

From urban sprawl to urban scattering

Two thirds of houses built each year are developed as detached housing units

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The dispersion of business activities and housing into the areas around towns indicates (a) either a preference on the part of some people to move away from the centre, linked with the “taste” for detached homes shown by one survey after another, (b) or the possibility of living further out whilst retaining the advantage of accessibility thanks to the infrastructural network, (c) or to the gentrification of town centres, which relegates less well-off property purchasers to the outer margins.

These three explanations are generally combined but relate to different factors. In the first case (a) the attraction of detached housing in a peri-urban area more than compensates for the external advantages of urban agglomeration typical of a city centre. In the second (b) based on transport facilities, there is no replacement of the various advantages, but there is the possibility of combining the advantages of both. The third explanation (c) is almost the opposite of the first, as in this case the city centre is the most attractive option. It works on a social and economic separation, based on land and property price factors. The move outwards to peri-urban areas is, therefore, a forced alternative, as a result of financial constraints, for more modest households and companies.

Even though they may be different, these three explanations define a town in terms of centre and periphery. Moving out of the centre plays a major role in this. But the periphery is not a single area determined only by the distance from the centre. The phenomenon of peri-urban expansion does not just sprawl outwards as an extension of the agglomeration. It has mutated into fragmented urbanisation. It makes “little leaps” from one *commune* (municipality) to another, further and further away, towards rural villages. The highest rates of demographic growth are reaching smaller and smaller *communes*. In the 1999 census, the strongest rates of demographic growth involved *communes* with a population of 2,000 to 5,000 inhabitants. In 2004, it was in *communes* with 500 to 1,000 inhabitants.

The average size of housing developments is reducing

drastically. The average development today has ten houses only. Above all, however, two thirds of houses built each year are constructed in small units, outside housing developments, including just one to four houses. These represent more than half the total number of homes built in France in the 1990s. The three figures mentioned before could explain urban development by sprawl, but the actual move towards scattered urbanisation is something else.

A rejection of high building density levels: social aspiration coupled with specific interests

The resistance of residents to additional buildings in their area is often considered as a nimby behaviour linked to growing individualism in our society. However, if there is a sociological explanation, it should also be considered hand-in-hand with an economic explanation. We cannot blame growing urbanisation as being the result of individualistic behaviour and at the same time praise the drawing back of the state, local authorities and institutional investors from involvement. The memory of the weaknesses in the *zones d'aménagement concerté* (ZAC – concerted development zones) of the early 1990s is still very much alive. Institutions are no longer so adventurous. The property crisis that has erupted over the last few years can be explained by growth in demand but also by diminishing availability over a more than ten-year period. The recent upturn has not made up for the housing shortage. The house-building market has increasingly become a market of small property owners who live in the property or rent it out. Naturally enough they want to protect their assets as investments. Those who have managed to invest subsequently profit from the shortage of



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Outskirts of Lyon

available property, which pushes prices up and protects their profits.

The financial side of the housing market has the particularity of being highly dependent on external factors. The value of a dwelling firstly reflects the value of the neighbourhood. Owners, who have built their homes at the edge of a village and who benefit from a view over farmland or countryside, tend to form pressure groups in order to protect such views and to ensure that there is no building on land next to their homes. This phenomenon of the “newcomers” syndrome can be particularly sensitive in small communities in view of the proximity between local councillors and inhabitants. It adds to the “Malthusian” property effect (Charmes, 2006). In a country with 36,000 *communes*, planning is run rather like the assets of a club. The same way of thinking is seen in towns, to protect even the slightest of trees already growing. Land belonging to local authorities or to the state is especially subject to pressure from inhabitants to prevent further development. And there is often an elected representative or a candidate in elections who tries to win favour with residents by promising to create a green space.

More generally, inhabitants may consider a higher building density as a reduction in the quality of life. This appears the more objective as it can lead to a loss in value. The hedonic price approach, for example, enables a calculation to be made of how residential advantages are capitalised in property values. Protecting a view or an area with trees thus gives residents a privileged position.

This financial mechanism also leads to the creation of cul-de-sacs in housing estates. Dwellings located in a cul-de-sac are worth more as they benefit from the collective protection of their neighbourhood, plus they are isolated from through traffic and noise, whilst still having access to main roads.

Fractal geometry and recourse to growth models using cellular automata loops enables us to simulate how town planning develops through making use of “holes”, “empty spaces” and the “little leaps” in urbanisation and the effects of “clustering” around cul-de-sacs (Frankhauser, 1994 ; Antoni, 2002). It is thus that residents’ perception of neighbourhood imposes itself on the broader focus of town planners. The latter tend to favour the creation of public spaces and the routing of infrastructure works in terms of the overall agglomeration.

The presence of social inferiors, on the other hand, is an environmentally negative external factor, whilst the certainty of a similar social mix is a way of protecting one’s property from the risk of falling in value (ADEF, for real estate studies, 2004). The use of space, and green spaces in particular, is a way of keeping others at a distance. Since they create breaks in continuity, green spaces can, to a certain extent, act as ‘ramparts’ against the influence of negative external factors. When environmental values fail to be reflected in prices, environmentalists insist on arguing for the integration of external factors in the name of the real value of things. But when the environmental values are reflected in prices, they add to a market of higher values,



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in other words a highly selective market from a social perspective.

A study carried out for ADEF (Morlet, 2002) challenges the assumption that higher density should produce economies of scale. To complement this assertion, we have analysed the various ways of ordinary house building, whether as result of inheritance, estate developments, property marketing for grouped dwellings or blocks of flats (Castel, 2006a). This fresh investigation has shown differences in costs and returns between the various situations. It has meant we can specify the conditions in which higher building density presents an advantage or a disadvantage to the developer.

The phenomenon of opposition to higher building densities is nothing new. An individual wants both to gather and to distance himself. Depending on the means at his disposal, one or the other will be more important. For economists, a town exists because urban concentration produces economies. Opposed to this, understanding the current fragmentation into peri-urban expansion leads to looking for diseconomies, translating into favouring lower building densities and smaller scale developments.

Our studies suggest five socio-economic causes for less dense or dispersed urbanisation:

- The comparative advantage of the industrial production of individual solutions in terms of construction.
- The minimising of risks and the normative additional costs resulting from dispersed operations.
- Individual gains from the demonetisation of the costs of fitting out, maintenance and security.

- The characteristics of the local professional milieu.
- The limited marginal costs of small developments for local authorities.

Economics of detached housing in terms of construction costs

Industrial production has made it possible to reduce the construction costs of many items which makes individual development better value than public solutions, as is the case for example for cars or telephones. For houses, techniques such as sprung flooring and wooden roofing structures, for example, have made it possible to considerably increase the cost-effectiveness of building detached houses. Manufacturers have managed to industrialise the elements without giving a mass-produced impression but rather offering the impression of traditional construction methods.

Economies of scale for public property are repeatedly beaten by the economies of scale of industrial production for detached properties. This is an unstoppable development. Where public buildings are concerned, there has been a further reduction in economies of scale as the wish to have a pleasant living environment has led planners to reduce the size of permitted buildings. We are in a period where small is beautiful. Each block development becomes like a made-to-measure suit whilst the detached house finds items off the peg. In the end, each square metre of living



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space in a public-housing block today has a construction cost that is 30 to 50% higher than a square metre for a detached dwelling. For the purchaser, the difference is even greater, when the finance and commercial costs are added in. The crisis in town planning, which produces today's urban dilution, is largely explained quite simply by the economies of scale problem faced by public housing.

With technical advances, public housing is always seen as a temporary solution. It represents a second-best solution as long as techniques and manufacturing processes do not allow better individual solutions. In a materialistic sense, the disappearance of a public service is sometimes seen as a sign of a reduction in civic assets and a weakening of social solidarity. For economists, it is often viewed as the result of an obsolete system in the light of economic growth and technical progress which should not be interfered with. Today almost everyone has a bathroom and no one laments the passing of municipal bathhouses as if it was a dramatic sign of the destruction of social bonds. Pressure from autonomous individuals leads to the market always demanding cheap technical advances which allow people to free themselves from dependence on public authorities. Thus, on the material front, technical advances have the power to destroy the need for public services

The distancing of localities risks and normative constraints

Communal living means having to surrender part of one's autonomy in exchange for social ties, in particular reciprocal protective bonds. Every era optimises in its own way the relationship between the need for protection and the need for autonomy. For economists, collective responses to the need for security occur when the result leads to economies of scale producing greater advantages for people than individual actions. Thus in historic towns the production of collective surrounding walls or fortifications appeared for centuries as the best way to maximise the security of a group of people. The building density which then existed is better explained by the need for this security rather than by the wish for social proximity. Our hypothesis is that the reduced density noted nowadays can correspond to another form of minimising risks that are more financially advantageous to individuals.

In the gap in construction costs between collective housing and detached housing, the main factors in the extra costs lie in available techniques, stricter standards, costs linked to the complexity or activity, requiring particular contractors and specific management costs. Many admin-

istrative costs rise in proportion to the scale of operations: impact assessments, specific procedures above a certain surface area or height, specific regulations and systems for security and maintenance. The larger the scale of the buildings, the more the awareness of risk factors translates into tighter standards, which increases technical, maintenance and insurance costs, as illustrated by the recent strengthening of lift regulations. Town planners did not foresee these standard-oriented overheads, which they have nonetheless helped to produce. They have often maintained a simplistic approach, which dictated the construction of large units, according to which collective activity should produce economies of scale. That time is past.

In contemporary society, the random presence of someone else has become a danger, a source of risk. It was the same case previously, but the comparative advantages of others' presence outweighed the risk they represented, swinging the balance in favour of collective solutions. The increasing distancing of living space and localities reduces the concentration of risks, normative standards and related overheads. This can be observed for example in connection with the norms for retention ponds. In previous research (Castel, 2006a), we were struck to find that, in a locality, all of the building development plots covered less than one hectare (2.47 acres). In fact, this corresponded with the break-off line beyond which the creation of a retention pond was compulsory. The example clearly confirms how the normative effects of break-off lines can lead to the fragmentation of the urban set-up.

Environmental culture is concerned with minimising global impacts, but the promoter will function in terms of marginal impact, with the aim of reducing his costs. Standardisation generates the exception, causing a stacking effect at the break-off point. The more restrictive the limit, the greater the push to remain below the break-off point. At a given point, the mounting pressure to take on board global issues rather gives the advantage to detached housing development and to fragmentation. This has the opposite effect of that intended.

Building densification implies changes in procedure such as contracting the construction of detached houses to be sold in anticipation of completion. We researched resulting economic and tax overheads. For instance, acquirers of multi-unit or apartment dwellings have to pay VAT on the value of the plot, while it is not applicable to land purchased on a housing estate. Considering the price of land, the implication is far from insignificant. The VAT differential functions in fact like an incentive for choosing a distant or out-of-centre location.

Simulations indicate that today it is not necessarily profitable for the promoter to add additional dwellings, when the additional costs of higher building density (construction, taxation, outsourcing, marketing) will fail to make up for investment in the few square metres of further development. The neutral curve of density or required surface-

area to cushion the costs of a project will not progress smoothly, but in jumps and starts as a particular level of technical and standardising charge is reached. A project seeking to enhance the development of a larger area may end up with additional costs that cancel out any savings projected on scaled expectations of growth. To neutralise such overheads will require an even more ambitious development, assuming there is adequate demand. But this option is often turned down. Local municipal officials tend to prefer minor projects, those with a smaller impact, that carry lower economic and political risk. This is the key to understanding urban dispersion.

Non-monetary economics of detached housing

For lawyers, a contract represents a bond between people. For the anthropologist, it trivialises the relationship between people, insofar as it comes to replace stronger traditional bonds. The invention of the contract has allowed a reification of the production of collective property, its maintenance and its protection. Thus, for example, in the case of the management of an apartment building, the absence of communal bonds between joint owners is made possible thanks to the contractual reification of the need to carry out common services. The production of the collective is no longer kept within the group, but is entrusted to external service providers, indeed for example a company, a co-owners association, or an insurer. Such contracting results in an exchange of money. As always with the collective, the externalisation of production entails financial costs, whereas individual or community solutions are partly unremunerated. The town air feels liberating, but only to those who can afford it. Preserving anonymity, the town replaces community bonds with monetary contracts and exchanges.

The economic dimension of urban development only recognises formal exchanges. It overlooks unremunerated activity and informal solidarity. When comparing the costs of construction and management between various sectors of housing, whether collective or detached, the measure of the additional costs of the collective lifestyle becomes apparent. But it also becomes obvious that a proportion of these overheads is related to the fact that they refer to monetary relations, whereas it is not the case with decentred habitation. This is particularly manifest in costs of completion, maintenance and security.

A significant proportion of constructed detached houses are sold almost ready, unfinished, or even as a kit, which would not work with projects of grouped or apartment dwellings sold by developers. The price per habitable square metre of these houses can turn out twice as cheap as with an apartment building. Admittedly, they are not comparable, as far as services are concerned. All the same the options are laid out in these very terms to the buyer, who is prima-

rily swayed by his loan solvency. The loan can enable him to acquire what he would otherwise have been unable to afford.

The question here is not whether do-it-yourself and maintenance are recreational or enforced components of lifestyle; instead, it is to evaluate how individual solutions enable an escape from collective pecuniary costs. The realty management of an apartment building requires the reinvestment of approximately 1.5% of the value of the building every year, which is equivalent, in fifty years, of paying the price of the building all over again. At this rate, non-payment can lead to rapid degradation. Apartment buildings deteriorate when the owners are unable to sustain the costs of management; whereas the deterioration of sectors of detached housing is more rarely observed. On the contrary, investment in the latter is, more often than not, under improvement. The buyer can be content with a more modest construction to start with, with the possibility of future extensions, thus spreading his financial investment over time. He can envisage improvements, at minimum cost, thanks to products sold in kit form, such as garden sheds, garages, verandas and swimming pools. It is impossible to grasp the economy of individual building operations without taking into account do-it-yourself and self-maintenance, a type of economy which is not based on remuneration.

The bourgeois "Hausmann"-style city cost much less to run at the time when it was fed and maintained by armies of low-paid workmen and servants. When these exchanges have been transformed, nowadays, into wages, services, with charges, VAT and insurance, the creation of a management system for a collective property has become a luxury. The city can only cope by becoming gentrified, while the outskirts provide an alternative for households on modest incomes. The de-concentration and the individualisation of urban development constitute an escape from the rise in non-material costs arising from interactions related to density.

The local professional network as primary supplier of housing

The economic trade-offs do not depend solely on the scope of the projects, but also on professional criteria and the financial standing of companies, and of their development policies.

Available housing depends on the professional set-up within which it originates. Housing products, much like professions, are segmented along the lines of legal and tax structures. Companies will rehearse such *modus operandi* as to perfectly turn them into a *modus vivendi*. For example, the world of promoters of detached houses rarely ventures into erecting low-cost apartments or grouped

dwellings. They represent distinct trades, although certain companies are only now starting to develop such double competency.

Secondly, the shift from housing developments to grouped housing, then to apartment buildings, implies increasing financial expenses, insurance and bank guarantees. The type of product depends on the financial standing of the company, on its own equities, to negotiate with insurers and bank managers, on its self-financing solvency to fund work and the earliest market research. In the world of the housing development and the detached house, many companies are small enterprises which find via this network the means for advancement with little investment. For house promoters, more ambitious and complex projects represent a new developmental horizon, provided they can afford the risk.

Communes protect local finances

The interest of each commune, taken separately, can also contribute to the fragmentation of projects. Uninterrupted urbanisation implies the density of construction on only a number of sites, proportional to the size of the built-up area. Policies implemented by communes ensure offers are spread across different communes. A particular commune will thus build some residences, even if it means spilling over beyond, into territories located further away. By limiting construction in proportion with their size, communes move the scramble for land elsewhere and contribute to the overall extension of the urban space, by regulating their own investments. The marginal tax due to each is thus diluted and this delays the generation of new investment. This commune dynamic is all the more cumbersome in that investments left unused will be carried forward partly to another level, to the *Conseil Général* (District or County Council). Meanwhile, the reserve of country roads already equipped with utilities, together with the possibility of setting up individual sewage systems, constitute a considerable potential for decentred urbanisation, while requiring no further installation costs.

It is often asked whether greater building density would entail proportional moneysaving as regards public costs. Research does not make it possible to give a simple answer (Castel, 2006b). Contrary to generally accepted ideas, it seems that the output of public services is inversely proportional to population density (Guenguant, 1992). But decisions are not initiated by macroscopic reasoning. In terms of the budget of a promoter or a commune, the challenge is less to make proportional savings than to avoid certain types of expenditure, for example thanks to cheaper installations avoiding certain threshold effects. Urban spread in the shape of detached houses and private building plots represents the means of welcoming new inhabitants by

getting them to fund their accommodation infrastructure themselves rather than by the commune. Communities in general agree to accommodate inhabitants as long as the facilities, in particular schools, are not saturated. Consequently, the refusal to reinforce public infrastructure can be a legitimate argument to justify policies for stopping construction. The easy option consists in selecting development that flows with the trend, accepting minor projects with minimal marginal impact. Thus it may be more financially advantageous to authorise each year the construction of a few houses equipped with individual sewage systems than to envisage new networks or a new branch to the purification plant. Indeed, no less than 100,000 individual sewage systems are installed in France each year.

Possibilities of urban densification in the context of fragmentation and scarcity of land for construction

Urban density is a recurring theme in town planning policies (Micheau, 2002). In recent years, the *Syndicat National des Aménageurs Lotisseurs* (National Union of Developers - SNAL) has launched a call for projects, targeting densely populated housing developments (SNAL, 2003). An experimental programme of the *Plan Urbanisme Construction Architecture* (Urban Planning, Construction and Architecture scheme), entitled “Sustainable Urban Villa”, led to fourteen experimental projects. The experiments that were launched stirred up the debate anew. Many local authorities are considering the feasibility of a more concentrated urbanisation (Mialet, 2006) to satisfy the requirements of sustainable development.

The economic reasoning for more or less dense projects, from the point of view of the promoter and the buyer, depends firstly on the local market. The pressure of demand varies according to whether the communes are more or less located in the residential area of a particular agglomeration, which generally goes hand in hand with the scarcity of land. The higher the selling price of a property, the more likely it is for the promoter to be able to absorb the overheads of density and make a bigger profit on the overall project, even when the margin of profit per housing unit is less in the end. Ultimately, there is a need for the political will and a professional sector able to respond to the ideal development.

New buildings represents only between 10 and 20% of annual transactions. This means that the price level is above all calibrated by the second-hand market (Lacaze, 2000). The market for new buildings is worth a little more than the second-hand one. It is defined in terms of the references set by the second-hand market. But the new building can only be realised if its selling price is higher than the cost of its construction, and where the sale makes it possible for the

developer to make a decent profit. The landowner sets up competition between the builders and will sell the land for the highest offer. The slightest additional overhead in construction or installation can produce a loss. A simple common law or inheritance division of land into two to four plots can prove much more profitable to the landowner than a small estate of six or seven plots, since the additional plots only go towards paying for the costs of installation. The least expensive installation is always that which you do not do.

With prices rising, it becomes possible to switch to small housing estates. In this case, it is recommended to set aside approximately 15,000 euros for infrastructure per plot. This cost has to be deducted from the price at which the developer can afford to purchase the plot. And thus exponentially the higher the density, invariably the higher the price per plot. Thus, it is difficult for detached housing builders to turn down the offer of grouped housing in the peri-urban since there is competition for land for traditional estates, just as it is difficult to create estates when there is an excessive offer of scattered housing.

The projects we researched (Castel, 2006a) have revealed that, on cases located in less attractive peri-urban areas, builders finally did not take the risk towards densification, even in market town centres, given the competition with surrounding communes. Of those we researched, the most profitable densification projects were in attractive locations and mostly concerned an urban clientele. In terms of targeting, they constitute more an alternative to apartment buildings, than to peripheral and rural housing.

It sometimes happens, however, that projects of densification in a peri-urban area are presented as an alternative market to the detached house. Indeed, we found cases where a selling price lower than that of detached houses was possible whilst maintaining promoters' profit margins, and without benefiting from any government subsidy. It is then possible to acquire a detached house, on a smaller piece of land, in more densely built areas for households that were unable to afford a house on a larger plot. Such cases only occur in situations of land scarcity. This feasibility might seem incompatible, at first sight, with the observations we made previously, according to which the evolution of building cost and densification are coterminous. In all such cases, the project benefited from the difference between the price of the acquisition of land for construction for traditional houses in developments, and the theoretical price of land, such as it would be from a calculation of saleable constructible surface. Indeed, in the case of grouped detached housing or small apartment buildings, the builders will have sold living space to the buyers, or a more significant number of lots than was envisaged, whereas the land was purchased at a market of standard-size lots of construction land, corresponding to the only available price reference. In other words, the landowner underestimated the price as compared to what it could have fetched had he

anticipated the densification that would result from the project.

There is no perfect formula. Since building costs per square metre rise in proportion to density, the only solution to sell denser and cheaper residences consists, in one way or another, in reducing the land tax per house. This method, which plays on the differential of land tax, seems to be popular at the moment. It is probably one of the economic driving forces behind the current revival of grouped housing. But it can only take place within the timespan until the market is rebalanced, i.e. while new

references of land prices are being constituted in relation to a market of smaller lots or the sale of constructible surface similar to that which exists in urban area.

The densification of the new urban peripheral spaces is thus supported by the double condition, currently met, of a land scarcity maintained by town planning and the dispersion of the constructible zones, which means that the only existing price references are still fixed on the market of standard size lots for detached houses. Arguably, town planning improves in quality, but at the price of Malthusianism in land.

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