The Governance of Land Use in OECD Countries

POLICY ANALYSIS AND RECOMMENDATIONS

OECD

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Foreword

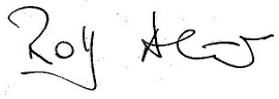
How land is used affects a wide range of outcomes – from day-to-day quality of life, such as the length of commutes, to the environmental sustainability of urban and rural communities, including the possibility for climate change adaptation and mitigation. Moreover, the economic importance of land is immense. Land and the buildings on it are approximately seven times as valuable as all other assets taken together and land-use policies play a crucial role in determining land and property prices. Beyond economic value, land also has important sentimental value. Many people are strongly attached to existing neighbourhoods and landscapes in their vicinity. Thus, it is not surprising that land use is often contested and political conflicts about it are common at the local level.

This report offers analysis and recommendations on land-use policies and practices with particular attention paid to the interactions between planning tools, fiscal frameworks, and incentives. It demonstrates that land use is influenced by a wide range of policies beyond those of the land-use planning system. Tax, transport and environmental policies also create incentives and disincentives to use land in particular ways. As the effects of these incentives are rarely considered, they may lead to unintentional consequences.

This report argues that planners and policy makers in other fields should consider the influence of all public policies on land use. A lack of co-ordination can lead to policies that provide contradicting incentives to developers and land owners. The report calls for more integrated approaches to spatial development that take into account the wide array of policies that affect land use but that are beyond the purview of the planning system itself.

The report also stresses that land-use planning should be more than a technical endeavour – it should be a political and democratic process that mediates the abovementioned conflicts over land use. Through the development of strategic plans, planners ask residents to imagine the future that they want for their cities and communities and jointly develop a road map for how to get there. This requires strong public engagement and communication. In its ideal form, effective planning reflects and develops a common community vision.

The OECD has undertaken a broader research programme on land-use governance. This report provides policy analysis and a synthesis of the main recommendations from this work. It is published jointly with the report *Land-Use Planning Systems in the OECD: Country Fact Sheets* which provides a descriptive overview of land-use planning systems across OECD countries. Recent and forthcoming *OECD Land-Use Governance Case Studies* provide in-depth analyses of land-use policies in specific cities and regions.



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Executive Summary

Land use determines important environmental, social, and economic outcomes

Land use matters for many of the most important policy questions of our time: environmental sustainability, CO_2 emissions and biodiversity, and public health, for example. Land and buildings constitute by far the most important share of wealth in the OECD, making up 86% of total capital stock (roughly evenly split between land and property), with a corresponding value of USD 249 trillion. Thus, any changes to the value of land and property have important consequences for the distribution of wealth and for investment. Land use also matters because people care strongly about how land is used, as the often intense and emotional debates around it show.

A broader range of policies should be used to achieve spatial objectives

There are a number of public policy instruments that can affect land use. Most important among them are land-use regulations imposed through the land-use planning process and environmental and building code regulations. These instruments all restrict how land can be used, but do not affect how individuals and businesses would like to use land. At the same time, a wide range of other public policies affect land use. Many of the so-called "market forces" referred to in the planning system are in fact responses by individuals and businesses to public policies. These policies need to be utilised. The planning system alone cannot meet the spatial objectives for inclusive growth and environmental sustainability.

Incentives matter – and should be used strategically to steer land use

Land-use policies must pay greater attention to the incentives that other public policies provide to use land. Whenever possible, policies unrelated to land use should not provide incentives that contradict spatial objectives. For example, countries that wish to restrict urban sprawl should not provide greater tax incentives for ownership of single-family homes over multi-family homes. More generally, policies outside of the planning system should be used to encourage desired forms of spatial development. Tax policies are of particular importance; higher transport taxes, for example, increase the costs of commuting and thus provide incentives to live closer to employment centres, in turn encouraging compact development.

Fiscal systems encourage local governments to pursue specific planning policies

Depending on the fiscal system, different forms of land use have different fiscal impacts on local governments. Local governments are likely to prefer the most fiscally advantageous land-use planning policies. For example, if local governments get a large share of their revenues from a local business tax, it makes sense to try to attract commercial development rather than other types of development. Fiscal systems can cause local governments to pursue planning policies that are rational from a local perspective but create inefficient land-use patterns overall. Potential consequences include: the loss of open spaces, housing shortages and rising housing costs. National governments (and state governments in federal countries) should ensure that their fiscal systems provide balanced incentives for local land-use policies. National governments may also implement co-ordination mechanisms between local governments that can counteract skewed incentives.

More flexible approaches to planning are needed

The traditional statutory land-use planning instruments can take a long time to elaborate and even longer to effect change. They may also foster inefficient land uses and leave little scope for efficient, community and market driven land-use patterns to emerge. More flexible approaches can be timelier and more responsive to new challenges. For example, moving away from single-use zoning to more adaptable, nuisance-based zoning regulation makes planning more flexible, but can still ensure that core spatial objectives are met. More flexible planning is not possible in all types of areas and it should not come at the expense of important spatial objectives. For example, historical zones and fragile ecosystems demand stringent regulations. But in many other spaces, more flexible planning instruments can help transform areas towards new, more efficient and innovative uses.

Land-use regulation should not cause rising housing costs

Housing costs in many OECD countries have risen sharply over the past two decades. Restrictive land-use regulations can be a major cause of this increase if they prevent sufficient new housing being constructed for growing populations. To keep cities affordable for low- and middle-income families, land-use regulations should permit sufficient housing construction in different price ranges for the housing stock to grow in line with demographic trends.

Gradual densification should be encouraged

Very little densification has taken place in most of the OECD in recent years, and land-use restrictions frequently make densification of built-up areas impossible. Neighbourhoods that were once on the outskirts of cities have become part of the urban cores due to growing populations, but still have low densities. Land-use regulations should encourage densification especially in such low-density areas close to city centres, as well as along public transport corridors. More generally, restrictions to density should allow a gradual and judicious densification of most parts of urban areas in line with infrastructure capacity and population growth.

Greater integration of sectoral policies is necessary

Housing, transportation, energy, water, agriculture, tourism, and economic development – all make demands on land and affect how it is used. This presents a complex governance challenge among sectors as well as across levels of government, since many sectoral issues are divided among national, regional and local governments. Further efforts are required to assess the consequences of all public policies on land use, exploit potential synergies among them and avoid contradictions.

Planning should encompass the areas across which people live, work and commute

In metropolitan areas, land use in one community affects all neighbouring communities. If local governments are left to pursue land-use policies in isolation, they may individually implement their policies, but collectively fail to achieve their objectives. Thus, effective mechanisms to co-ordinate spatial and land-use planning in metropolitan areas are essential to achieve good outcomes.

Monitoring and evaluation of land uses should be strengthened

Land-use outcomes need to be monitored and evaluated over time to ensure that desired spatial goals are being achieved. Today, too little is known about how land-use regulations work at the local level or their aggregate effect. Monitoring and evaluation is particularly critical where more flexible approaches to land-use planning are adopted. Since they emphasise indirect control over land use, outcomes are less certain and policies may need to be adjusted more frequently to achieve desired outcomes.

ASSESSMENT AND RECOMMENDATIONS

Land use determines health, environmental, social and economic outcomes

Land use affects the environment, public health, economic growth, the distribution of wealth, social outcomes and the attractiveness of cities and towns. Land-use practices have major consequences for climate change mitigation. Land use has been linked to approximately one-third of all man-made CO_2 emissions. Land use also influences air pollution and determines whether or not cities are walkable. In turn, both factors affect public health.

Extrapolated from estimates for six OECD countries for which data exists, land and the buildings on it constitute 86% of the total capital in the OECD and have a value of approximately USD 249 trillion. Given the very high aggregate value of land and property, even small changes in valuations have major consequences on the distribution of wealth. As land and property is predominantly owned by wealthier and older households in OECD economies, any increase in land prices tends to benefit these groups at the expense of younger and poorer households. In fact, evidence suggests that a large part of the rising wealth inequality in recent decades can be explained by rising land and property prices.

Last but not least, land use matters because people are attached to land. Whether or not cities and towns are considered attractive depends to a large degree on how land is used. Land creates a sense of belonging and land use is closely linked to many cultural aspects in peoples' lives. In light of the importance of land, it is not surprising that land-use policies tend to be contentious and that conflicts over land emerge frequently.

The Governance of Land Use in OECD countries

Land-use planning needs to balance public and private interests…

Private and public interests related to land have to be balanced. Land-use decisions by an individual landowner inevitably affect other people. For example, if an industrial complex is built at a lakeside, it reduces the amenity value of the lake for all people who use other parts of the lakeside as a recreational area. In other cases, these so-called externalities related to land can be positive. An attractive open space in a new private development in a city centre may attract customers that also benefit retailers located nearby.

Whether positive or negative, landowners tend to not consider externalities in their decisions. In many other policy fields, public policy should respond to such a situation by implementing taxes that discourage actions with negative externalities and subsidies that encourage actions with positive externalities. However, the consequences of each land-use decision are very context specific and it is not possible to develop a general system of

taxes and subsidies that would provide the desired incentives in each case. Instead, case-based regulatory decisions have to be made that weigh the interest of landowners in developing their plots against the desire of the general public for developments that are beneficial to surrounding areas. In other words, planning is necessary to balance private and public interests.

…and ensure efficient patterns of spatial development

Planning is also needed to co-ordinate public and private investment decisions. Since it is difficult to change land use once land is built-up, development needs to be co-ordinated in advance. Otherwise, inefficient patterns of development may occur. On a small scale, this could include the construction of low-density development around a transit hub, which at a later point prevents densification. On a larger scale, this could entail offices being built far away from public transport nodes, thus leaving the public transport system operating below capacity while creating congestion on roads, or residential housing built next to an airport, thus limiting the potential for future expansion of the airport.

In the absence of intervention, poor spatial outcomes will occur. They may include a lack of infrastructure and amenities, areas of concentrated poverty and incompatible land uses in close proximity to one another such as polluting industry mixed with housing. Plans co-ordinate individualised decisions about where to live, work, grow food and manufacture products. Given this role, planners need to navigate diverse interests about how to use land, both now and in the future. They need to balance multiple objectives such as economic competitiveness, environmental sustainability and social inclusion; in other words "the planners' triangle".

Even though land-use planning is primarily a local task and concerns local issues, it has consequences for issues of national and global importance: the long-term stability of ecosystems, social justice, food and energy security, long-term economic growth, housing costs, and the mitigation of and adaptation to climate change. Planning also has a crucial role to play to accomplish 6 of the 17 UN Sustainable Development Goals. They include calls for access to energy, the construction of resilient infrastructure, inclusive cities, climate change mitigation, sustainable use of oceans, and protection of ecosystems.

Land-use planning is generally decentralised to local governments

Land-use planning is mostly the purview of local governments across the OECD. This can be explained by its characteristics. Land-use planning is place-based by definition and highly context-specific. For instance, rural communities face very different issues than urban ones. As a consequence, land-use planning requires a high level of information on local conditions. Higher levels of government often do not have this information to the degree that local governments do.

Local authorities adopt detailed land-use plans that contain zoning regulation and use other ordinances to regulate land use. Usually, local governments also prepare more strategic plans to address land-use decisions. In most countries, higher levels of government develop strategic plans and policy guidelines with spatial implications to co-ordinate the territorial development of an entire region or of the whole nation. Sometimes these policies are binding and local plans are required to follow them, sometimes the

guidelines provide only directions for lower-level plans. There are of course substantial differences among countries. In some countries, the national government enforces policies to regulate planning at lower-levels; in others, it is the regional authority that regulates spatial planning; in some others, land-use powers are decentralised, in these countries local authorities have complete control over land-use decisions.

Land is governed by formal and informal institutions

Across OECD countries there are spatial policies and land-use plans at multiple scales – national, regional, and most importantly, local – that set out how land uses should be decided and acted upon. Beyond spatial policies, land is governed by legislation that determines the rights associated with it, such as property rights and expropriation rights, and also the obligations associated with its use. These structures of governance often look quite similar across OECD countries. Upper level governments generally provide the framework laws that set out the planning system and enact environmental legislation while local governments make decisions about detailed land uses.

In practice, the governance of land use can vary greatly, even within countries, let alone among them. Much depends on how local governments co-operate or compete with one another on land-use issues, the types of pressures cities and communities face due to such factors as population growth or decline, the types of actors involved in land-use governance and even the levels of social trust in a society, which affects relationships between and among residents, businesses, governments and non-governmental groups. In some places, there is a wide range of informal partnerships between the many actors involved in the governance of land use, while in others, there is a distinct hierarchy between levels of planning, and the institutions involved operate on the basis of statutorily defined roles.

Flexible approaches are needed in order to react in a timely and creative way to emerging challenges

The traditional statutory instruments of land-use planning can take a long time to be elaborated and even longer to have an impact. In places where quick responses to changing conditions are needed – for example, due to rapid population growth – they are much less effective. Therefore, many OECD countries have adopted extraordinary measures when they seek to quickly implement new developments. For example, in Poland, Special Infrastructure Acts suspend common planning law for key projects. But the planning system itself should have the instruments to respond to key issues when needed.

More flexible approaches to land-use planning can meet this need. They can be structured in a number of different ways. For example, they might entail the establishment of specific zones in a community which are more open to experimentation and temporary uses. With greater planning flexibility there are fewer rules about how land is used and each project is judged on the basis of its own merit, typically framed by overarching guidelines and objectives about community needs and aspirations. Under such systems, more effort needs to be put in upfront in order to collaboratively define projects and reach consensus between investors, developers, governments, residents and other actors. If this is done well, it can breed experimentation and innovation and respond

in a more timely way to emerging trends and needs. An important caveat is that more flexibility should not be embraced everywhere. For example, historical districts and environmentally sensitive areas need more stringent rules than transitional spaces such as brownfield sites. Flexible planning systems should differentiate places according to their need for protection and differentiate planning procedures accordingly.

In order to implement more flexible planning systems, a high degree of capacity is needed at the local level, since a broader range of considerations has to be taken into account in the decision-making process. Furthermore, decision makers have to be accountable and need to be trusted by the public in order to ensure that land-use decisions are accepted even by those who would prefer different outcomes. As discussed below, flexible systems also need effective monitoring and evaluation to ensure that key objectives are achieved.

Greater flexibility in planning systems should not lead to the circumvention of regular planning and appeal processes. All planning should occur through regular planning procedures. It must also be subject to timely and adequate oversight by the legal system. If regular planning and appeal procedures are considered inadequate to deal with specific developments, it is preferable to reform these procedures instead of implementing exceptional planning measures.

Restrictive zoning regulation and single-use zoning should be avoided

Restrictive zoning rules and in particular single-use zoning are among the most important factors contributing to inflexible planning regulations. Zoning should be sufficiently flexible to give private actors leeway to shape development and to allow neighbourhoods to change over time. The same considerations apply to planning decisions in countries that employ more discretionary systems of planning and do not rely on zoning regulations. In these countries, the possibilities to obtain planning permissions should become more flexible.

To allow more flexibility, zoning regulation and planning decisions should target nuisance levels. In general, all uses that create fewer nuisances than the maximum level specified for a zone should be permitted. Single-use zoning should be avoided except for specific purposes (e.g. hazardous industrial areas) and mixed-use developments should be permitted as a default. Density regulation should not prohibit specific building classes, such as multi-family homes, but instead use less restrictive parameters such as floor-to-area ratios. If maximum density restrictions are used, they should generally allow a gradual densification of neighbourhoods in line with infrastructure capacity and population growth.

Land-use regulations should not restrict competition between businesses

Land-use regulations are often structured to protect the interests of incumbent firms by restricting the possibilities for new businesses to enter markets. Entry restrictions reduce competition and benefit incumbent businesses at the expense of consumers, who end up paying higher prices for goods and services. In particular, adverse impact tests that allow new businesses to enter markets only if incumbents are not harmed should not normally be used. Potential exceptions to this rule are restrictions to large retail developments to ensure lively and attractive town centres, which are public goods. If

entry restrictions are used for this purpose, their costs and benefits should be carefully evaluated and they should be scrutinised to prevent them from being abused to limit competition beyond their actual objective.

Further, governments should not permit the use of private covenants on land that aim at stifling competition. Such covenants restrict the use of land for specific activities. Typically, they are imposed by retailers that sell land in order to prevent it from being used by competitors. They allow retailers to create local monopolies by buying land strategically and selling it on with covenants restricting its use.

Flexible planning must come along with the right incentives for land use to be successful

Increasing the flexibility in the planning system inevitably implies that planners exert less direct control over land use. Without complementary measures, this would increase the risk of uncontrolled development, potentially leading to undesired outcomes such as more sprawl, inefficient transport systems and incompatible land uses in close proximity. As greater flexibility imposes fewer restrictions on land use, it is essential that private actors can be compelled to pursue desirable patterns of development out of their own interest. This requires that they face the right incentives.

Many public policies provide incentives for land use. At the moment, these incentives are rarely used to influence land use actively. Increasing the flexibility of planning systems and still achieving desired spatial outcomes requires that public policies are more effectively used to set the right incentives. In particular, fiscal policies, which are currently considered to be outside the domain of spatial and land-use planning, must be used more effectively.

A wide array of public policies – spatial and otherwise – affects land use

Instruments designed to affect land use rely primarily on restrictions how land can be used

At present, public policy uses primarily two mechanisms to intentionally influence land use; it allocates public investments across space and it restricts how individuals and businesses are permitted to use land. Its main instruments are the spatial and land-use planning process and environmental and building code regulations. Effective land-use governance should also consider a third channel through which public policies influence land use; the incentives that public policies provide to individuals and businesses.

Planning primarily uses restrictions on land use as instruments because it has few tools to influence how individuals and businesses want to use land. As a consequence, it has to rely on restricting the possibilities for development, i.e. it makes it impossible that the demand for some form of land use is met by corresponding development. While such supply restrictions may ensure that specific land uses at specific locations do not occur, they cannot change the underlying demand for them and may increase the pressure for development at other locations.

While the planning system can do little to shape the incentives of individuals and businesses, other public policies can. Governments in all countries employ a wide range of policies that affect how individuals and businesses use land. Thus, many of the so-

called market forces that the planning system takes as given are in fact caused by public policies to which individuals and businesses respond. These policies should be harnessed to influence the demand for development more effectively.

Greater attention should be paid to policies outside the domain of spatial and land-use planning

Ideally, countries should use the potential of public policies – in particular tax policies – to provide incentives as a tool to steer land use. At a minimum, it should be ensured that public policies outside the domain of spatial and land-use planning do not run against land-use related objectives. In a more comprehensive setting, the incentives provided by public policies can be used to steer land pro-actively. Public policies can incentivise private actors to pursue developments that are more closely aligned with land-use objectives. As a result, land-use regulations could become more flexible, while at the same time being more effective in achieving their objectives.

Well-designed tax policies are crucial for achieving spatial objectives

Tax policies provide incentives how to use land and affect patterns of development

Private land-use decisions are always the result of cost-benefit considerations, even if they occur unconsciously and include a wide-range of non-monetary factors. Tax policies play a crucial role in them, because they influence both costs and benefits of land use. The potential of tax policies as instruments to steer land use comes from the fact that taxes have varying effects on costs and benefits of land use at different locations – even if they do not contain an explicit spatial dimension. For example, high fuel taxes make it more costly to use land in locations that necessitate a long commute and thereby provide incentives for more compact and transport-oriented patterns of development.

In some cases, the incentives provided by tax policies are aligned with spatial objectives but in many other cases they act against the objectives of the planning system. For example, almost all OECD countries aim for compact urban development, but some countries tax ownership of single-family homes preferentially compared to other residential property. Inevitably, this encourages low-density single-family home development. Likewise, commuting expenses are tax deductible in 12 of 26 analysed OECD countries. Since this reduces the costs of car use, it incentivises residents to live further away from their place of work, thereby encouraging sprawling developments. Removing such perverse incentives should thus be a first step in making better use of the tax system to achieve land-use objectives.

Transport taxes should be used to encourage compact development

Declining transport costs (in monetary and non-monetary terms) are the most important factor explaining the emergence of urban sprawl in the 20th century. As transport costs decline, people have fewer incentives to live close to work and other places where they have to go on a daily basis. Governments have played a major role in this trend. Most importantly, they have constructed the road network because they use a variety of direct and indirect taxes and subsidies to affect the costs of transport.

Taxing transport and especially car use more heavily to reflect its true costs (including externalities from driving such as carbon emissions, local air pollution, congestion and noise) would lead to less spread out patterns of urban development. Depending on the circumstances, a variety of instruments can be used to affect the costs of transport. Higher fuel taxes increase the costs of car use throughout countries. If only specific urban areas should be targeted, congestion charges are suitable instruments that have been pioneered successfully in several major cities in OECD countries. Parking charges also reduce driving in urban areas and have the associated benefit that they discourage the use of valuable urban space for parking, which is frequently under-priced relative to its true social costs. Parking charges are also one of the few fiscal instruments that are under control of local governments in many OECD countries and can therefore be increased by them comparatively easily.

Obviously, transport related fiscal policies are complementary to other policies, for example improvements to the public transport system and increased efforts at densification. Complementary measures are necessary to ensure that residents have the possibilities to react to new incentives by changing their behaviour. In other words, complementary policies are needed to provide residents with alternatives to driving long distances.

Property taxes can be effective instruments to steer land use

Governments should use property taxes more effectively to affect land use. Currently, property taxes are often too low to provide strong incentives. In places where they are sufficiently high to make a difference, they usually do not differentiate between land uses that are desirable and land uses that are undesirable. Greater differentiation of property taxes to encourage desirable developments can make them an effective instrument for steering land use. While differentiated property taxes can influence land use, their use for this purpose is not without caveats. They should be clearly-structured so that they cannot be used to treat politically well-connected developers and landowners preferentially. Further, they need to be carefully designed so that individuals cannot "play the system" by, for example, misrepresenting the true use of a property.

If governments aim at encouraging efficient land use within urban areas, they may also consider the introduction of a pure land value tax, which provides particularly strong incentives for an efficient use of the most valuable land. In contrast to property taxes, a pure land value tax does not tax sparsely built-up land less than densely built-up land. Thus, it makes it unprofitable to use expensive land at low densities and encourages densification especially in the centres of the most expensive cities. Whether to prefer land value taxes or property taxes also depends on other considerations. For example, a land value tax is a less comprehensive tax on wealth than a property tax.

In contrast to property taxes, property transaction taxes prevent efficient and sustainable land use and should be avoided. By making property transactions more costly, they create market frictions and slow-down adjustment processes. As a consequence, they make it less likely that land is used optimally, for example, by preventing families from moving into smaller dwellings once children leave home or by making it more expensive for new home buyers to enter the housing market.

Fiscal instruments dedicated to steering land uses are underused

In addition to fiscal instruments that affect land use without targeting it, a wide range of fiscal instruments exist that have the purpose of affecting land use. Brownfield redevelopment incentives, transfers of development rights and historic rehabilitation tax credits are some of the instruments that frequently exist, but are not used to their full potential. The legal framework of many OECD member countries includes at least some fiscal instruments to steer land use, but they are rarely used to a degree that makes a relevant difference. Nevertheless, they are effective instruments and governments should make more frequent and intense use of them.

A particularly important but underused group of land-use related fiscal instruments are value capture tools. They are attractive on equity grounds because they target windfall gains from land and form a largely untapped source of funds for infrastructure investments. Furthermore, value capture instruments can make it possible to build welfare-enhancing infrastructure that would not have been constructed otherwise due to funding constraints. Similar to other fiscal instruments related to land, the legal basis for value capture tools exists frequently, but they are not used to raise significant funds. Even though they are not widely used, value capture instruments have the potential to contribute to a much needed increase in available funds for infrastructure investments.

Subnational fiscal systems affect planning policies of local governments

Local governments respond to fiscal incentives

Different land uses create different costs and revenues for local governments. The fiscal effects of land uses on local budgets depend on the fiscal system of a country. In some countries, local governments benefit fiscally from new developments because it increases their tax base or their share of transfers disproportionally. In other countries, new developments are revenue neutral or may even create net costs for local governments if they have to provide infrastructure and services without receiving corresponding taxes or transfers. Also the fiscal effects of different types of development vary. For example, if local governments are funded primarily through a local business tax, commercial developments are fiscally attractive. In contrast, if they are funded through local income taxes, developments that attract high-income residents create more revenues.

Local governments respond to fiscal incentives by implementing planning policies that favour fiscally attractive types of developments. While such a response can be optimal from the perspective of a local community, it can create inefficient land-use patterns in aggregate. It may result in situations in which planning decisions are not based on the demand for different types of land, but based on the fiscal preferences of local governments.

The higher the fiscal net-benefits are that local governments receive from development, the more likely they are to favour extensive patterns of development and the less likely they are to consider its negative impacts, for example on the environment. Likewise, in countries where local governments do not receive any benefits from more development or even face net-costs, they may not permit sufficient development, especially if local populations are sceptical about it. This can result, for example, in a housing shortage and may explain why planning policies in some countries are very

restrictive despite increasing housing costs. If local governments receive a disproportionally large share of taxes or transfers from one type of land use, they have incentives to favour this land use over others in their planning policies. As a consequence, land-use regulations may lead to an over-supply of land for one use at the expense of other uses. This creates distortions in land markets and economic inefficiencies.

Fiscal systems should provide balanced incentives to local governments

National and regional governments should consider the incentives that their fiscal systems provide for the planning policies of local governments. Ideally, fiscal systems should provide incentives that are in line with the spatial objectives of the higher level governments. If national or regional governments aim to constrain development, it should not be fiscally attractive to local governments and vice versa. Likewise, all types of development should have approximately equal fiscal effects on local governments unless national governments want to systematically encourage a specific type of development.

National governments can provide more balanced incentives to local governments by reforming the system of subnational finance. However, such reforms are often politically sensitive and may not always be possible. Where they are not feasible or not desirable for other reasons, national governments may resort to introducing improved co-ordination mechanisms between local governments. For example, this may include the introduction of metropolitan bodies responsible for strategic planning. Importantly, to overcome the misaligned incentives to local governments, such a body would have to face different political cost-benefit considerations than individual local governments.

Land-use regulation should respond to demographic and economic trends

Developed land is a small, but increasing share of total land in OECD countries

Developed land constitutes only a small share of all land in OECD countries. In most OECD countries, it is below 10% of the total land mass. Even in regions that the OECD defines as urban, the total share of developed land is usually below 20%. While the total amount of developed land is relatively small, its share has increased since 2000 in all countries – but at vastly different growth rates. Spain saw the highest growth rate in developed land of 17.7% over the following decade, followed by Iceland with 16.1% and Ireland with 11.5%. Not coincidentally, all three countries were severely affected by housing bubbles in the early 2000s. At the opposite end of the scale, Switzerland, Belgium and the United Kingdom have had the lowest growth in developed land with rates of 0.5%, 0.8% and 1.6%, respectively over the same time period. While all countries recorded growing areas of developed land, in almost half of the analysed countries the growth rate of developed land was lower than the population growth rate. In those countries, the area of developed land per capita declined, implying that on a per capita basis, land use has become more sparing.

Restrictive land-use regulations increase housing costs

Inflation adjusted property prices have increased strongly in most OECD countries. Even the price corrections in the aftermath of the financial crisis in 2008 have proved

short-lived and in many countries, prices are at new record highs. Restrictive land-use regulations are one of the main causes of rising property prices. They restrict the supply of developable land and prevent densification in already developed areas. As a consequence, the supply of residential and commercial property cannot keep up with increasing demand stemming from growing populations and expanding economic activity especially in large urban areas. As generally happens when demand rises faster than supply, markets adjust through increasing prices.

Increasing property prices benefit property owners, who tend to be wealthier, at the expense of renters, who are disproportionally poor. Thereby, they contribute to growing inequality and can lead to situations in which large parts of a city become too expensive for middle and lower-class households. Furthermore, high costs of housing also prevent people from moving into economically successful, highly productive urban areas, forcing them to stay in less productive regions. Estimates show that this can reduce national GDP by considerable margins.

In many places with high housing costs, the evidence suggests that the disadvantages of restrictions on development outweigh their benefits. Allowing more development would make cities more inclusive by decreasing the costs of housing, which would benefit the poorest residents the most. The construction of affordable housing is most effective to make cities more inclusive, but even market-driven housing development in higher priced segments is likely to reduce housing costs for low-income households. An increase in housing supply in one price category causes substitution effects that eventually lead to a decline in housing costs across all price categories.

Increasing the supply of housing would also allow the most productive cities to attract more residents. Currently, the high costs of housing constrain many people from moving into the most productive cities and therefore force them to work in places where they are less productive. An increased supply of housing in economically successful cities would allow more people to work in these cities. Since this raises their productivity, it would also lead to higher economic growth at the national level.

Land-use regulations need to react to growing demand for housing

Land-use regulations should regularly be assessed for their impact on housing costs. Since the cost-benefit ratio of land-use restrictions deteriorates with increasing housing costs, the continued suitability of development restrictions should be progressively re-assessed if housing costs increase.

If land-use restrictions limit the growth of housing to a rate that is lower than the growth rate of households, housing costs are likely to rise. In order to prevent upward pressure on housing costs, the annual increase in housing units in an urban area should be at least as large as the increase in the number of households. In order to reduce housing costs effectively and permanently, the number of newly constructed housing units should be higher than the number of new households. Ideally, new housing development should occur through a mix of densification and brownfield development. Where undeveloped land is being developed, development should be compact and transport oriented. In order to ensure the inclusiveness of cities, public policy should ensure that housing is built in all price categories.

Densification should be encouraged to create sustainable cities

Greater effort is needed to permit and encourage densification. Despite growing populations and pressures on the housing market of many cities, little densification has occurred in recent decades in most urban areas in the OECD. At the same time, growing urban populations imply that areas that were once in the outskirts of cities are now part of the urban cores. Nevertheless, they are often not much denser than at the time when they were first developed. As urban form does not correspond to the changed demographic realities anymore, it becomes more difficult to achieve the ambitious objectives that many cities have set themselves for the transition from car-based transport to public transport.

At a minimum, densification should be made possible by easing land-use restrictions that prevent it. Currently, restrictive zoning regulations and planning decisions limit the possibilities for densification in many cities and often make it impossible in entire neighbourhoods. They include explicit density restrictions (for example through floor-to-area ratios) and implicit density restrictions (for example minimum lot-size requirements and restrictions on multi-family homes). Easing density restrictions is most important in low-density areas close to city centres and along public transport corridors, but gradual densification should be permitted throughout most parts of an urban area. More proactive policies to foster densification can include the introduction of transferable development-rights and incentives for compact development on brownfield sites. As residents often oppose densification in their neighbourhoods, solutions have to be found to increase public acceptance of increased density. Otherwise, the aforementioned policies may remain politically infeasible.

The evidence suggests that expansive development creates short-term growth but compact cities perform better economically in the long term. In OECD regions, there is a strong negative relationship between the developed area per capita and economic growth between 2000 and 2012. A region that used 10% less developed land per capita than another, recorded a per capita GDP growth that was approximately 1 percentage point higher over the following decade. This effect of compact development is positively related to economic growth independent from whether or not a region is urban. While sprawling development may encourage economic growth in the short term, governments should refrain from the temptation to permit sprawling, uncoordinated or badly planned developments in order to create temporary boosts to growth. Sprawling cities impose significant environmental and fiscal costs and are likely to lower economic growth in the long term. Further, they do not necessarily offer a higher quality of life for residents. Research has shown that places with high density can have high well-being; it is the quality of space and public amenities that matters, not the amount of land consumed by residents.

Land consumption in shrinking regions should be reduced sustainably

Once land is developed, it is rarely turned back into an undeveloped state. More than 350 regions across the OECD have experienced declining populations since 2000, but this rarely translates into a conversion of developed land into an undeveloped state. Across the OECD, the vast majority of regions (90%) with declining populations between 2000 and 2012 did not see a decrease in the amount of developed land. Of those regions that

experienced declines in the area of developed land, more than half were located in eastern Germany.

Shrinking regions should reduce their land consumption sustainably. A failure to return developed land into undeveloped states has two negative consequences. First, it contributes to overall increasing land consumption with the associated negative environmental consequences. Second, it increases the costs of infrastructure maintenance on a per capita basis, since the same amount of infrastructure has to be maintained for a smaller population. Thus, it further reduces the fiscal viability of cities and regions that are already under fiscal pressures due to unfavourable economic conditions. More efforts are needed to develop efficient and equitable solutions to return urban land into an undeveloped state.

Greater integration of land-use policies across sectors and levels of government is needed

Planning needs to overcome sectoral silos

Housing, transportation, energy, water, agriculture, tourism, economic development – all of these sectoral issues affect how land is used. Developments in one sector, such as growth in large-scale farming, will affect another, such as tourism, which may rely on traditional pastoral landscapes. The co-ordination of sectoral issues across a territory is complicated by the fact that sectoral policies, rules and regulations can span local, regional, national and even international scales. Thus, the call for a more integrated approach to spatial planning presents a major co-ordination challenge.

National and regional governments have a critical role to play in this regard by establishing frameworks to support integrated planning across functional territories. They need to create institutions such as the Austrian Conference on Spatial Planning that can provide effective co-ordination across levels of government and across policy sectors. Better integration and co-ordination of policies is particularly important if a wider range of policy instruments is used to steer land use – as is advocated in this report. Without better co-ordination mechanisms, it will not be possible to align an even more diverse set of policies to influence land use effectively.

The metropolitan dimension in planning should be strengthened

Land-use decisions of one community – rural or urban, large or small – affect its neighbours. From the location of transport infrastructure, to the preservation of natural amenities or the costs of housing – there are a myriad of interactions that connect the functional territories across which people live, work and travel. Especially in densely populated urban areas, the management of land demands a co-ordinated approach to contentious issues such as regional transportation investments, the location of industrial areas and the amount of housing that is developed. As the purview of spatial planning has expanded, a broader metropolitan scale has been adopted in many countries. It is driven by the need for spatial and land-use planning to keep pace with changing functional territorial boundaries. This is particularly important in countries with polycentric urban structures and where the borders of local jurisdictions do not correspond to urban form and the patterns of daily activities of their residents.

Metropolitan planning can be achieved by both formal and informal institutions. The effectiveness of either institutional approach depends to a large extent on the types of issues that a territory faces, the relationships among the actors, the resources at their disposal and, in general, the capacity to implement a common agenda. The policies of upper level governments, regional or national, have a major impact on the adoption of inter-municipal or metropolitan planning frameworks. In countries with consensus-oriented politics and high capacity at the local level, soft co-ordination mechanisms are likely to work well. In other cases, more stringent co-ordination mechanisms at the metropolitan scale may be more effective.

Monitoring and evaluation of land use and land-use regulations should be improved

The monitoring and evaluation of land use and land-use regulations should be improved. Too little is known about how land is used and how it is regulated. This concerns in particular land-use regulations that are under the control of local governments. At present, the lack of monitoring and evaluation makes it difficult to identify which policies work well at the local level and which do not. Furthermore, the aggregate effects of such land-use regulations on regions or even countries are almost impossible to estimate because no systematic information exists about the characteristics of regulations at the local level.

Better monitoring and evaluation is especially important if land-use policies focus more strongly on providing incentives and less strongly on setting restrictions. While such a policy shift can improve the effectiveness of land-use governance, it also creates greater uncertainty about how land use is affected by policies. Compared to traditional land-use planning instruments, incentive-based instruments give individuals greater responsibility, which makes the consequences of policies more difficult to predict. In order to ensure that land-use policies achieve their objectives, any shift towards more flexible and incentive-based instruments should be accompanied by better monitoring and evaluation.

CHAPTER 1

WHY LAND USE MATTERS

This introductory chapter highlights the importance of how land is used to both individual and collective well-being. It discusses the economic characteristics of land followed by the governance of land use and its consequences for a wide range of economic, social and environmental outcomes. The chapter ends with an outline of the structure of the overall report.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

How land is used affects individual and collective well-being and is a critical factor in meeting the overarching goals of environmental sustainability, economic growth and social inclusion. It makes the difference between places where commuting is lengthy and onerous, city centres are unappealing and empty, housing is unaffordable, and natural amenities are scarce, to those with a high quality of life and well-being for residents.

Land use is an environmental issue of global importance. Land is life sustaining. It provides food, places to live and its uses are fundamental to the robustness of ecosystems, air quality and even global temperatures. Humans have transformed land uses across the world to wide ranging effects causing the fragmentation of habitats, the loss of biodiversity and the degradation of soil and water. For example, land-use practices have affected the global carbon cycle: since 1850, roughly 35% of anthropogenic CO_2 emissions resulted directly from land-use practices (Foley et al. 2005).[1] Managed forests have replaced natural ones and now cover 1.9 million square kilometres worldwide resulting in a loss of biodiversity (Foley et al, 2005). Land uses also affect air quality including via dust sources, vehicle emissions patterns and other sources of air pollutants.

Health outcomes are linked to land use in a myriad of ways. Urban design – through the creation of walkable communities and sustainable transportation options – encourages active living and its attendant beneficial health impacts. In contrast, sprawling agglomerations where there is a strong reliance on automobiles, promote a more sedentary lifestyle. Further, the negative health effects of air pollution are well documented, including increased mortality rates. Land use can also support or impede mental well-being. Evidence suggests that access to greenspace improves mental health.

A wide range of social outcomes are influenced by land use. The availability of land is one of the major determinants of housing costs. Constraints on the supply of land and increasing demand, for instance due to population growth, mean that prices for land and housing will rise. Booming cities across the OECD face this issue of housing affordability. Spatial social distributions also matter. Where low income communities are spatially concentrated and poorly linked to services and infrastructure, there can be pockets of high unemployment and enduring multi-generational poverty.

Land and the property built on it constitute by far the largest part of all global wealth. For example, in six OECD countries (Australia, Canada, Czech Republic, France, Japan, Korea), land alone makes up 42% of the total capital stock. Combined with the value of the property built on the land, this rises to greater than 86% out of total capital stock. Expressed in monetary terms, land and buildings together have a value of approximately USD 61 000 000 000 000 (61 trillion); this corresponds to 3.3 times the annual GDP of the six countries.[2] Assuming that the values of land and buildings are proportional to GDP levels across the OECD, it would imply that the total value of land in the OECD is USD 121 trillion and the value of the buildings on it is USD 128 trillion, which adds up to a combined value of USD 249 trillion.[3] These immense numbers show the importance of land-use policies. Even small changes in land values can have large consequences for the capital stock of an economy. They may affect the investment decisions of firms and individuals and thereby the structure of the economy as a whole.

The enormous value of land shows the importance of land-use policies for the wealth distribution of a society. In fact, there is evidence that the rise in wealth inequality found by Piketty (2014) is to a large degree due to a rise in the value of land (Homburg, 2014). Since land is predominantly owned by wealthier individuals, land-use policies that

contribute to rising land prices increase wealth inequality. The value of land also provides an explanation why land-use policies are such a contentious political topic. Any policy that affects the value of land creates winners and losers and is therefore likely to face resistance. For example, landownership may have generational consequences. Older cohorts tend to own far more land than younger ones and land-use policies can reflect the policy preferences of older cohorts by protecting land wealth – often making it more difficult for younger cohorts to acquire property.

Land use matters because people are attached to land and how it is used. Land is tied to places, communities, cultures and identities. Land use is closely connected to cultural and lifestyle choices and it is not yet possible to provide a monetary value for all elements that land use contributes in this respect. The resistance against many policies that experts judge as desirable and that are supported throughout this report – such as the construction of wind turbines and the densification of urban areas – shows that people care deeply about land use in their vicinity. Successful land-use policy must take these concerns into account while ensuring that land use can adapt to meet today's challenges.

The major economic characteristics of land

In classical economics, land was considered to be "the original and inexhaustible gift of nature" (Turner, 1977: 2) and was counted as one of the three basic factors of production, along with labour and capital. It was and is fundamental to virtually all productive activity, as well as to a great deal of goods and services. Its total supply was held to be relatively fixed by nature[4] and could not be augmented or diminished in response to higher or lower prices for it (Samuelson and Nordhaus, 1989). Yet while the supply of land in a physical sense is fixed, the supply of land for different uses is not. Almost everywhere, it is determined by policies and regulations. For example, if land for urban development is scarce, it is rarely because no more land exists around cities. Rather, land around urban areas is protected and reserved for other uses by land-use regulations.

Land combines characteristics of resources that are used by all ("public goods") and resources such as forests and pastures which can suffer from overuse ("common pools"). However, in contrast to many other public goods and common pools, land can be reserved for private use – albeit private use often generates substantial positive or negative effects on others ("externalities"). Many of the externalities from land use have complex and difficult-to-predict spatial or inter-generational impacts.[5] The precise boundaries between its public, common and private characteristics are chiefly a function of how property rights are defined and how they interact with other forms of regulation. This means that land investment and land markets present particular co-ordination problems: in many cases, individuals have little incentive to invest in land use unless they are certain that others will not do "the wrong thing" (e.g. one does not build a dream home on a plot of land unless one is sure that the neighbours are not about to build an airport or install a waste disposal site).

Much of the wealth derived from land takes the form of surplus value ("resource rents"), whose value and allocation are powerfully affected by a range of factors that often have little or nothing to do with the actions of landowners. Variations in the value of land can vary dramatically over very short distances (sometimes over hundreds of metres), leading to large differences in land values across a relatively small space. Such sharp changes in land values occur especially often in urban areas and are often related to

whether or not development is permitted on land and to the infrastructure that exists in its immediate vicinity.

Land also has value in its natural state (landscapes, biodiversity and other amenities). Households use it for housing and "consume" it in the form of natural amenities. Firms use it in production of goods and services. The state does all of these things in various ways and also uses it to provide public goods – a role that has grown more prominent as a result of growing awareness about the role of land management in everything from flood prevention to sustaining biodiversity and producing energy from renewable sources. The economic valuation of some of these uses is relatively straightforward, but the valuation of others (particularly amenities) remains much more controversial.

Governance of land use and its consequences

It is not surprising, in view of these characteristics, that land use is highly regulated in all OECD (and the vast majority of non-OECD) economies. There are both good (e.g. environmental protection) and bad (e.g. barriers to entry) reasons for such heavy regulation (OECD, 2008). Land-use regulation, moreover, is in most countries highly segmented, both horizontally (involving, e.g. ministries responsible for agriculture, environmental protection, housing, spatial planning, transport, etc.) and vertically (e.g. local authority power over zoning, centrally determined legislative frameworks, shared/divided jurisdictions over environmental issues, etc.). It is far from clear that such regulatory frameworks are optimal or that they are sufficiently flexible to allow smooth adaptation of land markets to changing circumstances while taking proper account of the externalities involved. There are numerous trade-offs involved, between, for example:

- respect for private property rights and the need to develop public infrastructure (i.e. between compulsory purchase powers and "NIMBY-ism" – Not In My Back Yard)
- regulation needed to address environmental or social externalities and the potential for such regulation to act as a barrier to competition in product markets
- the desire to prevent house-price speculation and bubbles, which may lead to the introduction of very high transaction charges for property, and the need to avoid introducing costly rigidities into land and labour markets
- the desire to favour more compact urban development on environmental grounds and the potential social consequences of the distortions that this may create in housing (and, by extension, labour) markets.

The multi-level governance challenges involved are also extremely complex. If externalities form the basis of the case for regulation, then one might imagine a relatively straightforward subsidiarity principle to determine the appropriate level of regulation: externalities that affect only members of a community should be regulated by the community, inter-municipal externalities by inter-municipal or regional institutions, nationwide issues at national level, and so on. Moreover, forms of land governance are likely to depend on the institutional traditions of a country. For example, in some places, there are weak frameworks for inter-municipal governance.

Complexity in land-use governance arises because it is partly independent from specific locations and partly highly place-based. Some aspects, such as environmental standards are independent from a location. For example, it is frequently determined at the national level how land use must protect biodiversity and what minimum distances need

to be kept between high-risk industrial plants and residential areas. Other aspects of land use can only be determined locally. Whether a particular location should be used for a public transport corridor or developed as a residential area can only be decided for the specific case and not by abstract national regulation. Hence the tendency for land-use governance to be fragmented both vertically and horizontally. This can make compromise difficult when conflicts arise among (actual or potential) users and/or governance institutions, because the parties involved are not negotiating over the allocation of any one good: they are pursuing different goods, with different rights, incentives and mandates. In the case of public governance bodies, they may also be accountable to different electorates.

Moreover, there are debates in a number of countries about such issues as the dangers (or lack thereof) of releasing more land into the development process and, more broadly, about the relationship between the regulation of land and its impact on economic growth.[6] Less discussed, but also relevant, is the question of how much land in OECD countries might be returned to rural use and at what cost. As this report shows, land is generally transformed from undeveloped into developed states, but not vice versa. In the future, this may have to change as demographic and economic trends have confronted many regions with the challenges related to the management of shrinking cities and towns.

A good deal of evidence suggests that land regulation in many OECD countries leaves much to be desired. Policy objectives that are closely linked to land use are frequently not met. Many countries, for example, suffer from high housing costs or fail to implement compact patterns of development. Critiques of land-use regimes argue that they are biased in favour of landowners rather than maximising the productive properties of land (Cheshire and Sheppard, 1997). For the most part, this reflects the fact that most land-use regulation has the effect of restricting supply. It thus tends to benefit some landowners at the expense of others. Turner et al. (2011) find that the complexity of land-use regulation and its openness to political manipulation tend to increase private benefits for landowners while lowering overall well-being.

The complexities outlined above suggest that new forms of governance and new instruments and approaches are needed. This propels a key argument of this report: land-use policy is undergoing a metamorphosis whereby it needs to address increasing complexity, take integrated actions, and be ever more flexible and responsive to changing conditions and concerns. This is leading to new configurations of the governance of land use that challenge traditional forms of accountability, and require new types of incentives and regulations for joint action.

Critically, the objectives of spatial policy and land-use planning for environmental sustainability and inclusive growth cannot be met by the planning system alone. The wide array of policies that impact land use, but that are outside of the purview of the planning system itself, need to be harnessed in order to more effectively meet spatial objectives.

Structure of the report

This report is accompanied by OECD (2017), which provides an overview of land-use planning systems in the OECD. It contains detailed country fact sheets for 32 OECD member countries. Each fact sheet contains a description of the planning system, a diagram showing the content and hierarchical relation of the spatial and land-use plans in the country, and key land cover statistics for the country. In contrast to this report, OECD (2017) is purely descriptive and does not contain policy recommendations.

This report contains insights from several in-depth case studies on the governance of land use in OECD countries. As of the time of writing seven case studies have been conducted in: Prague, Czech Republic; Clermont-Ferrand and Nantes Saint-Nazaire, France; Netanya and Umm al-Fahm, Israel; Amsterdam, Netherlands and Lodz, Poland. Each case study examines the structure of spatial and land-use planning for the country as a whole along with detailed practices in cities and regions. The case studies provide rich information on local practices – both urban and rural – and reveal how, even within the same country, spatial and land-use planning practices and forms of governance can differ considerably. Practices from these case studies are summarised here, with full reports published separately.

This report is organised in five chapters. The second chapter, "Governing land use", presents key themes and debates that have emerged from the OECD's work on the governance of land use and outlines the major argument of the report, described above. The third chapter explores how fiscal frameworks, tools and incentives affect land use. This includes both how the structure of local government finances creates pressure to expand urbanised territory; the effects of fiscal policies on land-use decisions by businesses and individuals; and finally, fiscal tools that can be used by local governments to manage development. Chapter 4 describes changes in land use and land cover in 1 200 regions and urban areas in 27 OECD countries since the year 2000. It analyses how land use interacts with and influences other developments, such as demographic and socio-economic trends and environmental factors. The final chapter presents findings from in-depth case studies of select municipalities and is structured around three key spatial policy objectives: i) compact development; ii) meeting housing demand; and iii) improving quality of life and enhancing well-being. It examines how municipalities are tackling these issues in practice and offers assessments and recommendations on how to better align spatial policy with these overarching goals.

NOTES

1 This figure is based on annual estimates of the net flux of carbon between terrestrial ecosystems and the atmosphere resulting from deliberate changes in land cover and land use, especially forest clearing for agriculture and the harvest of wood for wood products or energy (Houghton and Hackler, 2001).

2 See OECD (2015) for a methodological discussion on how to estimate land values.

3 All values refer to 2013 and are provided in purchasing power parity terms. *Source:* OECD Annual National Accounts Table 9B. OECD (2016), "Detailed National Accounts, SNA 1993: Balance sheets for non-financial assets", OECD National Accounts Statistics (database), http://dx.doi.org/10.1787/data-00809-en (accessed 14 December 2016).

4 Of course, even the classical economists knew that this was not strictly true. For centuries, land has sometimes been created by drainage, and the fertility of the existing land can be depleted by over-cropping.

5 "Public goods" refer to those goods for which consumption is non-rivalrous and non-excludable (e.g. clean air or national defence). Non-rivalry implies that one agent's consumption of the good does not reduce its availability for others to consume; non-excludability means that no one can effectively be excluded from consuming the good if it is provided at all. "Common pools" are characterised by rivalry in consumption (an agent's consumption reduces the opportunity of others to consume) but non-excludability (e.g. common grazing land or shared watercourses). "Private goods" are characterised by rivalry of consumption and excludability.

6 It is important to note, however, that regulation to prevent land-use conversion in respect of farm land is not synonymous with keeping it in production. In some places, more farm land is being taken out of production altogether than is being converted to non-agricultural uses.

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CHAPTER 2

GOVERNING LAND USE

This chapter provides an overview of the major themes and debates that have shaped how spatial and land-use planning is practiced and governed. It explores the purpose of planning, including its intentions in shaping both present and future land uses and outcomes. Next, it discusses evidence of shifting modes of governance, whereby an increasingly diverse array of actors is involved in spatial planning. It further describes how the scale at which planning is conducted has shifted in many countries towards a larger metropolitan frame and the importance of such governance across functional urban areas. Following this, the importance of flexible and integrated approaches to spatial and land-use planning is discussed. The chapter ends with a discussion of the need to consider policies that affect land use but that are outside of the purview of the planning system in order to effectively meet spatial objectives such as social equity, environmental sustainability and economic development.

Land is a finite resource with many demands made upon it. It provides communities with water, food, energy, recreation, biodiversity and minerals and space for homes, shops, hospitals, schools, universities, leisure facilities, transport, employment and waste. Whether urban or rural, upland or lowland, coastal or valley, land supplies essential needs and enhances quality of life. Land uses and the demands made upon it are intricately linked to economic growth, population change, industrial composition, and cultural norms and expectations about space and its consumption. Each country's geographic endowments and legacies of the built environment further affects how growing and competing demands for land can be met. Systems of spatial and land-use planning seek to manage the various demands made upon land in order to balance private and public interests, both present and anticipated.

This chapter explores the key themes and debates in planning with an eye to how the governance of land use is changing amidst growing pressures to address everything from climate adaptation and mitigation to economic development and social inclusion. Spatial planning is increasingly complex, interdisciplinary and integrated – requiring approaches that cross sectoral boundaries. As the purview of what planners think about and seek to respond to has expanded, so too has the scale at which planning operates. Many issues, such as landscape protection, housing, transportation and water, are best tackled at scales beyond that of local municipal boundaries. As such, many OECD countries have adopted new territorial frames through which to address common issues. Concurrently, there is an ever growing need for vertical co-operation as well, with local, regional and national governments, and even the international scale, working together on strategic issues that jointly affect them such as housing affordability, co-ordinated transportation investments and climate mitigation. All of these issues are shaped by, and intersect with, how land is used.

This chapter argues that planning is undergoing a metamorphosis whereby it needs to address increasing complexity, take integrated actions, and be ever more flexible and responsive to changing conditions and concerns. This is leading to new configurations of the governance of land use that challenge traditional forms of accountability, and require new types of funding arrangements, incentives and regulations for joint action. This chapter examines these issues in five parts. The first section explores the question of "why plan" – it describes systems of land management and territorial development, and the major issues they seek to address. The second section focuses on the shift from government to governance, remarking on the growing array of actors involved in decisions about how land is used in many countries. The third section explores the shifting scale of governance towards a metropolitan level in some countries, and its implications for spatial planning. The fourth section describes the need for more flexible planning instruments that can respond to changing needs and conditions in a timely manner. The fifth section examines the need for integrated planning approaches – in other words, planning approaches that are cross-sectoral and aligned horizontally and vertically among the actors involved. The final section urges policy makers to consider the wide array of policies that affect land use, but that are outside of the purview of the spatial planning system itself, in order to more effectively meet spatial objectives.

Why plan?

Land-use planning – both past and present – is an area of policy whose outcomes are plain for all to see in patterns of development. Consider for instance Amsterdam, a city whose history is deeply enmeshed in planning. As far back as the 12th century, planning served to protect its polder landscape from floods. Overtime, the city's distinct radial canals were constructed to facilitate commerce and trade, manage water and defend the city. This legacy has served the city well and today its distinct form is a major draw for tourists. In contrast, Umm al-Fahm in Israel is a city that developed over time in the absence of a land-use plan. As the city has grown from a village, developments have climbed the hills of the valley along winding roads and often steep inclines. Infrastructure investments, services and amenities have not kept pace with residential developments and established buildings and uses limit the transition to new ones. Land-use issues are at the heart of the challenges that the community faces, stifling economic and social development.

Two principal answers to the question of "why plan" exist. First, private and public interests related to land have to be balanced. This is necessary because land-use decisions by an individual landowner inevitably affect other people. Often, these so-called "externalities" are negative. For example, if an industrial complex is built at a lakeside, it reduces the amenity value of the lake for all people who use other parts of the lakeside as a recreational area. Likewise, a large shopping centre in a residential area may attract large amounts of traffic that causes noise and air pollution for nearby residents. However, externalities can also be positive. An attractive open space in a new development in a city centre may benefit residents as well as nearby retailers and restaurants by attracting customers to the area.

No matter whether positive or negative, landowners tend to not consider these externalities (i.e. the effects on other people and nearby plots) in their decisions. In many other policy fields, public policy should respond to such a situation by implementing taxes that discourage actions with negative externalities and subsidies that encourage actions with positive externalities. However, the consequences of each land-use decision are very context specific and it is not possible to develop a general system of taxes and subsidies that would provide the desired incentives in each case. Instead, case-based regulatory decisions have to be made that consider the interest of landowners in developing their plots with the desire of the general public for developments that are beneficial to surrounding areas. In other words, planning is necessary to balance private and public interests.

A second answer to the question "why plan" concerns the need to ensure efficient patterns of spatial development. Due to a variety of frictions in real estate markets (see for example Brooks and Lutz, 2016) land will not be developed efficiently in the absence of public intervention. For example, plots may be too small to allow the construction of efficiently sized buildings because the assembly of land is complex and expensive. Likewise, developers may build less mixed-use developments than optimal because it is more difficult to obtain financing for them as they do not fall into established asset categories.

At larger scales, different types of inefficiencies can occur. Housing may be built far away from public transport nodes, which can leave the public transport system

operating below capacity while creating congestion on roads. Similarly, it can be beneficial to reserve land around major infrastructure, such as ports and airports, for businesses that rely on proximity to them rather than to allow other uses.

In the absence of intervention, poor spatial outcomes will occur such as a lack of infrastructure and amenities, areas of concentrated poverty and incompatible land uses in close proximity to one another such as heavy industry mixed with housing. Plans bring spatial order to individualised decisions about where to live, work, grow food and manufacture products. Given this role, planners need to navigate diverse interests about how to use land, both now and in the future. They need to balance multiple objectives such as economic competitiveness, environmental sustainability and social inclusion; in other words "the planners' triangle" (Campbell, 1996).

Land-use planning is inherently a place based activity. In contrast to many other public policy fields, it defines the subject and the extent of its regulations by its location. Consequently, it is no surprise that land-use plans in almost all OECD countries are primarily prepared at the local level (OECD, 2017a). If national governments are involved at all, they usually restrict themselves to a guiding role through the spatial planning process.

Nevertheless, it would be a mistake to believe that land-use planning has only local importance. For example, there is a host of research that demonstrates that low density developments that are further from nodes of service are far more expensive to service than high density ones (Carruthers and Ulfarsson, 2008). Sprawling low-density cities encourage automobile usage and the resulting air pollution has severe health effects and increases morbidity (Künzli et al, 2000). In turn, the prevalence of green space and access to natural landscapes increases well-being (Kabisch, Qureshi and Haase 2015) and the efficient use of land is critical to the shift towards a green growth paradigm (Van Vuuren et al, 2016).

When done wrong, land-use planning can have considerable negative effects. Cheshire and Sheppard (2002) show that it can have strongly regressive distributional effects – benefiting wealthy property owners at the expense of poorer renters. If land-use regulations are too restrictive, they also reduce labour mobility because they make it impossible for people to find affordable housing in productive urban areas. As Hsieh and Moretti (2015) argue, this forces workers to stay in less productive regions and lowers GDP levels by more than 10%. In short, the way land use is planned has consequences for issues of national importance: the long-term stability of ecosystems, social justice, food and energy security, long-term economic growth and the mitigation of and adaptation to climate change.

Legal, regulatory and governance frameworks

How planners plan depends on the legal, regulatory and governance frameworks within a country. It can also be influenced by international norms and agreements on such matters as habitat preservation and air pollution. Property rights are set out in civil law and expropriation law determine rules on how private land can be taken for public use. Spatial planning legislation outlines the roles and responsibilities of planning actors, the instruments available to them and the relationships between the governmental tiers and other authorities. Beyond this, there is a wide range of other legislation that interacts with, and shapes, the regulatory space that spatial and land-use planning occupies, including public safety and sectoral legislation (e.g. water,

environment, industry). The generic phrase "spatial planning" is used here to refer to the more strategic aspects of planning – the higher order plans that detail medium- and long-term objectives as opposed to land-use plans, which are more detailed and specify how different plots of land should be used along with such specifics as building heights, proximity and density (see Box 2.1 for definitions).

In many countries, spatial relationships are realised through a nested hierarchy of spatial plans, from the national down to the local levels. Higher level plans tend to be less detailed and set strategic actions and guidance for those below them. This can entail visual representations on maps, but also supporting documents that discuss major trends, pressures and concerns and identify key areas for investment. Such plans are either binding or non-binding on the scale below, thus imposing a spatial-scalar order to the issues they tackle. For example, whereas the national spatial planning instruments of the Czech Republic, Estonia, Korea and Mexico are legally binding, similar instruments in many other countries serve advisory purposes to subnational level planning (OECD, 2017a).

It is important to note that a legally binding status of national spatial planning instruments alone is not sufficient to guarantee their implementation. As OECD (2017a) argues, many spatial plans at the national level that are formally binding fail to influence land-use planning at the local level. On the other hand, even in countries such as Canada where there is no national spatial policy per se, the federal government still has a large impact on local and regional planning by directing infrastructure investments, as a landowner, through the structure of fiscal relations, through the creation of national parks, and through a wide range of other policies. Suffice to say, those elements that are captured within the formal, legal system of spatial planning in a country form but one component of how land is in fact governed at different scales. This key point is elaborated further in Chapter 5.

The regulatory element – the statutory requirement for individuals to apply for planning or building permission before developing land – is the part of the planning system most members of the public have come into contact with, either as an applicant or as a consultee on development proposals. But the planning system entails often much more than this statutory role. In places such as the Netherlands, planners have at times taken on a very active role in defining projects and developing land. The extent to which planners operate within their statutory roles, or extend beyond it is in large part a function of political culture, social trust and capacity. Land-use planning is in part a political project. For example, strategic spatial plans – those that set medium and long-term visions for a city or community's development – are often determined through a deliberative exercise involving a wide array of residents, businesses and non-profit or voluntary organisations. Thus, the planning system is also in part "an expression of some fundamental values in a society in relation, for example, to the legitimate scope and aspirations of government, the use of land, and the rights of citizens" (Nadin and Stead, 2008: 172). Given this, it is a dynamic and changing area of policy.

Box 2.1. **A note on terms: Spatial and land-use planning**

The term spatial planning is used in this report to connote more general strategic plans while the term land-use planning is used in this report to describe the more detailed process by which lands are evaluated and assessed to become a basis for decisions involving land disposition and utilisation. This includes studies on the environmental effects of land use and its impact on the community. Thus, spatial planning sets strategic directions for how land is used while land-use plans provide the details for specific plots of land.

The concept of spatial planning originates from Europe and is as a generic term used to describe systems for managing spatial development. Healey (1997) defines spatial planning as a set of governance practices for developing and implementing strategies, plans, policies and projects, and for regulating the location, timing and form of development. The EU compendium of spatial planning systems and policies defines the term simply as the "methods used largely by the public sector to influence the future distribution of activities in space" (Commission of the European Communities, 1997, p. 18). Over the past two and a half decades, spatial planning has come to represent a neutral and unifying terminology used globally to refer to different practices and systems, with little common understanding of what it means in practice. The ambiguous nature and malleability of the term, however, has allowed for easy transferability and widespread acceptance in different contexts (Allmendinger and Haughton, 2009).

There appears to be a general consensus on the objectives that spatial planning seeks to achieve, despite the different terminologies used across countries and the lack of agreement on the definition and meaning of the term in practice. Key objectives of spatial planning include: i) co-ordinating the spatial dimensions and impacts of other sectoral policies; ii) establishing the integrated and functional organisation of land uses and their regulation and; (iii) balancing the demand for socio-economic development with the need to protect the environment (Albrechts, 2004; Allmendinger and Haughton, 2009; Commission of the European Communities, 1997; Larsson, 2006; Owens and Cowell, 2011; Shaw, Nadin and Westlake, 1995).

Adapted from: Silva, E.A. and R.A. Acheampong (2015), "Developing an Inventory and Typology of Land-use planning Systems and Policy Instruments in OECD Countries", *OECD Environment Working Papers*, No. 94, http://dx.doi.org/10.1787/5jrp6wgxp09s-en.

Source: Healey, P. (1997a), *Making strategic spatial plans: innovation in Europe*, Psychology Press; Commission of the European Communities – CEC (1997), *The EU Compendium of Spatial Planning Systems and Policies*, Regional Development Studies, Office for Official Publications of the European Communities; Allmendinger, P. and G. Haughton (2009), "Critical reflections on spatial planning", *Environment and Planning A,* Vol. 41(11), pp. 2 544-2 549; Albrechts, L. (2004), "Strategic (spatial) planning reexamined", *Environment and Planning B-Planning and Design*, Vol. 31(5), pp. 743-758; Larsson, G. (2006), *Spatial planning systems in Western Europe: An overview*, IOS Press; Owens, S. and R. Cowell (2011), *Land and limits: interpreting sustainability in the planning process*, Routledge; Shaw, D., V. Nadin and T. Westlake (1995), "The compendium of European spatial planning systems", *European Planning Studies*, Vol. 3(3), pp. 390-395.

Anticipating and adapting to change

Land-use planning seeks to anticipate and react to future changes

Land is finite, but it is also a national asset and its use is therefore critical to the long-term future development of a nation. Globally, it is evident that the challenges of securing food, water and energy will intensify in coming decades. It is estimated that global food production will need to rise by 50% by 2030 in order to meet demand and; total world water demand is predicted to rise by 50% by 2030 (FAO, 2006; OECD, 2012a).

Meanwhile, current energy trends – in the "business-as-usual" approach – are unsustainable in relation to environment, energy security and economic development objectives. The security of the supply of water, food and renewable energy are high priorities for governments. The spatial impacts of these trends and drivers vary from region to region across the OECD. Some of these issues are related more to the physical landscape (coastal or upland areas), whereas others stem from economic and market demand. What is clear is that the problems of each region are quite often unique and, as trends continue, the problems experienced in one region may differ from the problems occurring in a neighbouring region. Hence, place-based solutions are needed.

Nations are pressed to develop a resilient land system that can respond quickly to changes in global circumstances and markets. At a time of significant change or uncertainty, countries and their governments need to be able to adapt their planning processes to respond in a timely manner to the issues that they face. But, in less discretionary planning systems, it is much more difficult to adapt to changing circumstances. Such rigidity can lead to frustration with a country's planning system, particularly when seeking to address such issues as economic recession and recovery, or extreme weather events. Governance structures and planning mechanisms for allocating land use and incentivising certain practices have to be aligned to ensure that basic needs continue to be met in a volatile and uncertain global context. It is therefore important that scientists and policy makers consider a full analysis of land's contribution in order to help address some significant future problems but also recognise the potential of the planning system in providing the evidence base to inform critical choices and assist in the delivery and implementation of decisions. These issues include: increasing demand for water (OECD, 2016), the vulnerability of farming communities in upland areas, food security, energy security and transition to renewables and dealing with increased flood risk.

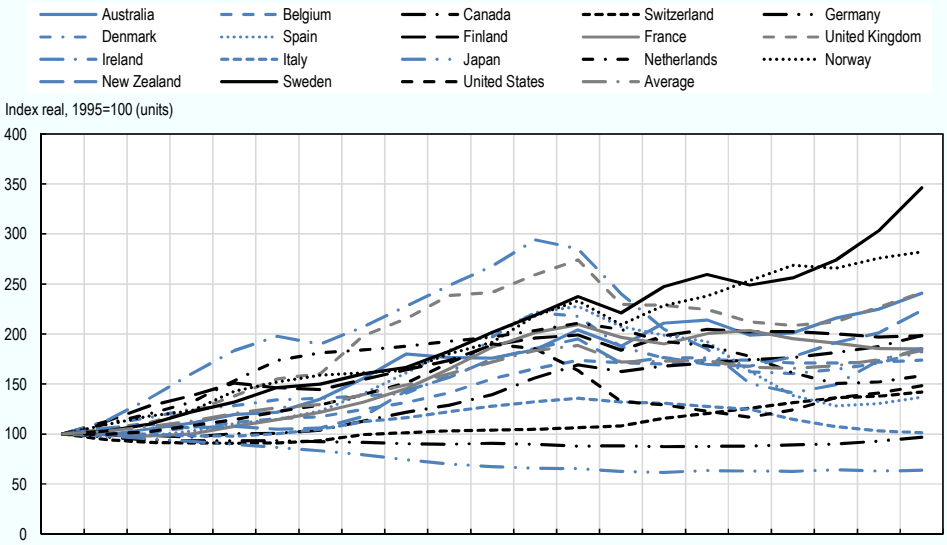
Juggling all the different requirements in managing land use in coming to decisions for today's needs is one skill, but ensuring that future concerns can be addressed in an era of uncertainty is even more challenging. Uncertainty relates to key long-term drivers of land-use change, including changing demographics and migration, economic conditions, environmental conditions, transport and infrastructure requirements and energy provision. These issues represent some of the major themes that OECD countries need to address over the next few decades, but there are other matters that are just as relevant, including the future of agriculture, waste management, retailing, protected landscapes, the built heritage and the provision of sport, recreation and culture. All these sectors and their trends make for difficult reading, not only because they immediately put a question mark over current land uses and future demands on the land, but also because they comprise a mix of fact and projection.

The planning idea of analysing land-use change and considering alternative futures has always been conceptualised around the idea that human use and the management of land interact with natural processes and environments. These biophysical, social and economic processes come together to form a "land system". In order to capture this complexity, spatial planning elaborates framework studies that describe land-related dynamics in the short, medium and longer terms. These framework studies are in part a projection of trends and in part a statement about how to react to them in order to meet key goals.

Box 2.2. **The impact of land-use regulations on housing affordability**

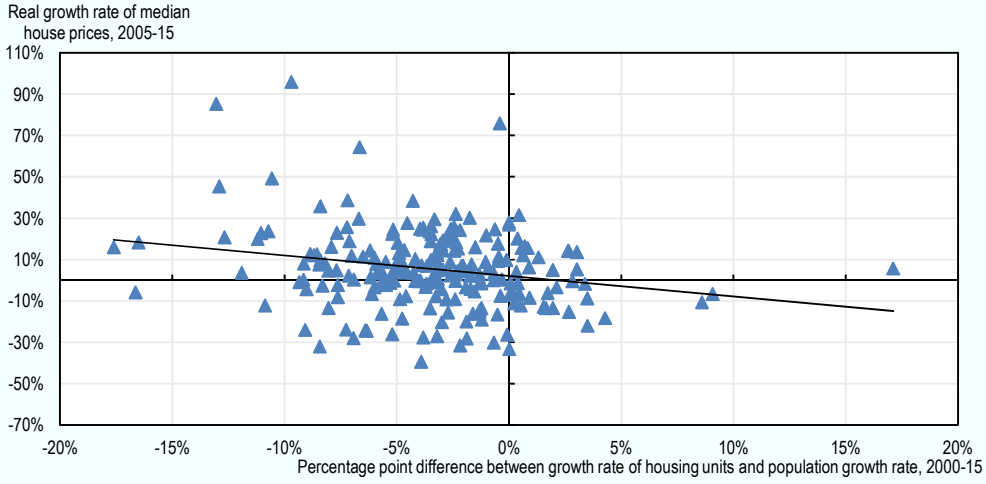
Figure 2.1 shows that property prices have increased strongly in many OECD countries. In countries such as the United Kingdom and Sweden, they have more than doubled since 1995 and in most other countries they have increased by more than 50%. Land-use regulations are an important factor behind this increase. Land-use regulations restrict the conversion from undeveloped to developed land. Where land is already developed, they frequently prevent densification by limiting the amount of floor space that can be built at a location. For example they may restrict building height, floor to area ratio, and building coverage ratio. In their sum, they reduce the amount of housing and other property that is built and therefore make it scarcer. As in any other market, a reduction in the supply of housing leads to an increase in its price.

Figure 2.1.**Inflation-adjusted residential property prices in selected OECD countries (1995=100)**



Source: OECD calculations based on national sources; BIS (2016), *Residential Property Price* (database), www.bis.org/statistics/pp.htm (accessed 4 December 2016), and OECD statistics.

Figure 2.2**. Housing costs and the difference between population growth and housing growth 2005-15 in US metropolitan areas**



Source: OECD calculations based on Federal Housing Finance Agency (2016), *House Price Index* (database), www.fhfa.gov/DataTools/Downloads/pages/house-price-index.aspx (accessed 4 December 2016); housing units and population data based on US Census Bureau (2015), *American Community Survey 1-Year Estimates*, www.census.gov/programs-surveys/acs/ (accessed 4 December 2016).

Box 2.2. **The impact of land-use regulations on housing affordability** *(continued)*

To a large degree rising housing costs are due to housing construction that lags behind population growth rates in urban areas. If not enough houses are built to accommodate a growing population, house prices will rise and people will move into smaller dwellings. This effect is comparable to the adjustment of any market in which demand rises faster than supply. It can be illustrated using data from US metropolitan areas. Figure 2.2 shows the percentage points difference between the growth rate of housing units and the population growth rate on the horizontal axis. In most metropolitan areas, this difference is negative, which implies that population growth has been higher than the growth in new housing units. On the vertical axis, the change in the median house prices is plotted. A clear and statistically significant relationship between the two variables exists. On average, the greater the difference between population growth and housing growth has been, the greater the rise in house prices.

How do land-use regulations affect housing costs?

In order to illustrate how land-use regulations affect housing costs and to discuss the associated trade-offs, it is useful to discuss two hypothetical scenarios. The first scenario assumes that no new construction is permitted and the supply of housing in a city is fixed. The second scenario assumes the opposite case, in which any construction is permitted everywhere without restrictions. Both scenarios are obviously unrealistic and are unlikely to be found anywhere in the world. Nevertheless, they are still valuable to discuss because they represent the two extreme ends on a scale. Any existing land-use regime falls between them, sometimes closer to one end and sometimes closer to the other end of the scale.

In the first hypothetical scenario, the protection of existing neighbourhoods and of green spaces dominates all other concerns. In this scenario house prices are exclusively determined by demand because no construction of new housing can occur. If more people wanted to move into the city, prices would increase and people would move into smaller accommodation until no additional people would want to live in the city given the high costs of housing and cramped living conditions. In other words, prices increase until demand equals supply. The more people want to move into the city and the more they are willing to pay for it, the higher the resulting prices in this equilibrium.

In the second hypothetical scenario, policy makers care only about house prices and construction is assumed to be completely unrestricted. This scenario is more complex. If there were no regulations at all, construction would occur as soon as the price of housing rises above the costs of building it.[1] In city centres of large urban agglomerations where little open space exists, construction would occur primarily by building upwards. In contrast, in smaller urban agglomerations and in the peripheral parts of large urban agglomerations, growth would occur not only through higher densities but also through the build-up of undeveloped land.

Glaeser, Gyourko and Saks (2005) describe what would happen in a city without land-use regulation. Competition would ensure that the price of floor space was about as high as the cost of building it. Perhaps surprisingly, land prices would not play a major role in determining housing costs, because land would not be a limiting factor in determining how many people can live in a city. Landowners competing with each other would build upwards on existing land as long as the price of housing was higher than the cost of construction. Supply would increase until the price of floor space falls to the point where it equals construction costs. Because the cost of adding one more floor to a new building increases only slowly for (moderately) tall buildings (between approximately 7 and 30 floors), additional floor space could be built in any city without dramatic increases in costs. Construction would continue until increased housing supply brings down housing costs to the point where they are roughly equal to construction costs.

In the long term, the difference between construction costs and actual house prices is therefore a measure of the impact of land-use regulations on cities. For the centres of the most expensive cities, such as London and New York, estimates by Glaeser, Gyourko and Saks (2005) and Cheshire and Hilber (2008) suggest that land-use regulations are responsible for prices that are two to eight times higher than they would be without regulations. Even in the centres of smaller cities, regulation increases prices by more than 50%. Similar considerations apply also to more peripheral areas of large cities, but the costs of regulation are more difficult to calculate because land prices and site preparation costs play a bigger role for less dense developments. Since the adjustment process described above is slow, these considerations apply primarily to cities where housing costs have been above construction costs for several years. They are less relevant for cities where speculative demand is driving sharp short-term increases in house prices.

Box 2.2. **The impact of land-use regulations on housing affordability** *(continued)*

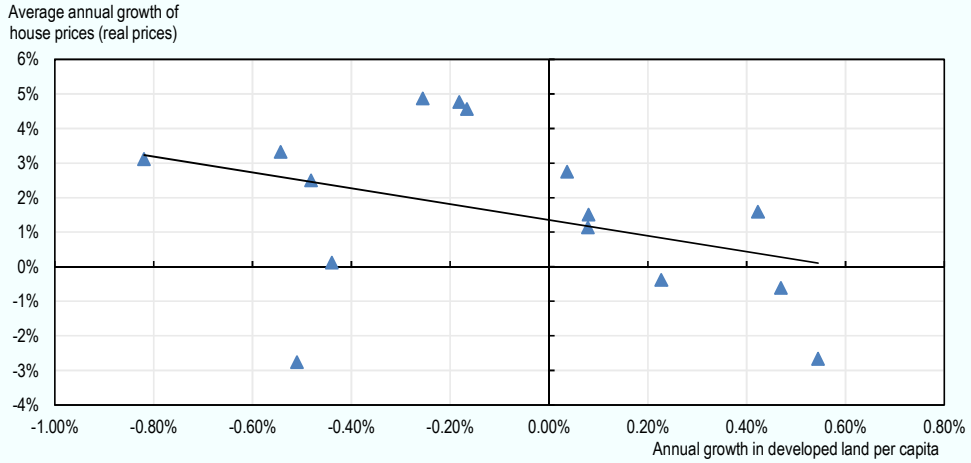
To regulate or not to regulate land

Neither of the two hypothetical scenarios is a desirable state of affairs. Prohibiting any new construction as in the first scenario would primarily harm renters and prospective home buyers and have negative consequences for the economy as a whole. The increase in house prices that would result from such a policy would have negative effects on the poorest residents, because they are predominantly the ones who rent instead of own property.

Furthermore, they would make it more complicated for residents to move from an economically unsuccessful city into an economically successful city. Since the housing stock in economically successful cities cannot increase, prices would rise if people move in to take advantage of economic opportunities. Eventually, this would prevent people from moving into economically successful places and would force them to stay in less productive areas of a country. Such a policy would not only have negative effects on individual residents, but also harm the economic performance of the entire country.

The effect of land-use restrictions on housing costs can be observed in the data. Almost all countries in which population grew faster than the area of developed land (i.e. where the area of developed land per capita declined) experienced growing house prices between 2000 and 2012. More generally, as shown in Figure 2.3 there is a statistically significant negative relationship between the growth of developed land per capita and the growth of house prices.

Figure 2.3. **Annual change in house prices and area of developed land per capita 2000-12**



Source: OECD calculations based on national sources, BIS (2016), *Residential Property Price* (database), www.bis.org/statistics/pp.htm (accessed 4 December 2016); European Environment Agency (2012), *Corine Land Cover (CLC) 2012, Version 18.5.1* (database) and Homer, C.G., J.A. Dewitz, L. Yang, S. Jin, P. Danielson, G. Xian, J. Coulston, N.D. Herold, J.D. Wickham and K. Megown (2015), "Completion of the 2011 National Land Cover Database for the conterminous United States-Representing a decade of land cover change information", *Photogrammetric Engineering and Remote Sensing*, Vol. 81(5), pp. 345-354, www.asprs.org/a/publications/pers/2015journals/PERS_May_2015/HTML/index.html#345/z (accessed 9 December 2016).

Obviously, the second hypothetical scenario of abolishing all land-use regulation would not lead to a desirable situation, either. It would make housing and other land uses too cheap because it would not incorporate the hidden costs of additional developments, for example for the environment. Developers would neither consider negative externalities of new buildings (i.e. the undesirable effects on nearby residents) nor supply sufficient public goods, such as open spaces or an adequate road network. Furthermore, it would be difficult to provide services and public transport to entirely unplanned neighbourhoods, to protect residents from noise and pollution, to preserve the historic character of a city, and to ensure efficient land management (for example to ensure plots are of efficient size and shape to use them adequately in the future).

Box 2.2. **The impact of land-use regulations on housing affordability** *(continued)*

Since the extreme cases discussed in both hypothetical scenarios are undesirable, policy makers need to find the right balance between them. They have to protect the quality of life of residents but also ensure that cities remain affordable for all and that land-use restrictions do not only benefit property owners. Since no two cities are identical, it is impossible to generalise where to draw the line between too strict and too lenient land-use regulation.

Guidance on this question can be provided by house and land prices as discussed by Cheshire and Sheppard (2005). The higher land prices and housing costs, the higher are the social costs created by land-use restrictions. Consequently, their benefits must be higher to justify them on welfare grounds. Thus, if house prices rise, land-use restrictions should have to pass progressively stricter tests to avoid preventing low and middle-income families from living in urban areas. More generally, if house prices are several times the cost of construction – as is the case in many cities across the OECD – restrictions to land use are likely to do more harm than good. In contrast, if house prices are close to the costs of construction and developable land is cheap, land-use restrictions are unlikely to be too restrictive.

Note: 1. Expressed in economic terms, construction would start if the marginal costs of constructing floor space are lower than prices.

Sources: Glaeser, E.L., J. Gyourko and R. Saks (2005), "Why is Manhattan so expensive? Regulation and the rise in housing prices", *Journal of Law and Economics*, Vol. 48(2), pp. 331-369; Cheshire, P. and S. Sheppard (2005), "The introduction of price signals into land-use planning decision-making: a proposal", *Urban studies*, Vol. 42(4), pp. 647-663; Cheshire, P.C. and C.A. Hilber (2008), "Office space supply restrictions in Britain: the political economy of market revenge", *The Economic Journal*, Vol. 118(529), F185-F221.

Having a systemic perspective should, in theory, help gain a better understanding of where interventions in the system may cause unforeseen problems and exacerbate vulnerabilities and explore the future of land use in an integrated way. It is a system of forces creating pressures and land-use changes on the ground – whether urban, rural or peri-urban. Space and natural resources are not, of course, in endless supply, and decisions taken now about how land is used and managed can have long-term consequences for the health of the land system. These can be politically difficult decisions to make, either because they constrain the supply of goods or services or threaten existing liberties and ways of behaving. For example, urban density is often required in order to provide services and infrastructure in a more sustainable and cost effective manner; but achieving urban density may go against culturally embedded aspirations for home ownership. It may also increase the price of housing (see Box 2.2). Thus, planning objectives can conflict with societal norms and expectations and have outcomes that may meet some objectives, such as environmental goals, while contradicting others, such as housing affordability. The rewards and penalties of different choices of action on the land and its future can be contested in a politically and economically charged atmosphere. Land is a huge source of wealth across the OECD, and decisions about how land is used can have important financial consequences for the individuals involved, thus raising the stakes of land-use decisions (OECD, 2015a).

Box 2.3. **The consequences of high housing costs for economic growth and productivity**

Box 2.2 describes how restrictive land-use regulations contribute to the high costs of housing that can be observed in many major cities across the OECD. Rising housing costs affect not only the inclusiveness of cities. They have indirect, but potentially substantial effects on the economic performance of a country.

If housing costs in economically well-performing cities rise, it becomes more expensive for workers to move from cheaper, less well-performing cities into well-performing ones. At some point, housing costs can prevent workers from moving into a well-performing city. Hsieh and Moretti (2015) analysed 220 metropolitan areas in the United States They show that high levels of local productivity growth resulted in an increase in local housing prices and local wages, but did not contribute to increasing local employment. A lack of new housing construction in economically successful metropolitan areas raised prices and prevented workers from moving into them. The authors argue that land-use regulations preventing densification have been a central reason explaining the lack of new housing supply. Without land-use restrictions, housing supply would have expanded and workers would have been able to move into more productive urban areas.

According to Hsieh and Moretti (2015), the effects of labour force misallocations in the United States due to restrictive land-use regulations are substantial. They cause a large numbers of workers to be working in jobs in which they are less productive than they could be. Reducing land-use regulations in the most productive metropolitan areas to an average level would increase their workforce drastically and increase United States GDP by 9.5%.

Source: Hsieh, C. T., & Moretti, E. (2015). Why do cities matter? Local growth and aggregate growth (No. w21154). *National Bureau of Economic Research Working Papers.*

Sustainable development has arisen as a meta-agenda

Within the need to anticipate and react to future change, sustainable development has become a sort of meta-planning agenda. Sustainable development's imposition into countries' planning systems suggests that one can pursue the three tenets of sustainable development – economic growth, environmental protection and social inclusion – simultaneously through planning. It even intersects with international agenda's, such as the United Nations Sustainable Development Goals (Box 2.4). Some basic principles for how this is translated into planning practice are summarised in Table 2.1 (Berke and Conroy, 2000).

As a policy commitment, the sustainable development agenda is necessary, practical and desirable. But, as with previous incarnations of the planning system, the effect has been sometimes quite different on the ground when applied to various contentious land uses in competition for each other in specific locations (Healy and Shaw, 1996). In some respects, the three elements of the sustainable development agenda (or "planners triangle") can risk cancelling each other out when it comes to taking difficult decisions over particular development projects with forces pulling for and against each of the three issues (Campbell, 1996). Much has been sought after and promised in the sustainable development debate, but planning systems have often struggled to deliver intended outcomes.

Table 2.1. **Planning principles for sustainable development**

Principle	Description
Supporting biodiversity	Land use and development activities should support the essential cycles and life support functions of ecosystems. Whenever possible, these activities should mimic ecosystem processes, rather than modify them to fit urban forms. These activities must respect and preserve biodiversity, as well as protect and restore essential ecosystem services that maintain water quality, reduce flooding, and enhance sustainable resource development.
Livable built environments	The location, shape, density, mix, proportion, and quality of development should enhance the fit between people and urban form by creating physical spaces adapted to the desired activities of inhabitants; encourage community cohesion by fostering access among land uses; and support a sense of place to ensure protection of any special physical characteristics of urban forms that support community identity and attachment.
Local sustainability	A local economy should strive to operate within natural system limits. It should not cause deterioration of the natural resource base, which serves as a capital asset for future economic development. Essential products and processes of nature should be used up no more quickly than nature can renew them. Waste discharges should occur no more quickly than nature can assimilate them. The local economy should also produce built environments that meet locally defined needs and aspirations. It should create diverse housing, and infrastructure that enhances community liveability and the efficiency of local economic activities.
Equity	Land-use patterns should recognise and improve the conditions of low-income populations and not deprive them of basic levels of environmental health and human dignity. Equitable access to social and economic resources is essential for eradicating poverty and in accounting for the needs of the least advantaged.
Polluters pay	Polluters (or culpable interests) that cause adverse communitywide impacts should be required to bear the cost of pollution and other harms, with due regard to the public interest.
Responsible regionalism	Communities should not act in their own interests to the detriment of the interests of others, and they should be responsible for the consequences of their actions. Just as individual developers should be subject to the principle that polluters (or culpable interests) pay, a local jurisdiction has an obligation to minimise the harm it imposes on other jurisdictions in pursuit of its own objectives.

Source: Adapted from Berke, P.R. and M.M. Conroy (2000), Are we planning for sustainable development? An evaluation of 30 comprehensive plans. *Journal of the American planning association*, Vol. 66(1), pp.22.

While planners have an increasingly complex array of tools to draw on to understand emerging trends – such as geospatial statistics, high resolution mapping, and spatially referenced user data – what is less certain is whether the instruments at planners' disposal are effective in addressing complex emerging trends. In particular, it is questionable whether statutory instruments like zoning, which can only restrict new or changing land uses, are able to meet the growing needs and ambitions of spatial planning and its interconnected sectoral challenges.

Box 2.4. **The UN 2030 Agenda: Sustainable development and spatial planning**

In the context of the United Nations Sustainable Development Summit on 25 September 2015, the High-level Political Forum on Sustainable Development adopted a shared document aiming at pursuing sustainable development across economic, social and environmental dimensions. Transforming our world: the 2030 Agenda for Sustainable Development establishes 17 goals (SDGs) and 169 related targets with the ambitious objectives of ending poverty and hunger, protecting the planet and adopting measures on climate change, guaranteeing social, economic and technological progress, fostering inclusive societies and strengthening global solidarity. The agenda is the result of over two years of consultations that involved civic society and other stakeholders and delivers a plan for the entire world, without distinctions between developed and developing countries.

Box 2.4. **The UN 2030 Agenda: Sustainable development and spatial planning** *(continued)*

The document sets out implementation strategies for ensuring the effectiveness of the SDGs and the full commitment of all nations. Firstly, the agenda calls for global partnership and global solidarity, and for the involvement of Governments, the private sector, civil society, the United Nations system, the scientific society and other actors in the common effort of achieving sustainable development. Furthermore, a major role is assigned to the multi-level collaboration between governments, from the local and regional to the supra-national level. Developed nations are also required to allocate financial resources and to grant environmentally sound technologies to developing countries at favourable conditions.

Follow-up mechanisms such as global indicators are foreseen to monitor the progress of each nation. In addition, the United Nations Interagency Task Team on Science, Technology and Innovation is expected to support countries in the adoption of the necessary measures for delivering the SDGs.

The 2030 Agenda represents a significant challenge for spatial planning. Planners are required to define spatial strategies capable to meet environmental goals while strengthening social cohesion and economic prosperity. The co-ordinated development of these three goals needs the adoption of sophisticated planning instruments, capable of overcoming the rigidity of some land-use plans. Spatial planning is expected to be flexible and adaptable to the evolving needs of sustainable development. It also has to provide vertical co-ordination between the different level of governments involved in the planning process and horizontal integration of different sectors. Planners have, notably, a crucial role on the accomplishment of the following goals:

- Goal 7: ensure access to affordable, reliable, sustainable and modern energy for all.
- Goal 9: build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.
- Goal 11: make cities and human settlements inclusive, safe, resilient and sustainable.
- Goal 13: take urgent action to combat climate change and its impacts.
- Goal 14: conserve and sustainably use the oceans, seas and marine resources for sustainable development.
- Goal 15: protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Every year, the High-level Political Forum on Sustainable Development will monitor the progress of countries in the implementation of the goals. In the 2016 Forum, nations were invited to give a voluntary presentation on their performance. 22 nations contributed with a voluntary review of their progress, 9 of them were OECD countries. Despite the considerable commitment of countries and the significant progress already achieved for meeting the targets of the previous Millennium Development Goals, the measures adopted by many nations do not appear to be adequate in relation to the great ambitions of the agenda and more effort needs to be made.

The OECD aims at strengthening engagement in sustainable development, assisting member countries with tools and knowledge to get ready to meet the SDGs. As a first evaluation of countries' performances, a pilot study on Measuring OECD Countries' Starting Positions on the Sustainable Development Goals was launched. The document The Sustainable Development Goals: An overview of relevant OECD analysis, tools and approaches identifies all the OECD tools and data that can be employed as support for the achievement of the SDGs. Furthermore, an Action Plan on the Sustainable Development Goals was issued during the 2016 Meeting of the OECD Council at Ministerial Level.

Source: UN HLPF (2015), *Transforming our world: the 2030 Agenda for Sustainable Development*, United Nations, High-level Political Forum on Sustainable Development, New York.

From government to governance

Planning is not a static entity. For decades, planning has been an enduring feature of most nations' attempts to manage land-use changes, the growth and contraction of cities, the renewal of infrastructure and the use of resources, balanced against individual and societal preferences within a democratic arena. But it has been subject to change itself, from diverse socio-economic and environmental conditions, the responsibilities of governments and decision makers, and from the division of rights between the state, individuals and businesses. Planning is therefore an extremely fluid activity, prone to changing political preferences and structural factors, as well as the desire for physical improvement and renewal.

Many countries initiated land-use planning as an activity of the central state in the early 20th century, but have since adapted their processes to ensure planning became an activity of multiple levels of government, shared between the central, regional and local authorities. OECD countries have experimented with these changing scales and forms of government (and therefore with planning) throughout the last hundred years, prioritising different scales of policy and decision making in turn. In the past decades, governments have variously experimented with centralisation, localisation, regionalisation, city-regionalisation, decentralisation, and devolution. Often, this has occurred not in a linear way but by moving forward then back to previous older forms and recognisable governing structures. Since the 1980s, some countries have also, to a greater extent, relied upon the market, which has entailed a more dominant role for the private sector in planning than the very active role governments have played in the past – such as the periods of post-war reconstruction which pursued "grand design" with confidence (Cullingworth, 1997).

Since the late 1990s, "governance" has emerged alongside government to initiate policies and take decisions on issues and in areas that perhaps had been formally occupied in some way by the state. A shift towards governance in many OECD countries has arisen in part due to the perception that planning processes and development plans – divided between various governance agents and strategies – have difficulty in anticipating change and the consequence of change over shorter time periods, causing perceptions that the planning processes themselves are inadequate, slow and bureaucratic or fail to respond to market drivers. The shift towards governance has been driven by a growing desire for more flexible and pragmatic forms of collaboration between separate arms of the state, business, and other vested interests. Consequently, the architecture of planning has become enmeshed in both a governmental and governance web of relations – embracing a larger array of actors across multiple scales in the process (Albrecht, Healey and Kunzmann, 2003).

This shift from government towards governance has implications for bureaucratic administration, political authority and accountability. Under systems characterised by "government", there is a hierarchal structure and lines of political authority and accountability are clear (Table 2.2). But in instances where multiple actors (including non-governmental actors) are involved in the governance of land-use administrative structures are less hierarchal, power is diffuse and as a result, lines of accountability are less evident. The shift towards governance fundamentally reorients relationships with government, from a system where the state has strong control over policies and regulations, towards ones where a broader array of actors are responsible. Hence, the

distinction between state central "control" versus state central "steering". A shift towards governance further reorients ways of working within an institution and with other actors. Collaboration and co-ordination becomes all the more critical under systems of governance.

Table 2.2. **The difference between government and governance**

Government	Governance
Hierarchal administrative structure	Non-hierarchal administrative structure
Power is concentrated	Power is diffuse
Strong, central executive	Segmented executive
Clear lines of accountability	Blurred/fuzzy lines of accountability
State central control	State central steering
Single homogenous public service ethos	Heterogeneous service culture

Source: Own elaboration.

Governance and participatory planning

The shift towards governance has gone alongside an ambition to involve the public, broadly defined, in planning processes and decisions. On the one hand, this is a pragmatic reaction to the need to collaborate between a diverse array of public and private actors and build consensus on plans of action. Doing so can help reduce friction, conflict and future litigation/appeals. It is also borne out of the recognition that communities should reflect the interests, uses and needs of their residents – that spatial planning is in no small measure a political project built on social norms about what ought to be done. The planning system can provide valuable democratic forums for the public to express a voice in changing their surroundings. Since the late-1990s, society has become increasingly pluralist, with a concomitant shift from representative government to participatory governance, enhanced public participation and involvement mechanisms in policy development, and enhanced vocal rights within decision-making structures. There have also been increasing opportunities within government and governance to challenge, protest legitimately, appeal and seek legal redress within the formal decision-taking processes.

Contemporary spatial planning approaches combine a curious mix of the more participative alongside the more deregulatory, but with varied forms and approaches, almost like a patchwork quilt (see Box 2.4). Multiple forms of planning can operate at one time in a city. For example, land-use planning in Poland is regulated and framed by the state. On major projects, such as the revitalisation of a historic city centre, public and private bodies work very closely to realise common objectives. At the same time, cities, such as Łódź, are creating new ways to involve citizens in local planning. There are community level advisory bodies and a participatory budgeting process has been adopted to propose and adopt local projects. Thus, planning in the city combines statutory functions, balances public and private interests, offers a vehicle for economic development and also seeks to strengthen local democracy through participatory processes. In doing so, it needs to balance the interests of multiple needs and actors.

Table 2.3. **Key forms and agendas for planning**

Forms of planning	Key agendas for planning
Regulated and framed by the state, national government and municipal government	Meeting national and subnational needs against a global backdrop
Private landownership mostly, but regulated publicly	Balancing local and community desires with wider concerns
Planners devise master plans and control development in the wider interest	Ensuring transport infrastructure is tied to development phasing
Implemented by developers and private consultancies	Provision of strategic visioning, master planning and fast decision making
Planning an activity of public and private sectors, working in partnership to design, develop and deliver tomorrow's places	Mediating between conflicting users and allowing more people a voice within the development process
Increasing powers of communities and neighbourhoods to shape local areas	Reconciling conflicts and disputes
"Active" land-use planning where municipalities acquire land, prepare it for construction and use, and then issue the land to the market	Protecting the past, planning the future
Experimental planning and temporary uses	Delivering through policy, negotiation and implementation

Source: Adapted from Tewdwr-Jones, M. (2012), *Spatial Planning and Governance: Understanding UK Planning*, Palgrave Macmillan, Basingstoke.

As land-use management and decision making within some planning systems has become more flexible, participatory and less regulatory, the formal agents of decision taking have in turn often sought more certainty and legitimacy from the state in their actions against possible future challenges. Coupled with the existing laws and policy frameworks, this can lead to decisions favouring the lowest-common-denominator solutions, with decision makers and indeed government attempting to placate simultaneously all the various groups that have an interest in land. It symbolises a shift to more pragmatic ways of dealing with matters, rather than on the basis of defined political principles enshrined in statutory plans. Against this backdrop, the case for and role of planning becomes much more difficult to argue, since planning itself is founded on the basis of historically set principles and now is also expected to mediate between the different actors and their vested interests.

Coping with disjointed governance

How the pressures on land are managed is also affected by uncertainty regarding who has responsibility for decisions and at what scale. Nowadays, there are key distinctions and tensions between land-use planning operating as a governmental, public, private and participatory set of processes. There is also a distinction to be made between land-use planning policy, planning regulation and spatial planning. There are overlapping relationships, interlocking and co-dependencies between land-use commitments at international, national, regional, sub-city/regional, local and neighbourhood levels of government and policy making, each with its own planning level and degree of discretionary judgement.

The evolution of the European Spatial Development Perspective offers an example of such change. It was initiated in 1999 to address the variation in the European planning landscape. Some European countries broadened their land-use planning systems beyond a regulatory role, into three tasks: i) facilitation and regulation of a host of measures; ii) co-ordinating for regional and local public bodies; and iii) the creation of access points for wider stakeholders to get involved not only in planning, but local and regional

governance and strategy making as well. The impact of the ESDP has ebbed and flowed since this time, impacting upon individual regional and local planning documents as an intelligence frame, but sometimes divorced from more immediate regulatory pressures. These three planning tasks still are evident in different places across the EU today, albeit in different guises. Managing land-use change across the EU appears to be splitting up in many ways that suggests both continuity with the past (dealing with planning permits through development management, for example) and the changed requirements of the twenty-first century (spatial planning that emphasises public participation, place shaping and well-being agendas).

Local governments need to meet a wide array of national policy objectives

National governments generally provide a broad planning framework on issues such as flood risk and climate change, but also forward policy on such matters as infrastructure provision, housing development, retail change and economic development. In some federal countries, such broad planning frameworks are more the purview of the regional level of government than the national one. In many ways, this is the crux of the problem: over decades, local-level decisions need to take account of a range of national or regional policy statements in formulating strategies, but often have little guidance on which issues take priority. Similarly, imposing a direction in a particular substantive policy could be seen as riding roughshod over other democratically-elected tiers, an issue made even sharper as land-use change mechanisms have embraced stakeholder participation at the grassroots level and, politically, the planning process copes with subsidiarity, decentralisation, localism and neighbourhood-level decision making.

Mechanisms to expedite major projects can undermine formal land-use planning

Another tension concerns the relationship between the formal land-use planning system (government policy making at all tiers and their associated plans and strategies) and Special Purpose Bodies (SPB) – e.g. ad hoc strategy and delivery bodies. This is especially the case in urban areas or where governments have created new delivery mechanisms in specifically targeted areas that stand outside the formal land-use planning tools in order to provide expedited arrangements for change. These entities are set up at arms-length from government, but are funded by them, in order to deliver infrastructure or a policy without waiting for the formal statutory planning process to deliver the same results. Some of the most effective uses of SPBs have been used to deliver Olympic Games to cities, but sometimes they are used because they are perceived to deliver development at a faster pace than using state controls. In the United Kingdom, for example, SPBs enabled the development of both London Docklands and the Thames Gateway, while special Acts of Parliament created high speed rail lines and flood barriers and barrages (Edwards, 2013; Brownhill, 2013). The traditional planning system was not used for these purposes because it was considered it would take too long. The results can be faster and more achievable development, but possibly at the expense of more localised forms of democratic involvement in decision making.

There is also the danger that they create different types of land-use management processes, a patchwork of governance systems that are confusing and with which citizens and businesses may not be able to identify. Some of these processes are shaped and led locally, but others are established nationally and, historically, regionally or sub-regionally. The result of this patchwork system is a multitude of governance mechanisms that frequently lead to contentions locally over who should set visions and directions for change and which set of political priorities should prevail (see Box 2.5 for an example).

The system for determining how to manage land depends in part on how it should be used to address existing problems and emerging issues. Managing land-use trends is also a political choice, and shaped by prevailing governmental arrangements. Without a comprehensive perspective on land use that moves beyond short-term interests, issues such as climate change, food security, energy availability and access to services and homes could make some countries' populations more divided and more unequal in the future.

All these institutional pressures demonstrate the challenges of scalar politics on land-use issues. The different preferences for each institutional type reveal internal debates on the ongoing relationships between different tiers of the state, but are also affected by global governance trends. It is clear that spatial planning, as one of the latest manifestations of the fluid, changing and changeable forms of land-use planning and territorial development, remains a deeply contested process in some countries. It is stretched vertically and horizontally across the various political axes of the state and attempts to mediate between different interest groups and address sectoral policy concerns that often pull in opposite directions. As the governmental and institutional structures are amended, so too is spatial planning as an instrument of those structures.

Box 2.5. **Poland's Special Infrastructure Acts**

In Poland, the need for flexibility and responsiveness was answered by legislation that created the ability to forward projects outside of the purview of the regular planning process. The national government has created special infrastructural acts for public investment projects of national importance – e.g. major roads, railroads, airports and infrastructure development related to special events, such as the Euro Football Championships in 2012. These acts expedite significant projects. This has been instrumental in helping Poland to take advantage of investments funded through EU Structural Funds. However, these acts suspend common local planning law. They can be implemented even where they are contradictory to the aims of a local spatial strategy; they create special rules for expropriation; and they can bypass certain planning procedures (such as public engagement).

While these acts were initially meant to be used for a limited time only (several years), they are now permanent. The ease of their application has created an incentive to use them. Although originally intended to be used in extraordinary circumstances, projects forwarded under the acts are now commonplace. This mechanism is overused. The way they are presently structured creates a parallel system that undermines the overarching planning framework, including confidence in due process.

Source: OECD (2016b), *Governance of Land Use in Poland: The Case of Lodz*, http://dx.doi.org/10.1787/9789264260597-en.

Spatial planning across a metropolitan frame

The territorial governing frame within which planning resides is neither uniform nor constant. Taking a broad interpretation, planning is an activity of both the public and private sectors, but the different aspects of planning occur at different geographical scales and are formulated, regulated or implemented by different governance actors. Planning can occur at national and super-national scales, at regional and local levels, and at neighbourhood scale. A feature of this multi-scalar planning activity is usually a policy or decision relationship between the scales, where the level above (e.g. national) has an

implication or constraint for planning activity below (e.g. regional). But those relationships and interdependencies vary from country to country depending on such issues as political and governmental discretion, devolution, subsidiarity, federalism and independence. Some planning systems, such as in Israel, are highly centralised, with a strong role for the state in managing how land is used, while others, such as in the Netherlands, are devolved towards local actors (and increasingly so).

As the purview of spatial planning expands to address ever wider objectives such as economic development, environmental sustainability and social equity, a broader metropolitan scale has been adopted in many countries. This is driven by the need for spatial and land-use planning to keep pace with the functional territorial boundaries – the places across which people live, work and commute and the interacting ecosystems and geographies. This is particularly important in countries with polycentric urban structures and where municipal amalgamations have not kept pace with urbanisation, such as France and the Netherlands. Spatial planning has been challenged to adopt new governance frames to address these new urban realities and in doing so, enters in to debates about what the most appropriate scale and institutional composition for dealing with metropolitan or regional problems. Underlying any proposed solutions is a problem definition. How regional scalar issues are problematised necessarily influences the proposed institutional solutions and their scale of adoption. The governance frame itself is not a static construct, even though it comprises layers of institutions possessing different roles and powers. The political process constantly re-layers governance, removes discretion from some governmental scales, adding to others, and changing the balance of relationships between the institutions.

The need for inter-municipal spatial planning

Historically, land-use management concerns have focused on continuing processes of urbanisation, suburbanisation and urban sprawl and how this could be contained. More recently, new patterns of urbanisation since the 1980s, that have often been located at the urban edge, in peri-urban or fringe locations in cities, have risen to prominence. For example, in France, approximately a third of the population of France lives in peri-urban areas and they have been the fastest growing demographic over the past 30 years (Bonnet, 2016). Therefore, land-use management is increasingly concerned with negative externalities arising from "polycentricity", as each urban location (whether it is a city, town or even motorway intersection) all compete for development, services and infrastructure and cater for externalities caused by changing living, commuting and migrating patterns, technological change and new, faster transport links. This requires governance of land use across rural, suburban and urban locales, each with differing interests and capacities.

In France – a country with renowned territorial fragmentation – plans for territorial coherence have been adopted to govern land-use issues across urban, peri-urban and rural territories (Box 2.6). In the process, both large and small communes are brought together to elaborate joint solutions on such issues as housing, urban planning and transportation. They set strategic objectives for the territory that more detailed land-use plans need to take into account, thus establishing a common spatial perspective across the functional territory.

Box 2.6. **Addressing peri-urbanisation: France's plans for Territorial Coherence**

Over the past two decades there has been a significant rise in the number of strategic spatial plans across urban agglomerations in the OECD. In France, as in many other countries, it is the notion of cohesion that underpins this joint spatial development project. The Territorial Coherence Plan (Schéma de Cohérence Territoriale, [SCoT]), created in 2000, is a key mechanism for intercommunal planning using a sustainable development framework. It covers the "local labour market" or "urban area" (basin de vie ou aireurbaine) for parts of the country. This type of plan was established by the Solidarity and Urban Renewal law (loi Solidarité et Renouvellement Urbain 2000, [SRU]).

A SCoT links housing, urban planning and transportation plans more effectively than they otherwise would be and supports cohesive development strategies for the entire area. There is no compulsory requirement for communes or groups of communes to participate in a SCoT, but there are incentives to do so. For example, according to national law, natural areas can be developed only if the area is covered by a SCoT. Such incentives have been further strengthened by the requirement that developed areas that are not covered by a SCoT cannot be expanded starting from 1 January 2017 onwards. To encourage the adoption of SCoTs, the State has set up annual calls for proposals starting in 2010 to increase participation in rural territories with limited human and financial resources to draw up SCoTs.

The plan establishes a reference framework for territorial planning over a time frame of 20 years. As such, it does not give granular detail on land-use development – that task falls to plans and planning decisions at the scale of the commune (PLU for instance), but these must align with the principles or fundamental guidelines. Every municipality covered by the same SCoT commits itself to integrated and joint development, which can help mediate and settle territorial issues for the whole area. In total, 448 SCoTs have been approved or are presently in the process of being developed. This covers 25 137 communes (nearly 70% of the total), 50.5 million inhabitants (77% of the French population) and almost 60% of national territory (Government of France, 2015).

SCoTs have become the reference strategic planning documents for urban planning and development in large residential zones or urban areas. They constitute plans that go beyond commune, intercommune or across departmental administrative boundaries. The SCoT must, for example, set statistical objectives regarding the consumption of agricultural, natural and woodland spaces. It must also create a link between development and other policies; for example, the SCoT specifies conditions that favour the development of urbanisation as a priority in areas already served by public transport, but it can also promote creating new public transport services in locations that require them to improve access. However, it should be noted that this policy is not always successfully implemented. Many city regions in France have not succeeded in setting up a SCoT even though attempts have been made (Hoggart, 2016: 74).

Source: OECD (2017c), The Governance of Land Use in France: The cases of Clermont-Ferrand and Nantes Saint-Nazaire (forthcoming); Government of France (2015), *Overview of SCoT*. http://www.logement.gouv.fr/schema-de-coherence-territoriale-scot (accessed 2 May 2016); Hoggart, K. ed. (2016), *The city's hinterland: dynamism and divergence in Europe's peri-urban territories*, Routledge, London.

Navigating multi-level governance relations

In countries where there has been a rescaling of the governance of land-use planning, municipalities, large and small, rural and urban, need to establish new ways of working with one another despite sometimes conflicting interests and different capacities. France's use of both intercommunal strategic spatial plans and joint land-use plans are to be

lauded. They promote a multi-sectoral lens and address complex and interlinked issues at a larger and more appropriate scale. But, the success of this approach depends in large part on the governance institutions that elaborate the plans, and the capacity of municipalities and joint municipal associations to implement them and historical relations of co-operation between communities. In communities with limited buy-in or capacity (such as small rural locales), the impacts of these more strategic plans will likely be weak. Further, the nature of consensus required for their elaboration can result in some of the most important, and yet fractious issues, being left off of the agenda or lead to stalemates when they occur and cannot be resolved. It also raises questions about the political legitimacy of the intercommunal scale which can be distant and inaccessible to citizens. These issues of capacity – along with the asymmetry between different actors and political legitimacy – are some of the most critical issues facing the planning system today.

Despite inherent challenges, spatial planning across functional territories is an extremely important function. Uncoordinated policies implemented at the local level can easily be avoided by developers by moving into a nearby, less restricted jurisdiction. In more centralised settings, in which land-use policies are co-ordinated or even applied homogenously throughout the country (or an entire metropolitan area), such behaviour is not possible. In line with this reasoning, in the United States, Cunningham (2007) finds that by imposing an urban growth boundary around the greater Seattle area, development in rural areas indeed declines, whereas in urban areas it increases. This is not surprising, as implementing land-use regulation regionally (rather than locally) leaves households with no other choice but to comply (or move away from the region entirely).

Spatial planning across functional territories helps to reduce some of the negative externalities associated with agglomeration – such as traffic congestion or rising house prices. National or regional policies are critical in establishing the structure to support inter-municipal co-operation. France has made this a priority and such co-operative arrangements have proliferated. Under recent reforms they are required to take on such important but contentious topics as the location of waste management plans. In other countries, such as Poland, frameworks for such collaboration have been weak, and joint spatial planning has been rare as a consequence. This may be changing with the recent adoption of the Metropolitan Association Act that establishes a legal framework for joint investment by municipalities in Poland.

Balancing community-led development against strategic action

The landscape of multi-level governance raises a need to resolve the dilemma of ensuring enhanced self-determination for subnational territories alongside the need for strategic direction and political vision that extends not only within regions and localities, but also within and from national governments and international structures. The institutional structures at the regional and local levels – which are for the most part promoted and legitimised by the nation-state – are leading to more bottom-up policy making and enhanced democratic participation in governance. But they may do so at the possible expense of more subnational political vision and place-focused strategies, that is, developing unique responses appropriate for particular territories that may require unique institutional design. Within this complex framework of the future government and governance processes within countries, those officials responsible for its continued operation may attempt to make sense of the upheaval by becoming more concerned within inter- and intra-governmental power jostling, and attempts to stabilise, fix or control fluid governmental processes. If that is allowed to continue, the nation-state will

increasingly bear a heavy hand in designing subnational institutions, legitimising and formalising governance practices, and policing and monitoring emerging processes and strategies. But government does not cease to exist merely because new governance processes are created; government transforms as well, shifts discretion from different parts of the process to others, and repositions itself within the institutional landscape. Such practices may seem inevitable in wider global restructuring and modernisation processes, but these may invariably produce greater standardisation of processes, structures and policies. Ironically, these are the regimes that were the very features of government that governance seemed to be designed to be an antithesis to.

Another challenge of spatial planning has been to transcend those existing geographical, territorial and institutional boundaries if planning is to serve a more forward purpose in the decades ahead. There is general acceptance that historical boundaries, administrative delineations and professional silos will not deliver the type of spatial planning and governance in the future that is, politically, being expected. The more difficult part of change, which could benefit the social and environmental realms as a counterpoint to the economic and political, is to encourage strategy makers to "think outside the box" of their own predetermined territory – a process described as "soft spaces". That is a major barrier to the unfolding of spatial planning into something more meaningful for the future land-use needs.

The biggest change currently being enacted in planning practice is the extension of planning from its narrow regulatory base within various territories and various scales simultaneously, to a broader integrating and more flexible spatial governing activity, particularly at subnational levels. This is being rolled out with trepidation, politically, and uncertainty, professionally, but within existing political and socio-geographical territories to ensure legal authority. For many, it is a vastly different type of planning from the certain, legal and political activity of recent incarnations. In essence, spatial planning is increasingly elusive, encompassing "soft spaces and fuzzy boundaries" (Haughton et al., 2009).

The role the planning process plays in this reconfigured landscape is not one of direct service provision as it had been up to the 1970s. Rather, the role of planning in the twenty-first century is to mediate between the various actors required to be brought together to enable decisions or development to occur in a way the visionaries imagine. Planning has become much more of an integration service, a function of the governmental process and of the central state to manage others, as it is about resolving land-use disputes directly. And that role also extends into managing democratic issues – the "people question" – including encouraging new voices and involvement by citizens and businesses in the decision and development dealings. These twenty-first-century roles of planning are not sufficiently recognised by either politicians or the public who, for the most part, see planning in its historical light with occasional rants about what "the planners" are doing here or there, or the decisions they are making. It is the integration and democratic roles of planning that ensure planning's survival in the twenty-first century. These roles have given planning an implicit legitimacy.

Increasing the flexibility and responsiveness of land-use planning

The growth of strategic spatial planning has exposed tensions between the idea of "conforming" and "performing" plans and planning systems (Steele and Ruming, 2012). This is the certainty versus flexibility paradox. Under systems that emphasise certainty, plans together with other rules and regulations, set out clear frameworks for when and

how developments can occur. This in turn provides signals to investors and developers about what to expect and gives assurances to residents about how their communities will likely change. Rightful claimants can be certain of their defined rights and government actions are predictable in respect of these rights (Buitelaar and Sorel, 2010).

In contrast, flexible systems, which have far fewer rules about how land is used, look at each project on the basis of its own merit, typically framed by overarching guidelines and objectives about community needs and aspirations. Under more flexible systems, much more effort needs to be put in upfront in order to collaboratively define projects and reach consensus between investors/developers, governments, residents and other actors. By increasing flexibility, new and potentially improved uses can be elaborated – beyond those the planning system would have permitted under stricter guidelines. Flexibility is thought to breed experimentation and innovation and respond in a more timely way to emerging trends and needs. In practice, planning systems across the OECD tend to exhibit both characteristics, but to varying degrees. For example, the English planning system emphasises flexibility, with each project assessed on its own merit, whereas the American and French systems emphasise certainty (Buitelaar and Sorel, 2010).

Of late, the balance in many countries is being tipped towards a desire for more flexibly within planning systems. This is linked to the broader agenda for regulatory reforms that seek to "reduce red tape", such as the amount of time and effort that it can take to receive planning and building permissions. The need for more flexible planning systems also gained traction in the wake of the 2008 economic crisis, when national governments across the OECD established infrastructure stimulus programmes to boost employment and spur economic growth. The desire for quick and "shovel ready" public investments led many countries – e.g. Australia, Canada and the Netherlands – to revise their environmental assessment procedures, which are a major component of planning decisions (Stoney and Krawchenko, 2012). A clear issue in such cases is how to balance the needs of responsiveness with due diligence on environmental and other issues associated with such developments. More flexible planning practices should not result in reduced environmental diligence.

In Israel, growing discontent with the protracted process of obtaining a building permit that took on average 11 years, led to a 2014 reform to simplify the process and devolved planning authority to the local level for some decisions.[1] To enhance flexibility, the language of "textures" has been developed in national plans, which identify and distinguish between development-oriented and preservation-oriented areas across five texture typologies: urban texture, rural texture, mixed preserved texture, national preserved texture and coastal texture. This enables a clear definition of restrictions while providing a degree of flexibility as well.

In the Netherlands, the desire for a more flexible and responsive planning system has ushered in a major change. The 2016 Environmental and Planning Act (*Omgevingswet*) simplifies and merges a raft of legislation related to planning and integrates the rules and regulations for the governance of land use across a number of policy areas – e.g. nature, water, construction, sustainability – in order to speed up decision making for spatial projects (Box 2.7). This represents a shift away from the philosophy of "static planning" which is exemplified by the local land-use plan, and towards a "dynamic system of continuous adjustment and renewal" (RLI, 2016: 5). It builds on key strengths within Dutch spatial planning – namely a high degree of trust between actors, a culture of co-operation both among municipalities and between levels of governments, and a commitment to core planning values.

Box 2.7. **Towards a more flexible and responsive spatial planning system: The new Dutch Environmental and Planning Act**

Are spatial polices and land-use plans responsive enough to changing conditions and concerns? Do they hamper economic development by being too stringent, imposing onerous regulatory burdens on projects? These questions have long been a source of debate in the Netherlands and were of particular concern in the wake of the 2008 economic recession, when building and infrastructure construction was an important economic stimulus. In response to these concerns, the 2010 Crisis and Recovery Act was adopted in order to speed up the planning process by reducing or simplifying some of the permit requirements. At the same time, there were emerging discussions about how the spatial planning system could be further simplified and how it might better address some of the growing tensions between economic and environmental agendas that are embedded in sectoral policy responses. The impetus for reform also arose from the observation that existing environmental legislation tended to focus on protecting the local environment and residents from noise and pollution as opposed to enabling the transition to sustainable development and was further anchored in the need for place-based policies given that the different regions of the Netherlands are experiencing quite divergent trends, such as population growth in central urban regions and decline in more peripheral rural ones.

In response to these issues, in 2016 the Netherlands adopted the Environment and Planning Act which combines a raft of legislation into a new encompassing framework. The Act merges 26 separate acts, into 1; merges 120 Orders of the Council into 4; and simplifies over 100 ministerial regulations in order to create greater coherency among them. By 2019, environmental plans will replace structure plans/visions at each level of government. A major change at the municipal level is the adoption of one plan for the entire territory that will encapsulate all applicable zoning regulations and pertinent administrative laws. In essence, cities will be required to create one area wide environmental plan that will be based on a "dynamic system of continuous adjustment and renewal" (RLI, 2016, 8). With the new legislative framework, the Netherlands chooses flexibility over certainty. In Amsterdam, it is anticipated that the new legislative and regulatory framework will make it easier to build houses and open the possibility to transform plots to new uses and foster innovation and experimentation. It is intended that the new legislation does not reduce the level of environmental protection or due diligence for new projects. The city has already adapted to some of these changes through the recent Crisis and Recovery Act. But the new Environmental Act goes much further.

Much is unclear about how the mechanics of the new legislation will operate. In part this is purposeful. The system aims to increase discretion at the local level while determining national and provincial standards and protecting the key interests at those scales where it is deemed necessary. There will be many areas where municipalities and water boards, together with provinces and the national government will need to work together on joint projects – as they have always done – but with fewer regulations guiding practice and a greater latitude for decision making in some instances. There will be a far greater reliance on collaborative planning than in the past. This entails a more active role for citizens in planning processes and a closer relationship between initiators/developers, authorities and citizens. The public engagement function will be critical in order to make sure the new system works effectively. With less formalistic rules, there may be less recourse to legal procedure, but more onus put on building consensus and mediating conflict in advance. At the same time, the planning process could easily become increasingly beholden to more powerful groups that are better placed in terms of time, energy and resources to achieve their agendas.

There is inherent risk within a more flexible approach. In more rigid, formal and legalistic systems, the interactions between the various actors are often highly constrained which has the benefit of certainty. Under the new system emerging in the Netherlands, how these relationships play out will in large measure depend on the project at hand, but will need to balance inclusiveness, timeliness, and flexibility across inherent power asymmetries of the actors involved. Within this, municipalities will need to play the role of fair broker and be extremely transparent about how regulatory requirements are being met and how and when stakeholders are included in decision making. Further, under such a system, fiscal incentives could come to play a bigger role in directing and shaping actor behaviour.

Source: OECD (2017b), *The Governance of Land Use in the Netherlands: The case of Amsterdam*, (forthcoming); RLI (2016), "Reform of Environmental Law: realise your ambitions", http://en.rli.nl/publications/2016/advice/reform-of-environmental-law-realize-your-ambitions (accessed 8 December 2016).

Making land-use regulation more flexible by avoiding single-use zoning

All OECD countries use map-based boundary plans that divide urban areas into (potentially overlapping) zones in order to steer development. In many countries, boundary plans are the basis for a rule based system of development control. In these cases, associated zoning regulation usually provides legally binding rights and restrictions to landowners concerning permitted developments. In other countries (such as the United Kingdom), development control is discretionary and boundary plans do not establish legal rights to use land in particular ways. Final decisions concerning permits to develop land are made by planning administrations that have the discretion to take further factors beyond the plans into account. Nevertheless, even in countries were land-use regulation is discretionary, boundary plans that assign specific uses to zones exert important influence on land use.

The core argument in favour of zoning regulation is the protection of residents from developments that would have negative effects on their quality of life. By restricting the types of development that are permitted, zoning can prevent such developments from being built. In many cases, restrictions imposed by zoning are uncontroversial because they protect residents from negative externalities such as noise and hazards. For example, few people would argue that it should be permitted to open a stone crushing plant or a toxic waste incinerator in a city centre or a residential neighbourhood. Externalities that can justify land-use restrictions may also occur away from the development project itself. A large movie theatre complex may attract several thousand people a night who arrive by car. Thus, it should not be built at a location that is accessible only through residential side-streets even if it is not in the direct vicinity of a residential area. The resulting traffic and congestion would negatively affect residents living along the streets leading to the movie theatre complex. Likewise, land-use regulations can protect residents from cataclysmic changes that exceed the capacity of residents to adapt to change. For example, most residents would feel overwhelmed by the sudden development of large scale high-density housing projects in formerly low density residential areas (Jacobs, 1961).

However, as discussed in a seminal article by Ellickson (1973), zoning also has substantial downsides that concern two main dimensions. Most importantly, zoning is inefficient. Frequently, it prohibits not only land uses that should not be permitted on general welfare considerations, but also land uses that should be permitted. For example, zoning regulation may prevent the construction of a grocery store in a neighbourhood that is defined as residential even though most residents would benefit from being able to do their daily shopping nearby. Further, zoning regulations frequently do not take the possibility into account to compensate neighbours for nuisances. While neighbours may object to the construction of a high rise building, the value of the project could be such that the developer could compensate all affected neighbours sufficiently and still profit from the project.

Zoning can also create inequities. Land that is zoned for development is many times more valuable than land that is agricultural. Since value capture mechanisms are rudimentary in most OECD countries (see OECD, 2017a), the gains and losses from zoning decisions accrue to landowners. Thus, a regulatory decision can cause the owner of one plot to obtain massive windfall gains whereas the owner of the adjacent plot might suffer considerable losses. Under equity considerations, such a system is problematic.

In response to the problems of zoning, Ellickson (1973) proposes to replace it with a framework in which landowners have to compensate neighbours for any nuisances that occur through their land use. He defines a standard for "unneighbourly" (Ellickson, 1973: 728) land uses and develops compensation mechanisms for neighbours. In practice, no such compensation systems have been introduced in OECD countries and it appears unlikely that

such a system would be possible under the current political and institutional settings. In particular, the difficulty of developing a framework for compensation that is objective and non-arbitrary prevents a more widespread use of compensation rules. In light of political and practical constraints, Ellickson's (1973) proposed solution to the shortcomings of zoning does not appear feasible.

Notwithstanding the problems of implementing an alternative to land-use planning through zoning, the abovementioned criticisms of zoning remain valid. As Cheshire and Sheppard (2002) show, the costs of rigid land-use planning can easily exceed its benefits. Thus, it is important to ensure that planning systems retain sufficient flexibility.

Box 2.8. **The impacts of land-use regulation on new development**

There is strong evidence suggesting that new development is hindered by more extensive regulation. This, in turn, decreases the responsiveness (supply price elasticity) of local housing markets. Mayer and Somerville (2000) find that tighter land-use regulation reduces new construction up to 45% in US metropolitan areas, causing the additional supply in response to price changes to be about 20% lower than in less regulated ones. Quigley and Raphael (2005) also document a negative impact of stringent regulation – in the form of both growth controls and fiscal zoning – on the construction of new housing in California. They demonstrate that low construction activity in regulated places is not due to low housing demand. On the contrary, areas that had experienced the strongest increases in housing demand were those that displayed the lowest increases in housing supply. Glaeser and Ward (2006) investigate barriers to new development in Greater Boston. They find that minimum lot size restrictions are among the most important factors hindering new development. In contrast to the related academic literature, however, they only observe a moderate effect of such constraints on housing prices. Caldera Sánchez and Johansson (2011) analyse how supply reacts in the long term to price changes in 21 OECD countries. They document that long-run housing supply is less responsive in places with more stringent land-use and planning regulations. Dempsey and Platinga (2013) investigate how urban growth boundaries affect development in cities in Oregon. They find that urban containment does indeed reduce the probability of new development. Hilber and Vermeulen (2016) demonstrate that regulatory and geographical constraints in the United Kingdom reduce the responsiveness of housing supply. As a response, housing costs rise faster if housing demand rises, for example because wage levels rise.

More extensive land-use regulation – in the form of minimum lot size restrictions and open land preservation – may actually spur sprawl in areas in which they are implemented. For example, land-use regulations produce not only a direct effect by increasing development costs of undeveloped land, but also create a land-use externality on adjacent parcels. Irwin and Bockstael (2004) suggest that land-use regulations that preserve open space create a positive amenity effect on nearby developable land. Looking at development patterns in Calvert County, Maryland, they find that parcels surrounded by preserved land have higher development rates, whereas those parcels in proximity of industrial development showed lower development rates. They conclude that land-use controls that preserve open land may have the effect of i) draining development from central high-density areas, and ii) attracting new development towards areas that have protected open space. As a consequence, leapfrog or sprawling development may occur. McConnell, Walls and Kopits (2006) also consider land-use patterns in Calvert County, and find that the existing uses of land surrounding a parcel affect its development intensity and that zoning regulation – in the form of minimum lot size restrictions – seem to encourage low-density sprawling residential development. Finally, Turner et al. (2014) isolate the value of regulatory constraints for the imposing jurisdiction as well as for the neighbouring jurisdictions. Based on this composition they estimate the aggregate welfare effect of land-use regulation, which they find to be negative.

Sources: Mayer, C.J. and C.T. Somerville (2000), "Land use regulation and new construction", *Regional Science and Urban Economics*, Vol. 30(6), pp. 639-662; Quigley, J.M. and S. Raphael (2005), "Regulation and the High Cost of Housing in California", *American Economic Review*, Vol. 95(2), pp. 323-328; Caldera Sánchez, A. and Å. Johansson (2011), "The Price Responsiveness of Housing Supply in OECD Countries", *OECD Economics Department Working Papers*, No. 837, http://dx.doi.org/10.1787/5kgk9qhrmn33-en; Glaeser, E.L. and B.A. Ward (2009), "The causes and consequences of land use regulation: Evidence from Greater Boston", *Journal of Urban Economics*, Vol. 65(3), pp. 265-278; Dempsey, J.A. and A.J. Plantinga (2013), "How well do urban growth boundaries contain development? Results for Oregon using a difference-in-difference estimator", *Regional Science and Urban Economics*, Vol. 43(6), pp. 996-1 007; Hilber, C.A.L. and W. Vermeulen (2016), "The Impact of Supply Constraints on House Prices in England", *Economic Journal*, Vol. 126(591), pp. 358-405; Irwin, E.G. and N.E. Bockstael (2004), "Land use externalities, open space preservation, and urban sprawl", *Regional Science and Urban Economics*, Vol. 34(6), pp. 705-725; McConnell, V., M. Walls and E. Kopits (2006), "Zoning, TDRs and the density of development", *Journal of Urban Economics*, Vol. 59(3), pp. 440-457; Turner, M.A., A. Haughwout and van der W. Klaauw (2014), "Land Use Regulation and Welfare", *Econometrica*, Vol. 82, pp. 1 341-1 403.

Many of the shortcomings of zoning regulation can be avoided by using flexible regulations of permitted uses in different zones that focus primarily on the prevention of the most important negative externalities and do not regulate land use beyond what is required for this purpose. For example, such zoning rules do not prohibit mixed-use developments as long as they do not create nuisances. They generally would not include frequently used requirements, such as a prohibition of multi-family homes, mandatory design criteria that rule out entire classes of buildings, and the prohibition of commercial activities that cause no nuisances. Furthermore, flexible zoning regulations do not set tight density restrictions or include provisions that allow for a gradual increase in the density of a neighbourhood in line with infrastructure capacity and population growth.

An example of a flexible approach to zoning that focuses primarily on the prevention of negative externalities is the national zoning of Japan. The country has instituted a system of 12 standardised zones in urban areas. As discussed in Box 2.9, they range from low-rise residential zones to exclusively industrial zones that allow successively denser development and greater nuisance levels. Essentially, each zone specifies the maximum level of nuisances allowed in an area. Any development that causes fewer nuisances than the maximum allowed level may be constructed in the zone. For example, it is possible to build any type of residential building in a commercial zone, but many commercial activities are prohibited in a residential zone. The only exceptions are industrial zones that allow potentially dangerous activities. In these zones, residential and commercial buildings are restricted.

None of the zones in the Japanese system is strictly single-use. Even the most strictly regulated residential zones allow other small-scale functions adequate for residential areas, such as neighbourhood stores, small offices, and elementary schools. The main instruments to control densities in neighbourhoods are maximum floor to area ratios. Generally, no restrictions on whether buildings are single-family or multi-family homes are imposed.

Box 2.9. **National zoning system in Japan**

In Japan, the law distinguishes between Urbanisation Promotion Areas, where development is possible and Urbanisation Control Areas, where development is generally not permitted. The national government defines the content of zoning regulation for Urbanisation Promotion Areas and a set of rules that prefectures and municipalities have to observe when determining the location of zones through local plans.

Urbanisation Promotion Areas are divided into 12 types of zones specified by the law. Zones are not exclusive and less restrictive than in other OECD countries. Most zones (with the exception of industrial zones) allow for several uses. Implicitly, each zone is defined by a maximum nuisance level that is permitted. Any use that creates fewer nuisances than the maximum allowed level is permitted. For example, the zone "commercial" allows for virtually all types of residential uses, too. Furthermore, even the most strictly regulated residential zone permits basic non-residential uses, such as primary schools and places of worship. As a consequence, mixed use is promoted almost everywhere.

Table 2.4 shows the 12 nationally defined zones and indicates permitted and prohibited uses within them. The three major categories are residential, commercial and industrial use. Each of the categories is further divided into sub-categories, which differ in the intensity of use and the resulting nuisance level that they permit.

Box 2.9. **National zoning system in Japan** *(continued)*

Table 2.4. **Control of building use by land-use zones**

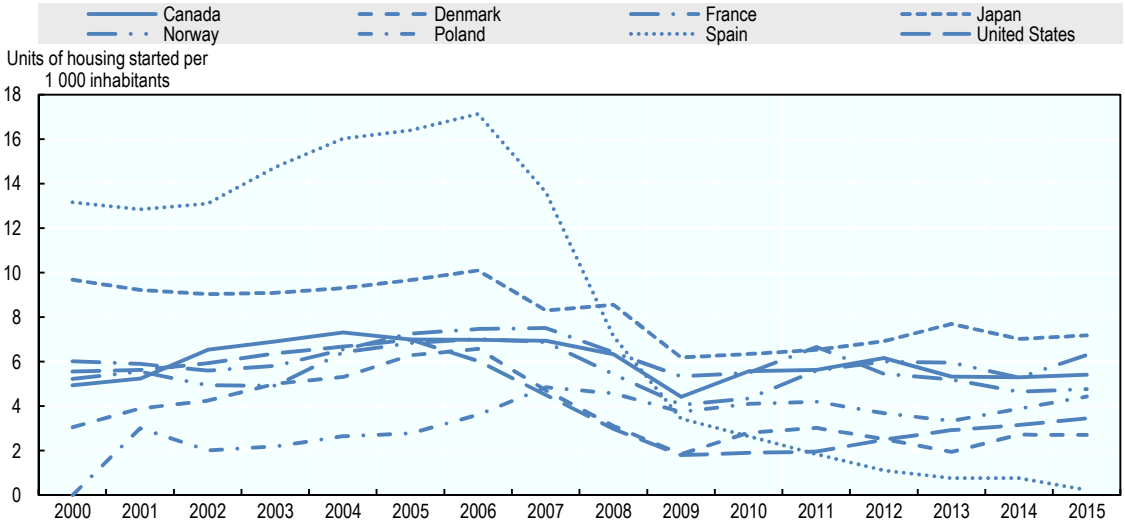
Examples of buildings	Category I Exclusively low-rise residential	Category II Exclusively low-rise residential	Category I Mid/high-rise oriented residential	Category II Mid/high-rise oriented residential	Category I residential	Category II residential	Quasi-residential	Neighbourhood commercial	Commercial	Quasi-industrial	Industrial	Exclusively industrial
House	●	●	●	●	●	●	●	●	●	●		
School												
Temple	●	●	●	●	●	●	●	●	●	●	●	●
Hospital												
Store 150m^2	●		●	●	●	●	●	●	●	●	●	
Store 500m^2	●	●		●	●	●	●	●	●	●	●	
Store	●	●	●		●	●	●	●	●	●	●	
Office	●	●	●	●		●	●	●	●	●		
Hotel	●	●	●	●	●		●	●	●	●		
Karaoke	●	●	●	●	●	●		●	●	●	●	●
Theatre Facility up to 10 000m^2	●	●	●	●	●	●	●		●	●	●	●
Bathhouse	●	●	●	●	●	●	●	●			●	●
Garage	●	●		●	●	●	●	●	●	●	●	●
Warehouse	●	●	●	●	●		●	●	●	●	●	●
Auto repair	●	●	●	●		●	●	●	●	●	●	●
Factory (low risk)	●	●	●	●	●	●	●	●	●		●	●
Factory (high risk)	●	●	●	●	●	●	●	●	●	●		

Zoning regulation does not generally distinguish between different building types within one class. For example, it is possible to build single and multi-family houses in the same zone. The number of stories and the maximum height of a building are not fixed. Instead, they are determined according to a formula that depends on the distance of a building to the adjacent road. The density of an area is regulated by the floor-area ratio and the building coverage ratio.

Source: Ministry of Land, Infrastructure and Transport (2003), *Introduction of Urban Land-use planning System in Japan*, www.mlit.go.jp/common/000234477.pdf.

Figure 2.4 shows the number of housing starts per 1 000 inhabitants in selected OECD countries. Despite being affected by a generally challenging macro-economic environment, Japan has consistently had one of the highest rates of housing starts. At least to some degree, this is likely due to the flexible zoning system that allows cities to adapt to economic, cultural and technological change by changing the building stock.

Figure 2.4. **Housing starts per 1 000 inhabitants**



Source: OECD (2016c), *OECD.Stat* (database), www.oecd.org/std (accessed 20 September 2016).

In contrast, inflexible zoning regulations make it impossible for cities to evolve. In particular, single-use zoning (sometimes also called Euclidean zoning) can prevent neighbourhoods from changing. It operates according to the principle that only one specified land use is permitted in a zone. In other words, in a zone defined as commercial, only commercial buildings such as offices may be built. Likewise, not even neighbourhood stores and other uses to serve daily needs are permitted in single-use residential areas. The more narrowly uses are defined, the more restrictive is single-use zoning. For example, a zone may not only specify that an area is defined as low-density residential, but it may specify (among other aspects) that only two-story, single-family homes with floor to area ratios X and minimum setbacks Y are permitted.

Compared to a flexible zoning scheme, single-use zoning has several disadvantages. Most importantly, single-use zoning prevents land use from adapting to social and economic changes. Once a land is zoned for a particular use, residents have the justified expectation that the same restrictions will persist in the future. Thus, they are likely to be opposed to any subsequent rezoning that reduces property values or increases nuisance levels.

A point in case may be the lack of physical densification in most OECD countries that is discussed in Chapter 4 of this report. This may be partly explained by zoning regulations that limit building footprints, define mandatory setbacks or specify restrictive floor to area ratios. They may not leave any scope to densify existing neighbourhoods. As discussed in Box 2.2 and Box 2.3, the resulting restriction in housing supply increases housing costs and has negative consequences for inclusiveness and economic growth.

Furthermore, single-use zoning is based on the idea that planners can design optimal cities by allocating land for different uses. Since it specifies exactly how much land is allocated to each use and where it is located, urban form is not created by social and economic processes but by decisions of planners (Hall and Pain, 2006). This requires a level of knowledge about the demand for different land uses that planners are unlikely to

possess in most instances. As a consequence, there is a high risk of misallocating land to uses other than the ones that are most needed. This may concern both the total amount of land allocated to each use as well as the location.

By definition, single-use zoning creates mono-functional neighbourhoods and makes mixed-use developments impossible. As a consequence, average distances between places of residence, workplaces and shopping opportunities become larger and residents become more car-reliant. Thus, single-use zoning is an important factor contributing to one of the central characteristics of sprawl.

Besides the risk of inadvertent inefficiencies in rigid zoning plans, single-use zoning also increases the risk that local governments misuse land-use regulations on purpose. Most importantly, single-use zoning facilitates exclusionary zoning, i.e. "zoning that raises the price of residential access to a particular area, and thereby denies that access to members of low-income groups" (Sager, 1969: 767). The more restrictive the definition of the types of housing that are permitted in a neighbourhood is, the easier it is to use land-use regulations to prevent the construction of affordable housing for low-income groups. Local governments may use this tool – potentially under pressure from residents – in order to facilitate social segregation.

The list of disadvantages of restrictive single-use zoning is much longer. Many of the arguments against it have been spelled out in Jacobs' (1961) seminal contribution. They include for example a resulting monotony of cityscapes that requires increased car use to access the different land uses required in daily life. Jacobs (1961) also points out that single-use zoning is frequently used to reduce and restrict densities (although other forms of land-use regulation may equally be used to restrict densities). More than 50 years later, this has not changed. Thus, single-use zoning conflicts with the objectives of most OECD countries to foster compact development and reduce sprawl.

Land-use regulations can harm consumers by reducing competition among businesses

Restrictions to land use can be entry barriers for firms into markets that reduce competition. This increases the prices of goods and services and harms consumers. It affects low-income residents especially strongly because they spend a larger share of their disposable income on consumption goods. OECD (2008a) identifies several mechanisms through which land-use regulations can prevent the efficient functioning of markets by suppressing competition:

- Adverse impact tests hinder competition and harm consumers. Under adverse impact tests, the granting of a permission to use land is conditional on the proof that it does not affect existing businesses. This protects existing businesses from competitors and gives them a local monopoly. As a consequence, businesses are likely to charge higher prices.
- In some countries, public authorities charge fees for granting rights of way to access private property over publicly owned land. The fees charged should correspond to the actual costs that the public incurs by granting the right of way. If it is used by local authorities to generate revenues, they prevent businesses from entering markets, which affects residents through higher prices.

- The possibility to use private covenants to restrict land use can be abused to hinder competition. In countries where it is possible to insert land-use restrictions in land titles, businesses may buy plots and sell them with covenants that make it impossible for competitors to use these plots in the future.

In a few cases, entry restrictions may serve legitimate purposes. In particular, many countries have the objective to preserve town centres as attractive, mixed-use locations. This may require the imposition of restrictions on retailing in the outskirts of urban areas if no other policies can be found to guarantee the desired mix of retailers in city centres. In these cases, entry restrictions should be used sparingly and only if there is clear evidence that the character of city centres would be harmed without them. Policy makers should be aware of the costs that the instruments impose on residents (in particular low-income residents) due to higher prices for consumption goods. Furthermore, entry restrictions always have the potential to be abused to shield existing businesses from competition. Thus, entry restrictions should be avoided entirely if there are other, less intrusive, policies that can preserve dynamic town centres.

Adopting an integrated approach to planning

Spatial and land-use planning today is intimately connected to much broader agendas such as the transition to a low carbon economy, reducing social-spatial inequality, and creating opportunities for economic growth and prosperity. Spatial planning is therefore linked to policy ambitions at multiple scales, extending across sectoral issues and involving an ever wider array of actors in structures of governance. This has fundamentally challenged planning systems to adapt, both in terms of the formal institutional rules, but also informal roles and ways of working. There is a search for an "integrated" approach that can better link diverse policy objectives across the social, environmental and economic realms. These discussions have often focused on "joining up" or "holistic" government, at a subnational level of government – regions, local authorities, or town, neighbourhood administrative units. The objective here is to connect different governance initiatives focused in the arena of the planning system, through the system's concern with the use and development of land, with spatial organisation and the qualities of places.

The responsibility of the spatial planning system is to work out how policies interlink at the local level, through development investment and land-use regulation. Of course planning is still present, but it is faced with an ambiguous challenge: as spatial planning, it is no longer in "the lead" but it is a key component and facilitator of delivery. The need for such integration raises a number of questions about the purpose and direction of planning: does spatial planning rest on its traditional focus of land use and development since the statutory definition of planning remains unaltered, or does it comprise a more spatial planning focus that extends beyond land use? And if it is the latter, where does the statutory legitimacy emanate from to operationalise planning in this way?

Box 2.10. **The use of price signals in land-use planning**

Land prices matter for landowners, but they should also matter for planners. Prices provide valuable information for planners because they are a measure of scarcity of different types of land uses. This can be illustrated with an example. In a hypothetical case, a plot of land that is restricted to agricultural use has a price of EUR 10 000. On the adjacent plot of the same size, residential development is permitted. It has a price of EUR 800 000. The price differential of EUR 790 000 (minus any development costs that are incurred by the public sector) is the opportunity cost of leaving the land undeveloped.

If the social value of preserving the agricultural plot for agricultural use is lower than EUR 790 000, it should be turned into residential land. The decision should be made independently from whether the land is privately or publicly owned. If the land is owned by a private owner and, for equity reasons, the windfall gain from permitting development should not accrue with the landowner but with the general public then value capture instruments should be used that can capture it.

Prices can also be used to compare the social value of two competing forms of development with each other. If the price for residential land is higher than the price for commercial land, residential land is scarcer than commercial land. If the social costs of developing residential and commercial are identical, land-use regulations should allocate land between the both uses such that the prices of the different types of land are identical.

The use of price signals has its drawbacks – in particular the difficulty of determining the social value of leaving land in undeveloped states and the difficulty of accounting for the costs of externalities that are not contained in market prices. Nevertheless, prices provide valuable information on the demand for and the value of other land uses than the ones that are currently permitted. As every land-use decision is a trade-off between mutually exclusive uses, it is important to have information on the social value of land if it were used for other purposes.

Source: Own elaboration based on OECD (2008b), *OECD Rural Policy Reviews: Netherlands 2008*, http://dx.doi.org/10.1787/9789264041974-en.

Overcoming fragmented governance and sectoral silos

A new approach to how land use and spatial change are managed within government and across different territories is vital in order to address climate change, sustainability and help realise greater societal benefits. At present, the management of land-use change is often fragmented, with different governance arrangements for different sectors (OECD, 2015b). It commonly involves decisions taken at different levels which together do not reflect a coherent strategic approach based on clear national objectives. Planning combines market mechanisms and regulation in ways which are often in conflict, generating severe pressures in some sectors. Further, it can often deliver outcomes that are sometimes hard to reconcile with evidence on the full range of values of the land for different uses. Finally, spatial planning faces considerable pressures in the future, as some areas face population growth, others decline, and key policy priorities such as climate change pose significant challenges.

Some decisions about land use at local level are heavily constrained by a lack of information, or because some of the responsibilities to take into account wider issues are the preserve of other agencies and bodies. It is also often the case that planning has not been required to take account of the full range of factors affecting the true social value of

land. At a time when fiscal issues are starting to play a more prominent role in incentivising development and shaping projects, financial incentives, in the context of local land markets and local planning institutions, need to become better aligned with the declared objectives of land-use policy.

The structures in place to deliver infrastructure development and land-use changes within or adjacent to urban areas are at least equally problematic. In many planning systems, urban land has been increasingly managed by a range of public and quasi-public authorities, through ad hoc delivery vehicles standing outside elected local government and at arm's length from central government. In these cases, it can be hard to balance strategic, national or regional considerations against strong opposition from local residents. Here the issue is the scale at which decisions are best made and the framework in place for taking them in a democratically acceptable way. The limited scope of the planning process at present militates against a wider strategic approach to local or even neighbourhood decisions. The challenge is to devise reforms that would deliver land-use decisions in a more robust and efficient way, based on the uniqueness of land in different locations, in order to produce better overall value for the country while reflecting the inevitable trade-offs involved. This will require a more holistic approach to managing the land that should take account of the many factors, external considerations, policy priorities and individual preferences that influence outcomes.

Key governance challenges to the adoption of an integrated approach

A shift towards more integrated spatial planning is desirable. It has the potential to overcome some of the major challenges facing the planning system, such as sectoral divisions and cumbersome processes that are too slow to react to change. However, it can demand very different institutional mechanisms and ways of working (Stead and Meijers, 2009). A new understanding is needed in order to improve the basis on which planning policies are devised and decisions are taken that, in turn, will generate better outcomes from land. There are a number of key governance challenges associated with this:

- the need for mechanisms and governance structures which require land-use decisions at all levels to be taken with regard to the full range of services and values of land in different possible uses, given both individual preferences and strategic policy objectives
- the need for better data and intelligence, information flows and agreed methodologies to inform these decisions
- the need to ensure that decisions taken in different sectors are consistent in reflecting this overall approach
- the need to ensure appropriate incentives for land-use change and duties on landowners which encourage desired behaviours consistent with this approach and minimise tensions occurring within the system
- the need to change policy to better link land-use and management policy to climate change mitigation and adaptation efforts
- the need to ensure that governance of land reflects future needs as well as the present ones

- the need to embed a better understanding of the value and function of biodiversity and ecosystem services in the formulation and adoption of local and strategic land-use policies
- the need to reflect spatial considerations and geography most effectively in land-use policy
- the need to truly understand place identity and place uniqueness.

This suggests that there is a fundamental need to go back to first principles before even considering the design and delivery of spatial policies that ensure the effectiveness of the land-use system: first, generating agreement about the objectives of the land and the services required – economic, environmental and social; secondly, quantifying and prioritising the desired services; and thirdly, aligning individual and institutional preferences with these objectives. As land delivers a variety of services which at present are the focus of individual ministries or processes, consistency will require co-ordination and integration across a currently disparate set of agencies and activities.

The national role in pursing the integration agenda

This integration of land related policies is difficult to achieve. In any country, there are many government bodies, operating at various levels of policy and decision making and within different legal frameworks that seek to achieve very different outcomes. The adoption of a coherent set of clearly articulated strategic objectives for how land is used and managed could create a greater impetus to recognise land as a national asset and allow land-allocation mechanisms to be adapted to better deliver these objectives over time. Plans, strategies and guides at national, regional and local scales created under clearly articulated national objectives would create greater certainty for landowners and managers. A commitment to more co-ordinated action, based on a more integrated understanding of the land's potential uses and how change creates impacts spatially over time, would create the basis for realising greater value, both financial and non-financial.

A spatial framework or robust strategic intelligence is essential to achieve an integrated approach to the future use of the land. Such intelligence is needed to provide certainty and direction for all the governance processes, whatever the balance between regulation and market mechanisms and different levels of decision making. At a minimum, it could simply lay down a common approach to decision making and the methodology to be used. At present this varies greatly across sectors and decision levels. It could also articulate the preferred level of decision making for certain types of land use and climate change. The nation's infrastructure needs, such as airports, ports, major road and rail projects, energy and water, cut across the boundaries of established administrative regions and localities. Such projects are difficult to plan and assess on a local, or even regional, basis. Similarly, it could be difficult to form a national picture of the benefits and flow of ecosystems services spatially and over time at the local level. Other decisions are more suited to local-level decisions because the impacts, whether positive or negative, are experienced locally. There is a risk that incremental decision-making on individual projects and land choices without strategic direction will continue to create unintended consequences and unsustainable outcomes. A common and holistic approach to decisions across all sectors and levels

of government, based on the best possible data and agreed approaches to establishing values, would help to minimise this risk.

The need to define clear national objectives for land use also depends to a great degree on sensitivity to the enormous variation in the needs and opportunities across countries, and this variation challenges the relevance of standardised approaches or policies for particular types of land. All land is different, it possesses multiple values, both ecologically and economically, and helps create a sense of place and identity. Defining national land objectives for a country as a whole does not mean the imposition of standardised or uniform solutions. Rather, it should allow the different assets of land in different locations to inform decisions on how best to make the most of their comparative advantage and generate robust policies and choices about how different types and locations of land can be used to best advantage. This requires a stronger evidence base to underpin choices; currently evidence is either absent or patchy in many countries, and even where it is available there may be uncertainty as to how it should be taken into account by decision makers.

A better understanding of the locational aspect of place assets is needed. The geographical pattern of landscapes, resources, capability, ecosystems and the arrangement of human activities constitute unique places that are the outcomes of both unintentional and purposeful action. This sense of place helps create communities and social cohesion, but also influences perceptions and attitudinal responses, manifested through markets and other mechanisms, which condition further spatial changes to the land. Incremental local land-use changes can cumulatively become a matter of national importance. Interests of the wider community or segments of the nation may be underrepresented in local decisions, and consequently be given insufficient weight. There is an opportunity to devise a system that embeds a better understanding of what each different piece of land offers to us, not just locally for individual choices but also nationally, and how that understanding can best shape land use in the national interest.

Getting the governance frame for spatial planning right

A central challenge to embedding a deeper understanding of land and place assets and the wider long-term impact of land-use change lies in governmental mechanisms and the various spatial scales to which policy and decision making relates. Countries tend to use administrative areas as the spatial frameworks to formulate and deliver land-use policies and initiatives. But the boundaries of administrative areas such as regions and local authorities do not necessarily relate to the functional and economic flows across the land. Some specific policies focus on networks, such as the transport system, that stretch across various governmental and geographical boundaries. These may not sit well with strategies and plans for the growth of towns and cities that are clustered in specific places. Changes in demand for the use of land, deriving from socio-economic and environmental factors, do not start and stop at administrative boundaries. Movement of people and goods and flows of services – the way individuals conduct their daily lives – are increasingly difficult to handle through investment decisions and strategies that are often bounded within a local or regional planning framework. These also tend to focus on what we can see on the surface of the land and how various land uses interact; they do not look at what each parcel of land can offer us ecologically or otherwise. The flows in activities and services over and on the land, over time, create the need for a different perspective of land-use linkages and opportunities. The forces that drive change in and over the land interact

in complex ways, and sector-specific policy responses (in housing, transport or agriculture, for example) may not be sufficiently effective in addressing the range of different considerations relevant to land-use decisions in particular places.

The spatial scale at which land-use decisions are made, and the ways in which present institutional arrangements interact, are issues which need to be addressed in considering potential reforms to both the planning and the governance system. But irrespective of how far institutional change is desirable or practical, an overarching perspective is still needed to delineate how particular types of land-use decisions are made, on what basis and by whom. The purpose of such an exercise is not to identify a particular set of functional solutions to how to manage land-use change better, but to indicate possible changes of approach which should be embodied in a better system, and what issues therefore need to be addressed. More detailed work could well result in a very diverse, mixed patchwork of administrative arrangements and policy instruments to provide a more realistic and appropriate planning framework. This would then help to deliver better results from consideration of all our land expectations based on the assets of unique places, while meeting future long-term changes. The basis for revising planning and governance arrangements is the idea that by combining a more sophisticated understanding of how land creates assets for society with a governance framework which more proactively identifies a wider range of place benefits, the performance of both the land and planning could be greatly improved.

Adopting an integrated approach

In order to devise integrated spatial planning approaches, a number of key issues need to be addressed. The most prominent is how to deal with more strategic issues in increasingly devolved governmental structures where decisions are delegated to local governments, neighbourhoods and citizens. This is a significant problem, for any more holistic evidence-based role requires, in theory, either higher tiers of the state or the research and scientific communities to monitor and assess incremental change. That does not mean a need to recreate a central state or top-down forms of decision making. Rather, it is about recognising the overriding duty of national and regional governments in their strategic and intelligence duties relating to territorial change. As a consequence, there is a need to establish clear land-use and management objectives and priorities, and the development of institutional structures that can properly take account of the full range of services that land can supply.

A holistic, evidence based approach to decision making is needed. Key to ensuring the recognition of a place's uniqueness is the ability to generate the evidence and intelligence about land and places in order to identify the multiple uses of land. This might include the development of new forms of modelling and scenario work, and a deeper understanding of land capacity to deliver results. This should not be isolated from finance and resources, and so there is also a need to devise an appropriate range of incentives, compensation and mitigation measures and to relate these to particular problems and opportunities in various settings. Part of planning's historic role is to handle the range of economic and environmental pressures over time while coping with uncertainties and ensuring resilience in the land system. Those strategic attributes are essential. This would include taking future-proof decisions or devising policies that are robust in the face of changing circumstances.

While this discussion has focused on integration within the purview of spatial planning, there is extension to the idea of integrated planning which lies outside the system itself. The final section elaborates on this point. It argues that there is in fact a wide array of public policies that impact land use but are not part of spatial or land-use policies per se. A critical agenda for public policy is to better align both policies within and outside of the purview of spatial planning towards common spatial objectives.

More than planning – using an array of public policies to govern land use

As has been discussed, spatial and land-use planning uses a variety of instruments to affect private sector land use. Most important among them are the powers of planners to regulate land use by prohibiting some kinds of land use and by imposing requirements on buildings and other developments. These powers can be used directly to shape or prevent development, and indirectly as an instrument to make developers collaborate with planners. Further, planning can influence spatial characteristics of public investment, primarily concerning the location of infrastructure.

Planning primarily uses restrictions to private land use as a policy instrument because it has few tools to influence the incentives of businesses and individuals. In other words, it has little power to influence individual preferences on such things as where to live. Instead, the planning system restricts the possibilities for development. While such supply restrictions may ensure that specific land uses at specific locations do not occur, they cannot change the underlying demand for them. Due to a lack of tools within the planning system to affect how people and businesses would like to use land, this is generally considered as exogenous by planners (i.e. not determined by the planning system). Implicit in such a description is the idea that the planners must take the motivations and incentives of individuals and businesses as given. They are determined by factors which are outside the control of planners and while it may be possible to predict them and to adjust to them, it is not possible to influence them.

As a consequence, the question of if and how incentives can be shaped to be better aligned with objectives concerning the use of land is not commonly considered among planners. This can reduce the effectiveness of planning in achieving its objectives and may result in plans being unnecessarily restrictive. While many incentives of businesses and individuals cannot be shaped by the planning system itself, they can be affected by other public policies. Governments in all countries employ a wide range of policies that affect the incentives of businesses and individuals on how to use land. Thus, many of the so-called market forces that the planning system takes as given are in fact caused by public policies to which individuals and businesses respond.

Governments shape land use by regulating it, but also by influencing the demand for land

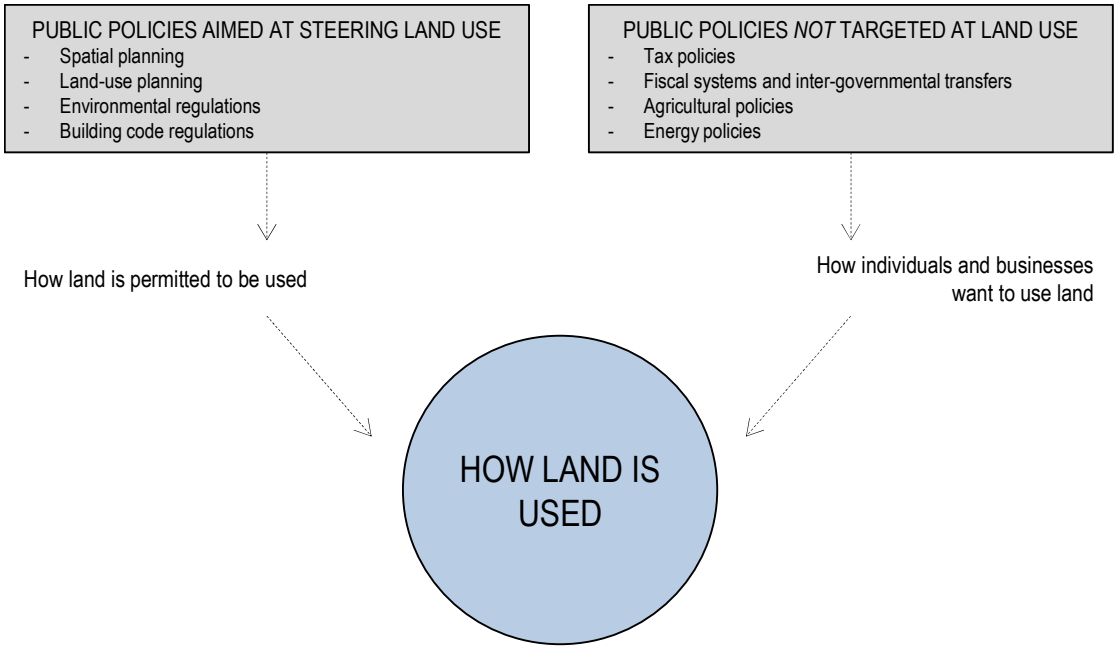
Government policies shape land use directly through regulations and affect the incentives of individuals and businesses for using land in certain ways. Figure 2.5, below, depicts these dynamics. The most direct instruments are regulations that restrict the use of land and the development that is allowed on it. Besides spatial planning and land-use planning, the most important tools are environmental and building code regulations. In most OECD countries, they constitute the core instruments for the active governance of land use (besides spatially targeted

investments). The diagram below depicts these factors on the top left-hand side. It also shows how the influence of these policies on land use is transmitted through restrictions on the permitted use of land.

Beyond government policies, land use and development is influenced by the incentives and motivations that businesses and individuals face and how private developers respond to them. Commonly, such factors are summarised under the term market forces and considered to be beyond the influence of planning. Planners can try to forecast them and proactively accommodate them or they can respond to them once they occur. As discussed above, under current institutional set-ups, planning systems have neither the tools to influence them nor do they tend to feature prominently in discussions among planners as possible levers to affect land use.

However, only a few of the factors that affect how and where individuals and businesses use land is truly beyond the influence of standard public policies. They concern primarily environmental and cultural factors. To a much larger part, the incentives and motivations of businesses and individuals concerning land use are influenced by different government policies. While these incentives are influenced to a varying degree by public policies, they are rarely completely determined by them and it would be wrong to assume that governments have full control over them. The right-hand side of the diagram shows policies that affect land use by shaping the incentives and motivations of individuals and businesses.

Figure 2.5. **How spatial and non-spatial policies impact land use**



Source: Own elaboration.

As will be discussed in more detail in the remainder of this chapter and in Chapter 3, policies affecting the incentives to use land are important for several aspects of land-use planning for two reasons. First, they have consequences for the effectiveness of spatial and land-use plans. If a plan foresees the development of a new commercial hub on the outskirts of a city but no demand for it exists, the development will not take place and the plan will remain ineffective. Likewise, if strong demand for development exists at

location where it is restricted, developers frequently find legal loopholes to build there anyway. Thus, policies that provide incentives that are misaligned with spatial and land-use plans increase the risk that plans are ineffective.

Second, public policies that provide incentives to individuals and businesses that are aligned with land-use related objectives do not only improve the effectiveness of plans. They also allow planning to become less restrictive and more flexible without reducing its effectiveness. If individuals and businesses have the incentives to do what planners would like them to do, there would be no need to regulate land use. Even if it is not realistic to perfectly align the incentives of individuals and businesses with planners' objectives, it is possible to bring them closer to each other. This would reduce the abovementioned downsides related to planning. As discussed in forthcoming OECD case studies of the governance of land use in France, Israel and the Netherlands, it would also correspond to the objectives in many countries that aim at making planning more flexible without experiencing the downsides of uncontrolled development.

Since almost any economic and social development eventually affects land use, any public policy that affects social and economic factors also affects land use. The degree of influence and its spatial pattern varies from policy to policy. Most importantly, tax policies and fiscal systems have major effects on land use, as discussed in Chapter3. They influence the incentives for using land in different locations by affecting the financial costs and benefits of doing so. While fiscal and tax policies have arguably the strongest impact on land use, other public policies affect it too. To illustrate the argument, this section briefly discusses four policies that are on first sight unrelated to land use but have important consequences for it.

One of the most obvious examples how tax policies affect land use is the tax deductibility of commuting expenses. Commuting expenses are tax deductible in 12 of 26 analysed OECD countries (Harding, 2014). Given the marginal tax rates in OECD countries, this preferential tax treatment reduces the costs of commuting by up to 50%, which provides incentives to people to live further away from their place of work than they would otherwise. As a consequence, it encourages sprawling development in the outskirts of urban areas.

Another important example of a fiscal policy affecting land use is agricultural subsidies. They are a special case of fiscal transfers that contribute to approximately 18% of gross revenues of farms in the OECD (OECD, 2015a). Without these subsidies, agricultural activity would likely become unprofitable in some parts of the OECD and agricultural land use would decline (Renwick et al., 2013). Since agriculture uses between 15% and 50% of the total land area in most OECD regions (see Chapter 4), the potential impact of agricultural subsidies on land use is obvious.

It is not only tax policies that affect private land use. Examples of policies in other policy domains that affect land use are easy to find, too. A well-known example is restrictions to school choice under which schools are assigned according to place of residence. This makes it more desirable to live in the catchment areas of some schools than in catchment areas of other schools, and consequently increases demand for development in those areas (Hilber and Mayer, 2009). This could lead to a situation where spatial objectives aim for equal levels of development in two areas, but better schools in one area lead to higher demand for development in one of the two areas. In such a situation, improvements to the lagging school could be a more effective solution than restricting development in areas that face currently high demand. Alternatively, it

would be possible to balance demand for development in the two areas by making school choice independent of place of residence.

Tourism promotion is another example of a policy with significant consequences for land use. If successful, it is likely to encourage development in attractive and especially sensitive areas, such as along coastlines or in mountain areas. This can contradict policy objectives concerning land use in those areas and may result in development that conflicts with existing plans. In such a situation, it may be promising to overhaul the tourism promotion strategy to focus on less land intensive forms of tourism. This could reduce the pressure for development in sensitive areas and increase the effectiveness of land-use plans in protecting landscapes.

All the policies mentioned above have in common that they do not have land use as an objective and are generally not evaluated according to their effects on land use. Nevertheless, they have significant consequences on land use that may work in favour or against the objectives of planners. By using them actively to provide incentives that are aligned with land-use objectives land-use planning can become more effective, while being less restrictive and more flexible at the same time.

Adopting a holistic approach to land-use governance

Using the full potential of public policies to shape land use can yield more effective and less restrictive land-use policies. Implementing such an approach in practice requires a large degree of vertical and horizontal policy co-ordination because many branches at all levels of government need to contribute to it. Further, it requires that objectives concerning land use are considered by government departments and ministries that traditionally do not view land use as their policy domain.

A whole-of-government approach to land use requires particular attention to the co-ordination of policies across levels of government. Land-use planning is generally a responsibility of local governments and sometimes of regional governments (see OECD, 2017a). In contrast, many of the policies that shape patterns of spatial development and the demand for land are decided at the national level. As a consequence, national policies would need to be evaluated concerning their impact on land use at a local scale. They would also need to become more responsive to the objectives of local and regional governments concerning land use.

Currently, many countries lack the structures to achieve the required co-ordination between levels of government. One of the few organisations in place today that can provide such co-ordination is the Austrian Conference on Spatial Planning that assembles representatives from all levels of government to discuss spatial policies (see Box 2.10). Further, as it is located at the centre of government (within the office of the chancellor), it may also be able to carry out the necessary cross-sectoral policy co-ordination between different branches of the national government.

While better co-ordination of policies would be a necessary condition to achieve a more holistic governance of land use, it would not be sufficient. Local and regional governments would also require more powers to use the most important fiscal instruments to shape land use. Since the need for such instruments varies from place to place, a transfer of powers could take asymmetric forms in many countries. Only those local governments that need a specific instrument may be granted the power to use it. For example, not every urban area would necessarily benefit from using congestion charges to steer land use and reduce congestion. However, in some metropolitan areas it could play a major role in preventing sprawl. Thus,

national governments should be prepared to grant local governments the authority to implement fiscal instruments to steer land use.

Box 2.11. **The Austrian Conference on Spatial Planning**

The Austrian Conference on Spatial Planning (ÖROK, Österreichische Raumordungskonferenz) is an organisation dedicated to co-ordinating spatial planning policies between the three levels of government in Austria (the national level, the states and the municipalities). Its decision-making body is chaired by the Federal Chancellor and its members includes all federal ministers, the heads of all federated states and representatives of associations of local governments. Furthermore, business and labour organisations are represented on the body as consulting members. The work of the decision-making body is supported by a permanent secretariat with a staff of approximately 25-30.

One of the central tasks of the ÖROK is the preparation of the Austrian Spatial Development Concept (ÖREK, Österreichisches Raumentwicklungskonzept), which covers a planning period of approximately 10 years and provides a vision and guidelines for spatial development that is shared by all levels of government. Beyond the preparation of the Spatial Development Concept, the ÖROK also monitors spatial development across Austria. It has developed an online tool that provides a mapping function of a variety of important indicators at the municipal and regional level and releases a report on the state of spatial development every three years.

The ÖROK is also the co-ordinating body for structural funds provided by the European Union. It manages the integration of structural funds into broader spatial strategies and was directly responsible for the programming work related to 1 of the 11 Thematic Objectives of the programming period 2014-2020. The ÖROK also serves as National Contact Point within the framework of European Territorial Cooperation.

Source: ÖROK (2015), "Österreichische Raumordnungskonferenz / Austrian Conference on Spatial Planning", www.oerok.gv.at/fileadmin/Bilder/1.Reiter-Uber_die_Oerok/OEROK-Geschaefststelle/OEROK_Folder.pdf (accessed 1 June 2016).

Just as a more holistic approach to land-use governance requires changes at the national level it would also require changes to planning at the local level. Planning would need to become even more strategic in its nature. It would have to analyse a much wider set of policy instruments for their potential to shape land use. Once these instruments are implemented to steer incentives for land use, traditional tools such as inflexible zoning regulation may be used more sparingly. Instead, planning would have to identify public policies best suited to achieve land-use objectives and work with the responsible policy branches at all levels of government to implement them. This requires not only an understanding of how a policy would have to be changed to achieve land-use related objectives, but also an understanding if and how such a change could be aligned with non-land-use related policy objectives.

Combining regulatory and economic instruments

Achieving better places will continue to require a range of policy instruments, including regulatory and economic instruments related directly to the problems of places as they have been assessed and analysed. It may involve changes such as taxes or development fees that capture the externalities associated with locational choices and allocating land parcels among different uses more strategically, but at the same time keeping a perspective on how people and communities (rather than planners and developers) view places. An underlying theme is the need to "mainstream" choices and

decisions which can be expected to deliver better outcomes, while retaining sufficient overall control to ensure that key objectives (such as avoidance of urban sprawl) are met.

A better and deeper understanding of place uniqueness and place assets, how benefits flow, and recognition that existing governance structures may be inadequate to address this deeper meaning of places, would make it possible to establish integrated systems that are more likely to create benefits for society in a sustainable way. Such approaches are better equipped to address such issues as:

- problems of land in urban and rural areas which are addressed inadequately and, if left unresolved, are likely to get worse and reduce well-being
- vulnerabilities or systemic weaknesses on which external influences and forces could cause a spiralling of unintended and adverse consequences
- geographical pressure points where a combination of influences are creating particular pressures
- policy dilemmas where targets and commitments could lead to unintended consequences or produce conflicting outcomes
- drivers which produce uncertain outcomes over which planners have little control

An integrated approach to planning entails combining the best use of evidence and taking full account of the range of views and interests involved. As well as promoting more informed decisions, based on a more holistic understanding of land-use impacts, and aligning incentives with objectives to create greater harmony in the system, such approaches demand improved co-ordination across sectoral boundaries and spatially. In order to produce outcomes which are socially and politically acceptable, integrated approaches also need to improve the two-way flows of knowledge from local to national level and empower communities while delivering wider social, economic and environmental benefits.

Notes

1 In 2014, "Amendment 101" to the Planning and Building Law was adopted to address a variety of deficiencies in the planning system. The amendment facilitates the application process for construction permits through the establishment of professional construction control centres, and restructures planning at the local level. The improved application process reduces the number of building approvals that need to be processed. The devolution of the planning authority to the local level is expected to increase efficiency in the planning process and ultimately cut the time for issuing building permits in half. The work of the district level committees was dominated by the approval of small-scale developments, typically consisting of less than 5 housing units. Devolving planning authority of these small-scale developments from the 6 district planning committees to the 125 local planning committees is expected to speed up the approval processes and to free up planning resources at the district level (OECD, 2017d, forthcoming).

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CHAPTER 3

FISCAL FRAMEWORKS, TOOLS, INCENTIVES AND LAND USE

This chapter explores the connections between fiscal frameworks, tools and incentives and land use. The first section examines how fiscal frameworks – namely reliance by local governments on own source revenues versus state transfers – influence local governments to pursue either expansionary land-use policies, or not. It also explores the connection between how local governments are financed and their incentives to collaborate with one another or to compete. The second section examines the fiscal incentives that impact on the land-use decisions of individuals and businesses. The third section examines how fiscal tools can be used to manage development by highlighting key practices. Finally, the need to better align fiscal incentives with spatial planning objectives is discussed.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

How land is used is the outcome of a complex array of interactions. While the planning profession has many tools with which to shape land use, there are other elements beyond the purview of the planning system that can equally have influence. This chapter focusses on the most important of such elements: finances. From the incentives that local governments face to expand their tax bases by attracting new residents to the impact of fuel taxes on the choice where to live, fiscal systems and tax policies affect land use in a wide range of ways. This chapter discusses these effects and also details some of the fiscal tools that can be used to manage development, such as subsidies to develop brownfield sites, tax credits to preserve historic structures or transfer of development rights to promote development in higher density and better serviced locales while preserving natural areas.

The chapter urges national and local governments to consider the incentives that fiscal systems and tax policies provide for land-use planning decisions and for land-use choices by businesses and individuals. It shows that the use of fiscal policies can help to govern land use more effectively and allow for more flexible land-use regulations. In contrast, uncoordinated fiscal policies and land-use policies may have counteracting effects and contribute to a failure to achieve stated objectives related to land. The chapter builds on the argument articulated in Chapter 2 that a broader range of public policies should be drawn on to govern land use. Beyond integrating spatial planning across vertical and horizontal levels of government/governance and the need for multi-sectoral approaches, integration also pertains to the need to consider the wide range of public policies that influence and interact with spatial outcomes – fiscal policies being chief among them.

This chapter proceeds in four sections. The first section focusses on how the fiscal system and the system of local government of a country generate incentives for local governments to pursue particular land-use policies. It shows how the institutional setup of a country determines the fiscal consequences of land-use decisions for local governments and how this can induce them to pursue particular land-use policies. It also discusses how the preferences of voters can create incentives for local governments to pursue specific land-use policies for their jurisdictions. The second section discusses the incentives that tax systems provide for land-use decisions by individuals and businesses. It shows how tax policies and subsidies affect the costs of using land in particular locations thereby encouraging specific patterns of development. Many of the most important fiscal instruments discussed in this section are not conventionally associated with land use. In particular, fiscal instruments that affect the costs of transport matter, but are rarely used to affect urban form. In contrast, the third section focusses on those fiscal instruments that are conventionally used to foster specific development patterns, such as encouraging density, mixed land uses and transit-oriented development. They include instruments such as redevelopment incentives and use-value tax incentives. The final section summarises the arguments.

In exploring these issues, this chapter draws substantively on a review of the current literature on these topics, complemented by examples from case studies of cities and practices in France, Israel, the Netherlands and Poland. The literature review draws predominantly on public choice theory, which examines political behaviour (public and private choices) through an economic lens and related methods. It privileges individuals and the incentives that they face in its mode of analysis.

Fiscal systems affect the land-use planning of local governments

A recurring theme throughout this report is that governance matters to how land is used. The types of actors that are involved in spatial planning influences the territories that are encompassed, the types of issues that are tackled and how they are addressed. But

governance crucially matters in another way as well. The fiscal frameworks and the system of subnational government within which local governments operate create various incentives for involved governmental actors. Fiscal systems can be designed to induce cities and communities to co-operate or to compete with one another, depending on how revenues are structured. They may make new developments an important source of revenues or a costly proposition for local governments. In turn, this can lead local governments to either pursue restrictive land-use policies or to favour expansive ones.

The section addresses national and local governments alike. By showing how existing fiscal and political structures incentivise specific land-use policies, it can explain why local governments adopt some of the land-use policies that they pursue. It also shows how decisions that are, in isolation, optimal for the residents of one local jurisdiction, can have collective consequences that are undesirable for urban areas, regions or the country as a whole.

National governments can respond in several ways. If politically feasible and justified by the severity of the issue, national governments may adapt their fiscal systems to provide incentives to local governments to pursue land-use policies that correspond to national objectives. For example, if a country suffers from a shortage of housing, it may increase the fiscal benefits that local governments receive from new housing developments. If sprawling commercial developments occur, the country may reduce the fiscal benefits for local governments from such developments. If such reforms are politically not feasible or not justified because of other concerns, national governments can pursue other policies. They can encourage local governments to co-operate or if this is unsuccessful, they can mandate co-operation, for example through the preparation of inter-municipal land-use plans. They can also use other fiscal policies (such as the ones discussed later in this chapter) that provide counteracting incentives, not to local governments, but directly to individuals and businesses.

Local governments are not powerless to overcome the negative incentives that they face. If competition between them or other incentives that they face lead collectively to undesirable outcomes for the urban area or region, they can set up co-operation structures that prevent harmful policies. As Chapter 5 of this report and OECD (2015) show, in many metropolitan areas across the OECD local governments have voluntarily entered co-operation agreements that cover land use. The discussion in this section shows where, and under what circumstances, the need for such co-operation mechanisms is greatest. It also describes which policies should be covered by co-operation agreements.

Local fiscal autonomy affects land-use planning decisions

This section focusses on the difference between decentralised systems and centralised ones – this term refers both to fiscal elements of decentralisation or centralisation, and political ones, in terms of the role of national governments in spatial planning. These are abstract types, OECD countries fall somewhere in the middle. Consider for instance the Netherlands. Municipalities in the Netherlands have low fiscal autonomy – they rely to a large degree on transfers from the national government and as such, represent a system that is fiscally centralised. Many aspects of spatial policy and land-use planning are devolved to the local level, and yet, the national level maintains an important role in setting overall objectives and determines roles and responsibilities and intervenes directly in some cases. Thus, the Dutch system is more nuanced than the decentralisation-centralisation dichotomy suggests. Nevertheless, the discussion that follows usefully illustrates key features of different systems and the local government incentives that they create for land use. A

critical point is that the three elements – spatial policy and land-use planning, structure of governance and the fiscal system – interact to produce distinct land-use outcomes.

In more centralised settings, local governments have incentives to pursue urban containment policies

More centralised systems, where local governments are funded predominantly by state transfers, tend to do better at containing urban expansion. If transfers are proportional to the costs that are created by new developments, local governments will neither benefit from increased development nor suffer negative fiscal consequences. Thus, they do not have incentives to pursue strongly expansionary land-use policies.

If local governments do not have any incentives to permit new developments, they may pursue too restrictive land-use policies, leading to rising costs of housing. Local residents are frequently opposed to new developments because it creates nuisances and tends to lower property prices. If local governments have no other reasons to permit development, they are likely to follow the interests of their local voters and restrict new developments. Consequently, this can limit the supply of housing and drive up prices, leading in turn to a housing affordability crisis in the most desirable cities with the strongest demand growth. Unless fiscal redistribution favours specific places that allocate more land for development, the fiscal system may in this way contribute to the rising house prices that can be observed in many cities.

Box 3.1. **Fiscal centralisation and urban containment in the Netherlands**

The Netherlands offers an interesting example of a centralised system. Compared to OECD countries, subnational governments in the Netherlands have among the lowest rates of fiscal autonomy, particularly at the municipal level. For the country as a whole more than 62% of Dutch subnational government revenue comes from transfers (grants and subsidies), 15% from tariffs and fees, 3% from assets (financial and non-financial) and only 9% from taxes (shared and own-source taxes) (OECD, 2016a). This gives Dutch subnational governments the same financing profile as Greece, Ireland, Mexico, Turkey and the United Kingdom where subnational governments remain dependent upon central government transfers. Local tax revenue in the Netherlands is 3.6% out of total revenue, while the average for the OECD was 10.6% in 2011 (Blöchliger and Nettley, 2015).

The main merit of having such a high proportion of income from state transfers in combination with local autonomy and responsibility for executing these tasks is that it causes equality in service levels and social rights throughout the country. At the same time, local governments are stimulated to provide services in a cost efficient manner to make the most of allotted transfers. For land-use policy, Dutch municipalities have less of a pressure to increase own source revenues, including the property tax. While it could be argued that reliance on state transfers promote a lack of entrepreneurial spirit and the inflexibility to change service levels and rules and regulations to accommodate differences in regional circumstances, in the end, state transfers compensate for these differences (Broersma, Edzes & Van Dijk, 2013). In Amsterdam's case – and that of the Netherlands more generally – there is a large public housing sector which mediates the types of housing affordability issues that are presumed in the literature. However, it bears noting that one drawback from a reliance on state transfers and grants is that municipalities are beholden to shifts in funding from upper level governments which may decline in periods of economic constraint.

Sources: OECD (2017a), *The Governance of Land Use in the Netherlands: The case of Amsterdam*, (forthcoming); Blöchliger, H. and M. Nettley (2015), "Sub-central Tax Autonomy: 2011 Update", *OECD Working Papers on Fiscal Federalism*, No. 20, http://dx.doi.org/10.1787/5js4t79sbshd-en; Broersma, L., A.J.E. Edzes and J. van Dijk (2013), "Have Dutch municipalities become more efficient in managing the costs of social assistance dependency?" *Journal of Regional Science*, Vol. 53(2), pp. 274-291; OECD (2016a), *OECD Economic Surveys: Netherlands 2016*, http://dx.doi.org/10.1787/eco_surveys-nld-2016-en.

Fiscally decentralised systems face pressures for expansionary development

In contrast, decentralised systems face different pressures. Local governments that rely on own source revenue to fund programmes, infrastructure and services face larger incentives to increase their tax base in order to raise revenue. In order to provide better public services or to fund existing ones, local governments may turn to new developments that raise their tax base. Depending on the local taxes that they can levy, some developments (such as upscale residential office blocks) may be more attractive than others.

Therefore, in order to fund services and infrastructure, local governments have incentives to attract new residents or businesses as opposed to increasing local taxes rates. This in turns leads to an increase in land consumption and fosters sprawl in suburban areas. Where developments are not well linked to public or sustainable transport networks, car usage will increase along with carbon emissions. Furthermore, it can be costly to provide infrastructure and public services for spatially sprawling developments, thus imposing long-term costs for municipalities.

Box 3.2. **Increasing fiscal autonomy, property taxes and land use in France**

In France, as in other countries where own-source revenues (as opposed to grants and other transfers) are an important source of revenue, the property tax is the most common source of local government finance. As France has devolved competencies to the local level, this increased pressure on local governments to raise revenue from property taxes, which can in turn lead to efforts to stimulate land development. Spatial policies act as a counter effect to this phenomenon.

Local government fiscal autonomy has increased alongside devolution reforms

Local authorities in France (regions, départements, communes, intercommunes) have two general sources of revenue: i) specific resources such as direct tax revenue and state transfers and; ii) temporary resources, which are project specific loans that must be reimbursed by the beneficiary community. Temporary resources can only be used to finance investment spending (as opposed to operational spending). The regulatory framework governing French local authorities is highly stringent. By law, local authorities must balance their budgets (i.e. they cannot run a budget deficit). As a result, local authorities contribute little to the public deficit, and local authorities can only borrow funds in order to finance their investments – this is known as the "golden rule". In 2013, borrowing by local authorities in France amounted to 7.3% of total revenues (at EUR 229.6 billion) (Government of France, 2016).

Local revenues in France have more than doubled since the early 1990s; the total revenue of local authorities increased from EUR 87.5 billion in 1990 to EUR 215 billion in 2010 and EUR 229.6 billion in 2013 (République Française, 2016). The financial autonomy of communities is viewed within state policy as an important link between taxpayers and their communities and as a way to empower local actors. This policy has been entrenched by the "fiscal autonomy rule" – i.e. the ratio of own resources to total resources (excluding borrowing) cannot go below the level recorded in 2003. At an aggregate level, the fiscal autonomy of communes, intercommunes, *départements* and regions, has increased over time in line with their growing responsibilities. Between 2003 and 2013, regions saw the greatest such increase at 11.9%, followed by *départements* at 9.2% and finally, communes and intercommunes at 5.2% (République Française, 2016: 99). In 2013, *départements* had the highest ratio of fiscal autonomy followed by communes, and regions (Table 3.1).

Box 3.2. **Increasing fiscal autonomy, property taxes and land use in France** *(continued)*

Table 3.1. **Ratio of local government fiscal autonomy, 2013**

	Communes and Intercommunalities	*Départements*	Regions
Ratio of own source resources against total resources	66.00%	67.80%	53.60%

Source: République française (2016), « *Transferts financiers de l'état aux collectivités territoriales* », *Annexe au projet de loi de finances pour 2016*, pp. 99.

A high reliance on property taxes creates the incentive to convert low value land to higher value uses and to attract new residents and businesses

While local taxes and state transfers both provide revenue to communes, local taxes contribute the most. In 2013, local taxes contributed approximately 55% of local authorities' revenue (Government of France, 2016). Of these, the property tax on developed land generates the largest share of revenue (at approximately 37%), then the residence tax (at 26%); followed by the value-added tax on business income (at 21%); and the tax on business premises (at 10%) and finally, the tax on underdeveloped land (at just over 1%) (Government of France, 2015: 71). The importance of various forms of property tax to communes provides a clear incentive for local governments to undertake actions that can raise property values, including allowing the conversion of low value land to higher value uses. It also creates an incentive to attract new residents and businesses in order to expand the tax base.

In France, local property taxes are mainly assessed on a property's notional rental value, with the exception of those related to business. The notional rental value of a property's theoretical yield is determined by the authorities. Local tax rates are set by local government assemblies (*département* and commune councils, etc.) when voting on their annual budget. However, the rates may not exceed certain limits determined by central government, which are applied to bases that are also centrally determined. Within this framework, there are many permanent or temporary exemptions – e.g. for low income individuals.

Local governments are under increasing pressure to reduce their operating expenses, cut back on investment and to pool services and/or, increase their revenue from local taxes. However, the last option (of increasing revenue) is limited by thresholds set by the State and can be very unpopular for local residents. As a case in point, the local property tax rates in case study cities of both Nantes and Saint-Nazaire have only very marginally increased over the past several years.

While local governments face fiscal pressures to expand, the spatial planning system works to promote compact developments

France's spatial planning system works to counteract expansionary pressures. For example, city regions elaborate common spatial plans (Scheme de coherence territorial, SCoT) that then provide guidance of commune or intercommunal land-use plans (*Plan locale de urbanism*, PLU). In both case studies, the city regions of Nantes Saint-Nazaire and Clermont-Ferrand included express intentions to limit peri-urbanisation and protect natural spaces to promote more compact development. For example, Clermont-Ferrand's spatial strategy recommends that 70% of the territory's population reside in the metropolitan core and the *pôles de vie*, and 30% in peri-urban areas; this stands in contrast to current ratios of 60% of the population in the urban core and 40% in the peri-urban areas.

Adapted from: OECD (2017b), *The Governance of Land Use in France: The cases of Clermont-Ferrand and Nantes Saint-Nazaire* (forthcoming).

Sources: République Française (2016), « Transferts financiers de l'état aux collectivités territoriales », Annexe au projet de loi de finances pour 2016, pp. 13-14, www.performance-publique.budget.gouv.fr/sites/performance_publique/files/farandole/ressources/2016/pap/pdf/jaunes/jaune2016_collectivites.pdf; Government of France (2015a). Overview of the French tax system– legislation in force as of 31 July 2015, Public Finances Directorate, General Tax Policy Directorate, Bureau A/Section 4, pp. 1-89; Government of France (2016), Vie Publique. http://www.oecd.org/gov/regional-policy/cities-and-water-governance.htm (accessed 2 May, 2016).

Given their incentives, it is likely that – all things equal – local governments tend to pursue more sprawling land-use policies in decentralised countries than in centralised ones. Whereas fiscal decentralisation provides the incentives for local governments to pursue expansive land-use planning policies, the decentralisation of planning authority provides the regulatory power to implement them in practice. Nevertheless, the importance of the effect in practice can vary. While it may have an important impact on land use, it can also easily be outweighed by other factors, such as macro-economic conditions or the collaborative traditions of a country.

Box 3.3. **Fiscal and planning systems: The United Kingdom versus Switzerland**

The government structures of the United Kingdom and Switzerland are at opposite poles of the decentralisation spectrum. Whereas the United Kingdom's (central) land-use planning system is one of the most rigid in the world and its fiscal system is heavily centralised, Switzerland is an extremely decentralised country, with strong political and fiscal powers allocated at local level.

The United Kingdom – centralised land-use planning and fiscal centralisation

The Anglo-Saxon (British) planning system – which has been adopted "in spirit" by most of the Commonwealth countries, such as Australia or New Zealand – differs starkly from continental European planning systems. Two main features distinguish the British "development control" system from the continental European "rule-based zoning" system. First, development control is highly centralised and imposes stringent land-use restrictions to contain urban growth throughout the country ("green belts" that are largely sacrosanct for development for example surround all major urban centres in England). Second, development control is discretionary rather than rule based. This means that every single planning application is subject to review and political opposition by local "not in my backyard" (NIMBY) residents, making new development extremely difficult and – due to the planning process related costs – costly and creating a significant degree of uncertainty for would-be developers often making development projects inviable. In contrast, in a rule-based zoning system, as long as a plot of land is say within a residential zone and developers follow the rules, they have the automatic right to develop the land for residential purposes.

Moreover, the United Kingdom's fiscal system provides very few fiscal incentives to local authorities to permit new development: Local authorities bear most of the cost of providing public services to new entrants but cannot reap the benefits in the form of local tax revenue, as most taxes are levied by the central government. Moreover, increases in the local (council) tax revenue are, in the medium-run, equalised away through a central government grant system. Thus, because there are so few fiscal incentives to permit local development, local planning authorities have strong incentives to cater to NIMBY residents, who in turn have strong incentives to oppose new development in order to protect their asset values. Put differently: the development control system facilitates NIMBY-behaviour. Successful opposition to new development via NIMBY-residents in this context is strongest near green belts as homeowners, in accordance with Fischel's (2001a and b) "homevoter hypothesis", have particularly strong incentives to protect their nice views and open space.

As a consequence, land-use patterns in the United Kingdom are not sprawling. New development is compact, although at a lower density than in the absence of height restrictions. This, however, comes at a staggering cost. The combination of a lack of fiscal incentives and development control has created a vicious circle leading to an unprecedented housing shortage and severe housing affordability crisis. To provide an order of magnitude of the effects of the development control system on housing markets, Hilber and Vermeulen (2016) estimate that housing prices would have increased 100% less between 1974 and 2008 in the absence of any regulatory constraints.

Box 3.3. **Fiscal and planning systems: The United Kingdom versus Switzerland** *(continued)*

Switzerland – political and fiscal decentralisation

In contrast to the United Kingdom, Switzerland – a highly decentralised country with fiscal competition both at regional and local level – has a rule- or code-based planning system, where construction projects are automatically approved as long as they comply with the requirements of the respective code. These requirements usually consist in attributing land-use type (residential, commercial, industrial, or mixed) to plots of land zoned for new construction and in defining the development intensity (in the form, for example, of floor to area ratios). This makes it extremely difficult for local NIMBY residents to successfully oppose new development. Moreover, the Swiss fiscal system provides strong incentives to local municipalities to allocate land for new residential development: local public good provision is financed by levying progressive income taxes and municipalities can choose tax rate levels. Local municipalities thus have strong fiscal incentives to allocate large plots of land at the outskirts of their localities in an attempt to attract high-income tax payers.

The combination of a flexible planning system with local fiscal incentives makes the housing supply in Switzerland fairly elastic. As a consequence, housing affordability is considered less of an issue in Switzerland, except in major agglomerations – mainly Zurich and Geneva – where physical and geographical supply constraints (lakes, mountains) are quite binding. The main policy concern in Switzerland is thus urban sprawl and preservation of the touristic countryside: Swiss voters are increasingly concerned about urban sprawl as new development in suburban areas is typically quite scattered and low density. Moreover they are concerned about blighting the most beautiful and touristic Alpine areas. This has recently lead Swiss voters to approve an initiative that imposed a ban on the construction of new second homes in touristic areas, with adverse consequences for local residents.

Source: This comparison is based on Hilber, C.A.L. (2015a), "UK Housing and Planning Policies: The Evidence from Economic Research", *Centre for Economic Performance 2015 Election Analysis Series*, No. EA033; Hilber, C.A.L. (2015b), *Deep-rooted Vested Interests are to Blame for Our Housing Crisis*, *Disclaimer*, 4 May; Hilber, C.A.L. (2016), "The UK planning system – Proposals for reform", *Planning & Building Control Today*; Hilber, C.A.L. and O. Schöni (2016a), "Housing Policies in the United Kingdom, Switzerland, and the United States: Lessons Learned", *ADBI Working Paper 569*, Asian Development Bank Institute, Tokyo.

Local governments have incentives to allocate land for developments that maximise their revenue

Different types of developments create different fiscal costs and benefits for local governments. Local governments face different costs to provide infrastructure and public services for residential, commercial and industrial developments. Depending on the fiscal system, they may be able to recoup varying shares of the costs through fees. At the same time, each type of development creates different fiscal benefits for local governments, either because it increases the local tax base or because it affects the amount of transfers that local governments receive from national or regional governments. As a consequence, the net fiscal impact of each type of development for local government varies depending on the fiscal system of a country.

Governments are likely to prefer the type of development that has the highest net fiscal benefit. Consequently, they have incentives to allocate more land for these uses than for others. If this effect is strong, it may result in an inefficient allocation of land. Local governments may allocate too much land for one use without taking any negative consequences for surrounding jurisdictions into account. At the same time, they may allocate too little land for another use, leading to scarcity and high property prices in the sector.

An example of a fiscal system that provides incentives to prefer one type of development over another is Israel (see OECD, 2017d). Property taxes are the main source of own revenues

for local governments in Israel. They are free to choose tax rates for different types of properties within bands set by the central government. As the allowed rate for commercial property is up to 10 times higher than for residential units, local authorities prioritise the development of commercial and office space. Residential developments are typically associated with a net loss in local government revenues, since the cost for service provision exceeds the revenue from residential property taxes and fees. In contrast, commercial developments result in higher revenue from property taxes and are less service intensive, typically creating net gains for the local budget. Residential developments are however greatly needed in order to accommodate population growth, but local governments have few incentives to provide them.

Other examples of similar behaviour by local governments are well documented in the literature. Quigley and Raphael (2005) show how California's tax policies create fiscal disincentives to permit low-and mid-range housing. Instead, local governments in California have incentives to facilitate retail development because they can benefit from sales tax revenues, whereas property taxes are limited to one percent of the transaction price. Similarly, Burnes, Neumark and White (2012) show that local governments in Florida that have higher sales tax rates prefer to attract large shopping malls over manufacturing firms. Buettner (2016) investigates theoretically the effects of the local business tax in Germany, which is a major source of local revenues. He argues that it may induce municipalities to allocate too much land to commercial developments and reduces the welfare of large groups of residents.

In 1990, the United Kingdom implemented a reform that shifted tax revenue from commercial real estate from local authorities to the central government. Cheshire and Hilber (2008) document that the reform created a strong disincentive for local authorities to allow new commercial development. As a consequence, local authorities became more restrictive in permitting commercial development. A reduction in the supply of office space caused market prices for it to increase. Although this has not been studied by the authors, the decision to allocate less land for commercial development may have led to a greater allocation of land for residential development. The current plans in the United Kingdom to reverse the reform of 1990 may have the opposite effects on housing. By allowing local authorities to retain the revenue arising from the taxation of commercial property, the attractiveness of commercial development relative to residential development increases. The unintended consequence of this may thus be that local authorities may have even fewer incentives to allocate new land for residential development. According to Hilber (2016) this may worsen the housing affordability crisis that has been affecting the United Kingdom since at least the late 1990s (see also Box 2.2 in Chapter 2).

How competition between municipalities affects land-use planning decisions

If local governments have fiscal incentives to attract new residents and businesses, they are likely to compete with each other to attract them. This is documented by a vast literature that shows how local governments use tax competition to attract residents and businesses.[1] However, the strategic behaviour of jurisdictions is likely multidimensional (Blöchliger and Pinero Campos, 2011) and not necessarily limited to fiscal instruments, as assumed by most researchers. In fact, land-use policies may also be implemented strategically to attract residents or businesses and to respond to land-use decisions by neighbouring jurisdictions. Thus, competitive behaviour of local governments is likely to have important consequences for their land-use policies.

Importantly, competition between local governments varies in its intensity and its scope. It is less pronounced in highly centralised countries where local governments have little scope to set their own tax and land-use policies and do not benefit fiscally from them. However,

even in those countries, local governments are likely to compete with each other, for example by trying to attract businesses that provide well-paying jobs for their residents. Competition between local governments is likely to be most intense in highly decentralised countries, where local governments can control important land-use and tax policies and benefit from attracting specific groups of residents and businesses. In all cases, the ways in which local governments compete depends on the incentives that they face and the instruments that they control. It is therefore difficult to generalise.

Brueckner (1998) shows that local governments use land-use regulations strategically. If neighbouring jurisdictions implement more lenient land-use regulations, a local government is more likely to do so, too. In other words, local governments mimic land-use policies of nearby jurisdictions. This behaviour is similar to the well-documented effect that local governments tend to lower their local taxes if neighbouring local governments do so. Potentially, the behaviour of local governments can be explained by the declining pressure for development in its jurisdiction that results from more lenient land-use policies in neighbouring jurisdictions. If neighbouring jurisdictions allow more development, a local government has to pursue less restrictive land-use policies than before to attract the same amount of development.

Box. 3.4. **How do land-use regulations contribute to higher house prices?**

What is the impact of land-use regulations on housing prices? The empirical literature provides evidence that land-use regulations can increase housing costs significantly (see e.g. Saiz 2010 for the United States or Hilber and Vermeulen 2016 for the United Kingdom). Fischel (1990) and Quigley and Rosenthal (2005) provide a literature review of the links between growth control regulations and land and housing prices. Their main message is that tighter land-use constraints tend to benefit owners of developed land (e.g. homeowners) at the expense of owners of undeveloped land who are not permitted to develop their land (see the early work of Engle-Carson,1989, or more recently Hilber and Robert-Nicoud, 2013). The price of developed land is higher because zoning restrictions reduce the amount of land available for development. At the same time, restrictions to development make developed land more attractive because they create green space amenities. Thus, development controls reduce the supply of developed or developable land while simultaneously increasing the demand for it. As in other markets, shrinking supply and increasing demand leads to rising prices of housing and developed land until a new market equilibrium is achieved. This may lead to situations where development controls do more harm than good. The evidence suggests that in many regions with high costs of housing, the costs associated with stringent land-use regulation outweigh its benefits (Cheshire and Sheppard, 2002; Brueckner and Sridhar 2012; or Turner, Haughwout and van der W. Klaauw, 2014).

Sources: Saiz, A (2010), "The Geographic Determinants of Housing Supply", *Quarterly Journal of Economics*, Vol. 125(3), pp. 1 253-1 296; Hilber, C.A.L. and W. Vermeulen (2016), "The Impact of Supply Constraints on House Prices in England", *Economic Journal,* Vol. 126(591), pp. 358-405; Fischel, W.A. (1990), *Do Growth Controls Matter A Review of Empirical Evidence on the Effectiveness and Efficiency of Local Government Land Use Regulation*, Lincoln Institute for Land Policy, Cambridge, MA; Quigley, J.M. and L. Rosenthal (2005), "The Effects of Land Use Regulation on the Price of Housing: What Do We Know? What Can We Learn?", *Cityscape,* Vol. 8(1), pp. 69-137; Engle, R., P. Navarro and R. Carson (1992), "On the theory of growth controls", *Journal of Urban Economics*, Vol. 32(3), pp. 269-283; Hilber, C.A.L. and F. Robert-Nicoud (2013), "On the Origins of Land Use Regulations: Theory and Evidence from US Metro Areas", *Journal of Urban Economics*, Vol. 75(1), pp. 29-43; Cheshire, P. and S. Sheppard (2002), "Welfare Economics of Land Use Regulation", *Journal of Urban Economic,* Vol. 52, pp. 242-269; Brueckner, J.K. and K.S. Sridhar (2012), "Measuring welfare gains from the relaxation of land use restrictions: The case of India's building-height limits", *Regional Science and Urban Economics*, Vol. 42(6), pp. 1 061-1 067; Turner, M.A., A. Haughwout and van der W. Klaauw (2014), "Land Use Regulation and Welfare", *Econometrica*, Vol. 82, pp.1 341-1 403.

A similar effect may lead to the opposite pattern (Brueckner, 1995, and Helsey and Strange, 1995). If some jurisdictions in a fast growing urban area start to restrict land use more strongly, this may increase the development pressures in neighbouring jurisdictions. These jurisdictions may in turn respond with more restrictive land-use policies themselves, which again has effects on neighbouring jurisdictions. The adoption of a growth control

policy restricting the supply of new land for development in a given jurisdiction creates spillovers that influence land-use policies of nearby jurisdictions.

Strategic behaviour by local governments is not only reflected in the way they respond to each other's land-use decisions. Jacob and McMillen (2015) show that local governments in the suburbs of Chicago try to attract commercial and residential development. However, they predominantly try to locate them close to the borders of their jurisdiction. This reduces nuisances for their own residents, but harms residents in neighbouring jurisdictions. It can also lead to patterns of development that are not co-ordinated with the other policy fields, such as transport policy. Moreover, the same study finds evidence that local governments also locate affordable housing predominantly close to the borders of their jurisdictions. This may be a consequence of the wishes of residents with higher income to stay segregated from low income groups.

These examples demonstrate that there is strong need for co-ordination among local governments, especially in settings where competition between local governments is intense. Even if all local governments act in the best interests of the residents of their own jurisdiction, collectively they create outcomes that are not optimal for the region or metropolitan area. Thus, the incentives that local governments face can explain in large part the need for metropolitan co-ordination mechanisms that is discussed in Chapter 2.

Land-use and tax policies may be used strategically

Land-use policies may be combined strategically with tax policies to attract specific groups of residents and businesses. For example, local governments may particularly want to attract high-income residents, businesses that create few nuisances but provide high tax revenues, or businesses that provide a large amount of employment. To do so they may use targeted land-use policies and fiscal policies. Little evidence exists as to how this affects the behaviour of local governments because most of the fiscal competition literature is limited to the analysis of only one instrument, even though local jurisdictions usually have control over several policy instruments that affect their desirability.

From a theoretical perspective, the joint effect of these two channels on land-use patterns is not obvious and only a few possible interactions have been studied. For example, Moss (1977) analyses how the adoption of minimum lot size requirements and property taxes by local governments can contribute to an increased conversion from agricultural land into developed land. Voith and Gyourko (2002) develop a theoretical framework in which a public policy favours high income households. Within the theoretical framework, this may lead to greater income segregation in the presence of binding minimum lot size restrictions. Even if poor and rich households have the same preferences for city- vs. suburban-living, the land-use policies adopted by local governments induce higher-income households to move to the suburbs, whereas lower income households stay in central areas.

These mechanisms may explain some elements of the progressive migration of richer households towards suburban areas and the subsequent low density development that could be observed in many OECD countries in the past decades. It may have occurred, in part, due to a combination of land-use policies and fiscal incentives. A study by Basten, Lassmann and von Ehrlich (2015) supports this conclusion as it documents that high-income households systematically sort into low tax jurisdictions which tend to be low density places, where the provision of local public goods and services is more expensive. However, it cannot explain the more recent increase in popularity of inner-cities among high income residents. This suggests that beyond the role of fiscal incentives, other factors such as cultural trends play an important role, too. As pointed out by Blöchliger and Pinero Campos (2011), there are several

other factors – besides land-use and fiscal policies – that may influence residential location, and thus competition between local governments. For example, Banzhaf and Walsh (2008) show that local disamenities – in the form of air pollution – affect residential location choices, with higher income households leaving more polluted places.

Box 3.5. **The effects of zoning to maximise property values**

Local residents (and homeowners in particular) may lobby for land-use policies in the attempt to maximise their property values at the expense of outsiders. In the literature, this is referred to as "fiscal zoning" – this practice mainly benefits owners of developed land (property owners – mainly homeowners) and hurts owners of undeveloped land and lower-income renters, thus creating a wedge between those groups (Hilber and Robert-Nicoud 2013).

This concept further relates to the idea that homeowners support certain local policies to maximise housing values – the so-called "homevoter" hypothesis (Fischel 2001a, 2001b). As land-use regulation mainly benefits homeowners, owners of undeveloped land have an incentive to organise politically in the early formation of a local municipality – when still in numerical superiority – and oppose stringent regulation. As the municipality physically develops, and owners of developed land acquire political influence, homevoters will start to oppose new development via elected local planning boards, in line with Fischel's hypothesis. Hilber and Robert-Nicoud (2013) extend Fischel's work by explicitly modelling local zoning restrictions as the result of a voting and lobbying game played between owners of developed land (homeowners and absentee landlords who rent out their properties) and owners of undeveloped land (landowners). By providing both theoretical and empirical evidence, they show that more attractive places are more developed and, as a result of the political forces, also more regulated. Fiscal zoning can be interpreted as particular means of how homeowners can maximise their property values.

Fiscal zoning also relates to the literature that was sparked by Tiebout's (1956) seminal contribution. Tiebout argues that households with similar tastes sort into the same municipality according to their preferred combination of fiscal burden and public services, thus leading to the creation of "homogenous" jurisdictions. In particular, in more decentralised settings local governments provide public goods that better fit the preferences of each individual. As long as there are as many governments as types of individuals and relocation costs are low (in Tiebout's model they are assumed away), mobile households can sort across jurisdictions to maximise their utility, and an efficient level of local public services results. Although not explicitly taking land markets into account, Tiebout's approach to local public finance is important to understand land-use patterns in decentralised countries. Fiscal zoning is much more likely to happen in more decentralised settings, where fiscal incentives at the local level may exist and jurisdictions have the political power to autonomously enact land-use regulations.

However, despite the potential for undesired policies by local governments, decentralisation-oriented structures also have advantages. A more decentralised setting may generate efficiency gains via yardstick competition as it allows residents to evaluate the performance of local governments by making comparisons between them (Besley and Case, 1995). The so-called "decentralisation" theorem by Oates (1972) states the trade-off between ensuring that negative external effects are taken into account through centralised policies and the need to develop decentralised policies that fit individual communities. The analysis of the decentralisation theorem has mainly focused on fiscal measures whereas a similar trade-off can be expected also with respect to land-use decisions.

Sources: Saiz, A (2010), "The Geographic Determinants of Housing Supply", *Quarterly Journal of Economics*, Vol. 125(3), pp. 1 253-1 296; Hilber, C.A.L. and W. Vermeulen (2016), "The Impact of Supply Constraints on House Prices in England", *Economic Journal,* Vol. 126(591), pp. 358-405; Fischel, W.A. (1990), *Do Growth Controls Matter A Review of Empirical Evidence on the Effectiveness and Efficiency of Local Government Land Use Regulation*, Lincoln Institute for Land Policy, Cambridge, MA; Quigley, J.M. and L. Rosenthal (2005), "The Effects of Land Use Regulation on the Price of Housing: What Do We Know? What Can We Learn?", *Cityscape,* Vol. 8(1), pp. 69-137; Engle, R., P. Navarro and R. Carson (1992), "On the theory of growth controls", *Journal of Urban Economics*, Vol. 32(3), pp. 269-283; Hilber, C.A.L. and F. Robert-Nicoud (2013), "On the Origins of Land Use Regulations: Theory and Evidence from US Metro Areas", *Journal of Urban Economics*, Vol. 75(1), pp. 29-43; Cheshire, P. and S. Sheppard (2002), "Welfare Economics of Land Use Regulation", *Journal of Urban Economic,* Vol. 52, pp. 242-269; Brueckner, J.K. and K.S. Sridhar (2012), "Measuring welfare gains from the relaxation of land use restrictions: The case of India's building-height limits", *Regional Science and Urban Economics*, Vol. 42(6), pp. 1 061-1 067; Turner, M.A., A. Haughwout and van der W. Klaauw (2014), "Land Use Regulation and Welfare", *Econometrica*, Vol. 82, pp.1 341-1 403.

The effects of fiscal policies on land-use decisions by businesses and individuals

So far, this chapter has discussed how fiscal incentives can motivate local governments to pursue particular land-use policies. Thereby, it shows how the political and fiscal system of a country contributes to particular patterns of land use. All incentives discussed until now have an impact on land use because they motivate local governments to regulate land use in particular ways. They make it more attractive to permit one type of development over another. In other words, they influence land use because they change the regulatory behaviour of local governments.

Tax systems influence land use through a second channel that is at least as important. As discussed in Chapter 2, they provide direct incentives to individuals and businesses to make particular land-use decisions. Virtually every tax has effects on the choices of some individuals and businesses. Almost always, these effects also have spatial consequences and therefore affect land use. This is the case even if a tax has no obvious connection to land use. For example, an increase in the marginal income tax makes it less desirable to earn a high gross salary. Thus, it reduces the benefits of moving to the urban areas where wages are highest. As a consequence, it is likely that fewer people will move into the urban area, which has direct consequences on land use.

Using tax incentives rather than land-use regulations can be more efficient. Tax incentives can encourage or discourage particular forms of land use without having to specify where they occur. They allow market mechanisms to determine which land use has the greatest benefit at a particular location. In many cases, this will lead to more efficient outcomes than planning decisions. At the same time, planners and policy makers can encourage or discourage land uses through the fiscal system. Under ideal conditions, the tax policies could render it unnecessary to impose any land-use restrictions unless a particular land use is outright undesirable (for example because it is too dangerous or too polluting). In a more realistic scenario, it could be possible to make planning more flexible and reduce land-use restrictions by using fiscal instrument more effectively.

Tax policies should be more closely evaluated for their impact on land use and should be adjusted and aligned to land-use objectives. By using tax policies to set the right incentives, individuals and businesses can be motivated to make land-use decisions that correspond to policy objectives without the need to use rigid land-use planning. Tax systems need to meet a variety of objectives. Sometimes, taxes are specifically designed to achieve an objective that is unrelated to land use and cannot be changed without losing focus of this objective. In such cases, it may not be justified to use the tax to achieve land-use objectives. Using the previous example, nobody would argue that it would be justified to raise marginal income taxes drastically only to reduce the development pressure in the urban area that pays the highest wages.

However, it is possible to optimise tax policies with respect to land-use objectives without substantively contradicting other policy objectives. In many cases, tax policies that support land-use objectives have complementary benefits in other policy fields. For example, an increase in petrol taxes creates incentives for more compact development and for reductions in carbon emissions and air pollution. Likewise, a tax on land area can be used to increase public revenues, but is also a good instrument to incentivise efficient use of land especially in environments where land values are low.

Property taxes

The impact of property taxes on land use is ambiguous

Property taxes based on the value of land and the buildings on it are one of the most obvious examples of land related taxes. Their effects on land use are subject to controversy, but are likely to be small.[2] Given the close association of property taxes with land, this result may be surprising. It can be explained by two countervailing effects of property taxes on land use. First, property taxes make it costlier for landowners to increase the density of buildings. Per square metre of floor space, small single or double storey buildings are cheaper to construct than larger buildings that use land more efficiently. Thus, lower property taxes need to be paid on them, which encourages low density development and horizontal expansion of cities (Brueckner and Kim, 2003). At the same time, property taxes make housing floor space more expensive, which makes households use less housing. If the ratio of land relative to dwelling size remains constant, this reduces land consumption and contributes to more compact patterns of development (Song and Zenou, 2006). While both effects partly cancel each other out, it varies which effect dominates.

Different studies on the effect of property taxes on land use in different settings come to different conclusions. Haurin (1980) argues that the effect on density is ambiguous. Ihlanfeldt (1984) finds that higher property taxes increase dwelling size, which, if true, would contradict the theory outlined above. In contrast, Song and Zenou (2006) and Banzhaf and Lavery (2010) support the abovementioned theory, but come to different conclusions regarding the practical consequences. Song and Zenou (2006) find that higher property taxes are correlated to more compact development, whereas Banzhaf and Lavery (2010) come to the opposite conclusion. Studying land use in Pennsylvania, they find implicitly that property taxes lead in fact to more sprawl, which indicates that the first effect dominates the second. Likewise, Wassmer (2016) comes to a similar conclusion that higher property taxes increase sprawl.

Properly structured, the property tax can be an effective tool for sustainable land use[3]

While the literature finds mixed outcomes of property taxes, they can clearly facilitate sustainable land-use policies if they are well-structured (Blöchliger, 2015). For example, a pure land value tax that does not take the value of buildings into account can help contain urban sprawl and foster the densification of developed land instead of greenfield development. Land values are independent from what the land is used for. For example, the land of an empty brownfield site in a city centre has approximately the same value as the land under an adjacent skyscraper because the value of the skyscraper is not considered in the land value calculation. Under a land value tax both plots would be subject to the same taxes. It would be very expensive for the owner of the brownfield site to pay taxes on it without earning revenues from it. Thus, a land value tax provides strong incentives to develop urban brownfield sites. In contrast, under a general property tax that considers the value of the building and the land together, the owner of the brownfield site would have to pay much lower taxes than the owner of the plot with the skyscraper and consequently, would have fewer incentives to develop the land.

Alternately, specifically designed "green" property taxes (soil-sealing taxes, development charges, etc.) can increase the costs of specific aspects of land use that are particularly undesirable from a societal point of view. They create a mechanism through which landowners compensate the public for the costs that they impose on the public by developing land in particular ways. Since such a tax also makes it more costly for landowners to pursue specific forms of development, such development will occur less frequently. Expressed differently, green property taxes force landowners to (partly) internalise the externalities of developments.

Blöchliger (2015) offers an assessment of key policy issues that should be addressed in order to ensure that the property tax is used as an effective tool for sustainable land-use management:

- Property taxes have to be viewed in the context of other policy instruments to influence land use. This can include for example, land-use planning and transport policy that can also help internalise externalities related to urban sprawl. Other policy instruments will often have a much stronger impact on land use than the property tax, which is typically low. Moreover, while property taxes can have an overall impact on land-use patterns, they are too rough an instrument to ensure the protection of specific land plots or to foster specific land-use patterns, e.g. protecting certain natural amenities from development altogether. The property tax can, however, underpin land-use policies such as urban spatial planning or transport policy.

- The impact of property taxation on land use depends on design. A pure land tax increases the cost of hoarding land and provides incentives to put land to its most valuable use. Development becomes more attractive, particularly in areas where land values are high, such as around existing infrastructure. As such, a pure land tax fosters denser cities. As mentioned above, the effect of the traditional property tax (or two-tier tax) which covers both land and improvements is less clear-cut. On the one hand, if the tax is shifted onto consumers, house prices rise, increasing the demand for smaller housing units and thereby population density. On the other hand, the property tax can promote urban sprawl as it reduces the capital-land ratio and thereby the number of housing units per unit of land area and density.

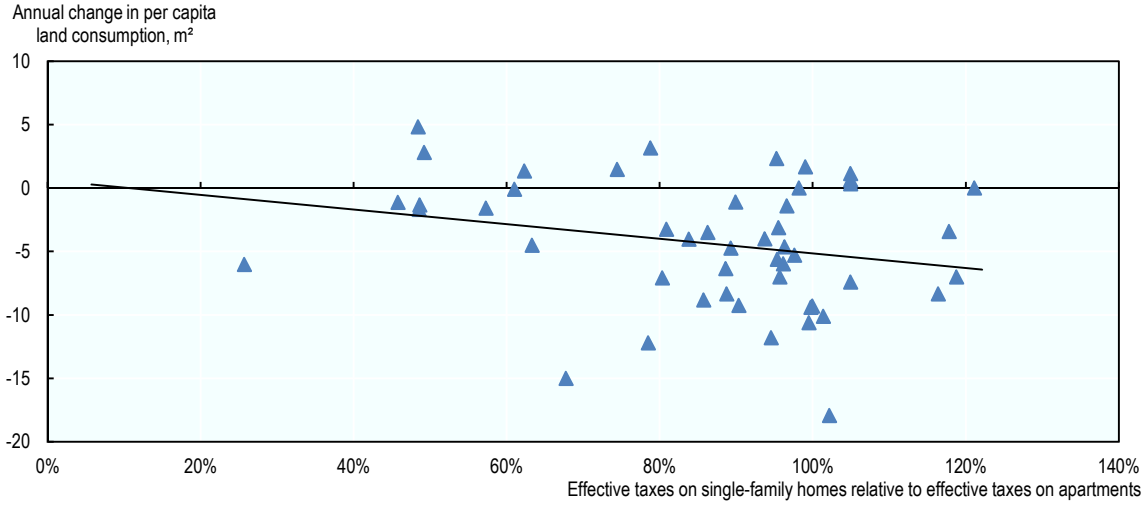
- Where land values are low, a tax on land area sets a stronger incentive to make efficient use of land than a tax on land value. A proposal being discussed in Germany is a land-use tax, which would differentiate land tax rates depending on how land is used and the associated environmental costs. Taxes on new developments – such as development or soil-sealing taxes – to internalise negative environmental externalities – are also being discussed. A tax on the welfare loss associated with the loss of open space due to development has been discussed in the Netherlands and the United States, although estimating the social value of open space is difficult.

- Property transaction taxes are bad for sustainable land use. They increase incentives to buy cheap land, which is generally farther away from city centres and transport infrastructure, and they discourage transactions that might help put land to a more efficient use. They also encourage the purchase of undeveloped land for new development at the expense of upgrading developed areas.

- Property taxes can create perverse incentives for local governments. Local governments might eye land development or re-zoning for purely fiscal reasons. They might even be tempted to increase revenues from environmental land taxes such as a soil-sealing or greenfield taxes, thereby undermining the original purpose of such taxes. Governments should tackle such perverse incentives through adequate land-use planning instruments: local governments should address local land-use externalities; and upper-level government should address externalities with a wider geographical reach.
- Property taxes can be redesigned to foster green investment. For example, local governments in the United States count numerous property tax incentives for raising energy efficiency and renewable energy use. The Czech Republic, Italy, Norway and Spain are further examples of countries that provide property tax relief for renewable energy installations. The efficiency and effectiveness of these property tax rebates would have to be weighed against their costs in terms of a narrower property tax base and less tax revenue. Studies assessing the efficiency of property tax relief to promote investments in energy efficiency and renewable energy are not available. It is difficult to assess whether property taxes in this context are more or less effective than other instruments to promote the same objectives.

Where differential property tax rates exist, they have an effect on land use. Figure 3.1 shows that US states that have a lower effective property tax rate on single-family homes compared to apartment buildings have experienced less pronounced declines in land consumption than states that tax single-family homes more strongly relative to apartment buildings. As can be seen from the figure, most states tax single-family homes at lower effective tax rates. If effective tax rates were adjusted to be identical for both types of dwellings, important incentives for more compact development would be provided.

Figure 3.1. **Property taxes on single-family homes relative to apartment buildings**



Source: OECD calculations based on Lincoln Institute of Land Policy (2016) *Significant features of the property tax*, http://datatoolkits.lincolninst.edu/subcenters/significant-features-property-tax (accessed 5 May, 2016).

Transport related fiscal instruments have important impacts on land use

Fiscal instruments related to transport have important consequences for land use. By making it cheaper or more expensive to use different modes of transport, they increase or decrease the costs of living in different locations and therefore encourage particular patterns of development.

Governments in all OECD countries use a variety of instruments to either tax or subsidise different modes of transport. Frequently, they tax specific aspects of a mode of transport. Most common are taxes on car-based transport. Among them are fuel taxes, congestion charges, road tolls, parking fees, and vehicle-based taxes. At the same time, car-based transport is subsidised using different instruments. Directly, it is subsidised for example through tax-deductions for commuting expenses, through tax-deductions for company cars (Harding, 2014) and through subsidies for the purchase of new or environmentally friendly cars[4]. Outside the OECD, subsidies for car use also include fuel subsidies in some countries. More importantly, governments all over the world affect the cost of car-transport indirectly by constructing road networks (Box 3.6).

Likewise, the costs of using public transport are strongly affected by fiscal instruments. Direct costs for using public transport are generally caused by fares (which may incorporate elements to steer demand, such as peak-time surcharges). Equally important are non-monetary costs, such as travel time and ease of travel, which greatly affect the attractiveness of public transport. Governments tend to subsidise public transport by providing funding for capital investments and for the operation of the network. On a smaller scale, governments may also provide more targeted subsidies for specific groups, for example by subsidising fares for children and the elderly and through tax deductibility of commuting expenses using public transport.

In general, fiscal instruments that reduce the costs of car-based transport encourage sprawl because they make it financially more attractive to travel long distances on a regular basis. Conversely, fiscal instruments that make car-use more expensive encourage more compact forms of development that reduce the need for driving by shortening the average trip length. Subsidies for public transport have more complex effects, depending on the characteristics of public transport networks. Whether they lead to a centralisation in the core of an urban area or to decentralised development along public transport corridors in the outer parts of an urban area depends on the how public transport networks are planned and built.

As Brueckner (2005) points out, under reasonable assumptions, net subsidies for road transport increase sprawl (defined as low-density development). They encourage individuals to travel larger distances and therefore facilitate less compact forms of development. When they are larger than subsidies for public transport – as is the case in many OECD countries (European Environment Agency, 2007) – they also encourage a shift from public transport to car use, which also encourages less compact forms of development. This is exacerbated by the fact that even in the absence of any subsidy the costs of car usage are not correctly priced because they do not cover negative externalities caused by driving (see Santos et al., 2010, for an overview). Glaeser and Kahn (2004) argue that the declining costs of car use have been the most important factor in fostering urban sprawl in the United States While other factors, such as low-density zoning, contributed, none was of similar importance.

The importance of transport costs for the emergence of sprawl suggests that fiscal instruments that increase the costs of car usage help to combat it. An increase in taxes on

car use would (at least partially) reverse the current situation in many OECD countries, where car users do not pay the full costs of driving including externalities. Furthermore, such a policy would not only help to achieve land-use objectives, it would also contribute to a variety of other important policy objectives such as reducing the immense costs of air pollution (OECD, 2016a).

Many fiscal policies to increase the costs of car use are under the responsibility of national governments. Important transport related taxes such as fuel taxes are usually determined nationally. While local governments can point out the importance of raising the costs of car use for achieving more compact forms of urban development, they cannot use these instruments directly. Thus, effective forms of co-operation across levels of government are required to use fuel taxes and other transport related taxes to steer land use.

Local governments can work towards local solutions using transport related fiscal incentives. Some cities within the OECD have enacted congestion charges that need to be paid when driving into city centres (e.g. Durham, London, Milan, and Stockholm). They generally increase the costs of car use in urban areas and thus foster compact development. Their characteristics vary to provide more targeted incentives. For example, they may increase during peak hours or exclude residents of central areas. While these schemes often face considerable resistance before their implementation, once introduced their popularity increases considerably (Börjesson et al., 2012). Often, changes to national legislation are required to allow local governments to introduce congestion charges. However, the examples of successfully implemented congestion charges show that national governments are frequently willing to grant the required authority to local governments if there is sufficient political will at the local level.

Parking fees are another transport-related fiscal instrument that has important consequences for land use. They matter especially at the local level because they are one of the few fiscal instruments related to transport that are under the control of local governments in many OECD countries. As discussed by Shoup (2005), free parking creates a variety of problems in cities. Valuable space in city centres is excessively used for parking since it does not cost anything for users. People are also more likely to drive around city centres in search for a parking spot, thereby increasing congestion. Shoup (2005) finds that in the Los Angeles neighbourhood of Westwood Village with roughly 50 000 inhabitants, this alone increases the annually driven distance by roughly 1.5 million kilometres. By charging for parking, demand for parking spots could be reduced to levels that ensure supply and demand are approximately equal and car users are able to find parking spots quickly without driving in search of them.

High demand for free parking also induces planners to allocate even more space to parking. Frequently, this is done through minimum parking requirements for new developments, which specify that a certain number of parking spaces have to be constructed together with each new development. Such requirements are inefficient because they subsidise parking even more and allocate valuable urban space to an activity that creates few marginal benefits. Instead, it would be more efficient to solve shortages of parking space by reducing demand for parking to more efficient levels through the introduction or increase of parking fees. Parking fees also affect the overall costs of driving into a city. As such, they can serve as a substitute for congestion charges in cases where local governments do not have the authority to raise congestion charges.

Box 3.6. **How government spending on transport affects land use**

Any analysis of the impact of fiscal and land-use policies on land-use patterns must be seen in the context of the suburbanisation phenomenon of the 20th century. During the last century, especially the second half, both the United States and Europe have suburbanised at a staggering pace. More recently, suburban development has also occurred at astonishing rates in several developing countries, such as China or India. Development patterns have been strongly affected by improvements in transport technologies (Glaeser and Kahn, 2004). The advent of the automobile has allowed millions of households to live further away from city centres. For businesses, road transport has also eliminated most of the advantages linked to the proximity to railways and ports, causing businesses to decentralise as well. In conjunction with rising incomes – which have also considerably increased the demand for suburban land (Margo 1992; Deng et al. 2008) – this has caused sprawling development in the outskirts of major agglomerations.

As previously mentioned, the sprawling development patterns observed during the last century can largely be attributed to a single cause: the advent of the automobile. Indeed, when considering a sample of 70 international cities Glaeser and Kahn (2004) find strong evidence that car ownership encourages sprawl. This is confirmed by the finding discussed in Chapter 4 of this report that per capita land consumption is higher in regions with higher car ownership. An important point in this context, however, is that advances in transport technology would not have increased peoples' mobility without governments' transport investments. Baum-Snow (2007) investigates the relationship between the observed population decline in US central cities between 1950 and 1990 and the construction of new limited access highways. His estimates suggest that inner city population decreases by about 18% due to the construction of a new highway passing through the city. Interestingly, Baum-Snow (2007) points out that this population decentralisation does not seem to be affected by jurisdictions' boundaries, suggesting that space – rather than political boundaries – is the crucial factor influencing land-use patterns. Nevertheless, Baum-Snow (2007) recognises that geographic distance may interact with Tiebout sorting mechanisms in shaping development. Duranton and Turner (2012) tackle a complementary question, namely the impact of highway construction on the distribution of employment across – rather than within – US cities between 1983 and 2003. Their key finding is that a 10% increase in a city's highway stock increases its employment by about 1.5% over the considered period. Their findings hold an important lesson. Policy makers planning new highway construction ought to take into account the increase in the demand of public services resulting from the increase in population.

But what about the effects of improving the transport infrastructure – both of roads and railways – on land-use patterns? By analysing transport and land-use data from the Barcelona metropolitan area between 1991 and 2006, Garcia-López (2012) finds that transport improvements not only cause suburbanisation, but also affect residential choices of individuals living in the inner city. These two distinct effects occur because by improving the accessibility to the highway system, suburban areas are able to attract new residents, and, because (inner) city inhabitants tend to live near railroad stations. Garcia-López, Holl and Viladecans-Marsal (2015) provide evidence on the impact of highways on land-use patterns of Spanish cities between 1960 and 2011. Focusing on population changes in both central cities and suburban areas, they find that i) highways emanating from central cities reduced central city population by about 8-9%, ii) suburban areas located in the proximity of highway ramps were subject to a 20% population growth over the considered period, iii) the population growth of suburban areas is more pronounced for municipalities that are more distant to the central city, and iv) population density of suburban municipalities grew by 8% for each additional kilometre of being closer to the nearest highway ramp.

Box 3.6. **How government spending on transport affects land use** *(continued)*

Similar development patterns resulting from the structure of the transport network are observed for Chinese cities. Baum-Snow et al. (2015) find that since 1990 about 4% of the population of Chinese cities has been displaced to surrounding regions for each single radial highway passing through the city. The displacement effect is even bigger for ring roads around the city, which are found to displace an additional 20%. Interestingly, Baum-Snow et al. (2015) also consider the effect of both highway and railroad networks on the location decisions of the service and industrial sectors. They conclude that the effect of the transport network is to decentralise employment. Finally, Deng et al. (2008) provide empirical evidence suggesting that highway density led Chinese cities to spatially expand between late 1980 and 2000.

While transport networks are shown to play a major role in the location decisions of households there is little research that links transport networks to local fiscal and land-use policies, and to development patterns (beyond simple density). Two exceptions are Garcia-López Solé-Ollé and Viladecans-Marsal (2015) and Garcia-López (2016). Garcia-López, Solé-Ollé and Viladecans-Marsal (2015) investigated Spanish municipalities that gained access to a new highway between 1995 and 2007. Their results indicate that municipalities did substantially increase the amount of land zoned for development and that this increase was larger in high-demand places, not subject to major geographical constraints, and where new development was aligned with the interests of the municipality. They conclude that zoning follows market forces in line with earlier findings for the United States (Wallace 1988; Evenson and Wheaton 2003). A closer look at the link between highway construction and development patterns is provided by Garcia-López (2016), who investigated the impact of the stock of highways on urban sprawl. By measuring sprawl according to the Burchfield et al. (2006) index, he analysed development patterns of European cities between 1990 and 2012. He found that a 10% increase in the highway stock leads to a 0.4-0.8% increase in residential land area and a 0.7-1.2% growth in the share of undeveloped land surrounding a residential parcel.

Sources: Baum-Snow, N. (2007), "Did Highways Cause Suburbanization?", *Quarterly Journal of Economics*, Vol. 122(2), pp. 775-805; Burchfield, M., H.G. Overman, D. Puga and M.A. Turner (2006), "Causes of sprawl: A portrait from space", *Quarterly Journal of Economics,* Vol. 121(2), pp. 587-632; Deng, X., J. Huang, S. Rozelle and E. Uchida (2008), "Growth, population and industrialization, and urban land expansion of China", *Journal of Urban Economics*, Vol. 63(1), pp. 96-115; Duranton, G. and M.A. Turner (2012), "Urban Growth and Transport", *Review of Economic Studies,* Vol. 79, pp. 1 407-1 440; Evenson, B. and W. Wheaton (2003), "Local Variation in Land Use Regulation", *Brookings Wharton Papers on Urban Affairs*, pp. 221-260; Garcia-López, M-A, A. Holl and E.Viladecans-Marsal (2015), "Suburbanization and highways in Spain when the Romans and the Bourbons still shape its cities", *Journal of Urban Economics*, Vol. 85, pp. 52-67; Garcia-López, M-A, A. Solé-Ollé, and E. Viladecans-Marsal (2015), "Does zoning follow highways?" *Regional Science and Urban Economic,*. Vol. 53(c), pp. 148-155; Garcia-López, M-A. (2016), *All roads lead to Rome... and to sprawl? Evidence from European cities*, Universitat Autonoma de Barcelona and Institut d'Economia de Barcelona, mimeo; Garcia-López, M-A. (2012), "Urban spatial structure, suburbanization and transport in Barcelona", *Journal of Urban Economics*, Vol. 72(2–3), pp. 176-190;. Glaeser, E.L., and M.E. Kahn (2004), "Sprawl and urban growth", *Handbook of regional and urban economics*, Vol. 4, pp. 2 481-2 527; Margo, R.A. (1992), "Explaining the postwar suburbanization of population in the United States: The role of income", *Journal of Urban Economics,* Vol. 31(3), pp. 301-310; Wallace, N.E. (1988), "The Market Effects of Zoning Undeveloped Land: Does Zoning Follow the Market?", *Journal of Urban Economics*, Vol. 23, pp. 307-326.

Agricultural subsidies and land use

Across OECD countries, agriculture is the most common land use. While the total stock of farmland is declining, however, this decline is slower than might be expected given the persistent low levels of return available to farmers operating in more remote areas that are less favourable for agriculture (OECD, 2009: 13). This suggests that while market forces are important in defining land use, there are other forces at work as well. In

particular, agricultural policies that provide direct and indirect subsidies to farmers are likely to keep land in agricultural use that would otherwise lie fallow or be converted to other uses, such as forestry (Renwick et al., 2013).

Across the OECD, governments provide support to agriculture in a number of ways. There are policies that provide direct support to producers, transfers to consumers (e.g. food subsidies) and general services to the agricultural sector such as support for research and development. The percentage of these three types of support was approximately 0.7% of GDP in 2013-15 across all OECD countries; which represents a decline from 1.5% of the total GDP in 1995-97 (OECD, 2016d). The types of support that likely have the most direct impact on land uses are those that provide direct support to farmers. This can, for example, encourage forms of agriculture that would otherwise not be profitable or likewise encourage agricultural activities in a specific territory.

Agricultural support can also be structured in such a way as to encourage specific land-use practices that enhance biodiversity or that manage the land scape and reduce soil erosion (Mattison and Norris, 2005). For example, in Iceland, sheep grazing has led to soil erosion. Sheep farmers received significant agricultural subsidies which, in essence, intensified this effect. In recognition of this, the government has tied agricultural subsidies to "quality management", including sustainable land-use practices. This reorientation of the subsidy was found to have a significant impact on land-use practices related to animal husbandry (Arnalds and Barkarson, 2003).

In general, there has been a shift away from producer-linked support in OECD countries towards various types of payments which are frequently linked to land use (OECD, 2009). For example, use-value tax assessments, discussed in the following section, provide a tax rebate for individuals engaged in farming. These types of payments tend to encourage agriculture in places where such land uses face pressures for conversion, or are used to maintain pastoral landscapes.

Fiscal instruments primarily used to target land use

The preceding section has considered taxes that are not commonly used to shape land use, but that may have important effects on it and that can be used to govern land use more effectively. In contrast, this section focuses on fiscal instruments that are primarily used with the purpose of affecting land use. Conceptually, many of the instruments discussed are not different from the taxes discussed in the previous section. They provide incentives to individuals and businesses that encourage or discourage particular uses of land. The main difference to the previously discussed instruments is their narrower scope and their obvious relation to land use. They are not necessarily more effective in shaping land use than the previously discussed instruments. They can complement an effective fiscal framework for shaping land use, but on their own are not sufficient to provide it.

A wide range of policy instruments are applied to control, regulate and stimulate desired development outcomes in OECD countries. Many fiscal instruments operate as taxes and exactions levied on developers to raise revenues and mitigate the negative impacts of development. This section highlights some of the most common tools: brownfield redevelopment incentives, historic rehabilitation tax credits, transfer of development rights, use-value tax assessments, development impact fees and betterment levies (Table 3.2).

Table 3.2. **Fiscal instruments to manage development**

Type	Mechanism	Revenue raising	Spatial goals/outcomes
Brownfield redevelopment incentives	Subsidy or grant	No, acts as a grant or subsidy	Creates incentives to develop brownfield sites – and in turn, preserve greenfield ones
Historic rehabilitation tax credits	Tax credit	No, acts as a subsidy	Preserves buildings/neighbourhoods with historical and cultural value
Transfer of Development Rights	Market based incentive programme	No, but can be revenue neutral	Preserves open spaces and limits density in underserviced/peripheral areas; increases density in well serviced ones (i.e. limit sprawl and preserve open space); typically combined with density bonusing
Use-value tax assessment	Lower tax assessment on desired uses; higher tax assessment on undesired uses	Depends	Generally used to preserve farmland; can in principle be used to encourage any type of land use
Development impact fees	Fees paid by developers for new developments where infrastructure needs to be extended	Yes, to pay for costs of new developments	Makes developers pay to the costs that their developments create for the public; evidence that this reduces the rate of new developments in a territory
Betterment levies	Captures the increase in property values due to a public action through taxes or fees	Yes	Fiscal mechanism that can support the development of new public infrastructure and amenities

Source: Own elaboration.

Brownfield redevelopment incentives

Brownfields – lands that have previously been used for industrial purposes or some commercial purposes – can pose a great challenge for urban development. Such sites, which in many cities are located in prime, central locations, have a great deal of potential to be remade into more productive uses. Their redevelopment is important for a number of reasons. Unsightly vacant industrial properties can detract from a city's liveability, negatively affect real estate prices and pose safety concerns to those who trespass. This can create dead zones in a community and reinforce the feeling of neighbourhood neglect and decline. Perhaps most importantly they are a valuable source of land whose use can in turn reduce the consumption of greenfield sites that are typically located further afield in suburban and peri-urban areas and pose increased transport and infrastructure costs. Brownfield sites can be transformed into viable new spaces that provide critical functions such as parks, housing and commercial spaces. Their redevelopment contributes towards regenerating areas experiencing decline and provide many benefits including averting unsustainable urban expansion, increased asset value of the site and the surrounding sites, increased tax base, increased employment, environmental protection and effective use of existing infrastructure (Silva and Acheampong, 2015; De Sousa, 2006). But, brownfield redevelopment generally comes at a higher cost than that of greenfield sites due to the presence of existing structures, the need for soil remediation, higher land costs and complex ownership rights. Because of this, zoning permissions, including provisions for mixed functions or higher densities, often cannot offset the costs of redevelopment. Other incentives are added in order to make this a viable option for private developers to take on.

A study by Alberini et al. (2005) explored the impact of economic incentives for brownfield redevelopments versus liability relief or regulatory relief (such as fast track planning approval processes). Their study, which was based on a survey of real estate developers in Europe, found that economic incentives, such as subsidies or tax rebates, can provide an important inducement to development of brownfield sites, particularly for experienced developers in the case of contaminated sites. Echoing this, in a review of brownfield policies in select European states, Thornton et al. (2007) find fiscal incentives, entailing either direct (e.g. tax incentives) or indirect forms of funding (e.g. structural policy, public credit programmes, or pilot projects) are important inducements for brownfield redevelopment – particularly in the cases of the most complex and contaminated types of sites.

Such financial incentives can be set at national, regional or local levels. For example, in the United States, a federal brownfield tax incentive was introduced in 1997 which entailed fully tax deductible environmental clean-up costs, including petroleum clean-up.[5] This programme was ended in 2011. Meanwhile, examples from cities abound – for instance, New York City offers grants to property owners and developers to clean up and redevelop brownfields. Critically, these incentives do not extract value from urban development, but rather, provide a subsidy to developers undertaking desirable behaviours that will presumably benefit the community as a whole by revitalising unused spaces. It bears noting that property and landowners in the immediate vicinity of such revitalised sites stand to financially benefit through higher property prices due to the presumed effects of neighbourhood revitalisation, which can be significant (De Sousa, Wu and Westphal, 2009). If brownfield redevelopment has strong positive effects on property prices in the neighbourhood, it is possible to finance redevelopment incentives through value capture instruments, such as betterment levies.

Historic rehabilitation tax credits

Historical rehabilitation tax credits are widely used across the OECD to encourage the perseveration of historic structures. They affect land use by maintaining historically established uses and densities. Like brownfield redevelopment incentives, they do not generate income but rather provide a subsidy for private individuals to undertake desired rehabilitation projects. Box 3.7 summarises some select examples of how these have been structured in OECD countries.

There is an ongoing debate in the literature regarding the equity of historic rehabilitation tax credits. While the residents or developers who privately benefit from these credits contribute to the maintenance of a community's cultural and architectural heritage, others maintain that such taxes lead to rent-seeking behaviour and the listing of unworthy projects as heritage sites (Swaim, 2003).

Box 3.7. **Examples of historic rehabilitation projects supported by tax credits**

- In the United States, current tax incentives for preservation, established by the Tax Reform Act of 1986 (PL 99-514; Internal Revenue Code Section 47) include a 20% tax credit for the rehabilitation of certified historic structures and a 10% tax credit for the rehabilitation of non-historic, non-residential buildings built before 1936.
- In the Brussels Capital Region of Belgium, under the Ordinance on the Conservation of the Built Heritage adopted in 1993, heritage property owners are offered basic incentives: income from unlet listed property is exempt from property tax, listed property located in and willed to the region is exempt from inheritance tax, while owners of listed buildings who open their properties to the public can deduct certain maintenance costs from their income taxes.
- A portion of building repair costs can be deducted from income earned on heritage buildings in Denmark. Owners of listed buildings are also entitled to grants compensating them for maintenance and repair expenses exceeding the "normal" costs associated with non-listed buildings; a building's rate of "decay per year" is used to calculate the value of its grant, ranging from 20-50% of the repair costs (McCleary, 2005).
- In France, registered or listed historic monuments that are open to the public can deduct 100% of their expenses, while such properties not open to the public can deduct 50%.
- In Germany, owners of non-income producing protected buildings may deduct all their eligible maintenance and rehabilitation expenses from their taxable income over a period of ten years, at a maximum rate of 10% per year.
- In Japan, tax concessions to finance private historic preservation are enmeshed in a highly complex set of rules, conditions, qualifications, and exceptions; most of the benefits relate to the transfer of money and property earmarked for preservation, or the regular duties associated with property ownership rather than deductions or credits based on rehabilitation projects (McCleary, 2005).
- Property given or bequeathed to an eligible nature-conservation organisation has been exempt from capital gains tax in Australia since 2000.
- Heritage properties are completely exempted from property taxes in Turkey.

Source: Silva, E. and R. Acheampong (2015), "Developing an Inventory and Typology of Land-Use Planning Systems and Policy Instruments in OECD Countries", *OECD Environment Working Papers*, No. 94, http://dx.doi.org/10.1787/5jrp6wgxp09s-en; McCleary, R.L. (2005), "Financial incentives for historic preservation: An international view", Masters of Science dissertation, University of Pennsylvania.

Transfer of Development Rights

Transfer of Development Rights (TDR) emerged in the 1960s as a tool for historic preservation – but their use has since proliferated, particularly in the United States, to address a wide range of planning goals, including the promotion of affordable housing and the protection of environmental resources (Linkous, 2016). TDRs are a market-based incentive programme that are generally structured so that landowners forfeit development rights in areas targeted for preservation and then sell those development rights to buyers who want to increase the density of development in areas designated as growth areas by local authorities (Nelson et al., 2013. As such, they are a useful tool that can be used to steer development away from undesirable areas, such as areas that are poorly linked to

infrastructure, transport and that lack services, and towards areas where these features exist. Similarly, they can be used to preserve natural open spaces, maintain historical and cultural assets, farmland and other local assets (Nelson et al., 2013).

Simply put, TDRs transfer development potential, such as the density, from an area that is to be preserved to an area where there will be clustered development. If this is done as a one to one transfer, the average density of an urban area will not change, but it will be redistributed such that some areas can be maintained as open natural space for example. In receiving areas – to which the density rights are being transferred – developers are generally permitted to exceed the baseline level of development determined by the zoning code, which would generally require community buy-in (Nelson et al., 2013. Therefore, TDRs are often combined with density bonuses in order to create the incentives for developers to buy the development rights in the first place (Tavares, 2003). As far back as 1916, New York City's zoning code made provision of the transfer of development rights between properties. While increasingly prevalent in the United States, TDR programmes also exist in other OECD countries such as New Zealand, France, Italy, and Turkey (Silva and Acheampong, 2015). Silva and Acheampong (2015) note that legal issues and administrative complexity represent some of the key challenges confronting its application in other countries.

Use-value tax assessment

Use-value tax assessments are a specific type of targeted property taxes that were discussed in the previous section. They follow the same logic as TDRs – they provide an incentive to landowners to maintain and preserve land in its current state as opposed to selling it for new development. Typically use-value assessments are structured for farmland preservation or the preservation of forested lands. They can be a particularly important incentive in areas near urban centers that have strong pressures for expansionary growth leading to suburbanisation and peri-urbanisation. Use-value tax assessments tax agricultural or forested land use at a lower rate than other uses in order to reduce the incentives to develop (Anderson and Griffing, 2000).

In Japan, some metropolitan areas including Tokyo levy lower property taxes on land designated for agricultural uses (OECD/China Development Research Foundation, 2010). In the United States, use-value assessments typically require that the owners of the land are actively engaged in farming and have rollback provisions to recover lost tax revenues if the land is developed (Heimlich, 2001). However, Anderson and England (2014) provide a comprehensive analysis of use-value assessment in the United States and argue that it may lead to mis-designation of land as agricultural in order to reduce taxes. Germany also levies lower property taxes on agricultural land than on developed land, but the effects remain limited as all property taxes are generally very low.

Development impact fees

Typically, development impact fees have to be paid by landowners for the construction of infrastructure, which directly services their plots. They are often charged when land is initially developed, but may also be charged when infrastructure is upgraded or significantly rehabilitated. Impact fees cover additional costs arising from the arrival of new residents and are usually paid by real estate developers, who in exchange obtain the permission to develop. Development impact fees may focus narrowly on the costs of infrastructure provision in the immediate vicinity of developments, but may also include

costs for infrastructure at greater distances of a development. They are relatively common instrument that exist in 17 OECD member countries (OECD, 2017c).

Development impact fees force developers to bear parts of the cost of new construction. As development becomes more expensive, urban expansion slows down. Burge and Ihlanfeldt (2006a) show that impact fees spur the development of smaller homes in inner-suburban areas and of medium and large homes throughout all the suburban areas. The authors attribute the increased construction in inner-suburban areas to new multi-family houses being built. This is supported by another study that finds evidence that impact fees reduce the spatial extent of US urbanised areas (Geshkov and De Salvo, 2012)

Betterment levies

Betterment levies (sometimes called special assessments) are also charged to capture the increase in property values due to a public action, such as the rezoning of land or the provision of infrastructure. In contrast to impact fees, which are generally related to the provision of infrastructure that services a particular property, betterment levies are more broadly defined and can also capture the windfall gain that occurs from the rezoning of a plot or the provision of a public service to an area. Furthermore, they can be charged over larger areas to capture the increase in property values in an entire neighbourhood that benefits from a new public transport connection. Whereas impact fees are charged at the time development occurs, betterment levies can be charged at any point in time at which a public action causes an increase in property values.

Despite the conceptual differences between impact fees and betterment levies, in practice they may not be clearly distinguishable. In Germany, impact fees can, for example, be charged to entire neighbourhoods that benefited from rehabilitation measures that are not necessarily related to particular plots. As such, these fees have characteristics that are in many respects similar to betterment levies.

Aligning fiscal policies to spatial planning objectives

The fiscal tools described in this chapter affect land use either intentionally or unintentionally through the incentives they provide for individuals and businesses. A critical issue for public policy is to make the best use of those fiscal instruments that intentionally shape how land is used, but to also pay closer attention to the fiscal policies that unintentionally impact spatial outcomes. As discussed above, in many instances fiscal policies that currently impact land use unintentionally can be used to steer land use actively and broaden the set of instruments available to govern land use.

In practice, not all fiscal instruments that have an influence on land use can be used to actively steer it. Many fiscal instruments are designed to achieve other policy objectives, which limits their flexibility. In other cases, it may not be politically feasible to use a potentially effective instrument, for example because it would be too unpopular. Better horizontal policy co-ordination and the consideration of land-use objectives at an early stage of the policy making process can help to increase the number of fiscal instruments that can be used for land-use governance.

If it is not possible to use a particular fiscal instrument to steer land use, at a minimum it is important to ensure that the fiscal instrument does not provide incentives that contradict land-use objectives. This can be illustrated using some of the previously discussed instruments. The OECD recommends abolishing the tax deductibility of

commuting entirely (OECD, 2013). If this is not possible, it should at least be ensured that deductions for car-based commuting (which particularly encourages sprawl) are not greater than deductions for commuting with public transport. Likewise, subsidies for private homeownership are likely to encourage sprawl (Glaeser, 2011). Thus, from a land-use perspective it would be desirable to abolish them. However, as many countries have the policy objective to increase home ownership rates, this may not be possible. In these instances, it should at least be ensured that subsidies cover all types of housing (including multi-family homes) rather than only single-family homes (which are particularly low-density).

Incentive-based land-use policies require greater monitoring and evaluation

A shift to more incentive-based land-use policies will necessarily involve greater uncertainties. Compared to traditional land-use planning, they imply that governments have less influence over what is happening in a particular spot in favour of steering general patterns more effectively. In other words, the use of fiscal instruments to steer land use can result in land patterns that are more desirable but at the same time less predictable. Furthermore, fiscal instruments are generally indirect instruments. By using them, governments do not affect land use directly but encourage private actors to use land differently. As a consequence, the impact of fiscal instruments is never completely predictable *a priori*. It depends on a large set of factors that cannot all be taken into account theoretically. While a policy might be highly effective in one setting, it might fail to achieve its objective in another setting.

In light of the increasing uncertainty, it is important to monitor and evaluate the impact of fiscal instruments on land use regularly and adapt if necessary. Land-use policies – just as any other policy – may not achieve their objectives or alternatively, they may overshoot and induce behavioural changes that are greater than desired. In both cases, it would be necessary to react quickly. Such a quick reaction is only possible if the impacts of a policy are known in a timely fashion. Thus, regular monitoring and evaluation is required.

More systematic monitoring of the effectiveness of land-use policies is especially important because traditional spatial planning and land-use planning are often not effective in achieving their objective. Authors at different times and in different contexts have argued that land-use policies do not achieve their objectives (e.g. Hall, 1974, Healy, 1988, and more recently Akashi, 2014, Abis and Garau, 2016 and Llausàs, Buxton and Beilin, 2016). In order to better understand why some land-use planning instruments are ineffective, monitoring and evaluations are necessary. They are the most important steps to obtain a better understanding of what works and what does not work.

Despite the frequent failure to achieve land-use objectives, monitoring and evaluations of the effectiveness of land-use policies is regrettably rare (Brody and Highfield, 2005, Nadin, 2007). Not only are systematic evaluations of land-use policies lacking, knowledge about evaluation practices itself is rare (Oliveira and Pinho, 2010). If policies are not monitored and evaluated to see whether they achieve their objectives, it is nearly impossible to identify elements that work well and elements that do not work well. While a detailed discussion of monitoring and evaluation of policy outcomes is beyond the scope of this report, further information can be found for example in Schumann (2016).

Monitoring and evaluating land-use policies is particularly difficult because available data on land use and land-use regulations is scarce. Virtually no representative data exists

on how land is regulated and especially on how restrictively it is regulated. Two aspects make the collection of such data very difficult. First, land-use regulation is to a large degree a local responsibility, which implies that any information on it is decentralised. Second, the restrictiveness of land-use regulations is place-dependent. Identical land-use regulations that are highly restrictive in one place, may be non-binding in another place. Land cover data exists, but has generally very coarse resolution and becomes available only with large time lags (see Chapter 4 of this report and for more details OECD, 2016b). A more detailed and up-to-date data basis on land use is a precondition for effective monitoring and evaluation of land-use policies. In this context, the new Global Human Settlement Layer prepared by the European Commission is a step in the right direction.[6]

Notes

1 See for example, Brueckner (1998), Wilson (1999), Brueckner (2003) and Blöchliger and Pinero Campos (2011) for a review of the empirical and theoretical work related to tax competition and strategic behaviour of jurisdictions. It bears noting that the empirical literature in this area is scarce in comparison to the theoretical one. During the last decade, in particular, there has been "disaffection" from empiricists interested in evaluating the causal impact of strategic behaviours, as the limits of spatial econometric techniques have been recognised. See Revelli (2015) for a review.

2 See Ihlanfeldt (1984) for an early review of the different theories describing the effects of property taxation.

3 This section has summarised the work of: Blöchliger, H. (2015), "Reforming the Tax on Immovable Property: Taking Care of the Unloved", *OECD Economics Department Working Papers*, No. 1205, http://dx.doi.org/10.1787/5js30tw0n7kg-en, pp. 16-18.

4. In the aftermath of the financial crisis, several OECD countries subsidised the purchase of a new car as a means to stimulate the economy. Many OECD countries also subsidise the purchase of environmentally friendly cars, such as electric cars.

5 See: US Environmental Protection Agency (2016), *Brownfields Tax Incentive*, www.epa.gov/brownfields/brownfields-tax-incentive (accessed 7 December 2016).

6 See: European Commission (2016), *Global Human Settlement*, http://ghslsys.jrc.ec.europa.eu/ (accessed 7 December 2016).

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CHAPTER 4

A SNAPSHOT OF LAND USE ACROSS OECD COUNTRIES

This chapter provides an overview of major trends and developments related to actual land use in Europe, Japan and the United States. It is based on statistical analyses of land cover data for the three geographical areas covering approximately the time period 2000-12. It highlights that developed land makes up only a small part of the total land mass of all analysed countries. The area of developed land has been growing in all countries, but often the growth rate of developed land has been below the population growth rate, implying that land use on a per capita basis has become more sparing. More compact patterns of development are associated with positive outcomes along several dimensions. In particular, they are correlated with higher rates of economic growth and lower levels of air pollution

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Introduction

The previous chapters have discussed how policies affect land use and how they interact with other factors that determine land use. This chapter describes changes in land use and land cover in 27 OECD countries since 2000 and analyses how they are related to other developments, such as demographic and socio-economic developments.

The primary source of information used for the subsequent analysis is land cover data derived from satellite images. The most important advantage of this data is its ability to provide an objective overview of land cover of large parts of the OECD. It can show the extent to which land is developed, used for agriculture or covered by other surfaces such as forests. To a lesser degree, land cover data can also provide information about the density with which land is developed. This information is sufficient to identify and describe major trends concerning land use that are relevant for policy makers, such as the degree to which cities become more or less compact or whether agricultural land is lost to other uses.

Land cover data provides valuable information, but it cannot answer all relevant questions about land use. Most importantly, it cannot provide qualitative information about land use and land cover. For example, it cannot show whether town centres are attractive places or whether transport networks function effectively. Furthermore, there are limits to the statistical analysis. The analysis below provides correlations and provides indications that causal relations underlie the observed correlations whenever possible. However, it cannot establish causal relationships with certainty. The reader should keep the mantra "correlation does not imply causation" in mind when reading this chapter.

The chapter is structured as follows. First, the data sources used for the analysis are described. Second, an overview of land cover in 27 OECD countries is provided, showing how land cover differs between urban, rural and intermediate regions and how it is influenced by demographic factors. It also describes the complex relationship between land use and economic growth. Lastly, it provides evidence that more compact forms of development can have positive effects, for example on air pollution, but also that restrictions on the development of land can lead to higher housing costs. The third section focuses exclusively on land cover in urban areas. It shows that even within urban areas, much land remains undeveloped. Furthermore, it presents evidence that little densification has taken place in recent years and shows that urban areas that are fragmented into many local governments tend to be more sprawling. Box 4.1 presents an overview of the key findings that are discussed in the chapter.

Box 4.1. **Key findings presented in this chapter**

This chapter presents the following key findings:

- Developed land covers less than 10% of the landmass of most OECD countries. Even in functional urban areas less than 20% of the total area is typically covered by developed land.
- In all countries, developed land has been growing, but often the growth rate of developed land has been outpaced by the population growth rate. As a consequence, the per capita area of developed land has declined in 12 out of 28 OECD countries.
- Rates of change for other land uses tend to be smaller, except for a few countries where the area of forested land has declined considerably (in particular Portugal and to a lesser degree the United States and the Slovak Republic).
- On a per capita basis, land is used more sparingly the more densely populated a region is. On average, 0.25% less developed land is used per capita in regions that have a 1% higher population density.
- Demographic trends strongly affect land use. While the area of developed land increases if the population of a region grows, it rarely decreases if the population of a region shrinks.
- Regions with more compact patterns of development have higher economic growth. Regions that use 10% less developed land per capita had a 0.3 percentage point higher rate of per capita GDP growth between 2000 and 2012.
- The more developed land per capita is used (i.e. the less compact development is) the higher is car ownership and use, which in turn increases air pollution. Regions where 10% more developed land is used on a per capita basis have a 2.5% higher concentration of harmful air pollutants.
- Restrictions to land use increase housing costs if they make it impossible to build sufficient housing for growing populations. Based on a limited sample of regions for which data is available, household spending on housing is approximately 1% lower in regions that have 10% more developed land per capita. The direct influence on house prices seems even more pronounced. Based on a 15-country sample, countries that experienced a 1% decline in developed land per capita experienced a 2.3% increase in house prices.
- Little physical densification of the building stock has been occurring in OECD countries. The density of the building stock in many cities still reflects a time when they had a much lower population. Barriers to densification can be an important driver of rising housing costs.
- Densities within the cores of different functional urban areas are much more similar than densities in the commuting zones of different functional urban areas. The large variation in density in commuting zones suggests that policy decisions play an especially important role in determining densities in commuting zones.
- The commuting zones of urban areas continue to grow faster in population than the urban cores. However, commuting zones are also becoming more compact as the area of developed land in commuting zones grows slower than population.
- Urban areas that have metropolitan authorities experience lower growth rates of developed land per capita. Such authorities appear effective solutions to overcome co-ordination problems between local governments in metropolitan areas.

Data

This chapter draws on different data sources that are described below. The primary data source has been land cover data that has been further processed and analysed. Other data sources include information from the OECD Land-Use Governance Survey that is described in depth in OECD (2017a) and data from the OECD Regional Database (2016a, available at www.stats.oecd.org) and the OECD Fiscal Decentralisation Database (2016b, available at www.oecd.org/tax/fiscal-decentralisation-database.htm). Furthermore, the chapter uses data on effective property tax rates in US states that has kindly been provided by the Lincoln Institute for Land Policy.

Data on land cover

Three different data sources have been used to obtain land cover data for Europe, Japan and the United States, respectively. For Europe, the *Corine Land Cover database* (see European Environment Agency, 2012) and for the United States, *National Land Cover Database* (see Homer et al., 2015) provide the most comprehensive source of land cover information. Both datasets have been derived from satellite images. In the case of the European Corine Land Cover data, satellite images have been analysed by humans and areas were classified using auxiliary datasets such as detailed maps and ground photography. In contrast, the US National Land Cover Database has been generated directly from the satellite images using algorithms without direct human input. The resolution of US data is higher than the resolution of European data. In the National Land Cover Database, the smallest areas shown are 30 metres by 30 metres. In Corine Land Cover data, areas must be at least 100 metres wide and cover at least 50 000 square metres to be shown. Areas that are smaller than these thresholds are not visible. This means, for example, that small and mid-sized roads do not appear in either the US or the European data. In Europe, even larger features are not visible.

The resolution limits the precision of both datasets, in particular in the case of the Corine Land Cover data. The European Environment Agency (2016) argues, for example, that Corine Land Cover data tends to overestimate the extent of urban areas because it does not show undeveloped land between scattered areas of developed land. However, in other areas the extent of developed land may be underestimated because features such as small and mid-sized roads and isolated buildings are too small to appear in images with a resolution that can be provided by satellite data. Furthermore, some errors may be introduced through misclassification of land, either by human interpreters of satellite images or by automatic algorithms.

Due to fundamental differences in the underlying methodology used to convert satellite imagery into land cover information, data from the two different sources is not comparable with each other (see Diogo, V. and E. Koomen, 2016 and OECD, 2017b for a more detailed discussion of these issues). In other words, the land cover information presented in this report can be used to compare one European country with another European country or to compare one US state with another US state. However, it should not be used to compare land cover in the United States with land cover in Europe.

Despite these drawbacks the two datasets are the best available data sources on land cover because they offer a reasonably high degree of detail and precision,

provide information on all major land cover classes and show changes in land cover over time. No other data source and in particular no global data set meets these requirements (Diogo and Koomen, 2016).

Data for Japan has been provided by the Japanese government. It is based on annual land surveys conducted by governmental agencies. As it is survey based, it does not suffer from the drawbacks described above. Its accuracy depends entirely on the level of detail of the conducted surveys. Given that it is produced using a fundamentally different methodology, it should not be compared with data from the two other sources, either. For this report, aggregate data for the entire country has been provided by the Japanese government. Consequently, Japanese data is included in summary statistics at the country level, but not in subsequent analyses that require data at the level of individual regions or urban areas.

Land cover data is produced only infrequently due to the complex process of collecting and processing it. For Europe, data is available for 2000, 2006 and 2012. This report uses European data from 2000 and from 2012. For the United States the two most recent datasets refer to 2001 and 2011. For Japan, data is available for 2005 and 2015. All analyses below refer to the respective years. Whenever changes in land cover are analysed the average annual change between the two respective years is used.

In all land cover datasets, land cover is categorised into different classes. For the purpose of this report, the classes have been aggregated into three major classes; developed land, agricultural land and forests. The first class contains all artificial surfaces and includes also urban green spaces. The second category includes all forms of land used for agriculture, covering for example cropland and pastures. The third class covers all forms of forests.

Data on land-use governance systems

Data on land-use governance systems has been collected for 32 OECD member countries. The data collection was conducted through a questionnaire that was answered by one or more academic experts on spatial planning from each of the involved countries during 2015 and 2016. The questionnaire requested factual information on the structure of land-use governance systems as well as the expert's judgements on specific aspects of it. The questionnaire contained a mix of open and closed questions on varying topics such as the responsibilities of the different levels of (sub)national governments, the role and hierarchical structure of spatial plans, permitting mechanisms, the most important laws and regulations affecting land use, co-ordination mechanisms for land-use related policies, and property rights and expropriations.

Readers with further interests in land-use governance systems in OECD countries are referred to the companion publication of this report (OECD, 2017a). It presents and analyses the data on land-use governance systems in much greater detail and contains country profiles for 32 OECD member countries.

Tax data

Property tax rates are difficult to compare. In contrast to most other taxes, no common method to determine the tax base of property taxes exists. Even if two jurisdictions charge the same tax property tax rates, they may assess identical

properties at different valuations. For example, one jurisdiction may use the price of the property at its last sale, whereas another jurisdiction may use a formula based on the size of the property and an index of average property values. These methods may estimate fundamentally different values at which the properties are taxed. As a consequence, the effective tax payments on the properties would differ in the two jurisdictions despite their identical tax rates. This implies that property tax rates alone are no meaningful indicator of the tax burden on property. Only in combination with information on the assessment of the tax base can they provide information on the degree to which property is taxed. Of course, if the tax base is calculated identically across jurisdictions it is possible to compare property tax rates directly with each other. Thus, it is for example possible to compare property tax rates within US states, but not across states.

One of the rare sources of representative data on effective property tax rates (i.e. taking differences in the assessment of the tax base into account) is provided by the Lincoln Institute of Land Policy and Minnesota Center for Fiscal Excellence (2015). The publication calculates effective tax rates for different types of hypothetical properties in rural and urban locations for each of the 50 US states. It assumes residential, commercial and industrial properties at certain market values (e.g. USD 70 000, USD 150 000 and USD 300 000 for rural residential properties) and estimates how much tax would have to be paid on each of them. Based on the hypothetical tax payments, the effective property tax rate as a percentage of the true market value is calculated.

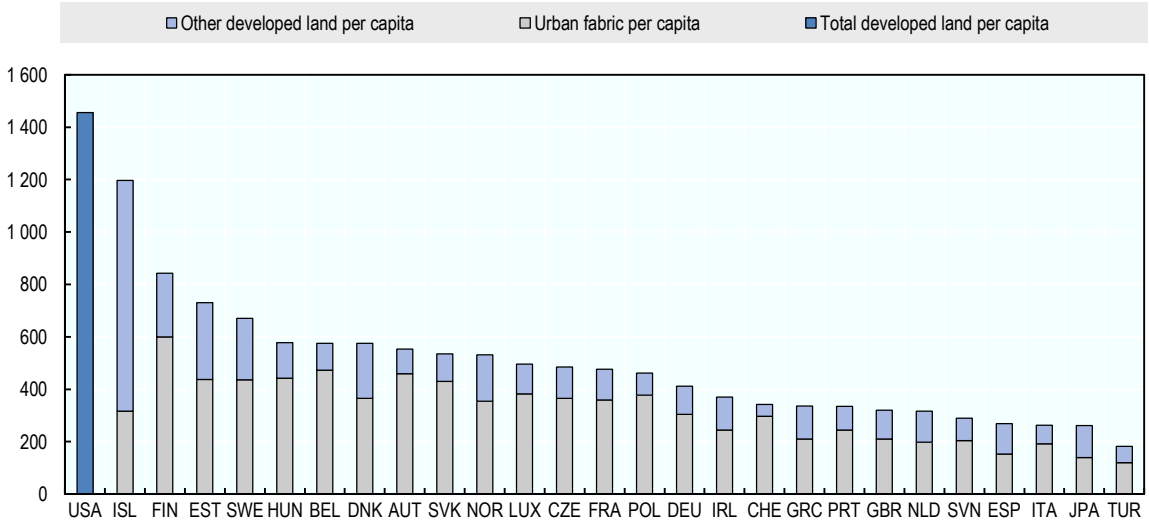
Land use and land cover

Overview – how land is developed across the OECD

Developed land (i.e. land covered by artificial surfaces) encompasses 204 593 square kilometres in the analysed European countries, 33 042 square kilometres in Japan and 454 033 square kilometres in the contiguous United States.[1] This corresponds to 4.0% of the analysed land mass in Europe, to 8.6% of the land mass in Japan and to 5.1% in the United States. On a per capita basis, this corresponds to 369 square metres of developed land per inhabitant in Europe, 261 square metres in Japan and 1 456 square metres in the United States. Most European countries have roughly similar land consumption per capita of between 300 square metres and 550 square metres, but some important outliers remain. At the lower end of the scale, Turkey uses only 182 square metres of developed land per capita, which is the lowest value of all analysed countries. At the upper end, Iceland tops the list of European countries with 1 197 square metres per capita. Obviously, the figures depend strongly on the geographical areas that are included in the analysis. For example, data for the United States excludes Alaska. If the state were included, the estimated share of developed land in the United States would be lower.

Figure 4.1 shows the per capita area of developed land by country. In European countries and in Japan, the data allows for a further breakdown into different categories of land. Urban fabric (i.e. land covered by residential, commercial and mixed-use construction) can be distinguished from other types of developed land, such as industrial areas and airports. In most countries, developed land that is not urban fabric makes up less than one-third of all developed land.

Figure 4.1. **Developed land per capita**



Note: Data for European countries, Japan and the United States has been derived from different data sources. Only values of European countries are comparable to each other.

Source: OECD calculations based on European Environment Agency (2012), *Corine Land Cover (CLC) 2012, Version 18.5.1* (database), hereafter "*Corine Land Cover dataset*" for Europe, Homer, C.G., J.A. Dewitz, L. Yang, S. Jin, P. Danielson, G. Xian, J. Coulston, N.D. Herold, J.D. Wickham and K. Megown (2015), "Completion of the 2011 National Land Cover Database for the conterminous United States-Representing a decade of land cover change information", *Photogrammetric Engineering and Remote Sensing*, Vol. 81(5), pp. 345-354, www.asprs.org/a/publications/pers/2015journals/PERS_May_2015/HTML/index.html#345/z (accessed 9 December 2016), hereafter "National Land Cover Database" for the United States and proprietary land cover data for Japan.

Box 4.2. **A note on terminology**

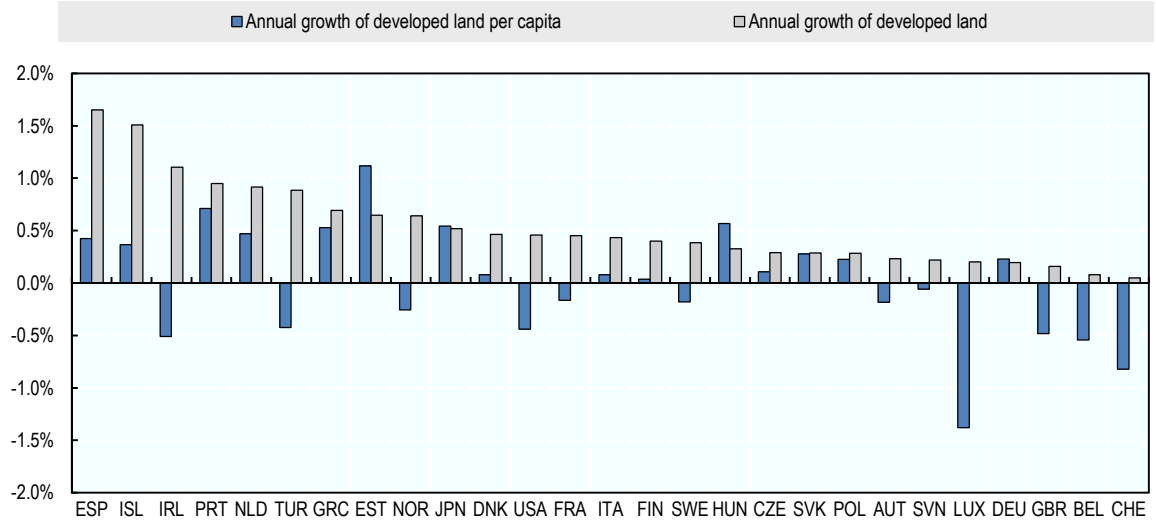
This chapter uses "developed land per capita" as a central unit of measurement. It is defined as the total area of developed land in a country (or region) divided by the number of inhabitants. Developed land per capita is the inverse of the population density of developed land (i.e. the number of inhabitants of a country divided by the area of developed land). Thus, an increase in developed land per capita is the equivalent of a decrease of the population density of developed land and vice versa. As both units of measurement measure the same concept, both could have been used in this report. Developed land per capita was chosen to avoid confusion concerning the term "population density" which refers normally the average number of people inhabitants in a given area of an administrative territory, irrespective of whether or not the land is developed.

It is important to keep in mind that a change in developed land per capita can be caused by a change in the area of developed land (the numerator) or by a change in the number of inhabitants (the denominator). This matters particularly when developed land per capita is declining. In the vast majority of cases, it does not imply that the area of developed land decreases. Rather, the number of inhabitants that live on the developed land (the denominator) increases faster than the area of developed land (the denominator), which causes a decline in developed land per capita. This would be equivalent to an increase in the population density of developed land.

In all analysed countries, the share of developed land has been increasing since 2000, but at vastly different growth rates (see Figure 4.2). Spain was the country with the highest annual growth rate in developed land at 1.7%, followed by Iceland with 1.5% and Ireland with 1.1%. All three countries have fundamentally different land-use planning systems, but have in common that they experienced severe property price bubbles in the early 2000s. This fact hints at the importance of economic factors in determining land use. It appears likely that the increase in developed land was at least in part driven by rising property prices. Insofar as these countries made attempts to reign in development, it also shows the difficulty that many planning systems face in affecting land use. Figures 4.6 and 4.7 show annual growth rates of developed land by region.

At the opposite end of the scale, Switzerland, Belgium and the United Kingdom have had the lowest growth in developed land with rates of 0.05%, 0.08% and 0.15%, respectively. In particular the experience of the United Kingdom represents an important counterpoint to the argument in the previous paragraph. The country experienced significant property price increases in the early 2000s, just as the countries with the highest growth rates of developed land did. Nevertheless, the increase in developed land has been among the smallest in the OECD. This suggests that institutional factors can matter for land use. Planning systems can have significant impact on land use, especially when it comes to restricting development.

Figure 4.2. **Growth rates of developed areas**



Note: Data for European countries, Japan and the United States has been derived from different data sources. Only values of European countries are comparable to each other.

Source: OECD calculations based on *Corine Land Cover dataset* for Europe, National Land Cover Database for the United States and proprietary land cover data for Japan.

The growth rate of developed land is an important indicator that affects for example environmental outcomes, such as biodiversity. However, in itself it cannot provide any indication of the efficiency with which land is used. If average land use per capita stayed constant, countries with higher population growth rates would be expected to have stronger growth in developed land. Thus, a more meaningful

indicator concerning the efficiency of land use is the growth rate of developed land per capita. As Figure 4.2 shows, almost half of all analysed countries have negative annual growth rates in developed land per capita. On average, in all analysed countries, growth in developed land per capita is slightly negative. Of the three major geographic territories, only Japan shows positive growth in developed land per capita whereas Europe as a whole has slightly negative growth and the United States has strongly negative growth.

The growth in developed land is only imperfectly related to the growth in developed land per capita. Some of the countries that have the highest growth rates per capita have only average absolute growth rates and several countries that have very high absolute growth rates such as Ireland and Turkey have in fact negative growth rates in developed land per capita. Countries such as Belgium, Luxembourg, Switzerland and the United Kingdom that have the most strongly negative growth rates of developed land per capita are characterised by strong population growth, but only small increase in the share of developed land.

Two factors have to be considered when interpreting growth rates of developed land. As always, growth rates are calculated from a baseline value – in this case, the area of developed land and developed land per capita in the early 2000s. As Figure 4.1 shows, these baseline values vary strongly from country to country, which affects the interpretation of growth rates. For example, Italy uses approximately 300 square metres of land per capita, whereas Finland uses around 900 square metres per capita. If both countries developed exactly 600 square metres of land for each new resident, Italy would have a positive growth rate of developed land per capita and Finland would have a negative growth rate even though land would be developed with the same population adjusted efficiency in both countries. The difference is that in relative terms Italy would have experienced a decline in land-use efficiency and Finland would have experienced an increase in efficiency.

Second, growth rates of developed land describe only a part of the picture, because they do not show associated trends that have strong effects on land use. Most importantly, population growth varied strongly between countries. This has consequences not only for the growth of developed land in absolute terms, but also on a per capita basis. The following section discusses this and other factors in a more in-depth analysis at the regional level.

Land cover in urban and rural regions

This section discusses land cover and land cover changes for regions at TL3 level according to OECD definition. TL3 regions are small regions that are below the first administrative tier subnational governments in most countries. Land cover data exists for 1 335 TL3 regions in Europe and 177 TL3 regions in the United States On average, a TL3 region in the analysed countries has 584 000 inhabitants and covers 8 519 square kilometres. Regions are classified according to their spatial population patterns into primarily urban, intermediate, primarily rural close to cities and primarily rural remote regions (see Box 4.1). Japan, for which only aggregated land cover data is available at the national level, will not be included in the analysis whenever a subnational dimension is analysed.

Box 4.3. **Rural-urban classification of TL3 regions**

The OECD regional typology is part of a territorial scheme for collecting internationally comparable "rural" data. The OECD typology classifies TL3 regions as predominantly urban, predominantly rural and intermediate. This typology, based on the percentage of regional population living in rural or urban communities, allows for meaningful comparisons among regions of the same type and level. However, there is a trade-off: along with the benefits of international comparability, this framework necessarily has the drawback of not being as precise as the more refined definitions that are used to deliver policies in some countries.

The OECD regional typology

The OECD regional typology is based on three steps. The first identifies rural communities according to population density. A community is defined as rural if its population density is below 150 inhabitants per square kilometre (500 inhabitants for Japan to account for the fact that its national population exceeds 300 inhabitants per square kilometre). The second step classifies regions according to the percentage of the population living in rural communities. Thus, a TL3 region is classified as: predominantly rural, if more than 50% of its population lives in rural communities; predominantly urban, if less than 15% of the population lives in rural communities; and intermediate for values in between.

The third step is based on the size of the urban centres. Accordingly, a region that would be classified as "predominantly rural" in the second step is classified as "intermediate" if it has an urban centre of more than 200 000 inhabitants (500 000 for Japan) representing no less than 25% of the regional population. Similarly, a region that would be classified as "intermediate" in the second step is classified as "predominantly urban" if it has an urban centre of more than 500 000 inhabitants (1 million for Japan) representing no less than 25% of the regional population.

This typology proved to be a meaningful approach to explaining regional differences in economic and labour market performance. A drawback for international comparison is that it is based on population density in communities that have administrative boundaries, which can vary significantly between (and sometimes even within) countries. To improve comparability the typology is being updated to start with population density in 1 kilometre square grid cells as building blocks. In 2014, the European Union implemented this typology for the 2010 nomenclature of the European NUTS3 regions. For these countries the urban population are all inhabitants that live in 1 kilometre square cells with at least 300 inhabitants that form a contiguous cluster with at least 5 000 inhabitants. The thresholds for predominantly urban are taken as 20% or less rural residents, intermediate is 20-50% and predominantly rural are regions with 50% or more residents outside of urban clusters. For European OECD countries the new typology is used in this publication. Neither typology fully accounts for the presence of "agglomeration forces" or additional impacts of neighbouring regions. In addition, remote rural regions typically face a different set of challenges and opportunities than rural regions close to a city, where a wider range of services and opportunities are commonly available.

The extended OECD regional typology

The extended regional typology tries to discriminate between these forces and is based on a methodology proposed by the Directorate-General for Regional and Urban Policy of the European Commission which refines the current typology by including a criterion on the accessibility to urban centres. This allows for distinction between remote rural regions and rural regions close to a city. It facilitates analysis of their different characteristics, such as declining and ageing populations, levels of productivity and unemployment rates; and similarly it also distinguishes between intermediate regions close to cities and remote intermediate regions.

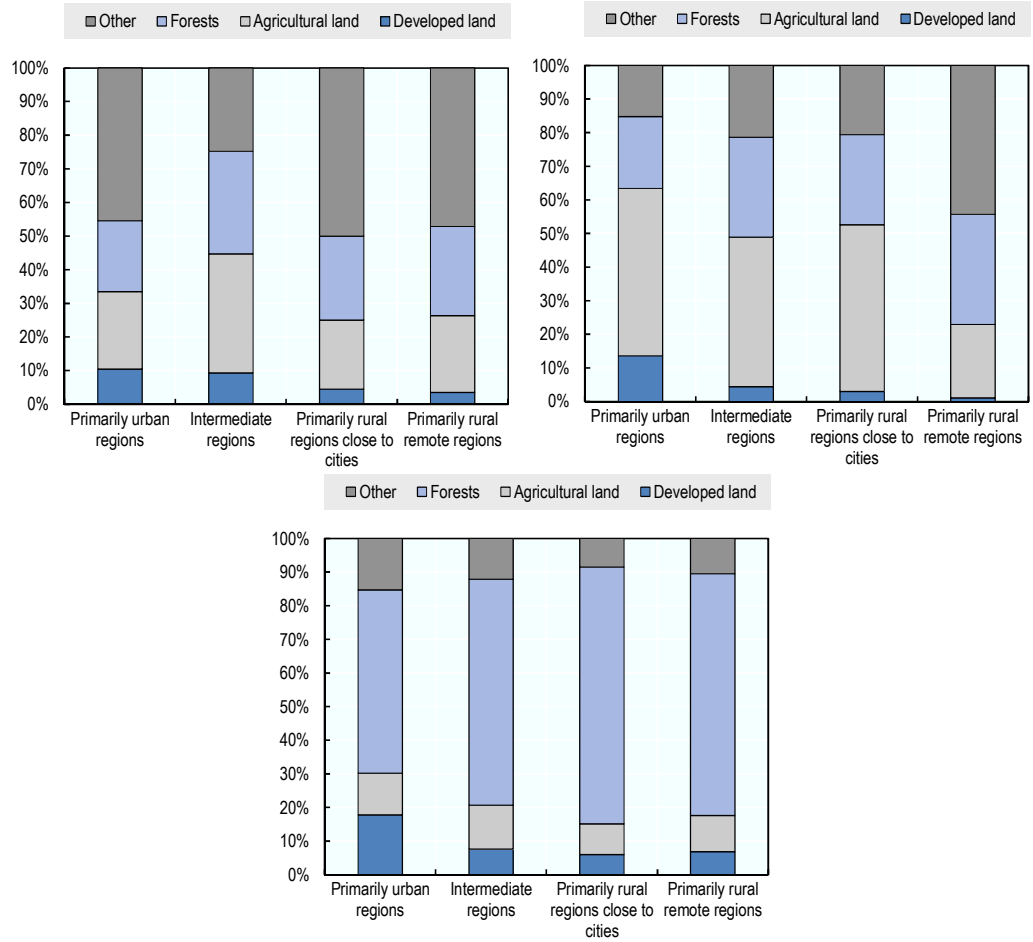
This extension to the regional typology draws on the concept of low-density economies to consider location, proximity and density in a more nuanced way, while maintaining the element of comparability which is important for the OECD's work. In practice, this adds a fourth step to the above OECD regional typology. This step considers the driving time of at least 50% of the regional population to the closest locality of more than 50 000 inhabitants. This only applies to the intermediate and predominantly rural regions, since predominantly urban regions include urban centres, by definition. The result is a typology containing five categories: predominantly urban (PU), intermediate close to a city (INC), intermediate remote (INR), predominantly rural close to a city (PRC) and predominantly rural remote (PRR).

Source: Brezzi, M., L. Dijkstra and V. Ruiz (2011), "OECD Extended Regional Typology: The Economic Performance of Remote Rural Regions", *OECD Regional Development Working Papers*, No. 2011/06, http://dx.doi.org/10.1787/5kg6z83tw7f4-en; OECD (2011), *OECD Regional typology*, www.oecd.org/gov/regional-policy/OECD_regional_typology_Nov2012.pdf; Eurostat (n.d.), *Urban Rural Typology*, http://ec.europa.eu/eurostat/statistics-explained/index.php/Urban-rural_typology (accessed 20 June 2016).

In almost all regions only a small share of land is developed

Not surprisingly, the share developed land is largest in primarily urban regions. However, even there, only a small share of all land is developed. In Japan, 17.8% of all land in primarily urban regions is covered by artificial surfaces. In Europe, the share is 13.6% and in the United States it is 10.5%. Thus, even in the most urbanised regions of all three geographic territories a very large share of land remains undeveloped. While the share of developed land in primarily urban regions is rather similar in the United States and in Europe (at least insofar as the different data sources are comparable), the differences are larger for less urban regions. In particular, the share of developed land in less urban regions declines drastically in Japan and Europe, but less so in the United States Only 7.6% and 4.5% of the land in intermediate regions is developed in Japan and Europe – less than half as much as in primarily urban regions. In contrast, with 9.3% the share of developed land in intermediate regions in the United States is almost as high as the share in primarily urban region. This indicates a much more extensive pattern of development at intermediate densities in the United States than in Japan and Europe.

Figure 4.3. **Land cover by type of region – United States (left) – Europe (right) – Japan (bottom)**



Note: The category "other" includes grassland, shrub, moors, barren land, open water and similar categories. Since the data has been derived from different data sources, the comparability between data for Europe, Japan and the United States is limited. The high share of land classified as "other" in the United States is due to the large share of land that is shrub or grassland.

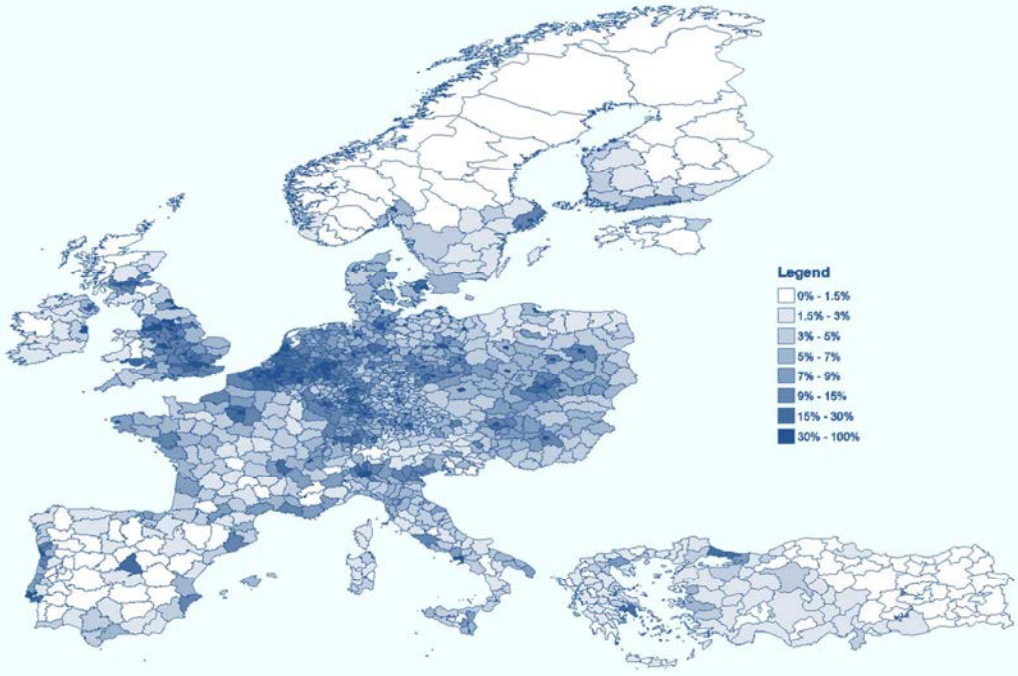
Source: OECD calculations based on *Corine Land Cover dataset* and National Land Cover Database, proprietary data provided by the Japanese government.

The share of agricultural land is significantly higher in Europe than in the United States Perhaps counterintuitively, the share of agricultural land in Europe is highest in primarily urban regions and lowest in rural remote regions (49.8% compared to 21.8%). A likely explanation can be found in the history of urbanisation in Europe. Many European cities developed at a time when economic reliance on agriculture was high. As agriculture created an important part of societal wealth and employed a large labour force, cities developed around fertile land that is still used for agriculture (Wallerstein, 2011). In contrast, in the United States – where primarily urban regions do not have a high share of agricultural land – many cities developed much later when the economic importance of agriculture was reduced. Therefore, their location is less strongly related to soil quality and hence to agricultural activity. Compared to Europe and the United States, Japan has a very low share of agricultural land, but an exceptionally high share of forested land. Both factors are likely to be due to its mountainous topography, which makes large scale agriculture difficult.

Box 4.2 provides a visual depiction of regional development patterns. It shows the share of developed land and the growth rates of developed land in all TL3 regions in Europe and the United States.

Box 4.4. **Developed land in TL3 regions**

Figure 4.4. **Share of developed land in Europe**

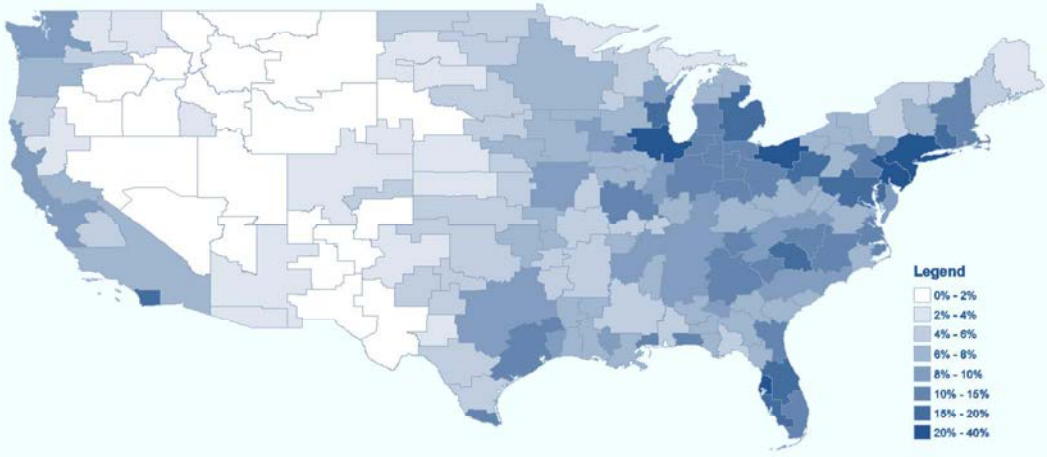


Note: The figure shows the share of land in European TL3 regions that is developed.

Source: OECD calculations based on *Corine Land Cover dataset.*

Box 4.4. **Developed land in TL3 regions** *(continued)*

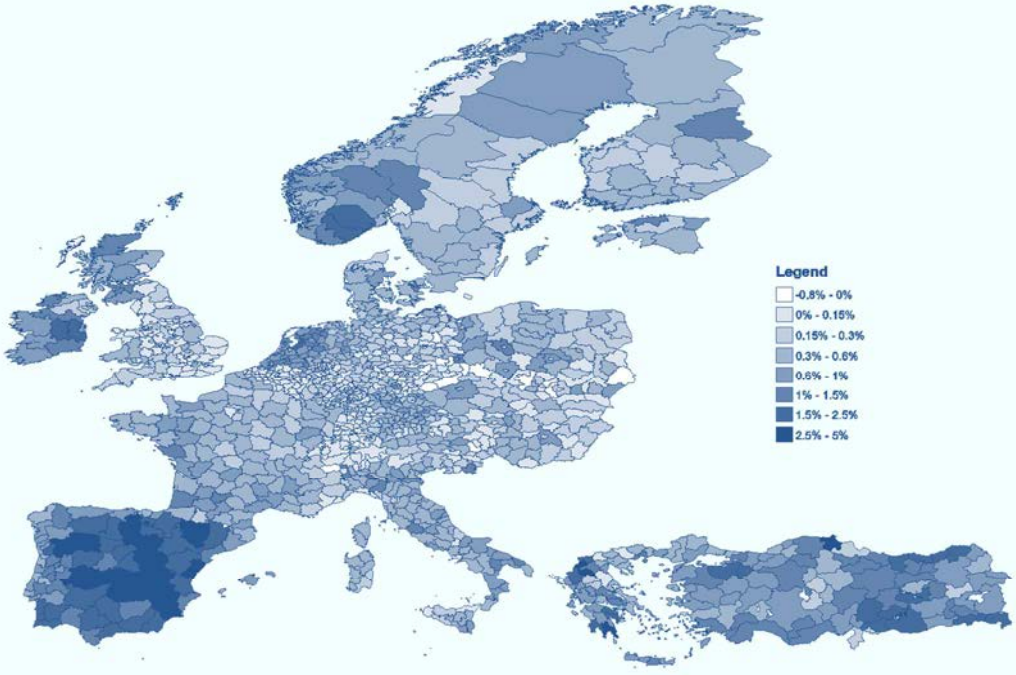
Figure 4.5. **Share of developed land in the United States**



Note: The figure shows the share of land in United States TL3 regions that is developed.

Source: OECD calculations based on National Land Cover Database.

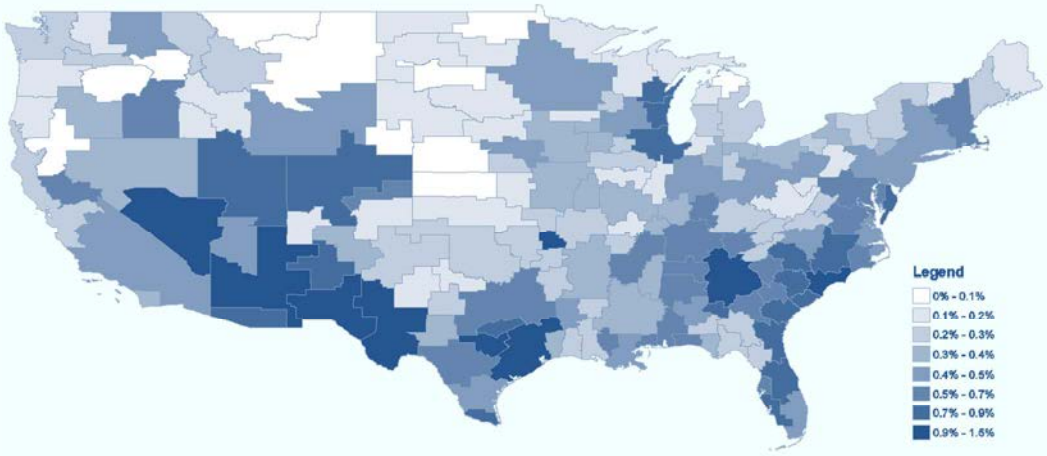
Figure 4.6. **Annual growth rate of developed land in Europe**



Source: OECD calculations based on *Corine Land Cover dataset.*

Box 4.4. **Developed land in TL3 regions** *(continued)*

Figure 4.7. **Annual growth rate of developed land in the United States**



Source: OECD calculations based on National Land Cover Database.

Why compact development matters

Compact patterns of development using small amounts of land per capita are desirable for a variety of economic and environmental reasons that are discussed throughout this report. From an economic perspective, dense development favours efficient use of infrastructure. Most network infrastructure such as roads, telecommunication, electricity, water and sewerage requires fixed investments that are independent from the intensity with which it is used. The more densely populated an area is, the more people can use the same infrastructure and thus, the less infrastructure per capita is required. This reduces the costs of infrastructure provision for governments. Furthermore, it reduces operating costs, for example related to maintenance.

Similar arguments apply also for many public services. Denser patterns of development allow for larger public facilities because they have a larger number of people living within their catchment areas. This reduces the costs of public services that are subject to economies of scale (e.g. it may be cheaper to operate one municipal citizens' office for 100 000 residents than 10 municipal citizen offices for 10 000 residents, each). In other cases (such as waste disposal and postal services) the distances between people can directly affect the costs of the service delivery. Higher population densities may, for example, increase the productivity of mailmen who have to cover shorter distances to deliver the same number of letters.

Dense development not only reduces the costs of public infrastructure and service provision, it also fosters economic activity directly. Combes and Gobillon (2014) show that a variety of productivity enhancing effects summarised under the term *agglomeration economies* are strongly related to the density of a place. In other words, denser places are on average more productive than less dense places. In line with this argument, Ahrend and Schumann (2014) find that the population density of a region has been a strong predictor of its economic performance. The more densely populated a region is the better has been its per capita GDP growth since 2000.

From an environmental perspective, several arguments are in favour of compact development (OECD, 2012). More compact settlements reduce the need for driving because distances are shorter. They can also be better served with public transport, which requires minimum population densities to be operated efficiently. Thus, compact development reduces carbon emissions from transport (see for example Kennedy et al., 2009 for an estimate of the magnitude of this effect).

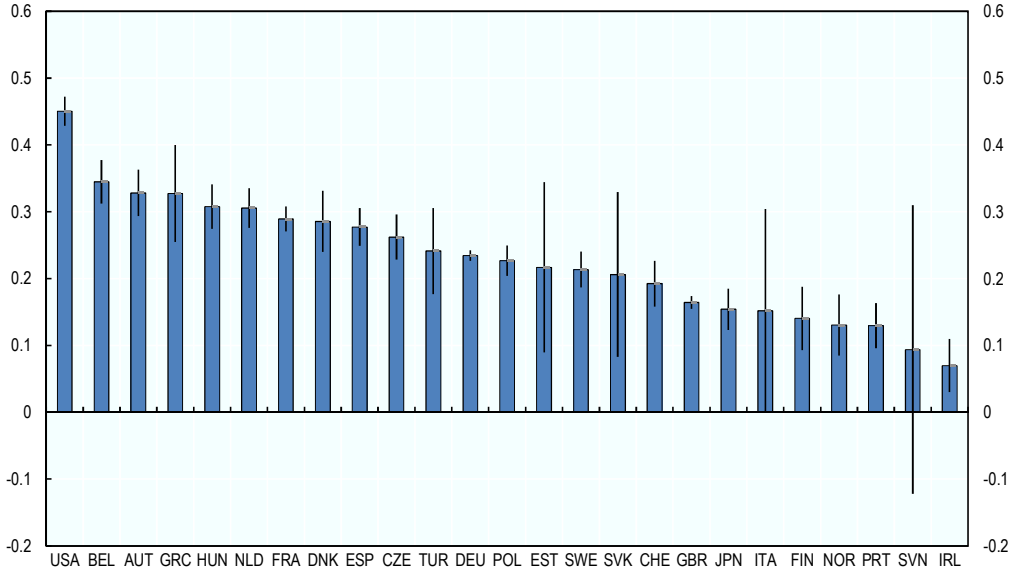
Urban development is also one of the main causes behind the loss of biodiversity in many regions, not only because it reduces the overall size of natural habitats, but also because it fragments them into areas that are too small to preserve their biodiversity. Furthermore, it fosters the introduction of non-native species into habitats (McKinney, 2002). Thus, limiting the footprint of developed land prevents a loss of biodiversity.

Another argument in favour of compact development concerns the protection of agricultural land, for example to guarantee food security. As shown above, agricultural land – especially in Europe – is concentrated around human settlements. Thus, it is often lost when new land is converted for development. Compact development can reduce the rate of conversion from agricultural to developed land.

More densely populated regions have a lower per capita use of developed land

More densely populated regions use less developed land per capita. On first impression, this appears almost to be a truism. However, closer inspection reveals that it this statement not necessarily true. Population density is generally measured by average number of people per square kilometre in a country or region. This measure is independent from the amount of developed land. As shown above, even primarily urban regions only have 10% to 20% of developed land per capita. Thus, even in these regions an increase in population (and hence in regional population density) may be accompanied by a perfectly proportional or even disproportionate increase in the area of developed land.

Figure 4.8. **Relationship between regional population density and developed land per capita**



Note: The figure shows, for each country, by how many percentage points the use of developed land per capita declines if a region has a one percent higher population density. The lines ("whiskers") around each bar indicate the 95% confidence interval of the estimate.

Source: OECD calculations based on Corine Land Cover and National Land Cover Database.

Estimates show that there is in fact a negative relationship between population density of a region and the area of developed land per capita. It exists in all analysed countries, but its strength varies. It is strongest in the United States, where regions with a 1% higher population density use 0.45% less developed land per capita and weakest in Ireland, where a region with a 1% higher population density has a 0.07% lower use of developed land per capita. Figure 4.8 presents the strength of this relationship (the so-called elasticity of developed land per capita with respect to population density) for each country.

Land consumption is lower in countries that have regional or metropolitan land-use plans

Countries that employ regional or metropolitan land-use plans use less developed land per capita than countries that employ only strategic plans and guidelines at the regional level. As discussed in Chapters 2 and 3, regional and metropolitan land-use plans can be effective instruments to co-ordinate planning across functionally integrated areas that cover several local jurisdictions. In particular, they can contribute to more effective and sustainable patterns of development if individual local governments have incentives to pursue expansive land-use policies without considering the effects on the wider functional area. The effects of employing regional or metropolitan land-use plans are potentially large. Countries that do so use on average 32% less developed land per capita. However, it should be noted that this estimate is only indicative and has a large standard error (i.e. the statistical precision of the estimate is low).

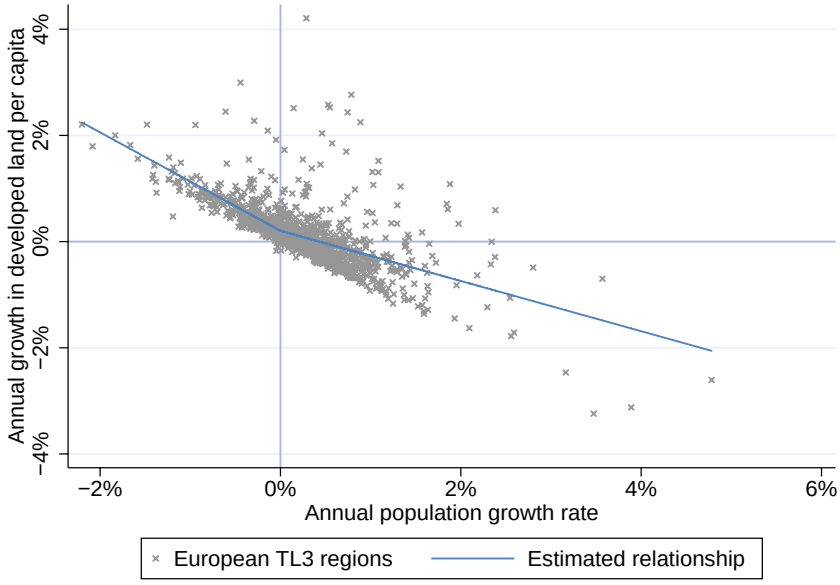
Land use and land cover is strongly affected by demographic trends

In order to better understand the determinants of land use, it is necessary to analyse how it evolves over time and in relation to other variables. Of particular interest is the relation between land use and population growth, as it is one of the most important variables determining changes in land use. Since 2000, the analysed TL3 regions had a population growth rate of 0.35% per year. The highest annual population growth rate of 4.7% was recorded on the Spanish island of Fuerteventura and the strongest decline of -2.2% annually was recorded in the western Polish Jelenia Góra County.

One of the most noticeable facts when analysing the pattern of land use over time is that developed land is rarely returned into undeveloped states. 354 regions experienced a population decline since 2000. Over the same time period, only 36 regions experienced a decline in developed land. Thus, 90% of regions that lost population have not decreased their use of developed land. Among the regions that recorded declines in the area of developed land more than half are located in eastern Germany.

More generally, a strong negative relationship between population growth rates and the growth rate of developed land per capita exists. Figure 4.9 and Figure 4.10 plot the annual population growth rate of a region on the horizontal axis against the growth rate of developed land per capita on the vertical axis. The downward sloping line shows the estimated relationship between the two growth rates. Several important insights can be gained from these figures.

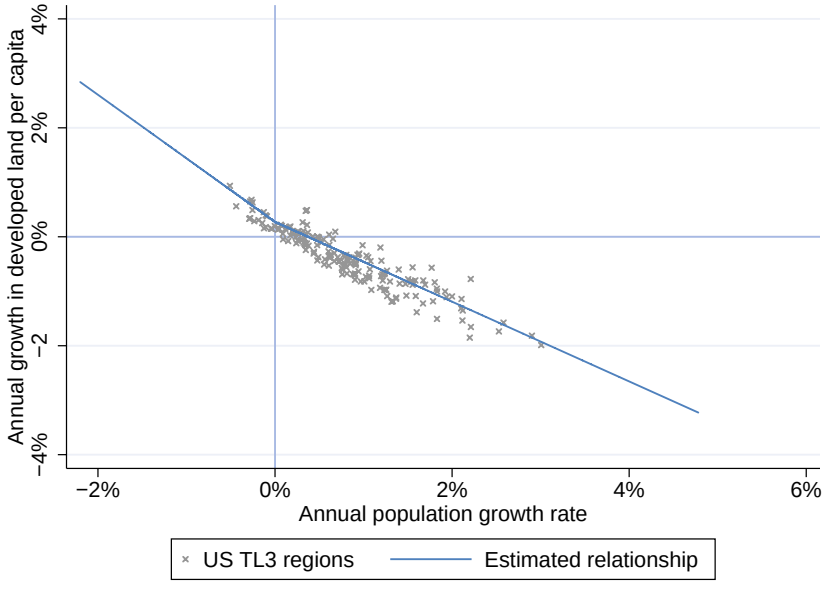
Figure 4.9. **Population growth rates and the growth of developed land per capita in European TL3 regions**



Note: The diagonal blue line shows the estimated relationship between the annual population growth rate and the annual growth in developed land per capita based on a population weighted linear regression, allowing the coefficient of interest to vary between regions with positive and negative population growth rates.

Source: OECD calculations based on *Corine Land Cover dataset.*

Figure 4.10. **Population growth rates and the growth of developed land per capita in US TL3 regions**



Note: The diagonal blue line shows the estimated relationship between the annual population growth rate and the annual growth in developed land per capita based on a population weighted linear regression, allowing the coefficient of interest to vary between regions with positive and negative population growth rates.

Source: OECD calculations based on National Land Cover Database.

Although visible only under close inspection, a statistically highly significant break in the pattern occurs between regions with positive population growth and regions with negative population growth. In the former, the relationship between the population growth rate and the growth in developed land per capita has a slope of -0.47 in Europe and -0.73 in the United States This implies that for each additional percent in population growth the use of developed land per capita declines by 0.47% and 0.73%, respectively. Expressed differently, it means that the growth of developed land for each new resident is just 47% of the area an average inhabitant uses in Europe. For the United States, the corresponding figure is 73%.

However, in regions that are declining in population, a one to one relationship between the rate of population shrinkage and the increase in developed land per capita exists. The slope of the relationship is -0.93 in Europe and -1.17 in the United States Given the margin of error that is contained in both estimates, they are statistically indistinguishable from -1, which would be the estimate if the developed area in all declining regions remains constant over time.[2] Such an estimate is in line with the previously mentioned fact that the area of developed land rarely shrinks even in regions with declining population. As a consequence, there is a one to one relationship between the decline of population and the efficiency of land use measured in terms of developed land per capita. A 1% decrease in population leads to a 1% decrease in the efficiency of land use as measured by the area of developed land per capita.

These estimates may seem abstract, but they have important implications for policy makers interested in limiting the growth of developed land. They show that land-use efficiency declines faster in response to population decline than it increases in response to population growth. For each net inflow of an inhabitant, approximately half the typical per capita value in developed land will be newly developed. However, in the region that experienced the corresponding net outflow of the inhabitant, virtually no decline in developed land will occur.

This implies that developed land will continue to grow simply because of population movements from one region to another. The decrease in land-use efficiency in regions with declining population is not offset by a corresponding increase in efficiency in growing regions. Furthermore, it is unlikely that such an offsetting relationship will be achieved as long as developed land is not reconverted into undeveloped land in regions with declining populations. Without a reconversion of developed land in shrinking regions, an offsetting relationship could only be achieved if no new land is developed in response to population inflows.

It is implausible that population growth can or should be accommodated without any growth of developed areas. Thus, if population movement between regions should not lead to an increase in developed land, developed areas must decrease in regions with declining population. Countries that aim at reducing the growth of developed areas should therefore not only focus on increasing the land efficiency of new developments or restricting them, but also at possibilities to reconvert developed into undeveloped land in regions with declining populations. As discussed earlier, this would have environmental benefits, but also fiscal benefits as it would reduce the costs of maintaining public infrastructure.

Figures 4.9 and 4.10 also show the average estimated growth rates in developed land per capita in regions without any population growth. They correspond to the point where the line representing the estimated relationship between population

growth and growth in developed land per capita crosses the value 0 on the horizontal axis (i.e. the point where the lines have kinks). In Europe, developed land per capita grew on average by 0.2% per year in the absence of population growth and in the United States the corresponding growth rate has been 0.27% per year.

Despite a general increase in developed land per capita in regions without population growth, both Europe and the United States have experienced declines in developed land per capita. This is due to natural population growth and migration from other countries. As Figures 4.9 and 4.10 show, the use of developed land per capita declines in regions that see positive population growth, which explains why land-use efficiency in Europe and the United States has improved.

Forests in the United States are shrinking

Much of the land that has been developed was previously forested or used for agriculture. However, given that both agricultural and forested land cover much larger areas than developed land the growth of developed land translates into much lower relative declines in forested and agricultural land.

The most marked change has been an average annual decline of -0.34% in forested areas in the United States, which is equivalent to a 3.5% decline in forested areas over the 10 year observation period. In Europe, forested areas have also been declining, too, but at a much lower rate of -0.08% per year. The size of agricultural land has remained almost stable in Europe and the United States. In Europe, an average decline of -0.05% per year occurred, whereas in the United States it has been -0.06%.

Two important caveats apply to these numbers. First, they do not capture isolated construction at a scale that is too small to be observed on the underlying imagery. For example, agricultural land lost to the construction of small and mid-sized roads and isolated buildings would not show up in the data. Second, the data does not provide any information concerning the ecological value of land. For example, the biodiversity in forested areas may change depending on the degree of biomass extraction from them. These characteristics are not necessarily related to the area covered by forests or agricultural land.

Land use and economic growth are closely related

The relationship between land use and land cover is complex and interdependent. On the one hand, land use is strongly influenced by economic factors, such as the level of economic activity and property prices. On the other hand, land-use patterns also contribute to economic outcomes, for example by affecting productivity and property prices. For this reason, it is difficult to identify exactly how one affects the other.

A strong negative relationship exists between the developed area per capita and economic growth between 2000 and 2012. A region that used 10% less developed land per capita than another, grew around 0.1 percentage points faster per year over the following 12 year period.[3] In other words, regions that had more compact patterns of development in 2000 subsequently grew faster. A possible reason behind the effect could be that urban regions – which are denser and use less developed land per capita – grew faster than rural regions. However, the statistical estimate changes barely

when controlling for the total population of a region and whether it is urban, rural or intermediate. Thus, compact development is positively related to economic growth independent from whether or not a region is urban.

Importantly, an analysis of how the growth in developed land per capita from 2000 to 2012 – instead of the developed area per capita in 2000 – is related to economic growth over the same time period yields the opposite result. For each percentage point increase in developed land per capita, a region's per capita GDP grew approximately 0.3 percentage points faster on average over the 12 year period.[4]

One explanation for this pattern could be that expansive development has positive short-term effects on economic growth, but negative long-term effects. In such a scenario, expansive new developments would lead to a short-term surge in economic activity. This might be due to the economic activity related to construction itself, but also because expansive development lowers property prices and attracts firms that require much space. However, once this temporary boost to growth has been worn off, the long-term effect might be negative. Space intensive developments increase travel times within cities and worsen congestion, thus reducing productivity. Insofar as there are lock-in effects of development patterns, space intensive developments may also cause subsequent increases in land prices in an urban area because they reduce the amount of land that is available for other uses. As mentioned above, there is also some evidence that sprawling development reduces agglomeration economies. Furthermore, firms that require much space for their operations are likely to be less knowledge-intensive and thus contribute less to productivity growth than those that require little space.

It is impossible to establish with certainty whether a counteracting relationship between extensive development and short-term and long-term economic growth exists. While the existing data may point towards such an explanation, it is not nearly sufficient to prove it. Assuming such a relationship exists, it would imply that policy makers deciding on land use not only face a trade-off between economic outcomes and other objectives, such as environmental protection, but also between short-term economic growth and long-term economic growth.

Land intensive development can contribute to air pollution

Land use has consequences on a variety of environmental outcomes, many of which have already been mentioned in this report. Data which can allow quantitive estimates on the role land use plays, only exist for a few of these outcomes, regional air pollution being one of them. As outlined in OECD (2016c), air pollution causes approximately 3 million premature deaths annually. If current trends continue, it would create costs equivalent of 1% of global GDP by 2060. Fighting air pollution should therefore be a policy priority because of public health considerations, but also because of economic considerations.

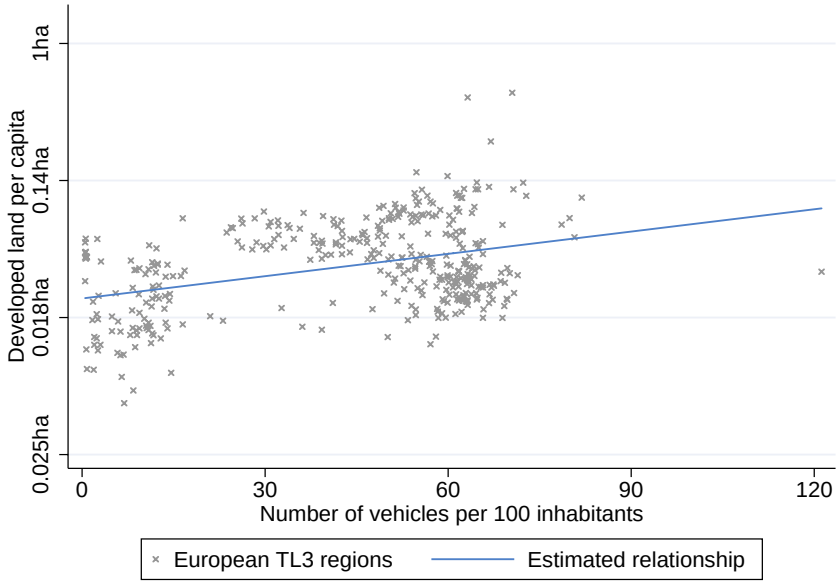
Several different mechanisms connect land use to air pollution. They are primarily related to the fact that car usage, driving distances and congestion are influenced by density, the location of housing and employment and other aspects of urban form. Similarly, public transport usage depends on the same factors. Although the exact relationship between land-use patterns and transport is complex, evidence shows that an increase in residential density (i.e. a lower use of developed land per capita)

increases the modal share of public transport and reduces the modal share of car-based transport (Balcome et al., 2004) .

A confirmation of this result can be found in the data on car ownership, which is available for 382 TL3 regions. As Figure 4.11 shows, a strong positive relationship exists between the amount of developed land per capita and the number of cars per 100 inhabitants. The less land per capita is used, the fewer cars are owned by residents.

Thus, the observed correlation between developed land per capita and car ownership is not due to differences in income levels. Inhabitants in regions with higher income levels use more land per capita and have higher rates of car ownership. Thus, it would be possible that per capita use of developed land and car ownership are correlated only because of differences in income levels. However, the observed relationship between the area of developed land per capita and car ownership continues to hold in a regression of car ownership on developed land per capita that controls for per capita GDP levels and country-specific effects. The estimate shows that regions with 10% more developed land per capita have on average a car ownership rate that is 0.75 cars per 100 inhabitants higher. The estimate is highly statistically significant.[5]

Figure 4.11. **Developed land per capita and car ownership**



Source: OECD calculations based on OECD regional database and *Corine Land Cover dataset.*

The relationship between land use and air pollution is more complex than the relation between land use and car usage. Density has counteracting effects on air pollution. On the one hand, more compact patterns of development reduce the need for car-based transport and distances travelled by car, thus reducing overall emissions. On the other hand, compact patterns of development also imply that emissions from transport are released over a smaller area and occur more closely to people. Thus, even though overall emissions may be lower in areas with more

compact development, they may have worse consequences because they are more concentrated and closer to people.

Data on $PM_{2.5}$ air pollution suggests that the reduced need for mobility outweighs the negative consequences of more concentrated emissions. A strong and statistically highly significant relationship between the area of developed land per capita and the average exposure to particulate matter $PM_{2.5}$ exists. For each 10% increase in the use of developed land per capita, the average exposure to $PM_{2.5}$ increases by approximately 2.5%.[6] In other words, more compact development is strongly correlated to lower levels of particle matter air pollution.

This result is confirmed using a second measure of air pollution – the atmospheric concentration of NO_x (a group of gases harmful to health). Most NO_x emissions are due to human activity, primarily the combustion of fossil fuels (Delmas, Serca and Jambert, 1997). Thus, it is an important measure of transport-related air pollution. A 10% increase in the area of developed land per capita is associated with a 3.3% increase in the atmospheric concentration of NO_x.[7]

Further evidence suggests that this higher concentration is indeed due to transport emissions and not due to other emission sources. $PM_{2.5}$and NO_x are emitted by motor vehicles, but also by industrial processes and by the combustion of fossil fuels for energy generation. Land-use data for Europe distinguishes urban fabric from land used for industrial purposes. If it were industrial activity that causes the land-use related increase in air pollution, one would expect to see a strong correlation between land use for industrial purposes and air pollution levels. If it were transport, the relationship should be primarily between the per capita area of urban fabric and air pollution levels. Estimates clearly show that the latter is the case. The positive relationship between air pollution and developed land per capita can only be found for urban fabric, but not for industrial land. The estimate for the effect of urban fabric per capita is large and statistically significant, whereas the effect of industrial land is virtually zero and statistically insignificant.[8] Therefore, reducing the need for mobility by designing compact cities can be expected to have positive environmental effects.

Restricting development increases housing costs

Housing is one of the most important uses of developed land, both in terms of the area that is used for it and in terms of its effect on the quality of life. Given the amount of land used by housing, it is evident that land-use patterns have important consequences for housing. Developed land per capita is a measure for the scarcity of land. If less developed land per capita is available (for example because land-use regulations restrict building on greenfield sites), land prices increase. This translates directly into higher costs of housing. In response to higher housing costs, individuals choose to live in smaller accommodation. This can explain the second result – the aforementioned relationship between developed land per capita and the average number of rooms per capita (see Brueckner, 2001, for a much more detailed theoretical exposition of the relationship between land use and housing).

Internationally comparable data on housing at the TL3 regional level is scarce. The few available for observation do not allow for detailed analyses of land-use and housing patterns, but they make it possible to confirm the basic relationships between housing patterns and land use that are outlined above. First, there is a clear negative

relationship between the amount of developed land and housing costs. For a 10% increase in developed land per capita (excluding industrial and other non-residential forms of development), the share of housing costs in household expenditure is 0.23 percentage points lower. As households in the analysed regions spend 23% of their income on housing, this is equivalent to a 1% decrease in spending on housing.[9] Since land is an important input to housing, this can be interpreted as a confirmation of the very basic economic relationship that higher supply results in lower prices.

Second, residential living space is bigger in regions that have more residential land per capita. In regions with 10% higher per capita use of residential land the average number of rooms per household increases by 1%. The estimate is based on an estimation that takes the average per capita income levels of a region into account. Thus, it is not influenced by average per capita levels of income.[10]

Although both results are expected, they are nevertheless important because they illustrate the trade-offs between permissive and restrictive land-use policies. Restricting construction on undeveloped land has desirable effects along some dimensions, for example because it can foster compact development. At the same time, restrictions to the development of land increase housing costs and lead to more cramped living conditions. When making land-use decisions, policy makers should acknowledge these trade-offs and weigh the benefits of land-use restrictions against their costs.

Land cover in urban areas

Urban areas are home to almost 65% of the population in the surveyed OECD countries but only cover only 18% of the national land area. Thus, even small changes of use of land can affect the lives of many. While the previous section has analysed land cover at the regional level in 27 OECD countries, the following section applies the functional urban areas (FUAs) definition developed by the OECD, which identifies core cities and their surrounding commuting zones based on people's daily urban activity patterns (see Box 4.4).

Due to the scarcity of land in FUAs, they are subject to two fundamental conflicts over land use. Within city centres, conflicts arise over the intensity of land use (i.e. the density of development). Typical examples of such conflicts are disputes over building heights or the amount of open space that should be protected from development. In the outskirts of FUAs, conflicts arise predominantly over the *extensity* of land use (i.e. the extent to which land is developed). Conflicts in this category may be disputes concerning the use of agricultural land for housing or whether or not to allow development in a greenbelt area around a city. For example, in a study on peri-urban land-use conflicts in the greater Paris region, Darly and Torré (2013) find that most conflicts are linked to a place-based collective effort to prevent or manage the negative impacts of urbanisation on the agrarian landscapes and products.

Given the large number of people affected and the potential for conflicts arising over it, changes to land use in FUAs are particularly relevant. They have also been the focus of the case studies that are discussed throughout this report. For this reason, the following section will focus in more detail on how land use in FUAs has evolved.

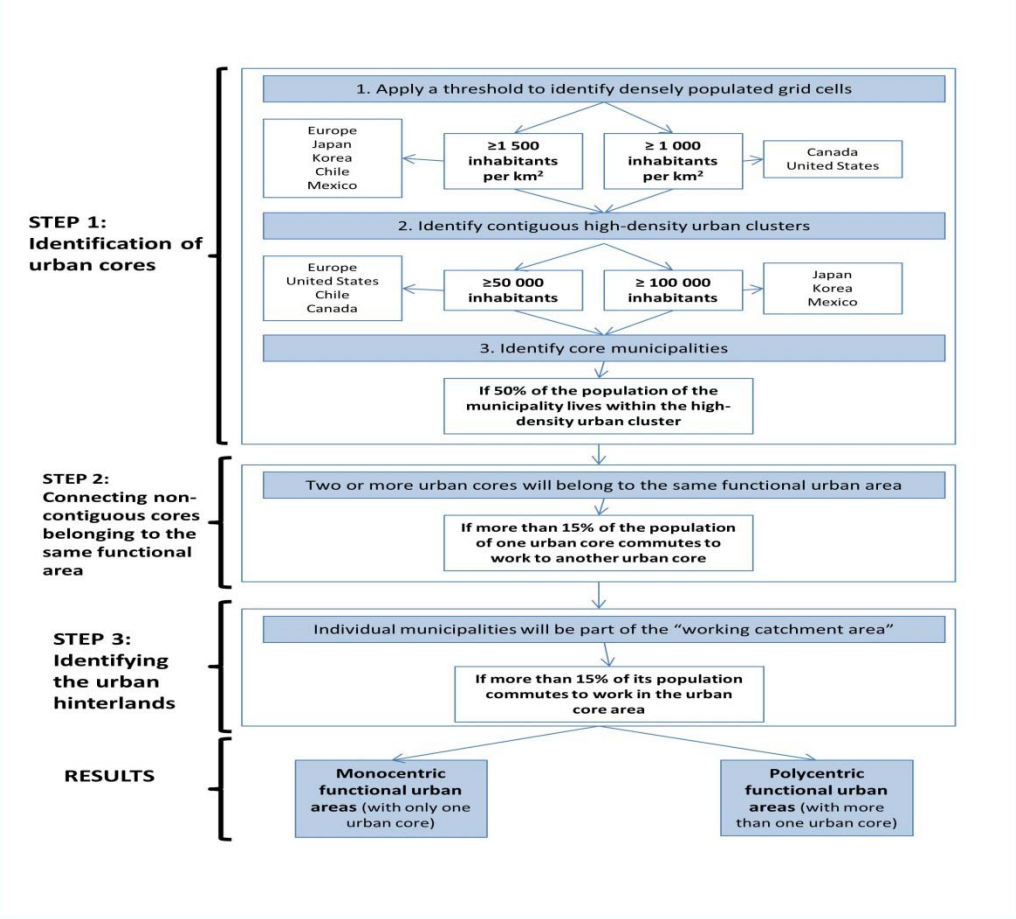
Box 4.5. **OECD definition of functional urban areas (FUAs)**

The OECD and EU define FUAs as densely populated urban cores with a surrounding commuting zone. Based on gridded population density data, high density population clusters with more than 50 000 inhabitants are identified (100 000 inhabitants in Japan, Korea and Mexico). All municipalities who have at least 50% of their inhabitants living in the high density cluster are considered part of the core of the FUA. If there are two high density clusters and at least 15% of the working population of one high density cluster commutes into the other, they are considered part of the same FUA. Lastly, the commuting zone is defined as those municipalities from which at least 15% of the working population commute into the core municipalities.

A minimum threshold for the population size of the FUAs is set at 50 000 population. The definition is applied to 30 OECD countries (with exception of Iceland, Israel, New Zealand and Turkey). It identifies 1 197 urban areas of different sizes (small urban areas with a population below 200 000, medium sized urban areas with a population between 200 000 and 500 000 people, and metropolitan areas with a population higher than 500 000).

This definition overcomes previous limitations for international comparability of urban areas. Traditional definitions based on administrative boundaries are often not comparable across countries, because the shape and size of administrative areas varies from county to country. The aim of the OECD approach to FUAs is to create a methodology that can be applied in all countries, thus increasing comparability across countries. The OECD definition may not correspond to national definitions. Therefore, the resulting FUAs may differ from the ones derived from national definitions.

Figure 4.12. **Methodology to define the functional urban areas**



Source: OECD (2016d), *OECD Regions at a Glance 2016*, http://dx.doi.org/10.1787/reg_glance-2016-en.

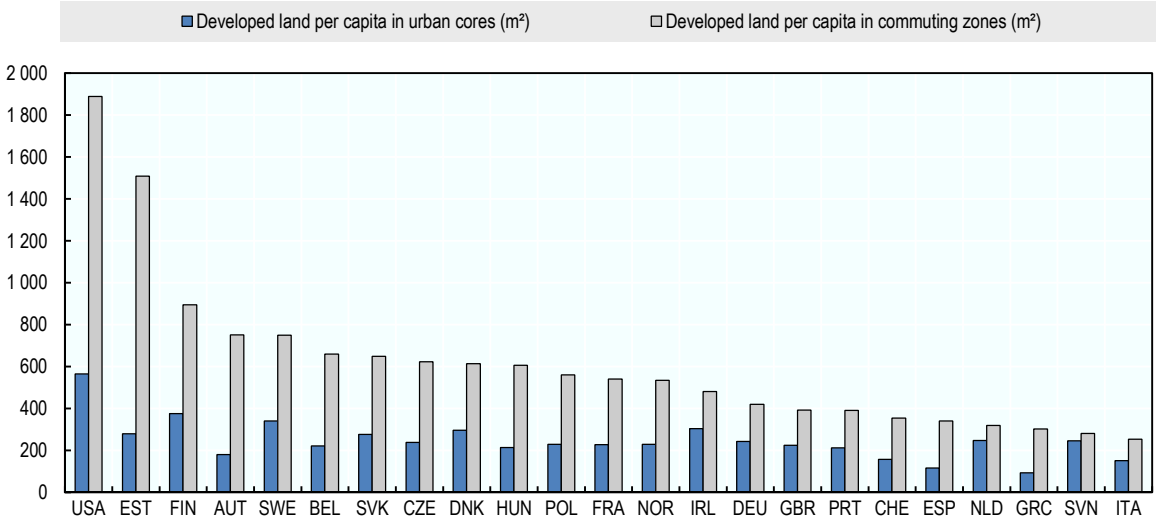
Land use is more efficient in larger FUAs

Larger FUAs use less land per capita than smaller ones. The average area of developed land per capita in Europe is 20% smaller in FUAs with more than 500 000 inhabitants than in FUAs with less than 500 000 inhabitants. In the United States, the corresponding difference is even greater. FUAs with more than 500 000 inhabitants use 38% less developed land per capita compared to FUAs with less than 500 000 inhabitants.

Expressed differently, in the United States the per capita area of developed land declines by approximately 0.12% for each 1% increase in population of an urban area. When taking country specific differences in population and land use into account, the corresponding numbers for Europe are similar. For each 1% increase in population, the area of developed land per capita is approximately 0.1% smaller.

Land use in FUAs also differs strongly between core areas and commuting zones. In the core of European FUAs, the average per capita use of developed land is 210 square metres, whereas it is 454 square metres in commuting zones. In the United States, approximately 565 square metres per capita are used in core areas and 1 889 square metres in commuting zones. Figure 4.13 shows the average per capita area of developed land in the cores and commuting zones of urban areas.

Figure 4.13. **Developed land per capita in urban cores and commuting zones**



Note: Includes only functional urban areas with more than 500 000 inhabitants. Data for European countries and the United States have been derived from different data sources. Only values for European countries are comparable to each other.

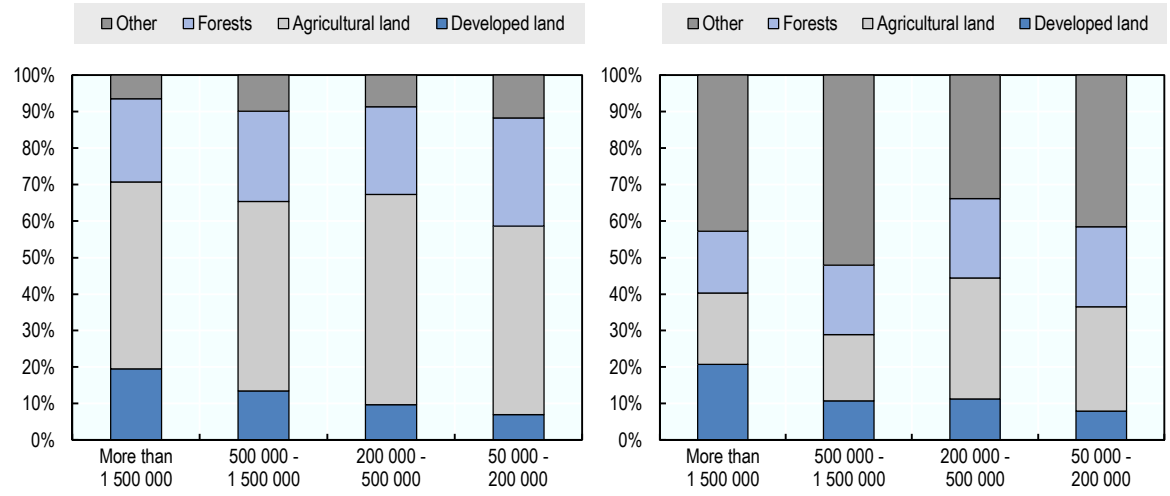
Source: OECD calculations based on *Corine Land Cover dataset* and National Land Cover Database.

A large share of land in urban areas is undeveloped

FUAs are less developed than could be expected – at least when they are considered in their entirety. Even the largest FUAs contain only approximately 20% developed land. Smaller FUAs have less developed land – less than 10% in the smallest ones. Largely, this is due to the fact that the commuting zones around core cities are primarily

undeveloped. However, even in municipalities that form the core of FUAs, less than half (44%) of all land is developed. As discussed in Box 4.4, the OECD defines the urban core as the territory of those municipalities in which more than half of the population lives in a contiguous area with a density of more than 1 500 inhabitants. Surrounding municipalities that have at least 15% of their working population commuting into the core are considered commuting zone.

Figure 4.14. **Land use in functional urban areas – Europe (left) – United States (right)**



Note: Data for Europe and the United States have been derived from different data sources and has limited comparability.

Source: OECD calculations based on *Corine Land Cover dataset* and National Land Cover Database.

Most FUAs across the OECD have potential for development in their cores. Only 29 out of 921 analysed FUAs face constraints in their development with more than 90% of land in core municipalities being developed. Those municipalities are physically unable to provide additional land for development (notwithstanding brownfield sites and the possibility to redevelop land). . Conversely, 708 out of 921 FUAs have more than 10% agricultural land within their core areas. These numbers show that in a large majority of all FUAs, land for development could be made available even in core municipalities. It is not the availability of land per se that limits development, but the trade-offs and political challenges related to converting undeveloped into developed land.

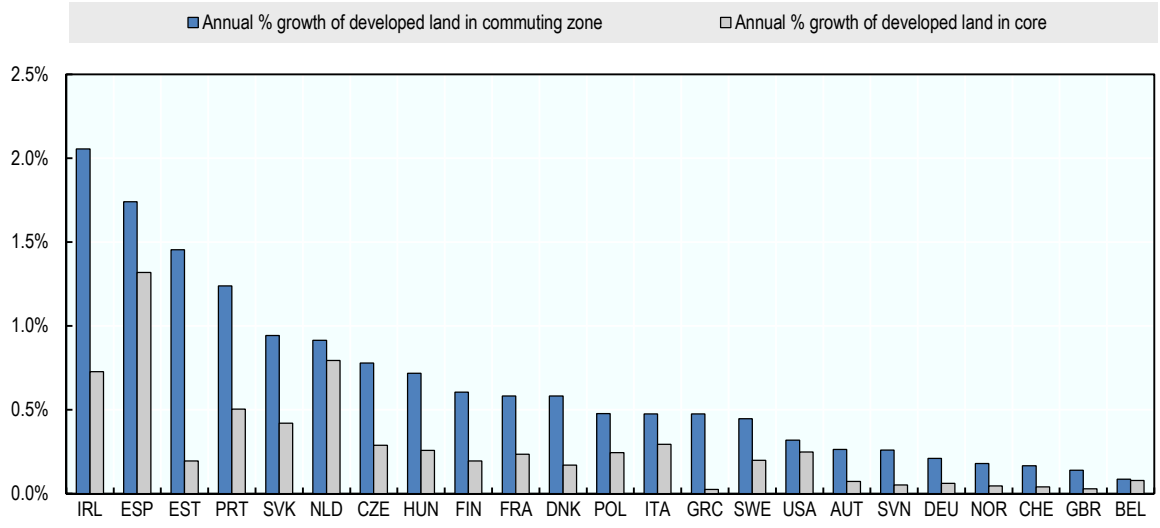
The large share of agricultural land in FUAs may be surprising. In Europe, it is above 50% for FUAs of all sizes and therefore significantly higher than the share of 41% agricultural land for Europe as a whole. This statistic is a powerful confirmation of the previously mentioned argument that European cities developed primarily around fertile land.

Suburban areas continue to grow

Where development occurs is one of the most important questions related to the growth of FUAs. It affects quality-of-life, the availability and accessibility of green space, the fiscal performance of local governments, the efficiency of the local economy and environmental outcomes.

At first impression, the data appears to confirm a picture of sprawling urban areas. In all analysed countries, the annual growth rate of developed land was larger in the commuting zone of urban areas than in core municipalities. As Figure 4.15 shows, the difference in growth rates between cores and commuting zones is often substantial. In Europe, average growth rates of developed land are 0.37% in core municipalities and 0.6% in commuting zones. In the United States, the difference is slightly smaller with an annual growth of developed land of 0.29% in commuting zones and 0.21% in core municipalities. The numbers show that new land is disproportionally developed outside of the cores of FUAs. As disaggregated population data over time for cores and commuting zones is not available for small FUAs, the estimates refer only to metropolitan areas (i.e. FUAs with more than 500 000 inhabitants). They are home to 67% of the urban population in the analysed countries.

Figure 4.15**. Growth rates of developed land in cores and commuting zones of functional urban areas with more than 500 000 inhabitants**

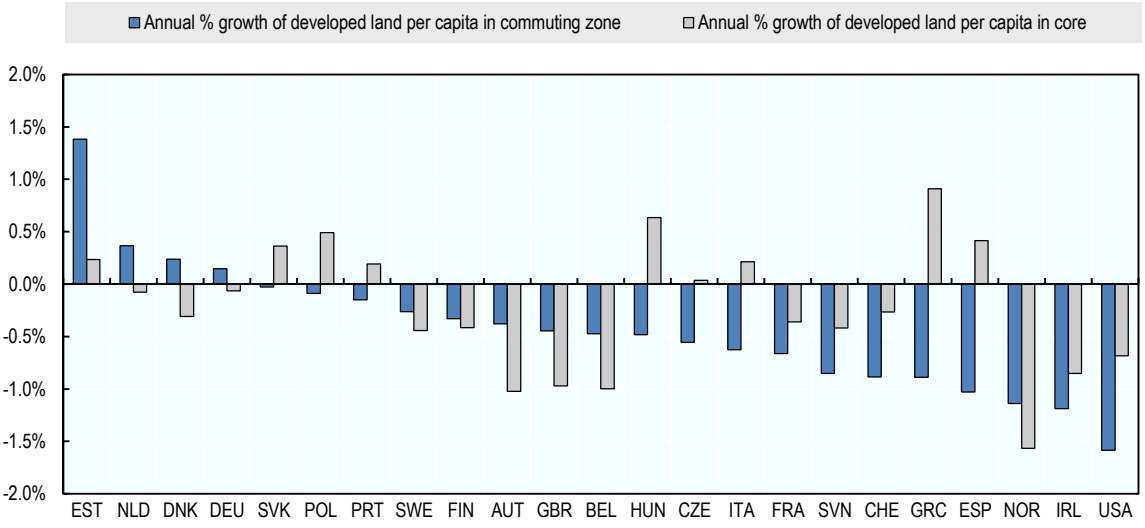


Note: Data for European countries and the United States have been derived from different data sources. Only values of European countries are comparable to each other.

Source: OECD calculations based on *Corine Land Cover dataset* and National Land Cover Database.

However, the picture looks different if population growth is considered. Between 2000 and 2012, population has been growing strongly in the core of FUAs, but population growth in commuting zones was even stronger. On average, population in the core increased by 0.68% annually, whereas population growth in the commuting zone was 1.23% annually. In a majority of countries, the increase in population outweighed the increase in developed land. As a consequence, the area of developed land per capita has declined both in urban cores and in commuting zones, implying that per capita land use in FUAs has decreased. Due to the strong population growth, the decline was stronger in commuting zones with -0.24% annually than in urban cores with -0.15% annually. Thus, measured by their per capita land use, commuting zones have become more compact.

Figure 4.16. **Growth rates of developed land per capita in cores of commuting zones of functional urban areas with more than 500 000 inhabitants**



Note: Data for European countries and the United States have been derived from different data sources. Only values of European countries are comparable to each other.

Source: OECD calculations based on *Corine Land Cover dataset* and National Land Cover Database.

The resulting picture is ambiguous. Developed land and population has particularly strongly increased in commuting zones, which is a sign of increasingly sprawling cities. However, the corresponding decline in developed land per capita indicates that no corresponding growth in developed land has taken place. An important question for the future is whether growth in developed land will eventually catch up with population growth and suburban areas become less dense or if the decline in developed land per capita signals a shift to more compact patterns of suburban development.

In summary, the data shows increasing suburbanisation in a context of generally strong urban growth, but this does not imply increasing suburban sprawl. In particular the United States experienced a strong population inflow into commuting zones of large FUAs, but a comparatively small increase in the share of developed land. Although the United States has still exceptionally high levels of developed land per capita (see Figure 4.15) in their commuting zones, it has reduced its per capita levels of land consumption substantially since 2001.

Two important caveats apply. First, for the purpose of the analysis, areas defined as cores and commuting zones of FUAs were considered fixed over time. This may overestimate the degree of suburbanisation because some areas that initially belong to the commuting zone will eventually become part of the urban core when population and developed areas are increasing. Second, the available land cover data can give some insights on the evolution of sprawl, but not a full picture. Sprawl is typically defined as a multi-dimensional phenomenon out of which density is one aspect. Others are for example the continuity of development or degree of mixed-use development (Galster et al., 2001). These dimensions are impossible to capture with the data used for this analysis.

Little physical densification of developed land is occurring

The density of developed land can be defined in different ways. On the one hand, it can be defined as the number of people that live on a given area of developed land. Developed land per capita, which is used throughout this chapter, is a derivation of this measure. On the other hand, density of developed land can be defined according to the physical pattern of development, for example by the share of developed land that is covered with buildings or by the height of those buildings. The former measure would reflect human density, whereas the latter measure would indicate physical density.

While population density has increased in most urban areas, physical densification of developed areas has been progressing slowly as far as the data can show. Land cover data for Europe and the United States contains information that allows a basic analysis of some densification patterns. In Europe, the category "urban fabric" is divided into "continuous urban fabric" and "discontinuous urban fabric", with the former being generally denser than the latter. In the United States, developed land is classified into four classes with increasing physical density: "developed, open space"*;* "developed, low intensity"; "developed, medium intensity"; and "developed, high intensity".

In Europe, virtually no transformation of land from the class *discontinuous urban* fabric into the class continuous *urban fabric* has happened. The total area of *continuous urban fabric* has remained almost unchanged between 2000 and 2012. In 592 of the 659 European FUAs for which data is available, no change has occurred in the category between 2000 and 2012. In the remaining 67 European FUAs, it has increased by 0.06 square kilometres on average per year, which corresponds to 0.03% of the average area of urban fabric.

In the United States, the data shows more signs of densification, albeit it still remains at a low level. Only approximately 0.3% of all land in the category *developed, low intensity* is converted every year into land in the categories *developed, medium intensity* or *developed, high intensity*. On average, this corresponds to 1.5 square kilometres per year and per FUA. Densification of land in the category *developed, medium intensity* progresses even slower. 0.03% of land in this category is converted into land in the category *developed, high intensity*. The rates of densification are very similar across FUAs of all sizes ranging from 50 000 to more than 15 million inhabitants. The only exception is a slightly higher rate of densification of land that is developed with low intensity in FUAs above 500 000 inhabitants.

The absence of strong signs of physical densification sheds further light on the previously discussed findings related to housing. They explain why population growth without corresponding increases in the size of developed areas leads to a decrease in dwelling area (measured by the number of rooms per household) and an increase in housing costs. If neither the size of developed areas nor their density increase, growing population leads to less available residential living space per capita. The corresponding increase in housing costs is the economic consequence of greater scarcity. While it is possible to increase housing by building on brownfield sites and converting commercial and industrial land into residential areas, the data suggests it this does not happen at a rate that is sufficient to counteract the increase in population.

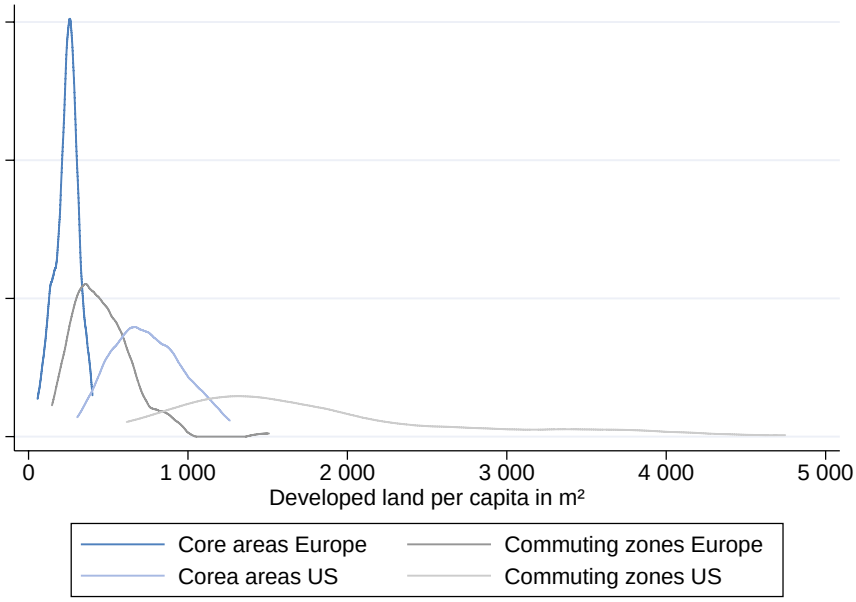
Governments aiming to reduce housing costs either need to provide land for the construction of housing, encourage the densification of developed land or do a mix of both. As long as the supply of housing grows at a lower rate than the population, the costs of housing can be expected to rise. Given that most urban areas have densities at which

increases in density outweigh their costs, the construction of housing should preferably occur through brownfield redevelopment and the densification of developed areas.

Land use in commuting zones of different FUAs varies strongly from each other

Different FUAs have different patterns of physical development. With respect to the area of developed land per capita, the differences between the commuting zones of different FUAs are more pronounced than the differences between cores. Figure 4.17 shows the distribution of the average per capita land use in cores and commuting zones in Europe and the United States The dispersion of per capita land use is much smaller for core areas than for commuting zones. Both in Europe and the United States, the average values of developed land per capita are clustered around the median of the respective distribution. In contrast, the distribution of average per capita land use in commuting zones is spread out over much larger intervals.[11]

Figure 4.17. **Distribution of average developed land area per capita in European and US core areas and commuting zones**



Note: Kernel density estimate of the distribution of the average area of developed land per capita in core areas and commuting zones of European and US functional urban areas, respectively. It shows that average developed land per capita in the core of European functional urban areas varies between approximately 100 square metres and 300 square metres. In contrast, the variation between US functional urban areas is much larger. Typical values range from less than 500 square metres to more than 1200 square metres for core areas.

Source: OECD calculations based on *Corine Land Cover dataset* and National Land Cover Database.

The fact that land use in commuting zones differs more between different FUAs than land use in urban cores indicates that the range of possible patterns of development is greater in commuting zones than in urban cores. It suggests that institutional factors and policy choices play a greater role in influencing patterns of

development in commuting zones than in cores – at least when it comes to the area of developed land per capita. For example, it might be a sign that some FUAs have adopted compact transport oriented development in their commuting zones, whereas other urban areas have low-density car-based commuting zones.

The strong variation of outcomes in commuting zones highlights the importance of institutional arrangements that do not only consider the core areas of FUAs, but also their commuting zones. Only when policies are co-ordinated between the two parts of FUAs, is it possible to develop effective land-use policies.

Administrative fragmentation in the United States is associated with more developed land per capita

One of the underlying causes of sprawl can be a lack of co-ordination between local governments (OECD, 2015). Since local governments take primarily the consequences of planning decisions for their own territory into account, they may not consider effects on other parts of a FUA. In the case of sprawling developments, these may be congestion and air pollution in the jurisdictions of other local governments. As these costs of sprawl are not borne by them, local governments may permit more sprawling developments than they would if all costs of sprawl would occur on their territory. This effect is the more pronounced, the smaller the territory of a local government because the share of costs related to sprawl that occurs on a territory of a local government declines with the size of its territory. Thus, the more fragmented a FUA is into many small local jurisdictions the more likely it is that they support sprawling development. As discussed in Chapter 3, this effect is amplified if the fiscal system provides incentives to local governments to attract additional residents or businesses.

Data for the United States shows evidence that this effect exists. For each 1% increase in the number of local governments in a metropolitan area the per capita area of developed land is 0.12% higher. The estimate takes population size and total area covered by the metropolitan area into account and is statistically highly significant.[12] The result corresponds closely to the prediction provided by the argument in the previous paragraph. Metropolitan areas that are more fragmented into many local governments experience greater sprawl as measured by the area of developed land per capita.

However, the effect can only be found in the United States. In Europe, the estimated coefficient on the number of municipalities is close to zero and statistically insignificant. One possible explanation could lie in the greater prevalence of inter-municipal and regional co-ordination mechanisms in Europe (OECD, 2017b). If these mechanisms are effective in overcoming the co-ordination problem between municipalities, the sprawl-inducing effect of fragmentation would be neutralised. For example, in France, territorial coherence plans (*Schema de coherence territorial*) are jointly adopted by municipalities across an agglomeration area to address such issues as peri-urbanisation and the protection of natural areas and greenspaces. Municipalities in France can also adopt joint land-use plans, thus furthering their spatial co-ordination (*Plan locale de urbanism*). Nevertheless, as the OECD (2016c) shows for the case of Lodz, there are plenty of examples also in Europe where such co-ordination mechanisms are missing and sprawling development in urban areas is a problem.

Urban areas with metropolitan authorities experience lower growth in per capita land use

Metropolitan authorities that co-ordinate policies can play an important role in overcoming co-ordination problems between local governments (Ahrend, Gamper and Schumann, 2014). Land-use decisions of local governments are often subject to co-ordination problems because decisions that are in the interest of the local population or of local decision makers may run counter to what is in the interest of the metropolitan area as a whole. Ahrend, Gamper and Schumann (2014) collect data on metropolitan authorities and show that they are effective in overcoming the co-ordination problem between local governments. Among other results, they find that metropolitan authorities have been effective in reducing the growth of developed land per capita between 2000 and 2006.

Using the data collected by Ahrend, Gamper and Schumann (2014), it is possible to update the results with more recent land cover data and provide further details. Urban areas with metropolitan authorities see smaller increases in the area of developed land per capita than urban areas without them. Not surprisingly, the effect is particularly pronounced if metropolitan authorities are active in the field of spatial planning or land-use planning.[13] Urban areas where such metropolitan authorities exist experienced a 0.2 percentage points lower growth rate of developed land per capita in their commuting zones than urban areas where such metropolitan authorities do not exist. Given that the average per capita GDP growth rate in metropolitan areas has been 0.9%, this difference is large. In contrast, virtually no difference can be found between the cores of the two groups of urban areas. In other words, per capita use of land grows less in the outer parts of urban areas that have metropolitan authorities working on land-use planning or spatial planning. Although metropolitan authorities across the OECD differ in terms of their legal status, stakeholders, powers, budgets and staff, they can be very effective in managing collective spatial development issues. Thus, metropolitan authorities appear effective in fostering compact urban development in commuting zones, which confirms the arguments made in Chapters 2 and 3.

Large per capita areas of developed land in commuting zones contribute to air pollution

The data on FUAs confirms the results on air pollution that are found at the regional level. A larger area of developed land per capita is correlated to higher levels of air pollution if population density for the entire FUA (i.e. independent of the size of developed land) is taken into account. Air pollution is measured by the average exposure to $PM_{2.5}$. Data is available for FUAs with more than 500 000 inhabitants.

More interestingly, the data shows that especially per capita land use in commuting zones is related to air pollution. FUAs with a 1% larger area of developed land per capita in commuting zones have a 0.25% higher $PM_{2.5}$ pollution.[14] The estimate is statistically highly significant. Furthermore, it is of very similar magnitude if the United States and Europe are analysed separately from each other.

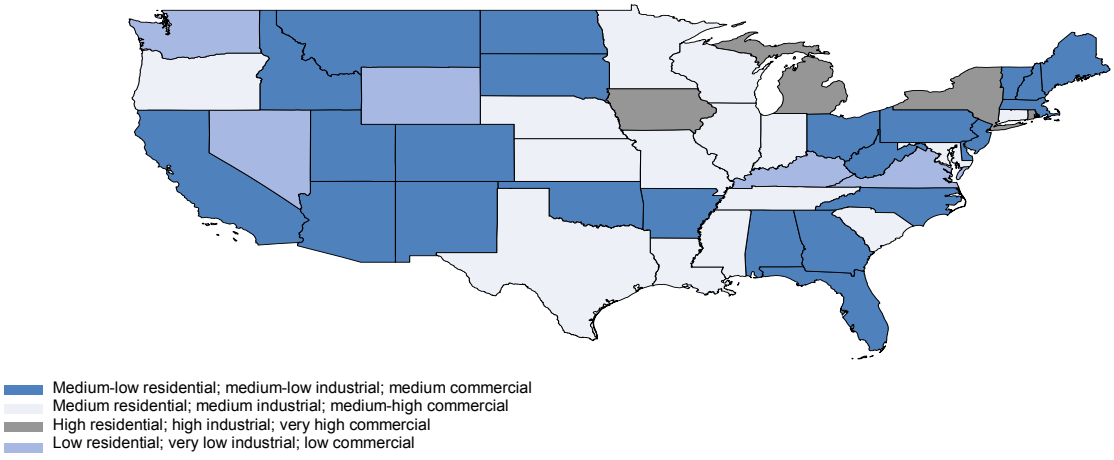
A possible explanation for the importance of commuting zones for air pollution might be the greater reliance of cars as means of transport in these areas. Generally, commuting zones are less well served by public transport than core areas of FUAs. Moreover, distances tend to be larger. Thus, any changes to land use that increase car reliance might have a particularly strong effect in commuting zones.

Property tax regimes in US states

This section refers to the data provided by the Lincoln Institute of Land Policy and Minnesota Center for Fiscal Excellence to provide an overview of effective property tax rates in US states and show if and how they are related to land use. As the most recent land cover data for the United States is available for 2011, tax rates of the same year are used in the following.

In general, states that charge low effective tax rates on one type of property (i.e. residential, commercial or industrial) tend to do so also for other types of property. Nevertheless, some states charge higher taxes for one type of property than for another. Particular patterns can be identified using cluster analysis – a statistical method that identifies observations that are similar to each other. Figure 4.18 shows a map of US states classified into four categories according to their effective tax rates for the 12 hypothetical properties for which effective tax rates have been collected.

Figure 4.18. **Property tax regimes in US states**



Note: This map shows US states grouped into four categories according to the property tax regime for residential, commercial and industrial properties in their largest cities. States that are marked with the same colour have similar effective property tax rates. The classification is based on a k-means cluster analysis with four groups using effective tax rates for 12 hypothetical properties in the largest urban areas of the states.

Source: OECD calculations based on data from Lincoln Institute for Land Policy and Minnesota Center for Fiscal Excellence (2015).

A small group of states (drawn in light blue) is characterised by generally low property taxes. On average, annual property taxes for residential, commercial and industrial properties in these states are below 1% of their market value. Only six states fall into this category and they are not concentrated in any particularly geographical area. The largest group of states (drawn in dark blue) tends to have low effective property tax rates for residential and industrial property, but somewhat higher rates for commercial properties. On average, states in this category have effective property tax rates of 1.2% for residential and industrial property and 1.6% for commercial property. A third group of states (drawn in very light grey) has generally higher effective property tax rates of on

average 1.8% for residential, 2.0% for industrial and 2.6% for commercial properties. These states can primarily be found in the mid-west of the United States The smallest group of states (drawn in dark grey) has similar property taxes for residential and industrial properties, but is characterised by very high effective tax rates for commercial properties that fall in the range of 3.2%-4.1%.

US states with low property taxes have grown in population

States with low effective residential and commercial property tax rates have seen stronger population growth than states with high effective tax rates. A 1 percentage point higher effective residential and commercial property tax rate is correlated with a 0.3 percentage point lower population growth, respectively. No statistically significant effect can found for industrial property taxes.[15] It is important to note that these results do not necessarily imply that lower effective tax rates cause higher population growth. Other factors might explain the relationship. For example, it would also be possible that economically successful states are fiscally able to charge low tax rates and attract people because of their economic success rather than their low tax rates.

Generally, the magnitude of the effective property tax rates has few consequences for the development of land on a per capita basis. This is in line with the discussion in the previous chapter that argued that in their current form, property taxes do neither encourage nor discourage land use. In contrast, if property taxes treat some forms of development preferentially, it may well have an effect on patterns of development. Figure 3.1 in Chapter 3 shows that US states, which tax single-family homes less favourably relative to multi-family homes, have seen faster declines in developed land per capita. This is an indication that differential property taxes can in fact have an impact on land use.

Effective property tax rates in rural areas are significantly lower than in urban areas

In 35 out of the 48 states of the contiguous United States lower effective tax rates on residential property are charged in the rural towns than in urban areas. On average, property taxes on residential properties of identical market values are 25% higher in urban areas than in the analysed rural towns. Very similar results can also be found for commercial and industrial property. The difference between rural and urban areas is further exacerbated by differences in the average value of properties. Properties in urban areas tend to be more expensive than in rural areas and many states charge higher property taxes for more expensive properties. This may reflect the fact that local governments in rural areas provide fewer services than local governments in urban areas. Insofar as lower property tax rates in rural areas provide an incentive to move there, they also contribute to a greater use of developed land per capita, since on a per capita basis rural residents use more developed land than urban residents.

From general trends to individual cases

This chapter has provided an overview of trends and patterns of land use in OECD countries. It showed that many regions face similar developments and that important regularities concerning the effects of land use exist. Nevertheless, these regularities manifest themselves differently in each city and region. The next chapter discusses some of the most important challenges that cities and regions face on the basis of concrete examples from seven urban areas.

Notes

1. The European countries for which land cover data exists and that are discussed in this report are Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Iceland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom. For the United States, all estimates refer to the contiguous United States, i.e. excluding Alaska and Hawaii.

2. A test for the slope coefficient $\beta_1 = -1$ yields F-statistics of 0.93 for Europe and 0.51 for the United States. Thus, it is not possible to reject at any reasonable significance levels that the slope in both cases is –1.

3. Estimate based on a regression of annual real per capita GDP growth rates from 2001 to 2012 on the log-area of developed land per capita in 2000 and a set of country dummy variables. The level of observation is TL3 regions. The point estimate is statistically significant at the 99.9% confidence level.

4. Estimate based on a regression of average annual real per capita GDP growth rates from 2001 to 2012 on the average annual per capita growth rate of developed land and a set of country dummies. The level of observation is TL3 regions. All estimates are significant at the 99.9% confidence level. When log-area of developed land per capita in 2000, log-per capita GDP levels in 2000, log-population in 2000 and dummy-variables denoting whether a region is urban, rural, or intermediate are included, the estimated coefficient is reduced to 0.17, but remains statistically highly significant.

5. Estimate based on a regression of the car ownership per 100 inhabitants on log-developed area per capita, log-per capita GDP and a set of country dummies. The point estimate on log-developed area per capita is statistically significantly different from 0 at the 99% confidence level.

6. Estimate based on a regression of the average population exposure to $PM_{2.5}$ on log-developed land per capita in 2012, log-per capita GDP levels, regional population density (i.e. population of a region divided by its total area) and a set of country dummy variables. The inclusion of regional population density is necessary to distinguish the effect that is related to the area of developed land per capita from the effect that is due to the number of people living in a region. The latter is related to air pollution because more people create more pollution, but also affect how much land per capita is developed. Thus, not controlling for it would lead to spurious estimates. The coefficient estimate on log-developed land per capita is statistically significant at the 99.9% confidence level. *N*=669.

7. Estimate based on a regression of the log-atmospheric concentration of NO_x on log-developed land per capita in 2012, log-per capita GDP levels, regional population density (i.e. population of a region divided by its total area) and a set of country dummy variables. The coefficient estimate on log-developed land per capita is statistically significant at the 99.9% confidence level. *N*=669.

8. Estimate based on a regression of the log-atmospheric concentration of NOx on log-urban fabric per capita in 2012, log-industrial land per capita in 2012, log-per capita GDP levels, regional population density (i.e. population of a region divided by its total area) and a set of country dummy variables. The coefficient estimate on log-urban fabric is 0.35 and is statistically significant at the 99.9% confidence level. The coefficient estimate on log-industrial land per capita is virtually equal to zero and it is statistically not significant at any reasonable confidence-level. *N*=668.

9. Estimate is based on a regression of the share of housing costs in household expenditure on log-urban fabric (i.e. developed land net of industrial land and other non-residential land) and a set of country dummies, *N*=29. Data is available only for 29 regions from four countries, but despite the small sample the estimate is statistically significant at the 95% confidence level.

10. The estimate is based on a regression of log-rooms per capita on log-developed area (net of industrial and other non-residential land), controlling for log-per capita GDP levels and including a set of country dummies. The estimate is statistically significant at the 99.9% confidence level.

11. This is not just due to the fact that the respective distributions of per capita land use in commuting zones has a greater mean μ than the distribution of land use in core areas. The standard deviation σ of per capita land use normalised by the mean of the distribution (σ/μ) is consistently larger for commuting zones than for core areas (0.31 for both European and U.S. core areas, compared to 0.42 for European commuting zones and 1.16 for U.S. commuting zones).

12. Estimate based on a regression of log-per capita area of developed land on log-number of local governments within the functional urban area, log-population and log-total area covered by the functional urban area. *N*=70. The estimate is statistically significant at the 99.9% confidence level and robust against the inclusion of log-per capita GDP as a further control variable.

13. Estimate based on a regression of the percentage change in developed land per capita on a dummy variable indicating whether a metropolitan authority working on spatial/land-use planning exists, including the population growth rate and a set of country dummy variables as controls. The result is statistically significant at the 90%-confidence level.

14. Estimate based on a regression of log- $PM_{2.5}$ exposure on log-per capita area of developed land in the core, log-per capita area of developed land in the commuting zone, log-population density in the core, log-population density in the commuting zone and a set of country dummy-variables, *N*=168.

15. The estimates are based on a regression of the annual population growth rate of a state on its (unweighted) average effective tax rates for residential, commercial and industrial properties. The point estimates for residential and commercial property taxes are weakly statistically significant at the 90% confidence level.

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CHAPTER 5

GOVERNING LAND USE IN PRACTICE: CASE STUDIES FROM FRANCE, ISRAEL, THE NETHERLANDS AND POLAND

This chapter provides examples from practice – drawing on case studies on the governance of land use in six cities across the OECD. It examines spatial and land-use planning around three key themes which organise the chapter: i) compact development, ii) meeting housing demand, and iii) increasing well-being and quality of life.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Spatial and land-use planning has high ambitions. Framework studies and strategic spatial plans commonly address environmental, social and economic issues and trends and propose short, medium and long-term goals in order to build a more prosperous, sustainable and inclusive future. Examples abound: in the Netherlands, Amsterdam is preparing for a post-fossil fuel era; in Poland, Lodz seeks to transform its historic centre and reverse the growing trends of sub- and peri-urbanisation; in France, Clermont-Ferrand seeks to reframe its connections and identity across a larger metropolitan scale in the face of territorial reforms; and in Israel, Umm al-Fahm, seeks to provide infrastructure and amenities in a city whose land-based constraints limit economic and social development. How can these places meet their spatial ambitions in the coming years and decades? Do they have the right instruments and tools to effect change?

This concluding chapter argues that, in order to meet the ambitions of spatial policy, tools, instruments and incentives both within and outside of the purview of spatial and land-use planning need to be aligned. Planning regulations, zoning plans and even the types of active land-use planning that municipalities in some countries practice such as the Netherlands, are not enough to meet stated goals. There are several reasons for this. First, sectoral policies can often detract from spatial goals or be miss-aligned – e.g. the desire for landscape protection can run up against the desire for sustainable energy through the use of wind turbines or solar fields. Further, policies across different levels of government can inherently conflict, thus detracting from their effectiveness. For example, fossil fuel subsidies across OECD countries total an estimated USD 160-200 billion annually; in the cases of diesel and gasoline such subsidies encourage automobile dependence at the same time as cities and communities are trying to shift towards sustainable and active forms of transportation in order to reduce carbon emissions and improve air quality (OECD, 2015a). Policies can also be misaligned within a single level of government. For example, where residents do not bear the true costs of public services and infrastructure in their locational choices, sprawl is encouraged even if local planners try to achieve a compact urban form. This then detracts from the long-term environmental and fiscal sustainability of a city's development.

Spatial and land-use policies encounter the same kinds of silos, sectoral divisions, and government co-ordination issues as other policy areas, thus detracting from their effectiveness. However, they also face distinct scalar challenges – with many issues such as economic development, transportation, climate change mitigation and adaptation, and landscape protection extending across multiple administrative boundaries and scales. Land is a local issue and across OECD countries there has been a trend towards decentralisation and subsidiarity. In recent years there has also been a trend towards rescaling in many countries – with the metropolitan level gaining importance as municipalities collaborate in order to address joint issues. However, this scale, which can often rely on voluntary collaboration and/or have weak statutory instruments, faces inherent challenges in realising its spatial ambitions. It is also critical to recognise that the governance of land use is much beyond a government activity – a wide range of public and private actors and residents are involved in its formulation and outcomes.

It is for all of these reasons that the tools and instruments of spatial and land-use planning are not enough. The planning profession has increasingly embraced multi-sectoral and integrated perspectives, but much more integration is required across policy actors in order to align instruments and objectives. This is of course not the purview of planners alone; it requires multi- and inter-disciplinary perspectives and new ways of working between professions, across bureaucracies and with a wide range of public and private actors. This is fundamentally a governance issue.

This chapter explores these issues by highlighting three key spatial policy objectives: i) compact development; ii) meeting housing demand; and iii) improving quality of life and enhancing well-being. It draws on findings from in-depth case studies of select municipalities in four OECD countries: France, Israel, Poland and the Netherlands. For each case, the city's spatial ambitions, the tools and instruments at planners' disposal and the challenges they face in realising spatial development objectives in both the short and longer terms are explored. In each case, recommendations are offered for how the multitude of policies, tools and instruments that impact land use could be better aligned and key lessons for policy makers are highlighted. The main spatial objectives highlighted here are clearly linked. For example, increasing density is an important part of meeting housing demand: room for new housing investments is freed by making more efficient use of space. Similarly, enhancing economic competitiveness is an important element of well-being in terms of providing employment. Therefore, while these themes are used to organise the cases, they are by no means mutually exclusive and each territory's spatial ambitions encompass a wide range of factors that are often interlinked.

Pursuing compact development

Across many of the case studies examined, increasing density has been an explicit spatial goal. For example, in Amsterdam, there is a desire to increase density in order to make more efficient use of limited space in the urban core and to meet the housing needs of a growing population. In Clermont-Ferrand, the desire for increased density is driven by a need to renew vacant sites and bring vitality to the community while protecting natural open spaces and farmland. While densification, or compact development, is a common spatial planning agenda, how these dynamics play out in a jurisdiction, and the policy responses to them, can vary considerably (OECD, 2012).

This section explores the goal of densification primarily as a strategy to combat peri-urbanisation – which is one of the most common features of modern agglomerations, be they large or small. Peri-urbanisation can impose significant costs on both public and private actors. For example, the aggregate result from a series of uncoordinated land-use changes lead to a pattern of development that imposes high travel costs, with people living far from where they work and shop, or where spillover effects from farming make living in the country unpleasant. Further, lower densities in such places can make infrastructure and service provision more costly, reducing a municipality's fiscal sustainability. Peri-urbanisation is not inherently bad, as considerable evidence shows that a large share of the population, when presented with an opportunity to live in a semi-rural environment, will choose to do so. The obvious challenge is how to best manage the process and balance the interests of individuals against that of the community as whole. A critical issue is that residents who choose to live in these locales typically do not bear the full costs associated with these locational choices even though there are obvious costs associated with them that the broader public bears.

Two different case studies are examined in this section in order to highlight these issues: i) peri-urbanisation in Łódź, Poland, which has a shrinking population, and few institutionalised incentives for municipal co-operation, and ii) Nantes Saint-Nazaire, France – a growing agglomeration with a strong history of municipal co-operation and joint spatial plans. Each case illustrates distinct challenges and the ways in which the planning system, governance frameworks and broader incentives and disincentives act to generate land-based outcomes. In Łódź, the desire for densification is related to the urban renewal of the city's historic centre and its economic development strategy. The rural

municipalities surrounding the city are growing faster than the city itself. There are few incentives at the moment for rural and urban areas to co-operate on strategic spatial issues. In Nantes Saint-Nazaire, densification is embraced as a strategy to protect the natural environment, which is central to quality of life in the region and has been a major draw for new residents to the area. There is a comprehensive spatial strategy for local governments (communes) across the area to co-operate on key issues, peri-urbanisation being chief among them.

Łódź, Poland – compact development as a key economic strategy

Łódź is the third-largest city in Poland and located about 100 kilometres south-west of Warsaw. The city is shifting from a former industrially-dominated economy towards a service-oriented one. The area is seeing major investments in transportation infrastructure and is in the midst of a large urban regeneration project spurred by an influx of EU structural funds. It is also a city experiencing population aging and outmigration and at the same time, deconcentration or sprawl. Population projections suggest that by 2025 Łódź could lose 10% of its current population through a combination of natural decrease and outmigration. New housing continues to be built even as the population shrinks, which has contributed to an increasing deterioration of older housing in the city centre and a concentration of low-income households. Part of this expansion is related to consumer demand for larger houses. Despite ample available land within the city boundaries, rural communes surrounding Łódź are experiencing growth in residential housing and business/industry development. New road infrastructure is opening some areas to new developments, furthering peri-urbanisation.

These issues are exacerbated by contradictions which are embedded within the present spatial planning system. In effect, Łódź and its surrounding commuting areas do not have the adequate tools to shape the visions of development articulated in both regional and local spatial strategies. The tandem trends of deconcentration and depopulation facing Łódź, along with rapid investment and redevelopment in the urban core, make the need for effective spatial planning all the more pressing. Beyond this, it is also evident that many of the costs associated with peri-urbanisation are not reflected in locational choices, including the cost of roads and access to municipal services.

Table 5.1. **Łódź: Key indicators**

Population of functional urban area, FUA (2014)	939 568
Population city of Łódź:	
2014	700 600
2020 *projected*	668 500
2025 *projected*	638 000
Population density, FUA (2014)	554.75 persons per km^2
Concentration of population in core, FUA (2014)	83.53 %
Average population size of local government, FUA (2014)	55 269 persons
GDP per capita growth (2000-2013)	
Łódź FUA	4.13%
Poland	3.73%

Source: OECD (2016a), *Metropolitan Explorer*, www.oecd.org/gov/regional-policy/oecdexplorer.htm (accessed 8 December 2016); Statistical Office of Łódź (2014), *Statistics of Łódź 2014*, http://lodz.stat.gov.pl/en/publications/statistical-yearbook/statistics-of-lodz-2014,1,11.html (accessed 8 December 2016).

A compact urban form is a key pillar of the city's development strategy

Łódź is hoping to restructure its economy and become a more compact city to better suit its smaller population and new economic function.[1] With ongoing population decline, the city faces the challenge of providing public services across a fragmented territory, resulting in relatively high costs. Higher costs, or poor services, may make the city less attractive to the inward investment Łódź needs to accomplish economic regeneration. In addition, because the city owns land within the city centre, it has a particularly strong incentive to find a way to increase the value of this asset and thereby reap the benefits of higher land rents.

Constructing a compact city – a city that is denser, with less unused land – based on a revitalised urban core is also seen as having positive economic, social and environmental benefits. Social benefits include the opportunity to revitalise urban neighbourhoods, rehabilitate housing and allocate some of it to current low-income residents. Environmental benefits stem from the reduced use of private transport, reduced need for road construction and improvement, and a shift to public transportation. Increased density within the city's centre is also a key component of the city's economic development strategy. The city aims to attract investments for new business and residential developments that will be well linked to its improved transportation networks in the centre – in turn, attracting businesses and boosting employment. Łódź has received EU funds to support a major part of the investment in rehabilitating the core.[2]

The limitations of land-use tools and instruments in Łódź

Local spatial development plans are the key tool for local governments to shape urban form and use. They are the only legally binding plan which signals to residents, developers and investors how land, buildings and infrastructure will be developed in the future. However, there are number of issues with how these statutory instruments are used in Poland. Plan coverage is low across most Polish municipalities and particularly low in Łódź, at roughly 11% of the territory.[3] The process of elaborating a local spatial development plan is long, complex and risky due to the prospect for citizens to claim compensation from the municipality for any reduced value in other property as a result of a local plan.

Where municipalities have adopted local spatial development plans, this accompanies a legal requirement to provide the necessary infrastructure to support developments. However, given the structure of local finances, such investments in most cases would result in a very marginal increase in direct tax revenue; gains in personal or income tax would take time to be realised and would be unlikely to cover infrastructure costs (Radzimski, 2012: 671). Given this, there are disincentives for municipalities to adopt plans (because of obligations associated with them) or undertake new infrastructure investments unless there are special funds allocated to these activities. Municipalities thus seek to avoid long-term financial obligations and adopt "incremental planning" instead – resulting in infrastructure shortages in suburban areas, automobile dependency and congestion (Radzimski, 2012: 671). Beyond these issues it is important to note that increasing the coverage of local spatial development plans may not, in and of itself, set Łódź on the path of meeting its goals for a denser urban form. A 2013 study on land-use planning by Kowalewski et al. (2013) finds that local spatial development plans alone allow an estimated 62 million residential settlements across Poland – far exceeding any potential demand. Therefore, the content of the plans matters greatly.

Another instrument directly undermines the density agenda: "planning decisions". Development in areas without a valid plan is governed by "planning decisions" for an individual building or change of land-use request. This can lead to fragmented and undesirable forms of development. Planning decisions are bound by national law and by specific legal procedures that limit planners' ability to direct development. For example, such decisions consider the existing features of buildings in the surrounding neighbourhood. If there is an existing building in the surrounding neighbourhood of a particular height, this provides the land owner the right to build a similarly-scaled structure. Thus, planning decisions are based on existing features, rather than desired ones. An over-reliance on planning decisions in cities with low plan coverage, like Łódź, can lead to new suburban developments and uses which are costly to service and maintain. In effect, they facilitate sprawl.

Structural disincentives for metropolitan co-operation

Łódź is part of a larger metropolitan system that links communes of varying size, population and wealth. Within the region (*voivodeship*), Łódź is by far the largest and wealthiest city, and has the most administrative capacity. The subset of municipalities in the region that are adjacent to Łódź tend to be strongly connected to the city in terms of employment flows, retail activity and their use of services provided in Łódź. Because of the high degree of interconnectedness there should be a strong interest in co-ordinated development. However, while the regional authority can establish a development and planning strategy that cuts across the member municipalities, these documents are not enforceable, even if agreed upon. Moreover, since own-source revenue from households and firms is an important share of local government revenue, there is a strong incentive for completion among the municipalities for economic development. This includes new housing development and attraction of new businesses. As a result, "leap-frog" development is already occurring and if Łódź tightens its planning process to encourage development in the urban core, it risks losing even more households and firms to adjacent municipalities.

Increased development just outside the administrative boundary of a region is a common phenomenon in many OECD countries. The larger city may gain from an increased volume of economic activity, but if the individual firms and households do not contribute to the cost of the infrastructure and public services that residents are using, then both efficiency costs and equity issues arise. This situation creates a dilemma for Łódź. On the one hand, it wants to achieve urban redevelopment and must rely on stronger spatial planning to encourage greater use of the core. On the other hand, tighter restrictions within the administrative boundaries of Łódź will increase the incentive for leap-frogging and damage the prospects for the urban redevelopment strategy.

Frameworks set at the national level in Poland have widely adopted the importance of planning based on functional urban areas (FUAs) and stress the need for integrated approaches. Such a lens is present in both the National Urban Policy in 2023 (2015) and the National Spatial Development Concept 2030. However, at the local level, there are a number of challenges to implementing such practices. Local governments have a high degree of independence to manage their jurisdictional domains. While some governance structures exist to collaborate on transportation issues or shared services, these tend to be voluntary and to have limited functions. The recently passed *Metropolitan Association Act* (2015) offers a potential solution in this regard. It establishes a legal framework for

metropolitan co-operation which can help urban and rural areas to receive the EU's integrated territorial investments (Box 5.1).

Polish municipalities are not alone in needing to tackle these issues. Metropolitan areas across OECD countries struggle to establish frameworks of co-operation to deal with joint issues that can last in times of both spending and constraint. OECD research has demonstrated the importance of overcoming such obstacles to find lasting co-operation. For example, an analysis of cities in five OECD countries found that those with fragmented governance structures tend to have lower levels of productivity (Ahrend et al., 2014).

Box 5.1. The European Union's Integrated Territorial Investments

The spatial strategies of urban and rural areas need to be coherently linked. The European Union's integrated territorial investments (ITI) in Poland encourage integrated spatial planning across functional urban areas. It is important that such investments be based on the good land-use practices that have been described in plans and strategies at the national, regional and local levels, such as developing brownfield sites in advance of greenfield ones, permitting developments only in areas where there is existing infrastructure to support them, and protecting agricultural lands, forested areas and watersheds.

Through ITIs, municipalities are required to form collaborative bodies (municipal association agreements) in order to forward projects of metropolitan importance and to access investments. This mechanism has greatly facilitated municipal co-operation. It will be very important to institutionalise these practices in order to encourage such co-operation in the longer term (beyond the life of the ITIs). This could include special incentives for metropolitan co-operation such as dedicated funding streams for such projects. However, where such collaborative planning is driven by voluntary local government associations, there is the risk that only certain types of issues – those that are less contentious and mutually benefit local actors – will be addressed, leaving substantive issues with little scope for action.

Source: OECD (2016b), *Governance of Land Use in Poland: The Case of Lodz*, http://dx.doi.org/10.1787/9789264260597-en.

The need for a metropolitan strategy and more effective instruments – planning and otherwise

Compact development and higher urban densities are needed in order to realise the city's ambitions for its future development. At the same time, peri-urbanisation is imposing significant costs. An estimated 100 000 people commute into the city daily and there is growing traffic congestion and rural dwellers use urban services and infrastructure without directly contributing to them. These issues are compounded by a land-use planning system that encourages suburban and peri-urban developments. The existence of a parallel system of planning decisions which undermines local development objectives and incentivises sprawl; low local plan coverage and a legal framework that discourages further plan development; and until recently, there have been limited institutional mechanisms to plan across the functional space. Within the planning system, there is clearly room for improvement. Reliance on planning decisions should be reduced or eliminated, plan coverage should be increased and rural and urban municipalities should develop ways of working with one another to meet common spatial objectives.

But, even with reforms to the existing planning instruments, and new modes of rural-urban co-operation, it is likely that the city will struggle to meet its spatial planning objectives which fundamentally demand a behavioural change on behalf of citizens towards favouring higher density urban life. Łódź should explore a broader range of tools that can be used for land-use governance. Planning is largely a tool that restricts choices. It can effectively block or constrain the actions of individual households and firms. But it does not alter preferences, which ultimately shape behaviour. There is the possibility to use market forces directly, offer incentives that can alter preferences, and use taxes or subsidies to alter the costs that individual firms and households incur with different decisions. For example, user fees are a market solution that could be explored as a way to address free-riding on public services. If these fees are differentiated for residents and non-residents of Łódź, they also provide a cost differential signal to location choices. As a major property owner in the urban core, the city could provide development incentives to private firms that invest in the restoration of housing or other types of buildings. Such incentives might include zoning variances, expedited building permission or other non-monetary factors that can trigger a change in preferences. Finally, there is the potential to use financial instruments in the form of taxes or subsidies to alter the costs of certain actions. For example, the way that the property tax is calculated (based on land and building size/area) is inefficient and can encourage land speculation. Consequently, local governments are not reaping the benefits of an increase in land values when local infrastructure investments are made. A shift to ad valorum property taxation is warranted to capture these changes in value, but a shift to such a system would take some time. In this respect Łódź is significantly constrained by Polish laws but it may be able to find specific charges or subsidies it can adopt.

Box 5.2. **Designing property taxes to tackle urban sprawl**

By altering the relative price of property, property taxes can influence a number of decisions about property improvement, size and location – and ultimately increase or decrease urban sprawl (Deskins and Fox, 2010). Decreasing sprawl through property taxes requires the following priority actions:

- Eliminate policies that favour single-family homes over apartments because the former encourage less dense development. Perverse incentives are created when single-family residential properties are offered lower taxes than higher-density properties of the same value (Haveman and Sexton, 2008).
- Tax the land value, not the property. When property taxes are based on land value, rather than buildings or other improvements to the property, owners have an incentive to develop the land to its most profitable use. Replacing a traditional property tax with a land-value tax, or a split-value tax that includes higher rates for land value and lower rates for structures or other improvements (as implemented by some municipalities in the US state of Pennsylvania), could encourage development in the urban core.

Development fees or charges can also discourage sprawl and fund infrastructure. A development charge is a one-off levy on developers to finance the growth-related capital costs associated with new development or, in some cases, redevelopment. These charges are levied on works constructed by the municipality, and the funds collected must finance the infrastructure needed for the development. Development charges that reflect the true cost of providing services can buttress planning tools by guiding development away from high-cost areas to more efficient locations (Tomalty and Skaburskis, 2003). Pricing policies can be an effective planning tool because "they directly engage developers, they make them accept the full project costs, they recognise and publicise the need to correct for the external costs of development by increasing the cost of land, and they raise funds for infrastructure development and compensation programmes" (Skaburskis, 2003). For example, the extension of the metro-line in Copenhagen was financed through fees from the development of the Ørestad area of Copenhagen (OECD, 2009).

Box 5.2. **Designing property taxes to tackle urban sprawl** *(continued)*

When urban form and density are not fully factored into the development charge, a market distortion occurs which can result in inefficient allocation of resources (GTA Task Force, 1996). In order to have the required effect, the charges have to be differentiated by location to reflect the different infrastructure costs. The costs of services may vary by location for at least three reasons (Tomalty and Skaburskis, 1997). First, the distance of each development from major facilities makes a difference. A development far away from an existing water treatment plant, for example, may require an additional pumping station. To be efficient, development charges would be higher in these locations. Second, there will be infrastructure cost savings for nodal or infill development because the infrastructure is already there. Third, service standards may vary in different developments (e.g. household water use versus waste generation). Whatever the reason for the differential costs, efficient land use requires that developments imposing higher infrastructure costs on the city pay higher development charges than developments imposing lower costs. Blais (2010) notes that, in addition to varying by location, charges should also differ according to the density and type of development to avoid low cost areas subsidising high-cost areas, small lots subsidising large lots, and smaller residential units subsidising larger units.

Area-specific charges allow municipalities to vary the charge according to the different infrastructure costs imposed by each area on the city. A uniform charge subsidises inefficient uses of land; developments that impose higher costs are subsidised by developments that incur lower costs. In practice, however, many cities are missing opportunities to use development charges to foster green development.

Other problems can arise from the way in which the charge is determined. In Ontario, for example, municipalities are only permitted to charge the infrastructure costs for services that are already delivered in the municipality and only for standards of service that do not exceed the average level of service over the previous ten years. If a municipality chooses to encourage compact development by increasing transit service, for example, the development charge cannot be used to cover costs that exceed the existing standard. Although these provisions were instituted to ensure that developers are not liable to pay for gold-plated services (services that exceed what existing residents currently enjoy), they make it difficult for municipalities to recover transit costs (OECD, 2010).

Source: OECD (2013), *Green Growth in Cities*, http://dx.doi.org/10.1787/9789264195325-en.

Cited sources: Deskins, J. and W. Fox (2010), "Measuring the Behavioral Responses of the Property Tax", in R. Bahl, J. Martinez-Vazquez and J. Youngman, Challenging the Conventional Wisdom of the Property Tax, Lincoln Institute of Land Policy; Haveman, M. and T.A. Sexton (2008), "Property Tax Assessment Limits: Lessons from Thirty Years of Experience", Lincoln Institute of Land Policy; Tomalty, R. and A. Skaburskis (1997), "Negotiating Development Charges in Ontario: Average Cost versus Marginal Cost Pricing of Services", Urban Studies, Vol. 34(12); Skaburskis, A. (2003), "Planning City Form: Development Cost Charges and Simulated Markets", Planning Practice and Research, Vol. 18(2); OECD (2009), *OECD Territorial Reviews: Copenhagen, Denmark 2009*, http://dx.doi.org/10.1787/9789264060036-en; Blais, P. (2010), Perverse Cities: Hidden Subsidies, Wonky Policy, and Urban Sprawl, UBC Press; OECD (2010), *OECD Territorial Reviews: Toronto, Canada 2009*, http://dx.doi.org/10.1787/9789264079410-en.

Nantes Saint-Nazaire, France – protecting environmental amenities and encouraging densification

The linked cities of Nantes and Saint-Nazaire are located in north-western France on the Atlantic coast in the Pay de la Loire region. Together with their surrounding communes, they comprise the 6th largest urban conurbation in France in terms of population. The commune of Nantes is the 6th largest city in France, with a population of about 900 000, while the commune of Saint-Nazaire is much smaller, with a population of about 70 000 (see Table 5.2 for key indicators).

In contrast to Łódź, the metropolitan area associated with Nantes and Saint-Nazaire is experiencing a period of sustained growth in population and economic activity. This

pattern of population growth has led to growing anxiety about the implications for sustainable development, including an increased concern about rapid land conversion. The largest share of new development has tended to occur outside of the administrative boundaries of the communes of Nantes and Saint-Nazaire, both in terms of new employment opportunities and new housing. [4]

While this type of peri-urban, development is common in France and in many other OECD countries, it is particularly challenging in this case because the region is located along a river estuary that opens into the Atlantic Ocean. Much of the nearby land has important ecological functions. Moreover, the unspoiled coastal vistas are an important part of what makes the area attractive to new residents and new firms. They are also the basis of a significant tourism industry. The fact that water and wetlands cover a large part of the area also limits the amount of potentially developable land, which further exacerbates tensions among competing land uses. Crucially, there is a strong desire to see economic growth continue, but also a recognition that better land management is necessary to maintain a high quality of life that will contribute to future growth.

Table 5.2. **Nantes Saint-Nazaire: Key indicators**

Population Nantes FUA (2014)	910 493
Population Nantes	900 000
Population Saint-Nazaire	70 000
Population density, persons per km² , Nantes FUA (2013)	289.64
Concentration of population in urban core, Nantes FUA (2014)	65.93 %
GDP per capita growth (2000-13)	
Nantes FUA	0.77%
France	0.54%
Average population size of local government, Nantes FUA (2014)	8 430

Source: OECD (2016a), *Metropolitan Explorer*, www.oecd.org/gov/regional-policy/oecdexplorer.htm (accessed 8 December 2016).

Nantes Saint-Nazaire has long history of inter-communal co-ordination

Spatial and land-use planning in the Nantes Saint-Nazaire region is chiefly characterised by an effort to protect local land and water resources that differentiate the area from other medium-sized agglomerations in France while maintaining the strong growth in population and economic output that has characterised the last decade. Integrated land-use planning has a strong foundation in the area that rests upon a series of joint agreements among local communes led by the two urban cores of Nantes and Saint-Nazaire. Even before the most recent round of planning reforms put in place by the French government that now require better co-ordination of planning, local governments in this region took advantage of earlier legislation that allowed the formation of intercommunal organisations to facilitate co-operative activities including land-use planning.

An important factor that encourages joint action is the dominant role of water in the area. Managing the Loire estuary and local streams and wetlands cannot be done on a commune by commune basis, and this common issue provided an early impetus for collaboration. Similarly, historical competition between Nantes and Saint-Nazaire over shipyards and port facilities evolved into co-operation when both places were forced to come together in order to build a more efficient port complex that could compete with other port cities in Europe. Thus, the governance and regulation of land use are as much a

political project as they are a reaction to social, economic conditions and urban-rural morphologies.

Densification objectives are key to the spatial agenda

The Nantes Saint-Nazaire agglomeration's plan for territorial coherence (SCoT, *Schéma de cohérence territoriale*) ensures consistency across sectoral policies (e.g. housing, mobility, commercial development, environment and landscape) and explicitly seeks to reduce suburbanisation and peri-urbanisation. The plan is jointly elaborated by 61 communes and *intercommunalités* and provides guidance and direction to local urban development plans (*Plan local d'urbanisme*). In land-use terms, the main task is to densify some areas, and overall, to reduce the consumption of space. This includes, reducing the conversion rate of agricultural lands and increasing the construction of commercial buildings in the inner cities. For the first time the SCoT includes a target figure of 25 housing units per hectare in its perimeter, which is a significant increase over the current ratio of about 20 units per hectare, in order to limit peri-urbanisation and to preserve natural and farming areas. As always, the major challenge is to combine individual goals (people want to live in single family homes, and businesses prefer to choose where they will operate) with the broader public interest of managing development so that society collectively is better off.

At a lower scale, the land-use plan of the *Nantes Métropole* also pursues a densification agenda. It seeks to develop a more compact and attractive metropolis that will reduce the interest in urban sprawl, and thereby improve biodiversity, and retain natural land and agricultural spaces. The plan intends to accomplish these goals by using an urban renewal strategy that envisions "a city in the city" with actions like increasing the number of floors in existing buildings. They are also trying to encourage increased participation in the process by private development companies (*Sociétés publiques d'aménagement*) and private investors to manage land use and local land acquisition operations, beyond the limited number of public programmes.

The challenges of pursuing densification

While increasing density is a simple objective, it is much harder to identify how this can actually be accomplished. Infill mechanisms, such as Build In My Back Yard (BIMBY) appear attractive, but are not common in the area, and are not so easy to manage. Such building projects easily lead to neighbourhood conflicts and legal challenges. Available infill sites may not suit the needs of builders, and costs of construction are typically higher for infill sites than on greenfield ones. Additional expenses for brownfield remediation can add cost and time delays that make them unattractive without subsidies. Currently 75% of land consumption is outside the urban core areas. Increasing housing in small towns is a question of small but complicated operations. In a few small towns, the centre stands partly unoccupied, mainly because people do not want to reside there, because it is neither rural nor does it have the benefits of larger urban places, and the quality of existing housing is poor. Beyond these issues, several other factors will have an impact on spatial planning. They include: i) the densification of the main cities, and the improvement of public transport within the city lead to the question of car parking; ii) the urban centres continue to have a considerable amount of heavy industry along the river and the risk of industrial accidents in the estuary impose strong rules and limits opportunities for urbanisation in close proximity to these sites; iii) there also exist several constraints due to the management of water in the SCoT perimeter, mainly regarding wetlands.

Aligning and making better use of fiscal instruments

It will be very difficult for Nantes Saint-Nazaire to achieve its densification objectives through land-use planning tools alone. Instead, a broader array of fiscal tools and incentives to promote higher density housing which occupies a smaller square footage per person should be encouraged. For example, presently Nantes and Saint-Nazaire do not use land value capture mechanisms – tools to recover the increases in land value attributed to public interventions such as investments in infrastructure or allocation of development rights – unless they are directly associated with public real estate transactions.

This is particularly important given the trend of increasing fiscal autonomy and demands on local taxation which provide an inducement for urban sprawl. Local revenues in France have more than doubled since the early 1990s; the total revenue of local authorities increased from EUR 87.5 billion in 1990 to EUR 215 billion in 2010 and EUR 229.6 billion in 2013 (République Française, 2016). Correspondingly, local government spending has increased significantly over the past 20 years: from 8% of GDP in 1980 to around 11% in 2013 (République Française, 2016). Given the fiscal environment, local governments are under increasing pressure to reduce their operating expenses, cut back on investment and to pool services and/or, increase their revenue from local taxes. The last option (of increasing revenue) is limited by thresholds set by the State and can be very unpopular for local residents. As a case in point, the local tax rates in both Nantes and Saint-Nazaire have only very marginally increased over the past several years.

Communes rely to a large degree on property taxes on developed land. In an environment of increasing fiscal constraints, this creates a pressure to increase residential and business development, including on suburban and peri-urban land. Further, there are a number of permanent or temporary exemptions that can be granted for all types of local taxation, some of which may undermine land-use policies. Municipalities often grant exemptions from the "territorial economic contribution", a local property and value-added tax paid by businesses, in order to attract jobs (OECD, 2015b: 39). In doing so, they often encourage investment in suburban or peri-urban locales, which is contrary to spatial development objectives. Finally, local governments also make too little use of their power to modulate taxes on new low-density construction, while a number of measures to ease property access give undue encouragement to new construction at the expense of renovations (OECD, 2015b: 39). This also contributes to urban sprawl.

Meeting growing housing demand

Cities with rapid population growth face growing housing demand. If such housing demand cannot be adequately met, there is a risk that house prices will rise to such an extent that lower or even middle income residents will no longer be able to afford to live there. Businesses are also affected. Such constraints can make it harder for firms to operate, find employees, and maintain salaries that can compensate for higher house prices.

Land-use planning has an important role to play in meeting housing demand by opening up new areas for development, transforming existing spaces and uses and encouraging increased density for more efficient use of space. Land-use regulations detail what can be built where, and the length of time a project takes to receive planning permission; this in turn impacts construction costs which are ultimately borne by the

homeowner/renter. In these ways, land-use planning and regulation influences the supply and cost of housing.

This section explores these issues through two very different case studies: Amsterdam in the Netherlands and Umm al-Fahm in Israel. Amsterdam is the largest city in the Netherlands; it has a strong economy and a growing population. In contrast, Umm al-Fahm is a small city located in the south-east in the Haifa District close to the West Bank. It is ranked below the national average on a range of social and economic indicators. With a non-existent housing market, the planning system at all levels of government, together with the city, is trying to meet the needs of Umm al-Fahm's growing population. Despite their many differences, in both cases, accommodating future population growth will require creative solutions and collaborative partnerships.

Amsterdam – meeting housing demand and maintaining affordability

Amsterdam is a successful city. Together with its surrounding municipalities, it is an economic driver in the region and country. Its dynamic, services-dominated economy includes both major international firms and small start-ups. The city and region are very well connected to the rest of Europe by rail, air and sea. Its nearby international airport and port are European hubs. It has strong population growth – it is a place where people want to invest, work and live and especially visit, with tourism numbers growing annually.

But along with this success, comes pressure, particularly in terms of how land is used. Already a dense city, Amsterdam has few areas into which it can expand – the city wishes to protect the natural landscape. These space constraints limit the availability of land for new developments. The resulting rising house prices threaten the city's affordability, particularly for middle income households who do not qualify for social sector housing. Meanwhile, the large social housing sector struggles to keep up with demand for affordable housing for lower income residents and there are long waiting lists. Present population trends show consistent growth in both Amsterdam and Greater Amsterdam over the next two and a half decades. The expectation is that the city will continue to grow and reach 906 000 inhabitants in 2025, and 925 000 in 2040. This projected population growth, combined with increasing tourism and a growing economy is placing pressure on the city to make the most of its space, to develop on new sites and redevelop old ones, and at the same time to maintain a diversity of economic functions and a mix between residents of different incomes.

Table 5.3. **Amsterdam: Key indicators**

Population Amsterdam FUA (2014) City of Amsterdam (2015) Amsterdam Metropolitan Area (2016)	2 452 659 (2014) 834 713 (2016) 2 388 318 (2015)
Population density, persons per km², FUA (2013)	869.79
Concentration of population in urban core, FUA (2014)	69.76 %
Average population size of local government, FUA (2014)	43 029
GDP as share of national value (2013)	16.34%

Source: OECD (2016a), *Metropolitan Explorer*, www.oecd.org/gov/regional-policy/oecdexplorer.htm (accessed 8 December 2016).

Housing in Amsterdam and the role of public policy

Amsterdam faces significant land based constraints – it is hemmed in by the bay, by the jurisdiction of surrounding municipalities, and by protected greenspaces and the airport which limits its growth options. Projected population growth combined with increasing tourism and a growing economy is placing pressure on the city to make the most of its space, to develop on new sites and redevelop old ones, and at the same time to maintain a diversity of economic functions and a mix between residents of different incomes. Already, the city has much higher population density than its neighbouring municipalities in the Amsterdam Metropolitan area at 4 954 per square kilometre of land in 2015; the next highest population density is in Haarlem at 1 757 per square kilometre of land (Gemeente Amsterdam, 2015a). Contributing to this is the low average home occupancy in Amsterdam – at 1.97 persons per dwelling in 2015, which is lower than many of its metropolitan counterparts (Gemeente Amsterdam, 2015a). This low average home occupancy is due in large measure to the large share of single households in the city. Suffice to say, there are major pressures on the housing and real-estate markets which is evident from the most recent figures.

Any discussion of housing and real-estate development in Amsterdam must be prefaced with the caveat that the city has an active land policy. Dutch municipalities and Amsterdam in particular are leaders among cities in the OECD in terms of their involvement in releasing land for development and developing it themselves. Beyond this, national and local policies have further shaped the built environment. Housing and real-estate policies are rarely policy neutral, but in the Dutch case, they most certainly are not. Public policies have encouraged owner-occupied housing and social housing over that of private rental housing through such measures as the tax deductibility of mortgage interest, state guarantees for buyers, high loan-to-value mortgages, strict rent regulation, restrictions on special planning, state aid and solidarity instruments in social housing (International Union of Tenants, 2013: 4). The relative share of each type of housing reflects of these policy preferences. In contrast to the Dutch housing sector as a whole, Amsterdam has a much lower proportion of owner occupied housing (30% versus 60% nationally), and consequently a larger social rental stock (at roughly 50% versus 33% nationally, and a larger private rental market (at just over 20%, versus 7% nationally) (Housing Europe, 2015:72).

From the 1990s, active policy to enlarge the owner-occupied sector, has resulted in large increases – before that time only 10% of the housing stock was owner-occupied in Amsterdam. At the same time, the size of the social housing sector – housing provided by non-profit associations or foundations – is diminishing and is no longer accessible for all income groups (Gemeente Amsterdam, 2015b). Recent changes to the system as a result of EU legislation on social housing have introduced income-based rent increases for middle income individuals. The purpose of these changes is to incentive those with higher incomes in the social housing sector to move, thus freeing up space for lower income residents. Also, a new social housing levy for landlords with more than 10 units has been introduced. Since 2011, only households with an income below a median threshold can access the social housing sector, whereas in the past this threshold was set higher.

Amsterdam's structural vision – "economically strong and sustainable"

In 2008, changes to the Dutch spatial planning system were introduced under the central idea of "decentralise where possible, and centralise where necessary". A major outcome of the change was a shift from a hierarchy of nested plans, with lower order plans requiring conformity to upper order ones, to a system where each level of government identifies its own planning interests and applies planning instruments to realise them through structure plans. Structure plans do not apply legally, or in terms of policy, to other government authorities. A government's structural vision is binding only for the same administrative level.

Amsterdam's structural vision outlines its development ambitions for the 2010-2040 period, which in turn forms the basis for the city's investment agenda. It is grounded in the central idea that economic development and sustainability are mutually reinforcing aims – that "clean air, properties full of character and an attractive green public space are all aspects with which the city can secure the loyalty of people and businesses" (City of Amsterdam, 2011). The city's six spatial ambitions to the year 2040 are: i) to increase density; ii) transform mono-functional areas; iii) enhance regional transportation; iv) increase the quality of public space; v) increase the recreational use of green space and water; and vi) prepare for a post fossil fuel era.

This approach is well-aligned to the OECD's green growth agenda which advocates for progress at the interface of the economy and the environment by fostering innovation, investment and competition, thereby creating new sources of economic growth that are consistent with resilient and sustainable ecosystems (OECD, 2015c). Amsterdam's structural vision was elaborated through a highly involved process of public review and input which included residents, companies, institutions and other levels of government – a process that took around three years.

In order to realise these ambitions, the vision outlines spatial tasks, including the need to provide an estimated 70 000 new dwellings between now and 2040. Increasing density is a key strategy in this regard. Beyond this, it is noted that densification makes it possible to manage energy and transportation more efficiently and removes the need to infringe upon the landscape. The vision recommends that light industry be concentrated around ring roads, and that business parks and the port area intensify the use of space so that more high-rise buildings can be developed near transport hubs. The potential to make more use of space through subterranean developments is also noted.

It is important to note that as part of its sustainable development agenda, Amsterdam seeks to be a leader in the circular economy. For example, Amsterdam is working to make the housing stock more energy-efficient, it is constructing a closed heat-transfer systems to transport residual heat and is installing wind turbines and is making it easier to install solar panels. As one example of sustainable development and circular economy principles, Amsterdam recently unveiled the first newly built carbon neutral neighbourhood in the Netherlands ("*Stadstuin Overtoom*").

The importance of metropolitan co-operation

Amsterdam ranks among global cities, but the city proper has a relatively small population. Because of this, Amsterdam is intimately connected to its surrounding municipalities and its success is linked to those places and this raises the issue of

what scale spatial and land-use planning should take place at. Increasing transportation connectivity, meeting housing demand and ensuring efficient and effective land uses across the FUA will be critical for the city to meet its goals of being an "economically strong and sustainable city". To this end, the Amsterdam Metropolitan Area (AMA) – a voluntary inter-municipal body – has also developed a joint agenda titled "Room for economic vitalisation 2016-2020". Its ambitions are to be a leading metropolitan region in Europe. The general thrust of the agenda is to develop compact cities within a landscape that is attractive for those seeking recreation and supported by infrastructure networks that connect the urban cores and the countryside with the rest of the world. The agenda outlines seven major areas for action that link economic, social, environmental and spatial issues. The housing issue is one of the most pressing issues addressed. The AMA recognises that approximately 250 000 housing units will be need to be built in the AMA between 2016-40 and discusses how these developments should be geographically dispersed. The agenda calls for more flexible zoning plans in order for developers and investors to be able to transform underused business parks and office spaces to new uses.

Amsterdam is also among the most polycentric urban regions in the OECD as measured by the number of city cores in the metropolitan area. The city's urban fabric extends beyond its boundaries and a large number of people commute to the city from surrounding municipalities for work. Given this, a metropolitan approach to address the growing population is critical. Presently, the Amsterdam Metropolitan Area functions as a voluntary co-operative body. This is a recent change; in 2014 the Netherlands abolished city-regions which were a form of mandatory municipal co-operation. Instead, the city region now acts as a transportation authority. Given the major pressures facing Metropolitan Amsterdam, it may need to adopt more formal forms of co-operation than presently exist in order to realise common objectives.

Static and active land-use planning

Amsterdam's structural vision sets an ambitious programme of spatial development for the territory which is at once based on existing spatial structures, changes that are presently taking place, and planned future need – the most pressing of which relates to accommodating future population growth. The structural vision is developed based on an analysis on key trends and issues facing the city, but critically, it is also the outcome of a large public engagement process. The values it expresses are thus a reflection of residents' goals and desires for their city. While the structural vision is a policy document to guide investments and signify the municipality's intent, it is not in and of itself a legally-binding document. The zoning plan (*Bestemmingsplan*) is a legally binding framework for any development project: it sets out what is possible for each plot of land and the procedures for any change of use and thus establishes certainty and fairness in the planning process.

It is important to note that Amsterdam employs much more than "passive planning" (waiting for someone else to take the initiative, and then trying to influence that); the city also pursues "active planning", taking the initiative to make the desired change come about. The city acquires land, prepares it for construction and use, and then issues the land to the market. The roles that the city takes on this in regard are not statutorily defined. One of the most extensive examples of this is the IJburg district – new islands being created to the east of Amsterdam that will eventually provide 18 000 homes for 45 000 people. Such policies have also enabled the city to define projects in a much more stringent manner than the regular development

process would allow. The city has for instance developed high quality public spaces and amenities as it readies plots for development and as such, balances the need for housing with the need to maintain a high quality of life in the city. Many developments in the city remain private sector led, but active land-use policies are used in the largest scale projects (e.g. where entirely new neighbourhoods are constructed).

Amsterdam is a leader among the OECD in this type of active land-use planning. But, it is not without its risks. Active land-use planning requires long-term, front-end investment by government bodies (mainly municipalities) on the expectation that they will be able to recoup the costs by selling building plots. But the down-turn of the property market in the wake of the 2008 economic crisis resulted in building plots being sold much more slowly and for less than forecast. In some cases, this has resulted in the municipality suffering financial losses that will never be recovered. In other instances, developments have not matched market demand. For example, the municipality has assumed that the market for shopping space would grow, and have invested large amounts in new shopping developments. But the rapid growth of on-line shopping has reduced the demand for shopping floorspace. Because of such factors, the city's spatial development strategy has shifted from being supply driven, to being demand driven (Gemeente Amsterdam, 2016). In the wake of the 2008 crisis, the city reduced the risks it bears by taking on smaller scale projects and adopting a phased approach. Presently, demand is very high and a large number of projects are being undertaken.

Fiscal relations, tools and instruments

Spatial planning is intimately related to Amsterdam's strategy for urban growth and development financed by local (own source) revenues and state transfers. Compared to other OECD jurisdictions, Amsterdam has some unique instruments with which to shape land use – namely, the high levels of public land ownership and the ground-lease system. The city (like all Dutch municipalities) is also unique among OECD municipalities in terms of its low fiscal autonomy; the city relies to a high degree on transfers from other levels of government compared to own source revenues. Local tax revenue in the Netherlands is 3.6% out of total revenue, while the average for the OECD was 10.6% in 2011 (Blöchliger and Nettley, 2015). The national government remains heavily involved in funding key projects, such as the ZuidAs development in Amsterdam near the airport. The main merit of having such a high proportion of income from state transfers in combination with local autonomy and responsibility for executing these tasks is that it causes equality in service levels and social rights throughout the country. However, from a long-run perspective, this leaves the city in a vulnerable position. Following the 2008 economic crisis, there were large reductions in funding from the central government during the economic crisis and infrastructure investments, especially in new housing, were stalled. One way for the City of Amsterdam to reduce cyclical swings in revenue, and hence spending, is to increase its reliance on land-based sources of local revenue. Revenues from market value-based property taxes are considerably more stable over the business cycle than revenues from taxes on income or consumption.

Amsterdam owns a large portion of land in the city (approximately 80%) and leases the use of land in return for a ground rent (canon) payable at regular intervals. In the past, the city has captured increases in the value of the land through the ground lease system, a fund which can then be used to further public investments that benefit

residents. In the past, this has been conducted on the basis of 75 or 50 year contracts. However, the city has recently switched to a perpetual ground lease system that will be indexed to inflation. While the new perpetual system will enable the city to capture value from change of use, at the point when that change is occurring, it will no longer capture change in value over time.

Amsterdam presently uses few fiscal instruments to shape spatial outcomes. The parking tax can be said to be aligned to spatial outcomes since high parking fees in the centre zones create a disincentive for visitors to drive. However, in other elements of spatial policy, fiscal instruments are lacking. For instance, the city does not currently employ any fiscal instruments to encourage density despite this being a critical spatial objective in order to meet growing housing need. Another potential application is to use the city's hotel tax (presently set at 5%) to encourage visitors to stay in areas outside of the city centre, thus lessening the environmental impact in high use zone. A system of graduated pricing could be established, with higher hotel rates in the centre, and lower ones further out. Amsterdam is presently looking to establish such a policy.

Towards more flexible land-use planning

Growing calls in the Netherlands for a more flexible, timely and responsive planning system has led to major reform of the framework legislation for spatial planning. The 2016 Environment and Planning Act (*Omgevingswet*) merges 26 separate acts, into one; merges 120 Orders in Council (AMvBs) into four; and simplifies over 100 ministerial regulations in order to create greater coherency among them. The new Act will come into force in 2018. The aim is to further integrate the rules and regulations for the governance of land use across a number of policy areas – e.g. nature, water, construction, living and sustainability – and to speed up decision-making for spatial projects. In these ways, it is anticipated that the new Act will facilitate the development of new housing projects (and other developments) in a timelier manner to meet growing housing demand and ambitious integrated place-based planning.

The new Act seeks to establish clearer rules, but at the same time, gives more latitude to public authorities to determine what conditions need to be met for a development to proceed and it establishes an integrated assessment process. In effect, the new system is a shift away from the philosophy of "static planning" which is exemplified by the local land-use plan, to be replaced by "a dynamic system of continuous adjustment and renewal" RLI, 2015: 5). The orientation of the new Act builds on key strengths within Dutch spatial planning – namely a high degree of trust between actors, a culture of co-operation both among municipalities and between levels of governments, and a commitment to core planning values. It particularly builds upon strengths that are evident in Amsterdam – a city with a long history of active land-use planning that has worked much beyond the purview of its statutory instruments.

The growing land-use pressures in Amsterdam are faced by the metropolitan region as a whole and can only be met by co-ordinated responses. While cities like Amsterdam have a great deal of capacity, it is critical that smaller places have the resources necessary to act as collaborative partners within the emerging system on projects of regional importance. Further, under the new framework, fiscal incentives (or disincentives) could be made better use of to direct desired behaviour such as

increasing density to meet housing demand, encouraging transit-oriented development for new housing development, and transforming brownfields (instead of expanding into greenfield sites) for new developments.

Umm al-Fahm – a city that evolved in the absence of plans suitable to local needs

Umm al-Fahm is one of the largest cities in Israel with an exclusively Arab population. Located in the district of Haifa, Umm al-Fahm is nestled in a valley overlooking the Wadi Ara. Surrounded by small towns, the city is a local social, cultural and economic centre. Over the last 60 years, Umm al-Fahm grew from being a small village of about 5 000 inhabitants to a city with a population of about 50 000. This urbanisation process occurred for many years under a planning system that did not adequately account for characteristics unique to Arab cities. Atypically for Israel, about two-thirds of the land in Umm al-Fahm is either in private or shared ownership with some plots of land having multiple unknown owners. Development on these plots has followed their owners' needs and priorities rather than any coherent plan, resulting in an urban fabric that lacks public space and infrastructure.

Table 5.4. **Umm al-Fahm: Key indicators**

Population Umm al-Fahm (2014)	51 400
Municipal area km²	27
Percentage state owned land	34% *estimated*
Percentage privately owned land	45% *estimated*
Shared ownership (multiple owners)	20% *estimated*
Share of forest area surrounding the urban built-up area*:	
2002	40.2%
2013	24.3%
Share of land dedicated to commerce, industry and transport: infrastructure*	
2002	0.3%
2013	3.0%
Share of land dedicated to public services and amenities*:	
2002	1%
2013	1%
Share of land dedicated to residential use*:	
2002	18%
2013	21%

Note: * Information on land for different types of uses is derived from a raster layer prepared by the CBS with a cell size of 100 m by100 m based on different data sources. As such, the land-use categories might be subject to data conflicts and discrepancies and should be interpreted carefully. For example, certain areas could be identified with more than one land-use category. In order to resolve these conflicts, a hierarchy was assigned to the different land-use categories. Areas that had more than one possible land-use category were uniquely identified according to the highest relevant category in the hierarchy. More information on the underlying data and land-use assignment is available at www.cbs.gov.il/hodaot2006n/env-compendium.pdf for 2002 and http://mapi.gov.il/gisForum/tzevet_technology/1.pdf for 2013.

Source: CBS (2015a), הרשויות המקומיות בישראל2014 - מסד [*Local Authorities in Israel 2014* - database], www.cbs.gov.il/hodaot2016n/24_16_110nispach.xls (accessed 2 May 2016); CBS (2005), הרשויות המקומיות בישראל2005 - סד" [*Local Authorities in Israel 2005* - database], www.cbs.gov.il/www/publications/local_authorities2005/excel/t1.xls (accessed 2 May 2016).

Housing programmes have been introduced as immediate tools to relieve the pressure on the housing market

The regulation of land use in Israel is anchored in a centralised top-down planning system that only recently underwent major reforms. To address the immediate housing need for the population, the national government has strengthened its efforts to quickly increase the housing stock. While addressing structural deficiencies in the planning system is required to increase efficiency of the planning procedure in the long term, the results will only come into effect gradually. To increase the supply of housing, the government has set annual targets for minimum numbers for approved housing units. To avoid an increasing build-up of the housing shortage, housing programmes that circumvent bottlenecks in the planning system have been introduced. These programmes aim to significantly increase housing supply in the short to medium term. In order to meet these targets, projects that qualify to be fast tracked can be directly approved at the national level, skipping the often lengthy procedures at subnational levels. To qualify, these projects must usually have the potential to create a large number of residential units.

Trust in government is low, which is resulting in the lack of a formal housing market

At present, no formal housing market exists in Umm al-Fahm. Property is often held by families without formal registration or clear property rights to individual family members. There is a general preference of land owners to hold on to their land in order to provide a place for the family and their future needs. A better understanding of the housing market and housing demand including social and cultural housing preferences is essential to guide urban development. Low trust between residents and the government can be improved through targeted programmes to create a formal housing market. Recent developments, such as the allocation and utilisation of state-owned land in the city of Umm al-Fahm for larger-scale residential developments, are an important step in this regard.[5] Not only can these additional housing units reduce the housing shortage within the city, but by providing quality housing together with infrastructure and public space, trust towards the government and their decisions can be enhanced. Further, development on privately-owned land should be incentivised. For example, creating a system of long-term leases, which allows private land owners to lease land to the public sector or developers could help to free private land for development, while taking the cultural reluctance to sell land into account.

Addressing the growing population's need for public space and infrastructure

Since the early 2000s, central governmental efforts to advance local planning in ethnically Arab cities in Israel have been increasing. In 2015, a major economic development programme was adopted that, among other measures, supports the preparation of comprehensive and other local and detailed plans, public facilities, land ownership registration, and capacity building in ethnically Arab localities with about USD 260 million, in addition to funds allocated to other key economic and social sectors. Currently, Umm al-Fahm is preparing its local comprehensive plan. This is a crucial step towards addressing the needs of a growing population, but it needs to be followed by the next step: plan implementation.

The high percentage of privately-owned land in cities with exclusively Arab populations requires tailored tools to ensure adequate provision of public space and

infrastructure. A first challenge for plan implementation in Umm al-Fahm is the identification of land owners. The current land registry is not necessarily up-to-date as plots were registered more than 70 years ago and throughout the years underwent informal transfers, and plots were often divided between family members. Incentives to register land ownership are low, as they usually incur economic costs. For example, disincentives include past property taxes which might have accumulated, outstanding fees for informal transfers, and the fear of expropriation and the loss of land once it is registered. To increase the incentives for land owners to register land, past debts on the land could be subject to means-tested income thresholds. To address the lack of trust in local institutions, the city of Umm al-Fahm could increase its efforts in citizen engagement. To increase land registration, local authorities could inform residents about their rights as property owners and the advantages of legal property rights. Further, governments cannot only build trust by proving the residents their good will, but also through transparency of land planning decisions and active citizen involvement in the design of their city. One effort that supports this is the recent requirement that plans, materials and all committee decisions be posted online.

Unauthorised construction poses a challenge for urban development

Unauthorised construction of housing in Umm al-Fahm is the second main challenge authorities face. While it is the result of historic legacy and present rigidities in the planning system, planning authorities struggle to free up space for providing basic infrastructure and amenities. For example, for years Umm al-Fahm was not covered with detailed plans that are required if a land owner wants to submit a building permit. Moreover, even when the preparation of detailed plans was advanced, implementation of approved plans often would have required land readjustments as a result of complex ownership patterns. This process of land readjustment was a precondition of issuing a building permit; however it required capacity and often proved to be lengthy especially when land owners were not known. In addition, opening up space in already developed areas to provide public space and basic infrastructure is a highly sensitive issue, and local authorities are reluctant to expropriate land.

As local authority's ability to enforce development in concentrated areas of unauthorised construction is limited, flexible tools need to be provided. For example, retroactively approving these units and grandfathering recognitions of buildings on agricultural land will give the owners certainty and legal property rights which also helps to build trust. Promisingly, recent amendments to the Planning and Building Law (Amendment 101, 2014 and 104, 2015) have provided new tools, such as speeding up of the planning and permit issuance procedures; established special subcommittees dedicated to minority localities in District Planning Committees to approve ownership registration plans or minor development plans (up to 50 housing units); permitted deviations of up to 30% of development rights and; have legalised some density violations. These steps provide for retroactive approval of some types of unauthorised construction in a way that is sensitive to local traditions and the needs of the residents. However, further steps could be considered. A framework that allows for temporary land uses could define neighbourhoods with a high concentration of illegal construction as experimental zones with tools for increased self-planning. Such a framework could borrow from the past traditional mode of growth and be adapted to the needs of a modern society. For example, construction projects could be subject to agreement of residents within the neighbourhood taking into account rules provided by the planning

committee for the relationship between buildings, roads, open spaces and public services.

The disincentives for land registration in combination with a lack of suitable detailed plans and long approval times may still lead to land owners developing their land without the required permits. To reduce the incidence of illegal construction, the process of receiving a building permit should be simplified and sped up. In addition to the recent reforms to the Planning and Building law, the issuing of building permits in the short term could be facilitated by considering a minimum set of rules for construction on privately-owned land as sufficient, i.e. with respect to space between buildings, roads, open spaces and take into account space for future infrastructure. Once the reforms to the planning system have removed all the structural deficiencies, these rules could be adjusted.

Improving quality of life and enhancing well-being

Well-being involves those aspects that most people would agree are crucial to meeting human needs, as well as the ability to pursue one's goals, to thrive, and in general, feel satisfied with life. While different people will place differing weights on the various elements of well-being, there is a remarkable level of agreement among experts and ordinary people across countries on the basic elements of a "good life" (Alkire, 2002). The OECD has developed a framework of well-being that describes eleven dimensions covering both material living conditions and quality of life that people value (Box 5.3). Conceptually, these dimensions of well-being can be seen as grounded in the capabilities that individuals have to transform resources into given ends (Sen, 1998).

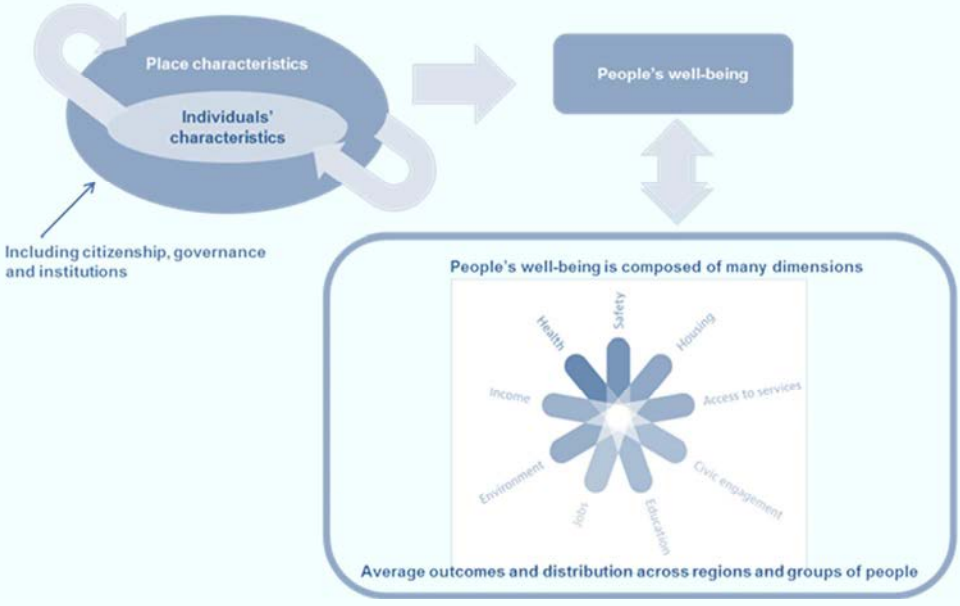
Quality of life is intimately linked to the places where people work and live. For instance, in a study of quality of life indicators in Lahore, Bhatti et al. (2016) find an inverse relationship between urban density and quality of life: high built-up density areas show lower quality of life, and vice versa. It is therefore not surprising that improving quality life has arisen as a major agenda of spatial planning. It is closely tied to concerns regarding environmental sustainability and ensuring healthy and safe environments (Albrecht et al. 2003). Improving well-being is also a key component of city competitiveness (Rogerson, 1999). For example, the term "smart growth" has arisen as a planning objective to reflect the notion that economic growth is explicitly linked to quality of life within a community (Portney, 2013: 126). The objectives of improving quality of life and enhancing well-being are a major spatial goal of all of the case study cities in this study. But here, practices in two cities are highlighted, Clermont-Ferrand, France and Netanya, Israel.

Though the two cities are very different, some similar dimensions of quality of life are important in each case. For example, in both areas, natural amenities are critical to the area's attractiveness for both residents and visitors. Both areas have an established tourism industry, and in both instances, landscape features that are critical to these industries require protection balanced with accessibility. Netanya's stunning cliffs overlooking the Mediterranean Sea are susceptible to erosion; meanwhile new infrastructure is required to ensure that its beaches are accessible to tourists. In Clermont-Ferrand, the region's dormant volcanos make hiking trails a major tourism draw. A critical issue is how to balance access to these areas with environmental protection.

Box 5.3. **The OECD's Framework for well-being**

In recent years, concerns have emerged regarding the fact that macro-economic statistics, such as GDP, do not provide a sufficiently detailed picture of the living conditions that ordinary people experience. While these concerns were already evident during the years of strong growth and good economic performance that characterised the early part of the 2000, the financial and economic crisis has further amplified them. Addressing these perceptions is of crucial importance for the credibility and accountability of public policies but also for the very functioning of democracy.

Societal progress is about improvements in the well-being of people and households. Assessing such progress requires looking not only at the functioning of the economic system but also at the diverse experiences and living conditions of people. The OECD Framework for Measuring Well-Being and Progress shown below (OECD, 2016) is based on the recommendations made in 2009 by the Commission on the Measurement of Economic Performance and Social Progress to which the OECD contributed significantly. It also reflects earlier OECD work and various national initiatives in the field. This Framework is built around three distinct domains: material conditions, quality of life and sustainability, each with their relevant dimensions. It is a multi-dimensional concept that is grounded in an understanding that economic conditions should be viewed as part of broader social and environmental systems and conditions. The OECD's framework encourages governments – national, regional and local – to think of natural, economic, human and social capital as interconnected and as such, supports the idea of policy complementarity.



Source: OECD (2016c), *OECD Regions at a Glance 2016*, http://dx.doi.org/10.1787/reg_glance-2016-en.

Greater Clermont-Ferrand

Clermont-Ferrand is located in south-central France. It is a mid-range urban agglomeration: the 19th largest metropolitan region in France in 2012, with a population of around 470 000; the city proper had a population of 141 569. The city, and region, are facing structural change – a situation not uncommon to mid-range agglomerations. In

Clermont-Ferrand's case, the drivers involve a realignment of the traditional economic base in manufacturing that has been dominated by employment in a single large multinational firm. While the Michelin tyre company continues to have its corporate headquarters in Clermont-Ferrand, its production facilities are elsewhere. Further, with the Auvergne and Rhone-Alpes regions recently being merged to form one new region, Clermont-Ferrand loses its status as a regional capital and along with this, public sector employment and institutions. Although the region has several strengths, a key challenge is devising a development strategy that will allow a transition to a new role. Accompanying the changes in economic and political functions will be changes in the way land is used. Clermont-Ferrand, together with its surrounding locales, will need to respond to France's new spatial planning framework at a time when it also potentially faces local changes in terms of how land is valued.

The commune of Clermont-Ferrand and the rest of the Puy-de-Dome *département* (the level of government between communes and the region) have a varied character. The region has a strong manufacturing heritage that was once dominated by Michelin, but is now more diversified with chemical, food processing, engineering and software replacing lost employment in tyre manufacturing. There are several universities and specialised higher education institutions in Clermont-Ferrand. They, along with the corporate headquarters of Michelin, provide a strong base for cultural activity. Clermont-Ferrand offers an above-average range of public services compared to cities of equal size. But outside the city itself, the region's topography and low population density result in a large gap in accessibility of everyday services – one of the largest such accessibility gaps in France.

Table 5.5. **Clermont-Ferrand: Key indicators**

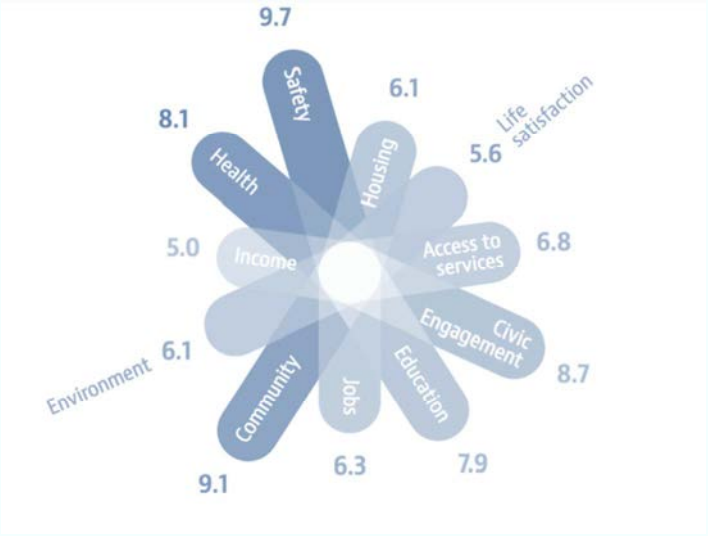
Population Clermont-Ferrand (2013)	141 463
Municipal area km^2	27
Population density (2013)	3 315.3
Area, km^2	42.7
Average annual rate of population change, 2008-13	0.4

Source: INSEE (2016), *Commune de Clermont-Ferrand (63113)*, www.insee.fr/fr/themes/comparateur.asp?codgeo=com-63113 (accessed 8 December 2016).

The region's well-being indicators provide a snapshot of the area's strengths and weaknesses (Box 5.4). The region ranks high among its OECD counterparts in such areas as safety, community and civic engagement, but much lower in such areas as income, jobs and access to services. The region is part of the Central Massif in France, which has historically been one of the least accessible areas in the country, and is one of the least favoured in terms of agricultural potential. Tourism to the area is increasing, both within the city of Clermont-Ferrand and in the more rural communes that take advantage of the mountainous topography. Second homes are also becoming increasingly common in rural communes, which has both positive and negative implications for housing. The area's mountainous topography constrains urban development by hemming in the city to the west. Land-use planning needs to navigate across these issues – peri-urban growth, the development of different industries and sectors, each with their own land-use demands, and the need to reduce disparities, including those related to access to services.

Box 5.4. **How's life in the Auvergne Region?**

The OECD's Regional Well Being indicators offer a comparative assessment across 11 dimensions of well-being for 30 countries. This box summarises indicators for the Auvergne region – of which Clermont-Ferrand is the largest city. Across the 11 indicators, Auvergne is found to be comparable to such OECD regions as: Lazio, Italy; North Middle Sweden; Bergenland, Austria; and Madrid, Spain.



Auvergne ranks among the top 13% among all OECD regions in the indicator for civic engagement which is measured as voter turnout (83.6%). It also ranks high among all OECD regions for community (in the top 19%) – that is, the perceived social support network which, for Auvergne, is 94.5%. For safety, which is measured by the homicide rate, Auvergne is among the top 21% of OECD regions, with a homicide rate of 0.7 per 100 000 persons.

In some areas though, Auvergne is less competitive. It is among the bottom 36% when it comes to jobs, which are measured by the employment and unemployment rates, at 63.3% and 7.3% respectively. It was further ranked in the bottom 41% among all OECD regions in terms of access to services measured by household broadband access (which was 72.0% in Auvergne). For the indicator on education, Auvergne ranks among the bottom 49%. This is measured as the share of the labour force with at least secondary education, which for Auvergne was 81.2%.

The OECD's work on regional well-being uses specific indicators that are proxies for the broader concepts of environment, education and so on. It is recognised that there are many ways to depict well-being. The OECD's work in this area is specifically structured to facilitate comparative analysis between regions.

Source: OECD (2016d), *Regional wellbeing indictors: Auvergne*, www.oecdregionalwellbeing.org/FR72.html (accessed 23 June 2016).

Greater Clermont-Ferrand is in the midst of a difficult change. How it reorients itself within the new regional configuration will be a major determinant of its long-term success. The large number of communes within the metropolitan area makes having strong intercommunal organisations to tackle both broader development and spatial planning across the functional areas where people live and work, critical. Clermont-Ferrand is a member of three such intercommunal associations, each covering a different geographical scale, and with some institutions being more formal

than others. These organisations can provide a structure for resolving the diverse interests of the city and its rural commune counterparts, which may not always align.

The agglomeration's current strategy is to find a way to expand the size of the local economy in order to make it more attractive for inward investors by linking adjacent communes into a larger métropole

Clermont-Ferrand is trying to restructure and revive its economy. The metropolitan area is dominated by the city of Clermont-Ferrand, which had a strong manufacturing base largely driven by its role as the headquarters for the Michelin tyre company. While the corporate headquarters remain, most of the tyre manufacturing work has left the region. In 2016, due to a reorganisation of regional government in France, Clermont-Ferrand lost its role as the regional capital of the Auvergne region, which was merged with the Rhone-Alpes region. Lyon is the new capital of the merged region. This has not only reduced the number of direct jobs in public administration, but it may make the city less attractive in the future as a location for private firms. Moreover, the region is somewhat challenged in terms of connectivity with a small airport and limited rail connections. Like many other similarly-sized agglomerations in OECD countries that have experienced such changes, there is no obvious strategy to define a new economic role.

The city is working to establish as stronger system of intercommunal linkages to increase the size of Greater Clermont-Ferrand, so it is seen as a larger urban agglomeration at a European scale. The belief is that this will make the region more visible and attractive to potential investors and lead to a new economic role. The city has some advantages in the form of good universities and strong local cultural resources that were developed during the Michelin era. It also has a large amount of former industrial land that could be used for new purposes. Clermont-Ferrand's main weaknesses are a somewhat peripheral location in a semi-mountainous topography, and weak air and rail links.

Natural amenities, landscape and heritage: an opportunity for the Greater Clermont

The strength of the landscape quality and natural heritage are major assets for the Clermont area. Recent recognition as a part of the human patrimony, as well as the historical reputation of the Chaîne des Puys Mountains area provide a base for future touristic developments. Local policy makers and promotors should however be aware of the potential for overuse. Overcrowding could lead to a partial destruction of the resource as well as a banalisation of the landscapes. Further, tourism is often a weak lever for economic development. It offers mostly low-paying and seasonal jobs and the number of communities betting on tourism based growth increases annually. The tourism opportunities in the region should be carefully developed and organised by means of local land-use policies and integrated into a broader economic development strategy.

While the number and scope of the intercommunal agreements is increasing, and there are aspirations for even greater integration, what remains less clear is both how effective these agreements will be in revitalising growth and the extent to which the benefits from the arrangements are equitably distributed. Clermont-Ferrand has been dealt a weak hand and is playing it in the best possible way. Many urban agglomerations of a similar size also struggle with replacing a core manufacturing

sector with something equally able to provide income and employment. However, the current strategy is also similar to the one employed by many of these similar cities – emphasise the local quality of life and try to expand into advanced services. One important legacy of the Michelin era is the presence of a good system of higher education that can provide both new ideas and attract new young people. Less compelling is the emphasis on tourism-based development, which typically offers mainly seasonal and low wage employment. It is also not clear that the efforts to market Greater Clermont-Ferrand will be sufficient to make the agglomeration competitive within the new region and in France more generally.

Peri-urbanisation and farm abandonment threaten the terrain

Situated in the Massif Central area of France amidst mountainous topography, Clermont-Ferrand faces particular transport and land-use challenges. The agriculture lands surrounding Clermont-Ferrand are relatively productive if located on flat and fertile land, or unproductive if located on less fertile hilly land. Two key land-use challenges are trying to limit the conversion of the limited quantity of higher productivity flat land, and trying to reduce the rate of abandonment of lower quality hill land. In the first case, pressure for new suburban housing is leading to conversion. While the number of jobs lost and implications for agricultural output are not huge, the visual amenity implications are considerable. The amenity loss is seen as having negative consequences for the growing tourism industry. In addition, there are concerns that continued construction of new housing outside the urban core has adverse consequences for the city. Similarly, the loss of farms in the hilly areas is leading to a shift in the local ecology as land that has been managed for centuries reverts back to a wild state and the mix of species adjusts in response. The new terrain is typically less attractive for tourism.

Given its situation, Clermont-Ferrand seems to have chosen the best option available to it, but it has not executed the plan particularly well

Because no French commune has the ability to impose its will on another commune, successful intercommunal agreements have to be structured to provide benefits to all participants. The spatial strategy for the agglomeration is based upon a growing number of intercommunal agreements that are intended to have two effects. The first is to improve local co-ordination to better manage the development opportunities in the area. The second is to shift the focus of those outside the region from the city of Clermont-Ferrand to metropolitan Clermont-Ferrand. Evolution of the local economy away from a reliance on Michelin as the main engine for economic prosperity has placed greater importance on local governments being proactive, rather than simply relying on the private sector to drive growth. This entails greater co-operation among communes because the local labour market extends well beyond the administrative boundaries of the city. While the city of Clermont-Ferrand is the dominant local economy, making its prosperity central for the prosperity of all other communes, the current strategy seems excessively structured to benefit the urban centre with no effort to show how other surrounding communes might benefit in turn.

Clermont-Ferrand has additional ambitions to form linkages with other more distant cities in order to create an even larger agglomeration. Because Clermont-Ferrand is no longer the capital of its own region, and is now the third city in a much larger region, it faces the challenge of being marginalised by Lyon and Grenoble which are both considerably larger in population. To gain more weight, both in the

region and in the nation, the strategy is to emphasise the expanded metropolitan area as the unit for consideration by firms and higher level governments. The thought is that if Clermont-Ferrand is perceived as being a larger urban agglomeration, it will be more attractive as an investment location. But, unless the current *métropole* can demonstrate that it has benefited all its members, there is little likelihood of building an even larger agglomeration.

More tools and incentives are needed to meet the objectives of urban density and revitalisation and the development of rural amenities for tourism and residents

Urban sprawl into adjacent communes weakens the ability of the city to attract redevelopment investment. While there is ample vacant land in the city, recent housing and commercial development has been outside the urban core, often in adjacent communes. Because French communes have no right to regulate other communes, Clermont-Ferrand is relying on intercommunal agreements to conduct joint spatial planning to focus any new development in the city centre. While this idea of a compact city is clearly consistent with French urban planning philosophy, achieving an intercommunal agreement requires that all co-operating communes perceive the agreement to be in their interest. For adjacent communes, giving up new development only makes sense if the strategy to make Clermont-Ferrand a "bigger" agglomeration ultimately leads to trickle-down benefits from new investment.

Current spatial plans for the metropolitan association have a strong concern with minimising adverse environmental impacts. Fostering compact development is part of this approach, as is maintaining agriculture on existing farmland and protecting natural areas in hilly terrain as tourist opportunities. The region has an attractive mountainous topography, but this land is marginal for farming and is experiencing land abandonment. With farm abandonment there are significant ecological changes that reduce the amenity value of the mountains. However, planning seems to offer no obvious solution to this problem. On the other hand, opportunities to expand farming on the arable valley and plain lands are limited due to their restricted area.

The planning objectives for urban and rural locales will be more effectively met if they combine various tools and incentives in order to promote density, develop brownfield sites, protect agricultural land, and develop amenities for residents and tourists. This could include land-use value capture mechanisms, density bonusing, brownfield redevelopment incentives and joint development where necessary.

Netanya – A city facing many challenges but with great ambition

Stretching along the Mediterranean Coast in Israel, Netanya is the main economic centre for the surrounding region of the Sharon Plain. At present, the city is the 7th largest in Israel following rapid growth during the immigration waves in the 1950s and 1990s. The city was established around 1930 as garden city with a spatial layout that is still present today. The spatial form of the historic core splits the city into tourism and public spaces along the coast, residential and commercial development in the centre and industrial and agricultural to the east. Over the past years, the development of high-rise residential development in the south created a discontinuous urban fabric as plots of land in the geographic centre remain undeveloped. Spatial segregation is evident across Netanya's neighbourhoods with respect to socio-

economic characteristics, a trend that is reinforced by uniform urban development within neighbourhoods.

Reducing spatial inequality is part of the newly developed vision for the city. Urban renewal and regeneration programmes are used to increase housing diversity and residential quality within older neighbourhoods. A better walkability within the city and the prioritisation of pedestrians and cyclist are envisioned to support social mixing. Further, a higher quality of life of its residents is targeted through better provision of public space and amenities, which are also expected to create a competitive advantage for reviving Netanya's status as a tourism city. The city has established a special administrative body (City Center Administration) dedicated to the regeneration of the city centre.

Table 5.6. **Netanya: Key indicators**

City of Netanya (2014) City of Netanya, projected capacity in 2035	202 428 350 000
Area (2016)	34.5 km^2
Share of land used for residential purposes 2003 Share of land used for residential purposes 2013	33% 37%
Population density, residents per km^2 (2015)	6 716

Note: The Area (2016) includes the most recent change to the municipal boundary.

Source: CBS (2015a), הרשויות המקומיות בישראל2014 - מסד [*Local Authorities in Israel 2014* - database], www.cbs.gov.il/hodaot2016n/24_16_110nispach.xls (accessed 2 May 2016); CBS (2005), הרשויות המקומיות בישראל2005 - סד" [*Local Authorities in Israel 2005* - database], www.cbs.gov.il/www/publications/local_authorities2005/excel/t1.xls (accessed 2 May 2016); CBS (2015b), *Population and density per sq. Km. In localities numbering 5 000 residents and more on 31.12.2015(1)*, http://cbs.gov.il/shnaton67/st02_24.pdf.

The city aims to revive its status as a resort city and to become a main employment area

Netanya was a popular tourist destination until the 1980s, but the importance of the industry has since declined. At present, the city's tourism infrastructure is characterised by developments that originated in the 1950s. The local comprehensive master plan that is currently being prepared aims to revive Netanya's status as a recreation, sports and tourism city, among other ambitions. In order to attract tourism, the local comprehensive plan entails many ideas on how the city could become more attractive over the coming 20 years. Although the plan provides for diverse and mixed-use neighbourhoods that are walkable, those ideas are not necessarily in line with the current urban development. Moreover, the city aims to become the main economic centre within the region and a secondary metropolitan employment area of Tel-Aviv. The area that is allocated for commercial and office space is twice the current size, separated from the residential and tourism area by a transport corridor. The interests of the city in becoming a main employment centre are not fully used when tourists restrict their movement to purpose-built tourist areas. The spillover effect for the whole local economy is limited when tourists do not mix with local inhabitants and do not "explore" and spend money in different neighbourhoods of the city (see e.g. Erkuş-Öztürk and Terhorst, 2015). For the city's vision to become reality, clear guidelines and tools for plan implementation are required. Local

planning decisions should focus on priorities and feasibility taking into account current trends and developments.

Creating diverse neighbourhoods that overcome spatial segregation

Netanya envisions creating diverse neighbourhoods that allow for social mixing. This ambition, highlighted in the local comprehensive plan, is in contrast to recent developments that are characterised by physically separated neighbourhoods. In the north of the city, buildings have typically 4-5 floors and provide mainly small sized apartments, whereas in the south, new and dispersed high-rise buildings provide large apartments for more affluent residents. Current developments favour uniform neighbourhoods with large apartments that attract higher income households and foreign investors. A new comprehensive plan is currently being developed which seeks to increase the diversity in dwelling types, encourage density through infilling, and generate more active and lively streets with a mix of uses.[6]

Existing urban renewal programmes cannot overcome the separation as they mainly target the older parts of the city and new developments are not affected. Thus, solely using urban renewal programmes as tools for creating mixed use neighbourhoods will not succeed in Netanya. While the local comprehensive plan provides other means for diversification such as infill developments, mixed use developments are not foreseen in the south of Netanya.

New developments in the south lack residential units affordable to low or middle income households. Additional challenges arise from the purchase of second homes by foreign investors, which result in unoccupied apartments for most of the year. This negatively affects the urban character by creating "dead" neighbourhoods and adds to the housing crisis by reducing the number of residential units in the market. To combat vacant apartments, a municipal tax on unoccupied residential property has been introduced and can be used by local governments. The maximum tax rate is set at twice the rate paid for occupied property. This positive step could be hampered by enforcement, as the assessment of the tax rate is based on water and electricity bills rather than proof of actual residency. An additional question is whether the tax changes the behaviour of high income owners. The "price sensitivity" is lower for these households and an additional tax that comes at most to USD 5 000 per year for a 100 square metres property might not suffice.

Towards a walkable city

The local comprehensive plan calls for walkability through the prioritisation of infrastructure for pedestrians and cyclists, but recent developments run counter to this objective. For example, the plan entails areas designated for mixed use, increased densities and prioritises development for pedestrians and cyclists. Not only would this be expected to strengthen the city's status as a tourism city but also to create a greater quality of life for its residents. To shift towards a more walkable city, safe sidewalks, accessible and convenient public transport and businesses and amenities in walking distance to residences are needed. In the local comprehensive plan, mixed land use is allocated along the main transport corridor, as well as on two axes connecting the east of the city with the shoreline. The northern east-west axis goes through the historic city centre along Herzl Street, aiming to revive the old city. The second axis goes through the geographic centre, breaking up the strips of housing that are segregated with a park and combines housing and employment opportunities.

The success of shifting towards more walkable neighbourhoods depends on two main criteria: First, developers have to be willing to construct mixed use building and second, businesses have to locate in these areas. While the construction of mixed use is allowed in the designated areas, developers per se have little incentives to actually supply mixed use buildings. Not only is it easier to construct single use only, developers also think that dwelling units above commercial units will be less profitable. The city of Netanya addresses this issue by incentivising developers with additional building rights to construct mixed-use buildings. Thus, if the ground floor is for commercial use, the developer can build an additional floor for residential use. No negative incentive or sanction is applied if the developer chooses not to build mixed use constructions. In instances where mixed use buildings are developed, businesses still need to locate in that area. For them to make it profitable, they have to meet a critical mass of customers.

Space syntax theory suggests that the social, economic and environmental performance of places – from the scale of the entire city to the scale of the individual street and building – is influenced by the interaction of two key properties of urban areas: a slowly changing physical system that consists of buildings linked by streets, roads and infrastructure and a more rapidly changing human system made up of movement, interaction and activity which is influenced by the geometry of the street network and the location, size and type of different land uses (Hillier, 2009). Thus, the likelihood of customers passing by is also influenced by the general layout of the city and the natural walking flows of the residents within the city and the neighbourhood. As the spatial layout of Netanya is characterised by an area that is about 11 kilometres long, but only up to 4 kilometres wide, the city is to a degree less walkable than similar sized cities with a more radial structure. The creation of hierarchical street networks prioritising pedestrians as well as creating more than one centre as highlighted in the plan could support the initial incorporation of mixed use in the city if already existing natural ways of movement are taken into account.

The dispersed development of high rise buildings in the south of Netanya leads to car use and is in contrast to the ambition of a walkable city or even a walkable neighbourhood. Urban renewal and regeneration programmes in Netanya plan for wider roads to accommodate the needs of an increasing population rather than providing public transport infrastructure. A focus on integrated planning of housing and public transport infrastructure, combined with principles of transit-oriented development could reduce the need of private vehicle usage and support the shift towards a sustainable, less car-oriented city.

Providing tools for the development of private land to create a contiguous urban fabric

Most of the undeveloped land that separates the historic core from new developments is privately owned and advancing its development is difficult. An important reason for the reluctance to develop the land is that the tax the local government can collect from residential properties is not sufficient to cover the expenses for service and infrastructure provision for residents; commercial and office space yields higher tax returns. The central government alleviates this issue for large-scale housing programmes on state-owned land by providing the necessary infrastructure. In contrast, for developments on private lands, the municipality must connect the development to required infrastructure. These costs need to be covered up front, which creates financial constraints for development, even though an approved

plan for development might exist. In recognition of this issue, the government has introduced a bill which would allow municipalities to charge infrastructure improvement levies throughout the country based on a state approved formula which considers such factors as local topography and density.[7] The bill has passed the appropriate governmental committee and is pending approval in the Knesset. Other potential solutions to this issue could entail providing municipalities with bridge financing mechanisms that allow them to build infrastructure necessary to develop private land. Alternatively, a legal framework could be created, that shifts the financial responsibilities of linking the development of municipal infrastructure towards the developer.

From competition to co-ordination – using the potential of urban-rural connections

Netanya is the main economic centre for the neighbouring rural areas. Rather than acknowledging the important economic links, the relationship between Netanya and surrounding settlements is characterised by competition. It is based on the perception that higher-income households and the taxes they pay move to Netanya's surrounding rural areas, but still take advantage of the employment opportunities, services and amenities the city provides. Increased commuting adds to traffic congestion and wear on municipal infrastructure. In addition, all municipalities are competing for commercial activities to increase their fiscal revenues, with each following its own revenue-maximising strategy. While they may individually succeed, they risk collectively missing out on creating competitive advantages for the entire functional region. But mechanisms that facilitate and incentivise co-operation and co-ordination across local authorities are lacking and planning decisions that affect the functional region are taken in isolation.

A framework for flexible urban-rural partnerships could support the creation of a common strategy that leads to a more competitive functional region. Identifying common challenges within the functional region and creating a joint strategy based on shared benefits and costs across local authorities could support better outcomes for all participants. Benefits go both ways and Netanya benefits from the supply of labour and from consumers from neighbouring rural areas. The open space in the rural areas can further be used by the city's residents for recreational purposes. Similarly, the rural regions have to acknowledge that a policy of increasing urban density in the city relieves the pressure on developing land in their area, contributing to preserving open space. Flexible urban-rural partnerships that address common objectives for the entire functional region could overcome sub-optimal outcomes creating better solutions for the entire region.

Developing well-being indicators

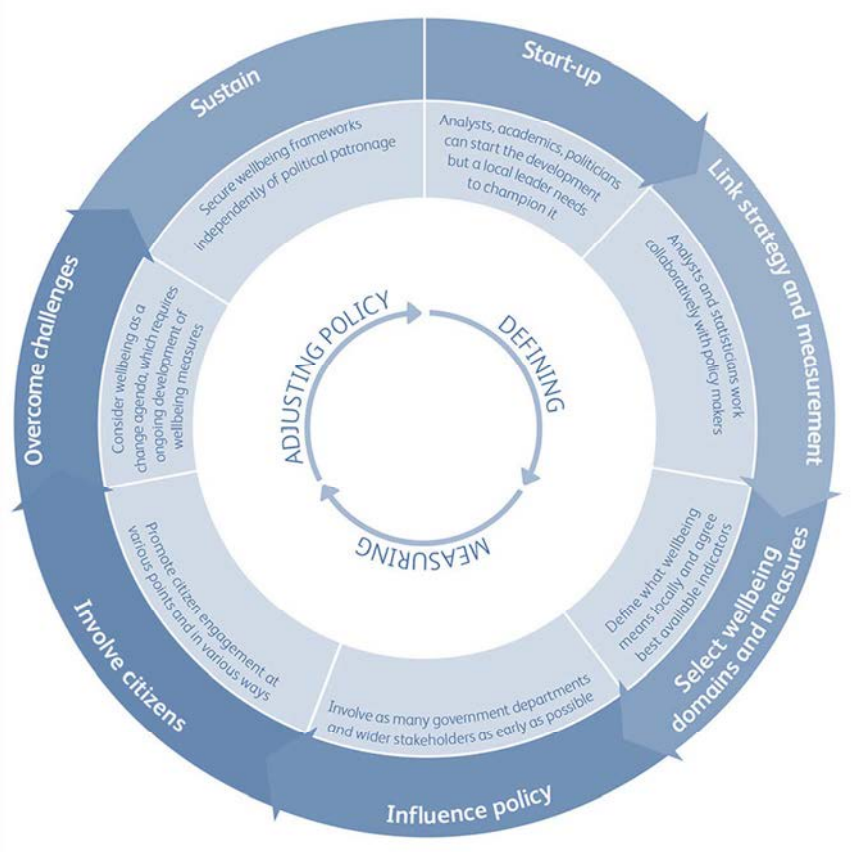
Addressing quality of life and well-being in Netanya involves a number of interrelated issues and policies. As the OECD's work on well-being has advocated, developing frameworks to measure well-being and their territorial dimensions is an important part of establishing collective solutions and prioritising areas for action. Together with the Carnegie Trust UK, the OECD has developed a checklist that provides steps to establishing a well-being framework in cities and regions (Box 5.5).

Box 5.5. **Well-being frameworks for cities and regions**

Knowing about the difference in well-being between areas matters. It increases local policy makers' knowledge of their areas and population, which leads to better planning. It provides a starting point for tackling inequalities in opportunities that exist between and within regions and local areas. Where policy makers and analysts collaborate with local people to gather well-being data, citizens have a chance to say what matters to them. For example, in Toronto and Santa Monica, local authorities organised community groups to seek advice on which well-being dimensions the city should focus on. Regional and local well-being frameworks have the potential to make policy making more transparent and responsive to local needs, linking decision making to sound and public evidence. This was the case in Genoa, for instance, where a well-being dashboard was introduced to guide the allocation of funds for social programmes within the city.

The OECD together with Carnegie Trust UK has developed *Guidance on Wellbeing Frameworks for Cities and Regions* that provides insight from cities and regions that have been at the forefront of these developments. The guidance highlights the importance of local political leadership; the role of different levels of government, and how they can shape well-being at the local level. Where regions and cities have started to develop sustainable well-being frameworks and measures, they are following several, common actions. The following figure and accompanying checklist summarises those steps, which often are not sequential but overlapping and ongoing.

Figure 5.1. **The steps to establish a well-being framework in a city or region**



Box 5.5. **Well-being frameworks for cities and regions** *(continued)*

Checklist

- ☑ **Start-up a well-being framework:** analysts, academics, politicians can start the development, but a local leader needs to champion it.
- ☑ **Link strategy and measurement:** analysts and statisticians work collaboratively with policy makers.
- ☑ **Select well-being domains and measures**: define what well-being means locally and agree best available indicators.
- ☑ **Influence policy**: involve as many government departments and wider stakeholders as early as possible.
- ☑ **Involve citizens**: promote citizen engagement at various points and in various ways.
- ☑ **Overcoming challenges**: consider well-being as a change agenda, which requires ongoing development of well-being measures.
- ☑ **Sustain a well-being framework**: secure well-being frameworks independently of political patronage.

Source: Carnegie Trust UK and OECD (2016), Sharpening our Focus : Guidance on Wellbeing Frameworks for Cities and Regions, www.carnegieuktrust.org.uk/carnegieuktrust/wp-content/uploads/sites/64/2016/09/Sharpening-our-Focus.pdf.

Notes

1 It is a Resolution of Council that was adopted in 2012 (City of Łódź, 2012).

2 The revitalisation of the historic city centre is the largest and most important project to date – it is co-financed with EU and city funds. It is the largest project of this kind in Poland, with 100 hectares to be developed. The regeneration project is combined with initiatives to support low-income neighbourhoods, including employment and training schemes. Over 1 billion Polish zloty of EU funds have been attracted to Łódz to date – including the funds gained throughout Poland's EU accession. There is a strategic projects department financed by the European Union with a list of projects that will be financed with EU funds. The city is also preparing a low-emission economic plan required for applications to European structural and investment funds and has developed a list of primary and secondary projects (OECD, 2016b).

3 In 2003, revisions made by the Spatial Planning and Development Act did not prolong the binding force of all development plans prior to 1994 (which were set to expire in 2000) since they had been established under a markedly different environment. This meant that a wide swath of cities would no longer have valid local

spatial development plans – an issue that remains to this day. Since then, the adoption of new plans has been slow; the 2003 Act did not designate the adoption of new plans as compulsory and there are several structural obstacles to the creation of new plans. For example, rules on property owner compensation for properties negatively affected by a local spatial development plan create a disincentive for municipalities to adopt them due to the potential for future litigation.

4 Between 1990 and 2009, the Loire-Atlantique gained approximately 11 400 new residents annually (INSEE, 2013). This reflects a projected increase from 1 329 000 in 2013 to 1 550 000 inhabitants in 2030, based on INSEE projections. INSEE (2013), *Pays de la Loire - Étude n 117 «Les territoires de la Loire-Atlantique en 2030 : davantage de séniors et de jeunes*».

5 These actions are part of a five-year (2016-20) economic development plan (approved December 2015) that allocated approximately 4 billion USD in government expenditure towards the development of Arab localities, with a special focus on housing.

6 The comprehensive plan, currently underway, provides for an addition of approximately 21 000 new dwelling units through urban renewal, infill along the main streets and redevelopment of large tracts of land.

7 To date, infrastructure development is financed by the municipalities through topical levies: road development levy, sidewalk levy, etc. In order to charge such levies special by-laws have to be approved by the municipality based on predictions of future expenditure. This has caused many localities to fail in recouping infrastructure expenditures due to faulty predictions or inability to prepare and adopt an appropriate by-law.

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