



**Research Master Planning and Sustainability:
Urban and Regional Planning**

MASTER'S DISSERTATION

**URBAN SPRAWL AND LAND-USE POLICIES:
A COMPARATIVE ANALYSIS OF FRANCE AND GERMANY**

presented by

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ABSTRACT

Urban sprawl is a phenomenon that is present in most of the urban world of today; however, the extent of this issue varies from one place to another. This research focuses on the main drivers of urban sprawl and compares their impact in France and Germany, while trying to understand the reason of the greater amount of sprawl in French cities compared to their German counterparts. Starting from the belief that land-use policies are the cause of this disparity, the analysis shows that also topics linked to society and economy, along with governance relate to each other in their role as drivers of urban growth. Housing tenure as a determinant for sprawl involves not only policy-makers' decisions but also individuals' and market trends.

Key words: urban sprawl, land-use policies, society, economy, governance, France, Germany

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INTRODUCTION

Through a study of France and Germany, this work is seeking to explain and compare the nature and evolution of urban sprawl and policies that each country has developed over the past decades regarding land-use.

Urban land use and population density have always been a source of inspiration for researchers working in the fields of urban planning, geography and urban regional economics. Lately the research has focused among other topics on land use intensity and compactness/degree of sprawl of urban areas, which has gained terrain during the past decades (Kansako et al., 2006)

The great benefit of international comparison is that it allows the observer to step outside their own institutions and context, to compare with other countries and to look back at their own country from a new, foreign, perspective. One of the commonly cited advantages of cross-national comparative research as a means of generating understanding and explanations of different social phenomena is its ability to account for the influence of context in societal responses to different issues (Couch et al., 2011).

This work gathers and analyzes relevant information relating to urban sprawl and land-use in France and Germany and presents it in an easy-to-compare manner with figures and tables.

Problem definition

As an evidence of the accelerated urban sprawl expansion in Europe, historical trends, since the mid-1950s, show that European cities have expanded on average by 78 %, whereas the population has grown by only 33 % (EEA, 2006).

France and Germany are no exceptions. These two countries are among the largest, most populated and wealthiest in Europe and they share many problems, sometimes

approached differently. Each country has its own geography, history, economic and social structure, political institutions, culture and customs which must be well understood before attempting any explanation of similarities or differences.

One of those differences is the topic of this work. The problematic that this research aims to clarify is the **greater urban sprawl in French cities compared to their German counterparts**. The complexity of this subject presents the need for a comprehensive study that includes all the possible different variables.

Research questions

It is not within the objectives of this research to measure sprawl in a selection of cities in the studied countries. Also, this work does not intend to participate in the sprawl vs. compact city debate nor discuss which model of growing is the best; but to begin with the fact that the issue of urban sprawl experimented in French cities has been greater than that of their German counterparts; compare the background and events that led to this condition as well as the current policies and other factors that continue to validate the original statement.

Thus, the main research questions are:

- Why has urban sprawl evolved in a different way in France than in Germany?
- Which land-use policies have influenced on this phenomenon?
- What are the current trends on this subject?

Hypothesis

France having a larger area and less population than Germany could appear as the logical answer to the research questions. However, other explanations could arise. The main hypothesis regarding the first research question involves the second one; and is that German land-use policies have been more effective in controlling sprawl. Other possible explanations could be related to economic factors or cultural preferences for a determined type of housing.

Methodology

This work is based on a literature review and the analysis of data and information. First, existing theory on the definition of urban sprawl, its drivers and its consequences will be reviewed. Next, an overview of the selected cases will be done. This should include all the relevant information and data regarding the topic of this research in order to be aware of the context in which urban sprawl has been developing in each country. After that, a selection of criteria for analysis will be done according to the information obtained through the literature review, the overview of the cases and also according to the hypothesis that is to be tested. The last part will involve an analysis of all the recollected data and information on the selected criteria that leads to a comparison and a conclusion regarding the implications of the similarities or differences that were to be found during the analysis.

Structure

This part presented the definition of the main problem, the research question, the hypothesis, and the research methodology. After that, figure 1 presents the research outline.

Chapter 1 presents the theoretical framework including the definitions and main issues regarding the issue of urban sprawl and that were found through the literature review.

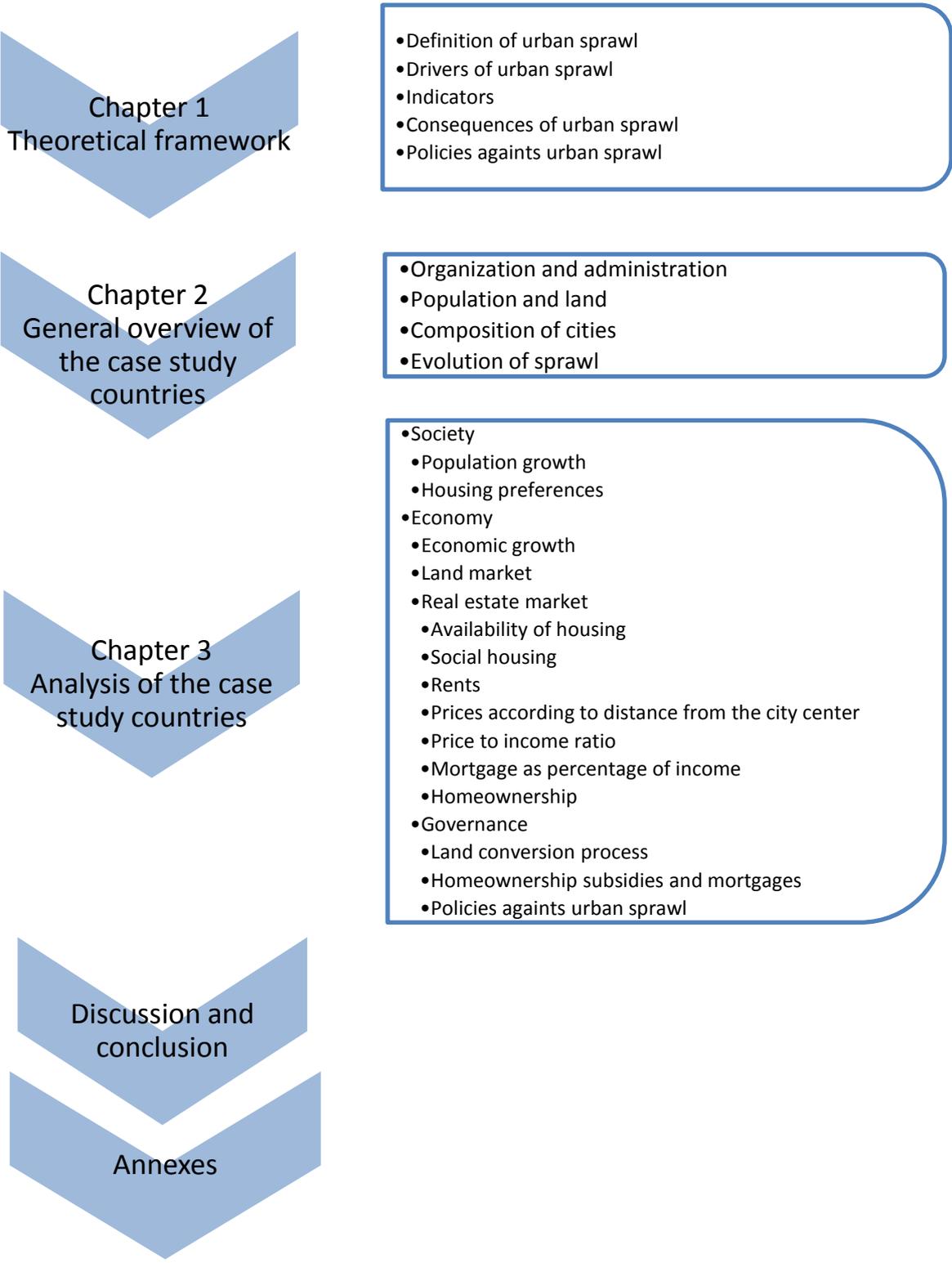
Chapter 2 is a general overview of the case study countries containing relevant information for the analysis.

Chapter 3 is the analysis of the case study countries. The parameters to be analyzed were to be previously defined in the hypothesis and the literature review.

After that a discussion on the subject and the main conclusions are presented.

Finally, there are two annexes. Annex 1 is a review of the main sources of information and data used for this research. Annex 2 is a compilation of tables that were used for the elaboration of some of the figures in this report. These tables can be useful for future references.

Figure 1 Research outline



CHAPTER 1. THEORETICAL FRAMEWORK

“Urban sprawl is one name for many conditions” Galster et al. (2001). In its modern usage, the term was first coined in 1937 by Earle Draper (Nechyba & Walsh, 2002) but, ever since then; its use has spread to a point that has made it almost unmanageable. Nowadays, it is being referred in a variety of disciplines with different meanings and purposes. For example, what urban sprawl means to a politician is probably different to what it is for an urban planner or for an environmental activist. (Arribas-Bel et al., 2011).

Even inside academia, Arribas-Bel et al. (2011) points out, it represents different concepts depending on the discipline: some focus on its social aspects, other researchers see it as the outcome of free market choices, while yet others identify it as an environmental threat.

Confusion and ambiguity usually emerge from such a wide range of views and opinions usually. Nevertheless, this shows the relevance of studying this subject and also the great area of opportunity to achieve a better understanding of what the real important issues are.

Recent works have well described the specificities of the problem of urban sprawl, which first appeared in the United States of America, in Europe (EEA, 2006; Couch et al. 2007 in ESPON, 2010). Moreover, evidence conclusively demonstrates that urban sprawl has accompanied the growth of urban areas across Europe over the past 50 years. (EEA, 2006)

1.1 Definition of urban sprawl

The term “urban sprawl” has been used to cover a variety of urban forms that range from contiguous suburban growth, linear patterns of strip development, leapfrog and

scattered development. Regarding urban form, sprawl is to be found against the principle of the compact city, with high density, centralized development and a spatial mixture of functions, but what is considered to be sprawl ranges along a series of more compact to completely dispersed development. In any case, according to Couch et al. (2005), urban sprawl should be considered as a process of urban change rather as merely an attribute, or pattern, of a city. Finally, urban sprawl cannot be defined by a single parameter (Kasanko et al. 2006).

Galster et al. (2001) defines sprawl as a pattern of land use in an urbanized area that exhibits low levels of some combination of eight distinct dimensions: density, continuity, concentration, clustering, centrality, nuclearity, mixed uses and proximity. These eight attributes also combine two dimensions of the compacity/sprawl characterization: physical and functional. The physical compactness refers to the spatial configuration of land use development within the city, the functional compactness to the density and the mix of daily activity.

Urban sprawl is frequently used to describe physically expanding urban areas. The European Environment Agency (EEA) has described sprawl as “the physical pattern of low-density expansion of large urban areas, under market conditions, mainly into the surrounding agricultural areas”. (EEA, 2006).

The EEA also has stated that “sprawl is the leading edge of urban growth and implies little planning control of land subdivision. Development is patchy, scattered and strung out, with a tendency for discontinuity. It leap-frogs over areas, leaving agricultural enclaves. Sprawling cities are the opposite of compact cities — full of empty spaces that indicate the inefficiencies in development and highlight the consequences of uncontrolled growth” (EEA, 2006).

Another definition of sprawl is “a very low-density development outside the city centers, usually on previously undeveloped land” (Snyder & Bird, 1998).

On the other hand, Glaeser & Kahn (2004) refers to sprawl simply as the dominant form of city living that is based on the automobile.

Angel et al. (2007) recognize five attributes as the key characterization of urban sprawl in the literature and in their investigation. They are:

1. The extension of the area of cities beyond the walkable range and the emergence of 'endless' cities;
2. The persistent decline in urban densities and the increasing consumption of land resources by urban dwellers;
3. Ongoing suburbanization and the decreasing share of the population living and working in metropolitan centers;
4. The diminished contiguity of the built-up areas of cities and the fragmentation of open space in and around them; and
5. The increased compactness of cities as the areas between their fingerlike extensions are filled in.

1.2 Drivers of urban sprawl

The drivers of sprawl change according to the context and background of each region. In developing countries urban sprawl is due to the flood of people trying to flee poverty, coming from rural areas and hoping to find some facilities, jobs and freedom in big cities (Guet & Petite, 2008). However, in Europe the situation is different.

Historically, the growth of cities has been driven by increasing urban population. However, nowadays in Europe, sprawl is driven by a number of factors even where there is little or no population pressure. These factors are related to the desire to realize new lifestyles in suburban environments outside the inner city. (EEA, 2006), and to cultural aspects and individual decisions modulated by the supply side and other external conditions such as price, transport, and cost (ESPON, 2010) (Habibi & Asadi, 2011)

Also, global socio-economic forces are interacting with more localized environmental and spatial constraints to generate the common characteristics of urban sprawl that are evident throughout Europe today. Meanwhile, transportation links and enhanced personal mobility have accelerated sprawl. This means that now it is possible to

either live farther away from the city centers while retaining all the advantages of a city location, or allowing people to live in one city and work in another. (EEA, 2006)

The EEA (2006) describes the mix of forces as including both micro and macro socio-economic trends such as the means of transportation, the price of land, individual housing preferences, demographic trends, cultural traditions and constraints, the attractiveness of existing urban areas, and, not least, the application of land use planning policies at both local and regional scales.

In addition to that, one of the market drivers of sprawl is that land in outlying areas tends to be significantly cheaper than land in or near urban centers. The mortgage insurance systems that favor single family dwellings have also encouraged low-density suburban development. Fragmented governing bodies in many urban areas are another factor that has encouraged sprawl. It is not uncommon for cities to have a variety of agencies making decisions about land use. (Snyder & Bird, 1998)

Nevertheless, sprawl is a much product of poor land use planning, skewed market mechanisms, uneven tax policies, and fragmented government bodies as it is a product of personal preference, according to Syner & Bird (1998).

Following Gleaser & Kahn's definition of urban sprawl, they argue that, using a variety of evidence, sprawl is not the result of explicit government policies or bad urban planning, but rather the inexorable product of car-based living. In contrast to the negative consequences of sprawl exposed by many authors, they mention that sprawl has been associated with significant improvements in quality of living, and that the environmental impacts of sprawl have been offset by technological change. Lastly, they suggest that the primary social problem associated with sprawl is the fact that some people are left behind because they do not earn enough to afford the cars that this form of living requires (Glaeser & Kahn, 2004).

In an attempt to systematize the existing literature on drivers of urban sprawl, the ESPON has categorized them in five different domains: society, economy, governance, transport, and land; and in three different scales: macro level (Political and economic paradigms that shape the nature of the urban societies), meso level (where much of the discourse about the causes of urban sprawl can be found) and micro level (captures the decisions of individual actors in the urban system). This

information has been gathered in table 1, where factors that drive urban sprawl are in bold while the remaining factors may become drivers of urban sprawl under certain conditions.

Table 1 Main drivers of current urban sprawl in Europe

	Macro level	Meso level	Micro level
Society	Population growth Ageing Declining household size Ideology		Individual decisions Housing preferences Quality of life Inner city problems
Economy	Globalization Economic growth European integration Cheap energy	Rising living standards Price of land Competition between municipalities Real estate market	
Governance	EU policies International regulations	Legislation and regulations Weak land use planning Public subsidies for homeownership	Poor enforcement of existing plans
	Lack of coordination		
Transport	Low cost of fuel Reduction in transport costs	Available car ownership Availability of roads Poor public transport	
Land		Local geography and environment	

(Source: ESPON, 2010)

Regarding each of the drivers of sprawl presented in table 1. The ESPON's report describes them as follows:

Population change is an important consequence of urban conditions, especially the availability of economic opportunities. **Migration** is a response to differences in employment or the quality of life between places, even if the process of adjustment is inefficient. The bigger the differences, the more worthwhile it may be to move, subject to barriers such as distance, legal restrictions, housing constraints and information on the opportunities available. The propensity of people to move is affected by their age, qualifications, financial resources and sense of attachment.

Globalization is recognized as one of the main drivers of urban sprawl interrelated with the development of information and communication technologies together with the increased accessibility to almost any place in the world. The traditional geographic range (space of influence) is overcome, and place is disconnected of economy. This has direct consequences for governance creating a conflict between local/regional policies and global market.

EU integration may have an undesired side effect through the investments on major transport infrastructures and opening the doors of sprawl to new areas. Since transport is one driver of urban sprawl special attention should be paid in these cases implementing additional policies of containment (EEA, 2006).

Real estate market is an important player from the supply side. According to Bertaud land price profile follows approximately the population density profile in market economies. This promotes the urbanization of the less dense areas within a certain time distance of the main center.

The differential **price** between agricultural land and already urbanized land discourages the revitalization or recycling of built space generating derelict land. It also has a strong impact in fertile flat areas where accessibility generates a conflict of uses leading to a marginalization of agriculture.

One of the main failures to effectively control urban sprawl is the lack of horizontal (space) and vertical (institutional) integration of policies (EEA, 2006). City boundaries are becoming diffuse increasing the complexity of levels of governance (e.g. intermediate metropolitan administrations).

*Nearly all environmental management is carried out at a **local** level, and measures adopted at this level influence the impacts at broader scales.*

***Municipalities** have limited number of tools to influence the urban spatial structure although some typical municipal objectives have a spatial implication:*

- Protecting the natural environment requires more compact cities;*
- Maintaining a high ratio of public transport trip requires high densities;*
- Low housing prices requires an increase in land supply at densities set by demand generating a large suburban expansion*

***Fragmented decision-making.** Typical situation for actor groups involved in the development of land:*

*• **Municipalities** maintain the hope that new inhabitants will lead to a tax surplus, when in fact studies have shown that this is only seldom the case. Therefore they generally favor the development of land. Costs are transferred as far as possible to the investor and as the municipality bears “no” costs the project is regarded as “good”.*

*• For **landowners** a plot represents an economic asset in whose increasing value they hope to profit. Thus, owners of agricultural land which is facing development become highly active.*

*• For **project developers**, high unit costs to connect new dwellings or commercial premises to supply networks are often more than offset by the much cheaper land prices in peripheral areas at the edge of existing settlements. The extra transport costs are countered by other sales arguments (e.g. property prices, “living in the countryside”).*

• Utility companies have little motivation to influence the location and density of use of newly constructed or newly connected areas, as the associated costs

are reimbursed by users in the form of construction subsidies or by a general rising of charges for all users.

- **Householders** seeking a new location are often ignorant of the high costs for technical infrastructures associated with low density peripheral areas. The low price of suburban land hides the rising infrastructure costs per housing unit which low settlement density causes.

- As a result fragmented decision taking supports therefore unsustainable land use developments: The single decisions are comprehensible; but whether actors ignore the high follow up cost for transport, infrastructure, loss of land, biodiversity and ecosystem services or transfer these costs to others, finally every resident.

1.3 Indicators

The literature review on urban form and measurement is huge. A simple ratio between the urbanized area and the number of inhabitants living in that area is many times proposed to evaluate or demonstrate urban sprawl. For many of the cities, it can be observed that the urbanized area grows faster than the population living in it. (Laugier, 2012)

In general, the most commonly used indicators to measure urban sprawl are: density, continuity, concentration, clustering, centrality, nuclearity, mixed uses, and proximity.

Land cover change is also a useful indicator for several reasons, as enlisted by the EEA (2001):

To understand the socio-economic pressures as potential causes of the main types of landscape changes;

Statistics and maps work together to bring forward relevant information on the magnitude and spatial distribution of change;

□□ *Information about landscape changes combined with intensity intervals for these changes, and recalculating the changes to a grid presentation provide suitable mapping presentations.*

Arribas-Bel et al. (2011) propose a conceptual categorization (see table 2). There are six main dimensions that fall into two main conceptual categories.

Table 2 Dimensions of urban sprawl

Dimensions	Category
Scattering Connectivity Availability of open space	Urban morphology
Density Decentralization Land-use mix	Internal composition

(Arribas-Bel et al., 2011)

“The first category is urban morphology, which includes as variables the scattering of urban development, the connectivity of the area, and the availability of open space. By “morphology”, we mean the spatial configuration and the existing linkages between the different components of a city, both between each other and within themselves. If we think of the concept of “urban region” in a broad sense, this encompasses not only areas that, in terms of land-use, are really urban (i.e. residential, industrial, streets, parks, etc.) but also that part of the land in-between which, despite being part of such region, is not devoted to actual urban uses (i.e. forest, agricultural land between urban uses, etc.). If we call the relevant urban pieces of land patches, “urban morphology” here refers to how such patches are arranged and connected within the whole extent of the ‘urban region’. Hence the second

category refers to the internal composition of the parts defined before; in other words, the focus here is not on what is the structure but on how that structure is filled. This involves considering the arrangement of the people who inhabit the region. To capture this, we will use three variables (density, decentralization, and land-use mix) that each represent different aspects of how the population is distributed across the patches” (Arribas-Bel et al., 2011)

Frankhouser, (2004) mentions that it is important to have quantitative descriptors to manage sprawl. These allow distinguishing different types of urban patterns and which are less ambiguous than traditional density measures. However, as it was mentioned before, it is not an objective of this work to measure sprawl; nevertheless, it is important to be aware of the theoretical background on this matter to be able to create a more precise analysis.

1.4 Consequences of urban sprawl

Urban sprawl has been recognized as one of the main current problems of cities for several reasons. Some of them are the unsustainable loss of natural resources (Jenks et al., 1996; Williams et al., 2000; Jenks and Dempsey, 2005 in ESPON, 2010) and the many social and ecological problems are side effects of urban sprawl (Burton, 2000; Jenks and Burgess, 2000 in ESPON, 2010).

The EEA considers that urban sprawl produces many adverse impacts that have direct effects on the quality of life for people living in cities. It describes the sprawling nature of Europe's cities as critically important because of the major impacts that are evident in increased energy, land and soil consumption. This agency claims that these impacts threaten both the natural and rural environments, raising greenhouse gas emissions that cause climate change and elevated air and noise pollution levels which often exceed the agreed human safety limits. (EEA, 2006)

Syner & Bird (1998) agree on the problems of sprawl being related to the hidden costs associated with it, greater car dependence, higher infrastructure costs, loss of open space and agricultural lands, more energy-intensive development, urban core disinvestment, and traffic congestion. However, he also point out that opponents of

sprawl should admit that sprawl has many attractions for the inhabitants, such as low density residential lifestyles, easy access to open space at home and in the country, relatively short commuting times for those who both live and live in the suburbs, ease of movement and the ability to separate oneself spatially from problems associated with poverty and the inner city.

Moreover, other authors have a differing view on this subject. Glaeser & Kahn (2007) claim that sprawl's negative quality of life impacts have been overstated: effective vehicle pollution regulation has limited emissions increases associated with increased driving. This is true for the advanced economies; however, in the most of the developing world this statement cannot be taken as a fact. They also add that the growth of edge cities is associated with increases in most measures of quality of life. Finally, they say that the problem of sprawl lies not in the people who have moved to the suburbs but rather the people who have been left behind: the exodus of jobs and people from the inner cities have created an abandoned underclass whose earnings cannot support a multi-car based lifestyle. (Glaeser & Kahn, 2004)

While sprawl has its advantages, some would argue its costs to society outweigh its benefits. Overall, evidence suggests that if unplanned, decentralized development dominates, sprawl will occur in a mechanistic way. On the other hand, where growth around the periphery of the city is coordinated by strong urban policies, more compact forms of urban development can be expected. (EEA, 2006)

1.5 Policies against urban sprawl

“Governance is generally taken to be the process of governing an area or policy field” (Couch et al., 2011). Therefore, understanding these processes is essential in order to start a comparative policy analysis. The dimension of governance include the institutions and actors involved: who has what powers and duties? How do they interact? They also include the normative conditions, meaning the values, ideologies and perceptions of institutions and actors (Kooiman, 2003 in Couch et al., 2011).

Studying urban governance at the local level involves considering not only the governing decisions and capacity of the formal institutions of the local state, but the

ways in which these combine with the capacities to act and resources of other actors to deliver locally desired policy goals. (Couch et al., 2011)

Even though European institutions have been including the urban environment in their agenda, the competence of urban issues lies at Member State level. However, the EEA (2006) considers that the European Union has an obligation in relation to the wide range of environmental; social and economic impacts of urban sprawl to define a clear responsibility and mandate to take an active lead in the development of new initiatives to counteract the impacts of sprawl.

European policy does not have spatial planning responsibilities; however, it sets the framing guidance for planning. For example, polycentric spatial development approaches, as opposed to urban agglomerations and diffuse settlement patterns, have the potential to deliver optimal mixes of urban/rural activities, access to services and necessary concentration of economic drivers. In this way good land-use practice can result in reductions in environmental pressures, for example from transport.

The 1999 European Spatial Development Perspective (ESDP) is a non-binding framework at the European level that aims to coordinate various European regional policy impacts, already advocates the development of a sustainable, polycentric and balanced urban systems with compact cities and strengthening of the partnerships between urban and rural areas; parity of access to infrastructure and knowledge; and wise management of natural areas and the cultural heritage (EEA, 2010).

Other plans that build further on the ESDP are the 2008 Green Paper on territorial cohesion (European Commission, 2008), and the 2007 EU Territorial Agenda and Action Plan (COPTA, 2007).

The European Community's laws on environmental impact assessment require the assessment and minimization of any potential negative environmental impacts of projects (Environmental Impact Assessment Directive, EIA) as well as plans and programs (Strategic Environmental Assessment Directive, SEA).

Their implementation has shown that they can improve the consideration of environmental aspects in planning projects, plans and programs in the Member States, contribute to more systematic and transparent planning, and improve participation and consultation. (EEA, 2010)

Policies to combat sprawl frequently seek to cluster development and preserve open rural space. Since the probability for a given lot being developed increases the more undeveloped land there is surrounding it, the policy sucks development away from more densely developed urban areas. Clustering policies increase the likelihood of a rural lot being developed (thus accelerating development in more rural areas) because of the external benefit created by surrounding undeveloped lots. This effect is only neutralized if a large proportion of rural lots is zones for open space.

Policies to achieve densification have been in place in the United Kingdom for considerably longer than anywhere else in the world. Planning authorities have delimited urban growth boundaries and preserved land in agricultural use through the definition of Green Belts or other designation that prevents development of any type. (Cheshire & Sheppard, 2004). However, these designations avoid urban sprawl in the vicinity of towns but sprawl often exists beyond them. Some northern countries try to manage urban sprawl by promoting axial development along public transportation networks and preserving green areas between these axes. (Frankhouser, 2004)

Making developers pay the full price of development, in effect, may exclude segments of the population from living in that area – further exacerbating problems of concentrated poverty in the inner city. (Snyder & Bird, 1998)

Habibi & Asadi (2011) enlist many of the different kind of policies to control urban sprawl:

- *Control travels: Surveys shows that reducing the number of private auto ownership is one of the main methods for controlling sprawl. More taxation and toll gate is the other solution.*
- *Create urban boundaries: Urban boundaries in edges of cities will control urban sprawl. In this regard, only constructing in inner districts will be allowed and urban size will not be extended.*
- *Participate in providing infrastructure costs: Surveys show that urban sprawl has got costs 20 times more than the normal growth because of needs to news ways, schools, housing and public services. So, increasing resident's share of costs plays an important role in controlling sprawl.*

- *Betterment of low-income household's living conditions: One important part of residents in suburb is people who migrate for improvement of their family life. Paying financial credits, preparation of affordable housing and regional subsidies are some solutions for improving their living condition.*
- *Redevelopment of inner-core regions: This action causes an increase in urban land price. Usage of lands and enterprising in industrial abandoned lands, blank commercial plots and metro stations spaces, rehabilitation of abandoned properties and historic buildings are some examples of this policy.*
- *Control growth and protection of lands: Open spaces have high value tax determination for changing land uses causes a decrease in the rate of land changes.*
- *Urban consolidation: Urban consolidation has been introduced as a solution for more appropriate utilization of lands and infrastructures in the built up area of a city. It pursuits restriction of using urban lands, reduction of infrastructure costs, and using of more public transportation.*
- *Support smart growth strategies: Smart growth concentrate on compact development and redevelopment built up area in a city.*
- *Creative and efficient management: presenting creative urban policies will cause an appropriate growth. So, planners should be able to determine value and direction of development and its costs.*

Specific policies against urban sprawl in France and Germany are described and compared in Chapter 3.

CHAPTER 2. GENERAL OVERVIEW OF THE CASE STUDY COUNTRIES

France and Germany are two countries that share a common border and they are located mostly in Western Europe (with France possessing several overseas regions and territories). Both countries are part of the European Union and are among the largest, the most populated and the wealthiest nations in it. They are also members of several other international organizations such as the United Nations, NATO, the G8, the G20, and the OECD, among others.

After being antagonists on both World Wars the relationship between them is now characterized by a strong cooperation in common issues and assuming leading roles in the European Union.

2.1 Organization and administration

France is a unitary state with considerable powers (especially in the fields of planning and regeneration) were devolved to elected regional and department authorities and to the communes. Different tiers of government are co-dependent, and collaborative working is normal. Germany, on the other hand is a federal state in which the constitutive states hold a key position (Couch et al., 2011).

Table 3 Administration of the case study countries

	France	Germany
Regional	27 <i>régions</i> ; 22 in Metropolitan France	16 <i>Länder</i>
Sub-regional	101 <i>départements</i> ; 96 in Metropolitan France	633 <i>Kreis</i> (groups of <i>Gemeinden</i>)
Local	36,433 <i>communes</i>	7,240 <i>Gemeinden</i>
Mean population of the local administrative level	1,500	11,000

(Source: Couch et al. 2011)

Often French municipalities are small and not much populated; yet, whatever the size or the population, the municipal competences are the same. Many attempts to reduce the number of municipalities have been made during the last two centuries. French people are quite bound to this heritage from the French Revolution and even from the *Ancien Régime*. The spatial planning and local land use regulations are one of the municipal major competences because of its impact on the territorial development and the land value. Some simple changes in a local plan can multiply the value of a plot by several times (Guet & Petitet, 2008).

Both politicians and citizens consider the small average size of the municipalities as a democratic asset. However, for a great part of their competences, the municipal scale is not the most adequate one. The merger of municipalities is very difficult because of the attachment of French people and politicians to their municipality. Instead, incentive approaches to inter-municipal cooperation have been developed to try to meet the needs of society due to the urban consequences of the industrial revolution of the 19th century. These needs include the development of services, infrastructure

and facilities, town planning, management and organization of economic and urban development. (Guet & Petitet, 2008)

2.2 Population and land

Urban land use deserves special attention as most human activities are concentrated in cities (EEA, 2010). Artificial areas are defined as “areas where the natural layer has been replaced by other materials, either permeable or impermeable to water, to allow different uses: it includes parts of built-up land, but also streets, squares and parking lots (paved or permeable), as well as sports fields or excavation areas” (Romano & Zullo, 2012).

Table 4 Area, population, artificial area and population density

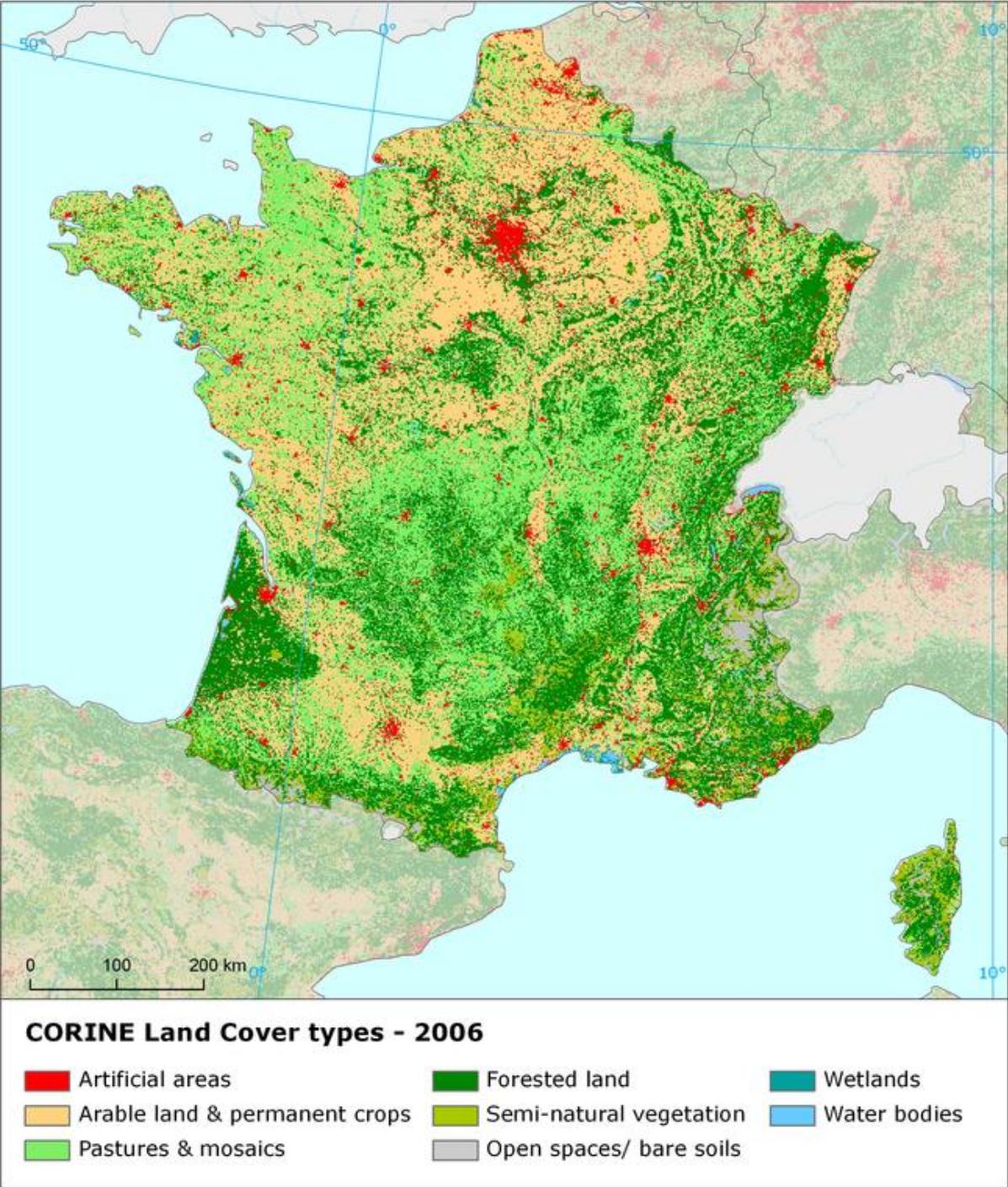
	France	Germany
Land area (km2)	549,087	357,031
Population	63,623,209	82,314,906
Land covered by artificial areas (% of total)	5	8
Land covered by artificial areas (km2)	27,454.35	28,564.48
Population density of artificial areas (inhabitants/km2)	2,317.42	2,881.92

(Source: Couch et al., 2011)

As of 2006, 8% of the land in Germany corresponded to artificial areas whereas in France this type of land cover represented 5% of the total. However, due to the difference in the total area of each country (France’s land area being 1.53 times

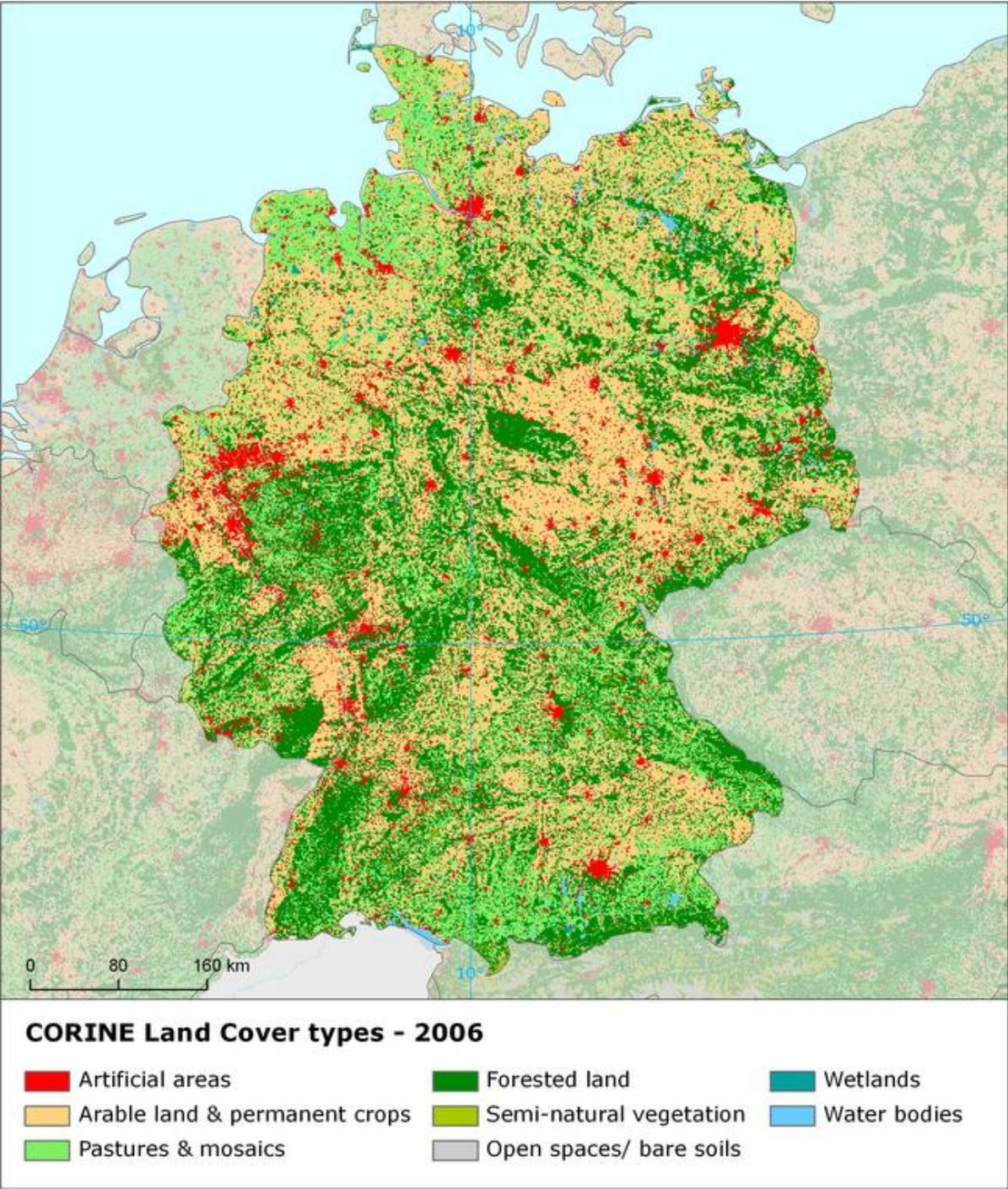
larger than Germany's), the net artificial areas of both countries are almost similar, Germany's being 4% of bigger than France's. In this similar amount of area, Germany allocates 1.29 times the population of France resulting in an artificial areas population density of Germany being 1.24 times higher than the one of France (see table 4).

Figure 2 Land cover in France



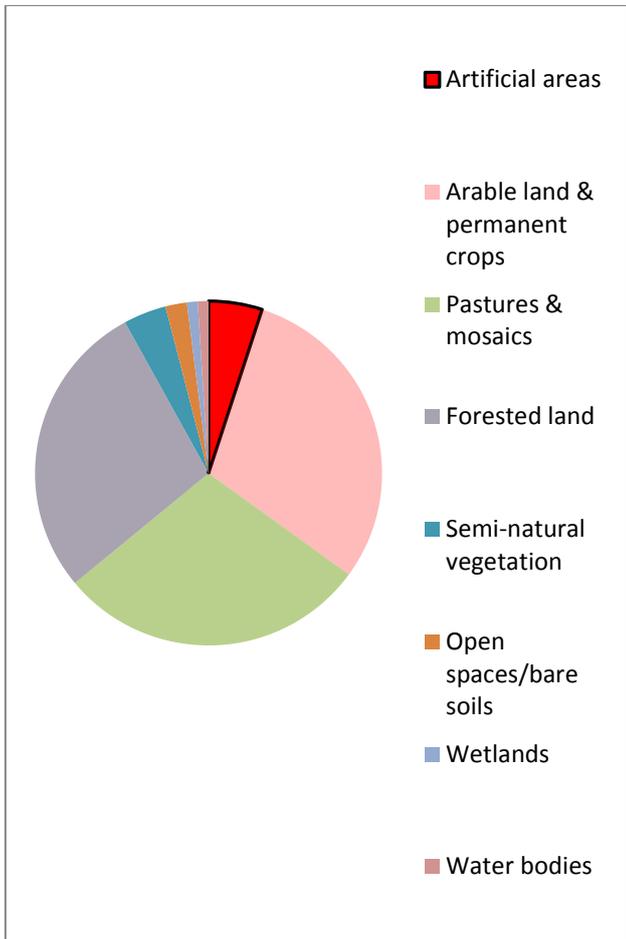
(Source: Corine, EEA, 2006)

Figure 3 Land cover in Germany



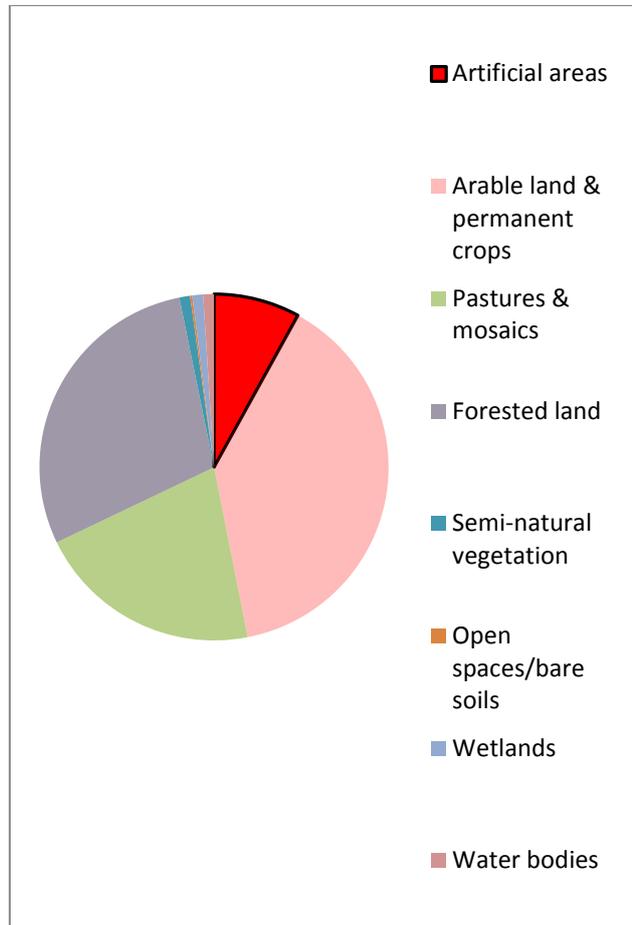
(Source: Corine, EEA, 2006)

Figure 4 Land cover in France, 2006 (% of total)



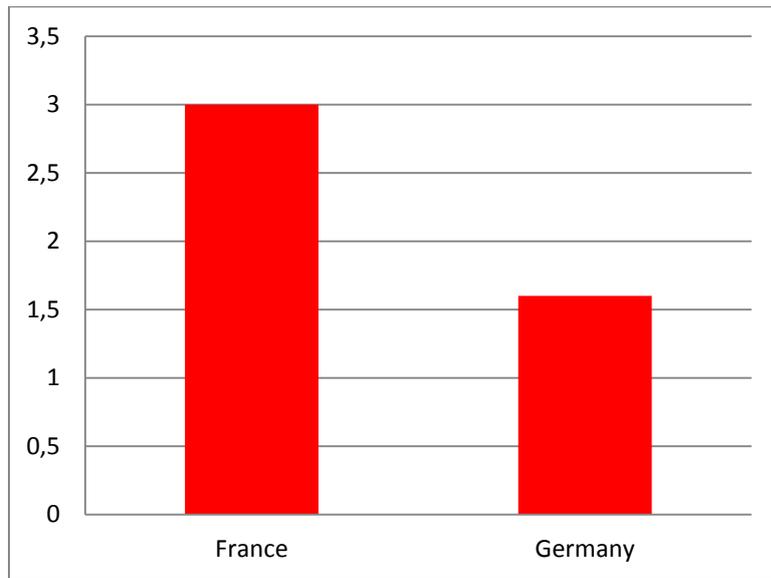
(Source: Corine, EEA, 2006)

Figure 5 Land cover in Germany, 2006 (% of total)



(Source: Corine, EEA, 2006)

Figure 6 Net formation of artificial areas, 2000-2006 (% of the total area)



(Source: Corine, EEA, 2006)

As seen in figure 6, artificial land uptake in France shows constant intensity in the period 2000-2006, and as the Corine (2006) reports this situation was present during the 1990-2000 as well; thus making it the main driver of land change in France.

This report also mentions that artificial land uptake has been driven mainly by diffuse **residential sprawl** (36%), land take in the period 2000-2006 has very similar structure and also comparable intensity as in the previous period (1990-2000) (Corine, 2006).

Other main drivers of land take are sprawls of commercial and industrial sites (25%) and accelerated construction (21%) followed by sprawl of mineral extraction sites (12%) and transport networks (4%) (Corine, 2006).

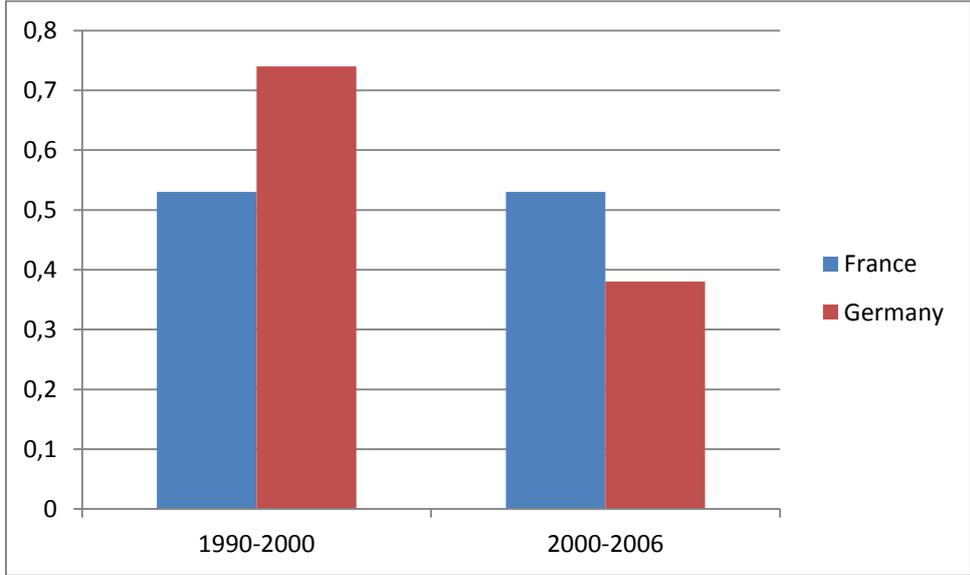
On the other hand, in Germany, although artificial land uptake remains the main driver of the change in German landscape, the overall intensity of this phenomenon (and especially the intensity of residential and commercial/industrial sprawl) rapidly decreased in the period 2000-2006 compared to previous period (1990-2000). The only sprawl type with increasing intensity is the one associated with road and rails infrastructure development. Most of the artificial development is still driven by **sprawl**

of discontinuous residential fabric. The other main drivers of land take are sprawl of mineral extraction sites and sprawl of industrial and commercial sites (Corine, 2006).

Artificial sprawl in France is concentrated mostly in surroundings of major cities (the capital Paris, Toulouse, Lyon, Lille) and along the Mediterranean coast in the south (Côte d’Azur, around Marseille). There is also significantly higher density of scattered residential sprawl over the western part of the country (Bretagne, Pays de la Loire and Poitou-Charentes regions).

Spatially, land cover change areas in Germany are densely distributed over whole country. Land take is scattered especially over western part of the country. Artificial development in eastern part of Germany is concentrated mostly in the surroundings of the capital city Berlin (Corine, 2006).

Figure 7 Artificial land take (% of initial year)



(Source: Corine, EEA, 2006)

As it can be seen in Figure 7, artificial land take in France has kept its same rhythm, whereas in Germany it has been declining. A more detailed analysis and comparison.

2.3 Composition of cities

The physical structure of urban areas, the disposition and mix of land uses, the nature of the housing stock, its form and tenure all have an influence on the nature of the urban problems facing the authorities and the range of possible solutions available to them. (Couch et al., 2011)

France is an essentially monocentric country dominated by a single capital city with around 16% of the country's population. Germany has a polycentric urban structure with no one dominant city (Berlin, the largest city contains only 4% of the German population). (Couch et al., 2011)

Table 5 Relative size of largest city

	France	Germany
Population of largest city	Paris (9.6 million)	Berlin (3.4 million)
Population of largest city as a proportion of total national population	15.6%	4.1%

(Couch et al., 2011)

This situation in France puts severe limitations on the nature and quantity of economic development that is possible outside of the capital city. Germany, in contrast, is a polycentric country with no one dominant city and substantially devolved political-economic and cultural power. This has the effect of broadening the nature and scope of economic development to which any German city can aspire compared with many of their French counterparts. (Couch et al., 2011)

In German spatial planning policy, polycentric development is almost institutional. Thanks in part to historical reasons; the German federal system offers quite an advanced model for distributing responsibilities between the federal and the regional levels. This attempts to give the *Länder* (states) a considerable amount of power

while maintaining a coherent national policy infrastructure. (Keenleyside et al., 2009). Most cities appear to be very competitive against major indicators and frequently perform well in international league tables of urban livability.

Economically, politically and demographically the country is dominated by Paris and the Ile de France region. Secondary poles exist around Toulouse and the Rhone Alps/Mediterranean regions. Regional cities have experience growth in recent decades often accompanied by investments in urban infrastructure such as new rapid transit systems. Outside of Paris and the other main centers population density is very low in comparison with Germany. France has pursued a policy that secures a more polycentric form of development for the past 40 years; however, its system of elected regional government was not established until only 20 years ago, in comparison to the longer established federal system in Germany (Keenleyside et al., 2009). The most significant initiative that reflected this goal was the designation of twelve major urban centers outside the Paris region as '*métropoles d'équilibre*' (balancing metropolises) (Couch et al., 2011).

Table 6 Housing tenure

	France		Germany	
	Rented	Owner occupied	Rented	Owner occupied
1980	53	47	61	39
1990	46	54	58	42
2000	45	55	55	45

(Couch et al., 2011)

Whilst in France owner occupation is the most common form of tenure, this is not the case in Germany. This has profound implications for the nature of inner urban

housing problems and their solution (Couch et al., 2011), as it will be demonstrated later.

In regards to the composition of the dwelling stock by type of building, single-family houses are much more common in France. In Germany, this kind of buildings represents less than 30%. This is further explained in Chapter 3.

In France, after the Second World War and up to the 1970s, the development around the cities consisted of districts of modern flats, in a type of urban planning and design inspired by the modernist movement, dedicated to the middle class. The decline of these modern districts started from the middle of the 1970s due to the State policy but also to the wish of the middle classes for different type of housing; French people began moving to the suburbs spreading a single-family dwellings belt around the cities. In the decade of the 1990s cities tried to slow down this shift, to keep green spaces, and to pay more attention to the welcome of activities than to that of new inhabitants. These policies were in part the cause of the considerable increase of land and real estate prices that have occurred in France in the last decades. These increases make the middle and lower classes go always further to find housing, especially if they want to become private owners while the upper classes tend to move back again to the city centers. (Guet & Petitet, 2008)

For a long time, the State had closely controlled the municipalities with juridical, regulation and financial manners. It is no longer the cases since the decentralization movement of the 1980s. Now, municipalities are responsible for the elaboration of their spatial planning documents. (Guet & Petitet, 2008) These plans are discussed later in this paper.

In France inner urban areas are more likely to comprise multi-family dwellings (apartments). One of the key urban challenges since the 1970s has been to address the social problems faced by large-scale high-rise suburban social housing estates ('grands ensembles') constructed in the 1950s and 1960s to meet the housing needs of a nation experiencing population growth, migration from rural to urban areas, and rapid industrialization. (Couch et al., 2011)

In German cities, rented multi-family dwellings are very much the norm. In the inner urban areas of German cities the more common building type is the perimeter block tenement: individual buildings with a large footprint, containing separate apartment groups around communal central stairways. Typically up to six stories high with a shared open area to the rear. The ground floor is often given over to some non-residential commercial or retail use. (Couch et al., 2011)

Nearly 3% of the French housing stock was built before 1945, compared with 27% in Germany (National Board of Housing, Building and Planning, Sweden, 2005 in Couch et al., 2011).

2.4 Evolution of sprawl

Table 7 Evolution of sprawl

France	Germany
<p>After years of neglecting the issue, France was faced with a massive housing shortage in the 1950s. This shortage was created by the significant rural-urban migration occurring in the decades following World War II. This created particular challenges notably in relation to housing with a pressing need to accommodate new urban population rapidly. A legacy of this rapid urbanization and migration is the presence of large high-rise peripheral social housing estates around Paris and other major cities (Couch et al., 2011)</p>	<p>Germany was faced with a large post-war reconstruction program. The urban renewal in the 1970s was characterized by more intensive orientation towards existing housing and revitalization of inner-city neighborhoods in Western Germany. However, in Eastern Germany the permanent construction of new housing neglected neighborhood with old buildings (Couch et al., 2011).</p>
<p>Urban sprawl organized in the form of ZUP (zone à urbaniser en priorité) from 1958 to 1968 thanks to a strong politic commitment by the State was followed by the sprawl in the form of individual operations grouped or uncollected that were in hand with the progressive emergence of</p>	<p>It is important to take into account the historic background of Eastern Germany because of the specific local issues that have been linked with urban sprawl. These issues such as massive demographic shrinking and economic restructuring did not have any precedent on scale in terms of speed, depth and breadth. (Couch et al., 2011)</p>

new urban units and with a decline in the number of rural communities. (Laugier, 2012)

In France, as in the majority of developed countries, urban sprawl was brought in by a wave of economic expansion, and by the consecutive increase in the purchasing power of households (Pumain, 2004). If the economic context between 1999 and 2007 permitted attempts of re-densification, the crisis provoked a return to the sprawl. (Laugier, 2012)

State policies designed to solve the problem of housing shortages in the context of post-war reconstruction and the succeeding phase of unprecedented demographic growth (baby-boom, massive rural exodus, and then at the start of the 1960s, the reintegration of two million people from Algeria), were initially expressed in the building of large collective structures, between 1950 and 1970, favored by the institution in 1958 of the *Zones d'Urbanisation* (ZUP). The marked preference from this period on for the acquisition of property for individual housing, the rejection of the large collective groupings by the middle classes, and modification in family structures, from the end of the 1960s, inspired the first waves of building of individual housing estates. Motivations offered as reasons for moving are related much more to conditions of housing (surface space, cost, the desire to change from renting to property ownership, and from the collective to the individual), than to a search for the advantages of a rural environment (Orfeuill, 2000).

These 'spontaneous' tendencies were certainly increased by national policies. The Real Estate law of 1967, with the ZAC procedure (*Zone d'Aménagement Concerté*—Collaborative Development Zone) provided greater flexibility

Urban sprawl has been at the top of the agendas of urban planners, geographers, and environmental researchers in the western countries. However, in the former socialist countries of central and eastern Europe, this issue was never a matter of discussion until the 1990s.

Since 1989, the population of Eastern Germany has been decreasing rapidly. Moreover, after than same year, births in eastern Germany immediately fell down. On the other hand, migration to eastern Germany has been too small to counteract this fall. Urban sprawl should have been expected to be discouraged by these trends; however the situation was the opposite. (Couch et al., 2011)

In Eastern Germany, living as a family in a detached suburban house was not a popular aspiration within the population; it was also not favored by the government. Little is known about what people would have preferred; however, it is certain that the majority of them did not aspire to a suburban life. More than one third of the population at the end of the 1980s was housed in the typical huge prefabricated housing estates. After the reunification, the idea of moving to the suburbs spread rapidly. The increase in incomes and wealth might have been some of the reason for this; another one was probably the massive promotion of housing property by government as well as the media and advertising. A number of studies on the motives and choices of the suburbs' newcomers in Eastern Germany showed that the main incentive for private households to sprawl was the opportunity to improve their housing standards in considerable way, which in the early 1990s were much worse than in Western

for the establishment of housing estates with individual houses. In particular, it was the law of 1977 on the financing of public housing, substituting for 'aid towards stones' an 'aid to persons', by guaranteeing loans for the acquisition of property for low-income households, which promoted the extension of the cities. Thus in the beginning of the 1980s, 40% of new constructions were destined for households that were benefiting from assistance. (Pumain, 2004)

Although the evolution of mobility has been comparable to the development observed in other European countries, the French State has been particularly active in the construction of infrastructures favorable to the car. In the period from 1960 to 1970, the dominant policy was to adapt the city to the car. (Pumain, 2004)

Germany in terms of the available living space and fittings. (Couch et al., 2011)

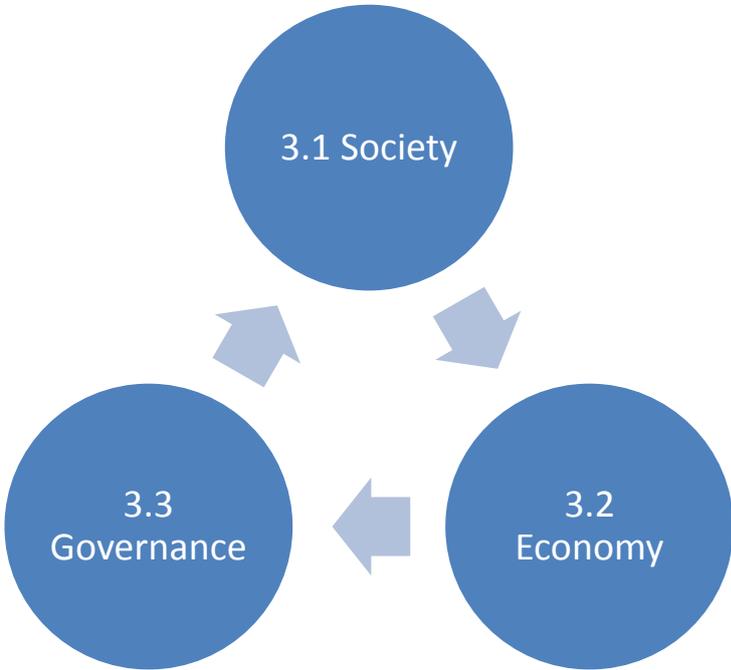
Many typical pull factors of suburbia, such as a green environment and the possibility to escape from former neighbors, were, at most, of minor importance and many residents would have preferred to remain in the inner city if their living requirements could have been met there. (Couch et al., 2011). Hence, it seems that social and especially economic conditions were only partly conducive to urban sprawl, while public policy was highly supportive of it.

CHAPTER 3. ANALYSIS OF THE CASE STUDY COUNTRIES

The analysis consists on the comparison and comments on the situation in France and Germany in three different dimensions. These dimensions group the different drivers of sprawl that are related to the hypothesis stated before and also to possible answers to the research question found during the literature review.

This part is organized as follows:

Figure 8 Analysis model



The model is represented as a cycle because, even if each of these dimensions was studied separately, the final conclusion will point to a very strong relationship between them.

3.1 Society

3.1.1 Population growth

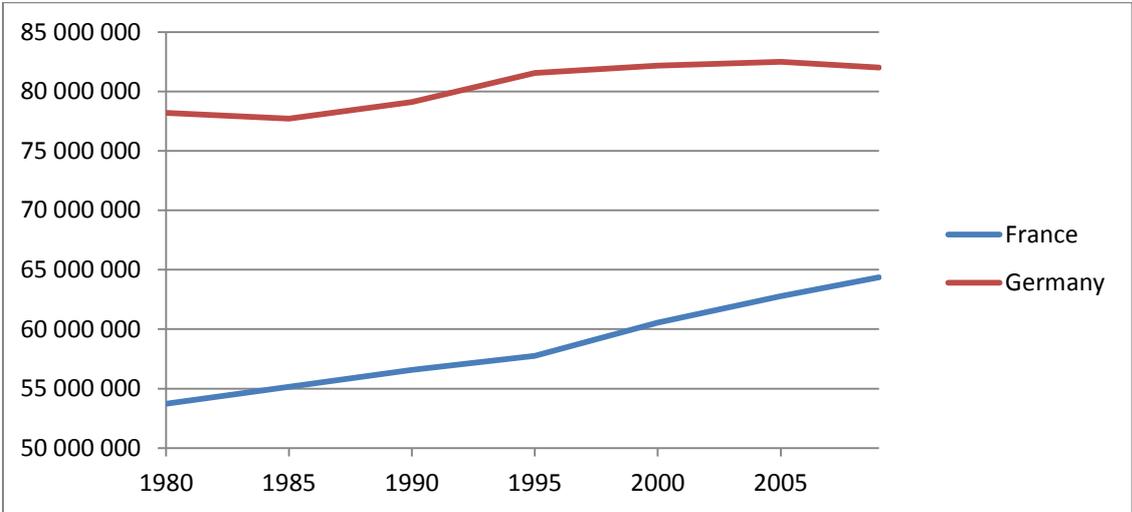
Table 8 presents general data - namely land area, population, and population density - of the current situation of the two countries that are being studied as an introduction to the specific context of each of them and as base to analyze the impact of the drivers of urban sprawl.

Table 8 General data

	France	Germany
Land area (km ²)	549,087	357,031
Population, 2007	63,623,209	82,314,906
Population density (Population/km ²), 2007	100.09	229.9

(ESPON, 2010)

Figure 8 Population growth



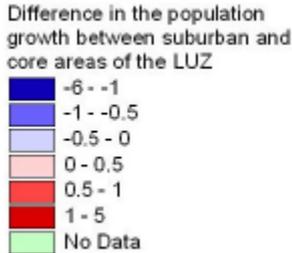
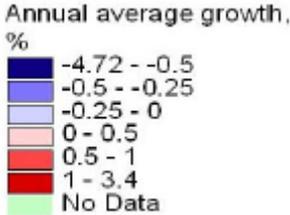
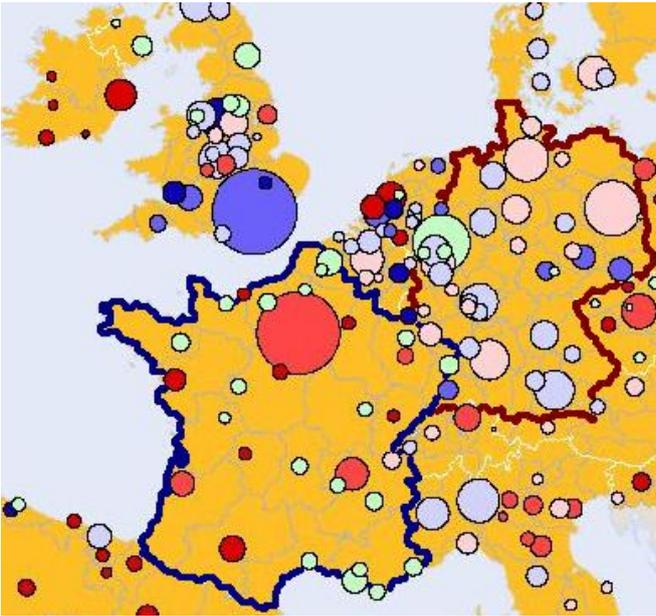
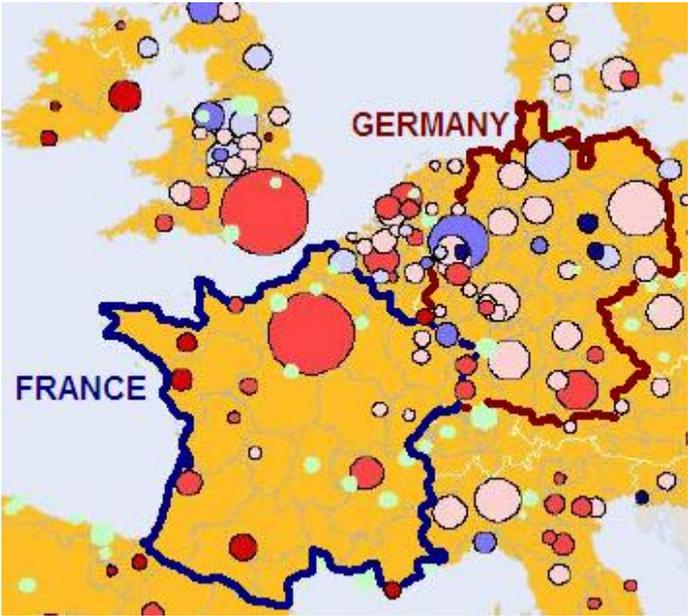
(Source: Doll & Haffner, 2010)

Figure 8 shows the greater population growth experimented in France in the past three decades. This growth corresponds to 19.8% for the 1980-2009 period for France and only 4.9% for the same period in Germany (Doll & Haffner, 2010).

Population density in Germany is considerably – over 100% - higher than in France. As a very obvious supposition this could explain the greater urban sprawl in France; however, a deeper analysis will show that there exist other factors that determine this situation. As ESPON’s (2010) report Future Orientation for Cities states: “population growth no longer determines the outward expansion of built-up areas”.

Figure 9 Population growth in the Larger Urban Zones (LUZ) 1995-2007

Figure 10 Difference in the population growth between suburban and core areas of the Larger Urban Zones (LUZ), 2000-2005

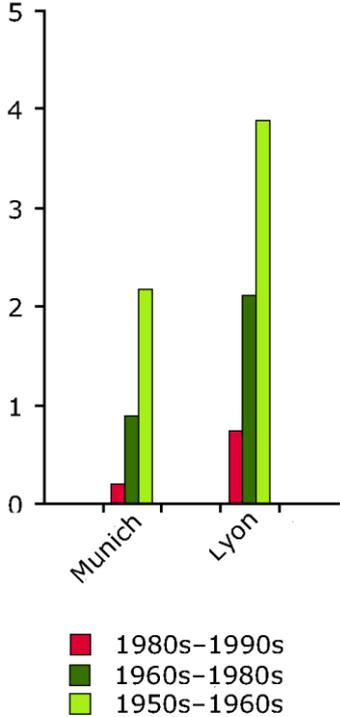


(Source: ESPON, 2010)

(Source: ESPON, 2010)

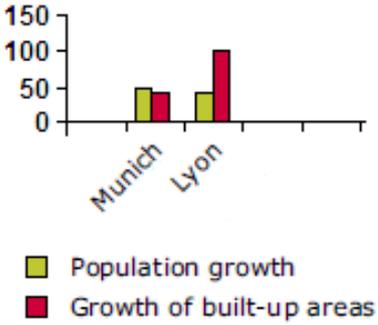
In figures 9 and 10, cities in blue have gone through higher population growth in the core cities than in the suburban areas. In France, most of the cities are in red, which means the suburbanization process is the dominant process. The following figures show the specific cases of Munich, Germany and Lyon, France in terms of population and urban growth:

Figure 11 Population growth, selected cities, (%)



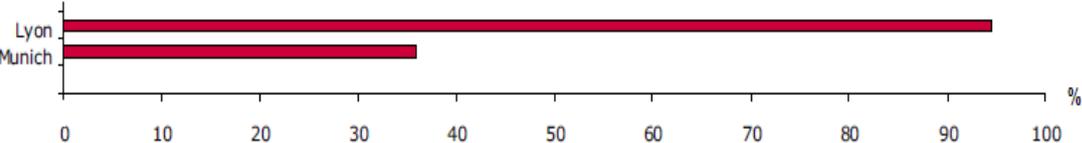
(Source: Kasanko et al., 2006)

Figure 12 Population growth and the growth of built-up areas (mid 1950s to late 1990s), selected cities (%)



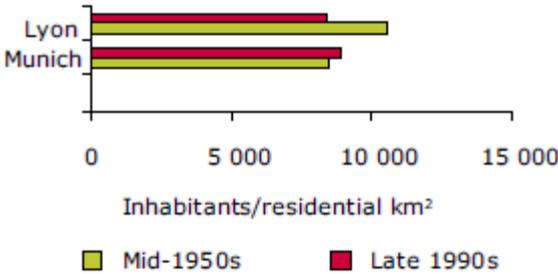
(Source: Kasanko et al., 2006)

Figure 13 Low density residential areas as proportion of all residential areas built after the mid 1950s, selected cities, (%)



(Source: Kasanko et al., 2006)

Figure 14 Change in population density, selected cities (inhabitants/residential km²)



(Source: Kasanko et al., 2006)

Table 9 Area, population and population change, selected cities

	Lyon, France	Munich, Germany
Total land area (km ²)	302	791
Population in the mid-1950's	770,000	1,127,541
Population in the late 1990's	1,030,000	1,680,000
Population change mid-1950's – late 1990's (%)	33.8	49.0

(Kasanko et al., 2006)

3.1.2 Housing preferences

The housing preferences refer to the willingness of people to live in multi-family buildings, favoring a compact growth of a city, or in a single-family house far from the city center with a longer commuting time causing urban sprawl. These preferences are influenced by cultural background, traditions, economic and social pressure, among other factors. Table 10 presents a broad view of the general preferences in France and Germany

Table 10 General housing preferences in France and Germany

France	Germany
<p>Younger French people commonly stay in their parents' home through the early years of adulthood. 29% of men aged between 24 and 29 still live with their parents; during this time they may accumulate savings for a housing down payment.</p>	<p>Earlier in a person's life-cycle, moves occur within the rented sectors. Low transaction costs of moving and the age profile of the tenants make mobility quite high within that tenure. Once the move is made into owner occupation people tend to live in that home for the rest of their life.</p>

(Laino & Pitinni, 2011)

While two thirds of the French people live in single-family dwellings, 90% of households wish to become home owners of a single-family house, this desire however, varies according to socio-professional categories. At the same time, they pursue certain proximity to services (schools, commerce, doctors). Cities are also associated to an unattractive density; hence the attraction to the countryside or the suburban areas, this last statement is especially true for the couples with children. (Laugier, 2012)

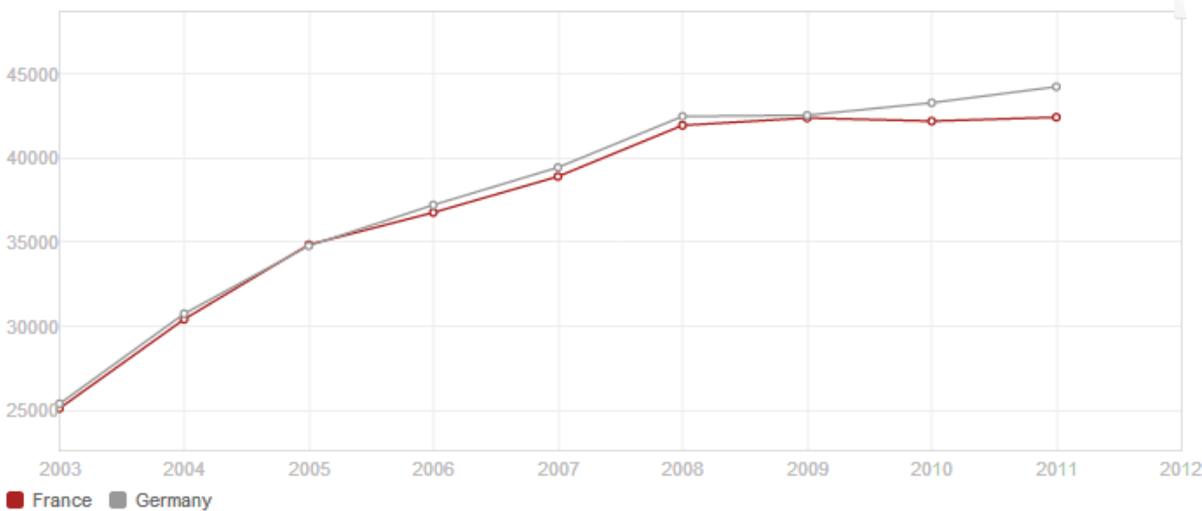
3.2 Economy

There are differences in the structure of the economy of each country. Germany still has the largest manufacturing sector (32% of employment) compared with about 25% in France. 71% of the employment in France corresponds to the service sector and only 66% in Germany. France has a biggest agricultural sector. (Couch et al., 2011)

3.2.1 Economic growth

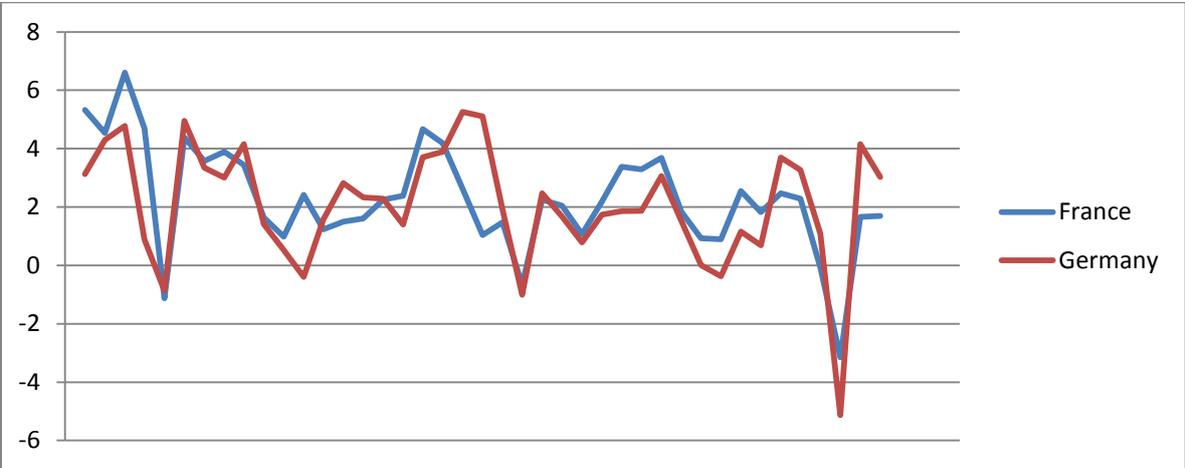
GNI (gross national income) per capita (formerly GNP per capita) is the gross national income, converted to U.S. dollars using the World Bank Atlas method, divided by the midyear population. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. (The World Bank, 2013)

Figure 15 GNI per capita (US dollars)



(Source: The World Bank, 2013)

Figure 16 Growth in GNI per capita, 1971-2011 (%)



(Source: The World Bank, 2013)

Figure 15 shows that both countries have a similar GNI per capita and figure 16 shows that its evolution through time has had the same tendencies. Hence, the difference in income should not be a factor that influences urban sprawl by itself but maybe the real estate situation and the capacity of this income to acquire or not large houses in sprawled neighborhoods.

3.2.2 Land market

The fact that land is finite distinguishes it from other means of production (Dawson, 1984 in Kopeva & Van Dijk, 2006). Land is one of the most regulated markets on the planet. Even as national and sub-national government policies have liberalized over the past 30 years, land use regulations appear to have grown more extensive, sophisticated and numerous. (McLaughlin, 2011). One of the reasons is the inherent externalities and relative permanence of urban growth and development. Even the father of classical economic liberalism, Hayek, conceded that one of the fundamental functions of governments in a liberal market economy should be to regulate land (Von Hayek, 1960). (McLaughlin, 2011)

Land development models, also called land management strategies, usually have three main objectives. The first one is to make land available for development. For this to happen it is often required a form of land assembly, than can be interpreted as a transfer from passive (landowners that take no particular steps to market or development opportunity) to active land ownership (those willing to develop their land). Secondly, it is an objective to make sure that the costs of the public works that are necessary for the intended development can be recovered, either completely or at least in part. Finally, the third main objective is to capture part of the unearned increment in the land value that occurs as a result of the change of the land use in the area to be developed, thus allowing higher valued uses or higher building densities. (Jacobs & Van der Krabben, 2013) This last objective, however, is subject to political debate in many countries. (Alterman, 2009 in Jacobs & Van der Krabben, 2013)

Table 11 Acquiring land process

France

The *Programme d'Action Fonciere* from the mid-1970s to 1984 enabled communes in major conurbations to use low-interest loans to buy land for their future development needs. (Barlow, 1993)

Each sale of agricultural land has to be notified to the local SAFER, the main institution of land sales regulation, by the notaries legalizing the transactions. After the SAFER receives the notification, an initial agreement has been already reached between the seller and buyer at a given price. The SAFER then has two months to accept or to refuse the transaction. When market forces lead to a transaction that is in line with the objectives of the SAFER and the transaction cannot be suspected of being speculative, then the latter accepts the transaction. When these conditions are not met, the SAFER can refuse the transaction.

According to Ciaian et al., (2010), small municipalities are especially interested in industrial development (for example to obtain more financial resources) and in housing development (inhabitants being voters for the local representatives). Such pressures on agricultural land are especially felt in tourist areas or around urban centers. Moreover, it is not only that municipalities happen to show laxity when giving building permission, but also that they themselves have urban pre-emptive rights (*droits de pré-emption urbains*). This means that they can confiscate any land in their area, against compensation, in order to build roads, railways, recreational activities, etc. Agricultural land is ever more impinged upon by this right.

Germany

The ways of selling land are varied, according to the different methods of purchase. Tan et al. (2009) appoints that normally, the governments, private investors, or a combination of both will sell land for cost recovery or profit making. This process is determined through the market mechanism, with the price being a market price negotiated by both buyer and seller. The governments or private investors take the risk of buying or selling upon themselves. When they acquire land through land readjustment, the land sale step can be abbreviated, for the land ownership of building lots remains with the original owners, who themselves need to find appropriate ways to sell their land to capture the incremental land value resulting from the conversion. Most of the value increase is captured by the original farmland owners and sometimes is partly shared by interim purchasers.

Also, referring Tan et al., (2009); with declining budgets, local governments are now seeking more reasonable and acceptable ways to share the costs that go into increasing land values. Of course this kind of value capture is not welcomed by land owners. Consequently, some governments will use "silent" value-capture methods, such as asking private landowners who wish to build on their property to pay the cost of appropriate ecological compensation, according to the Federal Nature Conservation Act. Farmland conversion for urban use inevitably does harm to the natural environment; taxing such activity is a feasible way for governments to share in the added value of converted land.

The main difference between the land acquisition process in France and Germany is the existence of a sales regulation institution in France. This method of sales regulation leads to a decrease in speculation investment compared with other countries. In Germany, there are sometimes difficulties in obtaining appropriate land supply because of regional or local government reluctance to allocate land in land-use plans. In areas of high demand, for example, there are general planning constraints on suburban expansion, because of the general policy preferences of regional planning authorities on sustaining extensive green space in the more urbanized regions for recreational and environmental reasons (Ball, 2011). Housing pressure on agricultural land is common to both countries as it presented in table 12.

Table 12 Urban and infrastructural pressures

France	Germany
<p>The influence of demographic pressure in terms of urbanization and tourism on land prices is large. Prices of agricultural land in coastal areas and around large towns compared with the rural inland are much higher.</p>	<p>The impact of infrastructural expansion and urban pressure is high in regions with high population densities and good economic conditions. This is especially the case for regions in West Germany.</p>
<p>Due to its large coastal area, in Bretagne land prices are closely linked to demographic pressure (urbanization and tourism along the coast, besides environmental regulations), although the extent of urbanization is less critical than in other French coastal areas.</p>	<p>In contrast to the agricultural demand for land, the demand for construction sites does not depend on the soil's quality. This non-agricultural demand influences the value of agricultural land since conversion of agricultural areas reduces the available supply of land for agriculture.</p>

(Ciaian et al, 2010)

3.2.3 Real estate market

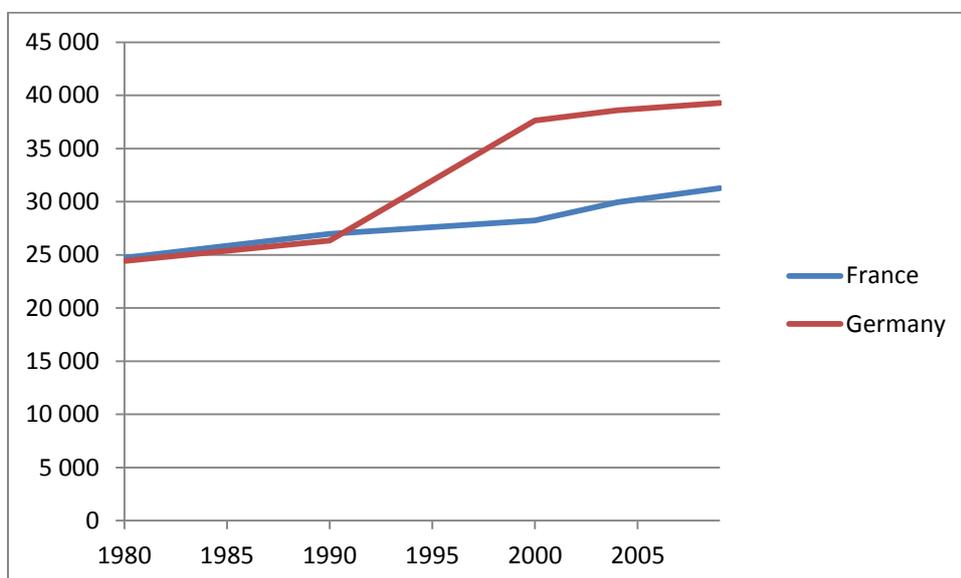
Land price profile follows approximately the population density profile in market economies (Bertaud, 2004), this means that land outside the city center will be less expensive than in or near the city center. This promotes the urbanization of the less dense areas (i.e. the outskirts of the cities) within a certain time distance of the main center. (ESPON, 2010).

The revitalization or recycling of built space is discouraged by the differential price between agricultural land and already urbanized land. (ESPON, 2010).

Availability of housing

The following figures present the availability of housing in the two countries, measured by the total amount of dwellings, the number of dwellings per 1,000 inhabitants and the number of vacant conventional dwellings.

Figure 17 Dwelling stock (*1,000)



(Source: Doll & Haffner, 2010)

A boom in the housing construction can be seen in Germany during the decade of the 1990s. According to Ball (2004), this affected the market performance and it was stimulated by the reunification and the policies enacted in reaction to the housing

shortages that arose. A huge wave of migrants from the eastern to the western *Länder* was the principal cause of these shortages. However, this house building program was out of proportion and this led to a downswing in the housing market and to a considerable proportion of the housing stock to be left vacant (see table 13). In total, 4.4 million dwellings were completed between 1991 and 1999, most of the units being small to moderate sized apartments. During this period, the government provided low interest loans for housing investment. The withdrawal of most additional building subsidies over the next years as an adjustment to create more normal market conditions has resulted to discourage house building; this discouragement has also been influenced by low investment levels due to the uncertainty over policies towards housing and general taxation. (Ball, 2004)

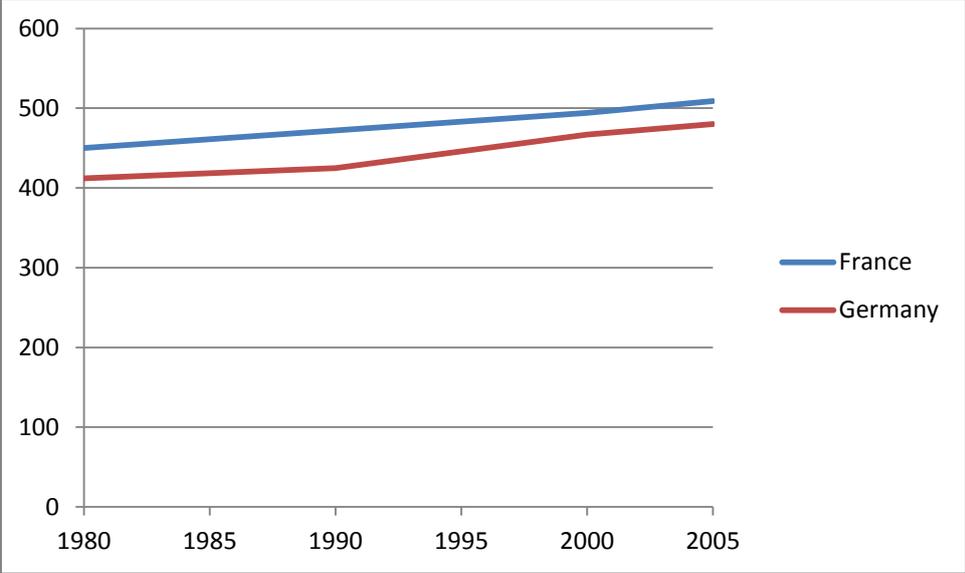
Table 13 Vacant conventional dwellings (% of total dwelling stock), 2006

France	Germany
6.3	8.0

(Source: Doll & Haffner, 2010)

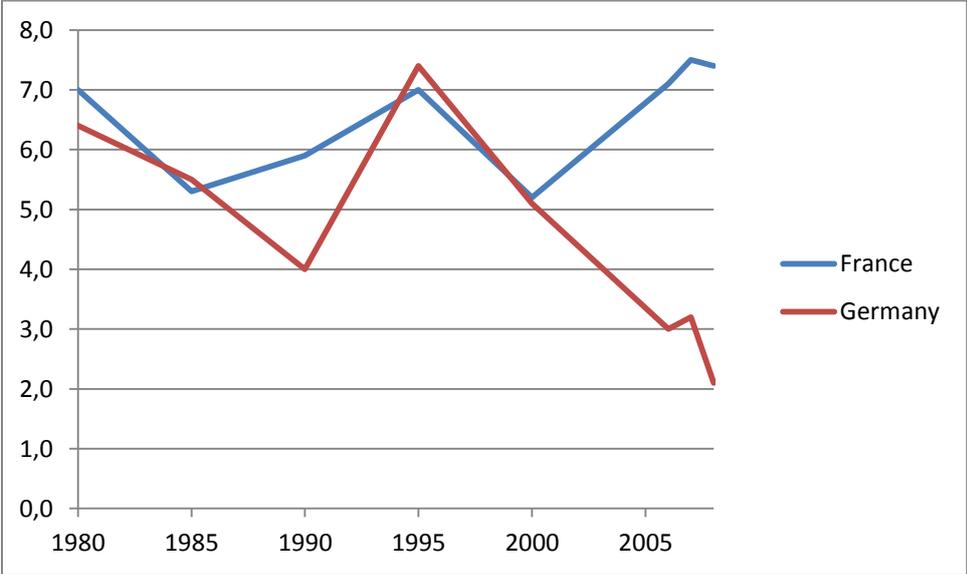
However, in spite of this period of massive house building in Germany that led it to surpass France in the total dwelling stock, France still holds a higher number of dwellings per inhabitant as can be seen in figure 18; explained by Germany’s greater population and the constant rate of house building in France through the past decades (see figures 19 and 20). France has the largest stock of housing in the European Union when measured on a crude number per thousand population basis.

Figure 18 Dwellings per 1,000 inhabitants



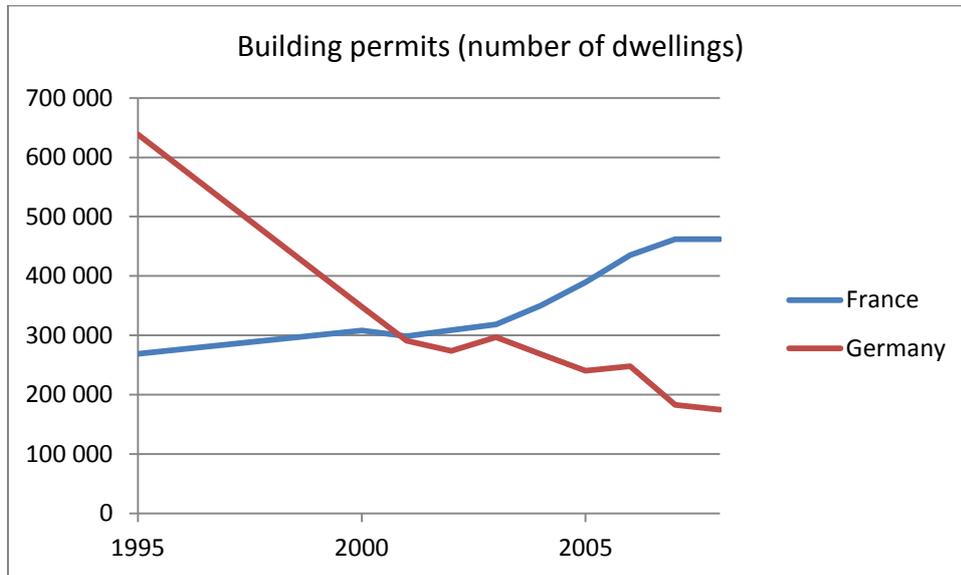
(Source: Doll & Haffner, 2010)

Figure 19 Dwellings completed per 1,000 inhabitants



(Source: Doll & Haffner, 2010)

Figure 20 Building permits (number of dwellings)



(Source: Doll & Haffner, 2010)

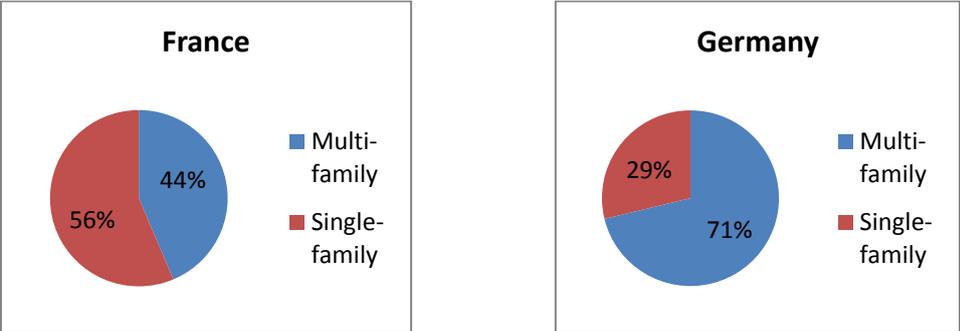
France's rate of completed dwellings per inhabitant has had ups and downs in the past three decades culminating with a high rate nowadays compared to Germany's boom in the 1990's with a current low rate of completed dwellings. Since 2001, more dwellings per year are built in France than in Germany.

According to Ball (2001), when contemplating purchasing in Germany, the range of choice is typically less than in countries with bigger homeownership markets. It is often difficult to find appropriate, readily available properties, because there are relatively few transactions in local homeowner markets. Agent fees and other transactions costs are high, which further discourages high frequency trading.

Also about Germany, Ball (2001) mentions that local new build markets are themselves often limited in scope and involve considerable consumer effort. The small scale of the new owner market discourages mass-market homebuilders, and a preference of existing types of purchaser is often for "self-build", individualized homes. Altogether, the benefits of mass markets common in countries with high homeownership shares is absent in Germany.

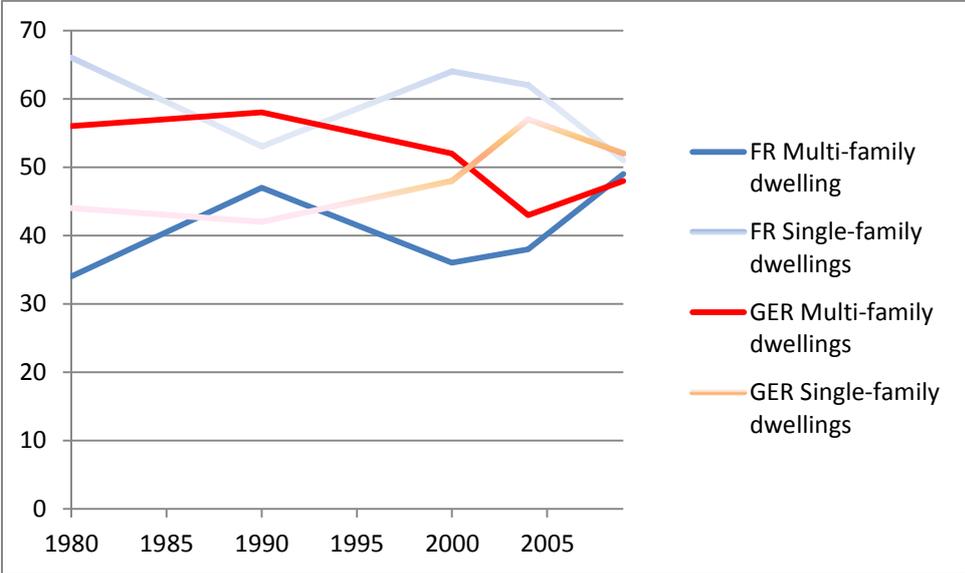
In regards to the composition of the dwelling stock by type of building, single-family houses are much more common in France. In Germany, this kind of buildings represent less than 30% as it can be seen in figure 21.

Figure 21 Dwelling stock by type of building, 2009



(Source: Doll & Haffner, 2010)

Figure 22 Dwellings completed by type of building (%)



(Source: Doll & Haffner, 2010)

In regard to the types of buildings; in Germany the number of completed multi-family dwellings against single-family dwellings has always been bigger until the year 2004 when this situation was reversed. On the other hand, in France the opposite situation

is observed until the year 2009 when the number of multi-family and single-family dwellings has been balanced.

Given the house building rhythms observed in each country, the average age of existing dwellings does not differ greatly. In France, 27.1% of the total stock was built after 1981, for Germany, these constructions represent 25.7% of the total stock (Doll & Haffner, 2010).

Social housing

Table 14 Social housing

	France	Germany
Social housing dwelling as % of total dwelling stock, 2008 (%)	17	5
Social housing dwelling as % of total rental dwelling stock, 2008 (%)	44	9

(Doll & Haffner, 2010)

Rents

Table 15 Rent prices

	France	Germany
Average annual rent for rental dwellings in the free market, 2009 (€) (Housing Statistics in the EU)	6,300	4,900
Average size for rental dwellings in the free market, 2009 (m ²)	57.0	71.0
Average annual rent for rental dwellings (€/m ²)	110.53	69.01

Source: Doll & Haffner, 2010

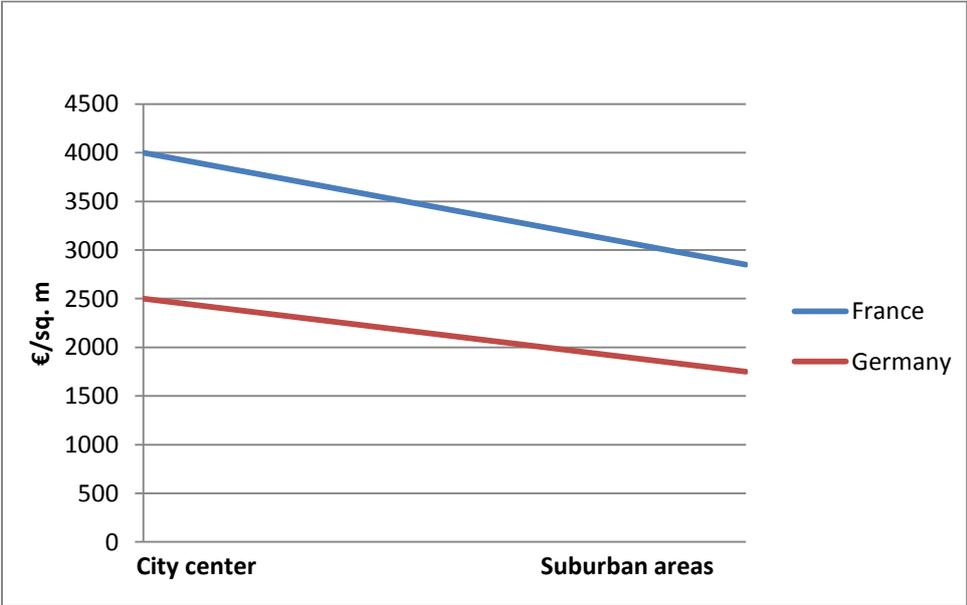
Rental housing represent a considerable part of the total housing stock in France, while in Germany this number is much smaller and with the tendency to decrease.

In regards to rent prices in the free market are considerable higher in France. However, a recent study found that average social rents in France were 40% less than equivalent market rents. (Source: INSEE in Ball, 2011)

Prices according to distance from the city center

As mentioned earlier in this chapter; land price profile tends to follow the population density profile. Also matching those profiles, figure number 23 shows the difference between average dwelling prices in the city centers against those in the suburban areas. This difference is similar in both countries: around 30%. Hence, the price differential between city center and the outskirts of the cities is not a factor that explains the greater sprawl in France.

Figure 23 Average price for buying an apartment in the city center and in suburban areas (€/m²)



(Source: Numbeo, 2013)

Price to Income Ratio

It is the basic measure for apartment purchase affordability. It is the ratio of median apartment prices to median familial disposable income, expressed as years of income (Numbeo, 2013).

Mortgage as Percentage of Income

It is the ratio of the actual monthly cost of the mortgage to take-home family income. Average monthly salary is used to estimate family income. It assumes 100% mortgage is taken on 20 years for the house or apartment of 90 m2 which price/m2 is the average of price in city center and outside of city center (Numbeo, 2013).

Table 16 Property price indicators

	France	Germany
Price to income ratio	8.38	4.78
Mortgage as percentage of income	60.90	34.73

(Source: Numbeo, 2013)

As it can be seen in table 16, housing is considerably more affordable in Germany, however, this does not reflect on the homeownership rates as it is explained ahead.

Homeownership

Germany has the highest rental share in the European Union. The share of owner occupation varies considerably across the country. Broadly, the north and east have lower owner occupation rates than the south and west. Homeownership rates in Hamburg and Berlin are 20% and 14% respectively. To an extent, the current low ownership rate in Germany is due to a long-past housing policies and, also, to more recent subsidy and tax break policies (Ball, 2011). This issue will be expanding in the coming sections.

3.3 Governance

3.3.1 Planning documents and land conversion process

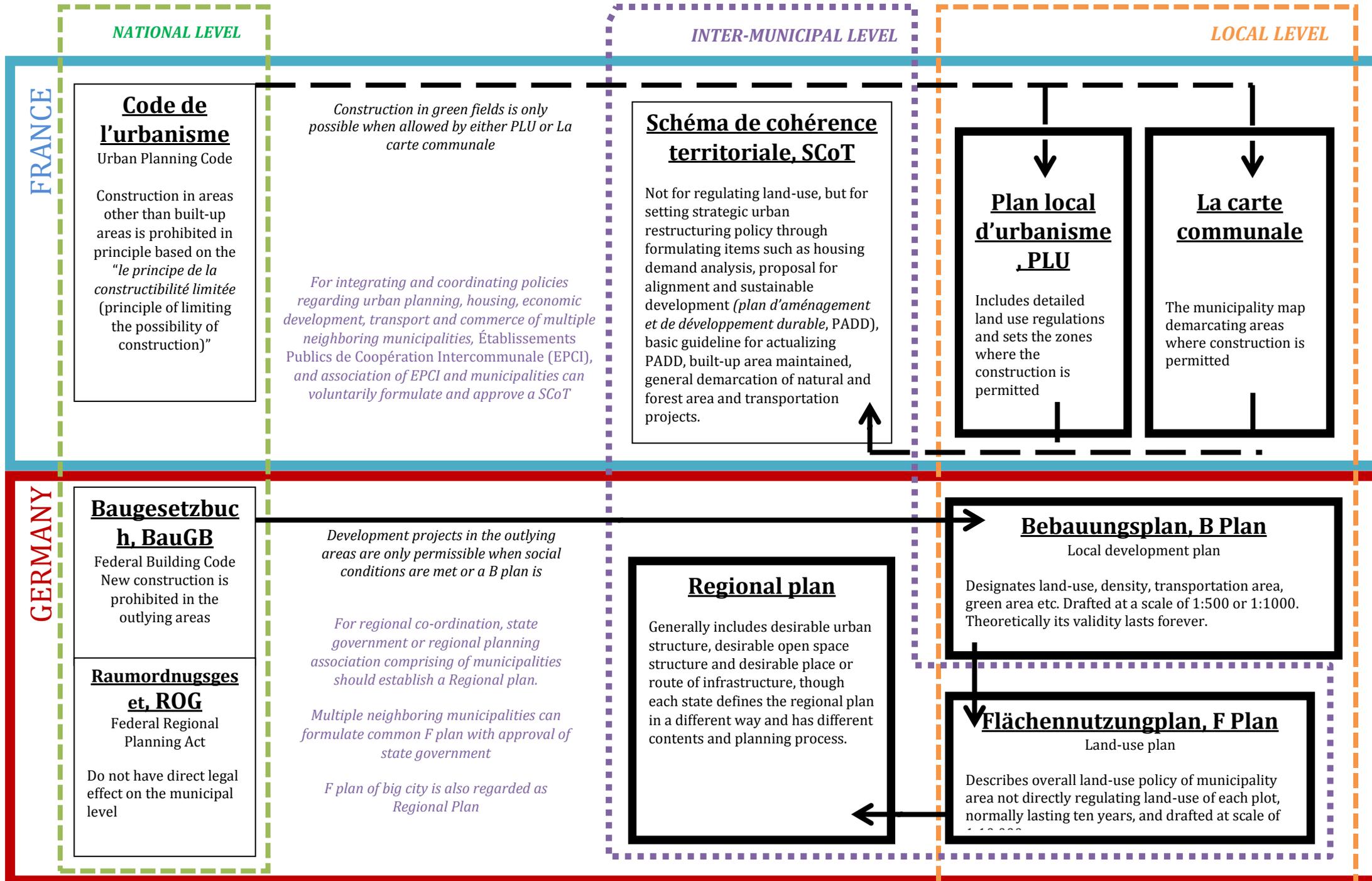
Figure 24 presents the most important planning documents regarding land-use. It is important to note that the word “regional” in the German context does not correspond to the French *Régions* nor to German *Länder*, but to inter-municipal areas.

Figure 24 Hierarchy of territorial plans

Source: OECD, 2010

Legend:  Plans that detail land-use

 Mandatory plan for all territory
 Optional plan



Planning documents in Germany are distinct to the French ones by their entire covering of the territory and their coincidence with the administrative borders that subdivide a *Länd*. Contrary to SCoT's, these documents are mandatory and do not come from some of the *commuauté de communes*' voluntary actions. (Danet, 2010) Also, German Regional Plans are more specific than the French SCoT in regards to land use.

German documents generally benefit from a legit democracy, being voted by directly elected assemblies. The re-grouping of communes in the 60s and 70s has considerably reduced the number of communes with less than 5,000 inhabitants. As a consequence, almost all municipalities create themselves their F-plans. (Danet, 2010)

As a manner of comparison, the Bas Rhin has 16 *Schémas de Cohérence Territoriale*, while Baden Württemberg has only 12 regional plans for an area that is eight times bigger. Planning measures and rules framing land consumption in are very different way in each of the counties. (Danet, 2010)

Barlow (1993) reports that the decentralization of political power in France in 1982 increased the role played by local mayors in the granting of development permits. Although, he says, local conditions vary, with communes under right-wing control having a reputation for refusing planning permission for low-cost housing development, the system is such that developers can be fairly certain of obtaining a building permit providing their scheme fits in with the zoning requirements. In general, planning permission is rarely refused; developers' plans are simply modified (Barlow, 1993).

In Germany, municipal governments enjoy a large degree of autonomy in setting up local land uses plans which is guaranteed by the German constitution. (Tan et al., 2009)

3.3.2 Homeownership subsidies and mortgages

It is important to contrast the goals of French policies towards home-ownership with that of the German policies that have historically favored rents. "Differences in the

way the state intervenes in the land market, mainly through the planning process and taxation, mean that house builders cannot compete in the same way in each country” (Barlow, 1993). In France, there has been a long history of strong state involvement in housing – both in renting and owner occupation – through subsidies, tax breaks, land use policies, rent controls and financial regulation. (Ball, 2011). These politics intervening in the real estate market have an effect on urban sprawl.

Table 17 presents the main home ownership, renting investment and mortgage programs that exist in each country. It can be seen that while French programs mainly promote homeownership, in Germany renting is favored.

Moreover, in table 18, the general goals of the housing policies of each country are summarized as a conclusion of the subsidies and mortgages overview.

Table 17. Main home ownership, renting investment and mortgage programs

	HOME OWNERSHIP	RENTS
FRANCE	<p>Overall, subsidized sources of credit are generally important in house purchase.</p> <p>Prêt à zero %, PTZ Provides loans to moderate-to-middle income first-time buyers.</p> <p>NOT Another recent loan scheme also aimed to encourage low income homeownership; offers more generous terms than the PTZ</p> <p>Prêts conventionnés, PC Under this scheme, a public or private-public organization is involved in mortgage contracts with private banks.</p> <p>Plan d'épargne-logement Subsidized saving scheme.</p> <p>Pass-Foncier Financial aid to housing which provides soft loans to first-time buyers</p>	<p>Scellier Incentives to buy and rent out new and renovated properties. This program ended in 2012</p> <p>The National Housing Agency (ANAH) also provides grants for construction and improvement of private housing, both owner occupied and rental.</p>
GERMANY	<p>Housing policies and subsidies operate mainly at the <i>Länder</i> level and the differences between them difficult the presentation of an overall comparative picture at the national level.</p> <p>Eigenheimzulage Specific tax break for newly built, single-family owner occupied dwellings. Withdrawn in 2006.</p> <p>Condominium act Passed in 2007. Encourages apartment purchase.</p>	<p>1950s – 1960s Housing politics favored rental building in both the social and private sectors.</p> <p>1970s and after – Renovation programs continued that bias as did post-reunification programs.</p> <p>Regional and local level policies hamper the transfer of rental properties into owner occupation or into the ownership of landlords that are more strongly market driven.</p> <p>Tenants associations are important lobbyists in local politics in a country where the majority of voters are themselves tenants. Generally, they are resistant to change.</p>

Table 17 General goals of housing policies per country

France	Germany
<p>“Housing policy is deliberately used in a Keynesian way to manage demand in the economy.” (Laino & Pittini, 2011). The house building industry has historically had a favored status in France. The finance system emphasizes investment in new housing, with a range of reduced interest loans available to purchasers and investors. These loans attach conditions that limit household income, dwelling size and the price of the house; yet they have tended to stimulate new construction anyhow.</p>	<p>Historically, housing politics had favored rental buildings in both the social and the private sectors. However, in 2007 as part as some legislative changes that have improved the attractiveness of home ownership a new condominium act was passed, encouraging apartment purchase. In recent years, apartment prices have been much stronger than those for existing homes.</p>
<p>The planning system also favors new development. (Barlow, 1993). The government has a set itself a target of raising homeownership to 70%. As part of this process, 40,000 social housing tenants a year are expected to become owners of their dwellings.</p>	<p>Laino and Pittini (2011) mention that the transfers of rental properties into owner occupation or onto the ownerships of landlords that are more strongly market driven are hampered by regional and local level policies; though this has weakened in recent years with respect to certain large scale transfers.</p>
	<p>Moreover, the security of tenure offered to existing tenants, under general federal enabling and <i>Länder</i> specific laws and policies, frequently gives landlords little opportunity to sell out. Tenants associations are important lobbyists in local politics in a country where the majority of voters are themselves tenants. Generally, they are resistant to change.</p>

(Laino & Pittini, 2011) (Barlow, 1993)

In Germany, where private renting predominates, the housing concerns of greatest interest to politicians wanting to be re-elected are more likely to be related to renting. “Perceived threats to the status quo for tenants in private rental housing in Germany elicit media coverage and political responses that would be regarded as remarkable in high owner occupation countries. The judiciary is also more likely than not to see the tenant as the underdog when interpreting evidence in any dispute with a landlord. Courts are loath to evict, for instance. Overall, the general institutional framework is more tenant than home owner friendly” (Laino & Pittini, 2011).

Also, according to Laino & Pittini (2011), in owner-occupied dominant countries like the USA and the UK, it is often argued that politicians favor owner occupation because they are chasing the marginal votes necessary to win office from homeowner households. In the case of Germany, it can be noted that the situation is the opposite as in France.

3.3.3 Policies against urban sprawl

Table 19 Policies against urban sprawl

France	Germany
<p>Grenelle 2 law: Among the objectives of the Grenelle 2 law are to fight against urban sprawl and to find an economically viable plan for land-use by using densification plans. One of the problems for the application of this law is that the willingness of fighting urban sprawl contradicts certain fiscal and financial measures that favor new constructions in suburban areas rather than urban densification or renewal. (Laugier, 2012)</p>	<p>A quantitative national target for land-use control has been formulated in Germany in order to decelerate the conversion of undeveloped land and to preserve open areas. The commitment made by the German Federal Government is to reduce the growth of settlement and traffic areas from recent 113 hectares to 30 hectares per day by the year 2020.</p>

Both countries have included in their agendas the goal of reducing urban growth; however, in reality, achieving these goals faces many difficulties, mainly because of political and social factors.

DISCUSSION AND CONCLUSION

Urban sprawl is a very broad topic that encloses diverse areas of study. When working on a comparative analysis, the context of each place is very relevant in order to make a genuine evaluation that leads to solid conclusions.

More urban sprawl in French cities compared to German cities does not have only one cause but it is related to different factors; some of them being under regulations and controls and others being impossible to regulate or mandate.

First, land use policies in France have not influenced land markets enough to accommodate population growth in a more “desirable” way as they encourage home-ownership mainly through house building in the form of single-family dwellings; contrasting to German policies that for many decades have favored rental construction in multi-family dwellings. This situation has been present since the second half of the 20th century – when urban sprawl first appeared in Europe – and, despite of some weak efforts to change it, it has continued up to these days.

Favoring single-family dwellings buildings directly contribute to sprawl; whereas by encouraging dwellings for rent; the investors will try to make as much profit as possible out of land, preferring multi-family dwellings in attractive areas like the city centers. Rent offer tends to be much larger near the city centers, while the suburbs mainly sell houses. This has prevented German cities to sprawl as much as the French ones.

Some of the difficulties that French policy-makers find when dealing with urban sprawl is the great number of actors in urban areas caused by the enormous amount of municipalities that exist in the country. This complicates the coordination between municipal and inter-municipal planning procedures and also encourages individual municipalities to compete to attract development of the land under their jurisdiction in order to increase tax revenue. Germany went to a process of reduce the number municipalities some decades ago so the problem previously described is not as relevant as in France.

Going back to the different-levels coordination issue, French planning documents that permit development (PLU and *carte communale*) do not cover the entire territory,

meaning that there are many areas under the direct intervention of the national government. Moreover, inter-municipal cooperation on planning, which is achieved by the creation of SCoT documents, is not mandatory but depends on the willingness of the individual municipalities. In Germany, the land-use for the total area of the country is specified in either an F plan or a regional plan; municipalities must collaborate with other municipalities, the *Länder*, and the national government and create regional plans.

Lastly, cultural aspects and individual preferences also play an important role in this subject. While in France most of the people aspire to own a single-family house, it is not the case in Germany, where people in general favor politicians who defend the renting tradition. In a few cases, municipalities have tried to encourage new land development in order to improve their tax income; however, even if experience in East Germany shows that people respond to strong, attractive policies over their personal experiences; new policies in recent years have not been successful due to the nature of German preferences for housing.

Even if the dimensions of society, economy and governance were analyzed separately, none of them can lead to a definite conclusion by themselves because of the strong link between the three of them. Government clearly intervenes in the real estate market using all the tools that were detailed in this work. In regards to society and individual preferences, they are also affected by land-use policies as the case from East Germany has shown.

In the study of the French and German cases as a country-scale comparison, the individual preferences on housing and the government policies respond to each other; and they both, at the same time, drive the real estate market.

Hence, it is not only governmental policies that have made cities grow the way they did, but the links and influence on each other of society (individual preferences), economy (housing and land market) and governance (land-use policies).

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ANNEX 1: REVIEW OF THE MAIN SOURCES OF INFORMATION

Many of the statistical data used in these work were obtained from the following sources. They were also the main references when defining or explaining terms. Either as consult material or for further reading it is worth to take a look at them:

- **Housing Statistics in the European Union 2010 (Dol & Haffner, 2010)**

The content of this report is structured in the following way:

Chapter 1. General data presents a range of general data on the demographic and socio-economic context of housing.

Chapter 2. Quality of the housing stock deals with the quality of the housing stock, concentrating on the average useful floor area, amenities and age of the housing stock.

Chapter 3. Availability of housing is devoted to the availability of housing, including the distribution of different types of housing by tenure.

Chapter 4. Affordability of housing looks at the affordability of housing and illustrates the weight of housing in household budgets, the different indexes which offer an overview of the changes in the cost of housing, and trends in mortgage lending.

Chapter 5. The role of government focuses on the role of government and of state intervention in the housing market, paying particular attention to public expenditure on housing and to the existence and characteristics of social housing.

Appendix 1 offers an overview of how Member States as well as international organizations define concepts.

Appendix 2 presents a list of the national ministries responsible for housing and of national statistical institutes.

- **Urban sprawl in Europe. The ignored challenge. (EEA, 2006)**

1 Urban sprawl — a European challenge

2 The extent of urban sprawl in Europe

- 3 The drivers of urban sprawl
- 4 The impacts of urban sprawl
- 5 Responses to urban sprawl
- Annex: Data and methodological approach

- **Land in Europe: prices, taxes and use patterns (EEA, 2010)**

- 1 Introduction: background and aims of the study
- 2 Boundaries of land markets
- 3 Main drivers influencing land prices
- 4 Interactions between land prices and land-use patterns in Europe
- 5 Can land prices and taxes be an instrument of environmental policy?
- 6 Land price information and databases
- 7 Conclusions and future research agenda

- **The European Environment State and Outlook 2010 Land Use (EEA, 2010)**

“The European environment — state and outlook 2010 (SOER 2010) is aimed primarily at policymakers in Europe and beyond, involved with framing and implementing policies that could support environmental improvements in Europe. The information also helps European citizens to better understand, care for and improve Europe's environment.”

“The SOER 2010 'umbrella' includes four key assessments:

1. a set of 13 Europe-wide **thematic assessments** of key environmental themes;
2. an exploratory assessment of **global megatrends** relevant for the European environment;
3. a set of 38 **country assessments** of the environment in individual European countries;
4. a **synthesis** — an integrated assessment based on the above assessments and other EEA activities.”

- **Future Orientation For Cities, (ESPON, 2010)**

It consists of the following chapters:

Chapter 1 – Environment in European cities (“sustainability”)

Chapter 2 – Major past trends and probable future demographic trends

Chapter 3 – Social cohesion in European cities

Chapter 4 – Benchmarking of cities competitiveness: an approach combining different sources

Chapter 5 – Accessibility measures for assessing urban competitiveness

Chapter 6 – The position of cities in research networks in converging technologies

Chapter 7 – Competitive nodes: Cities in networks of large multinational firms

Chapter 8 – Metropolitan macroregions in Europe: from economic landscapes to metropolitan networks (Cities and their Hinterlands)

Chapter 9 – Opportunities through “polycentric” cooperation

Chapter 10 – FOCI Scenarios on the future of European cities and settlement systems

ANNEX 2: DATA USED IN FIGURES

Annex 2.1 Land cover 2006 (% of total) – France (figure 4)

Artificial areas	5
Arable land & permanent crops	30
Pastures & mosaics	29
Forested land	28
Semi-natural vegetation	4
Open spaces/bare soils	2
Wetlands	1
Water bodies	1

(Source: Corine, EEA, 2006)

Annex 2.2 Land cover 2006 (% of total) – Germany (figure 5)

Artificial areas	8
Arable land & permanent crops	39
Pastures & mosaics	21
Forested land	29
Semi-natural vegetation	1
Open spaces/bare soils	0,2
Wetlands	1
Water bodies	1

(Source: Corine, EEA, 2006)

Annex 2.3 Net change in land cover (% of initial year), 2000 (figure 6)

France	Germany
3	1.6

Annex 2.4 Artificial land take (% if initial year) (figure 7)

	France	Germany
1990-2000	0.53	0.53
2000-2006	0.74	0.38

(Source: Corine, EEA, 2006)

Annex 2.5 Population growth (figure 8)

	France	Germany
1980	53 731 000	78 180 000
1985	55 157 000	77 709 000
1990	56 577 000	79 113 000
1995	57 753 000	81 539 000
2000	60 545 000	82 163 000
2005	62 773 000	82 501 000
2009	64 351 000	82 002 000

(Source: Dol & Haffner, 2010)

2.6 Dwelling stock (*1,000) (figure 17)

	France	Germany
1980	24 717	24 406
1990	26 976	26 327
2000	28 221	37 630
2004	29 945	38 587
2009	31 264	39 268

(Source: Dol & Haffner, 2010)

2.7 Dwellings per 1,000 inhabitants (figure 18)

	France	Germany
1980	450	412
1990	472	425
2000	494	467
2005	509	480

(Source: Dol & Haffner, 2010)

2.8 Dwellings completed per 1,000 inhabitants (figure 19)

	France	Germany
1980	7,0	6,4
1985	5,3	5,5
1990	5,9	4,0
1995	7,0	7,4
2000	5,2	5,1
2006	7,1	3,0
2007	7,5	3,2
2008	7,4	2,1

(Source: Dol & Haffner, 2010)

2.9 Building permits (number of permits) (figure 20)

	France	Germany
1995	268 900	638 300
2000	308 400	348 340
2001	298 600	290978
2002	309 000	274117
2003	318 400	296823
2004	350 000	268679
2005	389 700	240571
2006	435 100	247793
2007	462 300	182771
2008	462 300	174691

(Source: Dol & Haffner, 2010)

2.10 Dwelling stock by type of building (figure 21)

	France	Germany
Multi-family	13 642	27 962
Single-family	17 622	11 306
total	31 264	39 268

(Source: Dol & Haffner, 2010)

2.11 Dwellings completed by kind of building (%) (figure 22)

	France		Germany	
	Multi-fam	Single-fam	Multi-fam	Single-fam
1980	34	66	56	44
1990	47	53	58	42
2000	36	64	52	48
2004	38	62	43	57
2009	49	51	48	52

(Source: Dol & Haffner, 2010)

2.12 Average price for buying an apartment in the city center and in suburban areas (€/m²)

	France	Germany
In the city center	4000	2500
In suburban areas	2850	1750

(Source: Numbeo, 2013)