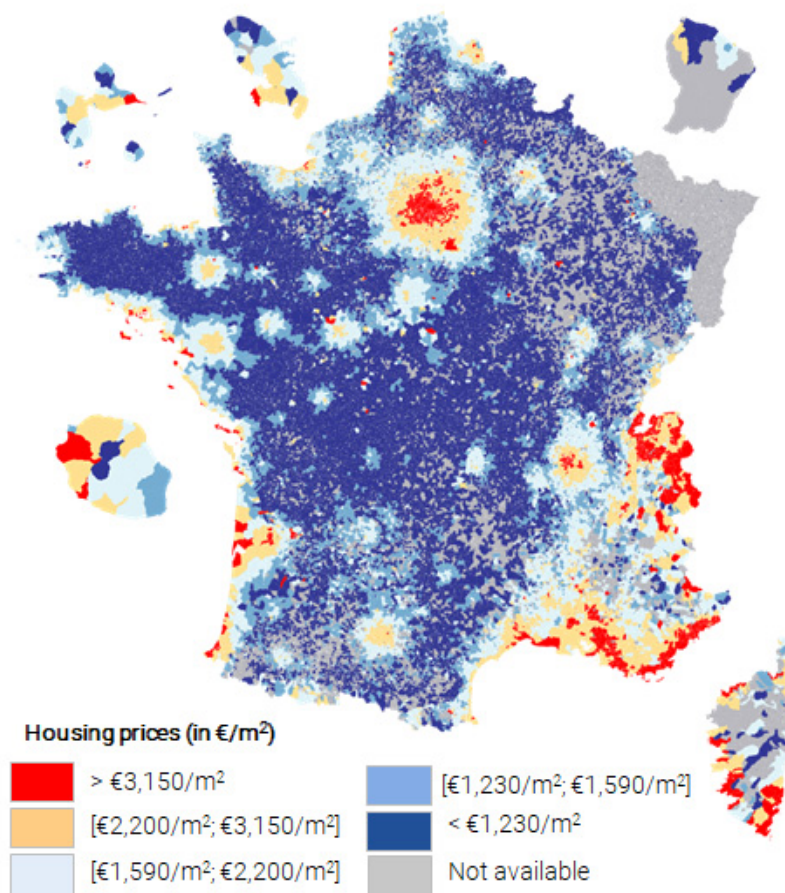
1.4 Housing market imbalances have tended to increase in recent years

Since the 2000s, the pace of new construction in areas with excess supply is not correlated with changes in the number of households, and the existing housing stock has been underused (see Table 2). In 2010 in these areas, the occupancy rate in existing housing¹¹ was on average 78%, with the remainder of the dwellings being divided almost equally between vacant dwellings and residences declared as second homes. Between 2010 and 2015, the number of households in these areas increased by 430,000 per year, while the housing stock grew by 668,000 units (over the period), raising the question of the sustainability of the underlying regional strategies (see Chart 3). The decline in the rate of occupied housing affects all types of areas in a relatively homogeneous manner across France. Finally,

average housing prices per municipality varied widely, ranging from -20% to +60%, which generally bolstered the existing disparities between areas.

Municipalities with excess demand and balanced ones in 2010 also experienced higher construction rates than the change in the number of households. The arrival of each new household in both areas resulted in a net construction rate of approximately 1.3 dwellings. Tensions on the supply side (very high occupancy rate, close to 92%)¹² justify high construction rates to meet demand, but the very sharp increase in the stock and rate of vacant dwellings and second homes in these areas suggests that market failures remain, especially since the very high rate of construction is not concomitant with a fall in prices, as might be expected.¹³

Chart 2 : Housing prices per m² in France, excluding Mayotte (2014-2018)



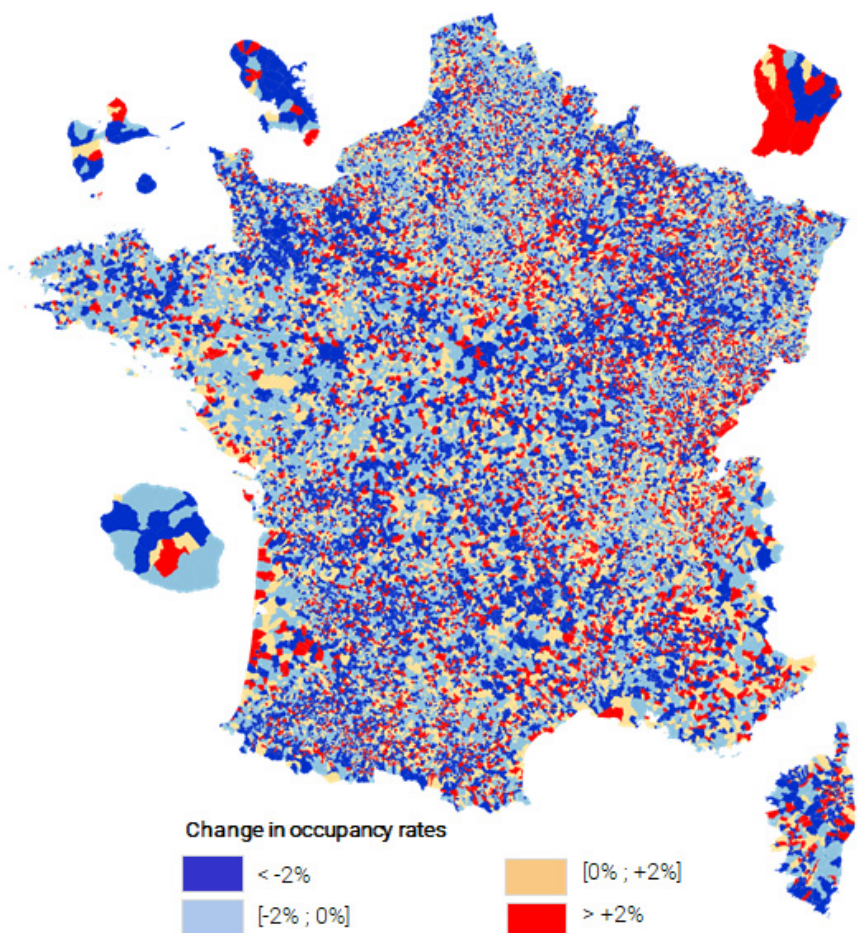
Source: Données DVF+ (hors Alsace et Moselle, communes ayant fusionné sur la période 2010-2016, et communes ayant connu moins de 10 transactions DVF+ data (excluding Alsace and Moselle, municipalities that merged over the 2010-2016 period, and municipalities with fewer than 10 real estate transactions over the 2014-2018 period), INSEE data (all of France). Chart by DG Trésor using IGN software.

(11) As opposed to new housing.

(12) The occupancy rate in areas with excess demand is 92.5%, i.e. 1 point lower than in balanced areas.

(13) However, the construction of new housing has been able to curb the rise in prices. The causal link between the increase in construction in areas with excess demand and price trends could be studied using the econometric difference-in-differences method.

Chart 3 : Change in housing occupancy rates between 2010 and 2015, France excluding Mayotte



Source : INSEE data. Chart by DG Trésor using IGN software. How to read this chart: the municipalities in dark red have experienced a drop in the rate of occupied dwellings of more than 2%, reflecting a significant increase in the stock of vacant dwellings and secondary or occasional residences.

"Tourist areas" (see Box 1) are characterised by low occupancy rates despite very high property prices. While, on average, more than a third of the dwellings in these areas were not occupied as primary residences in 2010, the construction of new dwellings boosts the tourism supply with a ratio of 1.6 dwellings built per new household on

average. The finding is therefore the same as for areas with excess demand: the increase in the housing stock is partly explained by the development of a local tourism offer leading to an increase in the proportion of secondary residences and vacant dwellings.

Box 1: The "tourist cities" of Paris, Lyon and Nice

According to the above definitions, Paris, Lyon and Nice are tourist areas. In 2010, these cities had occupancy rates of 86%, 88% and 75% respectively, and average prices over the 2014-2017 period of around €8,500/m², €3,500/m² and €3,800/m².

Paris and Nice saw a marked increase in the stock of housing not used as primary residences between 2010 and 2015 (in volume and rates). Despite a 15,000-unit increase in the housing stock, the number of households in Paris fell by 20,000. The situation is comparable in Nice: with only 1,000 additional households, the housing stock increased by 5,000 units. Lyon, on the other hand, is experiencing a more balanced development: 15,000 more households for 20,000 more housing units.

In all three cities, the developments reflect an increase in the number of second or occasional residences.^a

a. Between 2010 and 2015, Paris added 22,000 secondary residences, Lyon 4,000 and Nice 2,000.

Table 2: Regional changes in the housing stock since 2010

	Areas with excess demand	Tourist areas (excl. Paris)	Balanced areas	Areas with excess supply
Number of households (2010)	7,800,000	4,200,000	4,700,000	8,200,000
Average occupancy rate (2010)	93.3%	67.9%	92.9%	79.0%
Average occupancy rate (2015)	92.2%	67.6%	91.6%	78.1%
Average price (€/m ² , 2014-2018)	3,200	3,400	1,500	1,300
Change in households (2010-2015)	+480,000	+280,000	+300,000	+430,000
Change in dwellings (2010-2015)	+620,000	+450,000	+400,000	+670,000
Change in dwellings not used as primary residences ^a (2010-2015)	+140,000	+170,000	+100,000	+240,000
Rate of single-family houses starts (2010-2017)	2%	37%	71%	76%
Built-over surface per additional household ^b (2010-2015)	500 m ² /household	800 m ² /household	2,000 m ² /household	2,500 m ² /household

a. Primary residence.

b. Natural, agricultural or artificial forest area between 2010 and 2015 and intended for housing divided by the change in the number of households (artmen1015 variable). Estimation based on municipalities in metropolitan France. This also includes extensions to existing buildings.

Source : INSEE and DVF datasets (excluding Alsace and Moselle and municipalities that merged over the 2010-2016 period), Observatoire de l'artificialisation des sols.

Generally speaking, construction in areas where housing prices are low is mainly done on an individual basis. Single-family homes largely dominate in balanced areas (71% of construction) and where there is excess supply (76%). On the other hand, in tourist areas and in areas with excess demand, construction is predominantly collective (63% and 73% respectively), reflecting greater land pressure and a more compact, land-efficient development pattern.

1.5 Factors underlying territorial imbalances in the housing market

Housing needs have both quantitative and qualitative factors. The demand for housing is a reflection of population growth and societal changes that increase needs with a constant population (divorce, student mobility, international migration, widowhood, etc.). In addition, the housing stock changes to meet demand in terms of quality, accessibility,¹⁴ size, layout, comfort and energy efficiency.

Even in many areas with excess supply, new construction was the principal vehicle for meeting housing demand between 2010 and 2015, to the detriment of adapting

existing structures. The fact that new builds in these less tight areas were cheaper than renovating existing housing played an important role in households' choices of where to live.¹⁵ The local explanation for this price difference may be the overabundance of building land, which led to very low undeveloped land costs and low individual housing construction costs, but also to certain historically advantageous public policies and tax rates. This trend is also bolstered by the vacancy rate for existing housing, which is gradually diverging from the qualitative criteria of demand, leading to increased renovation needs, the additional cost of which has not been offset by the fall in the price of existing housing.

In areas where prices are high, the recent development of new housing uses, made possible by the emergence of Internet sites (e.g. seasonal rentals), has undoubtedly made it possible to generate additional value for a dwelling occupied as a primary residence. But it has also led to the conversion of these residences to occasional dwellings, which may ultimately reduce the effective supply of housing available as primary residences while driving up prices.

(14) The proportion of people aged over 60 thus increases from 20.6% in 2000 to approximately 26% in 2020 and 30% in 2030. Source: Insee, Tableau de l'économie française, population by age, 2018.

(15) In these areas, the cost of renovation, to which must be added the purchase price, is indeed higher than the prices of individual new homes. As an illustration, a high-performance renovation that only concerns the energy component costs between k€30 and k€50 per dwelling (Source: IGF-CGEDD task force report, Aides à la rénovation thermique des logements privés, 2017). For a 100 m² dwelling this would thus represent an additional cost of €300–€500/m², whereas the prices of new houses are close to those of old ones (€1,300/m²).

2. The role of public policy in improving the housing market

The housing market is comprised of (i) the real estate market, in which ownership of dwellings, whether new or old, is traded, and (ii) the rental market, in which a housing service (unfurnished, furnished, seasonal rentals, etc.) is traded. The private component of this market is decentralised, i.e. housing demand and supply are the result of choices made by households (owners and tenants) and businesses (institutional investors, developers, renovation companies, transaction intermediaries, etc.), arising from their preferences, changes in the economic climate, the impact of various regulatory provisions and, more generally, public policies.

The free interplay of this market does not lead to a satisfactory allocation of resources for all stakeholders, due to the presence of rigidities and environmental and social externalities. This justifies recourse to measures that are, or could be, deployed to remedy them.

2.1 Imperfections in the housing market

In the rental market, potential landlords and tenants do not possess the same information regarding properties. This can prevent desirable transactions from taking place, for example by excluding potential creditworthy tenants or by changing rent levels. Tenants have little information about the properties on offer – on the one hand, competition for housing is reduced by the fact that they cannot be easily compared with each other, and on the other hand, for a given advertisement, tenants are unaware of many parameters such as the energy costs they will have to bear or the landlord's willingness to take back the property after a certain period. As their ability to differentiate a property is limited, this can have a negative effect on the amount of rent they are willing to pay. For their part, landlords are risk-averse and seek to ensure payment of the rent and the return of the dwelling in good condition after the rental period, without having all the information on the solvency of the potential tenants, which may lead to the exclusion of some of them or even the internalisation of a risk premium in the rent.

Consequently, policies aimed at improving information about rented accommodation, the tenant's creditworthiness and the settlement of disputes make it possible to improve the functioning of the rental market and

limit its contraction in favour of vacancies. In this respect, mandatory assessments (asbestos, lead, electricity, etc.) help to reduce the asymmetry for the tenant. For example, the energy performance diagnosis (DPE), which became mandatory in 2006, provides information on the level of thermal costs associated with a property, and it will be made more reliable in the years to come. In general, the body of information to be provided on a mandatory basis should be expanded in the advertisements of both agencies and private individuals on rental listing sites. Current obligations,¹⁶ which only concern estate agencies, could be extended to the sites by including other information, such as the amount of energy-related service charges, a more precise indication of the location (e.g. street) and the year of construction or the completion of energy renovation work over the last five years.

On the landlord's side, the "Visale"¹⁷ guarantee granted by the *Association Pour l'Accès aux Garanties Locatives* (APAGL), has helped to make the market more fluid since 2016, as it enables landlords to insure themselves against part of the risk they run when renting to certain tenants. In addition, some households' housing needs are better taken into account thanks to the introduction of more flexible contracts, such as the mobility lease introduced by the Housing Reform and Digital Rollout ("loi ELAN"), which can be used by students, apprentices or households in the process of career change.

There are also many shortcomings in the real estate market, due to its intrinsic nature:

- A dwelling is by nature fixed. This structurally limits the opportunities for trade and leads to strong regionalisation of markets, the size of which increases only slightly through new housing starts or the development of transport infrastructure that link new areas together. Moreover, it allows owners of buildable land to benefit from an economic rent that can justify measures to capture part of it (capital gains tax from the sale of land made buildable) or to limit land retention in areas where the housing market is in excess of demand (right of pre-emption, taxation on undeveloped land).
- A dwelling is durable. This implies that the vast majority of the market consists of goods that already exist. Housing is thus both a consumer good, such as

(16) For a rental, the advertisement must specify the surface area, the municipality, the rent or charges as well as the DPE. In the case of a sale, in addition to the above information, it must include the composition of the dwelling and information on the co-ownership (current procedure, number of lots etc.).

(17) Deposit provided by Action Logement to the landlord to cover unpaid debts of households subject to certain conditions of income, rent, age and professional situation.

expenditure on energy or food, and an investment. From this point of view, taxation of the real estate stock, such as taxes on vacant dwellings or on second homes, could theoretically be used to limit the vacancy rate provided that it is calibrated according to the opportunity cost of leaving a property unoccupied. However, these taxes are not properly calibrated today, since the cadastral values date from 1971 and their amounts are therefore out of line with the market value of the property. Thus, the launch of the reform of the cadastral values, enacted in the 2020 Budget Act, should eventually encourage a more efficient allocation of housing.

- The market is particularly diverse. It is impossible to find two dwellings that are perfectly identical in terms of surface area, number of rooms, location, energy performance, floor, exposure, etc. Competition is therefore necessarily imperfect on this market, which presents information asymmetries comparable to those of the rental market or the automotive aftermarket. The economic policy tools used to improve it are therefore comparable. In addition, initiatives such as open access to land transaction data should be instrumental (e.g. DVF-ETALAB database).

2.2 Negative externalities related to urban sprawl

Housing policy must be consistent with the Government's other objectives, such as combating land artificialisation and achieving carbon neutrality by 2050.¹⁸ However, the construction of low-density housing on undeveloped land (new houses) results in the artificialisation of additional land, with many environmental consequences. Low-density urbanisation (single-family housing) will exacerbate this phenomenon, both directly through a larger footprint and indirectly through secondary artificialisation induced by the development of associated infrastructure (roads, pavements, etc.). In France, the consumption of natural

areas is higher than the European average¹⁹ and is growing faster than the population. Thus, the total impermeable surface area in metropolitan France has risen in 30 years from 20,000 km² to nearly 33,000 km².²⁰ This artificialisation reduces the soil's productive capacity, increases the risk of pollution and flooding, increases net greenhouse gas emissions by reducing the size of carbon sinks, and reduces biodiversity, with various negative effects for society.

In addition to its environmental impact, low-density urbanisation contributes to the depopulation of urban centres and reduces the socio-economic gains of agglomeration. For example, urban sprawl can lead to lower business productivity and affect the quality and diversity of local services offered to the public,²¹ such as public transport or roads, which are more costly to maintain for local authorities that have to spread their investments too thinly. Moreover, sprawl contributes to higher socio-economic costs of transport: travel time, fuel costs, carbon emissions, pollution, car dependency, etc. It also contributes to increasing the development costs of infrastructure networks (electricity, drinking water, wastewater, roads and telecommunications) for local authorities.

There are already some leverage points in place that could do more to help control sprawl. For example, the 2018 Budget Act provides for the repeal of the interest-free loan (PTZ) in new housing²² in less tight areas²³ by 2022, which would put an end to the subsidisation of new construction in municipalities where it is not necessary. Similarly, the end of the Pinel tax break by 2022 would remove a distortion. Indeed, owing to imperfect zoning and rent ceilings that are not calibrated to local markets and which in practice have little effect, this measure favours construction rather than renovation where the rent ceilings are less stringent, i.e. in

(18) Following the Paris Agreement and the previous Grenelle Acts, the Energy and Climate Act of 7 November 2019 set a carbon neutrality target for 2050. In addition, the French government adopted the goal of zero net artificialisation in the French 2018 Biodiversity Plan and the European Commission has set a target of neutrality by 2050 [COM(2011) 571].

(19) Reports by France Stratégie and the *Comité pour l'économie verte* (CEV) about land artificialisation, 2019.

(20) Source: Les enjeux de l'artificialisation des sols: diagnostic, *Comité pour l'économie verte*, 2019.

(21) By providing a wider range of easily accessible services, a dense municipality contributes to increasing household well-being.

(22) The PTZ is an income-tested home ownership assistance scheme for households that have not owned their primary residence in the two years preceding the loan. It can be used both for new construction and for the purchase of an old one subject to renovation requirements (25% of the total amount of the investment) and in social housing stock.

(23) Less-tight areas are defined as zones B2 and C of the so-called "Pinel" zoning. Unlike the statistical classification proposed in this descriptive analysis, Pinel zoning is used as a basis for certain public policies (PTZ, and Pinel in particular). There is partial overlap between the two zoning systems, which can mainly be attributed to different zone definitions and methodological choices. For example, the concepts of tourist zones or areas with excess supply do not exist in the Pinel zoning. Pinel zoning, which is more complex, takes into account changes over the period 1999-2010 in certain population factors (number of households, age and standard of living) and economic factors (number of jobs) and also includes a consultation phase with local stakeholders.

areas where the rental market is less tight, often on the periphery.

In addition, it also has an inflationary effect on the property market owing to the way in which house prices are set (see Box 2), which is counterproductive in relation to the

objective of price moderation. More generally, property taxation, in particular the development tax, could continue to be reoriented in order to reduce incentives for land artificialisation or to better price it.

Box 2: Price formation mechanism for new housing

New housing prices do not depend directly on construction costs and primarily reflect the expectations of project owners regarding households' future willingness to pay.^a Thus, based on an estimate of the future selling price, a developer deducts from this amount the construction costs, which depend mainly on the type of project (e.g. individual or collective, ease of access to the building site, etc.), technical, insurance and financial fees, taxes and selling costs. What remains makes it possible to determine the margin and the capacity to acquire the land.

As developers are in competition with each other, the land available for construction generally goes to the highest bidder. Thus, an increase in housing prices results in an increase in the bidding capacity of the project owners and therefore in the purchase price of the land (and sometimes also improved housing quality).

The percentage of land purchase in the final price depends on many factors (for example, the type of land), and in particular the location. Construction costs for comparable final buildings are generally homogeneous across the country, but households' willingness to pay is very diverse.

a. Of course, this depends on many factors, including the level of house prices in existing housing stock.

There are other potential mechanisms to encourage local authorities responsible for urban planning to take better account of the consequences of sprawl: the creation of a market for permits to artificialise land, the creation of a density threshold for construction in local urban planning (proposed by *France Stratégie*),²⁴ or a bonus-malus scheme that would depend on the density of construction projects, applicable to both the project owners and local authorities.

2.3 Negative externalities related to greenhouse gas emissions

The housing sector is impacted by the objective of carbon neutrality by 2050. Household energy consumption accounts for 27% of national energy consumption and 20% of national GHG emissions due to energy combustion.²⁵ The emissions resulting from the production of construction materials, concrete in particular, those resulting from the transport of associated materials, and those caused by the reduction of carbon sinks in the soil during the construction process are added to the above-mentioned 27%. For example, building a 120 m² house could emit between 96 t and 144 teqCO₂, which is more than half of the emissions caused by the energy consumption of a dwelling for 40 years, according to the first results of the *Bâtiments à Énergie Positive et Réduction Carbone* (Positive Energy Buildings and Carbon Reduction) (E+C-) experiment.

The introduction of the 2020 French Thermal Regulations (RE 2020), which will integrate all the carbon emissions associated with the life cycle of a new home (construction and energy use), should make it possible to redirect the supply of housing to limit negative externalities. The impact on prices will depend in large part on the share of land in the final price. An increase in costs may in fact imply a decrease in the capacity of project owners to bid on land rather than an increase in housing prices (see Box 2). On the other hand, in areas where land for construction is easily affordable, the sale price depends mainly on the cost of the building, and an increase in the cost of efficiency constraints results in a greater increase in housing prices. The impact on rents will depend on the ability of households to differentiate between dwellings according to their energy performance and the remainder of the rental stock.

To mitigate these potential price and rent increases, sector innovation will have to be pursued in line with the Housing Reform and Digital Rollout Act (ELAN) and the Government Reform Act for a Trust-Based Society (ESSOC), both from 2018, which introduced permits to innovate and to experiment, respectively. The permit to innovate allows construction companies, for certain projects, to deviate from certain building standards.

In 2018, between 7 and 8 million residences (including 3.1 million for the rental stock alone) were qualified as

(24) Source: Objectif « zéro artificialisation nette »: quels leviers pour protéger les sols?, *France Stratégie*, July 2019.

(25) Source: Les émissions de CO₂ liées à l'énergie en France de 1990 à 2017, September 2019, CGEDD.

"energy inefficient", i.e. with an F- or G-class energy performance assessment. To remedy this, these homes would have to be thermally renovated, but also the energy consumed in the residential sector, which is currently based on a mix of electricity, gas and fuel oil, would have to be decarbonised. In this respect, the incentive to carry out work by economic or regulatory means (obligation to carry out work) will be a determining factor in encouraging landlords to carry out renovation work from which they do not directly benefit.

Various existing economic instruments provide incentives for households to invest in improved energy efficiency. Thus, the *MaPrimeRénov'* scheme introduced in 2020 to replace the Energy Transition Tax Credit (CITE) for modest and very modest households allows a better targeting of thermal renovation works²⁶ and an increased trigger effect relative to the CITE.²⁷ The scheme could also be extended to owner-landlords from 2021 onwards. The expansion of the "kickstart" scheme as part of the Energy Saving Certificates (ECCs) enables low-income households to obtain increased financial support when an inefficient oil, coal or gas boiler is replaced by a heating system using renewable energy, or for insulation work in attics, roofs or ground bearing floors. The recent introduction of conditions for carrying out energy works for certain tax schemes is also intended to meet this challenge. In addition, one of the significant obstacles to carrying out energy-related work in apartment buildings could be lifted by revising the rules for collective decision-making by co-owners with regard to works.²⁸ The forthcoming reform of the energy performance assessment will also make it possible to improve the reliability of information on the energy performance of housing. These actions on the demand side must be coupled with measures to stimulate the supply of renovation. An increase in household demand for renovation work could indeed result in a significant increase in prices if supply cannot be adjusted in terms of quality and quantity. To this end, the training of professionals in the sector, certifications such as the RGE standard (*Reconnu Garant de l'Environnement* – Good Environmental

Stewardship), or the initiatives of ADEME through its FAIRE network will be decisive.

2.4 Other social externalities

While housing can be considered a basic necessity, it also meets needs that differ between households, such as the greater need for an elevator for persons with limited mobility. To take into account the diversity of uses, construction standards must allow for the production of more adaptable housing, as provided for in the ELAN Act, which stipulates that 80% of new housing must be adaptable. Housing also has significant impacts on public health. Regulations on asbestos and lead, for example, have been progressively tightened to take account of the underlying risks, both for occupying households and for building professionals, particularly for a housing stock more than 57% of which was built before 1975. Lastly, aid from the National Housing Agency is now available to help low-income owner-occupiers rehabilitate their homes (e.g. the "Habiter sain" ("Healthy Living") or "Habiter serein" ("Living with Peace of Mind") programmes).

The architectural quality of housing also affects the well-being of households and contributes to cultural heritage. This may justify government action through measures such as the Malraux tax break, in order to reconcile development of supply with preservation of architectural quality. Naturally, a measure is more effective the more it is activated, i.e. the more it affects households' investment choices. For example, in areas with excess demand, such a scheme seems less relevant than in areas with excess supply, where the cost of renovation work cannot be passed on in a satisfactory selling price or rent.

Conversely, the development of public amenities contributes to increasing or lowering housing values, and it is appropriate that taxes on housing stock (the property tax in particular) should be used to finance these operations by using part of the land rent generated by public investment, which implies a regular review of cadastral values.

(26) The amount of the renovation aid allowance is no longer determined solely on the basis of the price of the work, but takes account of energy savings and renewable heat and cold production. This new scale sends a signal regarding the performance of the various eligible equipment and services and thus reinforces the refocusing of CITE on the most efficient measures.

(27) Paid at the time of the work, the bonus will make it easier for households that no longer need to advance the amount covered by the aid to finance the work.

(28) In particular with regard to the decision-making thresholds for carrying out energy renovation work that results in a proven gain in energy performance. This measure may be considered in view of the abundant network of public aid to support low-income households. Currently, thermal renovation work must be voted by a majority of all co-owners, whereas maintenance work (e.g. roofing) is only voted by a majority of the votes cast.

3. Potential effects of public policies on private housing

The first section of this analysis found that there has been a net widespread increase in the housing stock over the last decade, which can only partially be attributed to demographic pressure and household fragmentation. This trend has resulted in rising disparities between local markets, depending on their tightness, and a decline in the rate of occupied dwellings (Section 1). Housing specific market failures – externalities, informational biases, market rigidities – may have contributed to these changes, despite public policies aimed at curbing them (Section 2). This last section outlines the desirable medium-term developments in the housing market, consistent with the objectives of combating greenhouse gas emissions and land artificialisation, and with the other objectives of housing policies. These developments should also be consistent with social housing policy, which plays an important role in the housing construction and renovation market²⁹ and which strongly interacts with the private market, but which is not discussed here.

3.1 A downward trend in new builds

Limiting land artificialisation should entail a reduction in the construction of new housing on undeveloped land. The implications of this shift vary from one region to another:

- In areas with excess supply, the growth in the number of dwellings is expected to slow, so that any new construction projects will only be launched if existing dwellings cannot be renovated and must be demolished in order to be rebuilt.
- In areas with excess demand and to a lesser extent in balanced area, the number of dwellings should continue to increase, but through low land-consuming

construction projects, making efficient use of available undeveloped land or local densification possibilities.

- In tourist areas, the number of dwellings may also continue to increase, albeit at a slower rate and with a more efficient use of land resources than at present. The pace will partly depend on the effects of market failure corrections (e.g. negative externalities related to land artificialisation etc.) which should provide incentives for a more efficient use of available housing.

The emergence of specialised sectors for the design of low-carbon buildings, such as the wood or metal sector, will also be necessary. Against this background, the economic model of low-density housing developers will need to change, even though 40% of the dwellings built in 2018 are residential. Conversely, demolition, soil reclamation and the underlying activities (waste treatment, which should be recycled or revalorized as much as possible, and depollution) will have to be able to meet increased demand.

The sector as a whole needs to become more efficient given rising construction costs resulting from progressively tighter energy regulations, the need for building sustainability and potentially higher land prices, which could increase and thus represent a greater share in the overall costs of new housing. This will also imply more technical construction projects, which should take place more frequently in already urbanised areas. The development of modular housing systems, i.e. consisting of the assembly of pre-fabricated elements, would enable the creation of certain components through industrialised processes, reduce construction times and the attendant disruptions for nearby residents and, potentially, lower construction costs.

Box 3: A needed shift in taxation and regulation

Additional taxation changes could help mitigate the rise in prices by making markets more liquid and efficient, despite the increased use of existing housing and already urbanised land.

The scarcity of available undeveloped land for construction, which is observed in certain areas with excess demand, will increase as policies to combat land artificialisation are implemented. Accordingly, taxation could promote urban renewal projects or projects in already urbanised areas by increasing land hoarding taxes.

(29) 20% of new housing is social housing.

3.2 Effects on the renovation sector

These changes are likely to benefit the thermal renovation sector, which is expected to grow rapidly. More generally, to carry out complex renovation projects (e.g. building renovations) that deliver measurable energy savings, the renovation sector will have to innovate. Moreover, vacancies caused by the upgrading of the existing housing will have to be kept to a minimum, and renovations will have to be stepped up or minimally invasive. If future thermal

renovations entail leaving dwellings unoccupied for several months, this will exacerbate vacancy and housing needs.

Renovations need not be purely thermal. In view of the prospect of a drop in new construction in areas with excess supply and because of the ageing population, a housing upgrading sector should also be developed (reconfiguration, comfort, accessibility, etc.) and be a vector for job creation.

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