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MINISTRY OF REGIONAL DEVELOPMENT CZ

Analysis, recommendations and legislative proposals for a Building Act reform in the area of spatial planning

Analytical report – full report

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Id. Nr : 474 429 572
VAT registration number: BE474 429 572

Luchthaven Brussel Nationaal 1J, 1930,
Zaventem, Belgium

("Contractor")

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Analytical report

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Management summary

The analytical report was drafted between February and May 2020 and is based on analysis of literature, Czech regulation, quantitative data analysis and interviews with more than 30 stakeholders involved in the spatial development and spatial planning.

Following phase shall be a preparation of respective measures together with legislative implications. For further details please see Management document. Below see key recommendations to be analyzed and proposed in the following phase.

Spatial development

Czech development is mostly concentrated in large cities and their agglomeration hinterlands. Two-thirds of Czech sales and resales of housing units in new apartment developments are done in 4 cities (Prague, Brno, Olomouc, Pilsen). Almost in all Czech agglomerations population grows faster in suburban areas beyond the administrative boundaries of the core agglomeration municipality. This causes pressures on transport infrastructure due to regular commuting and on amenities provision in suburbias. In total, larger agglomerations grow faster on average as it is likely to reflect agglomeration economies benefits. Although property prices appreciated significantly between 2014 and 2018, among more attractive agglomeration roughly between 40% and 50%, there is no clear observable pattern, but based on the data it could be concluded there is more of a response to market signals for the segment of individual detached housing. In other words more construction of individual houses was likely seen in areas where individual houses appreciated more. These findings suggest the excessive demand not satisfied in agglomeration core cities is likely to spill-over into suburbias and for that reason overall housing prices appreciation does not show significant deviations from the average.

The building permitting processes, including zoning procedures and following on spatial planning processes, seem to be long in the Czech Republic. Obtaining all permits for a residential apartment project in Prague takes approximately 5 years on average. The detailed analysis of residential projects across the republic has shown some insights. First of all, there are findings suggesting residential property prices are on average higher in places with a longer permitting process. Additionally analysis has revealed building permits are issued on average faster in smaller municipalities which might be one of the reasons why developing there is more attractive. Regarding land use in the projects' proximity it takes on average longer when there is a higher share of urban green areas. It suggests there might be more opposition towards such projects that makes their approval longer. It is also likely that building permits take a shorter amount of time when officers at the building permitting authority have higher education and when a higher share of municipalities within the administrative area of building permitting authority have spatial plans. More detailed analysis of spatial permits for residential projects in Prague has shown projects located closer to central areas with more jobs opportunities obtain their spatial permit on average later than projects in more peripheral locations. On the other hand spatial permit seems to be shorter if the building is located in an already denser site in terms of gross floor area.

Spatial planning

The spatial planning has no general binding regulation at the level European Union when this competence has been left to the Member States. The spatial planning is regulated by Act No. 183/2006 Coll., on Spatial Planning and Building Code (the Building Act), as amended in the Czech Republic, together with around 50 other Acts containing affected public interest to be taken into account based on opinions of concerned authorities within spatial planning process as well as following procedures.

The spatial planning is generally accepted as various actors in the process of spatial planning got used to it since the reform in 2006 and many amendments of the Act since then. Nevertheless the

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system suffers from several major problems that have in common their interdisciplinary character that is so hard to tackle in the functionally organized public administration.

The stated ultimate goal of sustainable development is very hard to achieve as its idea is to balance existing private and public interests to come to the optimal solution for the area. Instead of being focused on developing existing and future values the system authorizes plenty of state authorities to protect listed features of interest. The system is in nature binary, some feature is either protected or not. This system of protection mostly fails in complex high-density urban settlements where various interests collides and often result to keep status quo as no reasonable project could possibly meet all the given requirements. Overall the system does not include compensating mechanisms, with exceptions of remedy for expropriation and under some conditions when land-use is changed to undevelopable, both between public and private sector and within public sector itself to mitigate costs imposed by otherwise beneficial projects on some stakeholders who end up with net loss. This seems to be a severe limit to create overall values and as a result many investments might be moved to less complex locations that are worse from the sustainability perspective, but easier to permit.

The lack of coordination is also apparent in the planning documentation. Unlike in other countries spatial and strategic planning create two parallel systems and are rarely coordinated with other policies with spatial impact, such as transport policies. Moreover planning often deals only with investment activities but lacks long-term perspectives about projects' feasibility. This is partly due to the low fiscal autonomy of self-governing units dependent on national financial transfers and system of investment subsidies where long-term sustainability might not play as important of a role. This all combined seems to disincentivise long-term holistic planning because self-governing municipalities cannot affect what size of future state transfers will be or what subsidy programs will be opened to fit in. The inability to combine predominantly restrictive spatial planning policies with more flexible market-oriented tools such as local-specific subsidies and differentiated taxation ends with inability to manage development. The management of development is underperforming not only between private and public sector, but also on the public side in transition from project planning to project realisation where much could be improved.

There is insufficient coordination between levels of plans. Although three levels of national, regional and municipal plans are defined the practical distinction of competencies on planning levels with respect to the principle of subsidiarity is vague and some planning goals from above-level documentation are hard to enforce in lower level documentation. Stark example is the inability to coordinate development on the agglomeration level that should be dealt on the first supra-municipal level, therefore on the regional level. But this seems to be out of reach of current tools given to regional development principles. On the other hand there are evident issues when state powers unnecessarily intervenes in municipal self-governing rights to plan its development such as in requiring detailed methods of spatial planning and regulating some very local aspects such as noise limits, requirements on local transport infrastructure and local historic heritage and environment protection. The problems of coordination also partly arise from extremely fragmented municipal subdivision that is rather extreme in international comparison. This fragmentation does not allow vast number of municipalities to plan their development efficiently and provide basic public services unless they would jointly cooperate.

Spatial planning has become significantly more formal as much more emphasis is put on plans' justification because it is expected that plans will be reviewed by the court. It does not seem the judicial review would have significant effect on protecting violated individual rights, but the whole system has become much more volatile and prone to be misused to follow individual intentions. As a result much more work on spatial planning documentation is paid to redundant justification that in principle does not positively affect the intended spatial development. That does not mean the principle of judicial review is wrong. Unfortunately it seems the present judicial review is mostly formal without taking into consideration both the purpose of planning documents and results of judicial reviews.

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Key recommendations for spatial planning proposal

Integrate spatial planning with spatial dimension
Spatial planning should be more tightly connected to other areas of sectoral planning typically considered to be within strategic planning. These areas are for instance mobility planning (being broader than transport infrastructure planning in current spatial planning), housing policy and public amenities provision. These plans should be linked to medium and long-term financial plans as well as to the large public investment projects. Land management tools within spatial planning framework should be considered.

Legislation revision
Many issues that appear in spatial development and spatial planning are not rooted in the Building Act or its subordinated decrees, but also in many related regulations belonging under competencies of other ministries. Governmental cross-sectoral board should assess this wide set of regulation and propose reform that would follow the goal of simplified process together with more sustainable development.

Clarify planning competencies of national, regional and local governments
Clearer distinction in competencies and role of three levels of government are essential. The distinction of powers should follow principle of subsidiarity so public policies are efficiently elaborated on an appropriate level of government. Planning documents on all levels must be equipped with appropriate regulatory, incentive-based and other economic tools to enforce their planning goals on lower levels of self-government. Introduction of the regional level new planning tool of agglomeration plans should be considered.

Consider relation between self-governing and state powers
Transfer of more competencies in spatial planning including its last step of spatial permit to local governments should be considered. Within the competencies they are given in the spatial planning they should have a decisive power in spatial planning processes to assess optimal form of sustainable development. As a part of broader competencies self-governing units should receive a higher level of fiscal autonomy.

Promote inter-municipal cooperation
To devolve larger share of autonomies on municipal governments their cooperation is essential. Majority of Czech municipalities are too small to efficiently administer their agenda and run holistic planning. Therefore municipal consortia lead by municipal elected representatives should be supported with more autonomies to secure planning and public services provision.

Extend set of planning tools especially with economic instruments
Spatial planning documentation (and spatial plan in particular) should become a complex of documents that are mutually interconnected. These should be coordinated by strategic plan that clarifies understanding of sustainable development in given place and therefore becomes a baseline for designing detailed policies. Following documents should define conditions for functional use, land-use intensity, local fees and property taxes and mobility policy.

Redefine role of spatial plan, more detailed plans and zoning permit
Spatial plan should be rather spatial interpretation of local strategy. It should define buildable area, stabilised areas and development and redevelopment areas. In development and redevelopment areas spatial permit would be supplemented by more detailed planning documentation. In all other locations a zoning permit issued according to local context would allow construction.

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Enhancing the judicial review
When reviewing spatial planning documentation, courts should sufficiently protect the rights of individuals and recover their gross violations within the spatial planning processes. On the other hand, courts should follow the restraint principle and annul the spatial planning documentation only in cases of obvious infringement of the rules considering the consequences of the annulment of a documentation of such importance. Furthermore, there should be limited time only when the spatial plan can be reviewed.

Include compensation mechanism
Current spatial planning system does not support negotiation as a tool of finding optimal solution because there is nothing to trade. Compensating mechanisms would allow for the compensation of actors who are negatively affected to obtain their consent.

Create national Geoportal with standardised information
To help all levels of governments and agencies analyze spatial development and spatial planning proposals universal access to spatial data is essential. All spatial planning documentation should be accessible via the national Geoportal that would on the top of that link spatial planning data with RUIAN and cadastre data and join spatial administrative areas with CSU (Czech Statistical Office) data. To do so standardization of spatial planning data is necessary, but regulatives themselves might be still left largely non-standardised.

Improve communication and education
Public authorities should be supported to disseminate information about spatial development and planning and be open to public discussions generally in less formal way than current Building Act assumes. Public participation should be always designed to be appropriate level of detail of given problem and stage of elaboration of planning document. Education on all levels need to receive attention to promote holistic understanding of spatial development within sustainable development framework.

Disclaimer

The „Analysis, recommendations and legislative proposals for a Building Act reform in the area of spatial planning" project (**„Spatial Planning Analysis"** in short) was carried out with funding by the European Union via the Structural Reform Support Programme and in cooperation with the European Commission's DG REFORM, contract number: SRSS/SC2019/150.

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1. Current planning system assessment

1.1. Goals of spatial planning

Stated goals and tasks

The goals of the Czech spatial planning system are stated in the Building Act in Section 18 and include the following six articles:

(1) The objective of town and country planning is to create the preconditions for construction and for sustainable development of the area, consisting in the balanced relationship of conditions for the favourable environment, for economic development, and for cohesion of community of inhabitants of the area, and which satisfies the needs of present generation without endangering the conditions of life of future generations.

(2) The town and country planning ensures the preconditions for sustainable development of the area by means of continuous and complex solution of useful utilisation and spatial arrangement of the area with the aim of achieving the harmony of public and private priorities in relation to the development of the area. For this purpose it follows the social and economic potential of the development.

(3) The authorities of the town and country planning coordinate, by means of a procedure pursuant to this Act, the public and private programmes of changes in the area, construction and other activities influencing the development of the area, and putting the protection of public interests arising from special regulations in concrete terms.

(4) The town and country planning protects and develops the natural, cultural and civilization values of the area as a public priority, including the urban planning, architectural and archaeological heritage. And it protects the landscape as the substantial component of the environment of the inhabitants´ life and the basis of their identity. With respect to that it determines the conditions for economical utilization of the developed area and ensures the protection of the non-developed area and grounds without development potential. The areas with development potential are limited with respect to the potential of the area development and the rate of utilisation of the developed area.

(5) Within the non-developed area it is possible, in accordance with its character, to locate the structures, facilities and other measures only for agriculture, forestry, water management, raw material extraction, for protection of nature and landscape, for public transport and public infrastructure, for reduction of danger of ecological and natural disasters and for removing of their consequences, and further such technical measures and structures, which will improve the conditions of its utilization for purposes of recreation and tourism, for example, cycle paths, sanitary facilities, ecological and information centres.

(6) In the grounds without development potential it is exceptionally possible to locate the public infrastructure in such a method, which will not make impossible their existing utilization

Section 19 then provides in detail the tasks of the spatial planning:

(1) The task of town and country planning is especially

a) to ascertain and assess the area condition, its natural, cultural and civilisation values,
b) to determine the concept of the area development, including the urban planning concept in respect to the values and conditions of the area,
c) to examine and assess the need of changes in the area, public priorities in their implementation, their contributions, problems, risks in respect to, for example, public health, environment, geologic structure of the area, impact on the public infrastructure and its economical utilisation,

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d) to determine the urban planning, architectural and aesthetic requirements for utilisation and spatial arrangement of the area and for its alterations, especially on location, arrangement and layout of structures,
e) to determine the conditions for the implementation of changes in the area, especially for location and arranging of the structures in respect to the existing character and values of the area,
f) determine the order of the implementation of the changes in the area (phasing),
g) to create within the area the conditions for reduction of danger of ecological and natural disasters and for removing their consequences, in a method close to the nature,
h) to create within the area the conditions for removing the consequences of sudden economic changes,
i) to determine the condition for renewal and development of the settlements' pattern and for quality housing,
j) to examine and create within the area the conditions for economical expenditure of financial means from the public budgets for the changes in the area,
k) to create within the area the conditions for ensuring the civil defence,
l) to determine the necessary redevelopment, reconstruction and reclaiming interventions into the area,
m) to create the conditions for protection of the area pursuant to special regulations against the negative impacts of the programmes on the area and to suggest the compensating measures, unless the special regulation stipulate otherwise,
n) to regulate the extent of areas for the utilization of natural resources,
o) to apply the knowledge especially from the sphere of architecture, urban planning, town and country planning and ecology and preservation of monuments.

(2) The task of the town and country planning is also to assess the impacts of the spatial development policy, the development principles or the plan principles or the plan on a balanced relationship of territorial conditions for a favourable environment, economic development and for cohesion of the inhabitants community of the territory (hereinafter referred to as "assessment of impacts on sustainable development of the territory"); its component is the assessment of impacts on the environment elaborated according to the appendix to this Act and the assessment of impact on the a significant locality within European standards or birds area, on condition that the authority of the preservation of nature did not exclude such an impact by its opinion

Assessment of stated goals of spatial planning

Stakeholders interviewed within this analysis see the current goals of spatial planning as mostly well-defined and they rather question to what extent these goals are followed in the practical spatial planning and decision-making. The goals' definition is perceived more negatively by those who deal with the everyday agenda of spatial development and who lack explicit emphasis on pro-active acting in the spatial development. It could be argued the sustainability framework calls for balance between pillars of sustainable development and balance between the needs of current and future generations, this said under condition of interpreting sustainability as a weak sustainability (Maier, 2012) means to find the solution of highest net present value. The real issue is this perspective is not so much reflected because in the following process each body protecting public interests has conditions what must be protected and real negotiation when some potential interests are left unprotected to support other aspects of sustainability are rare. Therefore as already mentioned, the goals stated in law seem to be defined well.

The broad goal of sustainable development seems to be aligned with international good practice and also planning literature, for instance referring to Crane and Weber (2015).

As it was already mentioned, the problem arises when general principles of sustainable development are applied on a level of a particular part of a region or municipality and it is not immediately obvious what the actual value of various options is in the framework of sustainable development. In other words whether under the given circumstances it is more worthile to protect existing values to develop new values. It has been repeatedly pointed out as a problem that the Building Act does not clarify who is responsible to detail requirements of sustainable development on all geographic scales that would become a baseline with which possible planning outcomes are compared.

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A frequently shared opinion is that there is too strong of an emphasis on environmental protection. Some stakeholders have admitted that environmental protection is gaining negative connotations among general public and other stakeholders. It does not seem that the problem is embedded in the spatial planning goals but rather later in the spatial planning processes as goals themselves are seemingly balanced.

It was also mentioned that the stated goals are not systematic and their detail is inconsistent. As an example articles 1 to 4 are very broad and conceptual while articles 5 and 6 are inconsistently much more detailed compared to previous ones.

In overall, stakeholders rated the goals of spatial development in the survey with grade slightly below 2.5 that is actually the best grade in the survey out of all graded themes of spatial development and spatial planning. All but three stakeholders rated the goals on average between 2 and 3 while permitting authorities on regional level and NGOs were more positive with grades below 2 and on the other hand investors and developers rated goals at 3.875. Representatives of academic sector rated goals with an average grade of 2.5, but there is significant variation within their group as standard deviation of their responses is very high. Relatively higher standard deviations and therefore heterogeneity in views on spatial planning goals was also recorded for regional authorities and municipalities and for companies preparing spatial planning documentation (including both private and public organizations).

Figure 1: Stakeholders' opinion on spatial planning goals
The bars represent mean values, dots median values, ticks one standard deviation from the mean and the number of respondents is given at the base of each bar

1.2. Position and state of spatial planning

The Czech Republic spatial planning belongs to the Eastern European group with the planning style belonging to a land-use category (together with Malta and Cyprus) with a move towards more comprehensive and strategic planning after the introduction of 2006 Building Act (Tosics, et al., 2010). The interviews have confirmed that the planning tradition has not been settled yet. The Czech Republic has both geographically close northern more integrated planning approaches and southern more urbanism approaches. The urbanism approach is gradually more emphasised as a response to the poor quality of urban environment built in the second half of 20th century and later. Although the urbanism spatial planning approach seems to have support, especially among architects who are largely drafting spatial plans in the Czech Republic, there are currently missing instruments in spatial planning documentation that would enable full implementation of it because a significant share of available resources is spent on practically obligatory spatial plans with limited willingness to proceed to commission more detailed planning documentation – regulation plan. Besides that almost all stakeholders agree that the process of drafting, consulting and authorising regulation plans makes them not feasible. For that reason proponents of the urbanism approach are largely missing the appropriate tool for such a kind of spatial planning.

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The Czech spatial planning system structure is typically said to be robust with hierarchy of national, regional and local plans with their distinct competencies and responsibilities but at the same time the planning system cannot deliver expected outcomes for instance in case of suburbanization (OECD, 2018a). When compared to other EU countries the Czech Republic has one of the lowest spatial planning efficiency (Fialová, Čechová, & Kunešová, 2015).

The interviews have revealed the current system fits needs of the state administration but it fails reaching goals of spatial development on the municipal level. In several interviews was mentioned the Building Act is now perceived well as it adopted amendments required by various ministries or state agencies. The problem arise from the fact if these requirements are not coordinated they might not achieve sustainable development goals. This seems to be related to another mentioned problem the Building Act requires all administration bodies protecting public interest simply to protect. Therefore for many of them the goal is not to find a mutually acceptable negotiated solution where all have to step back from some of their initial requirements, but they rather deny any proposal that just marginally affect some of their public interest subject to their protection not taking into account other potential benefits that might arise.

The above described seems to be deeply rooted in the traditional functional division of authorities and responsibilities between ministries and organizations that are not much motivated to cooperate and they rather appreciate they have ultimate decision power over some agenda and they are not willing to give up this right and have only recommendatory power and role in negotiations. It was admitted in an interview with authority protecting public interest that it is a problem there is too many of them and find consensus is complicated, but they would prefer to keep this system rather than reform it and loose the opportunity to have ultimate power over some agenda in the process. It might be also one of reasons why some stakeholders named spatial planning reform a threat to spatial planning and development in the Czech Republic. This is obviously a crucial obstacle to any reform, because all ministries and state administration organizations will likely be against such a reform where they lose some powers and it makes it politically undesirable.

Perception of the state of spatial planning also varied according to preferred approach to spatial planning. While stakeholders less critical to predominantly functional planning in the modernist tradition are more likely to be positive about current system of spatial planning, stakeholders favouring either new urbanism approaches or integrated planning are more likely to be more critical.

In the stakeholders‘ survey the current system of spatial planning is rated on average slightly above 3. There are no significant differences between stakeholders‘ groups, but there is a significant variation within members of the academic sector and among professionals drafting spatial planning documents. The best rating is given by ministries and state agencies and conversely the worst rating is given by local permitting authorities and investors and developers.

Figure 2: Stakeholders’ opinion on spatial planning system
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

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Missing cross-professional integrated approach

The current system of spatial planning shows a high degree of separation of agendas regarding spatial planning between ministries and agencies protecting public interests. This has been pointed out for instance by the OECD (OECD, 2018a) that claimed spatial planning in the Czech Republic is not coordinated with land management, economic policy, transport policy or taxation. OECD also recommends taking a more integrated approach in spatial planning (OECD, 2017b). The non-standard co-existence of spatial planning and strategic planning and the need of their coordination is also emphasized in Maier et al. (2015). The lack of integrated cross-ministrial and interdisciplinary approach was confirmed during our stakeholders' interviews.

Majority of stakeholders representing state administration, especially on the national level, are convinced the system overally performs well and there are no needs for significant changes or reforms. Actually many of them see current attempt of a Building Act reform as a significant threat. They often argue the process works well on their side and they are either not aware of any problems or they claim problems are within competencies of other actors.

The insufficiencies of current system are frequently mentioned by local authorities, elected representations and professionals in the spatial planning and actors directly involved in real-estate development. It seems the national administration and various agencies protecting public interests were able over time to fit the system to their needs, but this system does not address well issues of local spatial development.

This might be caused by several potential factors. The first reason is possibly inefficient information feedback from the local level to the national level that does not allow appropriately analyze and evaluate severity of problems in spatial development and then respond with sound public policy. This includes for instance lack of central collection of some important data such as spatial and building permits lengths and market indicators of regional attractiveness such as level of wages on local level, economic activity on local level or real estate values on local level. Although it seems a lot of data is being collected, it is then not processed and distributed to stakeholders who would exploit these data for policy-making purposes. This largely limits the currently common data-based decision making approach.

Besides information deficiency the problem might be also rooted in the institutional organization where it might be unclear for instance which ministry should be in charge of solving multi-sectoral problems that typically arise in spatial development. This could effectively impede policy responses to problems that require integrated approach. The low ability to respond to multisectoral problem might be also caused by low awareness of overall goals in spatial development and generally current trends in spatial planning by sectoral experts. It seems many professionals have high level of expertise in their fields, but might not be oriented well in the overall goals of sustainable development. It was mentioned during interviews experts especially with technical education background might find difficult to interpret abstract goals stated in strategic documents into concrete implications in spatial planning.

Links to strategic planning and development management

Separation of spatial planning from strategic planning is not common in the European context (Maier, et al., 2015). Currently the system of spatial planning is highly formalised in the Building Act[1] while broader strategic planning on the national, regional and municipal level is less formally regulated within the Act on Support of Regional Development[2]. These two acts are almost not mutually coordinated. Based on the two legal branches there exist two parallel spatially-oriented policies: On the national level there are Spatial development policy and Regional development strategy, on the regional level Development principles and Regional development program and on the municipal level there are Spatial plans and more detailed Regulatory plans according to the

[1] Act no. 183/2006 Coll.
[2] Act no. 248/2000 Coll.

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Building Act and local development plans or often called Strategic plans according to the Act on Support of Regional Development.

When the goals of the Building Act and Act on Support of Regional Development are compared there are many overlaps but almost no coordination and it is also unclear whether spatial planning is subordinated to strategic planning or it is vice versa. The goals and tasks of spatial planning according to the Building Act are among others to create preconditions for construction and spatial development and coordinate public and private interests and to propose the concept of spatial development. The Regional development strategy defined by the Act on Support of Regional Development for instance proposes national priorities to promote dynamic and balanced spatial development[3]. In the following paragraph on process of drafting the strategy it is stated the strategy should be based among others on Spatial development policy and other spatial planning documents defined by the Building Act. Similar requirement is given for preparation of Spatial development policy, in particular it should be among others based on documents based on the Act on Support of Regional Development. In case of municipal-level spatial plan there is no explicit requirement to propose it in accordance with strategic planning documents[4]. Despite the weak coordination there is not stated which stream of the planning should be subordinated to the other despite the principle of wider scale of planning should be above more detailed planning suggests the spatial planning should be subordinated to the strategic planning (or regional development planning as is often called).

The spatial planning in the Czech Republic seems to work very limitedly with market signals such as property prices and local wages that manifest local productivities, quality of environment and conditions for new development. As it is noted by Cheshire, Nathan and Overman (2015) understanding economics behind spatial development is crucial for improving spatial policies.

As stakeholders in spatial planning commented during interviews if they want to consider strategic planning they are largely dependent on local communication between different offices responsible for other than spatial planning. If the spatial planning is drafted by private company it is much more about them to what extent they follow strategic documentation. It was also confirmed there are in general no given requirements that would emphasise the need of mutual cooperation.

Current difficulties might also arise from understanding the role of spatial planning as it is given by the law. The stated goals of spatial planning tasks spatial planning to "create preconditions for construction and sustainable development" that is indeed a broad agenda. But on the other hand the set of instruments given to achieve this agenda is considerably limited, predominantly based in functional zoning[5] documents on three governmental levels. As a result many problems easily tackled by other instruments of public policies are inefficiently addressed by spatial planning documents.

There is also an ambiguous effect of national and EU subsidies on strategic planning. EU funding typically requires some form of strategic planning document so it incentivised many municipalities to make such plans that would otherwise not prepare them. On the other hand it seems these documents are often prepared to match current subsidy programs. As a result projects of main importance that might take longer than 6 to 8 years to prepare might be systematically neglected. Certain decrease in long-term strategic planning as a response to EU funding was mentioned. As municipalities have extremely limited fiscal autonomy and regular transfers seem to cover rather only current costs there are no additional resources for planned long-term investment. Instead in terms of investments municipalities rely on subsidies that are not predictable in the long-term. As a result there is lack of motivation to prepare long-term strategic documents because there is not any stable source of possible financing without need to fit projects constraints given in subsidy programs.

[3] §6, letter b) of the Act no. 248/2000 Coll.
[4] according to the Attachment 6 of the Decree no. 500/2006 Coll.
[5] Land use intensity, conditions for public amenities, infrastructure and phasing could and often are also planned, but functional zoning has a prime role.

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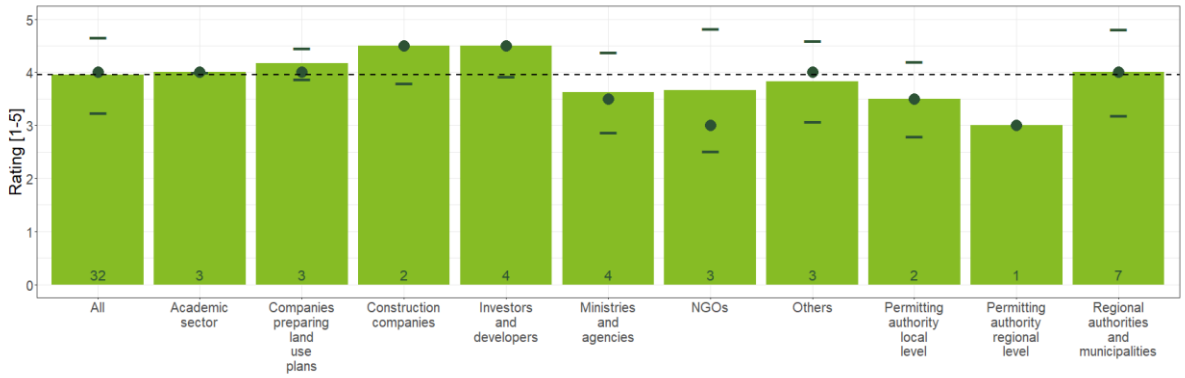
The survey among stakeholders had one question focused on the connection between spatial and strategic planning and one on how successful the realisation is of projects of regional and national importance. These two questions were graded with 2 worst grades of all questions, around 3.7 in case of the connectedness of spatial and strategic planning and 3.9 for planning and realization of project of regional and national importance. Very poor rating of both of these issues confirms dismal condition of broader spatial management. The interesting finding in these two questions, despite being seen as also problematic, is a better rating by ministries and national agencies and regional permitting authorities. It suggests the system might seem to work sufficiently from the upper level of government, but this view is not shared by other stakeholders. For instance during interviews some stakeholders from ministries and national agencies and to some extent from regional authorities did not consider the planning and realisation of projects of national or regional importance as very problematic or at least they did not see problems on their side.

Figure 3: Stakeholders' opinion on linkages between spatial and strategic planning
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

Figure 4: Stakeholders' opinion on planning and realization of projects of regional and national interest
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar



1.3. Spatial planning themes

This chapter introduces several identified themes in spatial planning that combines more aspects such as actors involvement, planning processes and instruments.

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Values protection

The Czech Charter of Fundamental Rights and Basic Freedoms in its article 11, paragraph 4 states: "Expropriation or some other mandatory limitation upon property rights is permitted in the public interest, on the basis of law, and for compensation"[6] [7]. The spatial planning documents may limit the owner to exercise his property rights and therefore decrease the value of his property. The aim of the Building Act said differently is to achieve the highest social utility in the long term, but this might come at costs for some stakeholders.

The implementation of the requirement to compensate losses caused by limitation of exercising property rights seems to be very narrow. It practically applies only to land expropriation when land is expropriated for fair value, but it does not take into account many other cases when property rights are affected[8]. Decrease in property values could be interpreted as 'limitation upon property rights' and following this argument for instance excessive restrictions on land-use function and intensities and proposing nuisant land-uses such as transport infrastructure should be compensated as well.

The intention of spatial planning is to increase overall net benefits, so under the assumption of appropriate planning benefits should outweigh negatives and stakeholders ending up with net loss should be compensated and as the planning results in net benefit the project would be still beneficial even when negatively affected stakeholders are compensated for their losses.

At this point it is not important whether the stakeholder is private or is represented by public institution. The public institution might be thought as an entity entitled with property rights to some collectively shared value. Such an example might be urban public space and municipality that is entitled to take care of it.

As the current system is not based on this approach of gains, losses and compensating mechanisms many stakeholders do not see the values they protect are continuous rather than discrete. For instance major transport infrastructure such as motorway is likely to have high overall value but still might significantly negatively affect some real estate owners in future proximity or might negatively affect a woods with significant natural value. In the system without compensating mechanisms both real estate owners and body protecting local environment face two discrete options: the infrastructure is permitted and built and they face net loss or they stop the project and values they protect are not affected. Therefore they are likely to use any feasible tool to resist the project. If there are compensating mechanisms both stakeholders should be compensated to be indifferent between accepting the project to be built and not building it at all. This approach seems to bring more fairness and also mitigate many potential conflicts.

It seems inadequate conceptualisation of real estate property rights and right to some other features of habitable environment, such as accessibility to recreation areas or unpolluted air and water, in terms of their value and inability to trade rights for these values negatively affects fluency and efficiency of spatial planning. It seems if compensations were more common and accepted even more interventions into property rights in the name of public interest would be socially acceptable, such as land mergers brownfields with fragmented ownership or areas that need significant public investment to promote their development potential.

Low emphasis on negotiation

The problem of negotiation directly follows the previously described problem of ambiguous understanding values and their operationalisation in spatial planning and further steps of

[6] Constitutional act No. 2/1993 Coll.
[7] Very similar wording regarding limitiation of use of private property is for instance in the Fifth amendment to the US Constitution: „nor shall private property be taken for public use, without just compensation" (Fischel, 1987)
[8] Under some conditions according to the §102 of the Building Act land owner could be compensated if developable land is turned into undevelopable.

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development approval processes. The goal of spatial development should be sustainable development as stated in Section18, article 1 of the Building Act. Despite the broad definition of the goal of spatial planning the actual implementation of this goal is complicated because actual balancing of intentions in the perspective of their contribution to the goals of sustainable development is largely missing. This was also reflected during stakeholders' interviews when most of stakeholders agreed on appropriate formulation of the goal of spatial planning in the Building Act, but then they were more or less critical about implementation of this goal in the spatial planning system.

Less convincing outcomes of the spatial planning are probably caused by several factors. The first one, mentioned during stakeholders' interviews, is the way in which the Building Act is written. While stating at the beginning requirements for sustainable development in the beginning in general, later on the Act focuses mostly on regulation in a restrictive way and not promoting enough expectable needs of reasonable development. This issue is tightly connected to the second one, the position of state authorities in the process of commissioning of the spatial plan. State authorities issue their statements that are obligatory and must be followed.

The regulatory nature of the Building Act and related acts is complicated. The state authorities protecting public interest are tasked to protect particular objectives specified by law or defiled ordinances, but they do not have to provide value of these features nor there is assumed more holistic authority to evaluate what public interest should desire more or less protection in any individual case. In case of the building permitting process this role should be fulfilled by the Building Authority that can follow specific mechanism to resolve struggles between state authorities. In principle state authorities are not motivated to negotiate because there are no compensating mechanisms so the proponent of any activity cannot actually offer compensation for some loss because there is no framework to follow.

As a result we do not see true negotiations despite it is assumed by the Building Act promotes agreement on sustainable development. Instead the process is more likely about convincing stakeholders about legitimacy of ones requirements.

Uncertainty and speculation

According to Koucký the current Prague zoning plan requires too low floor area ratios that does not allow profitable development. Koucký concludes this motivates developers to file zoning plan changes that would allow profitable development and he sees this as a problem of current zoning plan that inherently require its future changes (Koucký, 2017). From the economic perspective it might be argued if the political representation wanted to keep lower densities originally proposed in the plan and if it did not change the original plan, the land values would be lower to allow just marginally profitable development within the zoned regulation. But as political representation allowed increasing densities above the planned levels this drove land values up as land owners capitalized this, although risky, opportunity of increasing developable densities on their land. For instance Prague 1999 spatial plan undergone 732 adjustments and 2112 changes between 1999 and 2014 (IPR Praha, 2014). As a result, as land owners see there is some probability of obtaining spatial plan change and increasing build-able densities they project value of this potential into land value and in many setting new value will not allow for already planned low densities. Although it might be argued originally proposed densities were unreasonably low, it was not what made them undevelopable. It was unpredictability of the spatial plan that allowed for increasing densities.

The above shown example deals with speculation for increasing land-use densities, but it similarly holds for speculation on converting agricultural land into developable land. In particular it is acquisition of zoned agricultural land with expectation of its rezoning to developable land. From the theoretical perspective the current Czech planning practice could be compared to Fujita's model of urban fringe zoning (Fujita, 1989). The Fujita's model is derived from the classical monocentric city model and its key feature is boundary rent curve $\hat{R}(r)$ that marks what a land rent at the city edge. Under no zoning regulation the boundary land rent curve intersect agricultural land rent (R_A) from above and from a point further from the CBD land is not developed, because agricultural land is

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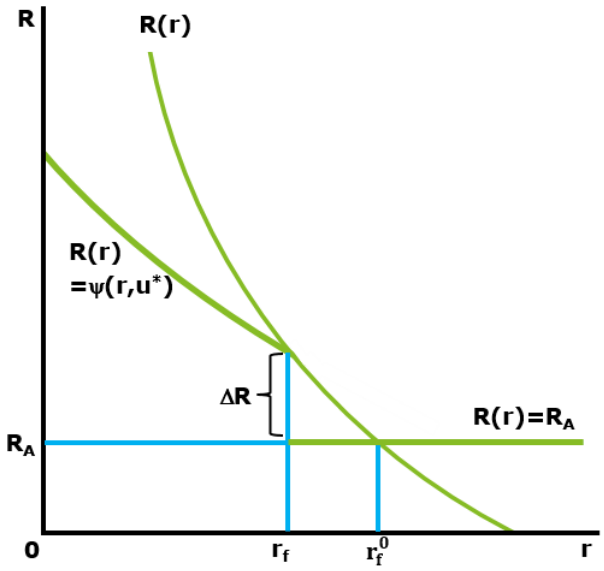
higher than rent from built-up land. In this case the land rent is continuous with respect to the distance to the CBD. When urban fringe zoning is imposed, that does not allow to develop agricultural land beyond given point, it could have two results. Either the regulation is not binding and land-use is not affected, or it is binding and force city to have smaller built-up area that it would otherwise have without any regulation. This regulation therefore pushes city the fringe boundary closer to the CBD and as the urban fringe boundary shifts inward so the land rent at this boundary changes to reflect the boundary rent curve. This theoretical model captures main features driving land speculation: The profit from changing undevelopable land to developable is given by their value difference (ΔR) times the probability of opportunity to change the plan. The more attractive the location is (closer to the CBD) the higher the value difference and expected profit from land-use change is given same probability to change the plan. If there is some probability to change the plan and increase its development capacity, it will therefore capitalize into the land values and the larger the value difference and the probability to increase developable densities is the less likely land will be developed at originally planned densities.

Figure 5: Land rent tax and urban fringe zoning
According to Fujita (1989)



Public amenities provision efficiency

It might be argued that the goal of sustainable spatial planning and following development is to provide an appropriate quality environment with a common level of amenities. In the case of publicly provided services, such as kindergartens and schools, the current spatial plan does not seem to be a good tool for securing these services. IPR Praha (2014) has conducted analysis on the usage of 'publicly beneficial buildings' proposed for kindergartens in the 1999 Prague zoning plan and compared them with actual construction of new kindergartens in Prague since 2000. They argue the most of planned 'publicly beneficial building' sites were not utilised although plenty of new kindergartens were built. They conclude that the problem of provision of public infrastructure does not seem to be a lack of plots, but rather poor overregulated conditions for their provision.

The problem of current spatial planning documentation is its separation from municipal investment planning and longer-term strategy. Therefore spatial plans typically only mark a plot on map to be developed as a public infrastructure, but this does not actually mean it will ever be built and a service provided. The additional limitation is fixing the public amenity as a geographical projection into the planning documentation. This seems to be rather problematic as it is in advance very hard to predict where to locate public facilities in large development or redevelopment sites elaborated in the scale 1:10,000 without further details of street networks and points of interest. Moreover the

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current preference to allocate public amenities on already publicly own land might lead in many cases to suboptimal planning outcomes as publicly owned land might not be optimally located for some public amenities. Although it would be in overall more efficient to trade the land between public sector and private land owners, this is currently not the case as there seems to be missing efficient processes that would mediate such a deal.

For these purposes it seems much more reasonable the parametric definition of amenities requirements and condition later development by agreement of public and private sector on land transfers to meet these requirements.

Therefore investments into the new infrastructure are likely more efficiently ensurable by these obligatory mutual agreements between public and private sector. Similarly there is no need to define specific functional use for public services in the regulatory spatial planning documentation because the public sector either owns buildings where it provides public services or rents these facilities on the free market.

Alternative approaches to spatial planning on municipal level

The postmodern period is called by some pluralistic. This should be also reflected in spatial planning. While there are arising new approaches to spatial planning, for example some preferred new urbanism or form-based regulation while others would like to take more integrated spatial planning and some are comfortable with the newer version of functional zoning derived from the traditional approach. In terms of levels and details of documentations some municipalities might prefer to have one detailed plan covering the whole area while others might prefer two or even three layers of documentation with different level of detail and land coverage. It seems there is no clear response on which approach and documentation structure is better and it is rather dependent on local circumstances. In this perspective requirements on spatial planning documentation as they are given in the implementing regulation[9] are overly binding and in the case of spatial plan too focused on functional zoning.

An example of new approach to spatial planning is for instance the new Prague Metropolitan plan that defined new objectives for Prague planning. One of primary objectives is the need to rethink 20th century's expansive growth (Koucký, 2006; Koucký, 2017) and focus on better utilisation of land left undeveloped within the city limits. An example of land underutilisation in Prague is its large share of undeveloped permeable "green" areas that are poorly maintained and are called urban jungles. Stated in other words potential of these sites is not utilized. These sites could be either better maintained to provide green amenities value or developed to use scarce developable land. Koucký concludes that they have decided to allow new development on 25 out of 100 of these urban jungles. Another objective of spatial regulation is the definition of building heights in all locations rather than simple maximum intensity of land use. This new height regulation is motivated by the need for height composition derived from the Prague landscape morphology and already built-up city form (Koucký, 2017).

But the above mentioned is only one example of a new planning approach in the Czech Republic. It is highly likely this approach would not fit other cities and other cities might develop completely different regulation of some specific features relevant to their context while have their spatial planning system still within given general standards.

Need for standardization

Despite the need for individualised regulation to fit needs of all municipalities and regions there is also a need to keep some level of standardization especially to be able to monitor and evaluate policies taken on by the lower levels of government and to have appropriate planning materials for regional and national level projects.

[9] Atachments 6,7,9 and 11 to Decree no. 500/2006 Coll.

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In terms of the need for standardization of the planning documentation there is no consensus among stakeholders in spatial planning. While ministries and agencies on national and to some extent regional level would prefer much more standardised documentation, more standardised planning documentation is largely declined by stakeholders on the municipal level as they are afraid it would not meet their expectations about intended regulation.

Broadly speaking there was some consensus about standardization of some spatial planning layers that would be present in obligatory drawings, but the main purpose of these drawings would be to provide information for upper levels of government and for instance the main regulatory drawing would be left in complete competencies of municipalities.

Much more consensus was regarding the need to standardise data used for spatial planning, spatial analytical materials and produce spatial planning documentation in geodata presented and available through national geoportal where all geographic data would be provided. The availability of spatial planning data seemed to be the most important point.

Regarding the data needed for planning most of stakeholders do not see there are some data missing. Mentioned were for instance data about water cycle in landscape and drought preventions, urban climate conditions and urban heat island and settlement carbon footprint. Besides datasets mentioned in the interviews it seems additional highly important datasets are wages on local level, detailed real estate values, mobility patterns, opportunities for promoting low-carbon economy and data from evaluations of public policies including spatial planning.

High pressure on plans' justification

There is almost universal agreement on the fact the spatial planning documentation and building-permitting processes suffer from extremely formal and exhaustive requirements on the justification part. This is said to negatively affect the whole system from several directions.

On the side of spatial planning documentation producers (companies drafting spatial plans) there is much less time and space to work on quality solutions to the planning problems and instead much more time and effort is devoted to justification that has no effect on the quality of planning output and future spatial development that should be the primary objective of spatial planning.

Secondly, the requirements on justification in the case of spatial and building permits are commonly beyond expectable skills of professionals working at building permitting authorities as education in civil engineering, architecture and urbanism or spatial planning do not provide legal background that is gradually getting more important.

As a result of enlargement of the body of justification this part seems to be much more vulnerable to make a mistake. As it was mentioned in interviews some activist groups fighting against particular projects are very skilled in searching mistakes in the formal parts of spatial planning documentation or permits and exploit them to achieve their goals.

It seems the justification of spatial plans and building permitting documents do not bring any significant positives that would outweigh immense drawbacks it possess to the system of spatial planning and spatial development as a whole.

1.4. Administrative subdivision

Spatial reach of planning authority

Planning authority over the area is given by the administrative subdivision of the Czech Republic. The main drawback of this organization is large number of self-governing municipalities and their missing development coordination in functional areas of urban agglomerations.

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Czech municipalities are in terms of population on average smallest among OECD countries (OECD, 2016). Besides fragmented municipalities less efficient in providing public services better suited for larger populations their fragmentation limits effective coordination in spatial planning and development. To overcome administrative fragmentation OECD lists examples how to approach this problem.

The first option is providing incentives for merging municipalities. Denmark reformed local responsibilities and financing and imposed minimum size of municipality to 20,000. This was followed by bottom-up municipalities' merger. The number of municipalities in Greece was reduced to 325, one third of original number, in 2011 and municipalities were given more competencies and financing. In France inter-municipal coordination is compulsory in some cases, but currently government motivates municipalities to merge into larger 'communities of municipalities'. In both the Netherlands and Switzerland a higher level regional governments provide assistance to municipalities to evaluate potential mergers. In the Netherlands there is also grant for temporary merger that pays for merger costs and lasts 5 years.

The second option for public administration optimisation is joint provision of services by several municipalities that separately does not exceed some size threshold. For instance in Italy municipalities below 5000 inhabitants have to provide jointly basic public services and share expenses. In Hungary reform in 2010 municipalities below 2000 inhabitants have to share their administrative offices but keep their own mayor (OECD, 2016).

All three examples of municipalities mergers in Denmark, Greece and France, although some mandatory and some under incentives, include some kind of benefits for municipalities if they merge that they would had not otherwise received. This is an important motivation because forced municipal merger is politically extremely risky and undesired. On the other hand it might be also caused by political opportunism when limited competencies on municipal level are accepted by local governments because then they can easily claim the problems to be caused by other authorities.

Although there are some instruments coordinating spatial development, such as integrated territorial investments aiming at coordinated and complex grant funding in agglomeration areas or integrated transport services like Prague integrated transport (PID), there does not seem to be successful inter-municipal coordination in terms of spatial planning. This problem was identified when works on Prague Metropolitan plan has begun and communication at that time between Prague and its neighbouring Central Bohemian region was almost missing. Although a cooperation memorandum was signed it did not seem to have significant effect (Koucký, 2017).

Clash of functional and administrative division

To analyse relation between administrative subdivision and functional organization we have used analysis of commuting flows presented in Annex 3 from its methodological and economic perspective (see Figure 21: Commuting areas estimation). The overlaid map of Czech administrative subdivision and commuting areas show only limited alignment. The map shows division into Regions (middle self-governing unit), municipalities with transferred state powers (ORPs) and municipalities (local self-governing unit).

It seems the most salient clash of administrative and functional subdivision on the upper scale is in case of the Prague agglomeration that spans across two separate regions, the Central Bohemian region and the Prague capital. Unlike other commuting areas where spatial reach outside of its own region is marginal, the Prague agglomeration is in term of population divided into two almost comparable parts with 35% of agglomeration population residing beyond the Prague city limits. From the planning perspective this is a problem that can be hardly addressed if planning should be executed by self-governing powers on one hand and have tools to effectively coordinate spatial development over the whole functional are. The only superior self-governing unit above regions is the national government.

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The problem of administrative subdivision and functional relations in the Prague metropolitan region was anticipated already in the initial stage of Metropolitan plan in 2012. Roman Koucký argues the Metropolitan plan should actively state vision of metropolitan's region structure and this plan should be a base for further development coordination in the Prague and Central Bohemian region area (Koucký, 2017). Koucký illustrates this situation with present development activity right behind the Prague administrative boundaries. At the same time he claims any initiative from the Prague's side is immediately neglected as 'Prago-centric'.

The detailed table below shows 15 agglomerations with highest absolute numbers of residents living outside of the region where agglomeration core is located. The first column next to agglomeration name lists number of residents living in the region where agglomeration core is located, next column shows number of residents living outside of the core agglomeration region and the last column shows share of residents living outside of the core agglomeration on total agglomeration population. It could be immediately observed the special case of Prague spanning across two regions is the only one in the Czech Republic. Out of all 306 defined agglomerations only two additional ones have more than 10% of their population outside of their core region, and these are relatively small Olešnice and Bystré, both with less than 3,000 inhabitants in the whole agglomeration. Although in Brno agglomeration approximately 12,000 inhabitants live outside of South-Moravian region, it is only 1.7% of the agglomeration's population.

From these results might be concluded the regional subdivision potentially fails to coordinate agglomeration development only in case of Prague where significant share of agglomeration population reside outside of the core agglomeration region. For other agglomerations than Prague spanning over multiple regions is rather exceptional and does not seem to be severe. In these cases in terms of functional organization there are regional governments as the first superior self-governing units.

Figure 6: Agglomerations spanning over regional borders

Agglomeration name	Population in the agglomeration core region	Population outside of the core agglomeration region	Share of agglomeration population outside of the core agglomeration region [%]
Praha	1 241 664	671 066	35.1
Brno	712 019	12 148	1.7
Hradec Králové	155 884	7 274	4.5
Mladá Boleslav	117 528	3 758	3.1
Mariánské Lázně	21 336	1 858	8
Vrchlabí	18 962	1 847	8.9
Přerov	71 618	984	1.4
Tábor	69 409	654	0.9
Roudnice nad Labem	24 126	596	2.4
Česká Kamenice	5 750	456	7.3
Bystřice pod Hostýnem	13 444	446	3.2
Jičín	33 482	436	1.3
Olešnice	2 497	429	14.7
Pacov	7 920	400	4.8
Bystré	2 297	355	13.4

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In the second step of the analysis same methodology was used to assess what share of population of each agglomeration is located within the core ORP and what share is located outside of it. In the table below are shown 30 agglomerations with the highest absolute numbers of residents living outside the agglomeration core ORP. As in the previous part of the analysis the table is led by Prague with same values that is caused by same delineation of regional and ORP borders in the Prague case. Prague is followed by Brno, Ostrava and Pilsen (Plzeň) where more than 100,000 agglomeration residents live outside of the core ORP. In Brno and Pilsen the share of population outside the core ORP is approaching one half, while Ostrava is close to Prague with approximately one third. Furthermore, more than 10,000 inhabitants are living outside of the agglomeration core ORP in 15 agglomerations while majority of them are regional capitals.

This analysis shows ORPs are not conveniently defined to safeguard coordinated agglomeration development as they do not completely cover agglomeration areas in case of larger cities (regional capitals) or smaller towns serving wider areas (Mladá Boleslav, Žďár nad Sázavou). At the same time two thirds of all agglomerations are completely within one ORP. Despite most of agglomerations located only within one ORP are typically the small ones, there are exceptions such as Chomutov (almost 80,000 inhabitants in the agglomeration) or Děčín (68,000). The heterogeneity in relations between agglomeration boundaries and ORP borders most likely requires to define agglomerations for the purpose of spatial planning separately. This could be done at the regional level as it was shown previously agglomerations do not cross regional borders with the exception of Prague where the coordination of Prague and Central-Bohemian region is necessary.

Figure 7: Agglomerations spanning over ORP borders

Agglomeration name	Population in the agglomeration core ORP	Population outside of the core agglomeration ORP	Share of agglomeration population outside of the core agglomeration ORP [%]
Praha	1 241 664	671 066	35.1
Brno	378 965	345 202	47.7
Ostrava	329 961	192 185	36.8
Plzeň	184 871	163 224	46.9
Zlín	99 218	57 798	36.8
Olomouc	160 686	45 339	22
Karlovy Vary	68 839	36 438	34.6
České Budějovice	154 786	33 034	17.6
Třinec	52 653	22 375	29.8
Pardubice	120 018	22 008	15.5
Opava	93 237	19 393	17.2
Mladá Boleslav	102 866	18 420	15.2
Hradec Králové	144 998	18 160	11.1
Žďár nad Sázavou	41 435	16 981	29.1
Liberec	136 576	16 535	10.8
Jablonec nad Nisou	53 796	7 535	12.3
Jihlava	98 138	7 125	6.8
Přerov	67 444	5 158	7.1
Šumperk	62 594	4 881	7.2
Frýdek-Místek	83 303	4 563	5.2
Mohelnice	18 526	3 309	15.2

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Agglomeration name	Population in the agglomeration core ORP	Population outside of the core agglomeration ORP	Share of agglomeration population outside of the core agglomeration ORP [%]
Domažlice	24 668	3 176	11.4
Valašské Meziříčí	41 935	2 962	6.6
Česká Lípa	51 525	2 328	4.3
Frenštát pod Radhoštěm	19 079	2 193	10.3
Písek	46 339	2 081	4.3
Mariánské Lázně	21 336	1 858	8
Vrchlabí	18 962	1 847	8.9
Kolín	56 830	1 689	2.9
Klatovy	42 233	1 626	3.7

This analysis of clash administrative and functional subdivision was done for the purpose of analysing the problem and its severity. The functional agglomerations defined in this analysis are not intended to be directly used as units for spatial planning for several reasons. First of all the analysis is based on 2011 Census data that are the only one publicly available data containing national-wide commute flows. Secondly the estimation of agglomerations is done a-priory given the parameters are the same for the whole Czech Republic without considering local specifics. Thirdly, we did not restrict the minimum size of an agglomeration and for that reason some estimated agglomerations might be below the efficient size for which agglomeration-wide planning should be done. Due to these reasons we believe this methodological approach is a good initial step that should be followed by individual consideration of each agglomeration done both at the central and local levels.

Although the agglomeration-scaled planning seems to be crucial when addressing needs of contemporary settlements they are uncommon even internationally. At this moment there are only 11 metropolitan or inter-municipal plans in OECD countries (OECD, 2017a).

1.5. Actors and stakeholders in spatial planning

Specific issues regarding the roles, involvement, rights and responsibilities of various actors in the spatial planning system are analysed in this chapter. Overall most of stakeholders see current roles and responsibilities appropriate. This might be actually not driven by conformity with the current system, but rather the unavailability of any better system or a general reluctance to change.

If there is one group of stakeholders that were repeatedly mentioned as impeding spatial planning processes and following rather individual intentions these are environmental protection associations that have several opportunities how to block projects ranging from Development principles through municipal spatial plans, EIA consents to spatial permits or during the judicial review.

In the stakeholders' opinion survey the cooperation between actors and stakeholders obtained average grade slightly below 3. Also the volatility of responses within each group of stakeholders is not significant. Grades worse than average are given by representatives of the academic sector. Conversely the best rating is given by ministries, national agencies and regional permitting authorities. In the interviews it turned out that authorities on the national level are generally fine with current modes of communication as it is given by law and they do not see much need to cooperate beyond the requirements of law. This contrasts with view of other stakeholders who are closer to local decision-making who often see current ways of cooperation given by law as

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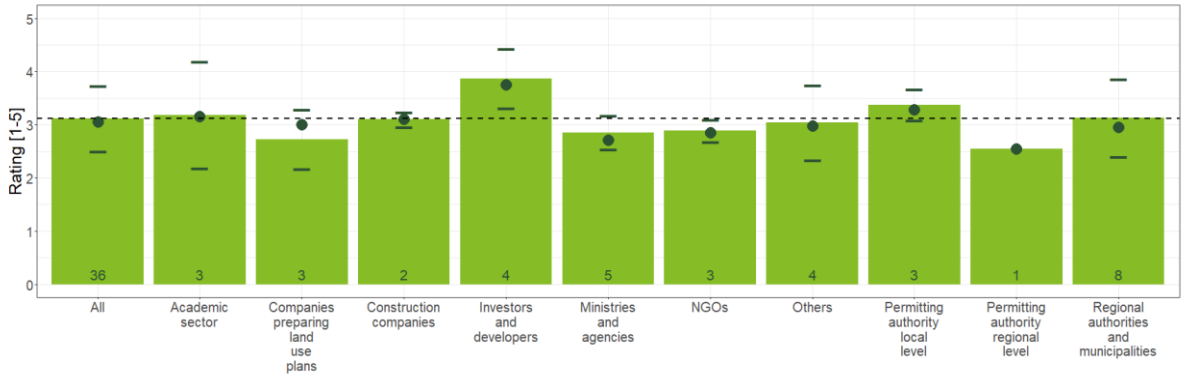
unsatisfactory and promote local-specific methods of participation or would be willing to adjust rights of parties involved in the process.

Figure 8: Stakeholders' opinion on cooperation between actors and stakeholders in spatial development
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

As interviews and supplementary surveys targeted most relevant groups of stakeholders it is possible to analyse their overall view of spatial planning system. All survey answers for an individual respondent are averaged and then average for each group of stakeholders is calculated. The results are plotted below. The overall averaged grade from the whole survey is slightly above 3 with standard deviation 0.6. Averages for all survey questions reveal relatively narrow range of answers. The most negative were investors and developers with grade around 3.9. The best grade 2.5 was given by regional permitting authorities and is followed by companies preparing land use plans with 2.7. It is worth noting the variation between grades of NGOs and ministries and national agencies is very low, therefore these groups seems to be relatively homogeneous and on average rating the spatial planning system better than average. On the other side there are academic sector, regional authorities and municipalities and other stakeholders that are in terms of responses not homogeneous groups.

Figure 9: Stakeholders' overall rating in the survey
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar



Self-governing and state transferred powers

The dual system of self-government and state powers in the Czech spatial planning possess several problems. Here when referring to spatial planning we include spatial permit into the process as well because it might be considered as the final step of the process of deciding about the spatial development that is within competencies of self-government. In principle the role of procurer

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(representative of the state powers) in the process of spatial plan procurement should be guidance through the process of drafting, discussing and approving the plan. The interviews has shown this is not always the case and relations between procurer and municipal self-governances are complicated. Examples were for instance procurer's reluctance to accept unconventional planning solutions desirable by municipality, delaying the procurement process or rather protecting state's intentions in the area instead of protecting local intentions. It was said municipalities could be pushed to solutions preferred by state planning authorities and they might give up to ease and speed up the process although they would otherwise choose a different approach.

National-level administration and to some extent regional-level administration sometimes see local governments not having appropriate expert administration to deal with issues in spatial planning. State administration is in this case very reluctant and cautious in terms of attributing more decision making powers to local governments because they are afraid local governments would fail to evaluate public and private interests and make optimal decisions. This seems to partly arise from inadequate competencies division between the 3 levels of governments. If the principle of subsidiarity is implemented well the agenda managed by local governments should not significantly interfere into the different agenda of upper level government. It was also mentioned in the interviews the state powers believe to have more expertise that does not necessarily is true and also even if it is true state administration experts might lack knowledge of local affairs and might not evaluate well the overall local situation. It was said there is no significant need for different expertise on municipal, regional or national level. The difference should be in scales and agendas the planning and governments are responsible for.

Common arguments provided by the state authorities why local municipalities should not be completely responsible for the spatial planning includes risks related to short political cycle, lobbying and low institutional capacity of many municipalities due to their small size. While short political cycle indeed possess potential risks due to instability in case of unwise spatial development and frequent representation changes, it could on the other hand help successful municipalities develop and grow faster and maintain stable successful political representation. The argument of fragmented municipal government is also valid, but if small municipalities were offered an option to take complete responsibility of spatial planning they might be willing to create inter-municipal consortium to commission spatial plan together and share its costs. The inter-municipal cooperation rather than municipal merger was mentioned during interviews as potential response to the Czech municipal fragmentation.

One manifestation of struggles between current state-transferred powers and municipal self-governing powers arise when a municipality face urban planning problems that are hard to tackle with conventional planning instrument and municipalities commission an urban planner who proposes a spatial plan extraordinary within current planning practice. It seems these conflicts are prevailing in the Czech planning discipline, because for instance already Sitte wrote about regulations: "The desire to limit planning to the minimal amount is nothing else than demonstration of distrust against those who are responsible for it." he then develops argument that it is not possible to produce a good plan through bureaucratic process and express it in following hyperbole: "Even under assumption that each and every employee of municipal building authority has suitable abilities, knowledge, experience from foreign countries and required qualification, artistic talent and imagination needed for successful urban plan design, they would anyway not be all together in a bureaucratic organization able to produce anything else but dull, pedantic thinking with a taste of dust covering administrative files" (Sitte, 1995, p. 81) (translated by authors).

Vulnerability of the spatial planning process to obstructions

The participation and the extent to which various stakeholders can enter spatial planning processes is of significant importance. While the majority of stakeholders agree on importance to hear all relevant voices in spatial planning and development permitting processes, there is not a consensus on what should be the other rights of stakeholders besides the right to speak up.

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It was mentioned in the interviews some stakeholders opposing development are willing to exploit any opportunity to slow down or completely stop such a project and unfortunately the Czech process of spatial planning and development permitting offer many chances for such an intervention. In this context it was said a party fighting against any private or public project typically bears very limited costs and therefore even low chances of stopping or slowing down bring them some net benefit while for the investors of the project these delays and unpredictable processes increase their costs significantly. This seems to be another result of inadequate sustainability assessment as raised objections are not evaluated in terms of possible costs and are not compared with benefits of the project in question. It was also mentioned there exist cases when several stakeholders blocked major developments due to marginal or formal objections and the system was unable to deny that objections despite delays caused high public or private losses.

Participation and individual rights protection

Public participation in spatial planning on the broader level seems to be not easy. As more stakeholders in the interviews agreed the general public is not so much interested in the main scope of spatial plan that is general spatial development framework of the settlement. Most of participants from general public are interested in regulations of their plots that is often not the target of the public participation events. That might be one reason why Roman Koucký claims: "Discussions do not work in the Czech Republic" (Koucký, 2017, page 35) as the expectations of participants and planners do not meet. Also a specific problem regarding participation is timing given by the Building Act that proposes the first hearing with the public already when the plan is drafted. This difficulty was mentioned during the process of the Prague Metropolitan plan preparation as there was no opportunity to publish the plan prior the public hearing without violating the Building Act (Koucký, 2017).

Preparation of spatial planning documentation, its consultation and discussions about new projects often uncover lot of conflicts between stakeholders. For instance Roman Koucký mentions insults in the press and defamations in the middle of 2016 when initial versions of the Metropolitan plan were submitted to the City hall department of spatial planning (Koucký, 2017). Some participants during the interviews reported there is a wide atmosphere of distrust when stakeholders exploit any opportunity to protect their interests without much considerations what are implications towards other stakeholders involved.

Some participants in the interviews pointed on the problem there is a necessity to properly reply to every raised objection and especially in case of thousands of objections to spatial plan this might significantly delay the process. On the other hand other participants claimed it is possible to overcome this issue by aggregation similar objections into bundles and reply to them collectively.

Participation in spatial planning and construction approval processes is frequently motivated by protection of own property rights. The motivations for opposing new projects with potential negative effects on local neighbourhoods in the environment without appropriate compensation mechanism are obvious. For some projects the effects on area in close proximity are ambiguous. For instance literature is unclear whether new residential construction in a neighbourhood has a positive or negative effect on value of neighbouring properties. Generally it seems the effect is more likely positive, but there are cases of specific projects that have negative effect. The results of this analysis done on Prague data are inconclusive (IPR Praha, 2018c).

Motivations for resisting new development might be also driven not by value preservation and loss avoidance, but also by willingness to increase value of own property. For instance Glaeser, Gyourko and Saks argue the rising opposition towards new development on Manhattan might be related to rising share of homeowners compared to decreasing share of renters over time. They argue the motivation of renters is rather to allow more construction because it would keep real estate prices as well as rents low while the motivation of homeowners is opposite as they are motivated to resist new construction that due to low supply increase the value of their property and therefore their wealth (Glaeser, Gyourko, & Saks, 2005b). Similarly it is argued citizens might choose anti-growth policies and it might be efficient for them until large number of other citizens decide to do it as well

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so they collectively impede economic growth (Schragger, 2016). It seems for this reason policies need regional or nationwide coordination to mitigate these inefficient outcomes that arise in framework of game theory.

Academia and education

The stakeholders in general share view there is lack of education about spatial development and urban and spatial planning on all education levels that among others causes low awareness about spatial planning. It was noted many people are even not aware the agenda of spatial planning exists.

The problem of education in spatial planning begins already at primary and secondary level of schooling. It was mentioned as most of people have never been educated about the goals and principles of spatial planning they might not know how to approach it when they are in the role of elected representative and they are decision-maker or they take part in the participatory process. The related mentioned issue was that low awareness of spatial planning might be one of cause why many stakeholders start with their objections to development in the stage of spatial or building permit, because they were not aware of fact such kind of objection might be relevant more in the process of procuring spatial planning documentation and not in the process of spatial or building permit.

Regarding integrating strategic and spatial planning it was pointed out the education of professionals in these disciplines might be not wide enough to allow both groups of experts to cooperate. While for instance experts in spatial planning who have technical background might struggle with abstract multi-disciplinary character of strategic documents and their interpretation into as implications towards spatial planning documentation, experts in regional growth and geography might do not understand enough spatial dimension in regional development and might not enough emphasize spatial part of the plan. This mutual lack of understanding of professional behind strategic and spatial planning might be partly responsible for their practical separation.

The unsatisfactory education of spatial planners was mentioned several times during interviews. This issue could be then divided into more sub-problems. First, it was mentioned that the current education predominantly focused on architecture and spatial planning has not enough emphasis and separate spatial planning training such as separate masters' level could prepare future professionals better. Particular mentioned was the problem of missing experts with an education background known in western countries as urban planning that combines knowledge from geography, sociology, economics, urbanism, policy-making and law. Such an educational program seems to be missing in the Czech Republic now.

As a related problem the lack of professional experience of some authors of spatial planning documentation was mentioned. It was argued that the general quality of planning documentation prepared by larger planning companies is good and the quality is not sufficient in the case of authors who predominantly focus on architecture and spatial planning is the minority of their output. Nevertheless this opinion was rather from the state administration side and does not seem to be shared among all stakeholders.

Quantitative research comparable with research in the developed western countries is scarce in the Czech Republic[10]. That does not only limit education of experts in the field, but also limits provision of country-specific research results that could be taken into account during the policy-making process. Along the research in spatial development there is also lacking undergraduate and graduate level literature on spatial and urban economics, especially introducing quantitative approaches and empirical analytical techniques. Although a wide body of literature is available in English it does not seem it is frequently used.

[10] The results of research projects are listed at: http://www.uur.cz/default.asp?ID=4994

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1.6. Spatial planning processes and documents

Czech planning legislation is based on a traditional and long-lasting continuous approach. However, due to the complication when adopting new or changing current plans, the processes are long and exhausting. The processes are very complex and cause problems to the procurers especially with assessing objections and later judicial review. The third aspect to be taken into account is that spatial planning instruments are often affected by regular changes of political representations.

This chapter analyses the identified issues of preparing spatial planning documents and its processes.

Documentation procurement processes

As was already mentioned, when drafting spatial planning documentation there is not any specific documentation that would in detail define what should be the sustainable development goals of the local development that should be reflected in the spatial plan and that would become the baseline to assess whether the spatial plan meets these requirements. Such a role could have for instance a strategic plan or might be in detail given in the task for the spatial plan approved by the municipal council, but it is not compulsory. Moreover even if such a framework is a-priori given there is no instrument that would make state authorities protecting public interests to follow these requirements stated by the municipal government when they assess the spatial plan and provide their obligatory statements.

During the interviews stakeholders agreed it is better to initially clarify what the municipality development goals should be. To prepare even a brief strategy was mentioned as a good approach on how to start with the spatial plan if there is not yet any formalised vision on future development. Roman Koucký claims he prefer when a spatial plan is commissioned with a more detailed task. As an example he described the experience from some cities where the first the spatial plan study was done and it became part of the spatial plan commission by the municipal council (Koucký, 2017). The initial step for a spatial plan study or preparation of a strategic plan is also a good opportunity for initial participatory events to capture local perception of a future development.

The process of commenting spatial planning documentation that is still in draft form largely relies on the assumed paper-form of commenting. Although the documentation might be provided in the digital format, according to the interviews it is typically in the pdf and not in spatial data that is much easier to handle (according to the law data have to be in digital vector format). In this respect it is expected it would be very beneficial to move the whole process digital and online via national geoportal.

Although not all stakeholders see it as a problem the extreme amount of objections typically submitted when spatial plans of large cities are prepared seems to impede spatial planning processes, especially as all objections must be answered.

Several stakeholders also pointed out there are some repetitive actions done in spatial planning processes and following building permitting processes and some requirements are very similar for instance in EIA and spatial permit processes or between spatial permit and building permit processes. Also the need of EIA consent for some low-nuisant uses such as residential, office or retail uses seems to be inappropriate as capacities for these uses are commonly already given by the spatial plan and therefore local acceptance of such development should be already secured by the spatial planning documentation.

Current spatial planning documents

The system of spatial planning in the Czech Republic is hierarchical with 3 levels: national, regional and local. Formally the system is robust and from this perspective correct. The problems arise in definition of plans on each level, their tasks and distinct competencies, because there is a lack of

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vertical cooperation in comprehensive planning and regional planning is weak (Tosics, et al., 2010). Especially some problems such as sub-urbanization are almost not considered on any appropriate level of spatial planning.

According to the law current Czech spatial planning system on the municipal level requires functional zoning and also formal regulation such as built-up typological form, but zoning prevails in the planning practice. On the other hand it seems it does not allow to employ other tools that are otherwise in the competencies of municipalities, such as program of public space revitalization, management of public space program and other urban design tools that might be of a significant importance to local residents and businesses. Similarly there are some scarce spatial economic instruments within municipal competencies that are not projected in the spatial plans as well, such as parking fees or planned city centre tolls. In overall, the spatial planning system requires only one segment of spatial planning objective and does not easily allow to regulate others that might be of even higher importance given local circumstances.

The prevailing problem on the municipal level is theoretically assumed two-level system of plans. The legislative regulation assumed conceptual spatial plans for the whole municipality followed by detailed regulation plans used for decision-making. In practice detailed regulation plans are rarely prepared and most of decision-making is based on spatial plans. This practice lead to allowing spatial plans to be more detailed and rather conceptual framework has turned into overregulated document that must be frequently changed to comply with intended projects.

Another problem of the Czech spatial planning legislation is how requirements of the higher-level documentation are enforced in the lower level documentation. For instance Principles of spatial development are obligatory for the municipal zoning plan[11]. Although a better solution is found when preparing city zoning plan, it cannot be applied if it is not aligned with the higher-level documentation (Koucký, 2017). The possibility to adjust upper level documents when a better solution is found when elaborating on more detailed plans was largely acceptable by many stakeholders, but there were some who opposed this principle.

National and Regional level documents

The Spatial policy and Development principles are in general accepted and are said to have a rather minor problems. It seems the most salient issue of Development principles is its practical inability to manage supra-municipal development and therefore manage suburbanization. The problem of suburbanization and building-up free land was repeatedly named as a problem in the Czech spatial planning.

It was also mentioned the parallel system of spatial and strategic planning on the national and regional level is redundant as both of these levels treat development in more conceptual way and spatial strategies are more relevant to them. This argument seems plausible and merging these policies together and integrating them with mobility planning, public services provision and regional development subsidies would be probably more efficient.

This public policy merger could be accompanied by another proposal raised during interviews towards more distinct planning authorities. While currently the upper levels of government propose general planning goals the lower planning documents have to implement them in their planning documentations. The different model is based on concentration of competencies on the level relevant to the character of the planned feature. In that model for instance planning of the national infrastructure is within competencies of national government, planning of the agglomeration development distribution is on the regional level and development form and amenities provision is on the local level. This model would require more detailed competencies division, but could help with planning and building investments of national importance.

[11] There is the exception for Prague, where change to the municipal plan can run simultaneously with change to the regional plan (§ 8 of the Building Act).

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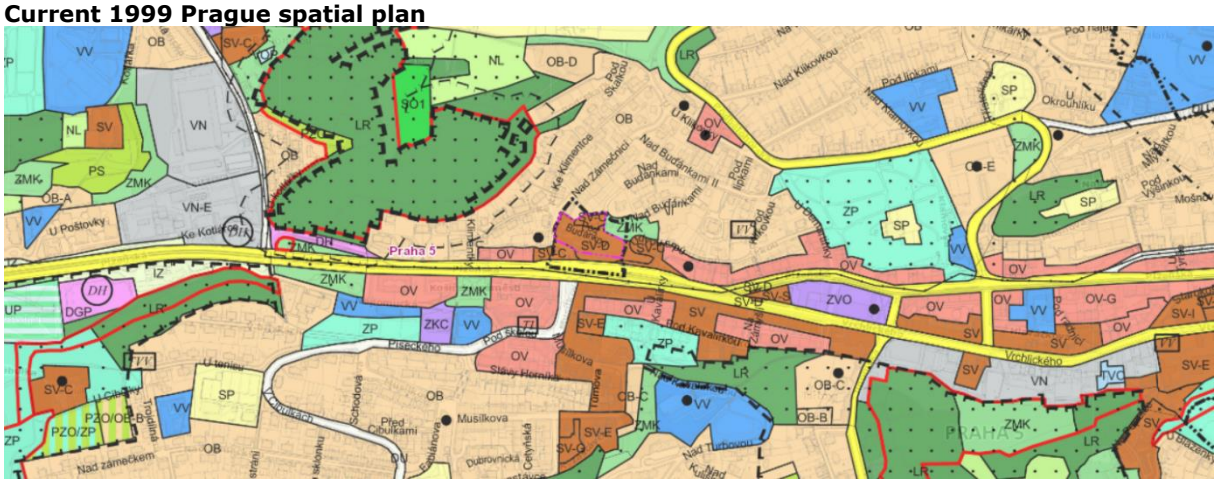
Spatial plans

It is discussed in other chapters that the spatial plans in the Czech Republic according to the regulation given by the Building Act and more detailed implementing decrees are largely focused on functional zoning as it could be seen on the sample of the 1999 Prague spatial plan shown below. For instance Koucký claims the planning is moreover outdated, too much restrictive and does not allow enough flexibility that is required and that plans should be more flexible, be less regulative and discussion about individual projects should take place in the process of zoning permit. While the spatial plans are overly regulative in land-use function they are very weak in terms of regulating urban form. Regulation of public spaces should for instance include definition of build-able blocks, requirements for the ground floor and rough build-able volumes. The remaining should be left for the zoning permit (Koucký, 2017; Koucký, 2019).

Functional zoning could be inefficient in many aspects, for instance it might decrease the value of property without compensation if too restrictive regulation in terms of maximum land use intensity is proposed on some plot. Another source of inefficiencies might arise from zoning inappropriate functional uses in an area. For instance if somewhere is an existing factory and zoning plan zones its land as industrial. But it might be the case the area where factory is located could be more profitably used for a more intensive residential development, but residential development is not allowed according to current rules in industrial zones. Therefore the industry is likely to remain in the place because the optimal utilisation is not possible due to an inappropriate spatial plan. This is partly caused by not considering the opportunity costs of land that is likely to increase in cities and therefore press land-uses towards more profitable and intensive over time. These dynamics does not seem to be frequently reflected in spatial planning. Another issue arise from too much detailed and fragmented functional zoning. For instance there is probably no reason to separately zone public amenities and their provision could be better secured by controlling ownership over building where they are provided with property rights. Actually zoning some land or buildings for particular uses might became an obstacle even for a public sector. For instance if it wants to redevelop part of its school's plot for subsidised municipal housing it would need to change the spatial plan.

Current 1999 Prague spatial plan



Regulation plans

The general perception of regulation plans among stakeholders is poor. Most of stakeholders do not believe it is possible to meet all necessary requirements to propose reasonable regulation plan that will be adopted. Although the type of regulation given in the regulation plan seems to fit existing needs most of municipalities are likely to lose motivation to prepare more spatial planning documentation after they experience a struggle with commissioning an obligatory spatial plan.

Frequent objection towards current regulation plans is the need to obtain full agreement of affected land-owners and authorities protecting public interests. This is a common objection towards regulation plans despite complete agreement of affected landowners is not required by the Building Act. Nevertheless it seems that processes related to the commission of regulation plan are

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perceived negatively and made the regulation plan uncommon tool in spatial planning. It is also said to be extremely complicated not only to obtain agreement among land-owners, but also agreement among various representatives of public administration is unlikely. Although there exist mechanisms to overcome conflicts between state authorities municipalities are reluctant to commission regulation plans. On top of that some stakeholder doubts whether large coverage of cities with regulation plans is even feasible within reasonable time-frame. City of Prague has already experienced one unsuccessful attempt to commission overall regulation plan 100 years ago. State regulation board appointed after the first world war lead works on Greater Prague regulation plan that was already drafted by 1929, but was not approved by 1938 due to slow pace of plans‘ discussion and board’s pressure to deliver the plan in high detail (Brůhová, 2017). The lengthy preparation and authorisation of detailed plans is also mentioned by Koucký who claims it took 50 years to prepare them in Vienna. Moreover within current Czech legislation the requirements for elaboration of regulation plan must be given already in the zoning plan that limits its applicability (Koucký, 2017).

According to the survey among stakeholders in the spatial planning the efficiency of current legally binding documents, such as development principles, spatial plans or regulation plans is slightly below 3. In this question variation both between and within stakeholders’ groups are not large with the exception of the academic sector with standard deviation over 1.5. The efficiency of plans is positively rated by companies preparing land use plans. The worst rating is given by investors and developers and both local and regional permitting authorities.

Figure 10: Stakeholders' opinion on binding planning documents efficiency
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

Non-binding documents

There is an agreement that non-binding strategic documents are not very efficient in spatial planning as they are not obligatory. On the other hand, the generally non-binding instrument of spatial study is well received. Many stakeholders admit the spatial study has actually filled the vacancy left by regulation plans and is used to supplement their role. Stakeholders who are in charge of preparing spatial planning documentation appreciate the planning study is not completely binding and allows further adjustments if some particular building has reasonable needs to deviate from the regulation proposed by the study. On the other hand, some representatives of state authorities criticised this vagueness.

In the stakeholders’ survey, non-binding documents received relatively good rating by companies preparing land-use plans, regional permitting authorities and other stakeholders and relatively worse rating by the academic sector, local permitting authorities and investors and developers. This confirms attitudes revealed during interviews that more flexible documents are slightly more preferred by actors directly involved in the development while authorities are more reluctant to use them.

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Figure 11: Stakeholders' opinion on non-binding planning documents efficiency
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

EIA, SEA and TIA documents

The perception of environmental impact assessment, strategic environmental assessment and territorial impact assessment varies significantly both between and within groups of stakeholders. There is a general view that the special sub-processes reserved for environmental assessments are not systematic and they undermine the principle of sustainable development as they systematically bias decisions towards overly environmentally-protective. Many stakeholders see SEA assessment as redundant because, as they pointed out, it does not provide any additional information above the information provided by the state authorities protecting public interests and see the SEA just as a delay. On the other hand, it was mentioned that SEA provides opportunity to discuss the planning documents with public that is otherwise not included in other processes, but this feature does not seem to justify its presence in the process.

EIA process is on the other hand seen as relatively useful. Finally the territorial impact assessment seems to be so rare that there is not much experience with it.

The stakeholders' rating show significant variations between groups and also within groups. While the academic sector, companies preparing spatial plans and local permitting authorities give poor ratings around 4, investors and developers, construction companies and NGOs are rather positive with grades below 2.5. Very interesting result is a high variation between ministries and national agencies as standard deviation in their answers was around 1.3.

Figure 12: Stakeholders' opinion on EIA, SEA and TIA efficiency
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

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National regulative decrees

Spatial development is besides spatial planning documentation regulated by many sectoral laws and decrees while most of them are not within competencies of the Ministry of regional development. In the following part some problematic identified regulations are listed.

Among several decrees implementing the Building Act are No. 501/2006 Coll. On general requirements of land-use and No. 268/2009 Coll. On technical requirements of construction (the city of Prague has an exception and has its own building code). These two national regulations are considered to lag behind regulation common in other European countries (Kohout, Štáfek, Tichý, & Tittl, 2014). They especially mention the problem the current regulation is still largely considering issues of industrial cities such as public health or overcrowding that are not of primary importance now and at the same time they cannot address emerging problems such as suburbanization and spatial dispersion. The attention is paid to definition of detached house in the Czech regulation. Authors claim the current definition does not meet needs of various typology of individual living, especially due to requirements on setbacks, land-use intensity and floor count and parking.

For instance the decree No. 501/2005 Coll. requires that no building, unless it is a row housing typology, could be closer than 2 meters (in Prague 1.5 meters) from the edge of a plot. Although the requirement could be adjusted based on local character the experience shows offices do not accept argumentation when proposed character of new neighbourhood would justify such exception (Kohout, Štáfek, Tichý, & Tittl, 2014).

For the apartment residential development prevailing problems are requirements on direct sunlight provision, requirements on natural light and capacity of parking. Very problematic seems to be Section 14 of the decree No. 268/2009 Coll. that explicitly states: „When protecting buildings from outer noise, especially caused by transportation, urban planning solutions must be preferred to solutions protecting individual buildings…". This requirement was for instance cited in statement by regional public health office to Lázně Bohaneč zoning plan proposal presented before in this analysis to not allow zoning some otherwise attractive plots for residential use.

1.7. Economic instruments

In this chapter current or past economic instruments used in the spatial planning are briefly discussed as well as current state of fiscal system. Among the economic instruments could be included any tools that are using market powers to either incentivize or disincentivize residing or new development in some location or activity related to residing in some location. These instruments are for example development fees, impact fees that apply to new development, land appreciation taxes and betterment levies that are typically intended to capture property value differentials caused by public investments, differentiated local fees to reflect differences in public amenities provision across locations, property and land taxation that could have more objectives such as redistribution, promotion of optimal land-use or capture of public investments, air rights markets to protect some areas from development, tax breaks or subsidies to promote development on desirable places. Spatial development is also affected by economic instruments imposed in other policy-making sectors, such as provision and charging for motorway use, city tolls and parking payments and to a lesser extent different policies for detached housing and apartment housing or different treatment for renters and homeowners as these categories have significantly different representation in core cities and suburban areas.

Current economic instruments

Commonly considered economic tools are intended to share costs on new infrastructure provision between developers and public sector. As Maier, Řezáč and Jablonská (2019) show this practice is relatively common in EU countries. These fees seems to be justifiable when some parts of cities or regions have sufficient level of public amenities (schools, public spaces), but new development is extending to greenfields. In these cases participation on infrastructure provision makes greenfield development more costly and as a result more redevelopment in the already built-up environment

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should be seen. Conversely when these fees are not related to local amenities provision and they are uniform they seem to be more like a fix development fee and most probably is better not to include additional instrument and rather for instance increase VAT on new development that is likely to have similar effect. However, these instruments may not produce the desired effect without the proper settings.

Currently there is a limited range of options how municipalities can conclude a contract with developer to co-finance site development. They could either use development contract that have to be combined with a regulation plan or they can conclude an agreement according to the Civil Code[12] (Maier, Řezáč, & Jablonská, 2019).

According to the Section 66, articles 2 and 3, letter f) of the Building Act the municipality or region might condition issue of the regulation plan by concluding agreement on plot subdivision or by concluding development contract to participate on public infrastructure investment costs. The possibility to conclude the development contract only together with regulation plan makes it very hard to use. Moreover it might disincentivise landowners to agree with regulating their land with regulation plan because then their land might become subject to the future development contract that might be not beneficial for them.

Following the Civic Code might provide the municipality the option of concluding other kinds of contracts, but it cannot be required within the building permitting process.

Other economic instruments are even less used and often limited by the national government. Property taxes are low and not spatially differentiated, parking fees are low and together with tolls are regulated by national government. Similarly tourist fees are low and also regulated by national government. In overall the linkages between fiscal planning and urban planning are poor (OECD, 2018a). There exist programs for brownfield redevelopment but they are managed either by MRD or Ministry of Trade and Industry and none seems to promote urban brownfields into mixed-used high-density urban districts and nor cities have their programs to incentivise building in already built-up areas.

Historical perspective

Problems of current spatial planning and development are also to some extent attributed to lack of economic instruments that would orient new development to desirable locations using for instance differentiated property taxation, local fees for amenity provision or development fees. Other set of tools aims at easier land management via public option for land acquisition or some kind of expropriation to unify otherwise fragmented areas that are indeed for new development. Surprisingly these are recurring topics in the Czech urban planning discussion. They were not an issue during the communist regime between 1948 and 1988 as private property was suppressed and market mechanism was replaced by planned economy. But discussion about the role of economic instruments in spatial planning could be traced back to the time of the First Republic between 1918 and 1938.

For instance Emanuel Hruška in 1930‘s proposed to finance construction of Nusle bridge[13] with a loan that would be repaid with tax revenues from differentiated property tax zones along [currently called] avenue 5. května (Hruška, 1934). This proposal has a very good economic reasoning. When the major transport infrastructure is to build real estate property along the new street towards the city center increase in its value and the tax intends to capture this value increase. These kind of tools are currently called generally ”land value captures” as their objective is to capture benefits of public investments and use it to finance or co-finance these improvements. Besides its positives towards sustainability of public budgets another advantage of the proposed Nusle bridge value

[12] Act no. 89/2012 Coll.
[13] Nusle bridge connects medieval New Town with Pankrác plain over the relatively wide and deep valley of Botič stream. Although the Pankrác plain is asscessible both from east and west, the direct north connection towards the city center effectively improves its accesssibility. The bridge was actually bulit at the turn of 1960’s and 1970’s.

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capture mechanism proposed by Hruška is overcoming the public goods underprovision problem. Large infrastructure projects are very costly and their impact, such as in case of Nusle bridge, are relatively localised so in the case of ordinary financing through public budgets it might be politically not beneficial to start such a project as most municipal voters will only bear the costs of it while only a limited number of voters will have a significant net gain.

The problem of land management in spatial development is for instance discussed in double interview with Pavel Janák and Karel Teige that took place in 1934. Janák claims the problems of great cities would be eased if cities have land, its development and appreciation under their control. He adds the existing planning tool of regulation plan cannot solve problems cities are facing and calls for much stronger position of the cities themselves. Teige continues with extension of right to expropriate land in public interest. He claims expropriation for adequate remedy should be possible not only in cases of road and rail construction, but also in case of residential housing construction, especially in case of municipal construction (Janák & Hnídková, 2009).

Currently there are frequent calls for more common use of regulation plans. Despite these plans could significantly improve development of the urban form, these plans most probably would not solve all problems we are facing in urban development as Janák came to this conclusion almost a hundred years ago when regulation plans were a common planning tool, but other tools that would for instance help with municipal land acquisition were also missing.

Taxation and fiscal autonomy

Increasing fiscal autonomy could fulfil more policy objectives, but one of the main interests in this study is the efficient spatial development. The Czech Republic has the lowest fiscal autonomy among all OECD countries as local governments collect 1.2% of the whole tax collection. The taxation of properties is also low compared to other countries at 0.7% of total tax revenues compared to 3.3% of OECD average. Property taxes also account for smaller share on sub-national governments' revenues. In the Czech Republic they contribute with 2% while the average of OECD countries is 9% (OECD, 2016).

Low importance of property tax revenues and the way it is calculated could be one of causes of low willingness for urban development. As the revenue from property tax is relatively low municipalities might see tax benefits from new development not reaching costs of the development. Among costs must be included all costs on the side of public sector but also political costs related to common opposition of local residents towards new development. Related problem is calculation of the tax itself independent of property value. Public investments into local improvements as well as some new private developments increase value of existing properties (IPR Praha, 2018c). When property taxes are not derived from the property values then municipality is not motivated to increase the value of overall housing stock either by new development, by investment into public amenities that capitalizes into property values or by allowing new development in the most desirable locations such as in the proximity of capacity public transit.

While transferring a higher share of tax collection from other taxes to property taxes would, when properly implemented on the local level, help for more efficient spatial development, its implementation seems problematic due to the low political support as an increasing share of property taxation on tax revenues was already recommended by OECD in 2006, 2011 and in 2016. Another political limit could be seen on the local level, because local governments might be reluctant to increase property taxation that is seen nowadays when most of municipalities do not impose property taxes above the minimal level (OECD, 2016).

There are also potential drawbacks of fiscal autonomy. If some desirable public services such as schools are financed through property taxes it might lead to inequalities as poorer municipalities will provide worse services and people would tend to move to rich neighbourhoods. As a response, rich municipalities will try to impose restrictive regulations to drive property prices up to make living there unaffordable for relatively poorer households (Duranton & Puga, 2015). Therefore when considering more fiscal autonomy it must be assessed what services and amenities will be provided

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by what level of government and on what geographical scale the fiscal rules will be managed to prevent competing between municipalities within agglomeration.

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2. Analytical summary

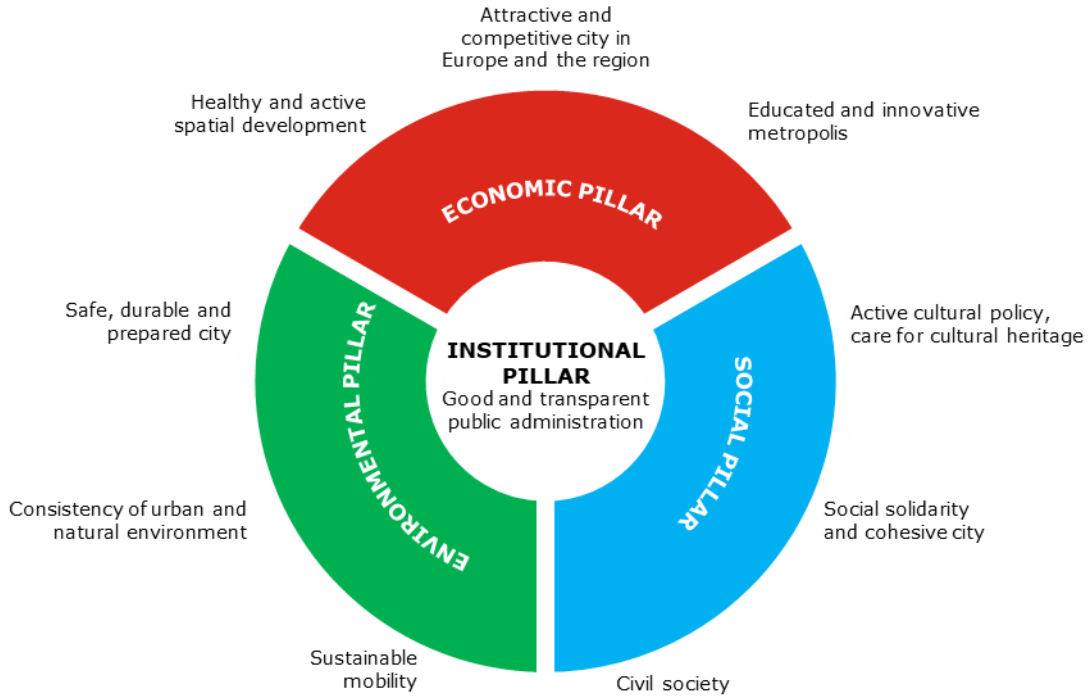
2.1. Disparities assessment

The disparities assessment follows the concept presented by Maier (2012) who describes disparity as an activity that leads to imbalance between pillars or within pillar of sustainable development. In other words it is an activity that exploit resources and values in some area beyond some threshold that would be considered as sustainable. We depart from this concept and evaluate which disparities in spatial development could be caused by various policies and instruments in spatial planning or outside of the spatial planning system but with direct effects on spatial development.

We are following the implementation of this disparity assessment concept on urban spatial development done by IPR Praha (2017) and mentioning some disparities they have found that are relevant on the national scale. They organize various issues in the Prague spatial development into 4 pillars of sustainable development and then divide the economic, social and environmental pillar into 9 more focused areas. Although this sustainable development topics organization was developed for the case of Prague based on the Prague Strategic Plan, 2016 update, we consider it to be generally applicable for assessing disparities in spatial development in any scale from a small municipality to a large metropolitan region of national or global importance.

This concept of disparities is intended to show possible drawbacks of otherwise desirable policies motivated by sustainable development goals. As it turns out many well-intended policies have some negative effects on sustainability goals.

Figure 13: Sustainable development diagram
According to IPR Praha (2017)



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Planning tool and its goal within the sustainable development framework	Negative effects of the planning tool on goals within the sustainable development framework
Spatially extensive heritage protection Social pillar • The aim is to preserve qualities or architecturally coherent localities	Social pillar • Heritage protection often refuse to add new layers of contemporary architecture into the protected environment and therefore reduces cultural heritage created by current generations (Koucký, 2008) • Limiting growth in high amenity cities leads to rise in real estate values severely affecting housing affordability (Glaeser E. , 2015) Economic pillar • Limiting growth in large and competitive urban economies will limit economic growth due to unexploited potential of urbanization economies (Hsieh & Moretti, 2019) Environmental pillar • Limiting growth in cities leads to larger built-up footprint (Bertaud & Brueckner, 2005) consuming more agricultural land and to longer commutes producing more pollution
Housing affordability regulation in the form of rents ceilings and similar instruments Social pillar • Provide sufficient affordable housing	Social pillar • Overall inaffordability could increase as those who do not find regulated rent must accept even higher market rent, decide to buy or due to missing housing opportunities leave the city or do not move there Economic pillar • Decreasing property owners' return decrease incentives to provide more housing and in the long term housing provision is lower lowering also economic output Institutional pillar • Incentivised housing in fact offers this good at lower price than is market level, therefore demand will be always higher than supply. It might be complicated to fairly select those who qualify for subsidy and those who do not
Protect local amenities with new development constraints Social pillar • Secure current quality of local services and amenities for local residents	Social pillar • Overly restrictive regulation in desirable location might lead to property prices increases followed by rent appreciation and gentrification. Economic pillar • If opportunity costs in a locality are not considered this could be inefficient. In many cases allowing new development and investing in amenities will deliver a more efficient outcome
Regional development subsidies and subsidies for amenities provision in unproductive regions Economic pillar • Promote local job opportunities and desirability to stay in the region Social pillar • Reduce negative effects of depopulation and abandonment • Reduce negative effects of regional differences in quality of life and amenities provision	Economic pillar • Subsidising people to stay in unproductive regions decrease overall economic potential that would be otherwise achieved if people move to more productive places.

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Planning tool and its goal within the sustainable development framework	Negative effects of the planning tool on goals within the sustainable development framework
Transport infrastructure improvements between core cities and suburban areas Economic pillar • Provide more reliable, comfortable and shorter commutes from a suburban area to the core city	Economic pillar • Incentivising commuting leads to more dispersed settlement more costly to service Environmental pillar • Easing commuting is actually an incentive that moves urban structure equilibrium towards more dispersed settlement with higher energy needs for commuting and therefore carbon footprint (Hudeček, Dlouhý, Hnilička, Leňo Cutáková, & Leňo, 2018) and higher land consumption
Provide unpolluted and silent living environment with urbanistic solutions rather than technical solutions Environmental pillar • Provide in each residential place favourable silent and unpolluted environment inside and outside of buildings	Social pillar • Limiting poorer households to choose less environmentally favourable places that otherwise offer for instance very good proximity to jobs leading to segregation of the poor to the outskirts • Causing urban fragmentation and loss of quality habitable urban spaces Economic pillar • Limiting otherwise attractive locations from optimal development Environmental pillar • Unnecessary press on development in yet undeveloped areas
Protect local undeveloped and agricultural land Environmental pillar • Improve local environmental stability such as capturing particulate matter, water absorption and ecosystem provision for local fauna and flora • Provide green open space amenities for urban residents	Social pillar • Limiting growth in high amenity cities leads to rise in real estate values severely affecting housing affordability (Glaeser E. , 2015) Economic pillar • Limiting growth in large and competitive urban economies will limit economic growth due to unexploited potential of urbanization economies (Hsieh & Moretti, 2019) Environmental pillar • Limiting growth in cities leads to larger built-up footprint (Bertaud & Brueckner, 2005) consuming more agricultural land and to longer commutes producing more pollution
Emphasis on one form of spatial planning, mostly endorsing functional zoning Institutional pillar • Easier regulation, standardization, monitoring and evaluation due to inhibition of individual specifics • Easier assessment of plans due to their unification	Social pillar • Possibly inability to capture and promote cultural values in an area within universal planning framework Institutional pillar • Inability to address real planning issues that might arise in a given area
One universal process and requirements on spatial planning documents for all municipalities Institutional pillar • Comprehensive and clear process across the whole republic	Institutional pillar • Current system is very lengthy and cumbersome in larger municipalities, especially in regional capitals and similarly large cities

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Deloitte.

Planning tool and its goal within the sustainable development framework	Negative effects of the planning tool on goals within the sustainable development framework
Spatial planning authority over area delineated by administrative subdivisions Institutional pillar • Simple assignment of competencies and responsibilities over given area using existing self-governing and state institutions	Economic pillar • Limited coordination between individual municipalities complicates investments in project of agglomeration importance Environmental pillar • Problems of excessive commuting might arise if attractive municipality restrict growth but provides desirable jobs Institutional pillar • Agglomeration-wide planning is harder to constitute
Spatial permit process governed by state-transferred powers Institutional pillar • The aim to provide expert independent decision-making role	Economic pillar • Higher projects' refusal rate due to low motivation of decision-makers to find a way how to allow projects Institutional pillar • Questionable legitimacy of decision-maker not derives from local general elections
Division of decision-making power between functionally organized authorities protecting public interests Institutional pillar • Easy delineation of rights and competencies in the functionally organized ministerial hierarchies	Economic pillar • Overall inefficiencies caused by uniform requirements imposed on objectively different settlements Institutional pillar • Inability to negotiate locally optimal solution
Low fiscal autonomy of municipalities Institutional pillar • System is relatively easy to design that does not require high expertise on local level to create custom-made systems • System prevents major failures and is resistant against volatilities caused by political cycle Social pillar • Universal level of services is provided	Economic pillar • Successful municipalities might not enjoy enough of their tax contribution to promote even more investment and growth therefore municipalities are not motivated to create new job opportunities and increase local capital Institutional pillar • Very low fiscal autonomy might be too much redistributive and therefore unfair
Municipalities' high reliance on subsidies for investment Institutional pillar • Upper level government could target areas of intervention that it want to support Social pillar • Investments could more evenly compensate differentials in spatial development	Institutional pillar • Municipalities are disincentivize to do long-term planning because their investments are reliant on national programs and not on their real needs
System of taxes and fees that does not take into account the differences of local public services provision costs Institutional pillar • System easier to design, implement and maintain	Economic pillar • Inefficiencies arise as households and firms are motivated to move to areas of their preference not taking into account costs to provide services to them there as they pay uniform fees and taxes (suburbias require more services per resident (IPR Praha, 2016)) Institutional pillar • System is unfair towards agents serviced at lower costs who are subsidizing those who reside at high-cost areas

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Planning tool and its goal within the sustainable development framework	Negative effects of the planning tool on goals within the sustainable development framework
System does not charge taxes to offset negative externalities emerging from land use Institutional pillar • System easier to design, implement and maintain	Economic pillar • Uncharged activities with negative externalities, such as driving in central cities, causes excessive costs to other agents Institutional pillar • In principle the system is unfair as those who are negatively affected are not compensated
Individual rights protection against inappropriate losses in the name of collective gains Institutional pillar • To protect private property and collective property against inappropriate losses	Economic pillar • Binary decisions whether some development does or does not affect others' rights and therefore is approved or not possess large overall losses due to an inability to exploit opportunities and compensate actors for their individual losses • Considering all potential rights' alienations in spatial planning processes or in court reviews prior final decision significantly delays development and decrease supply elasticity of new construction

2.2. Problems and recommendations summary

In this section all problems identified in the analysis are summarized into several thematic groups. Each group describes identified problems from a particular point of view. But in reality most of these problems are jointly interconnected and therefore some issues reappears in more than one group. Each problem is first described and in the second part conceptual response to that problem is proposed. **As this is still an analytical document proposed solutions have to be taken as first draft proposals. The first reason is the analytical part does not yet present the intended depth of the spatial planning system reform that will be drafted in the next stage. As a consequence some of the proposed actions will not be later involved for instance for being beyond the reform scope. The second reason why it is important to consider these proposals as a draft is due to the lack of their mutual coordination.** The proposal of coherent spatial planning system reform will be subject of the next phase.

Lack of coordination between actors and issues in spatial planning

Limited possibilities to enforce some spatial development goals from top to down

Vertical coordination

Problem description

Although the Czech spatial planning is formally divided into three levels of national, regional and local levels, vertical coordination is not optimal and fails in some aspects. In general the condition of subsidiarity in many cases is not met as inappropriate levels of governments intervenes into issues beyond their expected competencies. For instance municipalities might block planning, construction or improvements of infrastructural project of national importance such as motorways, waterways or railways. On the other hand stage government through its tight regulation and state authorities protecting public interests intervenes into very local issues that could be dealt on the local level without interferences from the national or regional level of government. Among these for instance noise limits, heritage protection or spatial development policies could be considered.

Some issues in spatial development are almost not dealt with at all. Such an example is for instance suburbanization, energy efficiency and carbon footprint. These issues belongs to the

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supra-municipal level but current development principles elaborated on the region level does not seem to have tools and ambition to deal with these problems.

Although the national and regional planning is focusing predominantly on planning essential transport and technical infrastructure, the results are mediocre. Most of stakeholders who are not directly involved in regional planning are dissatisfied with planning and construction lengths.

It is also seen as a problem that municipalities are often seen as subordinate to regional and state government. This seems to be against the subsidiarity principle. All levels of government in fact should be responsible for their distinct competencies. This should not reject the principle that some issues must be coordinated on upper level of government and lower levels have to comply. A system of financial incentives that would allow a system not to be too much restrictive and rather motivating is missing.

Recommendations for planning proposal

All policy-making regarding spatial development or having uneven effects in space should be assessed in terms of its spatial reach and spillovers and based on this assessment responsibilities of national, regional and local governments should be adjusted to meet the criterion all decision making is being done at the lowest appropriate level.

The national-level planning should have a stronger position in planning nation-wide infrastructure of all types.

Regional-level planning, especially based on functional urban areas or travel-to-work areas, should obtain more competencies to motivate individual municipalities to comply with regional-level sustainable development objectives. Especially financial incentives to follow upper-level planning documentation should be introduced to achieve desirable spatial development outcomes.

Lack of inter-municipal coordination and asymmetric problems and needs of municipalities with respect to their size

Horizontal coordination

Problem description

Czech municipalities are asymmetric in several dimensions. Many issues arise from highly various size of Czech municipalities that all have to comply with nation-wide legislation. Also some regions are highly attractive and need to manage the growth while others are likely to manage their steady-state. It turns out one-size-fits-all approach does not address well this heterogeneous environment.

Czech administrative subdivision is extremely fragmented into 6,500 self-governing municipalities with majority of them with very low population that does not allow efficient management. Due to low institutional capacity are some agendas moved to ORP offices with state transferred powers.

Fragmented subdivision into self-governing municipalities and lack of inter-municipal spatial development coordinating planning tools causes spatial misallocation between core cities and their suburban hinterlands as suburban settlements are more likely to support new development while they do not have to bear its costs because they rely on services provision by the core municipalities.

This problem could be seen also as a failure to implement subsidiarity principles, because some problems such as suburbanization and related problems are affecting the whole agglomeration functional areas but decisions that affect these issues are done on too small level of individual municipalities that leads to inefficiencies in spatial development.

Recommendations for planning proposal

Municipalities mergers are highly unlikely due to their political unpopularity. Therefore some form of intermunicipal cooperation is needed. Intermunicipal coordination on one hand makes units of

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sufficient size to provide basic services such as kindergartens, schools, public administration office, community cultural centre and social care centre. At the same time the intermunicipal consortium would keep its self-governing nature as it would be governed by elected officials from individual municipalities in the consortium.

Special cases would be agglomeration consortia that would be responsible for agglomeration planning that is essential for mitigating suburbanization and stimulating sustainable growth. The delineation of agglomeration intermunicipal consortiums would require both guidance and support from regional government and local negotiations.

Formation of municipal consortiums could be promoted for instance by state incentives in the form of subsidies to supra-municipal amenities provided only to inter-municipal consortiums. Intermunicipal consortiums of size at least 5000 inhabitants seem to be appropriate scale for spatial planning and elementary amenities provision.

Inference of other regulation

Cross-profession coordination

Problem description

Despite not based in the Building Act or its implementation decrees some other regulations such as noise and pollution limits effectively limit new development in areas that would otherwise most likely be socially optimal to develop despite their lower appealingness.

Protection of public interests specified in acts is being done by robust and wide system of national authorities. Their statements in both spatial planning and building permitting are obligatory and there is no entity that would revise whether change in land-use brings more overall benefits compared to current situation despite the change in land-use would negatively affect some public interests.

Consistent view of many stakeholders including representatives of state and local administration is overrepresentation of environment protection that among others have its own process of EIA and SEA consent and as a result public interest of environment protection dominate over economic, social and institutional pillars of sustainable development.

Another significant inferences into efficient sustainable development are from public health requirements, especially on direct sunlight provision and noise protection. Both of these requirements are more easily met in less dense urban settlements that are on the other hand less sustainable in general. Requirements on sunlight provision were for instance abolished in last update of Prague building code that is in opinion of some stakeholders from other cities seen as well designed regulation that should serve as an example for nation-wide regulation.

Additionally specific problems limiting sustainable urban growth arise from heritage protection regulation, transportation regulation and fire prevention regulation.

The common feature of these regulation inferring into goals of sustainable regional development is that values they protect are not assessed and evaluated in each individual case of planning documentation proposal or construction project proposal. This leads to refusal of proposed solutions that negatively affect some of public interests, but achieve an overall positive social effect.

Recommendations for planning proposal

Creation of governmental expert board is recommended. This board should contain representatives of wide range of experts on urban planning and regional development, urbanists, sociologists, social geographers, anthropologists, economists and spatial economists, environment protection experts, environmental economists, heritage protection experts, mobility experts, public health and sanitation experts. This board should supervise analysis and assessment of sectoral regulation

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inferring into spatial development and they should propose revision of current regulation to promote goals of sustainable development.

Most severe cases of imbalance in public interests protection should be assessed and modified. Negative effects on publicly protected interests should be always considered relative to positive effects of considered planning document or project.

Assessment of impacts on private and public interests caused by land-use changes and selection of optimal option and appropriate compensations. Assessment should be done according to statements of state authorities likely in the SEA and EIA processes.

Lack of comprehensive coordination of planning documents and information

Information coordination

Problem description

The most salient problem regarding form of spatial planning documentation is currently its scatteredness across various national and sub-national agencies and lack of connectedness. Some instrument in the form of state geoportal is mostly missing.

The prevailing paper-based nature of spatial plans and their procurement is obsolete. The law should assume the spatial plan is some form of regulative data model that does not necessarily have to be representable in the printable paper form as it is rather system of layers of various information with different regulativness and stability over time. Also the procurement and publication of the plan for public hearings and comments should be done digitally to make the whole process more efficient and accessible.

The lack of standardization is not seen as a problem uniformly but rather only by some types of stakeholders, likely state authorities or authorities on the regional level. On the other hand many stakeholders see potential more binding standardization of spatial plans as threat to quality spatial planning.

What stakeholders agree on is standardization of underlying data types used in spatial plans but not necessarily standardization of plans themselves.

Some stakeholders also see as a problem lack of materials that would help them with every-day decision-making. They lack for instance handbooks that would describe step by step how to deal with model decision-making problems.

Recommendations for planning proposal

In general regarding spatial plans standardization few categories of functional use (up to some 6) and urban typology could be introduced and required as obligatory layers of the spatial plan.

There should be national geoportal linking to all involved institutions and projecting all spatial data on one place. It should provide general definition of main functional and typological categories that provide consistent information about national intended land use. Standardization should focus on planning documentations' data structure.

The national geoportal should also provide place for viewing and commenting prepared documents and should be an interface to collect data about values, problems and intended projects (similar GIS system was developed by IPR Praha (IPR Praha, 2017b)) in the country with structured accessibility from general public to state authorities. Works on this project have been already initiated.

More intensive methodological help from the Ministry and regions towards local decision-making authorities should be provided.

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Unbalanced competencies and responsibilities

Role of self-governing and delegated powers

Problem description

The current system accommodates the execution of state delegated powers within municipal self-governing administration. Besides well documented systematic bias there are also conceptual questions at which stage of spatial planning and spatial development process should be limited municipal self-governing powers and to what extent should the process be steered by state delegated powers.

Spatial planning is defined as a domain of municipal self-governing powers and this seems to be shared among developed world as a part of subsidiarity principle. At the same time zoning permit is thought as a final step of spatial planning process, the moment when it is decided whether some development is fulfilling objectives of the municipal spatial development strategy and therefore should largely be the responsibility of municipal self-governing powers that is currently not the case. There might exist a risk of increased corruption potential if the decision-making power is delegated to self-governing powers, but on the other hand local governments have their political responsibility and if their governing do not meet public expectations they risk not being elected again, unlike non-elected state administration officials. Nevertheless there is an evidence of reducing municipal self-governing powers due to the prevalent corruption and its transition to the state level in the second half of the 19th century in the US as discussed by Schragger (2016).

There arise several problems. First of all the spatial plan is assumed to be detailed enough to give very clear instructions on what is and what is not acceptable in any location and under these assumptions the zoning permit should confirm or reject compliance of a project with spatial plan. In reality the detail of spatial plan is not sufficient to easily decide whether project complies with zoning plan or not and many objections could be raised. In these cases the process does not anymore fulfil character of simple administrative consent anymore, but rather negotiations about the parameters of the project itself. These negotiations about land-use should be led by body that represents local public interest, is interested in socially optimal development and have legitimacy and responsibility to make a decision. All these conditions are met by self-governing powers on appropriate self-governing level with their legitimacy and responsibility coming from general elections.

The prevailing problem of spatial permit being processed by state-delegated powers is the reluctance to try to achieve solution that would bring most of benefits to the local population[14]. Even when not taking into account the weak position of building permitting office relative to state administration offices protecting public interests, building permitting offices are not motivated to make decisions that on one hand might be disbeneficial for some, but very beneficial for many, because they do not have any specific interests about local development because they are subordinated to the state administrative powers and not locally elected representation. As mentioned in interviews by some stakeholders officers sometimes are afraid of making decisions and it is easier for them rather to negate projects and base their opinion on some negative statement issued by one of the state office protecting public interests.

Recommendations for planning proposal

The zoning permit should be limited to issues of local spatial development as the last step of spatial planning and therefore may be predominantly governed by the self-governing powers. The zoning permit process should mainly consider proposed building capacities such as floor areas, number of units or jobs, functional use when applicable, proposed volumes and its fit into the local built-up context and consider how public and private interests will be affected by the project. As a part of the spatial consent compensations towards involved stakeholders should be set. The compensations should compensate for externalities caused by the project. Typical case is

[14] Local in terms of subsidiarity principles, therefore taking into account whole area and population significantly affected by a given project.

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compensation for increased requirements for public infrastructure investments that would be received by local government. If a new project significantly affects value of neighbouring property, such as new transport infrastructure, property owners should be directly compensated for their losses by project owner. Less common is reverse situation when additional fee charged by local government for specific new amenity provision, such as investment in a new transit line in a property vicinity or for floods protection. Methods and extent of compensation should be given by the spatial plan or detailed documentation.

Actors protecting public interest

Problem description

The current legislation does not enhance necessity to negotiate optimal solution in each individual case because sectoral state agencies are not motivated to find mutually acceptable solution as they do not directly benefit from regional development and there is no way how they could trade in negotiation process.

Some public interests are not protected in the system of spatial planning and zoning permit or position of actors protecting competing public interests is significantly stronger. Such an example is for instance lack of protection of interest in economic development that typically manifests as a new construction in spatial development. While in market oriented economy individual projects are typically initiated by profit-maximizing firms they could not be allowed either in stage of urban planning or zoning permit if any of public interest protection agency finds the project to negatively affect public interest it protects no matter what positive effects the project could bring.

It was frequently observed that the current position of the environmental protection in the spatial development processes is excessively strong and actually limiting optimal sustainable development. On the other hand some aspects of environmental sustainability are currently not considered at all, such as energy requirements and carbon footprint of various forms of settlements that should be taken into account when facing global climate change.

Similarly it seems there is a systematic imbalance between the public interest of heritage protection and public interest of economic development on one hand and public interest of extension of heritage with contemporary layers of built environment. The arguments for economic development largely follow those in the Annex 5. In the second case there is currently obviously missing representative of public interest that would promote contemporary additions to inherited cultural values as it is discussed for instance in Koucký (2008).

Another public interest not represented in the process of spatial development is for instance interest on affordable housing.

Recommendations for planning proposal

It seems statements of all authorities protecting public interest in the process of procuring spatial plan and in the process of spatial permit should be non-binding. Both of these processes should be governed solely by the local level of government by their administrations. The possibility of unlawful decision of the government in cases of spatial planning or projects permitting is possible, but would be reviewable at court and in case of confirmed unlawful decision local government would have to compensate those whose rights were alienated.

Additionally the set of actors bringing their perspectives about the effects of planning proposals and projects on sustainable development could be extended to capture the whole width of goals of sustainable development. Based on analyzed missing actors representing public interests Chamber of Architects, Chamber of Commerce, local social care institutions and stakeholders from cultural management should be included. As conflicts between public interest naturally arise they should be assessed to find the optimal social-utility maximizing outcome.

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Human resources problem at spatial planning and building permitting authorities

Problem description

The spatial planning and development permitting agenda turned to be much more oriented to law with severe extension decisions' justifications. It was mentioned the current requirements by the agenda are beyond experts whose background education is not law. As a result the agenda is turning to be more formal rather than contextual.

Also it seems the problem at offices is not in low abilities or education of officers, but rather low motivation. This seems to partly arise from extremely scattered decision-making competencies where no agent has ultimate power to decide, responsibility to defend his decision and appropriate reward for making right decisions. In such environment no one is motivated for better performance as there is no leading agent of the process motivated do make the best possible decision.

Recommendations for planning proposal

This problem would probably be partly overcome by moving decision making in spatial planning and spatial permitting into competencies of municipalities and making them the leader of the process.

Lack of tools that would promote desirable development

Objectives and tools of spatial planning

Problem description

The current spatial planning system assumes there is an optimal solution when all relevant aims and protected values are not affected. This seems to be rooted in the modernists' assumption of common shared values and preferences about optimal housing that could be met by provision of standardized prefabricated settlements on city outskirts that meet all objectively given regulations. It is important to mention modernists did not include among their requirements for instance commuting time and other amenities people might value. If the problem is analyzed within the consumer behavior framework it is clear households are willing to trade some sub-optimal features of housing unit, such as noise or lack of sunlight, for some other good they value more, for instance proximity to cultural institutions, shopping or jobs. Especially if we are thinking of heterogeneous agents many suboptimal housing units (in the modernists' perspective) might be preferable to the optimal ones. The requirement for some objectively given standard fails when intensive urban development is considered as many stated and publicly protected values are mutually exclusive. But as we see on residential property prices central districts of Prague that hardly meet modernists' requirements for good living environment are still preferred to prefabricated settlements with vast provision of open space, free air and sunlight.

Also current system of spatial planning is still largely oriented on functional zoning and despite it allows complementary planning tools such as built-up form typology or land-use intensity it inherently assumes functional zoning will be present in spatial plans. There might arise circumstances where functional zoning is not relevant or could be regulated by very few functional types and instead main subject of regulation could be maximal intensity of land use in the form of height or floor area ratio regulatives.

Recommendations for planning proposal

As the current paradigm is plurality and diversity the spatial planning system should be very open to finding consensus among all stakeholders involved in the local, regional and national development and allow them to take any regulatory measure to manage spatial development within their territory they find useful given their local circumstances.

It seems the spatial planning system should offer relatively open toolbox of possible regulation mechanism that could be mutually combined to meet needs of individual municipalities. Among these tools are several groups of regulatives: functional zoning, land-use intensity regulation, property fees and taxes on land, structures and their function including fees on new development,

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and mobility policy. These tools could be further standardized to some extent to be measurable and comparable between municipalities.

Separation of spatial, strategic and fiscal planning

Problem description

Spatial planning in the broader understanding is in the Czech Republic fragmented between strategic planning, spatial planning and then another sectoral planning with major spatial impacts such as transport planning. Fiscal planning is largely missing as Czech municipalities and regions have very low fiscal autonomy and are dependent on state transfers and subsidies.

The dual character of current spatial and strategic planning brings several drawbacks. On the national and regional levels two parallel systems seem unnecessary while at the municipal level both plans are rarely aligned. While spatial planning is extremely constraining in terms of land use it does not have any tool that would ensure any planned project would be realized. Besides potential phasing there are no links to the timeframe of planned projects and no information about intended financing and overall expected costs of planned projects.

As the spatial planning is very rigid, there is a rare following step of spatial development, more active role of municipalities or regions on land market or joint development in the form of public-private partnerships.

Possibly one reason why municipalities are reluctant to take part into joint spatial development might be besides cumbersome legislative regulations that municipalities do not directly benefit much from new development. Besides local employment new development has probably most significant contribution to the public budgets through VAT that is collected nationally and all municipalities get only given share. Therefore as new development possess some political difficulties as local electorate rather oppose new development, the new development is not perceived under current system as a net benefit for local communities.

It was also identified that a low willingness for long-term planning might be caused by the current system of national and EU subsidies when municipalities are rather trying to adjust their priorities to existing subsidy programs than prepare projects they truly need and find financing later.

Another reason for low willingness towards new development is low share of property taxes on overall tax collection and on local budgets. Additionally weak relation to property value is a problem. Due to these factors local governments are not so much motivated to promote new development and increase value of existing buildings because it does not increase their tax revenues unlike in cities in other countries where intentionally some public investments might be done to increase value of properties and capture this increase via property taxes.

Problem of underutilized land was also mentioned. Currently land taxes are so low it is worth waiting and not developing even well located land in already developed parts of cities.

Besides property taxation there are also other tools that might become useful for managing spatial development that are currently either unavailable or regulated on the national level. Among these are parking fees, urban road tolls, tourist fees or local fees for publicly provided services. These tools are intended to be a part of spatial planning documentation for instance as spatially delineated areas where these tools are supposed to be implemented. The implementation itself could follow after the plan’s adoption according to a more detailed project implementation documentation.

Recommendations for planning proposal

Increase of the share of tax collection from property tax and transfer of competencies to municipalities regarding tax rates should be considered. Also tax rates should be differentiable with respect to location or type of property to become one of spatial planning and management tool. Increasing fiscal autonomy would also have to be accompanied by definition what services are

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provided uniformly are paid for by national or regional authorities and what services are solely within local competencies and are financed via municipal budget. If such property tax autonomy is enacted it would require coordination on the agglomeration level. Coordination does not necessarily means there must be a uniform rate, but clear definition of what services are provided for own citizens and not for others from different municipalities within agglomeration must be for instance clarified.

As the property tax would be increased other taxes should be lowered to keep overall tax rate unchanged. Additionally to restore opportunities for municipalities long-term planning of the amount of sources through subsidies should be decreased and instruments promoting local economic activity should be introduced. An example could be fraction of locally collected VAT. This fraction could be given parametrically for various regions to reflect worse economic conditions on one hand and to still make the environment motivating for economic growth on the other.

To motivate for appropriate efficient land utilization well set two-tier property tax should be used. As OECD notes higher emphasis on taxing land rather than built structures motivates for denser efficient land use (OECD, 2017b).

On the regional and national level should be spatial and strategic branch of planning merged together into single document with its strategic part and then spatial planning part focusing on spatial projection of selected features within competencies of state or region.

On the municipal level spatial planning should be together with other public policies subordinated to the strategic planning and serve as an implementation regulation of goals defined in the holistic strategic planning. This definition would more tightly connect spatial planning to other areas of sectoral planning typically considered to be within strategic planning. These areas are for instance mobility planning (being broader than transport infrastructure planning in current spatial planning), housing policy and public amenities provision. All these plans would be additionally linked to the fiscal plan and projections.

Inappropriate detail in documentations of given scale

Problem description

The possibility of current digital technology allows to zoom-in in any spatial planning documentation even to the scale of individual lots. This causes problems especially in cases of larger cities spatial plans and regional principles of spatial development that both should deal with general issues of wider area composition and should not be limited by details to be considered in the subordinate planning documentations.

Inadequate emphasis on considering detailed problems in some areas distract planners' attention from important issues that should be dealt with in the wider scale, such as problems of suburbanization and development expansion, related problems of technical infrastructure and public services provision and mobility requirements.

The extensive level of detail of spatial plans covering the whole area within the municipal administrative limits seems to be inefficient, especially taking into account that many details that were intended to be solved in the planning documentation are again raised during the EIA consent, zoning permit process and sometimes in the building permit process as well.

The perceived role of spatial plans was a conceptual framework for the municipal development and actual decision-making was supposed to be done according to the detailed regulation plans. Instead zoning plans have become very detailed as they have become dominant document used in spatial permit decision-making.

Recommendations for planning proposal

The scale of individual lots should be considered in planning documentation below the spatial plan such as in spatial studies, regulation plans or similar planning documentation. It seems reasonable

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to distinguish in spatial plan stabilized areas where large structural changes are not expected and desirable and development and transformation areas where major changes are expected and desirable.

The detail of the spatial plan should be generally consistent and regulation of development and transformation areas should be largely parametrical, such as defining gross built-up floor areas, height limits, requirements on urban typology and public spaces, expected number of housing units and jobs opportunities and requirements of public services. These parametric definitions should be accompanied by monetized expected public and private investments. Besides definition buildable and unbuildable areas, stabilized, development and redevelopment areas the spatial plan should also plan city-wide infrastructure projects and other projects of city-wide importance. The plan would primarily define whether in particular location detailed planning documentation as a foundation for decision making should be elaborated or would provide general tasks to be fulfilled in context-based decision making and for that reason would not have character of individual decision and may be issued as a general decree.

Detailed regulation in the form of spatial study, regulation plan or similar tool should be done for all delineated development and transformation areas while they could be prepared together with the spatial plan or later on. The aim is to provide all transformation and development areas with a more detailed planning documentation that would coordinate development of the given area. Detailed regulation plan may be issued as a Measure of general nature.

The distinction between stabilized and development and transformation areas should be done also in following construction permitting process. While in case of stabilized areas zoning permit would take place because compliance of the project with its local context must be assessed, in case of transformation and development areas the spatial consent would be skipped as more detailed requirements would be given in the detailed spatial planning documentation. In case of missing detailed documentation in development and transformation areas the zoning permit process would take place and would be decided whether it is possible to allow given development not to limit future development potential of the area.

Missing agglomeration spatial plan

Problem description

The analysis has shown suburbanization is a universal problem of almost all Czech agglomerations and there seems be no tool that would be able to tackle it. Upper level documentations on regional level are typically focused narrowly on transport, technical and environmental infrastructure while missing conceptual framework of functional agglomeration area development, amenities provision and lack tools that would incentivize municipalities to follow an agglomeration development framework.

Also there is currently no appropriate administrative subdivision that would fit functional urban areas as they were defined in the analysis based on the commuting patterns. Most of functional urban areas do not cross regional boundaries, but they frequently cross ORP boundaries that might be thought as a suitable unit for agglomeration spatial coordination level.

When there are no economic incentives to prioritize more desirable places for development new development will simply occur at places where developers maximize their profit as a standard consequence of the free market. Therefore even if some municipality do not want to significantly develop and define only a modest amount of buildable land that is easy to develop it could be expected that it will be developed soon. Then the land owners might demand to change the spatial plan as buildable land runs out. According to the §55, article (4) of the Building Act[15] new buildable land could be defined with the change of spatial plan if it is proven there is a need to do so. But it is unclear on what spatial scale the need should be assessed. For instance Zlín region intends to coordinate the issue on the regional level, but generally only municipal area is considered.

[15] Act no. 183/2006 Coll.

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Although individual municipality might truly exploited all its buildable land, there might be still a lot of vacant land in the rest of the agglomeration.

The rapid extension of urbanized areas into previously undeveloped land is negatively perceived by majority of stakeholders in the system of spatial planning possibly also due to the fact there currently is not any planning tool that would be able to regulate it.

As was already mentioned in the previous section one of main reason is extreme municipal fragmentation and missing planning authority on the appropriate level to be able to coordinate supra-municipal development.

Although current development principles could potentially serve as a coordination plan for agglomeration development it appears they fail this role. It seems the Building Act does not clearly defines what competencies belong to what level of government.

Recommendations for planning proposal

Development principles should delineate agglomerations on the area of region, especially in areas where excessive suburbanization occurs. This should be done by regional government in tight cooperation with municipalities within proposed agglomerations. A specific situation is apparent in the case of Prague, where agglomeration boundaries should be delineated by the Ministry in cooperation with the Prague, Central Bohemian region and municipalities within the proposed agglomeration.

The role of the agglomeration plan should be to coordinate agglomeration development, especially in terms of its relation between core city and its suburbs. To fulfil this role the attention should be paid to size of new development capacities, its linkages to public transport and road network, integrated transport policy in the agglomeration and public amenities provision. All of this could be related to local tax rates.

It is expectable that major tensions will arise between core municipalities and suburban settlements. Important precondition to resolve this struggle is common goal and opportunity to trade something in negotiations. In general motivation for overall growth in the agglomeration should be shared as it increases local tax returns. Core cities are typically not against growth of suburban settlements unless it causes them severe traffic congestions. Therefore core cities would likely push suburban settlements towards capacity public transit or condition it by presence of intermodal changes such as park&ride facilities. Suburban municipalities might be reluctant to give up development opportunities, but they might face extension and pricing up parking in central cities or starting congestion charging that is not desirable for suburban municipalities. Therefore both sides would have space for negotiating a reasonably balanced agglomeration development plan.

It must be borne in mind that simple more restrictive policies towards suburban development would impede suburbanization, but at costs of overall higher property values. Therefore integrated agglomeration development must disincentivize suburban sprawling in undesirable locations and locate suburbias in the proximity of existing or new high-capacity public transit and promote easier development in core cities and utilize their land as pragmatically as possible.

Missing development coordination plan

Problem description

Currently there is not a clear and common process on how to manage the development of larger sites generally larger than 5 hectares when coordination between land-owners, developers and public sector is essential. This coordination is even more necessary when it comes to brownfield re-developments in cities.

These sites are frequently fragmented in terms of their ownership that impede or completely stop possible re-development, because there are currently no commonly used instruments to either

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merge ownerships and provide each owner his or her share on total area or expropriate land for a fair market value.

As spatial plans are mostly dealing with zoning functional use for relatively large areas, they are not elaborated in detail of development plans that used to be common prior to World War II. Without detailed regulation, such as delineation of public and private space, building fronts and building volumes including dominants, new development often fails to create coherent urban space, well connected to existing urban structure and interconnected with other developments built by different developers.

When coordinating development itself with necessary public services investments, for instance public transport, pre-school and school facilities, there are not given standard guidelines whether or how municipalities and developers should share public budgets costs that arise with new development. Although there exist instrument of planning contracts it cannot be easily implemented to make participation public amenities expenditures related to new construction obligatory.

Overall, prevailing problems and perceived uncertain outcomes of brownfield redevelopment lead for instance in Prague to leaving many of re-development brownfield sites under building ban (Útvar rozvoje města, 1999) since 1999 when it was enacted in the zoning plan to protect these sites from fragmented unorganized construction although it was expected soon after 1999 detailed plans will be produced.

Recommendations for planning proposal

When proposing development and transformation areas such as they are defined for instance in the Metropolitan plan (IPR Praha, 2018b) there should be an option for municipality to intervene in existing ownership either via option for land acquisition, land merger or expropriation for fair market value. The optimal scenario would probably contain all these options to fit all individual cases while leaving option not to use any of them when land ownership structure does not limit development potential.

Some of these sites might have very special site specifics as, for instance in case of large urban brownfields, they are frequently located in areas with major transport or technical infrastructure or they have extraordinary development potential of some kind that is of regional or national importance. To fully develop these potentials that might require significant and long-term public investments there should exist process how to involve regional or national government that could issue special legislation to overcome existing barriers in within existing regulation, pledge future finance assistance, safeguard the project against possible changes in local political preferences and help to create and moderate project consortium. Specific forms of municipal, regional and national government cooperation together with other involved stakeholders were used for instance in Amsterdam's Zuidas[16] project starting in mid 1990's (Majoor, 2007) or public-private partnership in Amsterdam's Ijburg project starting also in 1990's. It is also said the role of central government is getting more important in large-scale urban development projects that are commonly part of national strategies. While municipality typically initiate the project, national government can pledge funding and intervene in negotiations with private stakeholders. Because relations in the projects are more complex, there is even more important need for making clear leadership in the project process management (Lecroart & Palisse, 2007).

To clarify public budget costs on new development in development and transformation areas based on the proposed densities and public amenities estimates of these investment and current costs should be included in the spatial plan and developers would be obliged to either pay given contribution or provide services in that amount. The size of contribution would be derived from

[16] „Zuidas is the largest urban development project in the Netherlands, strategically located halfway between Schipol airport and central Amsterdam. At first imagined as a business district, it is now planned as mixed-use development on top of a major transport hub. It's future success relies on the major players's capacity to steer, finance and give life to a complex and risky project" (Majoor, 2007, p. 60).

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costs of local amenity provision and would take into account intended subsidization of preferred development locations over less preferred ones.

Missing compensating mechanisms for planning outcomes

Problem description

Current spatial planning system does not use compensating mechanisms when land or property value is affected by proposed plan or project. The only exception is converting developable land into undevelopable under supplementary conditions of project initiation.

This causes major problems. On one side there is motivation for land speculation as differences between developable and undevelopable land are high as well as speculations with land use intensities given by spatial plan and potential plan changes. This negatively affects property market as potential increase in value by speculation capitalizes into land values. The other side of opposition towards projects causing net loss to some agents. If there is no compensation mechanism that would offset losses caused by some project the only way how to protect value of property is to completely resist proposed project.

Both of these cases lead to social inefficiencies that could be mitigated with appropriate compensating mechanisms.

Recommendations for planning proposal

The most straight-forward way how to disincentivize land speculation is instrument called Land Value Increment Tax. This tax is applied on Taiwan and taxes value increment of land since last sale adjusted for inflation. The tax rate is progressive and ranges between 20% and 40% (Deloitte, 2019a). As a result as gains from increased value of land are considerably taxed it should prevent land speculation. It is up to question how this tax could be implemented in the Czech context to fulfil its role. Similar tool would be fee for changing zoning plan to increase value of land.

In case of compensation mechanism two general approaches could be taken: either compensations negotiated for each individual case of compensations based on the national or regional guidelines. The second case seems to be much more feasible as for all planning and projects' preparation size of compensations are known that is beneficial both for planning authority and developers. Secondly individual negotiations are very costly and most likely these transaction costs would overcome the compensation itself.

Insufficient public awareness, involvement and education

Experts' education

Problem description

Several issues regarding experts' education were raised. First of all there is educational gap between education of experts in current spatial planning who have commonly rather technical background and experts in strategic planning who have rather geography or other social sciences background. Misunderstanding between these two groups of expert might be one side of the problem of insufficient linkage between both branches of planning. Especially experts known in other countries as urban planners are missing in the Czech Republic.

Other commonly raised comment is insufficient education in spatial planning among experts coming from the architecture schools who have only limited schooling in spatial planning as school curricula put more emphasis on architecture although some architecture faculties provide special programs in spatial planning.

It was also said in practical spatial plans drafting some authors do not submit sufficiently good outputs. Although it was admitted this might be caused by generally low awards and tough competition this does not justify low quality of outputs. Anyway if there are any doubts regarding

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professional quality of planning documentation the Chamber of Architects has is obliged to asses such an issue.

Recommendations for planning proposal

It seems new more integrated holistic approach to spatial planning will require soon experts in urban planning as this education is defined in other western countries. It is unclear from which background it should rise, either architecture and spatial planning, social geography, policy making or economics. In any case such a program should contain all of previously mentioned disciplines together with law and public administration.

In case of problematic quality of spatial plans local governments hiring spatial planning professionals should be aware the authorized professionals must meet criteria given by regulation and if they believe the work the submit does not meet given criteria they should raise objection and let the issue assess.

Low awareness of spatial planning and its importance

Problem description

Citizens and to some extent politicians not often fully aware of complexity of spatial planning, its goals, tools and processes. This low awareness has various mostly negative impacts on spatial planning and development as more abstract goals of spatial planning is complicated to turn into appealing political program. On the other hand partial goals of spatial planning, such as environment protection, are without wider context used to justify political opposition for instance in case of new construction.

Recommendations for planning proposal

As it was mentioned in interviews the most important is to be open towards public and promote spatial planning as important public policy with its complex implications. More stakeholders mentioned Prague CAMP (Center for architecture and municipal planning) as an example of good practice worth to follow.

Secondly, spatial planning should be discussed already at primary or secondary schools because many citizens will at some point come into the contact with it.

Both of the above mentioned recommendations are discussed in Architecture and Building Culture Policy of the Czech Republic.

Lack of participation in suitable part of process and documents

Problem description

Public participation and associations involvement in spatial planning and spatial permitting processes is seen as very complicated although most of stakeholders admit public involvement is important. It seems prevailing processes cannot promote involvement of public in the right time and to the right extent.

In the case of spatial plans public hearing seems to be too late and scale of spatial plan is too abstract for the majority of stakeholders who want to predominantly discuss individual plots.

The necessity to answer all objections to spatial plan during its procurement seems not to be reasonable, although it is possible to answer similar objections collectively.

Recommendations for planning proposal

Public participation should be required, but should be less formalized and take part in different parts of the process. As optimal seems to conduct participation prior elaboration the spatial plan when task given by strategic plan or directly by local government is detailed.

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Deloitte.

Later on public opinion might be collected about key possible solutions to help plan's processor and local government to choose the desirable one. At the end objections towards the proposal should be collected and independent expert should assess which are relevant to be considered and answered and which ones are irrelevant.

Low public trust in spatial planning and institutions

Problem description

It was said trust in institutions in the Czech Republic is low and similarly there is not so much high status of public officers who work in the administration. Unfortunately the disrespect of officers is commonly encouraged by elected representation that claims officers are blocking their propositions.

Besides low trust towards institutions there is also low trust among all the stakeholders involved in the process and they are exploiting all opportunities to gain the most they can no matter at what costs imposed on others.

Recommendations for planning proposal

It seems the only way how to overcome this unsatisfactory state is to promote more communication between stakeholders to clarify their intentions and provide ground for possible negotiations to satisfy all parties involved to some extent as well as inform all stakeholders in advance about the process of planning documents drafting and stages when they could make comments or raise objections and how these inputs will be considered.

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3. Annex 1 - Spatial planning and development background

The aim of this first section is to present spatial planning as a discipline and briefly present issues that are of major importance at this time. The section focuses on issues that are broadly related to the spatial planning and does not limit to problems that belong to practice of spatial planning as it is given by current Czech legislation. To cover the planning discipline in its width we base our analysis both on international and Czech literature and show how findings from foreign sources are applicable in the Czech context.

Although the first annex is predominantly theoretical and abstract we believe this broad exposition into the spatial development and spatial planning is important to fully present width of the discipline and its consequences towards other domains of public policy.

3.1. Past and current trends in spatial planning and related disciplines

Spatial planning in the Czech Republic in the international perspective

The discipline of spatial and urban planning in the Czech Republic is well established with long tradition that could be traced back as far as to the 13th century of Přemysl colonization. The oldest archived Building ordinance is from town of Jihlava (currently one of regional capitals) and dates back to the 1270 (Maier, 2012). The 13th century was indeed a century of new towns settlement. During its peak under the reign of the king Přemysl Otakar II between 1253 and 1278 33 new towns were settled. These towns were located on strategic location with respect to military and trade needs so they could foster regional settlement structure (Hrůza, 2014).

Towns and cities did not see significant development until the start of industrial revolution and related process of urbanization. Until the 1860's cities did not control development as it was within competencies of state administration. When the situation had changed municipal institutions were weak and their position in the urban development was relatively fragile. In the late 19th century professional institutions backed by Building Acts were established. At that time several legislative regulations with implications towards city planning were adopted to improve health conditions in cities. In 1888 law according which towns were obliged to have municipal physicist who would take care of water supply, sewages and waste disposal was approved. The requirements to build and maintain sewages were adopted in the 1870's and 1880's (Maier, 2005). To regulate new development regulation plans[17] were commissioned. These plans regulate build-able blocks and plots' subdivision, they set setbacks and urban typology. These regulation plans were used in this form until reform in 1949 (Maier, 2012). In the 1920's and 1930's cities started to prepare agglomeration plans, but due to the great depression and later war they did not have a significant effect (Maier, 2005).

The 1949 reform defined hierarchical system of planning from the regional level to the local level as a spatial projection of the state planning with limited involvement of local municipalities. This reform also defined terms of spatial planning and spatial plan. Without major changes this system lasted until early days after revolution in 1990 (Maier, 2012). The new approach to spatial planning was significantly influenced by modernist movement that set new objectives in the city planning such as functional separation enforced by zoning plans. As Michal Janata argues modernist planning significantly departs from traditional urban planning as the new elementary unit of a city should be an apartment within it settlement context and not streets and squares as it was common in the earlier tradition. On the international level modernist planning was soon subject to large criticism and new doctrines were adopted as early as in 1970's. The Amsterdam charter from 1975 initiated by the European council emphasized the importance of architectural heritage in its urban context (Janata, 2016). Despite changes in the discipline occurred internationally there did not seem to be a response in the Czechoslovakia (former Czech Republic together with Slovakia). For instance the development of large high-density prefabricated districts (Northern, Southern and

[17] upravovací plány in Czech

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South-western districts) on the outskirts of Prague started in the second half of 1960's until 1990's (Hrůza, 2014).

After the 1989 the Czech system of spatial planning undergone reforms to fit the system needs of a market oriented democratic society. The major change came with adoption of 2006 Building Act that replaced former 1976 Building Act (Act No. 50/1976 Coll., on Spatial Planning and Building Code (the Building Act), as amended). Unlike in other countries, Czech Building Act regulates both spatial planning and building construction. Emphasis in the processes envisaged by the Building Act is newly put on protection of personal property. The system is hierarchical with spatial planning instruments on all three levels of government: municipal, regional and national. Czech spatial planning belongs to a land-use category with a move towards more comprehensive and strategic planning after the adoption of 2006 Building Act (Tosics, et al., 2010). Czech specific is existence of two parallel spatial and strategic planning systems that is uncommon among other countries (Maier, et al., 2015). Links between development strategies and spatial land-use regulation are therefore mixed and depend on local circumstances.

Despite changes in political environment and Building Act reforms the period after 1990 could be described as time when modernists' planning fade away in terms of spatial development. The majority of new apartment residential development is designed as open-plan urban form with mediocre or low quality of public spaces and well composed mixed-use districts are very rare, although promoted as intended in the legislation (Kohout, Tichý, Tittl, Kubánková, & Doležalová, 2016).

Many stakeholders consider changes in the discipline of spatial planning after the revolution in 1989 not sufficient and call for a deep reform. For instance Roman Koucký claims the current spatial planning is based on overcome principles of functional zoning dating back to The Athens Charter (1933). He adds it is an approach for a directive-controlled society that does not fit current needs. He calls for assessment how zoning plans in the Czech cities helped to manage their development over the past 20 years as he criticizes suburbanization, low quality of public spaces in new development and underutilization of spaces within already developed city limits. Therefore he sees as essential in a new approach to planning an intensive development as an opposite to 20th century extensive growth. To keep cities efficient their inner potential for instance in the form of underutilized areas and brownfields should be exploited. Roman Koucký had an opportunity to implement his vision of spatial planning as a leading expert preparing new Prague Metropolitan (spatial) plan. He claimed at the beginning of works on the plan it should aim at different goals unlike prevailing common practice. The aim should not be detailed functional zoning, but hierarchy of built-up city and its urban form together with emphasis on public spaces to promote beautiful habitable environment (Koucký, 2017). This approach focusing on public spaces as a framework of urban planning concept was introduced in several cities, Barcelona or Lyon to name some. But these planning concepts are later implemented more like management programs for important places and links revitalization and activities proposal rather than spatial delineation of continuous physical public space (Kratochvíl, 2015). However, the acceptance of the proposed draft of the Metropolitan plan varies significantly among stakeholders in spatial development.

The shift in urban planning discipline could be illustrated by Christopher Alexander's point reflecting the complexity of urban development: "… in detail, the growth of a town is made up of many processes – processes of construction of new buildings, architectural competitions, developers trying to make a living, people building additions to their houses, gardening, industrial production, the activities of the department of public works, street cleaning and maintenance and so on and so on. But these many activities are confusing and hard to integrate, because they are not only different in their concrete aspects - they are also guided by entirely different motives. The welfare department is trying to build houses at low costs to help poor families. The department of transportation is trying to speed up traffic flow in the city. City officials are concerned with keeping disparate functions separate by means of the zoning ordinance. The officials behind the counter are trying to follow rules strictly so that they will not lose their jobs. Homeowners are trying to keep their houses in good order. Landlords are trying to make as much money as possible from their rents, and to spend as little as possible to get it. Sierra Club members [Environment protection

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agencies and initiatives] are trying to make sure that nature is respected in the city. Many of these aims are valuable and good within themselves. But since they are so disparate, it makes very hard to see what overall aim the growth of the city is really trying to accomplish. One gets confused by the multiplicity of aims, and then, ultimately, the overall growth and construction of the city is not guided by any clear motives - only by a hodgepodge of these many different motives. … But the trouble is, that within this view, there is no sense of balance, no reasonable way of deciding how much weight to give the different aims within the hodgepodge." (Mahy, Alexander, Neis, Anninou, & King, 1987). Not only the environment is plural, but it has become more dynamic than ever before. David Harvey in the introduction to his Brief history of neoliberalism refers to Lyotard's postmodern conditions of "temporary contracts" that take place of past social institutions when describing circumstances of globalizing world (Harvey, 2007). These new challenges largely appearing from the last decade of 20th century demand new approaches to spatial and urban planning.

Sustainable development framework

In this introductory part we would like to present spatial planning in its width as it is perceived internationally and that is reaching beyond the current definition of spatial planning in the Czech Republic. One of the reasons of doing so is to reflect most recent developments within this field that might not yet arrived into Czech spatial planning legislation, but that are important to consider. For instance The Oxford Handbook of Urban Planning defines among goals and principles following topics: beauty, sustainability, justice, access, preservation, cultural diversity and resilience (Crane & Weber, 2015). We approach this project differently and organize our analysis based on pillars of sustainable development, but it could be seen the topics defined by Crane and Weber after some minor adjustments would fit into the sustainable development framework as well: beauty, preservation and cultural diversity fit best into social pillar, sustainability and resilience and access to some extent fit into environmental pillar and justice into institutional pillar. Missing economic pillar might be justified by argument the planning should secure collective requirements on development while economic pillar is driven by individual intentions and forces leading to economic objectives are always present.

We present objectives of spatial planning and development organized within the framework of sustainable development that is already according to the Czech legislation main goal of the system of spatial planning. It is important already at the beginning to comment sustainable development framework and our methodological approach to the problem. Sustainable development defines one of its pillars the economic pillar. We keep this naming as it got accepted within the profession, but it raises some issues that must be clarified. The definition of economic pillar more refers to private wealth, either at households or firms level, that seems to complement well social pillar (collective wealth), environmental pillar (natural wealth) and institutional pillar (wealth in terms of quality of governance and legitimacy). This clarification of definition is very important regarding the methods of analyzes we are going to adopt. Naming the first pillar 'economic' often raises comments that economic analysis could be used only to asses this pillar of sustainable development. In our understanding broad definition of economic analysis provides us with necessary tools to jointly analyze economic, social and environmental pillar within one conceptual framework as it is shown in the exposition to the concept of regional spatial equilibrium in the next section.

Although the sustainable development concept, that inherently assumes development, might not be accepted by some stakeholders who see further economic development undesirable[18] in the context of global climate change, this perspective seems to be rather minoritan and majority is likely to be convinced about positives of ongoing economic growth that should be aligned with needs of environmental protection and de-carbonization. When goals of sustainable development are applied to spatial development, the needs to accommodate growth are emphasized. For

[18] Discussions about sustainability of future growth seems to be inherently present in our thinking about societal development. For instance already in 1930's Pavel Janák in an iterview raised question whether current level of culture and living standards in cities are sustainable in the presence of growing urban population. Karel Teige replied that the intellectual elite should even not raise such a question and that there is rather responsibility to maintain them (Janák & Hnídková, 2009).

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instance the first chapter of The Smart Growth Manual regarding the regional planning states the growth is inevitable and it calls for shaping and managing the future growth into areas where it will cause least harm and benefit most (Duany, Speck, & Lyndon, 2010).

It is also not always easy to assess sustainability in terms of what positives and negatives individual actions cause while considering these benefits and detriments in a comparable framework, for instance in monetary value. There is a large literature that investigated valuation of various non-traded goods, such as environmental features (Melichar & Kaprová, 2013; Brander & Koetse, 2011), public amenities provision (Black, 1999), urban nuisances (Rizzi & de Dios Ortúzar, 2015; Ahlfeldt, Nitsch, & Wendland, 2019), transportation (Rizzi & de Dios Ortúzar, 2015; Maibach, et al., 2008), built environment or cultural heritage (Wright & Eppink, 2016). They employ various techniques of econometric analyzes to infer what is willingness to pay for such features so they allow to compare gains and losses not only for traded goods, but also for non-traded goods. The drawback of this approach is its anthropo-centricity. If some feature is not valued by people then it will get low emphasize in the analysis. This might be a case of natural environment. Although many of its features are valuable to people, for instance access to natural areas, fresh air, low water pollution and others, people might not value for instance environmental diversity or living conditions of some plants or animals.

Similarly there arise professional debates what theoretical approach to a sustainable development should be taken. The weak sustainability approach agrees on exploitation some sustainability pillar if gains in other pillars outweigh losses. On the other side there is a strong sustainability approach against any negative exploitation of natural capital because its value over time and social preferences is unpredictable (Maier, 2012). For the weak sustainability approach social willingness to pay analysis could be well implemented as they provide guidance for the socially most efficient options. The strong sustainability approach is a form of discussed inability of stating true value of environmental features and therefore within an economic analysis framework value of natural features would be approaching infinity and therefore it would not pay-off to exploit them for any reason and they would remain untouched. To conclude, there is no way how to judge which approach should be preferred and it seems the only way how to resolve this problem in a democratic society is through its institutions and as a result option converging towards median attitude in society will be taken.

Regional spatial equilibrium

Following exposition to four pillars of sustainable development is partly based on conceptual framework shown by Roback (1982) who introduces coherent economic concept that includes regional productivity differences, local housing markets and local amenities and their effects on regional equilibrium. Therefore it links together economic, social and environmental pillar. The institutional pillar might be thought as some form of amenity, but as institutions do not vary significantly across the Czech Republic[19] it is not involved in this framework.

The whole concept is based on assumption of an equilibrium, state of regional distribution of population and firms that does not change if the economic parameters are stable. If we look at this problem from the households' perspective it is presumed that they are trying to reside in a location where they maximize their utility, in other words place that bring them the highest possible pleasure according to their preferences. If households are free to move across space they will move always when they can increase their utility. Hence in the equilibrium there should not be any inter-city migration because in equilibrium all households achieve the highest possible utility. Although this is a highly stylized model omitting plenty of important variables it is a very good starting point for assessing regional structure and for description of long-term population dynamics. Important emphasis is put on role of local amenities as they are subject to households'

[19] Czech Republic is a unitary country that does not have significant regional autonomies constituted for instance in regional constitutions that would differ to such an extent that people when considering their location decisions would take into account local institutional specifics that better or worse meet their individual preferences.

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utility maximization, in other words households value for instance clean air, access to natural areas and recreation and they are willing to pay for these attributes.

Roback distinguishes between effects of amenities on firms and households. For firms amenities might be productive or unproductive. Productive amenities increase firm productivity at a given level of capital and labor. These might be for instance accessibility to major transport hub, proximity to public administration or university supplying qualified labor force, the unproductive amenities are for instance clean air mentioned by Roback that requires industrial companies to spend more on pollution prevention. On the households' side amenities are either desirable or undesirable. Desirable ones might be access to natural areas and parks, cultural institutions or clean air, while undesirable for instance cold climate or heavy transport or industrial pollution. It could be seen some amenities are valued by both firms and households while others might be relevant only for one of them. For instance clean air is desirable for households but costly for firms, parks provision in cities are valued by households and does not affect firms' productivity and proximity to public administration might be valued by firms but does not affect households' utility. Each city has a specific combination of these amenities that makes it more or less favorable for location of firms and households. If there were no economic forces both types would like to locate in ones they prefer most, but the resulting equilibrium is ensured via economic forces of land rents (or housing costs) and wages that equalize final utility in all locations to be the same and therefore no firm or household would have incentive to relocate, because it cannot achieve higher utility level.

The resulting equilibrium constitutes in the following way: If amenities are productive, wages are higher, because if they were not firms would increase production in more productive cities to increase their profits, while conversely if amenities are unproductive wages must be lower. This is shown in the plot below as function of wages and rents moves from C_1 to the left to C_2 marking decrease in wages due to unproductive amenities. From the households' perspective if desirable amenities in a location are higher rents must be higher there because otherwise it would incentivize other households to move to that location. This is shown on the plot below by moving function of wages and rents up from V_1 to V_2.

The plot in general summarizes 4 possible extreme cases of cities. For the clarity of the text amenities desirable for households will be called simply amenities and productive amenities relevant for firms will be called productivity (factors). In high-amenity high-productivity cities we should observe average wages and high rents, in the low-amenity low-productivity cities wages should be also average but rents should be low. In high-amenity low-productivity cities wages should be low while rents average and in low-amenity high-productivity cities rents should be also average and wages high.

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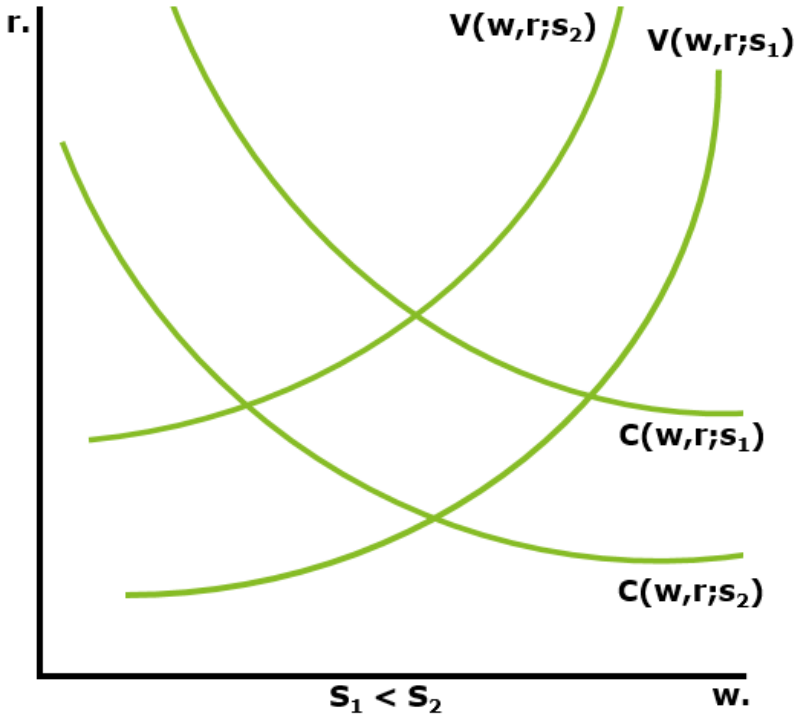
Figure 14: Amenities' effect on wages and rents
Based on Roback (1982)



To relate this theory to the Czech Republic context below are shown maps of real estate asking prices and modelled[20] regional wages and both variables are then projected in a scatter plot to show their relation. Due to the poor data availability the model of wages must be taken only as an illustration to the chapter to concretize theoretical concept of spatial equilibrium in the Czech context. Although the overall prediction of the model fits expectations there are unresolved issues of unexplained cross-regional differences that are caused by uneven economic activity distribution within individual regions.

[20] In the Czech Republic detailed data on regional wage differentiation are not provided. Therefore we model wages by individual ORPs based on values reported by Ministry of Social Affairs on regional level with statistics of wage distribution by education attainment. Using education levels reported for ORPs in the 2011 population Census we estimate wage for each ORP by weighting regional wages reported for different education levels with education composition of each ORP. Although the model is far from being optimal, it is to our knowledge the most feasible solution how to deal with missing detailed regional wage data.

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Deloitte.

Figure 15: Regional variation of property values

Median apartment offer prices [CZK per sqm], Deloitte analysis, 2019

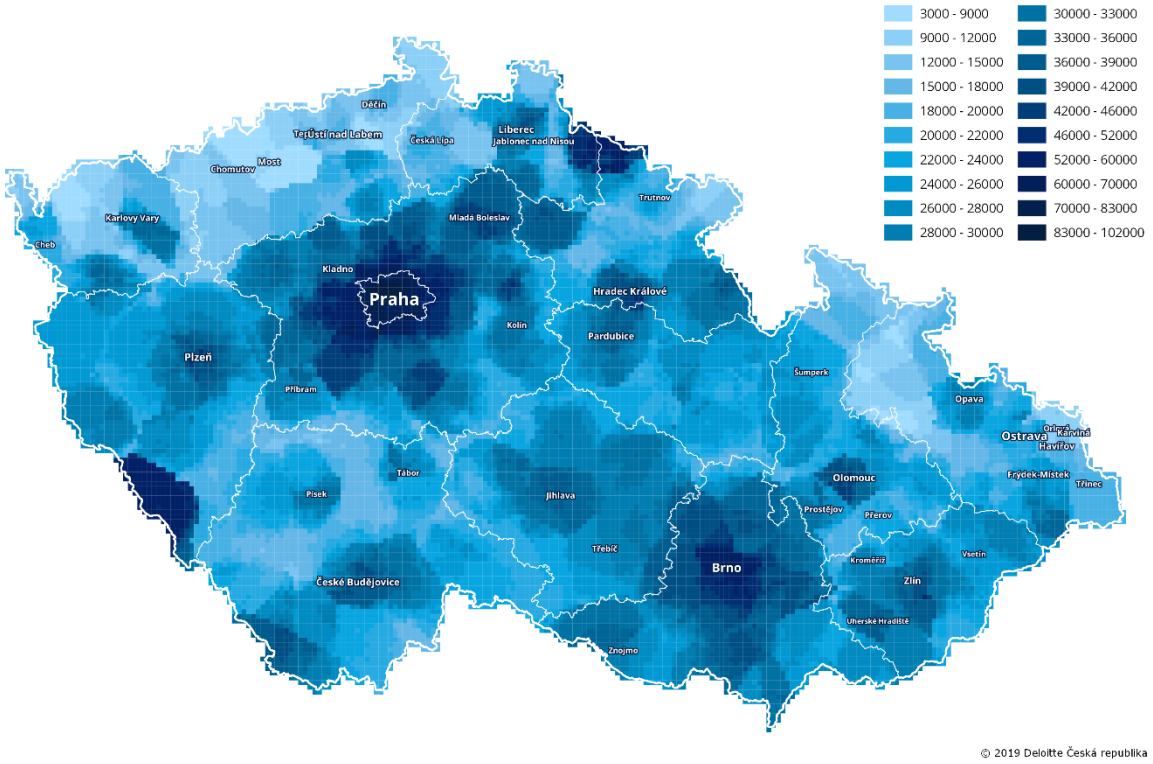
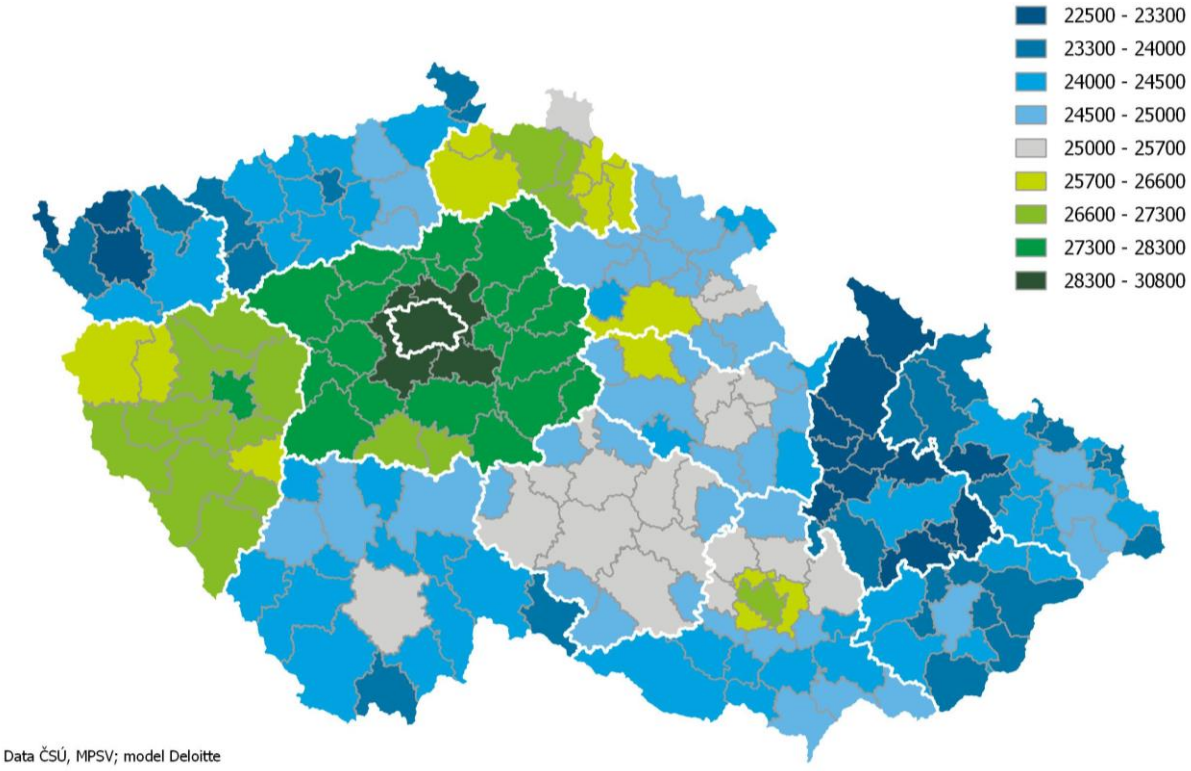


Figure 16: Wages variation by ORPs

Median wages estimates [CZK per month]



Data ČSÚ, MPSV; model Deloitte

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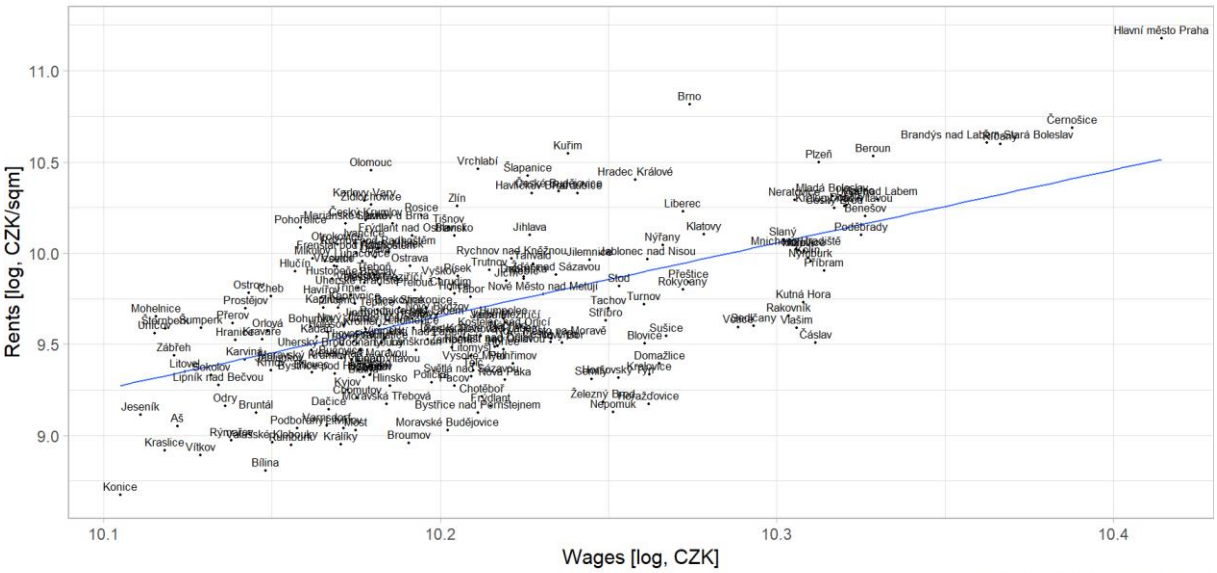
Figure 17: Local relation of rents and wages
To be consistent with presented theory rents in this chart are represented by property asking prices



The implications of this chapter towards the spatial development and spatial planning are the need to analyze and evaluate spatial development trends within a unifying framework that can account for various regional specifics. At the beginning knowledge of detailed wage and property value data is essential. It is these two variables that largely equalize the utility level across the country without not observing them it might be not possible to address real causes of population dynamics. The national migration show us the system of the Czech settlement is not in the equilibrium as some agglomerations have net gains and some net losses[21]. From the policy-making perspective it is important to consider general equilibrium effects. For instance local-based policy aimed at increasing housing affordability effectively increase households' utility in such location and therefore will lead to an increase in migration to that location. To account for all these general equilibrium responses it is important to coordinate policies both across space and across public administration's sectors.

3.2. Economic objectives

This chapter introduces main urban economics concepts regarding spatial structure and spatial development. First part focuses on forces affecting regional structure of cities and population distribution across space, the second part in detail compares development in market oriented and socialist cities regarding within-city population structure and the last part concludes with general findings about economic effects of spatial and urban planning regulation.

Economic efficiency of national-level population distribution

On the national level probably the most important issue of spatial development is regional population distribution. As it was already argued this is largely dependent on character of local amenities that affect both firms' productivity and households' residential attractiveness of a location and based on these factors market forces adjust local real estate values and wages to equalize households' utilities across space.

[21] In a real setting it is probable to observe migration, but if the whole system is close to an equilibrium this migration should be driven by some idiosyncratic random shocks that should on average cancel out and cause no net gains and net losses.

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In this part exogenous amenities (such as geographical features) will not be discussed and attention will be paid to endogenous productive amenities that arise from agglomeration population sizes and firms co-location and that are typically called agglomeration economies. Agglomeration economies are further divided into related concepts of localization economies describing productivity gains due to co-location of firms in particular industries (such as industrial clusters) and urbanization economies that increase productivity solely due to a larger population in an area. There are more classifications with respect to the source of agglomeration economies. For instance Duranton and Puga divide them into sharing, matching and learning effects. Sharing is caused by the need to have some critical minimal demand for some service or good to be profitable to provide it, such as corner shop for residential settlement or specialized medical facility for a large metropolitan area. Matching relies on relation between firms and workers. In larger agglomerations with higher population is more likely a firm will find worker better fulfilling its needs and therefore they will make more productive match. As an example some professional might work for a company in a small town and provide general expertise according to local demand, but in a large city she might specialize and have higher productivity. Learning is assumed to depend on frequency of personal interaction that is more frequent in bigger cities (Duranton & Puga, 2004). Due to agglomeration economies larger cities are more productive and therefore can provide higher wages, but these higher wages are compensated by higher housing prices and commuting costs. To illustrate this on US data when population doubles it is associated with wages increase by 8% and housing rents increase by 9% (Behrens & Robert-Nicaud, 2015). These values are unconditional, therefore they does not account for instance for average higher population education in larger cities or sorting more able workers into larger cities. For that reason considerable body of literature focused on empirical methods that would reveal true effect of population size on productivity.

Agglomeration elasticities for French cities were found to be between 0.04 and 0.05 depending on the method used, approximately half of what is for instance reported for unconditional US elasticity of wages with respect to population size. Lower estimates are caused by addressing endogenous quantity and quality of labor. Endogenous quantity of labor is caused by the fact larger and more productive cities attract more workers and therefore becoming even larger. Endogenous quality of labor is caused by more able workers to sort into large cities. These both endogeneity problems in the study were addressed with appropriate econometric techniques to estimate unbiased magnitudes of agglomeration economies[22] (Combes, Duranton, Gobillon, & Roux, 2010).

New evidence to the discussion about agglomeration economies was brought by Roca and Puga (2017) who analyzed the effect of where workers gain their professional experience on the Spain labor data. First they estimated agglomeration economies with controlling for observables but not for individual characteristics and they found agglomeration elasticity of 0.046. When they controlled for individual specifics the estimate dropped to 0.024 suggesting there is indeed present sorting of more able into larger cites. The final specification in which city professional experience was gained was included has revealed experience in bigger cities are valued even after relocating to smaller ones. The authors expressed the result in a form of medium term premium that is evaluated for an average experience in one city that is 7.7 years. The result of this agglomeration elasticity taking into account size of city where experience was gained reaches 0.051, more estimate resulting from pooled data without considering individual characteristics (Roca & Puga, 2017). This new evidence show the agglomeration elasticities might be actually higher than commonly reported values ranging from 0.04 to 0.05 because they do not account for a dynamic factor of experience gained in large cities.

In the empirical studies mentioned above estimates does not differ for individual industries and distinction between urbanization and localization economies is also not modelled. Both of these shortcomings are addressed in a study done by Graham (2009) based on data about British firms. He finds localization economies heavily rely on close proximity as they are all found up 10 kilometres from the firm. Localization economies are on average 0.03 for manufacturing and 0.01

[22] To solve the endogenous quantity of labor instrumental variables were used and to deal with the endogenous quality of labor panel data using individual-level variation were used.

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for services. In case of urbanization economies the size of 0.07 was found for manufacturing and 0.19 for services (Graham, 2009). The results show the urbanization elasticities are for both sector larger than localization economies. Therefore even manufacturing increase its productivity more with respect to agglomeration population growth than with cluster of related firms' growth. But even more important seems much higher value of urbanization economies for services compared to manufacturing. This might be considered as a supportive reasoning why significant urbanization is still occurring in the Czech Republic. As the economy is structurally shifting from manufacturing to services, service oriented firms benefit more from urban locations due to higher urbanization economies. Because manufacturing still employs larger share of population than is common in developed countries and we might expect long-term des-industrialization and as a result consequent urbanization. This should hold even if processes called as Industrial revolution 4.0 will bring manufacturing back to developed countries. It is reasonable to assume this manufacturing will largely rely on automation with very low demand for human labor.

Although most important issues of agglomeration economies were discussed, some topics such as population sorting as a response to agglomeration economies forces is beyond scope of this report. Regarding issues of sorting into cities with respect to education or other characteristics or generally agglomeration economies with heterogeneous agents based on evidence from the US environment and theoretical background is provided in Behrens and Robert-Nicaud (2015). Detailed micro-founded model of sorting and inequality with respect to city size is presented by Santamaría (2018).

Economic efficiency of urban structure

As a response to the expansive growth of cities in the second half of 20th century attention of urbanists in the Czech Republic has recently shifted towards costs of maintaining relatively dispersed large cities. The efficiency could be analyzed from several perspectives. The first one, larger-scale, focus on the distribution of population and land-use within the city while the second approach analyze efficiency of various built-up typologies with respect to public amenities provision.

Population distribution efficiency

The era of high modernism was somewhat different in market-oriented economies and socialist central planned economies. As Bertaud and Bertrand (1995) has shown on evidence from Russian cities, lack of market forces on land market in socialist cities lead to inverted residential density gradients and resulting in large economic inefficiencies. Authors argue the difference in development in two systems arise from missing opportunity value of land in socialist cities. When land is once allocated to some use it cannot be sold because there is no land market and authors claim change in land-use once land is allocated were rare.

When city is growing over time new layers of city are added to its fringe so it is still expanding outwards. As new development is over time pushed still further away from the city centre the costs of provision public services, such as public transport, are rising and to justify these transport infrastructure improvements efficient densities of new development must be sufficiently high. This mechanism therefore leads to non-decreasing population density gradient.

The situation in market economy is different. All land-use allocation is subject to market forces and in theory according to bid-rent function each functional use in a city should be the optimal one in such location because it is more profitable than any other use and therefore could pay land-owner higher rent (Fujita, Urban economic theory: land use and city size, 1989). As a city in market oriented economy grows the value of more centrally located land is rising and this opportunity cost of land motivates land-owners to intensify land-use. This intensification could have for instance form of stopping industrial production, moving it further away from the city centre, and redeveloping land as more intensive office and residential mixed-use. This mechanism therefore assure the actual land-use is approaching its optimal land-use over time via its perpetual redevelopment.

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To illustrate difference in residential density in market-oriented and socialist cities Bertaud and Bertrand show in their article residential density in built-up areas for Moscow and Paris. While in Paris is highest density in first three kilometres from the centre at some 275 residents per hectare, it drops to 100 in 9 kilometres away from the centre and to 50 in 16 kilometres from centre. The case of Moscow is significantly different – between the centre and 10 kilometres from the centre population density varies between 100 and 175 residents per hectare and then between 13th and 21st kilometre from the centre density ranges from 175 and 275 residents per hectare (Bertaud & Bertrand, Cities without land markets: location and land use in the socialist city, 1995).

The description of socialist cities, although based on Russian examples, fit Prague also well. Relatively close to historic city centre remained large industrial brownfields largely undeveloped until now while at the outskirts of the city grew ring of large-scale high-density residential development. This settlement structure allocates unnecessarily large amount of residents far away from the city centre that is common destination for daily commute. At the end it leads to more kilometres travelled compared to more efficient population distribution in cities formed by market forces. The additional costs of longer commutes includes all variable costs of public and individual transportation, longer time spent when commuting, higher carbon dioxide emissions, infrastructure investment and current costs and other external costs such as road accidents, noise and air pollution, local segregation and negative impact on landscape. In the case of Prague it was estimated that costs of public transportation provision per commuter are approximately twice larger for residents of Prague's outskirts compared to the city centre (IPR Praha, 2017a).

The potential of redeveloping former industrial rings around the historic city cores and sites left undeveloped is seen as promising for the future growth of Czech cities. Aulík and Fišer call this ring surrounding historic centres the central city ring or Areas of transformation and they consider them to be the biggest defect and potential of cities at the same time (Aulík & Fišer, 2015). Koucký (2006) also consider these sites as an important potential for urban development and calls it urban re-cycling and this approach later became one of 10 principal theses of the new Prague Metropolitan plan (IPR Praha, 2014).

Built-up typology efficiency

Second approach to urban structure efficiency analyzes performance of various typologies of built-up forms especially with respect to costs of public amenities provision such as road infrastructure and walkable public spaces, green open amenities and technical infrastructure. These issues were already considered after the World War I. Janák (2009) analyzes 8 model urban form typologies ranging from compact blocks to detached single-family houses on 600 square meter plots. He estimated residential densities for these typologies to range from 801 to 100 residents per hectare (his estimates of residential densities are high relative to current standards because he assumes 6 residents per residential unit that seems overestimated even in 1930's). His point aims more towards social fairness as he estimates there is 12.5 square meters of urban land per resident of the most compact urban form while the land consumption per resident of villas is 143 square meters. He then raises question whether such difference is rational. He also considers implications of the residential density to the size of the whole city and shows how spatially larger and more transport demanding less dense city is. He concludes: "Residents who require extraordinarily large lots or whom city force them make city larger for other residents and drive them to have commutes longer by order of magnitude" (Janák & Hnídková, 2009) (translated by authors). Aside of the main idea Janák also mentions the share of public space is about the same for all considered typologies and accounts approximately for one third of the total area. This is aligned with other planning literature (Jehlík, 2016). Concerns about efficiency of scattered development are raised also by Hruška (1934) who argues Prague fails to develop compactly and he illustrates it with rising lengths of sewers and roads per resident: from 1926 to 1930 length of sewers per capita increased from 0.61 to 0.74 meters and road surfaces increased from 17.9 to 20.0 square meters per resident.

In more recent literature the relation between built-up density, urban forms typology and investment and running costs of public spaces and infrastructure is analyzed. According to an

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analysis of 7 Prague typological forms with respect to their densities, an increase in residential density by 10% is associated with decrease of investment and current costs per resident by 7.5% (Hudeček, Dlouhý, Hnilička, Leňo Cutáková, & Leňo, 2018). Kurvinen and Saari estimate infrastructure investment costs for 4 hypothetical urban forms and conclude high density settlement has the lowest costs per resident and low density form the highest costs per resident. It is important to mention these findings hold when costs for parking provision are excluded. They therefore note there could be push towards less dense settlement when willingness to pay for parking in high density areas is low, but at the same time public policies require relatively abundant parking space provision (Kurvinen & Saari, 2020). The implication towards policy making seems to be relevant, despite in general equilibrium above-optimal requirement or parking space provision would likely decrease land values. Parking spaces requirements dependent on local densities and other site specifics are for instance present in new Prague building regulation (IPR Praha, 2018a).

Economic effects of urban development regulation

Up to our knowledge there is no literature on quantitative effects of regulation on urban and regional spatial development (with one exception mentioned later in the chapter). For that reason we refer to US literature although the context is different there. Despite this limitation we believe elementary forces behind spatial development and regulation described in the literature are universally valid and most of the predictions provided would hold also in the Czech context, but with different magnitudes due to the local specifics.

There are various streams of literature analysing effects of regulation urban and spatial development on economic outcomes. The economic motivation for regulation is existence of negative externalities (Duranton & Puga, 2015). The regulation in that case prevents from these externalities that would be otherwise unavoidable. It is worth to mention regulation is one possibility how to deal with externalities. Another is for instance direct compensation according to Coase theorem[23]. Although transaction costs of a direct compensation are commonly high to make direct compensation feasible, the concept is valuable for its theoretical predictions or for some particular applications.

Presence of externalities can deviate actual land-use to a non-optimal one. For instance if some land-use decreases value of other land-uses (an example could be heavy manufacturing affecting housing) the willingness to pay for residential locations near-by manufacturing will be lower and therefore lowering land values there. This in turn will make land affordable for the otherwise second-best use that is likely manufacturing in that location. As a result manufacturing will occupy more land when compared to situation when zoning is designed to allocate land as if there were no externalities at all. This example would work also if externalities are positive, such as in case of agglomeration economies (Duranton & Puga, 2015). Therefore if a spatial regulation is well designed it can increase overall efficiency. Another way how to deal with externalities is to impose Pigouvian tax that taxes or fines external costs of some activity at the level of their social costs. Duranton and Puga claims it is unclear whether zoning is better policy to deal with externalities than Pigouvian taxing. As Fischel (1987) concludes true social costs of many negative externalities is very hard to measure and therefore policies relying on improper estimates might deviate from intended optimal solutions. For that reason Fischel argues property right approach based on Coase theorem might yield better outcomes if elected officials collectively bargain and sell rights to producers of externalities, because collective bargaining overcomes crucial problem of non-zero transaction costs between agents.

When analysing effects of regulations on housing market Gyourko and Molloy (2015) define four categories of building restriction measurements: indirect measurement, building codes, land use controls and other measures. Within the first group for instance falls study on restrictiveness of

[23] Coase theorem propose efficient outcome when all property rights are clearly defined, all property rights are exclusive to individual agents, property rights could be freely and costlessly traded and the demand for goods is not directly affected by initial endowment (Fischel, 1987). Under these conditions agents trade to achieve efficient outcome no matter who is initially assigned with property rights.

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regulation on Manhattan. The conceptual approach in this study is to compare marginal costs of construction of new residential development (taken for instance as a cost of building additional square meter of additional floor) with market value of such residential space. Under conditions of free unregulated competitive market these costs and values should be the same. It was actually found approximately one half of the value of condominiums cannot be explained by construction costs. The authors called this unexplained half a 'regulatory tax' because it is caused by residential development regulation that does not allow to freely deliver residential real estate at a marginal cost of production (Glaeser, Gyourko, & Saks, 2005a). Using similar method 'regulatory tax' for Prague was found to be on average 60% while higher in the city centre and declining towards city edges (Boháč, 2018).

Building codes themselves seems not to be very important source of housing market constraints especially because (at least in the US) more important factor of high housing values are high costs of land rather than high construction costs. The authors accompany this statement with data showing the real construction costs in the US did not change significantly from levels in 1980's and their volatility is much lower compared to volatility of real estate prices (Gyourko & Molloy, 2015).

To name some examples of land use regulation measures a lot of attention is paid to new dataset Wharton Residential Land Use Regulation Index (WRLURI) (Gyourko, Saiz, & Summers, 2008) based on survey on 2,649 municipalities in the US. When final index was analyzed author found municipalities with more restrictive regulations to have on average consistently more restrictive all partial factors of restrictiveness. Another finding is the higher local income is the more restrictive communities are. Based on WRLURI data there is a positive association between house prices (controlled for housing quality and agglomeration size) and size of local regulation with a correlation of 0.56. When interpreting shown results municipalities more restrictive by one standard deviation have roughly 50% more expensive housing (Parkhomenko, 2018). Different approach using land use regulation measures is regulation stringency that estimates what free-market intensity of land use would be if there is no regulation. The analysis assumes if the regulation is not binding increasing maximum allowed land use intensity does not affect price of land. Conversely, when regulation is binding decreasing the maximum intensity of land use intensity decreases value of land. The elasticity of price with respect to maximum land use intensity is used to infer hypothetical free market intensities in a partial equilibrium model. Estimates for New York, Chicago, Washington DC, Boston and San Francisco have shown in all cities are current building heights below free market level. In Chicago building heights are relatively highest at 90% of free market levels while lowest are in Wahington DC at approximately 50% of free-market levels (Brueckner & Singh, 2020). This approach seems to be appealing for policy making analyzes as land values are in general observable as well as maximum intensity of land-use given by spatial plans and therefore could guide planners when proposing maximum land use intensities.

Another theory-based approach to infer the extent of regulation restrictiveness of maximum land use intensity is shown by Bertaud and Brueckner (2005). They assume a monocentric city either with or without constraint on maximum land use intensity that could be thought as a maximum floor count with maximum footprint of a building as a percentage of a plot size. If the population of both cities is fixed the city with constraints must be strictly larger under standard assumptions of monocentric city concept. The authors provide proof the increased cost of commuting from the edge of the city to the city centre is equal to the net loss of each household as an effect of maximum land use intensity regulation. They run simulation for a hypothetical US city of 800,000 households and setting maximum FAR[24] regulation to 3.75. According to their simulation city expands by 2.1 miles outwards and as a result the effect on all households is decrease of household income by 2.2%. Authors tested the model also on city of Bangalore and has obtained results similar in magnitudes (Bertaud & Brueckner, 2005).

Some evidence of negative effects of regulating land-use intensity is provided by Willis (1995). She compares real estate development in Chicago and New York. Right after the Second World War

[24] Floor area ratio: Gross floor area of a building divided by an area of its plot

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height and volume regulations were more binding in Chicago where more restrictive measures were taken in 1942 to fight real estate oversupply. While New York saw recovery immediately after the war, it was no earlier than in 1952 when new first new office development was built despite strong demand that filled all vacancies and converted 2.7 million square feet of lofts into office use. She argues according to 1959 study by Shultz and Simmons this was caused by restrictive land-use policy that impeded real estate development and diverted it to other cities (Willis, 1995).

3.3. Social objectives

Within the pillar of social sustainability we include wide range of objectives the spatial planning can tackle, such as social cohesion and poverty alleviation and their spatial inequalities, education and other basic services provision, monument protection and cultural enhancement. More generally, when assessing the problem from the spatial equilibrium perspective, socially weak or otherwise undesirable places on regional or local level will have lower housing values that compensate local residents for such disbenefits. Despite compensated on individual level this does not take into account probably existing negative externalities present in socially excluded areas such as crime. Although it does not seem clear whether place-based policies or individual-targeted policies should be preferred it could be concluded the aim of spatial planning should be to help depressed areas from further decay. In the later chapter only selected issues with most relevance towards spatial planning are briefly introduced.

Housing affordability

Housing affordability has attracted a lot of attention globally since early 2000's as housing prices started to rise sharply and despite a mild drop after the financial crises at the end of the first decade of the 21st century property prices continue to rise, especially in high-demand attractive and regulated urban regions. As a result housing affordability is currently more sore in otherwise successful places. The aim of this chapter is not to provide evidence of how housing affordability is being tackled, but rather what are consequences of spatial planning towards it. Housing affordability is a real issue in the Czech Republic when compared to other European countries. In 2018 average new apartment of 70 square meters cost 11.2 average annual salaries, more than any in other European country involved in the survey. Latvia is second with 10.1 years and United Kingdom ranked third with 9.4 years (Deloitte, 2019b).

Glaeser and Gyourko distinguish between two types of housing affordability problems. The first one is caused by real poverty of households that causes their inability to reach appropriate housing on the free-market. In this case of poverty lead housing unaffordability authors generally recommend direct cash transfers that allow these households to afford market level housing. The second case of low housing affordability is regulation lead. In this case not only the poorest are affected, but largely also working middle-class families. As authors show this unaffordability appears in attractive cities with tight new construction regulation that decreases supply price elasticity and therefore limits market responses to change in demand for housing (Glaeser & Gyourko, 2008). The drawback of urban growth regulation is summarized in other Glaeser's text: "Attempts to restrict urban growth, whether in London, Boston or Mumbai, can have terrible, unforeseen consequences. When we make it hard for an attractive city to enlarge its housing stock, that city becomes expensive and risks turning into an overpriced theme park for the global rich. I, too, love London and would never wish to see its historic beauty demolished, but we must never forget that any time we say 'no' to new building, whether in the city centre or on the edge, we are saying 'no' to families that want to experience the magic of urban life. We also ensure that every other family that lives in the city is paying more for their own homes." (Glaeser E. , 2015, pp. xi -- xii).

The analysis of Glaeser and Gyourko present evidence that spatial planning significantly affect housing affordability and the more regulation is stringent the more people find housing unaffordable in otherwise attractive cities. From this perspective regulation is an important driver of housing unaffordability. Other possible reasons for excessive high housing prices, such as market concentration leading to oligopoly power, was shown improbable in case of Manhattan

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(Glaeser, Gyourko, & Saks, 2005a). Also it was shown on the case of Prague when using Herfindahl-Hirschman index the real estate development market is not concentrated (Hána & Makovský, 2019).

Amenities accessibility

With public amenities services accessibility commonly both private-based and publicly-provided services are considered in spatial planning. In the Czech context the private ones are for instance general stores, pharmacies, basic health-care services including dentists and in more remote areas petrol stations. Specific private-like amenity are churches and other places of worship. Publicly provided amenities are for instance education provision, fire brigades and police, public transit in larger towns and cities and public open spaces provision.

Regarding accessibility of basic amenities to secure social cohesion Maier et al. (2012) recommend to provide easy pedestrian accessibility to kindergarten, primary school, general practitioners and public green areas together with accessibility of public transit linking places to more central locations with higher amenities provision. They admit meeting these requirements in rural regions due to low densities might not be efficient and they rather propose to manage amenities provision within local micro-region for instance formed around local towns. They also emphasize spatial plans should take into account size of local population and expected growth to reflect current and future needs for amenities. Jehlík (2016) presents more hierarchized scheme of public amenities provision with the smallest unit of services provision on the level of localities (or townships outside cities) up to 5,000 inhabitants. These should have general store, kindergarten, playground and municipal office in case of townships. More specialized amenities should be present on the level of larger towns or city districts. This hierarchy of amenities provision seems to reflect well the need to aggregate demand for them from a wider area to make them efficient.

The requirement for public transit provision in very sparsely populated areas might not be efficiently ensured as local demand for public transit is very low so even when provided number of regular lines would be too low to provide competitive mode of transport. On the other hand in these areas where land is not scarce and transport network does not suffer from congestions leaving these settlements to rely on automobile transportation and rather serve them with mobile services if necessary seems reasonable.

In overall, to measure accessibility for instance established “Hansen measure” could be used to compare accessibility of various amenities by different transport modes from all considered locations. This measure sums all accessible services of one type (for instance general stores) while each amenity is weighted by impedance function that assigns higher weight to more proximate services and smaller weight to more distant ones. The impedance function could be based either on Euclidean or network distance or on time of travel. This measurement is sometimes also called market potential measure. Then the matrix of accessibility for each location of interest is compiled. It shows accessibility of each amenity by each transit mode considered (Krizek & Levinson, 2012). Then either combined indicator of accessibility could be computed or each place could be assessed to what extent offers appropriate and balanced level of accessibility for considered transport modes.

Heritage protection

Assessing value of heritage protection and historic monuments within the economic framework to estimate monetary equivalent value is gaining attention and literature on this topic is growing. For instance Wright and Eppink did meta-analysis on driving forces of heritage value analysing 63 papers that estimated monetary value of cultural heritage. Eighteen of these studies from Europe and North America used revealed preferences methods, hedonic pricing method and travel cost method in particular. They have found heritage sites in more densely populated areas are on average valued more and also heritage sites that were adapted to some new use are valued more than sites that are solely protected (Wright & Eppink, 2016).

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Heritage protection is naturally in conflict with spatial development and spatial planning, especially in the Czech context where city centres have commonly monuments from the Middle Ages and not only individual buildings, but whole districts are under heritage protection. The attention here is paid to the conflict of increasing land-use intensity in the city centres. The conflict arise from the fact the monocentric city tends to increase its density in the city centre as it grows, but the city centres are the places where most of heritage monuments are located. As it was already mentioned in the previous section the land use intensity constraints always increase property prices and cause cities to grow more extensively beyond their limits.

This problem seems to be really serious. Edward Glaeser who otherwise criticizes land use intensity regulation admits monuments in European cities in particular, such as Paris or Rome, worth preserving and he calls for a smart preservationism that would promote as high-intensive as possible development on places in these cities where it is possible. He argues this would decrease pressure to replace older building with taller ones (Glaeser E. L., 2011). This approach much more pro-active compared with for instance current proposal of the Prague Metropolitan plan (IPR Praha, 2018b) that does regulate maximum heights of new development on brownfields intended for re-development on rather low intensities with floor counts below expected free-market building heights.

To show the extent to which heritage protection play role in Prague IPR Praha has analyzed sizes of large heritage protection urban sites and their protection zones. The analysis shows the size of combined heritage protection area and its protection zone in Prague is almost 10,000 hectares while for instance in Rome it is 1,500 hectares with no protection zone and in Paris 365 hectares also with no protection zone. Cities with larger protection zones, such as Siena and Rio de Janeiro, they claim are in different situation because it is the natural landscape that is predominantly protected (IPR Praha, 2014).

The current state of heritage protection in the Czech Republic is largely criticized for instance by Koucký (2008) who claims the system is not mature, overly restrictive and unable to recognize contemporary high-quality interventions into the inherited urban structure. He also criticizes excessive protectiveness in the name of public interest that is not balanced by equally important protection of public interest of the need for new development. The need for rethinking prevailing preservationism is also reflected in the Vienna memorandum: "Continuous changes in functional use, social structure, political context and economic development that manifest themselves in the form of structural interventions in the inherited historic urban landscape may be acknowledged as part of the city's tradition, and require a vision on the city as a whole with forward-looking action on the part of decision-makers, and a dialogue with the other actors and stakeholders involved." (UNESCO, 2005, p. 3).

Urban esthetics and public space quality

Urban amenities of public open spaces, urban green areas and urban built-up environment in general are currently considered as highly important in urban development despite empirical evidence from our national context is still not present. Foreign studies confirmed residents are willing to pay for features of 'New Urbanism' that promotes higher densities, walkability instead of car dependency, mixed land use and provision of social or community facilities. In particular houses in neighbourhoods with denser street networks, with better accessibility of commercial services and more dispersed mixed land uses are sold with premium despite there are also some drawbacks of new urbanism designs that are not desired, such as higher densities (Song & Stevens, 2012).

After the revision of modernist doctrine the form-based codes have their revival as well as emphasis on traditional urban spaces typology and design. In the Czech Republic for instance Camillo Sitte and his City planning according to artistic principles published originally in 1889 gained popularity. Sitte criticizes low artistic quality of contemporary urban planning with its predominant focus on technical and transport infrastructure and he especially criticizes quality of urban squares when compared with squares designed in pre-modern times. Sitte worked for many

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Czech cities as an urbanist and designed regulation plan for Olomouc that was adopted by city council in 1895. Struggles between different perspectives on public interests could be traced to that times as it is noted the Olomouc municipal public health officer demanded more renewals in the historic city core. Sitte noted the artistic quality of urban spaces is crucial. His comment that people who live in beautiful cities do not feel the need to leave them while others need to go for a vacation seems to be still valid after more than a century (Sitte, 1995).

Inspiration for high quality urban public spaces in medieval Italian squares could be found in Gehl (2012) who emphasize the need for urban built-up typology and public space design to be derived from human scale, to be suited to people walking and not to subordinate public spaces to needs of transportation systems. Moreover it seems habitable qualities of urban environment are becoming rather more than less important over time. For instance for the case of Berlin it was found the sensitivity to urban noise has significantly increased over the last 100 years as a negative effect of noise increase by 1dB on house values rose from approximately 0.1% to 0.4% (Ahlfeldt, Nitsch, & Wendland, 2019). This suggest the quality of urban environment is becoming gradually more important to urban residents.

3.4. Environmental objectives

Similarly as in case of social objectives only themes crucial to spatial development are briefly introduced to provide background for the following analysis.

Ecosystems' richness and ecosystem services

As it was already mentioned previously it is not easy to evaluate value of qualities of natural environment itself without relating its qualities to human perception. This might be aligned with the view of strong sustainability that denies any negative impacts on environment (Maier, 2012) as it argues the true value of environment for future generations might be higher than ours and in the face of this uncertainty views its value ultimate.

When environmental qualities are related to human settlements ecosystem services arise as important contribution to the overall quality of the natural, semi-natural and built environment of agglomerations. Especially in the context of spatial planning approach taking into account spatial scale of ecosystem services is convenient. Hein et al. (2006) distinguish between 3 types of ecosystem services that are production services, regulation services and cultural services. The first category contains services that provide some goods valued by people, such as food, fuel or timber. The regulation services are valuable for their role in regulating climate and affecting various natural cycles. Examples are carbon processing, water flow regulation and regulation of erosion. The last category of cultural services could be summarized as services that provide some non-production value to people. Examples are for instance spaces for recreation and tourism, places of cultural and religious value or nature and biodiversity. Especially for the regulation services is important at what geographic scale the service is being produced. Authors distinguish 4 geographic scales. The global scale is defined as larger than one million square kilometres and regulation services provided at this scale are carbon processing and global-climate regulation. The second scale is biome-landscape with geographic size ranging from 10 thousand to one million square kilometres. On this scale services such as water flow regulation, erosion and sedimentation regulation and regulation of species reproduction are delivered. The ecosystem scale ranges from one to ten thousand square kilometres and on this scale services such as pollution and pathogens mitigation and protection from storms are provided. The smallest geographic scale is plot-plant level and is smaller than one square kilometre and on this level regulation of noise and dust is for instance provided (Hein, Van Koppen, De Groot, & Van Ierland, 2006). The definition of spatial scales is very important for later policy-making and formalizing ecosystems protection within governmental levels and institutions from local to national and international when principle of subsidiarity is taken into account. While for instance for tackling carbon emissions international cooperation is needed, discussions about importance and the extent of support or protection of noise and dust regulation

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ecosystem services could be done solely on the local level as these services does not have wider geographic spillovers.

As noted by Kumar and Kumar (2008) valuation of ecosystem services is crucial for policy-making as various options arise and preferences for these options have to be compared. They add the value of production services entering market directly (such as food or timber) is easy to measure according to their market value, but non-traded services are harder to measure. Typically measurement is done with stated preferences method or derived through preferences on markets of traded goods using travel cost[25], hedonic value[26] or production function approaches[27]. Although these approaches are common in contemporary ecosystems' services valuation they might omit some important aspects not considered in present methods (Kumar & Kumar, 2008).

Mobility

Mobility itself is very hard to attribute solely to one pillar of sustainable development, because it is an inevitable expression of any activity in space and conditions economic development and has social and environmental implications. In this analysis we follow its location within the environmental pillar as it is done by IPR Praha (2017) mostly focusing on its environmental implications such as carbon dioxide emission, air pollution and noise.

The mobility is very important in the context of spatial development. Location within a city predetermines expected transport mode choice and that affects individual contribution on transport externalities as they vary based on transport mode used. When a household lives closer to a public transit might prefer it to driving a car and on average such a household would contribute less on overall greenhouse gas footprint. On the other hand it cannot be easily argued there is a direct causal link between suburbanization and carbon emission. It was estimated one additional dollar of gasoline tax would internalize its consumption externalities and under such taxing suburban residents would rather change for more fuel-efficient cars so the negative externalities of car transport would be compensated by the tax (Kahn & Walsh, 2015). From this perspective suburban settlements are partly caused by inadequate carbon taxing, but even under appropriate taxing much of greenhouse gases emissions would be eliminated by more efficient technologies of transport. The dependence of modal choice on location within the city and accessibility of public transit for Prague is shown in Prague spatial analytical documents. The city centre has very low share of car-commuters while the share increases towards city outskirts and to less dense and less serviced neighbourhoods (IPR Praha, 2017b). On the map below is plot an estimate of mean commuting distances from municipalities of residences based on the 2011 Census intercity commute flows[28]. It could be observed there is a variation according to municipality size as large cities have on average low commuting distances on average while smaller municipalities on average exhibit longer commutes. There is also significant regional variation as in some regions distribution of local focal points of commuting might be sparser. The variation of commute lengths might be in principle explained by two factors: Shorter commutes could be caused either by spatial proximity and high density of activities common in bigger cities where there is no need to commute longer, or by lack of economic activity that would worth longer commutes that might be the case of economically less performing regions.

[25] Value inferred through willingness to spend travel costs to experience benefits of some non-traded feature
[26] Value derived from differences of values of some traded goods that have part of their value based on non-traded characteristics, such as differences of house prices for houses exposed to different noise or pollution levels
[27] Estimated costs to reproduce questioned feature
[28] Intra-city commuting flows were available only for Prague. For that reason intra-city commute distances for the Prague case were used to estimate intra-city commutes in other municipalities when taking hypothetical radius of municipalities into account

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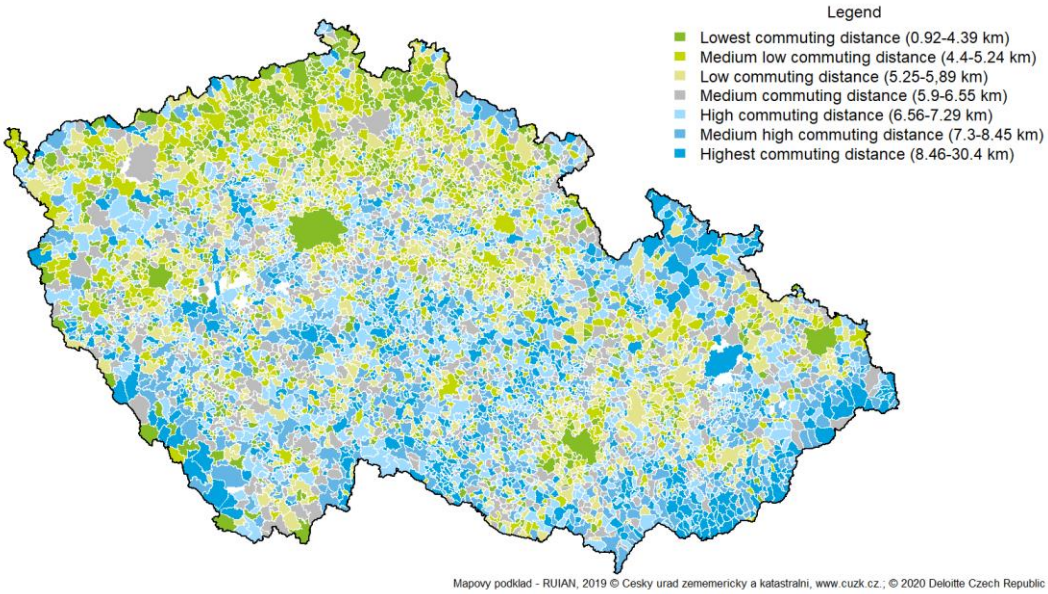
Figure 18: Mean commute distance



Regarding the estimates of carbon emission costs of climate change mean value for year 2010 is 25 Euro per tonne of CO_2 and is rising to 85 Euro per tonne of CO_2 in 2050 (Maibach, et al., 2008). Among other transport externalities affecting environment are pollution with estimated negative effect on housing price of 0.04% per 1μg/m^3 of PM10 increase and increase of 0.001 ppm of O_3 is associated with house value decrease by 0.01%[29]. The effect of PM10 was found to be approximately ten times larger for Zurich and even 40 times larger for the area of Lugano (Rizzi & de Dios Ortúzar, 2015). The effects of noise on residential real estate values has received wide attention but to our knowledge there is no study done on the Czech data. The estimates of 1 dB increase on property values reported in 7 overview studies are in the range from 0.08% to 3.57% (Dekkers & van der Straaten, 2009). An older study finding effects of highway noise on real estate values reported estimates to be in the interval between 0.08% and 1.05% (Nelson, 1982).

Other negative externalities predominantly affecting social and economic pillars of sustainability are time losses caused by congestions and costs of traffic accidents. Both of these are not negligible (Rizzi & de Dios Ortúzar, 2015). Another negative effect, largely not considered in quantitative literature, is separation of neighbourhoods with supra-local transport infrastructure such as highways or rail transit. This issue was described for instance by Hnilička (2012) who pointed out major infrastructure ease and speed up mobility in some direction, but might negatively affect accessibility in other directions. According to the stated preferences study done in Las Palmas, Spain, willingness to pay for putting highway underground was about 75 Euro per year for those who do not have to pass it and about twice as high for those who have to cross it (Rizzi & de Dios Ortúzar, 2015).

Natural open spaces provision

Parks and other green open spaces provision in urbanized areas is commonly found to have positive effects on real estate values. Meta-analysis done on 12 studies based on the US data has shown there is a negative effect of being located further from an open space, mostly urban park (Brander & Koetse, 2011). Similarly proximity to urban green areas was found to have a positive effect on residential properties in studies done on the Prague data (Melichar & Kaprová, 2013; Melichar, Vojáček, Rieger, & Jedlička, 2009). Although there is a value of urban open spaces, not all spaces bring the same value. For instance in the UK many cities have adopted greenbelt policies that constraint spatial expansion of cities and are designed to provide natural areas on their edges. Studies from late 80's and early 90's have provided evidence of overall positive effect of this

[29] Based on data from San Francisco Bay area

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undeveloped land, but more recent studies with the last ones from 2011 have shown there is no measurable effect of these open spaces on residential properties others than those located right inside the greenbelts (Cheshire, Nathan, & Overman, 2015). Although planners often call for provision of these city-containment policies and similar instrument is present in the Prague Metropolitan plan as landscape edge[30], the actual social value is uncertain and possibly negative as they restrict amount of developable land and as a result drive land values and property prices higher.

Public health

Major public health interventions in city development started in the second half of 19th century with modern sewer systems that significantly improved sanitation standards in cities. These systems were on significantly higher technical level compared to first subterranean systems from late 18th century such as Prague sewer system that's construction was started in 1787 (Janata, 2016). In the later development needs of technical infrastructure such as sewers and water, gas and electricity supply has become together with requirements of transport infrastructure common in urban planning. But already in late 19th century there existed opposition towards simplistic reduction of urban planning to fulfilment of arbitrary technical requirements. For instance Camillo Sitte explicitly states old urban typologies cannot be copied, but at the same time he argues needs of technical and transport infrastructure cannot limit search of a beautiful urban form (Sitte, 1995).

Significant change in urban planning regarding public health came with the modernist movement that emphasized public health as one of main goals of city planning. The modernist movement did not limit their focus on sanitation, but was also concerned about daylight and fresh air provision as well as residential densities.

The modernist movement for instance considered as a problem high residential densities in the historic and 19th century cities' districts with densities reaching 1600 or even 2400 residents per hectare. Among other reasons they argued these densities does not provide enough space per person and openings to outside, lack of sunlight, good environment for germs especially mentioning tuberculosis, low level of sanitation and promiscuity due to the dwellings' and buildings' layout and low social status of neighbourhoods (Le Corbusier, 1973). Although it might be true these negative social issues appeared in historic city cores there does not seem to be a causal link between high densities and at least some of the problems mentioned. For instance lack of sanitation is more likely caused by general poverty of population living in these areas and not caused by directly by the density itself. As it is stated later the new cornerstones or urbanism should be the sun, vegetation and space. They wanted to separate residential buildings from streets to protect them from street noise and fumes and in particular require "the selection of residential zones must be dictated by considerations of public health" (Le Corbusier, 1973, p. 62).

Although the sanitation conditions at the turn of 20th century might have not been optimal and some aspects of urban pollution, like smog as the Great Smog of 1952 in London is claimed to kill 12,000 people (Kahn & Walsh, 2015), were not yet resolved, the propositions of modernist movement have omitted a lot of aspects. One of such aspect is the attractiveness of these locations for people living there. Although these people were poor, they might prefer these locations for their proximity to their jobs as commuting would be too costly. This argument is provided for instance by Jason Barr who analyzed early 20th century data about relatively poor neighbourhoods on Lower Manhattan and concluded poor residents concentrated there not because of negative environmental features of the site on former dried pond, but due to attractiveness of the site for its residents (Barr, 2016).

Modernists' approach became early criticized already in the 1960's when Jane Jacobs published her seminal book The Death and Life of Great American Cities where she confronts modernism

[30] The landscape edge is rather a symbolic instrument. It is now wide enough to effectively block vast amount of land also due to the fact the Metropolitan plan cannot reguate any land beyond Prague municipal limits.

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urbanism with crushing critique. At the same time she endorses traditional neighbourhoods, their viability and adaptivity to changing social situation (Jacobsová, 1975).

Land consumption

The drawback of suburban housing is its high demand for land. Already Jane Jacobs (1975) called a problem sentimental and shallow understanding of nature. Many urban residents might claim they would like to live closer to the nature, but their decision to move to suburbias in large numbers causes building-up vast amounts of undeveloped natural or agricultural land. Therefore individual intention to live closer to the nature leads to devastation part of the nature, making ourselves dependent on longer predominantly automobile commutes and moving nature further away from all other urban residents as the city edge extends out to the open landscape. Edward Glaeser comments it that true environment protection intentions should orient new development into the areas where they will cause least environmental loss (Glaeser E. L., 2011). The reason why suburban settlements are so much land-consuming could be theoretically explained with the monocentric city model and empirical examples are later shown in Annex 3. If the monocentric model assumes land areas per housing unit to vary they will increase from the city centre towards the city edge because as households derive utility both from consumption and land area they will consume more land further away from the city because land is cheaper there[31].

3.5. Institutional objectives

As it was argued in the introduction, institutional objectives does not fit well into the spatial equilibrium economic concept and are rather parallel to it, but similarly important as our pillars of sustainable development. Institutional objectives should contain fairness, simplicity, clarity and predictability, agility, continuity, adaptability, desirability, acceptability, efficiency and reviewability.

As a fairness an even distribution of planning gains and losses is meant. In overall, planning aims on increasing social welfare and even if the net effect of planning is positive there might be some stakeholders who experience net loss as a result of plan. In the spatial planning context these stakeholders have typically in common their location. An example of uneven gains and losses is for instance a project of new major transport infrastructure. Such a project will likely reduce transport time and increase travel comfort, could better access some otherwise remote areas and divert nuisant traffic from impacted settlement. Therefore it could be reasonably assumed the overall gain of such a project is positive. On the other hand the project might be located in a close proximity of existing real estate properties. Even if these properties are not affected, their new context causes their values to drop. Under the conditions of fair planning the owners of such properties should be compensated for their loss not to bear costs of wider social gains. In other words negative externalities of planned improvements should be internalized.

The simplicity calls for adopting regulation as simple as possible to achieve intended goals. If any intended planning goal is achievable with less regulations or less complicated regulations such an option should be preferred. It should be born in mind a wide range of stakeholders participate in the spatial planning process in all its stages and the spatial planning documentation should be therefore comprehensible.

The objective of clarity and predictability requires the spatial planning documentation can without uncertainty answer questions how particular land could be used and to what extent this way of use is stable over time. This should be proportional to the scale and detail of planning documentation in question. The clarity about current and possible future land use should allow to assess land value and land values of other plots that might be affected by changes in land use of a plot in question.

Spatial development is very sensitive to unexpected time delays and many failures on property markets are due to low and slow responsiveness to market signals. Therefore the spatial planning

[31] Underlying assumptions and more detail could be found in Fujita (1989)

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should secure reliant and sufficiently fast decision-making processes regarding new development without redundant and repetitive sub-processes.

Spatial planning should be on the strategic level focused on the long-term settlement spatial configuration taking into account the long-lasting character of capital investment into the built environment.

The spatial planning have to reflect citizens' desired form of the future development on all levels of governments represented by representatives elected in the democratic elections following the principle of subsidiarity. For that reason upper-level governments should not interfere into affairs of a government if its plans do not possess any spillovers on others while lower-level governments should not interfere into affairs that are of broader interest.

The system of spatial planning should be based on local tradition and should be largely accepted by all involved stakeholders as a result of collective negotiation that should bring the most desirable output in the form of future spatial development.

Feasible spatial planning system should be efficient in terms of its requirements on administration costs and human workforce. It should largely rely on digitalization, automation and appropriate matching of agenda with officers' skills.

Spatial planning system and individual decisions in development permission process should be reviewable by independent body that would assess whether rights of some stakeholder have or have not been violated and decides about fair compensation.

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4. Annex 2 - Legislation framework of and inference into spatial planning

4.1. Spatial planning legislative framework analysis

The spatial planning is not generally governed by European law as it is left to the Member States to stipulate the principles for their own spatial regulation in all the related aspects. However, some of the rules for limits of the land-use, especially environmental and public health, are prescribed by European directives.

Spatial planning is currently regulated by several law regulations within the Czech legislative framework. The regulation consists mainly of:

- Act No. 183/2006 Coll., on Spatial Planning and Building Code (the Building Act), as amended;
- Decree No. 500/2006 Coll., on planning analytic materials, planning documentation, and planning activity, as amended; and
- Decree No. 501/2006 Coll., on general land use requirements, as amended.

The abovementioned laws represent the main regulation, though. Due to the wide impact of spatial planning on so many areas, the number of laws under which the spatial planning is regulated is much higher. There are around 50 component laws ("složkové zákony" in Czech), especially protecting affected public interests from the field of protection of nature, public health, and monument care, such as:

1) Act No. 133/1985 Coll., on fire protection,
2) Act No. 20/1987 Coll., on State Landmark Conservation,
3) Act No. 44/1988 Coll., on the protection and utilization of mineral resources (Mining Act),
4) Act No. 61/1988 Coll., on Mining Activities, Explosives and the State Mining Administration,
5) Act No. 62/1988 Coll., on Geological Work,
6) Act No 114/1992 Coll., on the Conservation of Nature and Landscape,
7) Act No. 334/1992 Coll., on the protection of the agricultural land reserve,
8) Act No. 360/1992 Coll., on the Professional Practice of Certified Architects and on the Professional Practice of Certified Engineers and Technicians Active in Construction,
9) Act No. 266/1994 Coll., on Rail Systems,
10) Act No. 114/1995 Coll., on Inland Navigation,
11) Act No. 289/1995 Coll., on Forests and Amendments to some Acts (the Forest Act),
12) Act No. 13/1997 Coll., on road communications,
13) Act No. 49/1997 Coll., on Civil Aviation and on amendment of Act No. 455/1991 Coll., Trade Licensing Code,
14) Act No 166/1999 Coll., on veterinary care and amending certain related laws (Veterinary Act),
15) Act No. 189/1999 Coll., on the Emergency Oil Supplies and the Resolution of Oil Emergency and on the Amendments to Certain Related Acts (Oil Emergency Act),
16) Act No. 222/1999 Coll., on prevention and remedying of environmental damage and amendment to some laws,
17) Act No. 128/2000, Coll. on Municipalities,
18) Act No. 129/2000 Coll., on Regions (Establishment of Regions),
19) Act No. 131/2000 Coll., on the Capital City of Prague,
20) Act No. 239/2000 Coll. on the Integrated Rescue System and on the modification of certain codes,
21) Act No. 258/2000 Coll., on Public Health Protection and on. Amendment to Certain Related Acts,
22) Act 406/2000 Coll., on Energy Management,
23) Act No. 458/2000 Coll., On business conditions and the performance of state administration in the energy sectors and on the amendment of certain acts (Energy Act),
24) Act No. 256/2001 Coll., on Undertaking and on Amendments to Certain Other Acts

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25) Act No. 312/2001 Coll., on State Borders,
26) Act No. 100/2001 Coll., on the Environmental Impact Assessment and amending some related laws (the EIA Act),
27) Act No. 164/2001 Coll. on Natural Curative Resources, Sources of Naturally Occurring Mineral Water, Natural Curative Spas and Spa Facilities and Change to Some Related Acts (the Spa Act),
28) Act No. 185/2001 Coll., on Waste and Amendment of Some Other Acts,
29) Act no. 254/2001 Coll., on Waters and Amendments to some acts (the Water Act)
30) Act No. 274/2001 Coll., on Water supply and sewerage systems for public use and on amending some Acts (the Act on water mains and sewers)
31) Act No 449/2001 Coll., on Hunting,
32) Act No. 76/2002 Coll., on integrated pollution prevention and control, on the integrated pollution register and on amendment to some other laws (the Act on integrated prevention)
33) Act no. 139/2002 Coll., on land consolidation and land offices and amending Act no. 229/1991 Coll., on the ownership of land and other agricultural property
34) Act No. 150/2002 Coll., Code of Administrative Justice
35) Act. No. 499/2004 Coll., on Archiving and Records Management and on the Amendment of Selected Acts
36) Annex 1 to the Act No. 634/2004 Coll., on Administrative Fees,
37) Act No. 127/2005 Coll., on Electronic Communications and on Amendment to Certain Related Acts (Electronic Communications Act),
38) Act No. 251/2005 Coll., on Labor Inspection
39) Act No. 184/2006 Coll., Act on the Withdrawal or Restriction of Ownership of Land or Construction (Expropriation Act),
40) Act No. 309/2006 Coll., on further requirements with regard to occupational safety and health,
41) Act No. 311/2006 Coll., on fuels and fuel filling stations and on amendments to some related acts (the Fuels Act),
42) Act No. 300/2008 Coll., on electronic transactions and automatic conversion of documents,
43) Act No. 157/2009 Coll., on mine waste management,
44) Act No. 416/2009 Coll., on accelerating the construction of transport, water, energy and electronic communications infrastructure
45) Act No. 201/2012 Coll., On air protection,
46) Act No. 503/2012 Coll., on the State Land Office and on the amendment of some related laws,
47) Act No. 206/2015 Coll., on Pyrotechnic Articles and their Treatment and on Amendments to Certain Acts (Act on Pyrotechnic Articles),
48) Act No. 224/2015 Coll., on the prevention of serious accidents caused by selected hazardous chemical substances or chemical mixtures and on the amendment of Act No. 634/2004 Coll., on administrative fees, as amended, (Act on the Prevention of Serious Accidents),
49) Act No. 263/2016 Coll., Atomic Act,
50) Act No. 194/2017 Coll., on Measures to Reduce the Costs of Deploying High-Speed Electronic Communications Networks and on the Amendment to Some Other Acts.

Also based on this fact, the new Building Act also contains the Amendment Act ("změnový zákon" in Czech) of 57 component laws to be amended along with the reform.

Last but not least, the factual regulation of the spatial planning matters also involves the so-called "limits of the area use" ("limity využití území" in Czech), as described below.

Such limits may be:

- environmental protection instruments – national park, protected landscape areas, etc.;
- protection zones ("ochranná pásma" in Czech) of water resources, water supplies and sewerages networks, public railways, energy infrastructure, strategic constructions as airports, etc;
- and another areas protected for various reasons (e.g. mining sites).

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These limits may occur after the spatial planning document has been adopted and the change might not have been implemented into the spatial planning document. This may complicate overview of land-use possibilities within the area of interest.

Spatial planning, including zoning permitting process, is subject to a Part 3 of the Building Act, from Section 18 to Section 102.

The central administrative authority in cases of spatial planning is the Ministry for Regional Development of the Czech Republic. The system of the spatial planning authorities also consists of the regional spatial planning authorities and spatial planning authorities within the ORP's. The role of each authority is described below.

The first Section 18 lays down the goals of spatial planning in order to *"create the preconditions for construction and for sustainable development of the area".*

These goals should comprise the conditions for:

1. The favourable environment;
2. The economic development; and
3. The cohesion of community of inhabitants of the area.

Furthermore, spatial planning should achieve the harmony of public and private interests in relation to the development of the area.

These goals should be implemented into the spatial planning instruments.

Building Act presumes following spatial planning instruments:

- Spatial planning materials (divided into spatial planning analytical materials and spatial planning studies);
- Spatial development policy
- Spatial development principles
- Spatial plan / Land-use plan
- Regulatory plan
- Zoning permit

The Zoning permit is not explicitly defined among spatial planning instruments, however, can be taken as the pinnacle of the spatial planning process. Contrary to the spatial planning documentation that is issued by regional or municipal council (for the term "zastupitelstvo" in Czech we use the term "council" hereinafter) in its self-governance, the Zoning permit is issued by Building Office and, therefore, based on delegated power of the state.

1. Spatial planning materials

There are two types of spatial planning materials, both of them are not binding for decision making in the territory

a) **Spatial planning analytical materials** ascertain and assess the current state and the development of the area, as summarized in Building Act as the "limits of the area use".

Spatial planning analytical materials are compulsory for the administrative district of the municipality with extended powers (procured by the planning authority) and for the whole territory of the region (procured by the Regional Office).

b) **Spatial planning studies** verify possibilities and conditions of the changes in the area. Unlike spatial planning analytical materials, Spatial planning study describes the potential of development to the future.

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Spatial planning studies are carried out according to current needs, its acquisition may be imposed by the spatial development principles (described below) or may be imposed by the spatial plan (described below) as a condition for decision-making in the territory.

2. Spatial development policy

Pursuant to the Building Act, spatial development policy is a conceptual document of the state and *"[d]etermines, within the stipulated period, the requirements for concretization of the tasks of the town and country planning within the republic wide, over border and international context, especially with respect to the area sustainable development, and determines the strategy and basic conditions for the implementation of these tasks*" and *„[c]oordinates creation and updating of the development principles, creation of concepts.*"

A draft of spatial development policy is drawn in cooperation with the ministries, other central government authorities and regions and it is procured by the Ministry for the whole territory of the Czech Republic. The spatial development policy is approved by the Government.

3. Spatial planning documentation

a. Spatial development principles

Pursuant to the Building Act, *"the development principles determine especially the basic requirements for purposeful and economic arrangement of the region´s territory, delimit the areas or corridors of the supra local importance and determines the requirements for their utilization, especially the areas or corridors for the public works, public benefit measures, they determine the criteria for decision making on possible variants or alternatives of the changes within their utilization."*

Spatial development principles specify and develop spatial planning aspects and in accordance with spatial development policy. They are procured for the whole territory of the administrative region. Spatial development principles are issued by the Regional Council (i.e. in self-governance) in the form of a general nature measure in accordance with the rules of administrative procedures.

b. Spatial plan

Pursuant to the Building Act, "*The plan determines the basic concept of the development of the municipality, protection of its values, its areal and spatial arrangement, arrangement of the landscape, and the concept of the public infrastructure; delimits the developed area, areas and corridors, especially the areas with development potential and the areas delimited for the alteration of the existing development, for redevelopment or repeated utilization of the depreciated area, for public works, for public benefit measures, and for the territorial reserves and determines the conditions for utilization of these areas and corridors."*

The spatial plan is procured and issued for the whole territory of the municipality. The spatial plan is issued by the Municipal Council (i.e. in self-governance) in the form of a general nature measure pursuant to the rules of administrative procedure.

c. Regulatory plan

Pursuant to the Building Act, "*The regulatory plan within the settled area determines the detailed conditions for the use of the grounds, for location and spatial arrangement of structures, for protection of values and character of the area, and for creation of a favourable environment. The regulatory plan always determines the conditions for delimitation and the use of the grounds, for location and spatial arrangement of the structures of the public infrastructure, and delimits the public works or the public benefit measures."*

The regulatory plan is procured either by the Regional Office or by Municipal Office for the respective territory and is approved by the Regional or Municipal Council. (Note: So

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far, there is not any regional regulatory plan finished.) The regulatory plan is issued, at the incentive or the request, in self-governance in the form of the measure of the general nature pursuant to the rules of administrative procedure. The regulatory plan can replace the Zoning Permit within the area of interest in the approved extent in its independent competence.

The procurement of the spatial planning documentation

The first step of the process of the spatial planning documentation is the **Council´s decision on procurement of the spatial planning documentation**. Therefore, the spatial planning documentation is considered as one of the expressions of the right of self-government.

However, the procurement itself is carried out within the transferred state powers. **The procurer ("pořizovatel" in Czech) is the spatial planning office** (within either Regional or Municipal Office). Its task is to draw up (or procure) the documentation and submit it to the public and the authorities concerned to discuss and then modify it so that it can be approved.

The elaboration of the documentation is a task for the so-called processor ("zpracovatel" in Czech), an authorized architect who processes the technical text of the plan and the map part. Usually it is external processor, some regions or municipalities have their own organization that employs architects, e.g. Prague and Brno. Some offices also employ their own professionals with the necessary expertise.

Once the documentation is elaborated by the processor, the procurer submits the complete proposal to the public and authorities concerned. Then, **both the authorities and the public have a right to make their comments and objections to the proposal**. Despite the fact, that pursuant to the Code of Administrative Procedure the procedure concerning the proposed general nature measure shall be conducted in writing, in case of the proposal of spatial planning documentation **the procurer orders the public hearing** due to the complexity and impact of the documentation. At this stage of the procedure, the processor in cooperation with a council member have to deal with all the comments and objections. The dealing of the comments and objections has to be consulted with the other authorities concerned. A fair settlement of comments and objections is essential the spatial planning documentation to get by in eventual judicial review.

After this stage, the procurer **examines the accordance of the documentation before approval with the basic requirements** (requirements of the Building Act and related regulations; the assessments of the respective authorities; etc.). If the proposal is in accordance with the requirements, the procurer submits the proposal to the council. **The council shall either issue or reject the submitted proposal or return it to the procurer with its instructions for modification and renegotiation.** For the purpose of publication the content of the issued **documentation must be announced by public notice**. On the fifteenth day after the day of the public notice, the documentation enters into force.

4. **Zoning permit**

While the abovementioned levels present the complex of spatial planning documentation, the zoning permit proceedings represent the phase of application of spatial planning documentation within administrative proceedings. Therefore, zoning permit proceedings are included in the system of the Building Act in the third part, which specifies in more detail the conditions and particulars of spatial planning and activities related to spatial planning and directly related to them.

Zoning permit is an administrative decision containing specific conditions of land use in individual administrative cases and is issued as an individual act to the applicant by the building authority.

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As mentioned above, contrary to the spatial planning documentation, the Zoning permit is issued by Building Office based on delegated power of the state. Therefore, the municipality should have no power to influence and interfere the process of the location of the construction defined by the framework adopted by the municipality in its own autonomy other than a common participant to the zoning procedure.

Currently, there is a number of forms of zoning permit. The basic forms of the zoning permit are zoning permit (*stricto sensu*) and zoning consent, both with specific variations within the Building Act. However, there is a possibility to replace the zoning permit by the regulatory plan or a public law contract. Zoning consent can be also issued along with the consent to execute the announced building plan. There is also a practice of contract closing between public bodies and private subjects. Some of these contractual types are described in the Building Act, some are innominate contracts which subject concerns the conditions of land use in a specific area.

Summary of spatial planning legislative framework analysis

The spatial planning is governed, beside the Building Act, by many laws protecting affected public interests. However, the basic framework and procedures are clearly contained by the Building Act.

Contracts in the spatial planning

In the suburban areas in the Czech Republic, the land development often goes on so rapidly that the municipalities struggle to follow this new development by building a necessary related public infrastructure.

There are four categories of public infrastructure under the Building act:

- Transport infrastructure (roads, railways, waterways, airports etc);
- Technical infrastructure (water supply and sewerage infrastructure, heating infrastructure, electricity infrastructure etc.);
- Public facilities (schools, hospitals, theatres etc.); and
- Public spaces (parks, children's playgrounds etc.)

If the commercial and residential development goes on without ensuring related development of the necessary public infrastructure, various problems may occur. The public infrastructure is primarily supposed to be built and maintained by municipalities. However, the municipality might not have enough financial means for it. In addition, due to the public procurement laws and strict rules arising from the law, municipalities usually process preparation of construction works and the work themselves in a much slower pace than the private sector. As potential consequence, it might happen that large commercial or residential areas are often underdeveloped regarding public infrastructure. There might be lack of roads, or the roads are in unfinished state, public schools and kindergartens are missing, there is not enough public spaces etc. This influences very negatively quality of life of the new, as well as the old inhabitants in the given area.

To prevent the undesirable side effects of the rapid new commercial and residential development, the municipalities are trying to involve the land developing subjects (i.e. households, professional developers and other entrepreneurs) in the process of constructing and financing of the public infrastructure. The goal of this process is to ensure that the residential and commercial development proceeds together with the vital development of public infrastructure.

In order to achieve the involvement of the land developing subjects in the construction of the public infrastructure, the municipalities are using *inter alia* also different types of contracts. Some of these contracts are explicitly regulated via statutory laws whereas others originated by everyday use.

There are three main categories of such contracts used by municipalities to involve the land developing subjects in the process of constructing and financing of the necessary public infrastructure:

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- The planning contract concluded in order to obtain issuing of a regulatory plan in given area under section 66 of the Building Act;
- Infrastructure contract under section 88 of the Building Act;
- Development contract concluded between a person intending to do a land development in a certain area and the municipality governing the area.

The planning contracts

Under section 66 of the Building Act, if a person asks a municipality or region to issue regulatory plan, the municipality or region may set as a condition for issuing the regulatory plan obligation of conclusion of a planning contract between the person asking for the regulatory plan and the affected municipality ("**Planning contract**"). Subject of the Planning contract is a cooperation on construction of new public infrastructure or on adjustments of current public infrastructure between the person asking for the regulatory plan and the affected municipality. The applicant for the regulatory plan obliges to cooperate with the municipality governing the given area in order to construct a necessary public infrastructure, including bearing costs of construction of the public infrastructure.

As mentioned above, regulatory plan is a spatial planning act that thoroughly sets the conditions for land development in a certain limited area. The regulatory plan has to comply with the respective Land-use Plan. The regulatory plan issued on request is a special kind of regulatory plan, which might be issued only if it is foreseen by the respective Land-use Plan or respective spatial development principles and if these spatial planning documentation determine the necessary features, which the new regulatory plan must have. It is more common that the issuance of a regulatory plan is foreseen by a Land-use Plan; the regulatory plan can substite zoning permits in the area of regulatory plan.

As the Building Act states that the conclusion of the Planning contract might be set as a condition for issuing a regulatory plan, there is a question, how and when exactly has the municipality or region to set this condition? The Building Act does not offer an answer but the most recommendable way for all parties is setting this condition expressly in the given Land-use Plan or spatial development principles as a part of the information that the regulatory plan might be asked for. Another option is that the municipality or region sets the condition after an applicant asked for the issuance of the regulatory plan. However, the latter option brings uncertainty in the process and is not desirable.

Regularly, if a person requests issuance of a regulatory plan, it is because the person intends to develop the area for which the regulatory plan should be issued in certain manner. The applicant with the request also deliver to the municipality or region the proposed regulatory plan and, if the condition was set prior to the application, the proposed draft of the planning agreement. The regulatory plan then has to solve both the inner public infrastructure within the regulated area and the outer public infrastructure, i.e. the connection of the regulated area to the other areas. Consequently, the planning agreement has to set out rules for inner public infrastructure and outer public infrastructure as well.

Statutory law sets out exact content requirements for the Planning contract. However, if in the given area are relevant only roads or technical infrastructure or public spaces, it might be possible, that instead of the Planning contract, the applicant for regulatory plan delivers contracts concluded with the owners of the respective public infrastructure, whereas these contracts do not have to meet requirements for the Planning contract.

Twofold position of municipalities regarding Planning contracts

As mentioned, the Planning contracts conclude municipalities governing the area for which the regulatory plan is to be issued and applicants for the regulatory plan which are usually private entities. However, the municipalities act in two ways regarding the Planning contracts.

First one, the municipality sets out the condition of the conclusion of the Planning contract in the respective planning act or otherwise. In doing so, the municipality is actually acting as a part of the state administration because some parts of the spatial planning procedures are delegated to on municipalities by the state. The municipality then conclude the Planning contract in its own autonomy, as the public infrastructure is in the area governed autonomously by the municipality. In theory, the municipalities should do both of their powers (the state

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powers delegated to them and their own autonomous municipal powers) independently. However, as to some extent, both powers represent the very same persons; it is not feasible to assure complete independence.

The municipality first sets the requirements for the Planning contract (including within the scope allowed by the statutory law also the content requirements) and then sets conclusion of the Planning contract as a condition for issuing of the regulatory plan. The applicant for the regulatory plan then has only diminutive options to influence the actual terms of the Planning contract and is more less in a position "take it or leave it".

This imbalanced state allows municipalities to set high requirements for the applicants for the regulatory plan in order to ensure their participation in development of the public infrastructure. However, as the applicant is usually an institutional developer, this arrangement increases costs of the land development and consequently also the prices of residential or commercial units in the final stage of the development.

Contracts with owners of roads and technical infrastructure

Under section 88 of the Building Act, the building authority stops the proceedings for issuance a zoning permit if the respective project would burden the public infrastructure in such extent, that it cannot be completed without related development of new roads and new technical infrastructure. Afterwards, the building authority requests the applicant for zoning permit to deliver contracts already concluded with owners of roads and owners of technical infrastructure in given area regarding the development of the necessary new infrastructure ("**Infrastructure contracts**"). If the developer does not deliver the Infrastructure contracts within a reasonable period set out by the building authority, the building authority cancel the zoning permit proceeding. The important point is that the new public infrastructure will be also subject to the spatial planning and needs its own zoning permit.

Based on the rule of section 88 of the Building Act, the applicant for zoning permit is obliged to arrange for necessary public infrastructure construction prior the building authority issues the zoning permit.

The building authority is entitled to ask a conclusion of contract only regarding roads and technical infrastructure, i.e. in this case, the public facilities and public spaces are not involved.

Content requirements for the Planning contract set out by the statutory law apply on the Infrastructure contract accordingly.

Development contracts

Both, the Planning contract and the Infrastructure contracts have limited application. The Planning contract should occurs only in case, a person asks for regulatory plan, which is quite rare. The Infrastructure contracts might set rights and obligation only regarding roads and technical infrastructure, which means that it is not suitable instrument in case the public facilities or public spaces are to be considered.

Therefore, it is a common practise in the Czech Republic that the municipalities conclude various other contracts with third parties intending land development in the municipality's area named as Planning contracts, however, not following legal requirements for Planning contracts ("**Development contract**"). As there are no specific statutory rules regulating it, these contracts are so-called innominate contracts under section 1746 par. 2 of the Civil Code.

The Development contract usually concludes an institutional developer with a municipality governing given area where the land development will occur before the project starts whereas it regulates various rights and obligations. Very common part of the Development contract is an obligation of the developer to pay a contribution to the public infrastructure or to construct certain part of the public infrastructure. Often also the developer obliges to maintain some part of public infrastructure for a certain time. Another common part of the Development contract is an agreement between the developer and the municipality about future sale or barter of properties owned by the municipality to the developer. The use of the Development contracts is very various in size of projects as well as in scope of rights and obligations of parties sets out by the Development contract.

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The goal of the Development contract is to set rules for cooperation between (mainly) developers and municipalities governing the area in which the construction of the project will occur. As there is no statutory law to rule the use of Development contracts, there are no prescribed features regarding content and form of the Development contracts. Unfortunately, quite often the subjects are trying to set out rules in the Developments contracts which do not comply with the statutory law. Consequently, it is not rare that some parts of a Development contract are invalid and ineffective because they are in conflict with a statutory law rule.

Especially, the municipality must not oblige itself to ensure a zoning permit or a building permit approving the realization of the project as it is delegated power of the state, and, therefore, neither allowed nor able to be fulfilled by the municipality. As mentioned, the spatial planning is a part of the municipal government and its autonomy. Therefore, a contract between a developer and a municipality might not predetermine the result of zoning or building procedure in any manner. Furthermore, the fact that the developer concluded the development contract with the municipality does not affect the relationships of the developer with the other parties involved in the spatial planning process.

In order to make the process of conclusion of the Development contracts more predictable and transparent, municipalities often set some principles for the relationships between builders and the municipality in advance and publish these principles via internet and other means so they are accessible for everyone. As a part of these principles, terms for the Development contracts or even scheduled wording of the Development contract might be included in the principles. It is an appropriate and recommendable practise to do so, as the principles inform all builders in advance about the requirements of the municipality.

Conclusion of the Development contract by a land developer should be a voluntary act and municipalities must not enforce it. However, many municipalities set the conclusion of the Development contract as a condition for their approving opinion for the project. The attitude of the municipality is one of several opinions that are necessary for zoning procedure. Although the building authority might issue the zoning permit regardless of the opinion of the municipality, the attitude of the municipality is important opinion in the zoning proceeding and the negative opinion might contribute to refusal of application for zoning permit.

Furthermore, often a builder needs some cooperation from the affected municipality, i.e. municipality is owner of the necessary technical infrastructure. In these cases, the municipality might also request conclusion of the Development agreement.

Consequently, a builder is very often persuaded to conclude the Development contract in order to start the intended land developing project. Therefore, the position of the builder during negotiating of the Development contract might be very weak and without a real option to influence the terms of the contract.

Contributions on public infrastructure

Generally, the municipalities may charge fees only in case that a statutory law expressly gives them this right to. Regarding fees on public infrastructure, the only permissible way for charging fees under the Czech law is possibility to charge a fee for increasing of the value of a building property due to the connection of the building property to public water supply or sewerage. Municipalities might charge this fee under act No. 565/1990 Coll., on municipal fees, as amended. The owner of the property pays the fee to the municipality in area of which is the property located. A huge portion of municipalities charges this fee, often in quite considerable amounts.

Otherwise, according to Czech law, the municipalities have no other option to impose on the land developing entities unilaterally any obligation to pay a contribution to public infrastructure.

However, there is a vastly spread use of so-called voluntary contributions to public infrastructure in the Czech Republic. Especially municipalities near to Prague collect these contributions as these municipalities are often subject to very rapid land development, which as mentioned, requests related development of public infrastructure.

As municipalities must not charge any fees to public infrastructure (except the fee for increasing of value due to the connection to public water supply or sewerage), they ask contributions to the public infrastructure via the Development contracts. It means that the land developing person obliged itself to pay contribution to the public infrastructure in the

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Development contract. Hence, the municipalities do not impose the obligation to bear some costs of the development of the public infrastructure as a fee, but the obligation is agreed between the parties in the Development contract. The assumption here is that no one is forced to conclude the Development contract, and therefore the contributions on the public infrastructure agreed this way are voluntarily.

The Supreme Court of Czech Republic confirmed in decision No. 33 Cdo 3225/2011 dated 28 February 2013 that if a land developing person agrees in a contract to pay a contribution on the public infrastructure, it is a valid and effective obligation, which is legally enforceable.

The obligation to pay the contribution should be agreed mutually and voluntarily between parties. The municipality must not impose the obligation on third parties unilaterally or coerce the land-developing person in any way. The supreme court of Czech Republic judged also a case when a municipality asked a builder of a family house to conclude a donation contract in order to donate to the municipality a contribution on technical infrastructure as a condition under which the municipality enables the builder to connect the house to the public water supply infrastructure. The builder refused to conclude the donation agreement and ask the municipality to enable the connection to water supply nevertheless. The municipality refused to enable the connection until the builder concludes the donation agreement and makes the donation. The builder in order to ensure the water supply for the house concluded the donation contract and made the donation, but later sued the municipality for using duress and claimed the donation back. In this case, the supreme court of Czech Republic in decision No. 33 Odo 1416/2005 dated 20 October 2006 stated that the municipality acted wrongfully using duress and distress. Therefore, the donation agreement was not agreed validly and was not effective.

Issues regarding the contributions on public infrastructure

Regardless the abovementioned decision of Supreme Court of Czech Republic No. 33 Odo 1416/2005 dated 20 October 2006, it is a common habit in many Czech municipalities, that they request conclusion of the Development agreement and also payment of a contribution to public infrastructure from all builders in the area of the given municipality. If the builder refuses to conclude the Development agreement, the municipality gives a negative opinion to the planned project. The opinion of the municipality is one of several opinions that are necessary within the zoning procedure. On the one hand, the building authority might issue the zoning permit regardless of the negative opinion of the municipality. On the other hand, the opinion of the municipality is important opinion within the zoning proceeding and the negative opinion might contribute to refusal of application for zoning permit. The municipality is also an important participant to the zoning proceeding and it might otherwise act in order to prevent the issuance of the zoning permit. Furthermore, as already mentioned, although the building authority and affected municipality are theoretically fully independent, in reality, as the building authority is a part of the municipality's administrative structure, a thorough independence might be questionable.

Another problem is a fact, that although the builders should conclude the Development contract and oblige themselves to the payment of the contribution on the public infrastructure always only on a voluntarily basis, the builders themselves may not be aware of the voluntary base.

Municipalities often set the payment of the contribution to the public infrastructure as a condition for approving opinion of the municipality in such a manner that for a person without legal knowledge it might be very difficult to recognize that the contribution as well as conclusion of the development agreement is completely voluntary. Unfortunately, the municipalities sometimes do not communicate this in a transparent manner. Therefore, especially builders who are not professional developers might think that they are actually obliged to do so.

Regarding the bigger projects, the conclusion of the Development contract and payment of contribution on the public infrastructure often is inevitable. For the professional developers the contribution represents a part of costs of the project, which in the end are paid by the final purchasers.

Missing statutory law

As mentioned, there is no statutory law that would set the rules for dividing costs of new public infrastructure between the builders in the given area and affected municipalities.

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The rapid development in certain areas burden municipalities significantly regarding requirements for the public infrastructure and it is understandable that municipalities are trying to involve the private sector in the bearing of the costs. On the other hand, the now common praxis of collecting of contributions to public infrastructure by municipalities has no grounds in statutory law.

Therefore, it would be very helpful if a statutory law set the rules for this problematic in the future.

Summary of contracts in the spatial planning

There is a lot of documents concluded between municipalities and mainly developers to substitute missing regulatory instruments for investments to the necessary infrastructure. These are sometimes on the edge of law, however, necessary to deal with issues arising within the areas of interest.

4.2. Related documents directly affecting spatial planning and development

As stated above, spatial planning materials are the main source materials for spatial planning.

However, there are another sources which has to be considered within spatial planning. If a special law states that a document created under a special regulation (concept, plan, strategy, program, etc.) is the basis for spatial planning instruments, it is an essential but not binding document.

The examples of such documents may be:

- Water and sewerage development plans;
- River basin management plans;
- Territorial energy conceptions;
- Waste management plans;
- Etc.

Anecdotal evidence: The Case of Lázně Bohdaneč spatial plan

Lázně Bohdaneč is a small town of 3,500 inhabitants located in a suburban area of Pardubice, regional capital of Pardubice region, approximately 90 kilometres east of Prague. Lázně Bohdaneč is also the only spa town in Pardubice region. The town requested commission of the new spatial plan at Pardubice city hall office in 2007 and later on issued its new spatial plan in 2013.

This brief case study looks at transformation area Z58 that is approximately 1000 square meter large vacant lot, the larger of two located at corners of historical town square, representative urban space with church, town hall and the main spa pavilion. As seen on the historical map (Second military survey, approximately half of 19th century) the town square building front was completely developed, but later on in the 20th century two corner buildings were torn down, probably due to the main roads extension, and vacant lots were left undeveloped.

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Figure 19: Lázně Bohdaneč town square area
Source: Mapy.cz

When analysing statements raised by public authorities attached to the text part of the spatial plan (Lázně Bohdaneč; SURPMO; Koutová, Alena, 2013) it is seen their requirements, based on regulation not directly subordinated to the Building Act, in fact almost prevent this site from future development although it is reasonable to assume it would improve the quality of the square and appropriately utilize this valuable land.

In the following paragraphs statement of the Regional office of public health (Krajská hygienická stanice) is discussed. Its statement is developed with accordance to section 77 of Act 258/2000 Coll. (the section names regional offices of public health as a public authority in charge of protection against noise and its mitigation). In one stage of the spatial plan preparation the area was zoned as "Mixed residential area in town centre". Regional office of public health in its objection required to limit the residential functional use only as conditionally acceptable with respect to the protection from noise caused by the street along the lot[32]. In the statement issued to the concept of the spatial plan the Regional office of public health explicitly stated building for residential use should not be located in proximity of linear sources of noise and urban planning solutions should be preferred to technical solutions.[33]

The statement does not promote compact urban development following local tradition and typology. Location at node of historic paths in this case is shared with many other Czech small towns as well as locating most intensive development along these long established paths. Restricting new residential-mixed development in these historic prime locations leads to need for expansive growth beyond existing limits of built-up settlement.

The evaluation of the statement says the build-able areas requiring protection from noise and emissions, such as residential uses, will not be located in the proximity of such a sources. Then when necessary, for instance due to keeping reasonable urban form, such functional uses could be located in the proximity of noise on pollution sources, but should be suitably separated for instance with a green belt. At the end it is concluded urban planning solutions will be preferred to technical solutions[34].

[32] Original textation: „Nově vznikla lokalita Z58 - plochy smíšené obytné - v centrech měst (SC). Lokalita je situována v těsné blízkosti stávající silniční komunikace I/36. Z toho důvodu KHS požaduje, aby byla funkce bydlení v lokalitě Z58 vedena jako podmíněně přípustná z hlediska ochrany před hlukem vůči stávající silniční komunikaci I/36."
[33] This requirement is stated in the §14, article (2) of the Decree 268/2009 Coll. and its requirement is highly controversial as it prefers extensive development to more complex smart growth solutions. It might be called one of relicts of modernist urban planning. Original textation is: „Stavby pro bydlení by se neměly umisťovat do blízkosti významných liniových zdrojů hluku. Měla by se upřednostňovat urbanistická řešení před technickými."
[34] Original textation: „zastavitelné plochy vyžadující ochranu před negativními účinky např. hluku, imisí a emisí (chráněné venkovní prostory), jako jsou např. plochy bydlení a rekreace, nebudou situovány do blízkosti zdrojů negativních vlivů. A to jak stávajících, tak plánovaných (např. stávající trasa silnice I/36 a plánovaná přeložka silnice I/36). V případně potřeby umístění těchto ploch do blízkosti zdrojů negativních vlivů, zejména s ohledem

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The evaluation done by spatial plan's procurer largely follows statement of the Regional office of public health and includes its requirements. But, especially with respect to the area Z58 considered in this case, the stated conditions cannot be in fact implemented. As seen on the map, the longitudinal geometry along the main street I/36 does not allow to suitably separate plot from the street with green belt. Even if it was possible such as separation would be incontextual intervention to local physical urban structure. In such case the building would fail to have its role as an edge of public space that can moreover support it for instance with retail space located on ground floor.

Another statement analyzed in this chapter was submitted by Ministry of Transport of the Czech Republic that was submitted in similar textation in both stages of the spatial plan concept and spatial plan proposal according to section 40 article 2 letter g) of Act no. 3/1997 Coll., section 56 letter d) of Act no. 266/1994 Coll., section 88 article l letter o) and p) of Act no 49/1997 Coll. and section 4 of Act no. 14/1995 Coll. The textation submitted in the phase of spatial plan proposal is cited in the footnote[35]. It requires new development along the main street I/36 to be served via local streets. If this requirement is without further adjustments applied to considered area Z58 it might severely affect is development potential, especially if it is planned do develop it as two separate buildings, one facing the square and the second facing only the street I/36. Although the Street I/36 is a part of national (1st class) road network it seems requirements for a new development in its proximity within the developed areas of the town are overwhelmingly restrictive and not allowing to build contextual built-up urban structure.

Both examples of statements submitted by state authorities were intended to illustrate how regulation not directly subordinated to the Building Act affects spatial planning and development, especially because it often puts in requirements that are hard to meet in already developed urban environment. This on one hand leads to relative disadvantage of development within already developed areas, including brownfields for instance, and on the other to creation new built-up spaces that lack human scale and are shaped by technical requirements coming from numerous regulations instead of rather by empirics in urban development and shared notions of good urban environment. This is for instance reflected in Jehlík (2016, p. 19): "Good settlement is richly structured, multilayered. It is not possible to state what is 'the' universal quality and it is a mistake of functionalists' urbanism that it utilized argumentation of formal, mostly public health, parameters. Every place could be attractive, although only for some and in particular time, but it is not predictable in advance. It always depends on individual design, its realization and circumstances in the flow of time" (translated by author).

Although we have selected relatively small town as our case study where struggles between public interests are not as severe as in large cities, we consider this case valuable and conclusions drawn from it as generally transferable. In particular the textation "urban planning solutions should be preferred to technical solutions" in practice leads to abandonment of many valuable plots in well-served developable locations for instance located near high-capacity road network or in close proximity to capacity public rail transit. This approach seems to be aligned with modernists' planning approach that puts emphasis on spatial functional segregation, but many authors claim this approach to be already obsolete[36], spatially expansive (Koucký, 2006; Hnilička, 2012) and not providing quality urban spaces (Gehl, 2012). In fact it is not clear why urban planning solutions should be preferred to technical solutions.

While noise is obviously a negative amenity, it is well capitalized in the real estate property values as otherwise identical properties exposed to different noise levels have different market value with

na logické urbanistické uspořádání, budou takovéto plochy řešeny jako podmíněně přípustné, resp. budou vhodně odděleny např. pásem izolační zeleně. Preferována budou urbanistická řešení před technickými."

[35] Original textation „Nadále platí požadavek řešit dopravní obsluhu návrhových ploch umístěných u trasy stávající silnice I/36 prostřednictvím místních komunikací. V případě využití stávajících sjezdů na silnici I/36 pro jiné než dosavadní účely (např. z důvodů vymezení nových zastavitelných ploch nebo změny funkce v plochách přestavby), požadujeme posouzení a vyhodnocení, zda budou stávající připojení, resp. sjezdy splňovat podmínky stanovené v platných ČSN, požadavky na BESIP a na dostatečnou kapacitu i po navýšení dopravy vyvolaném změnou funkce."

[36] "Opinions on urban planning [in Czechia] are deeply stuck in 1970's and 1980's and in directively organized society" (Koucký, 2017, p. 75), translated by authors.

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the one exposed to more noise having market value lower. For instance Nellthorp, Bristow, & Day (2007) mention negative effects of additional dB of traffic noise found in several settings leading to the decrease of residential property market value by approximately 0.5%. In this context of negative amenities capitalization into property prices is a-priory unclear why should state administration restrict new construction in areas affected by excessive noise. In this case market forces will lead to development of these sites if market value of real estate in such locations minus construction costs and technical solutions to protect buildings from the noise are positive.

It seems the only reason for the state intervention is to prevent either underestimation of negative effects of noise on human health or moral hazard or both. In the first case the problem would be rooted in inability of agents on market to truly estimate the magnitude of negative effect on noise on human health that would lead to overprovision of housing in noisy areas and the second case is related to current system of health insurance where insurance companies cannot screen their clients for their life-style to design them individual life-insurance premia. In that case agents on the market might exploit opportunity to reside in cheaper and noisier areas compared to more expensive and less noisy areas because if noise damage their health they will be provided the same healthcare for same price no matter in which of the two locations they lived. It is important to mention we are not aware there exists any evidence-based study that would evaluate net social costs and benefits of restricting new development in noisy areas and seems both above mentioned problems of moral hazard and noise effect on health underestimation are by order smaller in magnitudes compared to negatives caused by suboptimal land-use due to preventing new development in otherwise appropriate locations.

4.3. Development of the spatial planning legislation since the 1976 Building Act

The 1976 Building Act represents the fourth stage of development of public building law in the Czech Republic, which preceded the stage of the current legislation that has been in force since 2007.

Period from 1976 to 2006

Spatial planning legislative history dates back even before 20th century and has been regulated by separate laws. The regulation of public construction law began to be comprehensive since 1976 and included the spatial planning in one law.

The Building Act No. 50/1976 Coll., on Spatial Planning and Building Code (the Building Act), as amended, combined the regulation of spatial planning with the building regulations. Spatial planning documentation was accepted in three categories according to time. The first category was the *territorial forecast*, the second category was the *territorial plan* and the third category was the *territorial project*. These documentation then had three levels according to the territorial scope. The first stage was a large territorial unit, the second stage was a housing development unit and the third stage was a zone.

This act was amended 21 times. The most important changes were brought by the amendment from 1998. On the basis of this amendment, the system of spatial planning tools has changed conceptually. The law newly included the territorial forecast only among the spatial planning documents. This amendment also led to the abolition of the category of spatial planning documentation, which consisted only of the spatial plan of a large territorial unit, the spatial plan of the municipality and the regulatory plan. Spatial planning documentation of municipalities (later also of regions) was entrusted by the law to their self-government competence.

These conceptual changes are related to the political changes (so called "Velvet Revolution") in the Czech Republic in 1989. The amendments to the 1976 Building Act represented transformational steps towards a transition to another spatial planning concept, which provided the basis for the future code regulation reflected in the following building act.

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Period from 2007 to the present

The current Building Act has been in force since 2007. Since that date, it has been amended 25 times, including three major amendments. The most significant amendment has been in force since 2018 and is referred to as the "Major Amendment to the Building Act".

The original wording of the current Building Act regulates the same range of spatial planning activities in the area of spatial planning as well as the previous Building act. However, it newly regulates the elaboration of spatial planning documentation (see above), Spatial Development Policy, Spatial Development Principles, conditions for merging procedures for assessing the effects of plans on the environment and conditions for preparing the territory for location and implementation of public infrastructure. It also regulates the exchange of private land for the purpose of public prosperity while preserving property rights in accordance with the Charter of Fundamental Rights and Freedoms. This Act newly regulates the records of spatial planning activities ("evidence územně plánovací činnosti" in Czech) and qualification conditions for spatial planning activities ("kvalifikační podmínky pro územně plánovací činnost" in Czech).

The current Building act also introduces the institute of spatial consent, which represents the consent of the relevant building authority with the notification of the required plan in the territory and may replace the zoning permit.

Territorial measures newly regulate the conditions in the territory in the form of general nature measure, which directly affect the rights, obligations or interests of an unspecified group of persons.

In connection with the accession of the Czech Republic to the EU, one of the major contribution of the current Building Act was the transposition of the regulation introduced by European regulations in so far, as they relate to spatial development policy and spatial planning documentation. Specifically the transposition of the requirements of Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programs on the environment, Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora and Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds. In the proposed solution, these requirements are newly incorporated directly into the Building Act, which should ensure maximum cost-effectiveness of the environmental impact assessment process in spatial planning.

In addition to ensuring access to information on the basis of the requirements of the Aarhus Convention, public participation in procedures and proceedings under the Building Act is regulated. The public participates in the discussion of spatial planning documentation and, newly, in public spatial proceedings (veřejná projednání). Newly, there is introduced a special institute – representative of public interest, which has the right to object as well as the right to require all ordinary and extraordinary remedies.

The act newly extended the access to legal protection to representative of public interest, in addition to the current possibility of administrative actions. An amendment to the Code of Administrative Procedure (Act No. 127/2005 Coll.) newly regulated the possibility of filing a motion to annul a general nature measure or its part.

- **Major Amendment to the Building Act**

  The major amendment brings in the area of spatial planning 5 fundamental changes concerning the elaboration of new spatial plans, land-use plans with detail of regulatory plans, reduction the deadline for challenging the spatial plan, assessing the compliance of the building with the spatial plan and simplifying changes to spatial planning documentation.

  The first major change is the extension of the deadline for the elaboration of new land-use plans instead of 2020 to 2022. If they are not issued by this date, the original land-use plans will expire.

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Secondly, it is now also possible to define a part of the land-use plan with the detail of the regulatory plan. This will make it possible to set specific conditions for a certain part of the land-use plan.

The third significant change is the reduction of the deadline for challenging the general nature measure (e.g. spatial planning principles, land-use plan) at court from three years to one year. It gives the possibility to challenge the spatial planning documentation at court in the case of the spatial planning documentation infringed someone's rights.

The fourth change is the evaluation of the compliance of the building with the planning documentation and with aims and targets of spatial planning by the spatial planning office, instead of the building authority. The building authority previously assessed compliance within the framework of the zoning procedure, specifically its conclusion was reflected in the zoning decision. The new spatial planning office issues a binding opinion on the compliance of the building especially with the land-use plan.

The last major change in connection with spatial planning is the institute of the simplification of changes to spatial planning documentation. Such a simplified procedure is possible if the changes do not contain variants of the solution.

Summary of the legislative development

The aforementioned text provides a brief overview of the legislative development and its main changes throughout the time since 1976. Despite the large number of the changes, we can see a continuity in the basic systematics of the legislative. Therefore, none of the changes can be marked as a reform. Most of the major changes have been introduced as a reaction to a historical evolution of the country.

The interview with the stakeholders revealed that some of the changes contributed to a better practice and some of them have not been welcome. Although almost every stakeholder had its objections to various institutes, most of them agreed that by putting in the needed effort, each of the stakeholders found its way how to deal with the changes which have stabilized over time.

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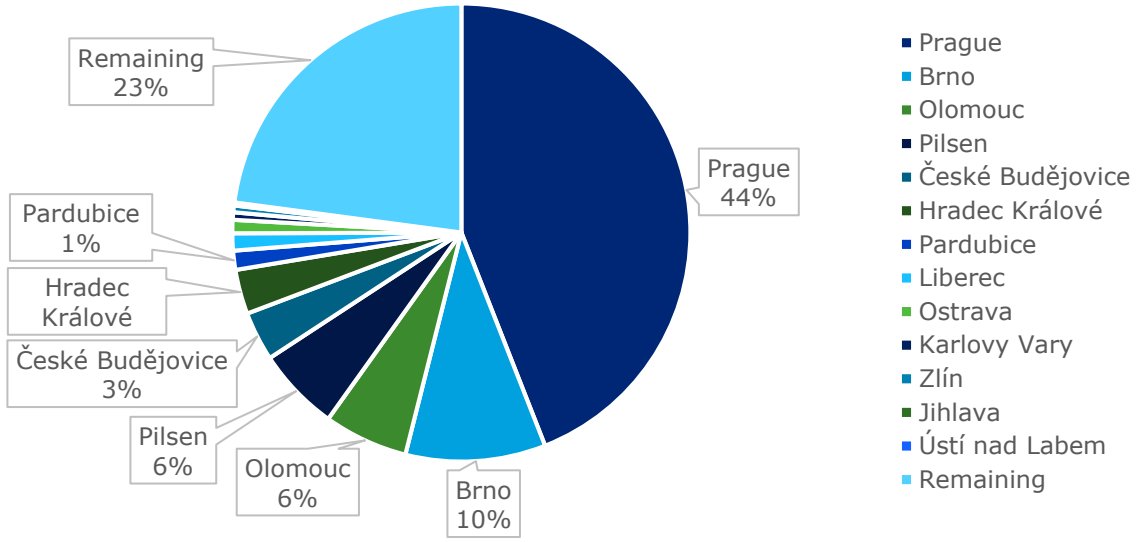
5. Annex 3 - Observed spatial development trends

5.1. Spatial development trends

Although Prague is only one of 6258 Czech municipalities and lay on 0.63% of the area of the Czech Republic, it accommodates within its administrative boundaries 12.3% of residents of the Czech Republic and accounts for approximately one quarter of the Czech gross domestic product. In terms of the spatial development and construction industry in particular this prime role of the Czech capital is even starker: In the first half of 2019 Prague within its city limits accounted for 44% of all Czech transactions of residential development units[37]. The second largest city, Brno, has 10% share so together 2 largest Czech municipalities constitute more than a half of the whole new residential development transactions market in the Czech Republic.

Figure 20: Share of new apartment sales by cities, first half of 2019



Czech regional structure

Czech population is relatively dispersed across the country. While Czech statistics claim three-fourths of the Czech population is urbanized, according to the OECD Czech Republic is together with Denmark, Slovakia and Hungary least urbanized country in the OECD with one fourth of the population residing in urban areas and more than half of population in intermediate areas (OECD, 2018a).

To analyze functional structure of the Czech settlement we generally followed OECD methodology of defining Functional urban areas based on population density and commuting behaviour (OECD, Redefining "Urban", A New Way to Measure Metropolitan Areas, 2012). According to OECD methodology there are selected agglomeration cores (in the European case with a least 50,000 inhabitants and density over 1,500 residents per square kilometre) and their hinterlands. Municipalities belong to the residential hinterland if at least 15% of their working population commute to the agglomeration core. OECD Functional urban areas delimited in the Czech Republic are shown with a blue line on the following map.

In our commuting areas estimation we did not take the first stage of defining agglomeration cores and let arise agglomeration cores endogenously from the commuting flow pattern. We base our

[37] This index cover new residential development bulit after 1994 and transactions are both first sales from developers to households and subsequent re-sales between households.

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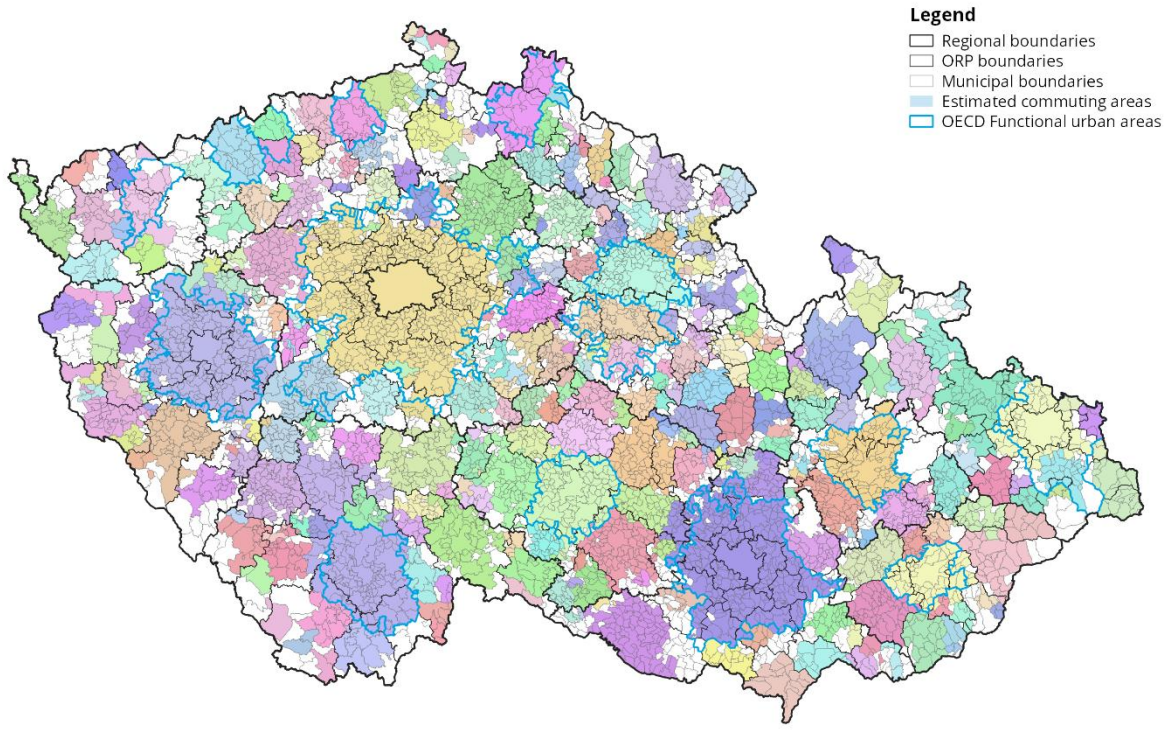
analysis on 2011 Census commuting flows data and we measure share of commuters on municipality population. This deviates from OECD methodology where share of commuters on working population is used. For that reason our threshold of commuter flow size is significantly lower than in case of OECD. We assume municipality belongs to commuting area of other municipality if at least 6% of population commutes there. If there are potential two targets of commuting with all having at least 6% share on municipal population, the municipality is assigned to the one with highest share. Then if from municipality that is target for commuting itself commute at least 6% of population to another municipality, then the source municipality including its commuting hinterland is assigned to the most central commuting destination.

The aggregation of commuting areas could be illustrated with simple example: There are small villages from which at least 6% of residents commute to local town, so these villages are commuting hinterland of that town. But at the same time at least 6% of resident of that town commute to nearby city, so the town as well as villages in its commuting hinterland are all classified as commuting hinterland of the city.

This approach enable to capture both large reach of the biggest metropolitan areas and at the same time smaller agglomerations of local towns that are prevalent in the Czech Republic. As it was already discussed before from the theoretical perspective agglomerations with larger footprint should have higher wages due to local specifics and agglomeration forces and these higher wages then increase prices of local housing to keep same level of common national-wide utility level.

Figure 21: Commuting areas estimation



OECD functional urban areas, oecd.org; © 2020 Deloitte Czech Republic

In total, the algorithm defined 306 agglomeration areas with the largest one, Prague, with population 1,912,000 followed by Brno and Ostrava with population 724,000 and 522,000 respectively. As there was no lower threshold for agglomeration size the smallest agglomeration defined has 141 residents, but very small agglomerations are rather exceptions as only 10 of them has population below 1,000.

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The results of commuting areas analysis confirm expectations. For instance large cities have on average larger commuting areas that especially hold for Prague, Brno or Pilsen. Special case of smaller city with large commuting area is Mladá Boleslav with its major employer in car manufacturing industry with expected high productivity and wages resulting in commuting area comparable to ones of significantly larger cities.

Detailed observation also show the difference between OECD Functional urban areas and estimated commuting areas are not large in areas where local towns are not present. In some cases these local towns that did not qualified as urban cores in the OECD analysis create their own agglomeration in our commuting areas. Such case is for instance Příbram to the south-west of Prague that is part of Prague FUA in OECD delineation but it has its own agglomeration in our spatial subdivision. The same case is Chrudim that belongs to Pardubice FUA, but it constitutes its own agglomeration in our analytical procedure.

The spatial scale of commuting areas also confirm presence of inner-periphery spanning from borders of Western Bohemian and Southern Bohemian regions, along southern border of Central Bohemian region to the southern part of Pardubice region. In these sites municipalities constitute mostly small agglomerations or are not integrated into agglomeration at all. This indicates limited employment opportunities that would offer wages high enough to compensate for costs related to commuting.

Although rigorous analysis of agglomeration areas is beyond the scope of this analysis we present several findings in a simple way that support theoretical assumptions empirical knowledge. First of these is a relation between agglomeration population and agglomeration hypothetical radius[38]. Due to the agglomeration economies of scale larger cities are more productive and therefore could provide higher wages. As a response these higher wages compensate for longer commutes and make workers to commute to the city from more distant locations. Therefore the higher population agglomeration has the bigger should be its hypothetical radius. This is seen on the graph below. It could be also observed some cities have relatively low or high hypothetical radius given their size and compared to others. This could be explained by more factors, such as relatively large city is surrounded by smaller ones that capture commuter flows from wider region not allowing a larger city to extend its reach. This is a case of Pilsen (Plzeň) lacking local larger competing towns and therefore reaching with its commuting area far into suburban hinterland. Another factor is competitiveness of local economy. If the agglomeration core does not have competitive high value-added well-paid jobs there is missing incentive to commute to these cities because wages are not high enough to compensate for costly commutes. This seems to be true as well. Stylized fact of lower economic development of Moravskosezský and Ústecký regions is aligned with results shown in this analysis. Cities and towns located in these regions, for example Ostrava, Ústí nad Labem, Most, Teplice and Karviná among others, are located on the top-left edge of the agglomeration cloud on the chart below. That means given their size their hypothetical radius is lowest among similarly sized other cities and town.

[38] Agglomeration hypothetical radius is calculated as a radius of circle with area equal to the area of municipalities within agglomeration. In other words agglomerations are thought to have circular shape.

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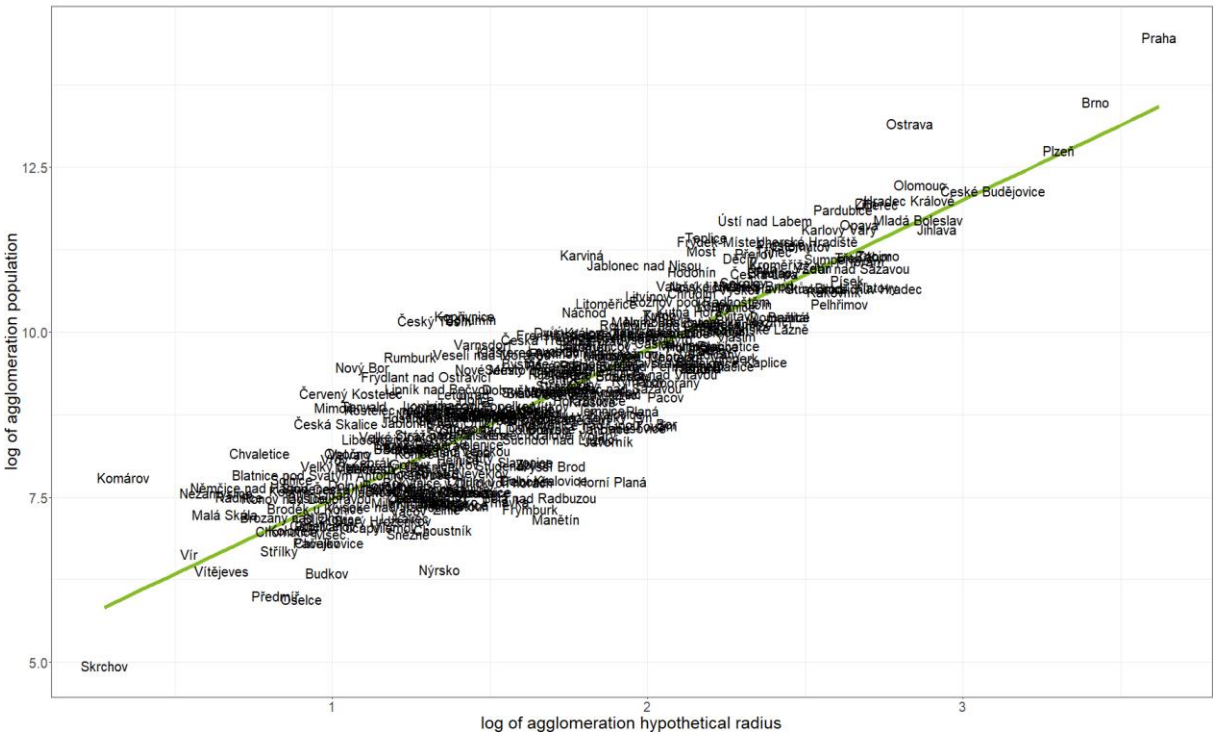
Figure 22: Czech commuting areas and their population



In the second step the theoretical prediction of positive correlation between city size and real estate prices is confirmed. First of all as a city is thought whole urban agglomeration and its size measured with hypothetical radius. It is also important to note the basic urban economics theory predicts land values to rise with city size (Fujita, Urban economic theory: land use and city size, 1989), but growth of residential real estate values is expectable under some additional assumptions. If we assume building at higher densities more costly, either due to the higher costs related to higher buildings, more demanding regulations in bigger cities or less predictable and lengthier processes in larger cities or any combination of these, property values will rise with city size. Additionally, according to basic urban economic theory, city size in terms of area is a function of its population. This is clearly seen on the previous plot as cities are located mostly close to the trend line. Due to the simplicity of argumentation regarding regulation constraints we will refer to population size when referring to city size.

The theoretic prediction of higher real estate values in larger cities could be easily illustrated. Under equilibrium conditions all (homogenous) households living in a monocentric city must achieve the same level of utility, otherwise they would relocate to other part of the city to achieve higher utility. They all work in the CBD and gain same wage, but some commute longer distances and some shorter because some reside closer to the city centre and some further away. Because wages are same and commuting is costly, real estate values fall with distance from CBD and decrease of real estate values is exactly offset by increase in commuting costs. Within this framework the value of real estate exactly in the city centre is given by agricultural value of land, costs of real estate construction and costs of commuting from the edge of the city to the city centre and from this centrally located properties the real estate values decrease towards the edge of the city. When considering larger city while all other parameters are equal (such as construction costs) the larger city must have average real estate values larger in all locations with respect to the distance to the city centre and has to have city limits further away from the CBD as it is shown on the figure below where agricultural value of land is assumed to be zero.

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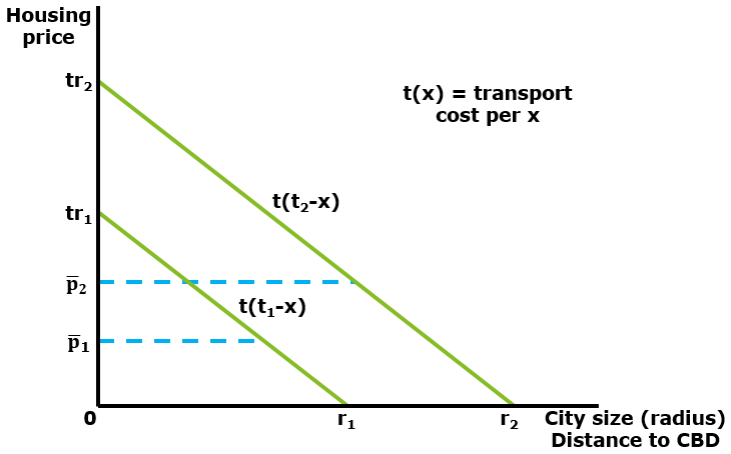
Figure 23: Real estate values with respect to distance to CBD and city size



The empirical evidence of rising property values with agglomeration size is shown on chart below. While there are obviously some outliers, most of cities are along the trend line. Small cities with high real estate values typically provide some specific valuable amenity like being located in mountains as it is a case of Rokytnice, Vrchlabí or Frymburk, having spa (Luhačovice, Poděbrady) or being reasonably close to larger agglomeration (Žebrák, Hořovice). Also high real estate values or otherwise relatively smaller Mladá Boleslav (in terms of population size of the core city) seems to be reasonable as is agglomeration population size is quite large due to its high productivity caused by presence of automotive industry.

The chart could be also interpreted as relative constraint to new residential development in each agglomeration, either physical or regulative. In case of physical constrains new demand cannot be met because for instance the agglomeration does not provide sufficient amount of land to develop that might be for instance case of agglomerations located in mountain valleys like Rokytnice. In case or regulative constrains these are mostly land-use controls that limit new construction. Therefore in high-demand locations, typically driven by competitive labor market offering relatively high wages, housing supply is relatively inelastic due to regulation and high demand for housing leads to higher prices.

On the chart below relatively constrained agglomerations are the ones above the trend line, in other words relatively more expensive than average given their agglomeration size represented by their population. According to this analysis Prague seems to be most constrained among the large cities followed by Brno, while Ústí nad Labem and Ostrava are least constrained. Other regional capitals and Mladá Boleslav are located within one cluster of above-average constrained cities. If regulative constrains were abolished cities would expand their population and achieve new equilibrium. On the chart below this would mean the agglomerations would move to the right towards the trend line. It is important to say this is highly simplified and there are other factors involved. For instance the regulative constraints are relative to local demand. While real constraints might be similar in regional capitals, Prague and Brno depart much further from the trend line because demand for housing is larger in these areas compared to other cities.

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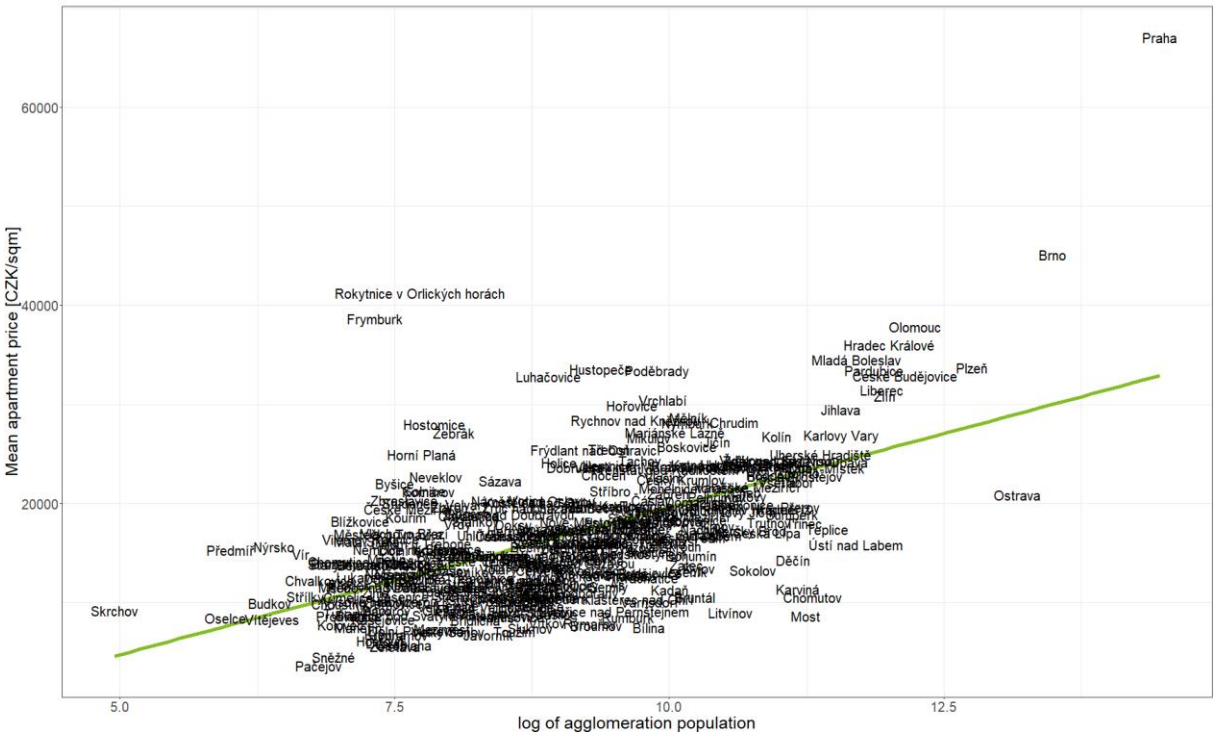
Figure 24: Housing prices with respect to commuting area size



The formed agglomerations were also tested whether they follow Zipf law[39]. When all 306 agglomerations are included the estimated slope is -1.41, far from expected -1. It is caused by high number of very small agglomerations that tilt the line to be quite steep and significantly depart from the large cities on the left side. On the chart below the Zipf law is constructed for agglomerations above 5,000 inhabitants that seems to be reasonable size of local town in a more remote area out of suburban area of larger town or city.

The Zipf's law for 200 agglomerations above 5,000 inhabitants has a slope -1.07 with standard error 0.015, much closer than previous estimation, but still significantly far from expected -1. Very similar result, -1.085 with standard error 0.015, is obtained when all 602 Czech towns and cities are analyzed. For a comparison slope estimated for US Metropolitan areas in 1991 is -1.005 with a standard error 0.01 (Gabaix, 1999). The result for estimated agglomerations show still relative overrepresentation of small agglomerations located below the trend line.

The plot also shows large cities are below the trend line. While Prague is only 0.11 units from trend line, Brno is three times further. This means large regional capitals are smaller in terms of population than they should be, at least according to the Zipf's law. The population threshold where agglomerations pass the trend line and become "larger than they should be" is at agglomeration population around 70,000 represented for instance by Most, Třinec, Přerov, Karviná, Znojmo and Tábor. Agglomerations are above the trend line up to the population of 10,000 and smaller agglomerations are again below the trend line. The pattern is similar when towns and cities are analyzed with large and small cities relatively underrepresented and medium cities overrepresented. In case of towns and municipalities analysis the range of overrepresented towns in terms of their population spans from 23,000 to 2,100.

[39] Zipf's law is a regularity found for urban settlements in various contexts. The Zipf's law describes size distribution of cities and predicts the log of population plotted against log of rank of the city in terms of its population should make a decreasing line with a slope equal to -1 (Holmes & Lee, 2010).

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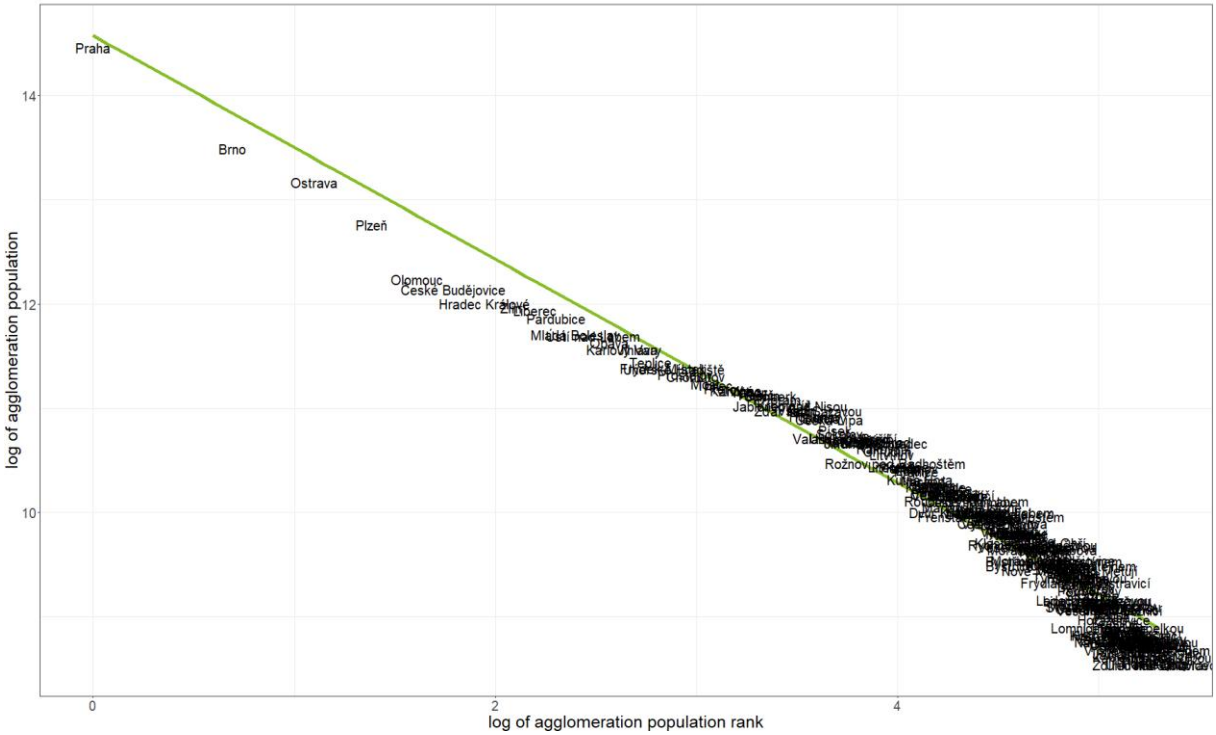
While the estimated slope of the trend line does not completely follow the Zipf's law the size distribution of agglomerations still seems convincing and does not show any significant deviation from expectations.

Figure 25: Zipf law, Czech commuting areas over 5000 inhabitants



Patterns of growth

Up to this point analysis has pointed out agglomerations differ in various aspects, but these aspects, such as property prices relative to population size, were shown in one point in time not taking into account they develop over time. The dynamic forces in Czech regional and urban structure exhibit several patterns and could be observed on the following figure showing population change as a fraction of total population on the municipal level between 2011 and 2017.

The dominance of Prague agglomeration as a focal point of Czech migration could be interpreted as a single point, because it is truly unprecedented on a nation-wide level. The growth of Prague agglomeration area is accompanied by growth of many of other regional main cities, such as Brno, Pilsen, České Budějovice, Hradec Králové, Pardubice and Liberec.

Second common trend is suburbanization that is higher population growth beyond the agglomeration core city limits in smaller municipalities located at the outskirts of an agglomeration compared to the core city itself. Rising suburbanization of Czech cities is for additionally mentioned by OECD (OECD Environmental Performance Reviews: Czech Republic, 2018) that also note the population densities in Czech cities are relatively low when comparing with other EU cities, but overall level of suburbanization is lower compared to the rest of the OECD countries. By mean population density of urban area Czech Republic ranks 19th out of 29 OECD countries. Specific feature of the Czech Republic is relatively low variation between individual urban areas. This is for instance similar in Denmark (20th in overall ranking), Switzerland (8th, much denser on average, but with similar densities across urban areas) or Austria (26th, less dense, but with similar densities across urban areas). Additionally, between 1990 and 2014 average urban population density in the Czech Republic decreased by approximately 10% (OECD, Rethinking Urban Sprawl, Moving Towards Sustainable Cities, 2018b).

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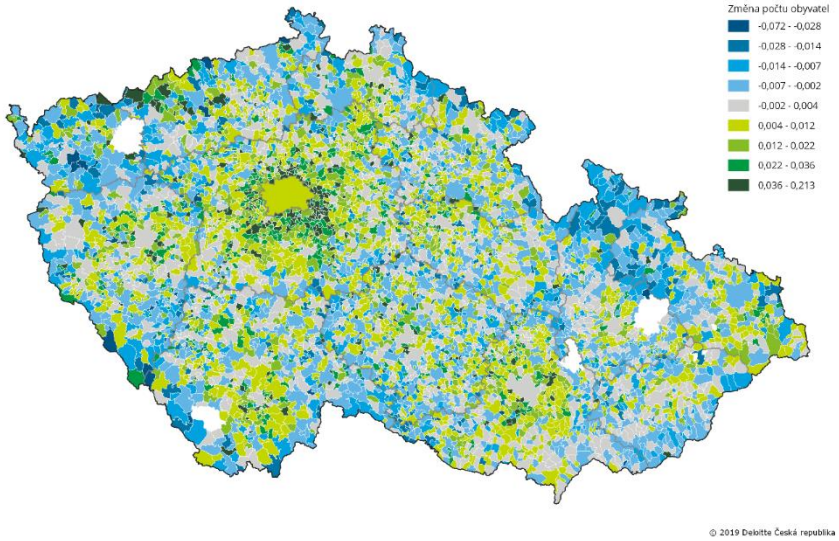
Finally, Czech Republic has peripheral areas in terms of growth. These are either predominantly hilly locations along the national borders or so called inner peripheries on some borders of regions, for instance between South Bohemian and Central Bohemian regions, and second type of stagnating or depopulating regions that are undergoing economic transition from former dominant mining and heavy machinery industries. These are for instance represented by cities Ostrava and Ústí nad Labem.

Figure 26: Population change, 2011-2017



The next chart shows detailed patterns of growth among 143 individual Czech agglomerations with 2011 population above the threshold of 10,000. Main characteristics shown on the plot are average annual population growth between 2011 and 2018 in percent on the horizontal axis. On the vertical axis is shown the difference between population growth in the same period outside of the core municipality of the agglomeration and population growth in within the core municipality of the agglomeration. Therefore the higher on the plot agglomeration is located, the more agglomeration grew in its suburban hinterland compared to its core municipality.

For instance Prague agglomeration grew on average 1.08% annually in the period, while its suburban area grew by 1.66% annually compared to Prague municipality that grew by 0.77%. The difference between suburban and municipal growth result in Prague case to 0.89 percentage points that are plotted on the vertical axis. Resulting positive number indicates the suburban area grows faster.

The plot shows almost all growing agglomerations above 10,000 inhabitants exhibit faster growth in suburban areas compared to core municipalities and almost all depopulating agglomerations depopulate faster in the core municipalities compared to their suburban areas. Limited number of agglomerations showing opposite trend is rather exception.

Additionally the plot shows initial distribution of population between core municipality and its suburban area. Red colors refer to high share of population living outside of the core municipality and green colors refer to low share of residents living outside of the core municipality. Growing agglomerations located to the right of the vertical black line are more likely already more suburbanized. In case of depopulating agglomerations higher rate core municipality depopulation is found for agglomerations that are not yet so much suburbanized.

This analysis therefore show suburbanization is not only present in growing regions, but similar trend is present in declining agglomerations where central cities depopulate faster and resulting agglomeration structure relatively more dispersed. Moreover in case of depopulating

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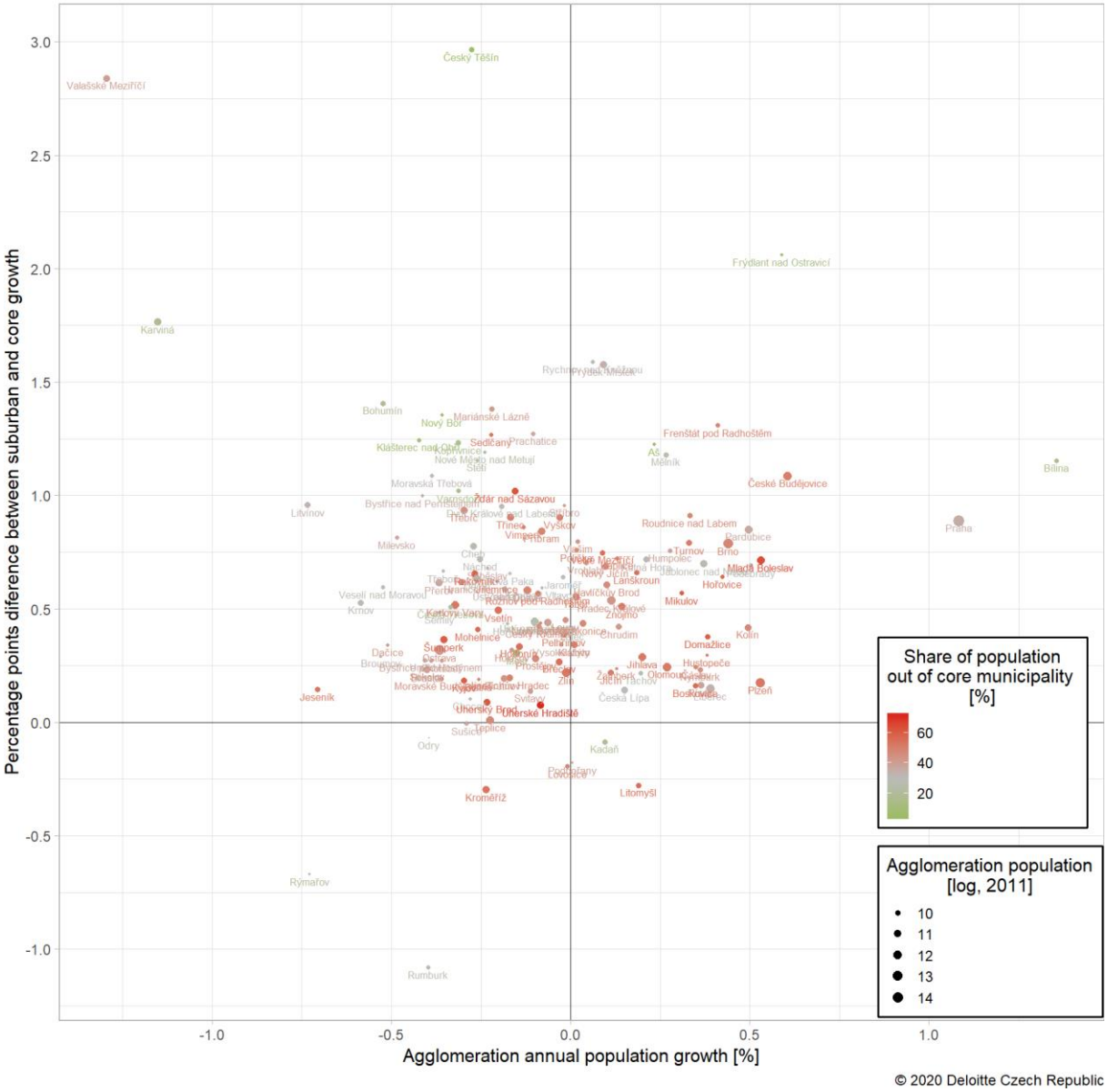
agglomerations initially more compact agglomerations seem to converge faster towards less compact disperse settlement.

Figure 27: Suburbanization and growth trends, agglomerations above 10,000 residents



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In the following part attention is focused on agglomeration growth rate with respect to initial agglomeration population. According to the Gibrat's law, another empirical regularity along with Zipf's law, agglomerations' growth rates and their variance should be independent of initial agglomeration size (Holmes & Lee, 2010). It is a reasonable assumption this might not hold for countries undergoing economic transformation like the Czech Republic where transition towards service based economy leads to more urbanized settlement. Nevertheless when Gibrat's law was tested for post-socialistic countries the results of many specifications supported presence of Gibrats's law (Necula, et al., 2010). These results might be partly driven by taking into account only cities above 100,000 inhabitants in some specifications and also by limiting the analysis to core municipalities themselves. But as it was shown in previous parts majority of agglomeration growth in the Czech cities appears in their suburban hinterlands that are not included in common statistics. Although we employ very simple model where growth rate between 2011 and 2018 is explained by initial agglomeration population we find larger agglomerations grow faster on average. When all agglomerations are tested we find the growth of 10% initially larger

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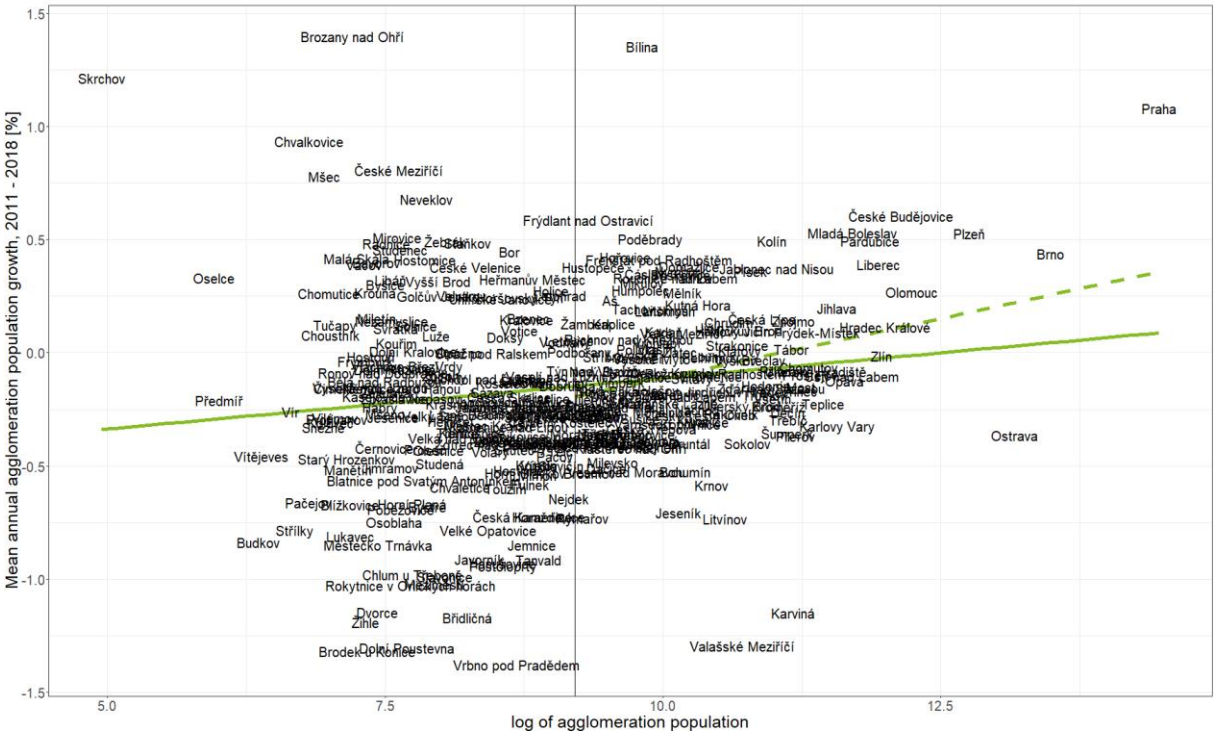
agglomeration is larger by 0.002 percentage points on average. When only 143 agglomerations above 10,000 inhabitants are tested the result is 5 times larger in magnitude with 0.01 percentage point faster growth associated with 10% larger initial population[40]. The first specification is plotted with solid green line while the second specification with agglomerations above 10,000 inhabitants is plotted with dashed green line. The threshold of initial 10,000 population is shown in the plot as vertical black line. It could be observed the variation in growth rates for these agglomerations below 10,000 is significantly higher compared to agglomerations above the given threshold.

Figure 28: Population growth rate with respect to initial agglomeration size



Agglomerations' structure

In the previous part it was documented majority of Czech agglomerations are suburbanizing, no matter whether their population grow or decline. If few assumptions are imposed this trend could be explained with urban economics theory. First of all housing space is assumed to be a normal good whose consumption rise when income rise. Literature finds these elasticities to be below one, 0.36 to 0.87 for home-owners and with values slightly lower for renters. Hansen, Formby and Smith estimated housing income elasticities of housing on US data for different income categories and found the elasticity to rise with household income. For instance for a median-income family the income elasticity of housing demand is approximately 0.55 for owner-occupied housing and 0.35 for renters (Hansen, Formby, & Smith, 1996). It is important to note the income elasticity of housing demand express the overall willingness to pay for a housing service that contains housing size, amenities value and proximity to central location. As a consequence, the increased budged caused by income growth will not be completely spent on bigger apartment or house, but share of it will be spent on better location. Based on these findings when population is fixed and real wages grow we should expect increase of demand for housing space that leads to a new construction. Moreover, if we simplify the case and assume the income elasticity of housing size to be 0.2, there still should be a demand for new construction if real wages grow 5 times more than population declines. For example if local real wages grow by 2%, there might be population decline up to 0.4% and there should be still demand for a new construction.

[40] Both specifications are statistically significant on 95% level using robust standard errors.

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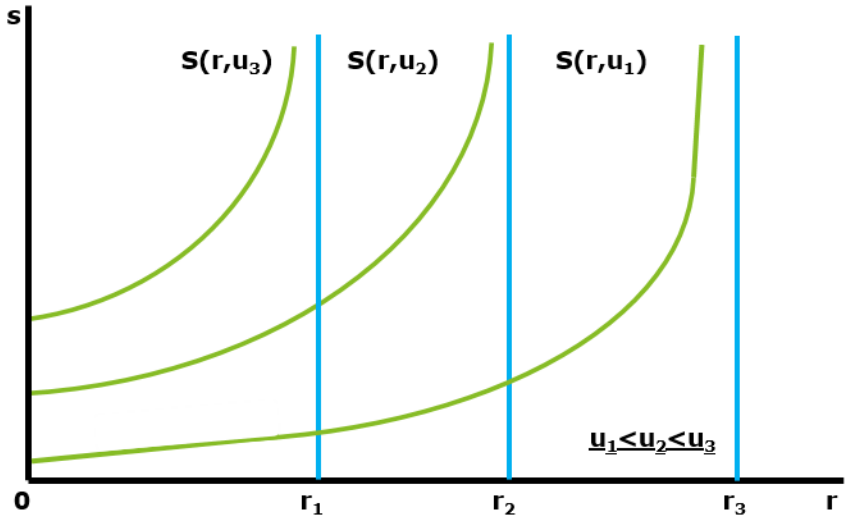
When demand for housing grows it is met by new construction. This new construction appears on the city edge, but also due to the increased land values there is a pressure for intensification of the already built-up urban area and therefore new buildings within the existing city are built with higher land-use intensity or more floors in other words. Therefore rising demand for housing leads both to city intensification and extension all else being equal. All else being equal is a crucial condition because it is not likely the case in the Czech Republic in recent decades.

In the very simplified model households derive their utility from consumption and housing size[41]. As commuting to the city centre is costly the further away housing is from the agglomeration centre the cheaper it is. As a result to obtain maximum possible utility households choose between shorter commutes and smaller residences and longer commutes and larger residences. This is shown on the chart below for three different level of utilities that might be thought as different incomes, where income 1 is the smallest and income 3 is the biggest. This plot describes well detached houses where plot size is of crucial importance. For instance if we look at the lowest curve responding to utility 1 we could observe only very small plot could be bought close to the city centre and a reasonably large plots are far away close to the distance r_3. When utility (income) of a household is larger it could afford same-sized plot closer to the city centre. This plot does reasonably well to illustrate distance and plot size choice of detached houses for heterogeneous households in terms of their income, but it fails to illustrate the situation of a long-term economic growth, rising demand and fixed amount of land. If all residents live in detached houses and income rise for all of them they all cannot afford more land in the same location, because land is fixed. But if the model is adjusted and used for multi-units apartment buildings then it respond to this issue because as economy and income grows the land-use is intensified and therefore residents could have more space in a same location due to taller buildings.

Figure 29: Lot size curves with respect to the distance to CBD
According to Fujita (1989)



The theoretical background therefore predicts the rent should decrease with increasing distance from the CBD and housing size should increase with rising distance to CBD. These theoretical assumptions are easily testable. Following two plots show the relationship for 15 Czech largest agglomerations based on listed real estate offers on major web portals. The first plot is for detached houses and the second for apartments.

[41] In the simple monocentric city model all homogeneous households commute to the city centre where they obtain the same wage and they spend this wage on consumption of general good, housing rent and transportation costs (Fujita, Urban economic theory: land use and city size, 1989). As more remote areas are reachable with more costly commuting the rent must be lower there and households face option to trade-off longer commutes for larger housing or vice versa.

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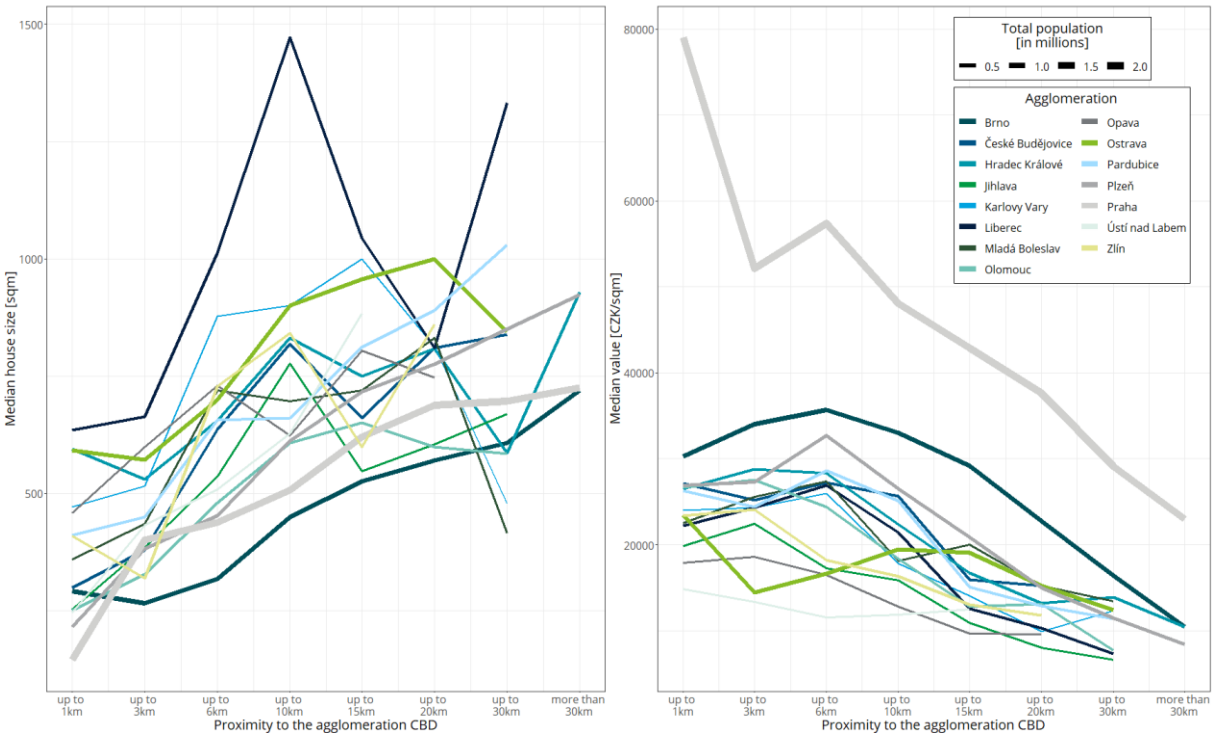
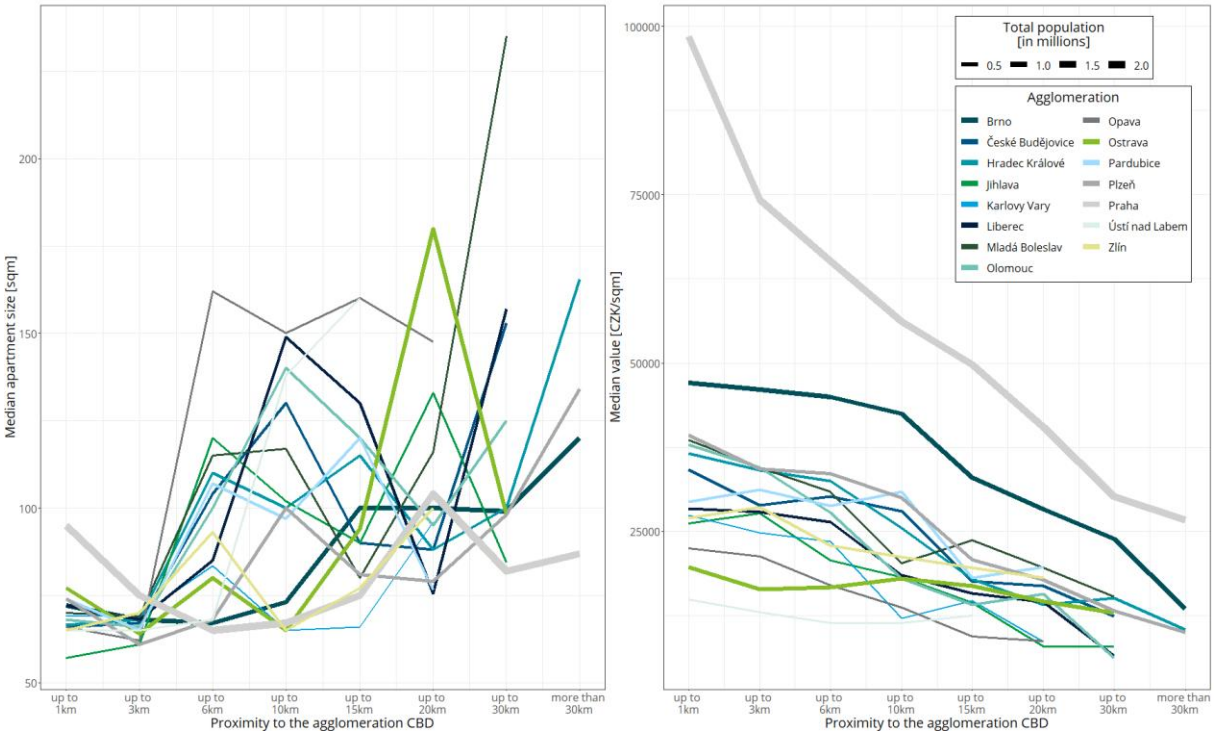
The figure for detached houses confirm expected trends. We can also observe median plot sizes in largest agglomerations are smallest and prices highest given their distance to the CBD.

Figure 30: Median detached house plot size and price with respect to distance to the CBD



The figure for apartments follow similar with minor deviations, for instance relatively high median size of apartments in central Prague. This could be explained either by specific rental market or sorting of relatively well-off residents who could offer both housing size and proximity to CBD.

Figure 31: Median apartment size and price with respect to distance to the CBD



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At this point the effect of transportation costs could be explored. If transportation costs decline the optimal household location is further away from the agglomeration centre because households could consume more housing there as land and real estate prices are lower further away from the central locations. In the long term this seems to be the case. The decline of real prices of transportation is documented both in long term and medium term. For instance between periods 2000-2004 and 2005-2009 share of all modes of transportation on households' budgets decreased in all East European post-communist countries (with exception of Latvia), in case of the Czech Republic from 26% to 19% (Redding & Turner, 2015). Although this measure show not costs decline, but expenditure on a service decline, it is highly expectable it is driven by real costs decline rather by reduction of transportation consumption. The costs reduction are likely to be driven by higher economic growth compared to changes of real prices of transportation – public transit fees, automobiles, fuels and service costs. Second channel of transportation costs reduction is via indirect costs as the public sector has largely invested into improvements of road infrastructure and therefore made commuting faster and more convenient. As a result the trend of decreasing costs of transport lead to more dispersed population we observe.

Up to this point the process of suburbanization was captured through households' location and their flows from agglomeration cores to the agglomeration hinterlands. But the process of suburbanization holds to some extent for firms as well. For instance suburbanization of firms in the US is well documented. According to the 2000 US Census the majority of commutes were within suburbs with 43%, followed by commutes within central city with 28% and then suburbs – central cities commutes with 20%. The reverse commutating from the central city to suburbs accounted for 9% of commutes (Anas, 2012). From the theoretical perspective the rationale for suburbanizing a firm's location arise when firm maximizes its profit outside of the city core. The city core is assumed to possess localization and urbanization economies increasing productivity of each individual firm that pays wage to its labor force commuting from the city outskirts. Alternatively, firm might locate in a suburb where localization and urbanization economies are lower leading to lower productivity and wages, but at the same time land rents and commuting costs for workers are lower and therefore does not have to be compensated through wage. In a simple framework it might pay-off to firm to suburbanize either if its urbanization and localization externalities in the city core are low (does not increase productivity very much), or firm is operating in a land-demanding industry, or large share of working force reside in suburbs, or any combination of above mentioned. Detailed discussion with theoretical framework is for instance provided in Fujita, Thisse, & Zenou (1997). The suburbanization of firms in the Prague area was studied by Krejčová (2014) who between 2010 and 2012 surveyed firms residing in the Prague agglomeration suburbs to investigate their main reasons for suburban localization. The composition of firms regarding their business was as follows: majority of firms, 52, belong to either manufacturing or construction, 28 belong to services, but 14 out of them to transport and logistics. The most frequent reasons why to locate in agglomeration suburbs were large spatial needs hard to satisfy in Prague municipality and low real estate prices, good connection to highways and proximity to residences of owners, managers or employees. These replies are consistent with theoretical predictions described above. Also majority of surveyed firms belong to manufacturing industries and logistics so they do not benefit so much from residing in the city core because they do not have so large urbanization productivity elasticity. To provide rough estimates of the elasticities Graham (2009) estimated urbanization elasticity for firms in services to 0.19 while for firms in manufacturing only to 0.07. Therefore firms in services benefit much more from localization in agglomeration cores. As a response manufacturing firms are expected to locate away from dense areas where they are likely not able to compete with service-oriented firms that benefit there from higher urbanization economies elasticity. The composition of firms oriented more towards manufacturing surveyed by Krejčová supports this argument.

Conclusions

On the national level there is a clear pattern of concentration into agglomerations of large cities, especially regional capitals. This is a result of gradual shift in the structure of national economy as well as potentially transition towards market equilibrium population distribution

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from previously centrally planned economy that sub optimally kept population more dispersed.

Recommendations

On the national level spatial planning system in coordination with regional development strategies and transportation planning should outline joint plan of efficient and desirable spatial development.

Development coordination in growth regions, planning (transport) relations between core and new development, requirements of public transportation or intermodal changes to capacity railways.

Steady state and depopulation management, innovative ways of public amenities provision in sparsely populated regions, good practice from sparsely populated Member States, and emphasis on environmental protection, agriculture and recreation.

5.2. Development attractiveness

To assess whether a particular region is attractive for a new development we analyze the ratio between local residential real estate value and reproduction costs that means the minimum cost at which profitable new development could be constructed.

The simplest interpretation of this analysis is whether reproduction costs are lower or higher than local real estate value. If the reproduction costs are lower than local real estate value then it is profitable to build new units in such a place and new development should occur there. But when reproduction costs are higher than local real estate value then it is not profitable to build new units in such locations. The reason why we observe some locations to have reproduction costs higher than actual real estate value is due to the employment and productivity dynamics over time and across regions on one hand and durability of the housing stock on the other. While some regions were competitive in the past and they built appropriate amount of housing, they might lose their competitiveness over time and depopulate and the depopulation decreases local demand for housing. On the supply side, as housing is durable, it does not immediately decrease in amount when demand decreases and for that reason to maintain equilibrium the price of existing housing stock must decrease below reproduction costs. More details could be found in Housing supply heterogeneity and urban decline in Cities, Agglomeration and Spatial Equilibrium (Glaeser E. L., 2008).

In this analysis this measure of local attractiveness will be presented in the scale of POU across the whole area of the Czech Republic. The first analysis result divides the country into 3 specific regional types: The first one marks areas with real estate value level significantly higher than reproduction costs. These regions are in general attractive for new development for various local reasons, especially for good accessibility of quality labor markets and high amenity standards. The other type are areas where reproduction costs significantly exceed local real estate values. These regions are currently unattractive for new development and further analysis show whether trends indicate stagnation, improvement or further depression. The last type of regions are those where reproduction costs are very similar to local real estate values, in particular within 15% threshold. In the case of the last type of regions recent population dynamics could indicate whether they move more towards the attractive regions or towards the depressed regions.

The current real estate values are derived from sales offers published on major real estate web pages. The estimated price level is for existing buildings so the new development is not included in this part. Based on past analyzes offer prices are reduced by 10% as some of them are never realized and in some cases bargaining between buyer and seller could decrease price. To capture complete cost of purchasing new property from the buyer's side it is also necessary to include 4% property transaction cost that increase the property price. The final adjustment of the real estate value converts value of existing apartments into hypothetical new development. The current real

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estate values per square meter are calculated separately for apartment houses and detached houses, but the method is the same for both typologies. The price adjustment is done for each individual transaction. The aggregation for the whole POU are is done later on the analysis. The data used for this analysis are from 2018 and cover the whole area of the Czech Republic.

The reproduction costs are derived as minimal price at which it is possible to deliver new housing development. As a baseline values, costs listed in the 'Cenové ukazatele ve stavebnictví pro rok 2018' ('Price indexes for construction in 2018') are used (České stavební standardy, 2020). These values are listed as a price per cubic meter of built-up space so we first multiply them by average construction height that is 3.2 meters for apartment buildings and 3 meters for detached houses. As this value is per gross floor area while apartments and houses are traded on net floor area basis further adjustment is needed. In case of apartment buildings the price is divided by 0.75 as 0.25 is on average size of common utilities such as elevators and stairs and load-bearing structure. In case of detached houses the price is divided only by 0.92, because detach houses do not contain this shared spaces. Resulting values are increased by 15% of project soft costs and additional 15% of developer's mark-up. Finally the new apartment or detached house are subject to VAT that is 15% for majority of the market (higher rate is imposed on exceptionally large apartments and houses).

In the next step, each adjusted real estate sales offer price is divided by estimated reproduction costs. Reproduction costs are for simplicity the same across the Czech Republic. This simplification is done because it is not necessary to include land values that otherwise significantly affect development costs. Omitting land values is based on theoretical assumptions taken for the sake of simplicity from monocentric city model[42]. In the monocentric city model the land value beyond the city edge is equal to its agricultural value, because it is so distant from the CBD that nobody would reside there and therefore the place is not developed and the only way how to extract its value is to use it for agricultural production. As the value of the agricultural land is very low compared to land used for development it is assumed to be zero. In case of this analysis the situation of depressed areas with property values lower than reproduction costs is comparable to locations beyond the city limits in the monocentric city model because in both cases it does not pay-off to build new development there and therefore all land has its marginally low value. As one approaches to agglomeration there is a border, where it does not make difference to either use land for agriculture or to develop it. Such a border in our analysis is a place where reproduction costs of construction are equal to local real estate values. From this border towards the CBD the land value start to increase above its agricultural value, but to define the border it is not necessary to know the value of developable land.

[42] The monocentric city model is highly stylized representation of actual cities assuming all jobs are located in the CBD in one point and all residents live in households surrounding this one point and regularly commute only to the CBD. Despite this crucial simplification the model give some useful predictions for instance about land-use density with respect to the distance from CBD. Classical monocentric model is presented for instance in Fujita (1989).

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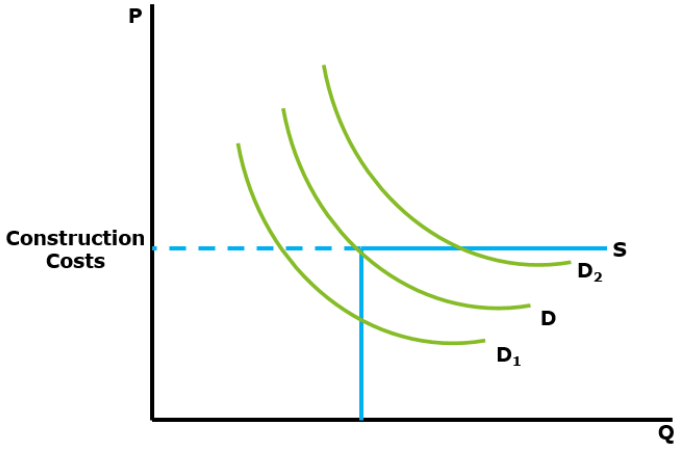
Figure 32: Supply and demand in shrinking cities
According to Glaeser (2008)



When ratio between adjusted offer price and reproduction cost is calculated the individual observations are aggregated to the spatial unit of POU. The aggregation is done jointly for apartments and detached houses and then separately for each category.

According to the distribution of the results we have divided individual POUs into four categories: With high reproduction index where real estate values exceed reproduction costs by more than 10%, then POUs with medium index where property values are within the range of plus-minus 10% around the reproduction costs, low index is assigned to POUs which have their property values between 60% and 90% of reproduction costs. The remaining POUs are considered to have very low index. In the following analysis we consider locations to be especially attractive for new development if they have their index larger than 0.6. Although such a value is deeply below estimated reproduction costs it seems reasonable to include these locations for two reasons. First, it is due to possible imprecisions when estimating development reproduction costs and secondly due to expected site-varying reproduction costs set based on nation-wide average that might exceed levels prevailing in less developed regions.

The first map shows combined index for both apartment and detached houses residential units. The main pattern confirms prime position in terms of development potential of Prague and Brno agglomerations. Other regional capitals and typically part of their suburban hinterland is also attractive. Exception to the rule are Ostrava and Ústí nad Labem that does not show development potential measurable with this approach. Besides regional capitals there are few other locations showing development potential: These are either areas with competitive jobs in automotive industry in Mladá Boleslav, Kolín, Rychnov nad Kněžnou (Kvasiny) and Frýdek-Místek (Nošovice) or sites with specific local amenities, mostly mountains recreation resorts.

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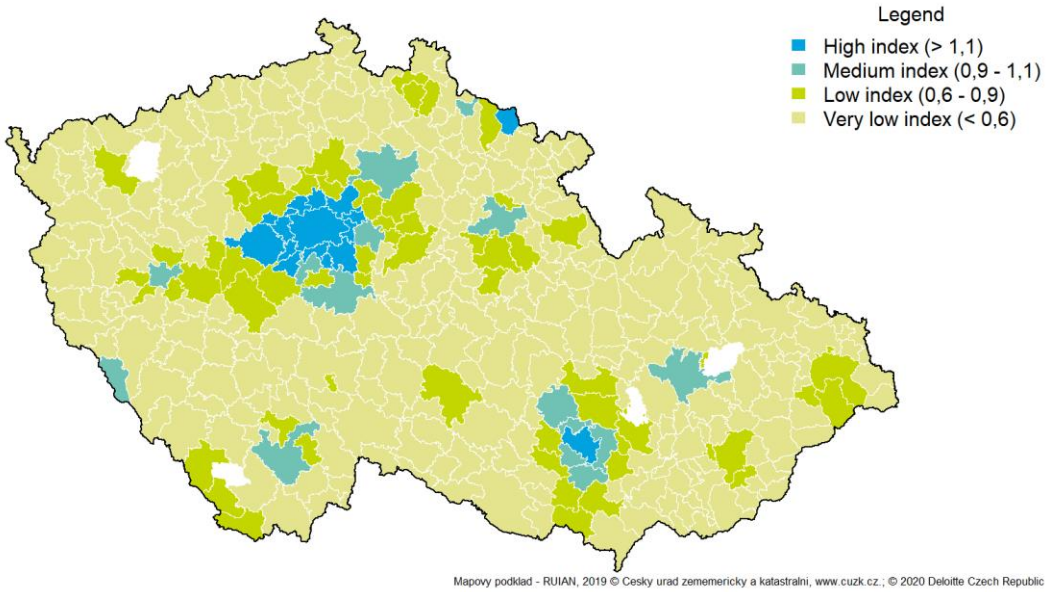
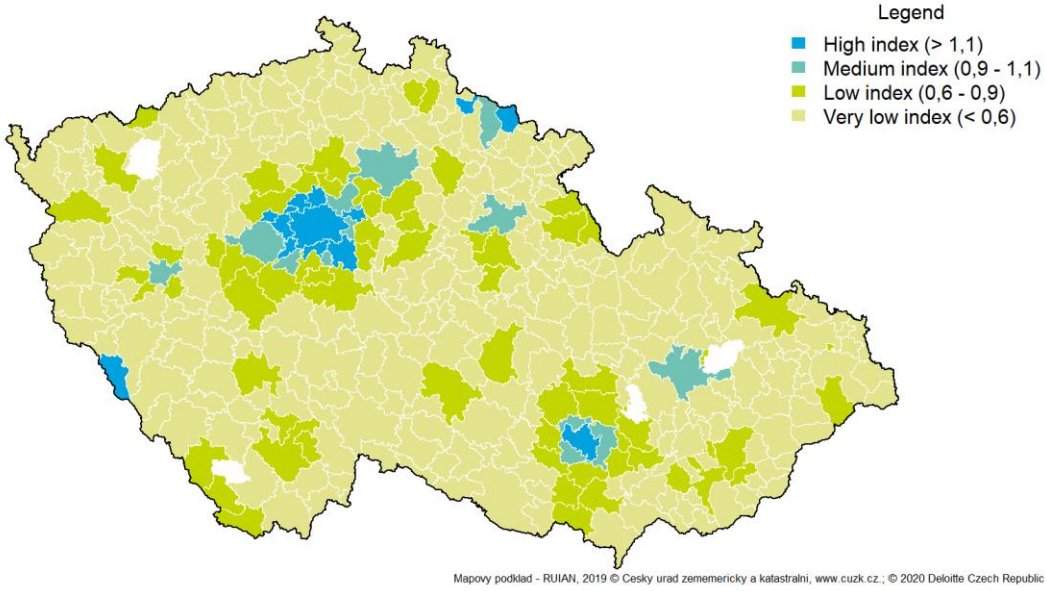
Figure 33: Residential development reproduction index



Although results for individual indexes for apartments and detached houses are not significantly different from combined index, they have some interesting features. The apartment development reproduction index compared to combined index does not reach that far with its magnitudes both for Prague and Brno agglomerations showing relatively weaker development potential for apartments in their suburban areas relative to detached houses. Apartment development index also reveal some additional minor local towns to be attractive for apartment development, such as Opava, Písek, Jičín and Žďár nad Sázavou. Also some towns located in mountains with high amenity value have a significant apartment development potential.

Figure 34: Apartment development reproduction index



Separate index for detached houses confirms high attractiveness of detached-houses development potential around core municipalities of most of agglomeration capitals, especially Prague and Brno.

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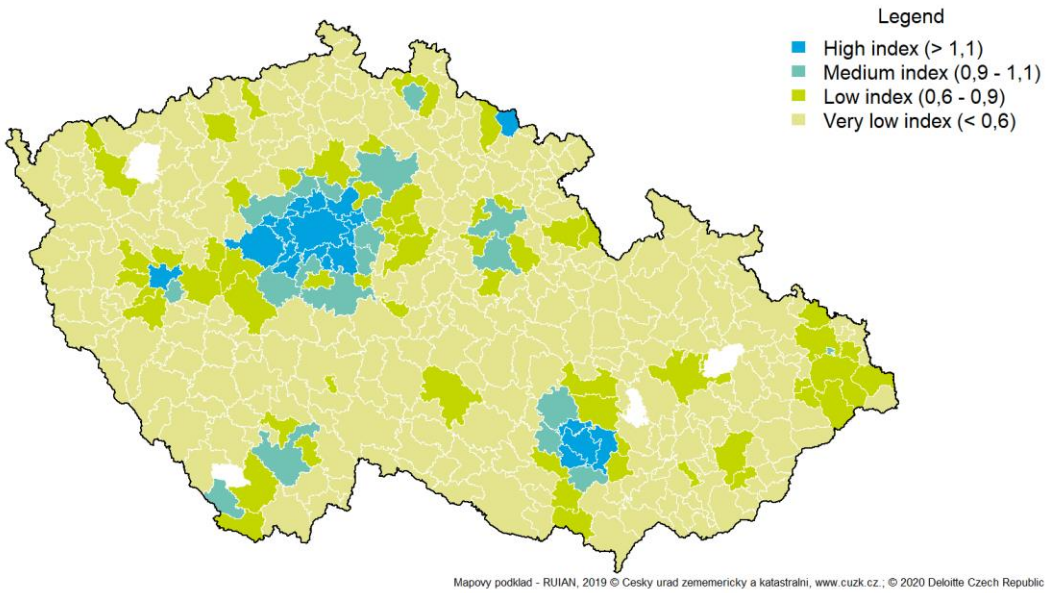
Development potential for detached houses is also in Ostrava region where attractiveness in case of apartment and combined indexes was below 0.6 threshold. This supports previous findings that this otherwise stagnating or slightly depopulating region still experience suburbanization processes towards less dense individual-housing based settlement.

Figure 35: Detached house development reproduction index



Differences between apartment index and detached houses index for each POU are shown on the following plot. The diagonal blue line defines areas where both indexes are the same. Almost on hat line are for instance located Prague and Brno, two largest residential markets in the Czech Republic. This result confirms the relative relations between estimated reproduction development costs and residential properties values for both apartments and detached houses are set properly, because especially on these large residential markets relative higher attractiveness of either one or second segment of properties would be soon smoothed via market forces and resulting prices.

The plot also shows in colours resulting index for each POU. The colour coding is the same as used on previous maps, blue marking high index and then going through teal, darker green to light green that marks very low development potential. It is important to note this division into four groups on the plot is a good approximation reasonably close to the trend line, because final indexes are weighted with respect to the share of detached houses and apartments on their markets while on the plot same share is for simplicity assumed.

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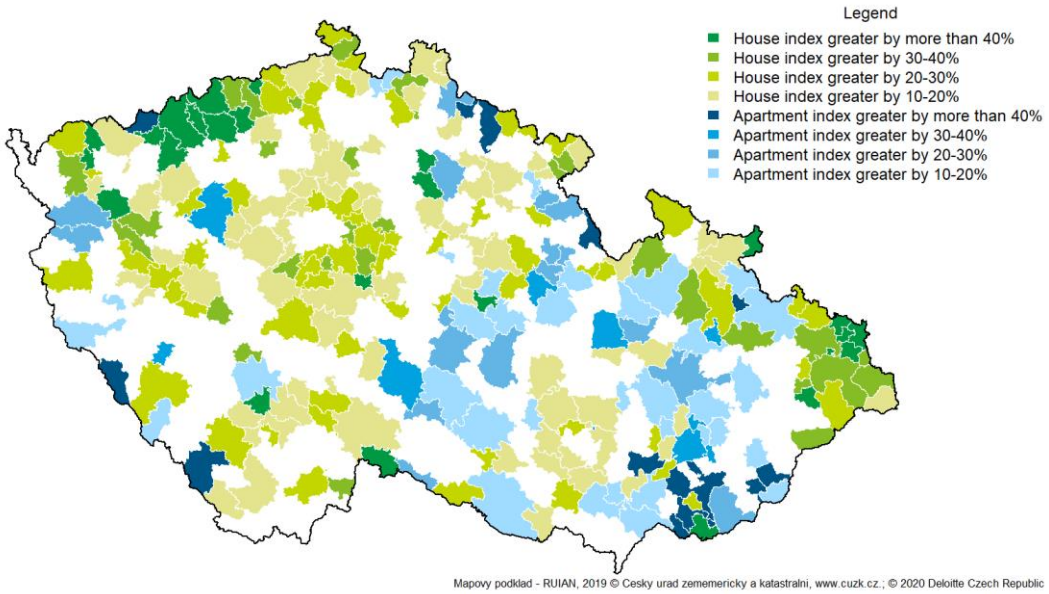
Figure 36: Relation between apartment and house reproduction index

The relation between apartment index and detached houses index is shown on the map below. The darker green colour is the relatively higher is detached houses index compared to apartment index. The opposite holds for apartments and is shown in blue colours. In white regions both sub indexes does not differ significantly.

The maps show relative higher potential for detached houses construction around major agglomeration cores. Also post-heavy-industry regions Ústecký, Karlovarský and Ostrava area have in common relative higher potential of detached housing compared to apartments. It is unclear what is underlying reason of this pattern, but it might be related to relatively abundant apartment housing stock largely available due to depopulation that pressure apartment prices low and at the same time low amenity value of local towns and cities that rather motivates to leave for suburbia.

Figure 37: Deviations between apartment and house reproduction indexes



In the next step results are aggregated to the ORP units and compared with number of completed housing units in the last 5 years. This show the lower is the Development attractiveness index

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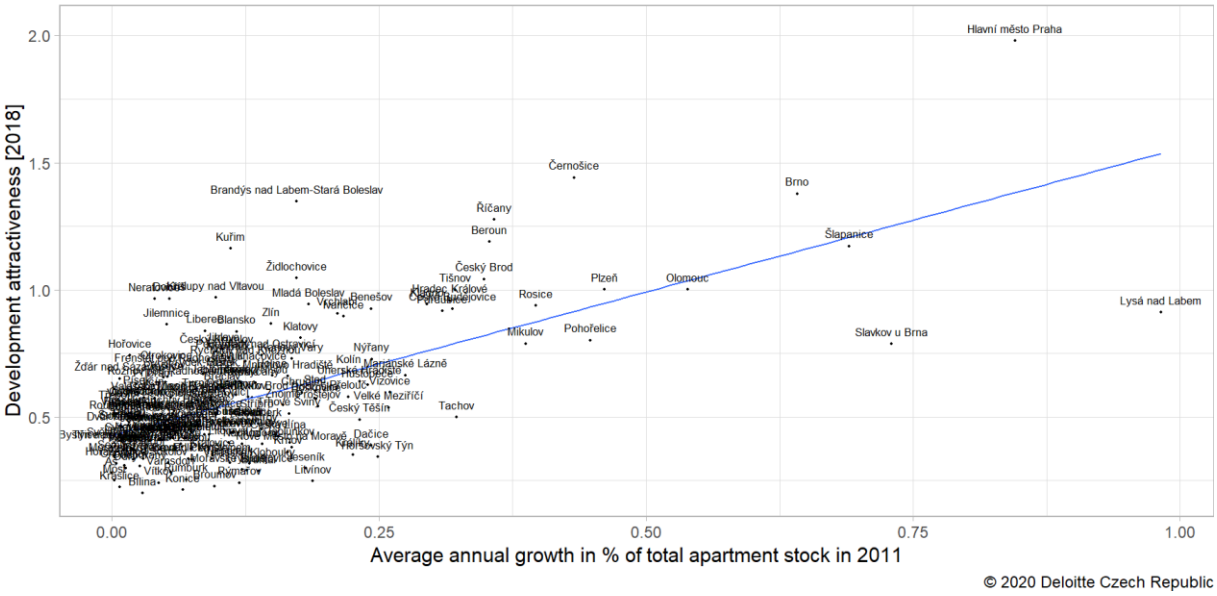
below one the lower is number of completed dwellings as a fraction of the whole housing stock. For the ORPs with the index above 1 the results are ambiguous as some cities are more restrictive in permitting processes and therefore their index is higher while apartments' growth rate is low. The plot below shows there is a clear trend revealing the higher is the development attractiveness index the higher is actual new construction. Also the deviation above the trend line points on relatively more constrained markets.

Figure 38: Development attractiveness index and new construction



Conclusions

Agglomerations surrounding major Czech cities are typically attractive for the new development. The exception are structurally disadvantaged regions Ústecký, Karlovarský and Moravskoslezský that recover from past coal-mining oriented industry.

Another type of unattractive areas are those located in national inner peripheries along regional boundaries and special case are Jeseníky Mountains (Eastern Sudetes). These areas are sparsely populated and lack connection to larger agglomerations.

Recommendations

Spatial planning objectives on all levels should reflect the current situation of given areas and their expected future development trajectory.

5.3. Planning stringency

The analysis of planning and permitting stringency is based on approach shown by Gyourko and co-authors in their investigation on housing supply and dynamics of income heterogeneity across the United States (Gyourko, Mayer, & Sinai, Superstar cities, 2006). In this analysis they measure the annual housing appreciation and annual housing units' increment over the period of 20 years. The average annual housing units' increment divided by average annual real housing appreciation (net of inflation) could be thought as a proxy of elasticity of housing supply, in other words percentage change of housing size when price of housing increase by one percent.

This measure unveils how local housing markets respond to demand for housing. As an example there are four limiting cases that are results of combination of low and high housing value appreciation and housing increment. When real housing prices stagnates so as the housing construction, then the region stagnates as well and there are no pressures for the new construction. This is for instance a case of post-industrial regions. Then there is a case when

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housing prices rise significantly while new construction increase is low. This is a case of attractive and regulated cities that are unable to provide enough housing to respond to strong demand. The opposite case are cities that are very flexible in building new housing when it is demanded and these cities are typical for low housing price growth and high population increases. These examples are not common in the Czech Republic, but it is a case of Houston or Las Vegas to list some. The last possible combination is high increase in both population and housing prices. This scenario seems to be unlikely as high production of new housing should saturate demand and push prices down.

In this analysis apartment and detached houses offer prices from major real estate web pages are used together with completed housing units data provided by the Czech Statistical Office (CSU). Apartments and detached houses prices per square meter are separately aggregated to ORP units for whole years of 2014 and 2018 and from these two points in time the average housing appreciation is calculated. The rate of increase of the housing stock is computed for the same four years long period. While the period is short, it should provide some indices to what extent are market responsive to price changes across the country.

The following plot summarizes this analysis. On a first glance it could be concluded the trend is not the same is it was found for the US by Gyourko, Mayer and Sinai. While they were able to clearly identify constraint regions with low units growth rates and high appreciation and unconstraint attractive regions with low price growth and high growth of built new units, the case of Czech Republic shows rather stable price growth in a range from 40% to 50% over the study period for desirable places and on average lower price growth in areas where fewer new units is built. This is aligned with standard economic theory that assumes the supply should rise with rising prices. As a result it seems there are not yet constraints that would limit high-desirable places from further growth that would translate into significantly higher price growth. At the same time this might be at a costs of strong suburbanization trends as core cities add lower shares of new construction and more development occur beyond their city limits.

The second finding is the overall level of planning stringency s high. It seems there is not so much of inter-municipal variation in planning stringency. It was confirmed during the interviews many municipalities has zoned vast areas of land for development so there should be no real lack of zoned developable land, but it seems problems arise in the next steps when individual stakeholders obstruct new development making processes longer and less predictable. It is argued in following analysis the less predictable permitting process is and the longer it is the lower is new construction supply and higher real estate values.

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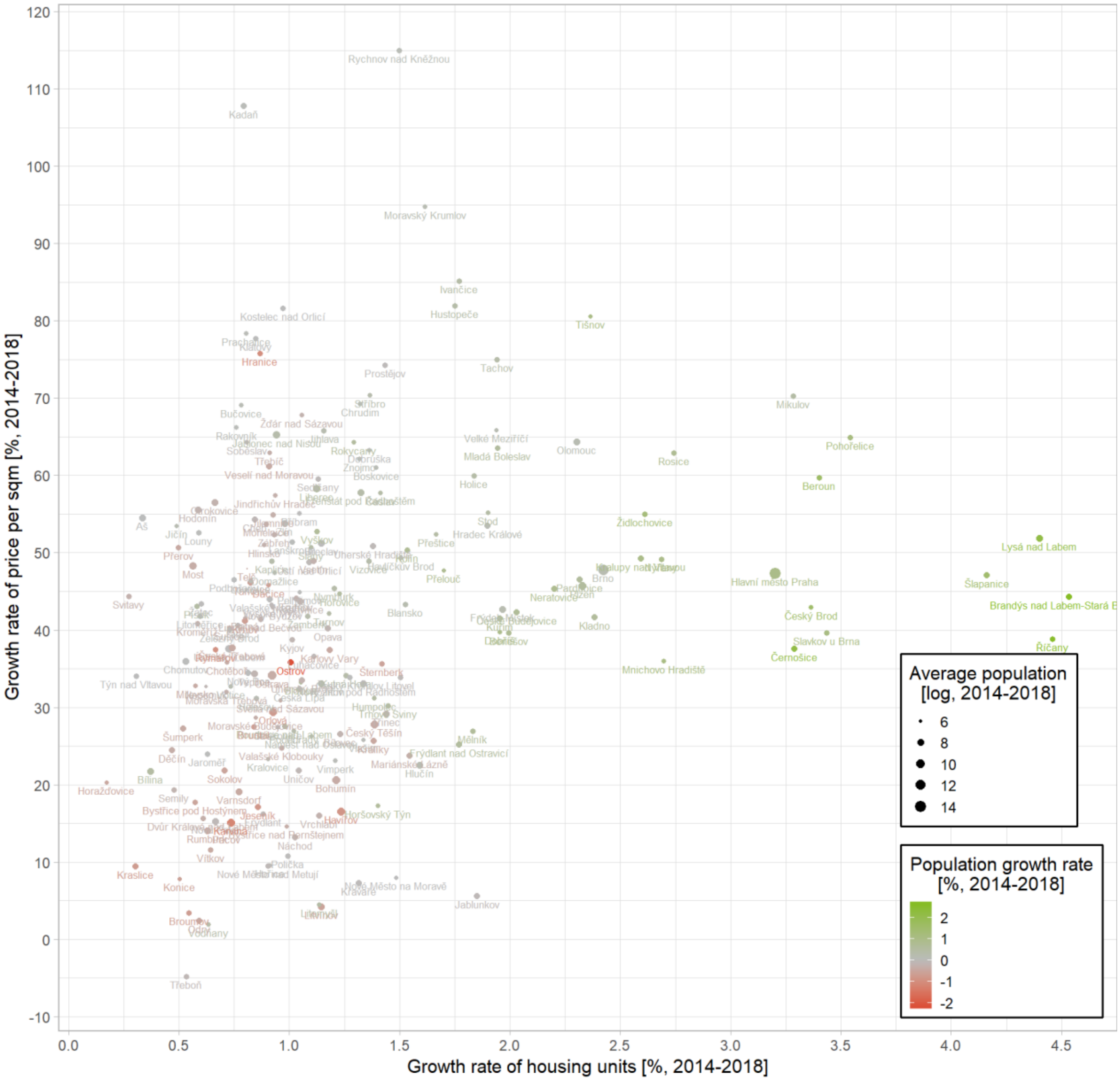
Figure 39: Real estate appreciation with respect to number of units' growth



The second presentation of the data focus only on ORPs that exceed given threshold of development attractiveness. That means in these areas should be profitable to construct new housing units, either apartments or detached houses. The reason why we exclude ORPs below attractiveness threshold is due to the fact they are most likely in the area of completely inelastic supply function and for that reason any supply shock translates only in the price adjustment and no quantity adjustment.

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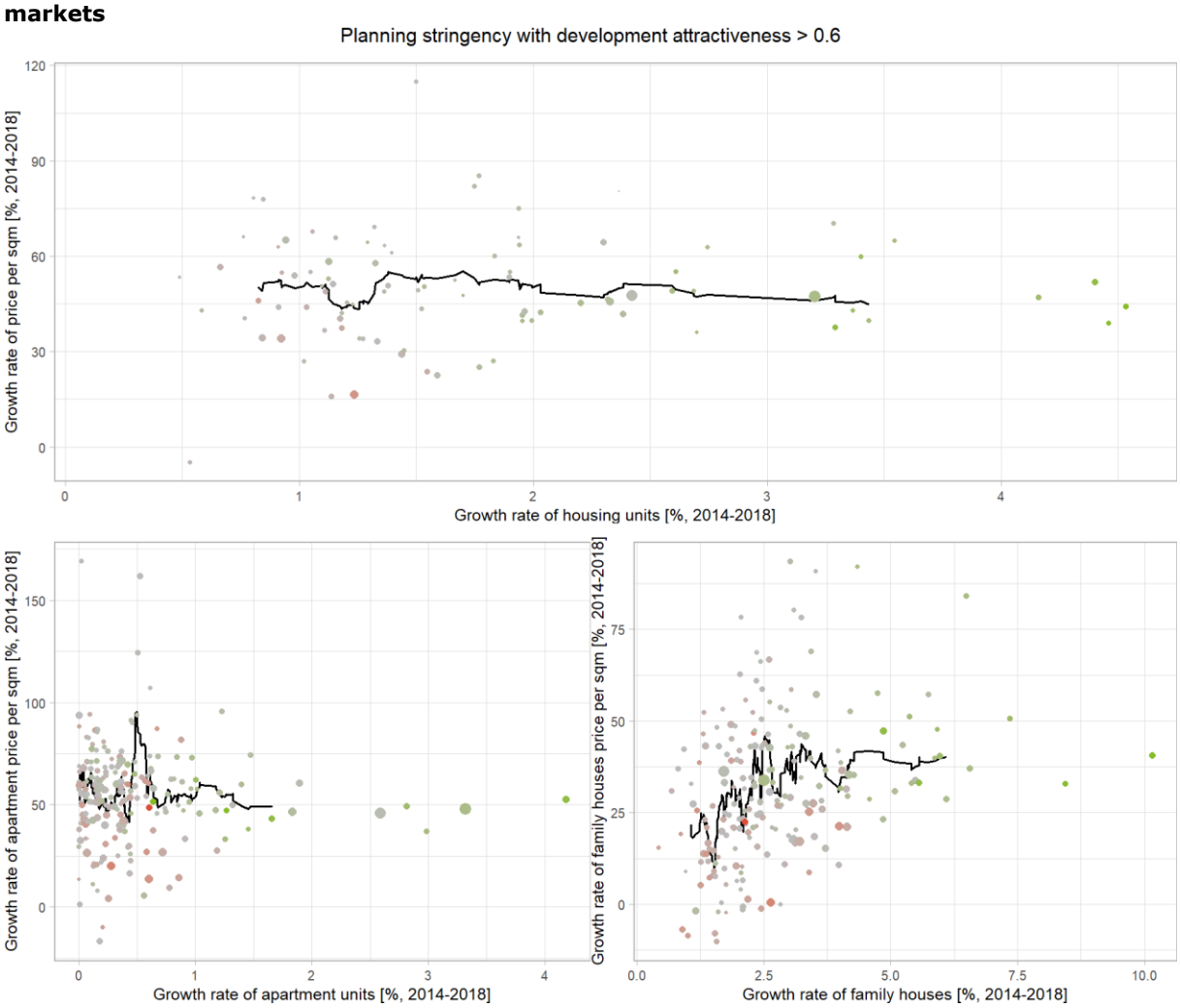
Figure 40: Real estate appreciation with respect to number of units' growth – attractive markets



The top combined chart shows there are some rather larger cities that add more than 2 per cent of units over the period and their price increased by approximately 50%. Then there is a larger group of ORPs with a growth below 2 per cent and more volatile price growths. Possible explanation is that the ones with low price growth were not so much attractive and therefore did not increase their housing stock so much. Conversely, those with relatively high price increases were attractive, but their supply did not respond accordingly so the price has increased.

The bottom two charts show relation between price difference and units' growth for apartments on the left side and detached houses on the right side. The first observation is the growth of detached houses is approximately twice larger in magnitude while the price difference is roughly half compared to the apartments. This would suggest the market of detached housing respond more elastically to the demand and as a result relative growth of quantity outweighs growth of price, at least compared to the apartment market. This is also supported by the distribution of ORPs in the case of detached houses market. The higher is difference in price, the higher is difference in quantity. This is a standard market behaviour that classical economics would predict. On the contrary this does not hold for the apartment market where no obvious trend of positive correlation between differences in quantity and price could be found.

Conclusions

The low responsiveness of apartment markets typical for larger municipalities could be attributed to higher relative restrictiveness of new development. As a result new development is pushed away from the agglomeration cores to less restrictive municipalities.

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The detached housing market compared to apartments market shows higher responsiveness to price indicators resulting in higher rates of new units increases while keeping price increases lower. This different market responsiveness is then translated into relatively higher growth of suburban settlements compared to the compact city settlements.

As suburban areas around the largest Czech cities consist of dozens to hundreds independent municipalities there are some less and some more open to new development.

Lack of coordination within urban functional areas leads to suburbanization around attractive Czech cities, especially Prague with its agglomeration hinterland in the Central Bohemian region and around second largest city, Brno.

Recommendations

Agglomeration wide coordination in some form should be implemented to face suburbanization trends.

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6. Annex 4 - Legal enforceability and spatial planning practice

In the Czech Republic, the so-called combined model of public administration was implemented, i.e. the regions and municipalities in addition to their self-government independent powers also perform state power in the delegated competence.

There is a two-tier system of territorial self-government in the Czech Republic. In the Constitution of the Czech Republic, the division of the Czech Republic into basic and higher territories is enshrined self-governing units. Basic territorial self-governing units are municipalities, higher territorial ones self-governing units are regions.

The regions and municipalities are basics of territorial self-government. The regions and municipalities are basic territorial self-governing communities of citizens in a territorial unit defined by the boundary of the municipality.

The regions and municipalities have own property, manage their affairs independently, acts in legal relations on its own behalf and bears the responsibility arising from these relations. Spatial planning belongs, among others, to the self-government competencies. However, following processes of zoning permitting and building permitting are performed within the transferred state powers.

In the case of territorial self-government, it is not a hierarchical structure, resp. superiority and subordination, because each territorial self-governing unit has its own competences in which another territorial self-governing unit cannot intervene.

State power is a competence delegated regions and municipalities. The transferred state powers is performed for the entire territorial district, which is defined by law (regions, municipalities with extended powers, municipalities with authorized municipal office and municipalities), while self-government is performed only for the legally defined territorial unit (region, municipality). The self-governing unit exercises its bodies state administration in the transferred state powers and at the same time performs activities connected with independent competence.

6.1. Conflicts between self-governing and transferred state powers

Systematic bias ("systémová podjatost" in Czech) is documented in case of individual buildings permitting process when elected representatives of a municipality (the self-governing powers) interfere into decision-making of Building authorities (transferred state powers) to affect building permitting process.

In case of spatial planning the procurer of spatial plan ("pořizovatel" in Czech) represents delegated state powers and should be independent in its decision-making of local political representation. But it seems, at least in the Prague case, that the procurer behaved inconsistently when political representation has changed (Koucký, 2017; Koucký, 2019).

As already stated, systematic bias can occur when **elected representatives of a municipality (the self-governing powers) interfere into decision-making of Building authorities (transferred state powers)** in order to affect building permitting process. Decision-making of Building authorities can also be affected by systematic bias even without interfering into decision-making as such, but rather due to nature of the specific case and its connection to the municipality they are employed by. Because of that, case law has dealt with multiple kinds of systematic bias and established principles of detecting and dealing with such cases.

Generally, impartiality of officials and their exclusion from deciding cases is regulated by Section 14 of the Code of Administrative Procedure. Until the Code of Administrative Procedure amendment no. 176/2018 Coll. effective from November 2018, the law covered only bias connected to the officials themselves, e.g. due to their involvement with the case/claimants/their representatives.

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However, case law has identified the need to approach possible systematic bias of officials. Supreme Administrative Court in its decision no. 4 As 42/2005-117 dated 29 November 2006 essentially rejected the risk of systematic bias by stating that the mere fact that Municipal Office decided the case, in which the municipality is a party to proceedings, does not automatically mean that respective officials are biased. In such cases, bias shall be proved by other facts.[43] Supreme Administrative Court then changed and improved its mechanism to detect possible systematic bias in decision no. 1 As 89/2010-119 dated 20 November 2020, stating that existing employment by the self-governing unit poses a risk of system bias, which shall be examined with caution. Signs of the systematic bias can be traced in politicians' interviews, election promises or investment plans, systematic bias can also be caused by the importance of the case itself or, of course, if there is a suspicion of possible interference by official's superiors.[44] Further, systematic bias might be detected even in cases when the municipality (or its elected representatives) actively oppose the proposed development.

Recent case law discussed the possible systematic bias of officials executing the self-governing powers. In case no. 2 As 151/2018-63 dated 3 April 2019, Supreme Administrative Court confirmed that systematic **bias is out of the question in cases, in which the respective office executes the self-governing powers,** because the law presumes municipality's interest in the case.[45]

Since November 2018, amended Section 14 of the Code of Administrative Procedure explicitly states that "*an official shall not be excluded from considering and deciding the case pursuant to Art. 1 if the doubt about their impartiality is caused by their employment or other similar relationship to the state or to the self-governing unit*." Cited amendment was influenced by the case law, however, *a priori* exclusion of systematic bias of officials might pose difficulties in proving the bias, i.e. objections of bias need to be supported by further arguments in order to be examined.

Recent case law also discussed objections of bias with respect to the principle of procedural economy, considering that examining objections of bias often substantially extends of the decision-making period. Accordingly, Supreme Administrative Court case no. 9 As 70/2019-34 dated 4 July 2019 stated that not every bias objection is eligible for review, meaning that claimants shall not use general objections but rather (at least briefly) justified bias objections.[46] Therefore, courts do no longer need to examine every (even if obstructive) objection of bias in detail.

Nevertheless, the general principle of examining the systematic bias shall remain unchanged – **systematic bias can be traced in cases of official's "problematic" employment together with another risk factor. However, case law and the recent amendment to the Code of Administrative Procedure highlighted claimant's need to justify each bias objection made.**

6.2. The impacts of judicial review on spatial planning

As mentioned above, the spatial development principles and land-use plans are issued in form of a general nature measure. Therefore, as every other general nature measure, these documents can reviewed by the administrative courts.

General principles of judicial review of general nature measures

The judicial review of general nature measures is based on a number of principles that courts developed during their decision-making practice.

1. First, courts had to interpret the **need to apply the law in line with the public interest and without any unreasonable discrepancies in similar cases**, as prescribes the general principle of Section 2 Art. 4 of the Act no. 500/2004 Coll., Code of Administrative Procedure, as amended. Following its case law regarding the legislation prior to the Building

[43] Supreme Administrative Court, 4 As 42/2005-117, 29. 11. 2006
[44] Supreme Administrative Court, 1 As 89/2010-119, 20. 11. 2012
[45] Supreme Administrative Court, 2 As 151/2018-63, 3. 4. 2019
[46] Supreme Administrative Court, 9 As 70/2019-34, 4. 7. 2019

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Act, Supreme Administrative Court's decision no. 6 Ao 5/2011-43 dated 7 October 2011 stated, that when reviewing the general nature measure, courts shall not evaluate and weight the importance of claimant's interests and public interest. Such evaluation should have been made by the respective administrative office, court's evaluation of interests could potentially contradict the principle of separation of powers.[47]

2. **Principle of judicial restraint** was later confirmed by Supreme Administrative Court's decision no. 4 Aos 1/2012-105 dated 31 January 2013, which stated that expert assessments of the land-use plans shall be made by respective commissioners or by other professionals. Courts shall merely review the legal aspects of the procedure and of respective land-use plan.[48] In decision no. III. ÚS 1669/11 dated 7 May 2013, Constitutional Court emphasized that courts shall not require unreasonably extensive settlements of objections raised and that their interventions into self-governance shall remain within the principle of judicial restraint.[49]

3. **Further**, in case that **claimant's passivity** caused that potential breach of his rights was not reviewed when adopting the general nature measure (if claimant did not rise his objections or comments), courts are not always entitled to review the consideration of proportionality of the general nature measure. In such cases, the consideration of proportionality of the general nature measure can be reviewed only in case of obvious and intensive breaches of claimant's rights.[50] However, as Supreme Administrative Court ruled in decision no. 1 Ao 2/2010-116 dated 16 November 2010, claimant's prior passivity does not prevent him from bringing an action on annulment of the general nature measure. In the same decision, Supreme Administrative Court also stated that **judicial review of general nature measures cannot serve as additional instrument to enforce claimant's interests**. [51]

4. As described below, pursuant to Section 101d Art. 1 of the Act no. 150/2002 Coll., Code of Administrative Justice, as amended, **courts are bound by the scope and grounds of the petition/action**, as decided by the Supreme Administrative code in case no. 6 As 176/2015-31 dated 25 November 2015, some deviations from claimant's action (and argumentation within its scope) must be permitted. Nevertheless, courts shall not decide in scope exceeding claimant's action or shall not invent new arguments that were not raised by the claimant.[52]

5. Another principle highlighted by the courts is the **requirement of clarity** of general nature measures. Generally, lack of clarity can be the cause of non-reviewability of decisions and the reason to repeal them, same applies for repeal of legislation. In its decision no. 1 Ao 6/2010-130 dated 16 December 2010, Supreme Administrative Court ruled that the lack of clarity can be the reason to repeal general nature measures as well.

6. Regarding the temporal scope of judicial review, case law also discussed **annulations of general nature measures with respect to the possible retroactivity and its impacts.** As Constitutional Court ruled in decision no. III. ÚS 3221/11 dated 12 December 2013, general retroactivity principles shall not apply in case of judicial decisions. Pursuant to Section 101d Art. 4 of the Code of Administrative Justice, rights and obligations arising from legal relationships, which commenced before annulment of the general nature measure, shall remain unaffected by the annulment. Considering the above, Supreme Administrative Court in its decision no. 3 As 157/2016-63 dated 21 July 2017 admitted, that if necessary, general nature measures can be annulled retrospectively and if necessary, even *ex tunc* since the date they were adopted.[53] *Ex tunc* annulment shall be applied mainly in cases of abovementioned incidental judicial review.

7. Pursuant to Section 55 Art. 3 of the Building Act, **municipalities are required to arrange for a new land-use plan following the annulment of the former one.** In such cases,

[47] Supreme Administrative Court, 6 Ao 5/2011-43, 7. 10. 2011
[48] Supreme Administrative Court, 4 Aos 1/2012-105, 31. 1. 2013
[49] Constitutional Court, III. ÚS 1669/11, 7. 5. 2013
[50] Supreme Administrative Court, 10 As 183/2016-35, 26. 10. 2016
[51] Supreme Administrative Court, 1 Ao 2/2010-116, 16. 11. 2010
[52] Supreme Administrative Court, 6 As 176/2015-31, 25. 11. 2015
[53] Supreme Administrative Court, 3 As 157/2016-63, 21. 6. 2017

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various temporary rules apply. In case that the annulled general nature measure contained only an amendment to the existing land-use plan, its previous version shall be provisionally applied.[54] In case that only part of the land-use plan is annulled, municipality's officials shall act as if there was none land-use plan at all.[55] In case of annulment of whole land-use plan, municipalities shall follow the last non-disputed act in the process of adoption of the annulled land-use plan.

8. Annulment of land-use plans is often associated with a loss of costs incurred by respective investors. With respect to this matter, Supreme Court in case no. 30 Cdo 3079/2016 dated 11 September 2018 ruled, that **state (or municipality) shall not be responsible for damage caused by annulment of the faulty land-use plan.[56]**

Limitation period and incidental review of general nature measures

Under the Code of Administrative Justice, every claimant can bring an action on annulment of the general nature measure within one year from the issuance of the general nature measure. The reasons of court reviews and annulments of spatial development principles and land-use plans are mainly weak settlements of objections of affected persons.

The period for the bringing the action on annulment of the general nature measure has been shortened from 3 years by the Building Act amendment no. 225/2017 Coll. and the administrative court is obliged to decide within 3 months. Despite the fact that the form of general nature measure is used widely in various acts, the reason for the shortening was in the first place the situation of the land-use plans judicial reviews. As the Supreme Administrative Court noted, especially in case of land-use planning documentation or its change, such a period brings considerable uncertainty when deciding on changes in the territory, and the courts annulled these general nature measures after a long time, often for minor defects.

Due to this amendment, the legal certainty within spatial planning arose and it is supposed, that a number of the challenged land-use plans or spatial development principles will decrease.

Apart from the possibility of claimants are to bring an action on annulment of the general nature measure within one year from the issuance of the general nature measure the court have developed another mechanism of judicial review of general nature measures, so-called "the incidental judicial review". As Supreme Administrative Court stated in decision no. 5 As 194/2014-36 dated 13 September 2016, claimants are also eligible to bring an action on review of the general nature measure together with another action against specific administrative decision, inaction or unlawful interference caused by the public authority, regardless of whether the one-year period from issuance of the general nature measure has already passed.[57] Since then, the incidental judicial review was applied by courts reviewing general nature measures, for example when reviewing the general nature measure regarding the building ban.[58]

Subsequently, the abovementioned Building Act amendment no. 225/2017 Coll. also amended Section 101b of the Building Act, stating that missing the one-year period to bring an action on annulment of the general nature measure cannot be waived even in case of subsequent administrative decisions or acts. In its recent decisions, Supreme Administrative court has interpreted the matter in line with its previous decisions, i.e. ruled that the incidental judicial review is permitted regardless of missing the one-year period, which shall not be applied at all in such cases.[59] Therefore, case law has interpreted the mentioned amendment to the Section 101b of the Code of Administrative Justice and its possible effect on the incidental judicial review in favour of not restricting the limitation period. Even though some of the lower courts were in favour of the stricter

[54] Supreme Administrative Court, 2 Ao 6/2011-210, 27. 10. 2011
[55] Supreme Administrative Court, 6 As 155/2014-73, 28. 1. 2015
[56] Supreme Court, 30 Cdo 3079/2016, 11. 9. 2018
[57] Supreme Administrative Court, 5 As 194/2014-36, 13. 9. 2016
[58] Regional Court in Prague, 50 A 1/2017-77, 8. 9. 2017
[59] Supreme Administrative Court, 8 As 63/2019-40, 15. 10. 2019

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approach, i.e. one year period for both mechanisms of judicial review of general nature measures[60], Constitutional Court confirmed the wide approach even under current wording of Section 101b of the Code of Administrative Justice.[61]

Legitimation of claimants

Individuals

As mentioned above, under the Code of Administrative Justice, those negatively affected by the general nature measure can bring an action on annulment of the general nature measure, which are reviewed by respective Regional courts as Administrative courts. The case law has specified the scope of those entitled to bring an action based on their connection with the real estate and the territory. Firstly, owners (or co-owners) of real estate in the territory and beneficiaries of respective rights *in rem* are entitled to bring an action on annulment of the general nature measure. Unlike the owners of real estate, Supreme Administrative Court has concluded that tenants of real estate in the territory affected by the general nature measure are not entitled to bring such action due to lack of direct and non-mediated connection to the territory.[62] Action on annulment can also be brought up by neighbours of the land regulated by the land-use plan, provided that the activities permitted by the land-use plan could affect the rights of said neighbours.[63]

Municipalities

Municipalities are also entitled to bring an action on annulment of spatial development principles. Supreme Administrative court's case law also emphasized the specific position of Prague districts, that are entitled to bring an action on annulment of the land-use plan the City of Prague[64] as well as on annulment of the spatial development principles issued by the Central Bohemian Regional Office.[65] Courts review the municipalities' eligibility to bring an action with respect to link between the spatial development principles and the legal relations of the respective municipality[66] and with respect to link between the legal relations of the respective municipality and the territory regulated by the spatial development principles.[67] Recently, Supreme Administrative Court ruled that municipalities are eligible to bring an action on annulment of the land-use plan issued by another (neighbouring) municipality if such land-use plan and proposed development affects the functioning of the municipality bringing an action.[68] However, the cited decision no. 2 AS 187/2017-327 dated 30 January 2020 is the first of its kind and will likely be reviewed by the Constitutional Court.

NGOs and societies

Further, an action on annulment of the general nature measure can also be brought up other subjects, such as by various NGOs and societies. This topic has been widely interpreted in case law, often rather restrictively. Courts' approach began to change after the decision of the Constitutional Court no. I. ÚS 59/14 dated 30 May 2014, which expressly admitted that environmental NGOs can also bring an action on annulment since their rights (as representatives of multiple owners and citizens living in the area) can also be affected by general nature measures. This applies if there is claimant's connection with the area affected by the general nature measure and that the claimant focuses on the specific environmental topic for a long time.[69] Since then, NGOs' eligibility to bring an action on annulment of the general nature measure is being accepted by both Constitutional Court and Supreme Administrative Court.[70] Lately, courts also ruled that NGOs' eligibility to raise objections shall be limited to topics connected to their respective activities and interests, however, there is no consistent case law at the moment.[71] The cited decision also served as an incentive to change

[60] Regional Court in Brno, 67 A 1/2019-17, 7. 2. 2019
[61] Constitutional Court, III. ÚS 1728/18, 11. 9. 2018
[62] Supreme Administrative Court, 1 Ao 1/2009-120, 21. 7. 2009
[63] Supreme Administrative Court, 8 Ao 1/2010-89, 21. 4. 2010
[64] Supreme Administrative Court, 3 Ao 9/2011-219, 11. 6. 2013
[65] Supreme Administrative Court, 4 Aos 1/2013-125, 24. 4. 2014
[66] Supreme Administrative Court, 1 Ao 7/2011, 21. 6. 2012
[67] Supreme Administrative Court, 7 Aos 2/2012-53, 14. 2. 2013
[68] Supreme Administrative Court, 2 As 187/2017-327, 30. 1. 2020
[69] Constitutional Court, I. ÚS 59/14, 30. 5. 2014
[70] Supreme Administrative Court, 5 Aos 3/2013, 26. 6. 2014
[71] Constitutional Court, IV. ÚS 1098/18, 24. 4. 2018

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Supreme Administrative Court's decision-making practice and to increase NGOs' eligibility to bring an action against unlawful administrative decision pursuant to Section 65 of the Code of Administrative Justice.[72]

However, the Building Act Amendment no. 225/2017 brought a change that is very restrictive in terms of environmental NGO's access to the administrative proceedings (including the zoning permit proceeding) and therefore either potential administrative action. The Amendment included an amendment of Nature and Landscape Protection Act („**NLPA**"), specifically Section 70. With the adoption of the Amendment, the wording of the Section 70 para. 3 of the Old NLPA was amended so that the words "administrative proceedings" were replaced by the words "proceedings under this Act" (meaning NLPA). So currently, under this provision, environmental NGO's can only participate in (i) proceedings under the NLPA, if (ii) the interests of nature and landscape protection protected under the NLPA, such as the protection of wild fauna and flora, may be affected in the relevant proceedings, as is specified in Section 1 – 3 NLPA. In practice, environmental NGO's under § 70 para. 3 NLPA may actively participate in, for example, proceedings for permission to cut trees, although, their participation is not possible in proceedings other than those conducted under NLPA, i.e. **in zoning permit proceedings or building permit proceedings.**

Such a restrictive provision has been widely criticised by either private experts, politicians or the academic sector with an argument that **the Amendment of Section 70 NLPA does not meet the requirements of the access to justice under the Aarhus convention**. Based on these arguments, the group of senators filed a constitutional complaint which includes also this restriction. At this time, the complaint still has not resolved by the Constitutional Court. However, in the meantime within an other case, Constitutional Court allowed the participation of environmental NGO's even where they now no longer explicitly have the right to participate pursuant to Section 70 NLPA with a direct reference to the wording of the Aarhus Convention.[73]Therefore, this case might suggest the point of view of the Constitutional Court on the abovementioned constitutional complaint concerning of the environmental NGO's access to justify under current Section 70 NLPA.

Representatives of the public

Finally, case law has also commented on representatives' of the public eligibility to bring an action on annulment of land-use plan. Pursuant to Section 23 et seq. of the Building Act, representatives of the public represent citizens of specific municipality in spatial planning procedures based on their authorisation, however, their eligibility to bring an action on annulment was not explicitly regulated by the law. On 29 March 2016, Supreme Administrative Court in its decision no. 4 As 217/2015-182 evaluated the abovementioned case law along with the necessity to interpret the law in line with Art. 9 of the Aarhus Convention and decided that there is no substantial difference to justify different approach towards environmental societies or NGOs and towards representatives of public. Therefore, representatives of public (in the sense of the Building Act) are eligible to bring an action on annulment of land-use plan.

Based on the facts described above, it is obvious that **the range of potential claimants within the review of spatial development principles and land-use plans widened**. After a long history of the related case law, it appears nowadays that the approach of the courts have settled and the practice in **The Czech Republic began to follow the principles of the access to justice set by the Aarhus Convention**.

Passive legitimation

Apart from the persons/subject entitled to bring an action, courts have also decided on passive legitimation of subjects, i.e. who shall be the respondent when reviewing the general nature measure. Pursuant to Section 101a, Art. 3 of the Code of Administrative Justice, respondent is the subject/authority that issued the reviewed general nature measure. To specify this provision, Supreme Administrative Court ruled that in case of land-use plan issued by municipal council (self-

[72] Supreme Administrative Court, 2 As 328/2016-96-2018
[73] Constitutional Court, II. ÚS 1685/17, 18.12.2018

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governing powers), rather than the council, the municipality itself shall be the respondent.[74] In case that the claimant specifies the respondent incorrectly, court shall determine the respondent itself (based on documents provided by the claimant).[75] On the other hand, in case of general nature measure issued by the council executing the transferred powers, respondent shall be the council (municipal or regional) itself.[76]

Mechanism of judicial review

As mentioned above, judicial review of general nature measures involves number of aspects that need to be examined and reviewed. Apart from the abovementioned analysis of claimant's eligibility to bring an action, limitation period to bring an action and outlined general principles of judicial review, it is also necessary to examine the actual procedure/mechanism of judicial review.

Formal review of claimant's action

Firstly, courts shall review claimant's action and its parameters pursuant to Sections 101a and 101b of the Code of Administrative Justice, as well as with respect to general Sections 37 and 46 of the Code of Administrative Justice, which includes conditions for rejecting the action.

Pursuant to Section 37 Art. 3 of the Code of Administrative Justice, each action must clearly indicate what it is concerned with, who makes it, whom it is directed against, what it purposes and also must be dated and signed.

Pursuant to Section 46 Art. 1 of the Code of Administrative Justice, court shall reject an action mainly in case that:

a) court has already decided on this matter or proceedings concerning the same matter are under way;

b) the action was submitted prematurely or with delay;

c) the action was submitted by a patently unauthorized person; or

d) the action is inadmissible under the Code of Administrative Justice.

Mentioned rules shall be applied while respecting abovementioned principles used when in judicial review of general nature measures. Therefore, those negatively affected by the general nature measure are entitled to bring an action on its annulment within one year from the issuance, however, claimants are also entitled to seek the incidental review regardless of the one-year limitation period in case that other conditions are met.[77] As mentioned above, claimant's actions shall also include both factual and legal reasons of claimed illegality of the general nature measure along with identification of the respondent and shall be brought before the respective regional court.

Apart from the above, three further exceptions from the general rules need to be outlined. Firstly, Section 101b Art. 2 of the Code of Administrative Justice includes **modified principle of concentration,** which means that claimants are not entitled to extend the scope of their action once it meets the requirements of its Section 37. However, they are entitled to narrow down their action without limitation.

Secondly, due to specific nature of general nature measures, multiple actions on annulment of the same document brought by multiple claimants is expected. Due to reasons outlined, the objection of ***res iudicata***, i. e. objection that the court has already decided on the matter, shall only be used in

[74] Supreme Administrative Court, 1 Ao 1/2009-120, 21. 7. 2009
[75] Supreme Administrative Court, Nad 224/2014-53, 9. 12. 2014
[76] Supreme Administrative Court, 1 As 454/2017-94, 25. 6. 2019
[77] Supreme Administrative Court, 5 As 194/2014-36, 13. 9. 2016

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case that that the same claimant brought up more actions against the same part of the general nature measure.[78]

Finally, Section 5 of the Code of Administrative Justice states that the protection of rights can be claimed in administrative justice only after the exhaustion of all ordinary remedial actions (řádné opravné prostředky) in respective case, if admissible. However, Czech law does not contain any ordinary remedial actions in case of general nature measures but merely objections and comments to be rose during the process of issuing the general nature measure. As mentioned before, Supreme Administrative Court ruled that claimant's prior passivity does not prevent him from bringing an action on annulment of the general nature measure.[79] Therefore, the principle **of exhaustion of all ordinary remedial actions** shall not be applied when reviewing the general nature measures.

Mechanism of (material) judicial review

Apart from the formal review of claimant's action and eligibility to bring an action, it is also necessary to outline the mechanism of material judicial review and courts' decision-making.

Prior to the Code of Administrative Justice amendment no. 303/2011 Coll., mechanism of judicial review was rather informal. In order to unify the decision-making practice, Supreme Administrative Court developed a 5-step mechanism of judicial review, which shall be used when reviewing general nature measures.[80] This 5-step mechanism is now known as so-called "**the judicial review algorithm**". Pursuant to the original Supreme Administrative Court's decision no. 1 Ao 1/2005-98 dated 27 September 2005, the steps of the judicial review algorithm that had be evaluated are following:

1) Review of respective authority's power ("pravomoc" in Czech) to issue the general nature measure;

2) Review of possible exceeding the limits of authority's competence ("působnost" in Czech) - acting *ultra vires*;

3) Examining whether the general nature measure was issued by legal/lawful procedure;

4) Review of possible conflict of the general nature measure with law; and

5) Review of proportionality of the general nature measure.[81]

Currently, complete use of the introduced algorithm is rather infrequent. As mentioned before, pursuant to amended Section 101d Art. 1 of the Code of Administrative Justice, **courts are bound by the scope and grounds of the petition/action**. Currently, courts shall apply the abovementioned algorithm or its steps only if claimant's action included these respective steps, there is no longer need to review all of them.[82]

In some cases, exceeding the scope outlined by the claimant can mean a substantial procedural defect, e.g. in case that court annulled more parts of the general nature measure than requested by the claimant.[83] On the other hand, if appropriate based on their evaluation, courts are permitted to annul only part of the general measure even if the claimant's action requested full annulation.[84] As already mentioned, some deviations from claimant's action (and argumentation within its scope) must be permitted. However, courts shall not decide in scope exceeding claimant's action or shall not invent new arguments that were not raised by the claimant.[85]

[78] Supreme Administrative Court, 1 Ao 1/2009-120, 21. 7. 2009
[79] Supreme Administrative Court, 1 Ao 2/2010-116, 16. 11. 2010
[80] Supreme Administrative Court, 1 Ao 1/2005-98, 27. 9. 2005
[81] Supreme Administrative Court, 1 Ao 1/2005-98, 27. 9. 2005
[82] Supreme Administrative Court, 2 Aos 1/2013-138, 24. 7. 2013
[83] Supreme Administrative Court, 4 As 77/2015-35, 24. 6. 2015
[84] Supreme Administrative Court, 2 Ao 2/2007-73, 24. 10. 2007
[85] Supreme Administrative Court, 6 As 176/2015-31, 25. 11. 2015

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Exception to the stated is the *ex officio* review of some of the most severe shortcomings, which may justify the rejection of an action. Pursuant to already cited decision of the Supreme Administrative Court no. 1 Ao 2/2010-116 dated 16 November 2010, courts shall evaluate the first two steps of the described mechanism even if not requested by the claimant.[86] This is justified by possible severe impacts of the general nature measure issued without authority's power or when exceeding the limits of authority's competence. In such cases, courts shall annul the faulty general nature measure pursuant to Section 101d Art. 2 of the Code of Administrative Justice. Apart from the mentioned, courts shall also *ex officio* review possible lack of clarity and therefore non-reviewability of the general nature measure pursuant to Section 76 of the Code of Administrative Justice.

Despite the mentioned, the introduced algorithm and its steps cover most of the currently reviewed aspects of general nature measures. For sake of clarity, **examples of commonly reviewed objections and shortcomings of general nature measures will be outlined below** by using the algorithm.

1) Review of respective authority's power ("pravomoc" in Czech) to issue the general nature measure

As specified by the Supreme Administrative Court, authorities shall use their powers in line with the legal authorization to issue general nature measures and therefore to decide on rights and obligations of subjects.[87]

In practice, lack of authority's power to issue the general nature measure is not very frequent. An exception to this might be the review of the guiding parts (směrné části) of historical land-use plans issued by municipalities pursuant to Section 188 of the Building Act.[88] Another rare example might be the case in which the municipality set out flood plains instead of the respective water authority.[89] Therefore, courts usually review authority's power together with review of possible exceeding the limits of authority's competence.

2) Review of possible exceeding the limits of authority's competence ("působnost" in Czech) - acting *ultra vires*

Supreme Administrative Court specified, that authorities shall use their powers (issue general nature measures) within the legal limits of their competence. Various types of competence can be distinguished: material, personal, spatial and possibly also temporal.[90]

In practice, courts often review authority's competence together with the previous step, as well as together with review of general nature measure's proportionality. Breach of authority's competence can often result into non-reviewability of the said act/decision.[91] As mentioned above, exceeding the limits of authority's competence shall lead to annulation of the faulty general nature measure pursuant to Section 101d Art. 2 of the Code of Administrative Justice and courts shall review the authority's competence to issue the general nature measure regardless of claimant's action.

3) Examining whether the general nature measure was issued by legal/lawful procedure

As Supreme Administrative Court stated, it is also necessary to review whether the authority issued the general nature measure in line with procedural rules.[92]

[86] Supreme Administrative Court, 1 Ao 2/2010-116, 16. 11. 2010
[87] Supreme Administrative Court, 1 Ao 1/2005-98, 27. 9. 2005
[88] Supreme Administrative Court, 1 Aos 2/2013-116, 17. 9. 2013
[89] Supreme Administrative Court, 1 Ao 1/2010-247, 28. 8. 2012
[90] Supreme Administrative Court, 1 Ao 1/2005-98, 27. 9. 2005
[91] Supreme Administrative Court, 1 Ao 3/2008-136, 16. 12. 2008
[92] Supreme Administrative Court, 1 Ao 1/2005-98, 27. 9. 2005

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Specifically, this step might include review of potential procedural errors such as insufficient settlement of objections, not following the procedural rules for delivery of documents to persons participating in the proceedings or lack of clarity resulting into non-reviewability of the general nature measure. Apart from the specific provisions of the Building Act, courts shall assess the compliance with general administrative procedure rules pursuant to the Code of Administrative Procedure.[93]

Formal procedure of issuing the general nature measure shall be reviewed with respect to the material nature of the respective act. In case that historical (currently not amended) law regulates issuance of act materially similar to the nature of general nature measure, all procedural requirements of general nature measures must be met when issuing such act.[94]

Pursuant to Section 52 of the Building Act along with the general Section 172 of the Code of Administrative Procedure, documents, including the considered land-use plan, are generally delivered by public notice. Supreme Administrative Court further stated that in case that municipality undertakes to deliver notifications about proposed changes on top of the legal requirements (via e-mail), later non-compliance with promised delivering is not considered a defect to the legal procedure.[95] Pursuant to Section 173 of the Code of Administrative Procedure, general nature measure comes into force on 15th day of its delivery. As Supreme Administrative Court ruled, 15th day period is tied to publication by the respective municipality that issued the general nature measure.[96]

With respect to the settlement of objections, first, it's necessary to allow potential claimants to examine the proposed general nature measure and to raise their objections. As Supreme Administrative Court confirmed, 30-day limitation period to raise objections against the general nature measure begins to run after the 15th day of its publication by the respective municipality.[97] Those who raised their objections have a right for these objections to be settled, a reasoned settlement shall be part of the respective general nature measure pursuant to Section 172 of the Code of Administrative Procedure.[98] According to the Supreme Administrative Court, it is not possible to review the settlement of objections on its own, however, insufficiently settled objections usually suggest that the claimant's rights might have been breached by the general nature measure.[99]

Another severe procedural error (which might lead to non-reviewability of the decision) can be detected if the respective authority omits to ask for concerned authority's opinion regarding the proposed nature measure or if the authority does not take such opinion into account.[100] Finally, courts have confirmed that the participation of public shall not be limited as it is necessary to maintain the interaction between the authority and public.[101]

As mentioned, procedural errors often lead to "material" errors of the general nature measure, which can result into its annulment. However, as Supreme Administrative Court repeatedly stated, procedural errors can result into annulment of the general nature measure on its own, however, these errors must be severe and breaching claimant's rights.[102]

4) Review of possible conflict of the general nature measure with law

[93] Supreme Administrative Court, 5 As 85/2015-36, 27. 7. 2016
[94] Supreme Administrative Court, 2 As 78/2016-72, 22. 7. 2016
[95] Supreme Administrative Court, 4 Ao 6/2011-91, 12. 1. 2012
[96] Supreme Administrative Court, 9 Ao 7/2011-489, 6. 3. 2012
[97] Supreme Administrative Court, 6 As 231/2015-44, 16. 8. 2016
[98] Supreme Administrative Court, 5 As 85/2015-36
[99] Supreme Administrative Court, 4 As 217/2015-182
[100] Supreme Administrative Court, 1 Ao 2/2009-86, 20. 1. 2010
[101] Supreme Administrative Court, 1 Ao 7/2011-526, 21. 6. 2012
[102] Supreme Administrative Court, 1 Ao 3/2010-161, 2. 9. 2010

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Apart from the above, fourth step of the mechanism focuses on material aspects of the reviewed general mature measure, such as its compliance with applicable law. Fourth step can also be used to review possible breach authority's powers and competence as described above in step two.[103]

In order to review the compliance with law, general nature measures must contain proper reasoning, the reasoning can be included in separate documents which are parts of the land-use plan.[104] Authority's reasoning must include reasons, documents, legal interpretations and considerations that were followed when issuing the general nature measure. Lack of given reasons might result into non-reviewability and annulment of the general nature measure.[105]

Authorities issuing the land-use plan are also supposed to reason the proposed change (increase) of development areas, this applies even in case the whole new land-use plan is issued.[106] However, as mentioned above, Constitutional Court emphasized that courts shall not require unreasonably extensive settlements of objections rose and that their interventions into self-governance shall remain within the principle of judicial restraint.[107]

Regarding the scope of obligations set out by the general nature measure, it is not possible to set out obligations not based on the existing law, nor to apply them instead of legal procedures. This also applies to the proposed use of automatic software instead of individual assessment in zoning permit proceedings.[108] On the other hand, case law confirmed that land-use plans can regulate height, shapes, volume and other aspects of buildings that may affect the character of surrounding development.[109]

Apart from the above, general nature measures might breach the law due to errors of assessing the supporting decisions such as EIA, SEA or others, which became rather common reason for annulment of the general nature measure. As Supreme Administrative Court stated in case no. 1 Ao 2/2010-185 dated 18 January 2011, ignoring the need to assess possible environmental impacts of the general nature measure might may constitute a severe violation of public interests and therefore be the reason for annulling the general nature measure.[110] Similar conclusion can be applied with respect to compliance of land use plan with spatial development principles since severe and non-justified deviations from the spatial development principles might be a reason for annulment of the land-use plan.[111]

Finally, courts have discussed the impact of newly issued land-use plan on existing zoning permits. Pursuant to the constant case law of the Supreme Administrative Court, such as decision no. 1 As 107/2002-139 dated 12 September 2012, existing zoning (or building) permits shall be considered as limits of the land use when issuing new land-use plan or its amendment.[112] In other words, new land-use plans shall not and cannot derogate existing individual permits.

5) Review of proportionality of the general nature measure

The final and often a key step of the algorithm of judicial review involves examination of general nature measure's proportionality. This means review of its adequacy (whether the general nature measure regulates just the necessary aspects), eligibility (whether it allows achieve the goals), necessity (whether the goals can be better achieved by another way), minimization of interventions and proportionality *sensu stricto* (whether the impact of the measure is proportionate to its goals).[113]

[103] Supreme Administrative Court, 1 Ao 1/2005-98, 27. 9. 2005
[104] Supreme Administrative Court, 1 Ao 2/2011-17, 19. 5. 2011
[105] Supreme Administrative Court, 1 Ao 3/2008-136, 16. 12. 2008
[106] Supreme Administrative Court, 1 Aos 1/2013-85, 6. 6. 2013
[107] Constitutional Court, III. ÚS 1669/11, 7. 5. 2013
[108] Supreme Administrative Court, 4 As 138/2017-33, 27. 9. 2017
[109] Supreme Administrative Court, 4 As 92/2017-37, 4. 8. 2017
[110] Supreme Administrative Court, 1 Ao 2/2010-185, 18. 1. 2011
[111] Supreme Administrative Court, 1 Ao 2/2010-185, 18. 1. 2011
[112] Supreme Administrative Court, 1 As 107/2012-139, 12. 9. 2012
[113] Supreme Administrative Court, 1 Ao 1/2005-98, 27. 9. 2005

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As mentioned above, when reviewing the general nature measure, courts shall not evaluate and weight the importance of claimant's interests and public interest. Such evaluation should have been made by the respective administrative office, court's evaluation of interests could potentially contradict the principle of separation of powers. On the other hand, courts are obliged to review the proportionality if claimant's action requests the review. Even then, proportionality of general nature measures shall be primarily examined based on the reasons presented in the respective general nature measure. [114]

Therefore, it is crucial that claimants list the potential breach of proportionality into the action on annulment of the general nature measure. As Supreme Administrative Court confirmed, even though claimants are eligible to bring an action despite their prior passivity, lack of their previous activities might affect success of their action. If claimant's action suggests the lack of proportionality of the general nature measure despite the fact that the claimant did not previously rise his complaints, courts are not eligible to review the proportionality of general nature measure.[115]

When reviewing the proportionality of the general nature measures, Supreme Administrative Court follows the abovementioned algorithm and reviews various kinds of rights affected by general nature measures. Typically, courts review the possible conflict between the general nature measure and individual property rights or rights to undertake business activities arising out of amended (or new) land-use plan. However, courts have reviewed the proportionality of general nature measures with respect to other conflicting principles, such as conflict of claimant's property rights with public interest in health protection. In case of protection zone declared around the airport, Supreme Administrative Court ruled, that protection of claimant's property rights cannot outweigh the public interest to protect the health of citizens living nearby.[116]

Courts have also reviewed the scope of activities prohibited by the general nature measures. As Supreme Administrative Court ruled in case no. 7 Ao 2/2011-127 dated 16 June 2011, when issuing spatial development principles, Regional offices can consider various specific aspects of the respective region (landscape, population density, etc.) However, ban of certain economical or development activities throughout the whole territory is against the principles of proportionality and of minimisation of the interference.[117] Further, courts have also confirmed the breach of proportionality in case municipality's long-term, unreasonable and arbitrary inaction within the land-use plan issuance. In this specific case, municipality's inaction would lead to disproportionate extension of the (provisional) building ban.[118]

Supreme Administrative Court also admitted that abovementioned principles shall not be applied in in certain cases, e.g. in case of active flood areas. As stated, flood areas (and possible limitation of the property rights) are established from objectively existing reasons (location of the property) rather than by the will of respective authority.[119] Therefore, abovementioned principles are not universally applicable.

The abovementioned list of notable cases represents the most significant topics reviewed. However, the general nature measures such as spatial development principles and land-use plans are such complex documents that there are many other aspects, which have been reviewed or will be reviewed by courts.

Principles of spatial planning arising from the case law

Following the above, it is also important to highlight and introduce some of the principles of spatial planning that were developed or emphasized in judicial reviews of spatial planning documents.

[114] Supreme Administrative Court, 6 Ao 5/2011-43, 7. 10. 2011
[115] Supreme Administrative Court, 6 Aos 3/2013-29, 13. 5. 2014
[116] Supreme Administrative Court, 2 Ao 6/2010-93, 1. 2. 2011
[117] Supreme Administrative Court, 7 Ao 2/2011-127, 16. 6. 2011
[118] Supreme Administrative Court, 4 Ao 3/2011-103, 16. 6. 2011
[119] Supreme Administrative Court, 1 As 190/2016-41, 16. 5. 2017

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Firstly, the material principles of spatial planning will be introduced. Secondly, it is also necessary to introduce the respective procedural principles of spatial planning.

Material principles of spatial planning arising from the case law

Firstly, in order to be valid, spatial planning and relevant general nature measures must meet the requirement of clarity. In other words, general nature measures must clearly and understandably describe the regulated area and define the regulations imposed. The lack of clarity can result in non-reviewability of general nature measure and its subsequent annulment.[120]

Secondly, general nature measures (land-use plans, spatial development principles or others) need to specify the reasons and purposes of the regulation. Generally, reasoning of the general nature measures shall include and describe all of the documents, legal interpretations, factual considerations and other facts and materials considered by the respective authority. Apart from the general requirements, the applicable case law specifically highlighted the necessity to justify any proposed increases of development areas in place of agricultural areas.[121] As mentioned, the lack of proper reasoning might result in non-reviewability of the general nature measure and its subsequent annulment.[122]

Thirdly, since spatial planning documents affect regulated areas in various aspects, issuing authorities have to take into account various opinions of respective authorities (environmental, hygiene, mining, aviation, water, etc.) with respect to the proposed regulations.[123] Further, it is also necessary to take into account respective EIA, SEA and other assessments. Authorities shall comment on whether and how they considered the mentioned opinions and assessments, lack of said consideration might constitute a severe violation of public interests resulting into annulment of the general nature measure.[124]

Fourthly, general nature measures also have to contain the settlement of objections raised. Pursuant to Section 172 of the Code of Administrative Procedure, authorities' are obliged to include reasoned settlement of objections into the general nature measure. Even though the administrative courts are not able to review the settlement of objections on their own (if not requested by the claimant), lack of settlement or its inadequacy often indicates further breach of claimant's rights.[125]

Further, case law has also decided on what is the permitted scope of aspects regulated by spatial planning through general nature measures. Generally, authorities must respect and assess the mentioned principle of proportionality – adequacy of the measures, its eligibility to achieve the goals, necessity to use this specific regulation, minimization of interventions and the proportionality *sensu stricto* (the impact of the measure has to be proportionate to its goals). In other words, the regulation imposed by land-use plans and spatial development principles shall not exceed the necessary factual and legal limits. Typically, authorities have to evaluate the potential conflict between individual property rights and public interest to change the land-use plan. Pursuant to applicable case law, even though it is certainly possible to limit certain activities in the area, spatial planning documents shall not ban certain economical or development activities throughout the whole territory.[126] General nature measures shall also regulate only the future relations in the area and shall not derogate existing zoning or building permits, which are the limits of the land use and need to be considered in spatial planning procedures.[127]

[120] Supreme Administrative Court, 1 Ao 6/2010-130, 16. 12. 2010
[121] Supreme Administrative Court, 1 Aos 1/2013-85, 6. 6. 2013
[122] Supreme Administrative Court, 1 Ao 3/2008-136, 16. 12. 2008
[123] Supreme Administrative Court, 1 Ao 2/2009-86, 20. 1. 2010
[124] Supreme Administrative Court, 1 Ao 2/2010-185, 18. 1. 2011
[125] Supreme Administrative Court, 4 As 217/2015-182
[126] Supreme Administrative Court, 7 Ao 2/2011-127, 16. 6. 2011
[127] Supreme Administrative Court, 1 As 107/2012-139, 12. 9. 2012

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Lastly, authorities shall not impose any obligations not based on existing law, nor prescribe the use of automatized processes instead of individual assessment (e.g. in case of zoning permit procedures).[128]

Procedural principles of spatial planning arising from the case law

Apart from mentioned material principles and requirements, respective authorities shall also follow the prescribed procedure of spatial planning. As mentioned before, case law has emphasized some of the procedural principles of spatial planning which clarify and interpret the existing statute law.

Firstly, spatial planning shall be carried out by the lawful Municipal or Regional office and within the limits of its power and (material/personal/spatial/temporal) competence. Pursuant to Section 101d Art. 2 of the Code of Administrative Justice, breach of authority's power and competence can result in annulment of the general nature measure by respective administrative court. In practice, breach of authority's power and competence might often indicate a non-reviewability of the general nature measure and courts usually review it together with other claimed shortcomings.[129]

Secondly, authorities have to respect the principle of procedural economy and proceed quickly and effectively. Pursuant to relevant case law, unreasonable and arbitrary inaction during the land-use plan issuance can result in breach of proportionality and lead to disproportionate extension of provisional measures (such as building ban).[130] Pursuant to Section 55 Art. 3. of the Building Act, municipalities are required to arrange for a new land-use plan following the annulment of the former one. To speed up the process, municipalities shall follow the last non-disputed act in the process of adoption of the annulled land-use plan.

Thirdly, case law emphasizes the necessity to protect the interests of individuals affected by the spatial planning. Apart from abovementioned extension of subjects eligible to bring an action against land use plans and spatial development principles, case law also interpreted some of the principles of actual spatial planning in favour of those affected. Generally, spatial planning must be transparent and the public shall not be excluded from the procedure, as it is necessary to maintain the dialogue between the public authorities and private subjects.[131]

Fourthly, in order to comply with aforementioned principle of transparency, it is necessary to respect the statutory procedure of delivering documents to those affected by the spatial planning (both individually and by public notice). Further, courts ruled in favour of maximizing the period to raise objections against the general nature measure.[132] As mentioned above, authorities have to include the reasoned settlement of objections raised into the text of the general nature measure.

Lastly, as already mentioned, spatial planning process has to be carried out with respect to not only individual rights, but also considering the public interest and various authorities' opinions and assessments. Therefore, authorities are obliged to request such documents in order to achieve the necessary quality of spatial planning documents.

Summary of principles of spatial planning arising from the case law

Considering the principles highlighted above, it is certain that the relevant case law encourages respective authorities to thoroughly assess the potential impacts of land-use plans or spatial development principles. This assessment shall be carried out considering not only public interest and relevant authority opinions, but most notably also various objections and opinions of those affected by the proposed general nature measure. Further, even though some of the procedural shortcomings might not be the sole reason of annulment, they often result in more substantial defects and breaches

[128] Supreme Administrative Court, 4 As 138/2017-33, 27. 9. 2017
[129] Supreme Administrative Court, 1 Ao 3/2008-136, 16. 12. 2008
[130] Supreme Administrative Court, 4 Ao 3/2011-103, 16. 6. 2011
[131] Supreme Administrative Court, 1 Ao 7/2011-526, 21. 6. 2012
[132] Supreme Administrative Court, 6 As 231/2015-44, 16. 8. 2016

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of law. Therefore, pursuant to case law, spatial planning shall be quick, transparent, reasoned and proportionate.

Figure 41: Stakeholders' opinion on enforceability of spatial planning documents
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

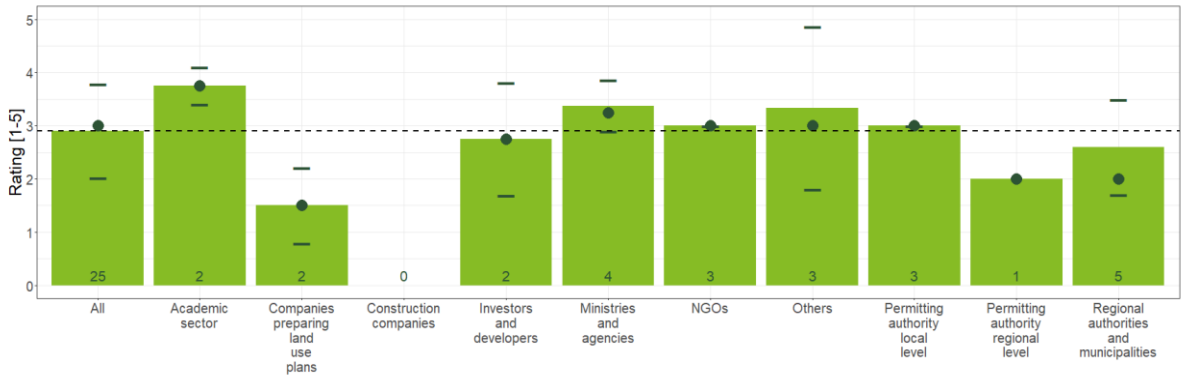

Figure 42: Stakeholders' opinion on stability and defensibility of spatial planning documents
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

The stability and defensibility of spatial planning documents before courts have been evaluated by the stakeholders on average. Most of the stakeholders admit that the judicial review has evolved during its 13 years history. Hereinafter, we provide a list of the most common objections to the system of judicial review supplemented by our comments:

- *Formal approach of the courts*
  - The drawback of the judicial review is closely connected with the very procedural rules for obtaining spatial planning documentation, especially the complexity of the system itself, where it is easy to make a mistake for the offices.
  - In the Czech Republic, the courts (only) find the law, but do not create it, unlike in the common law jurisdictions. The process is thus fundamentally governed by a cassation principle. Therefore, it is questionable whether it may be the court's deficiency when the matter is approached formally while this is the main aspect the courts should review.
- *Courts misunderstanding of the planning and projecting practice*
  - This objection arise from the first objections and the feeling of the stakeholders that courts are not willing to solve the material matters. This may be a valid point for the historical case-law. However, during the case-law evolution and with a strong

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influence of the Supreme Administrative Court, the judges' awareness in the field of spatial planning has risen.

- *High demands of courts on the reasoning of spatial planning documentation*
  - This objection has been mentioned by almost every stakeholder and can be seen at the first sight on the length of the documentation.
  - Although, most of the stakeholders admit that these demands led the authorities in the documentation preparation can be also seen as a so-called "cultivation role of courts")
  - The careful preparation (unfortunately also bears considerable costs), often prevents a potential failure of the documentation within the judicial review.
- *Long-lasting proceedings*
  - This impression might result from the overall picture of the Czech judicial system. However, as mentioned above, this proceedings are on of the few where there is a short deadline (90 days) for the courts' decision. It is also true, there is no such deadline for the Supreme Administrative Court in case of a remedy.
- *The courts pay little attention to the interests of the municipality / region - often disproportionately outweighed by individual interests*
  - This approach and legislative standards reflect the often mentioned "legacy of the previous regime" – the lack of the protection of private property before 1989. Thus, nowadays the interference with private property is a very sensitive topic and often private property is considered to be protected unduly.
- *The incidental judicial review breach the legal certainty which has been strengthened recently.*

Potential adjustments in the system of judicial review

The very rules for judicial review are generally satisfactory.

The stakeholders (familiar with the spatial planning unlike the general public) interviews revealed some misunderstandings of the role of the courts. Therefore, above all there is a **necessity of the explanation, enlightenment in this area along with the comprehensibility of the judgments**. The courts should also adhere to the abovementioned principle of restraint, where it is possible to overcome minor formal shortcomings of the spatial planning proceedings in order to prevent a state of non-regulation of the territory due to the annulment of the spatial planning documentation.

There are also two aspects which might contribute to a more effective judicial review if in compliance with the constitutional limits. One of them is the **dealing with the aforementioned excessive protection of private property**. We can imagine a **different setting of the incidental judicial review** which has recently become more frequent.

6.3. Building permitting process lengths variation analysis

Although building permitting processes are uniform across the Czech Republic as they are given by the Building Act, the length of these processes vary both within and between cities. The aim of this analysis is to uncover what are the driving forces of this variation that might be later tackled either in the Building Act reform, in subordinate ordinances or in practical implementation.

The lengthy permitting processes in the Czech Republic are frequently claimed to slow down new development and increase its price. This seems to be valid as longer processes and repeated actions require additional project plans' updates and uncertainty increase developer's risk that must be in equilibrium compensated by higher price. The negative effect of uncertainty and long development lags is also documented in literature. For instance Duranton and Puga found that uncertainty not only increase development price, but also affect development distribution as projects are under uncertainty built further from central locations where land is more expensive (Duranton & Puga, Urban land use, 2015). This shows that uncertainty driven by less predictable permitting processes not only impede new development and increase real estate prices, but also affect distribution of new construction towards more distant areas.

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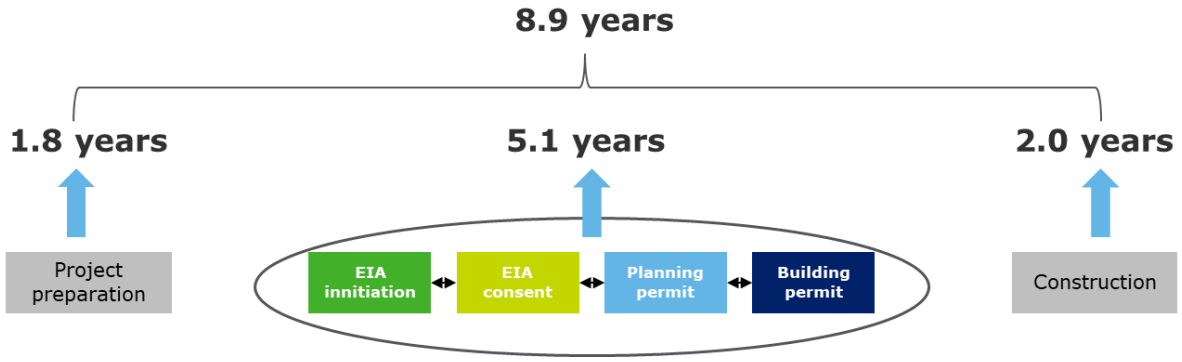
The empirical study of 44 US metropolitan areas based on quarterly data from 1985 to 1996 confirms the delays in building permitting process limit new construction. According to the theoretical background delays in new construction are assumed to negatively affect number of started projects in the long-run while effects in the short-run are ambiguous. In the estimation quarterly number of issued housing permits, quarterly price growth rates and months to obtain subdivision approval[133] are examined. Several model specifications were tested and they yielded similar results showing the additional month of subdivision approval on average decrease number of building permits by 10%. Additionally the effect of permission lengths on price supply elasticity is tested. Consistently with theory it was found the areas above median of permission lengths have 20% lower price elasticity of supply compared to areas below median in terms of processes' length (Mayer & Somerville, 2000). Although the study was done in different context and for detached single-family housing it confirms theoretical assumptions that should similarly hold in our context.

Earlier analysis of 60 Prague residential projects preparation done by Deloitte in 2019 has revealed the average duration of residential project is almost 9 years while approximately 5 years of this duration could be attributed to obtaining EIA permit, if required, zoning permit and building permit. Remaining 4 years of project preparation process are almost equally split between project preparation at the beginning and construction at the end.

Figure 43: Residential project preparation duration in Prague



Spatial patterns of permitting process differentiation

To analyze variation in development permitting processes we use our dataset of development projects from all over the Czech Republic. This dataset contains 752 individual projects with additional information about each project, such as its exact location, developer, number of units and date of planning permit and building permit. The location of each project allows us to analyze local characteristics such as distance to the CBD or the size of the agglomeration where project is located or its surrounding characteristics like share of undeveloped land. The time stamps of planning and building permit allows to measure the length of getting building permit in days. Although it is suboptimal only the building permit phase could be measured without the planning permit and EIA statement, but it is assumed all stages of the planning process are closely related so the last stage could be used as a valid proxy to represent the whole permitting process.

[133] Subdivision approval is comparabe with Czech spatial permit as i tis also the first approval in the building approval process.

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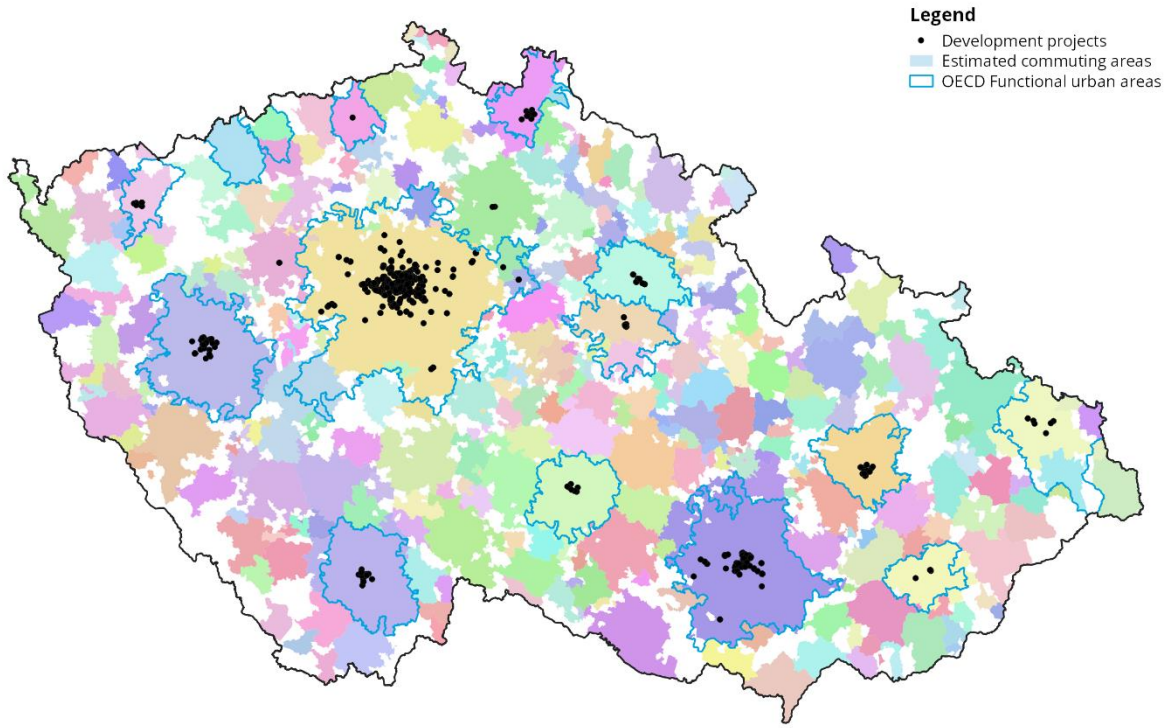
Figure 44: Analyzed development projects with commuting areas



Each project is described with number of units to consider its size and binary variable marks whether the project has only one building or is divided into several buildings. General local characteristics are measured by population of a municipality where the project is located, population of the whole agglomeration where project is located and distance of a project from the agglomeration CBD.

To measure the effect of land-use on building permit process length CORINE land cover remote sensing data are used. These data are aggregated into eight discrete categories. For the purpose of the analysis land-use shares within radius of 500 meters around each development project are considered. Sample of the data with development projects and land-uses are plotted below for the area east of Prague centre.

Additional data used contain average education achieved in the area of building authority derived from education levels from 2011 Census aggregated on the level of ORPs. For individual building authorities data from 2017-2018 building authority survey are used, in particular number of units in development projects per officer, mean education of officers and mean working experience of officers.

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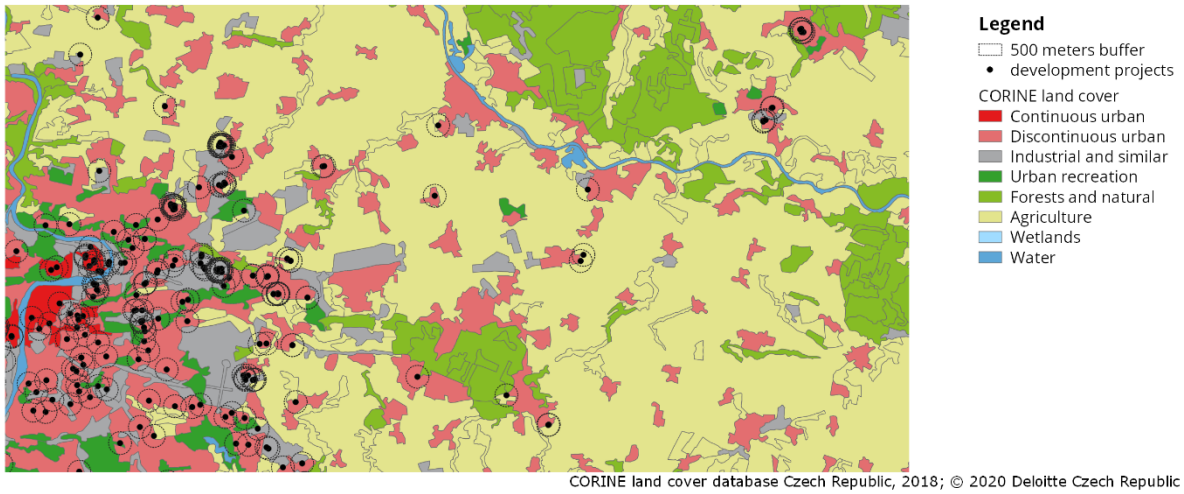
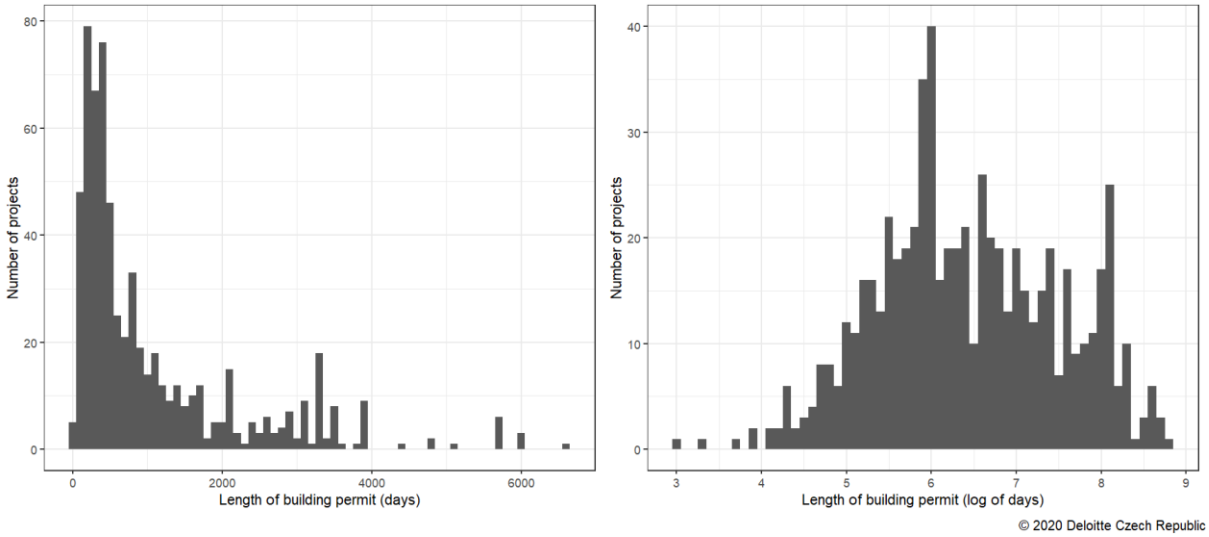
Figure 45: Development and CORINE land cover data example – east of Prague



CORINE land cover database Czech Republic, 2018; © 2020 Deloitte Czech Republic

The distribution of the target variable – length of building permitting process – is plotted below. The vast majority of projects obtain building permit within 1000 days but the distribution is significantly right skewed. The right plot where natural logarithm of the variable is shown suggests the variable is relatively close to log-normal distribution.

Figure 46: Length of building permitting process



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Simple data exploration reveals significant variation in building permitting length across Czech agglomerations. While Brno, second largest agglomeration, has average building permitting length slightly below 500 days, Prague is reaching 900 days on average. The bar plot of average building permit length is shown below. Labels at the bottom of each bar mark number of development projects in each agglomeration. Poděbrady are possibly outlier especially due to a low number of projects belonging to that agglomeration.

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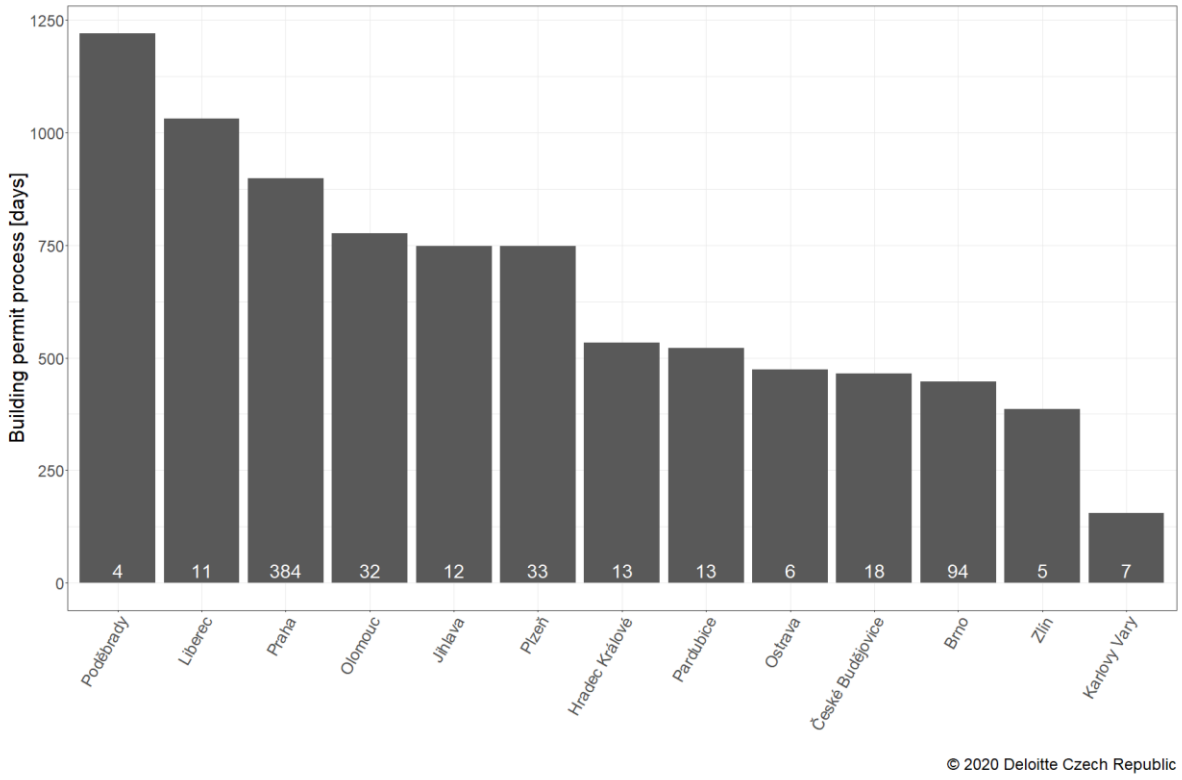
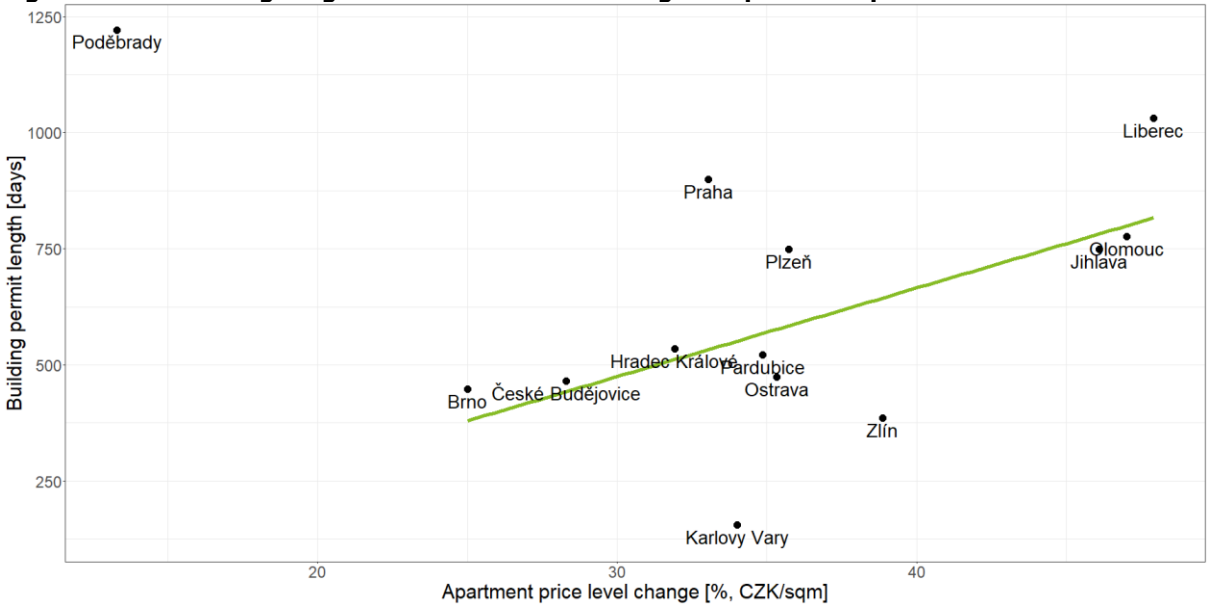
Figure 47: Building permit process lengths' variation in cities
Base year 2012



The simple scatter plot of building permitting lengths and mean apartment price changes show positive relationship of these variables. Poděbrady are not included as it seems to be an outlier.

Figure 48: Permitting lengths correlation with change of apartment prices



Another scatter plot shows very weak positive relation between average length of building permitting process and number of units in development projects per one officer of building authority. It could be observed the results are highly unequal, but despite inequality there does not

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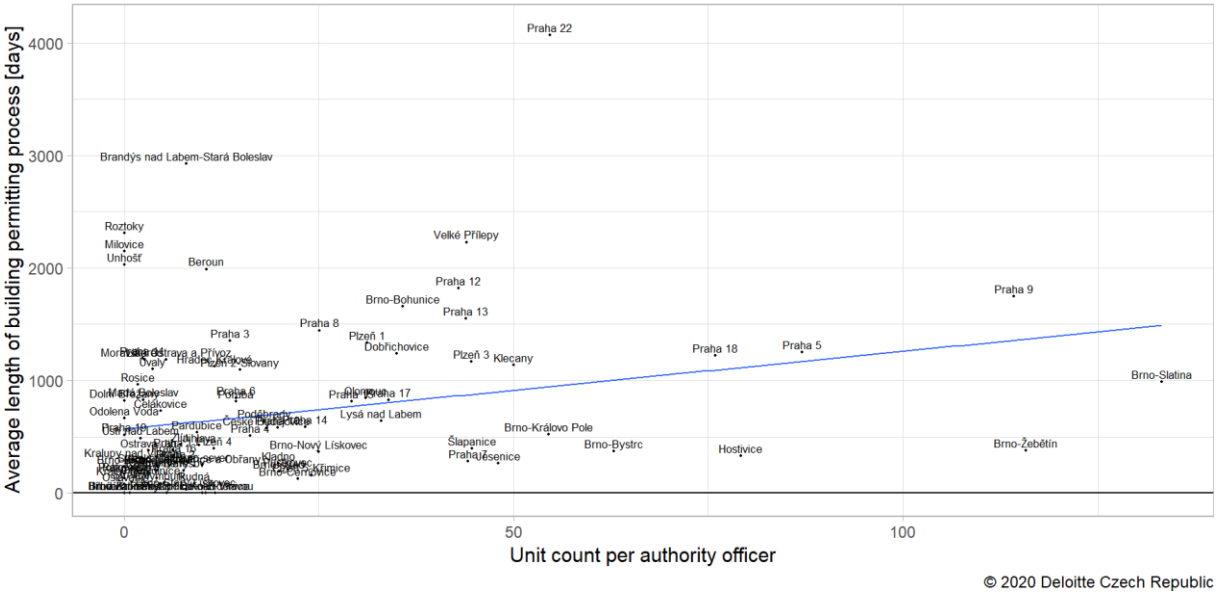
seem to be a clear relationship between both variables. I must be also added the variable of units per officer captures only units in development projects but does not include individual detached houses that constitute significant share of new construction in some areas.

Figure 49: Permitting lengths correlation with development intensity, number of units



The analysis is done as a regression analysis where the dependent variable is log of days of the length of building permit process. As explanatory variables project, site specifics and building authority specifics are used. Two main specifications were tested. In the baseline model the effects of municipality and agglomeration population where project is located are estimated. In the more complex specification other explanatory variables presented above are used.

The baseline model marked on the plot below in green colours has shown both population of agglomeration and population of municipality where development project is located have effect on length of building permitting process. When municipality where project is located is 10% larger in terms of it population the building permitting process is on average 0.95% longer. When agglomeration population is larger by 10% the building permitting process is on average longer by 0.9%. Before commenting these results it worth to compare them with extended model. It turns out the effect of agglomeration population is largely driven by other factors and when more control variables were included the effect lost its significance and also the magnitude of the effect decreased. But in the case of municipality of project location population the effect increased and still pass 5% significance level. Therefore according to the extended model specification municipality where project is located population increase by 10% is associated on average with 1.2% increase in building permitting lengths. Consistency of the estimates in the first and second model supports reliability of the result.

This seems to be a major implication towards need for spatial planning policy making. According to the model building permitting process in a municipality of 5,000 inhabitants located in the Prague agglomeration would take half of time compared to approval process of a same project in the city of Prague itself. It was already argued the length of permitting processes negatively affect real estate supply in the long run. When this applies to one agglomeration relatively more development is then expected to occur in suburban smaller municipalities because as developers are profit maximizing firms they would exploit the opportunity to invest in areas with shorter permitting process. Although some of the effect is likely to be offset by increased land values in the suburban areas the overall effect would still lead to more construction in the suburban locations compared to situation when permitting processes does not differ by location.

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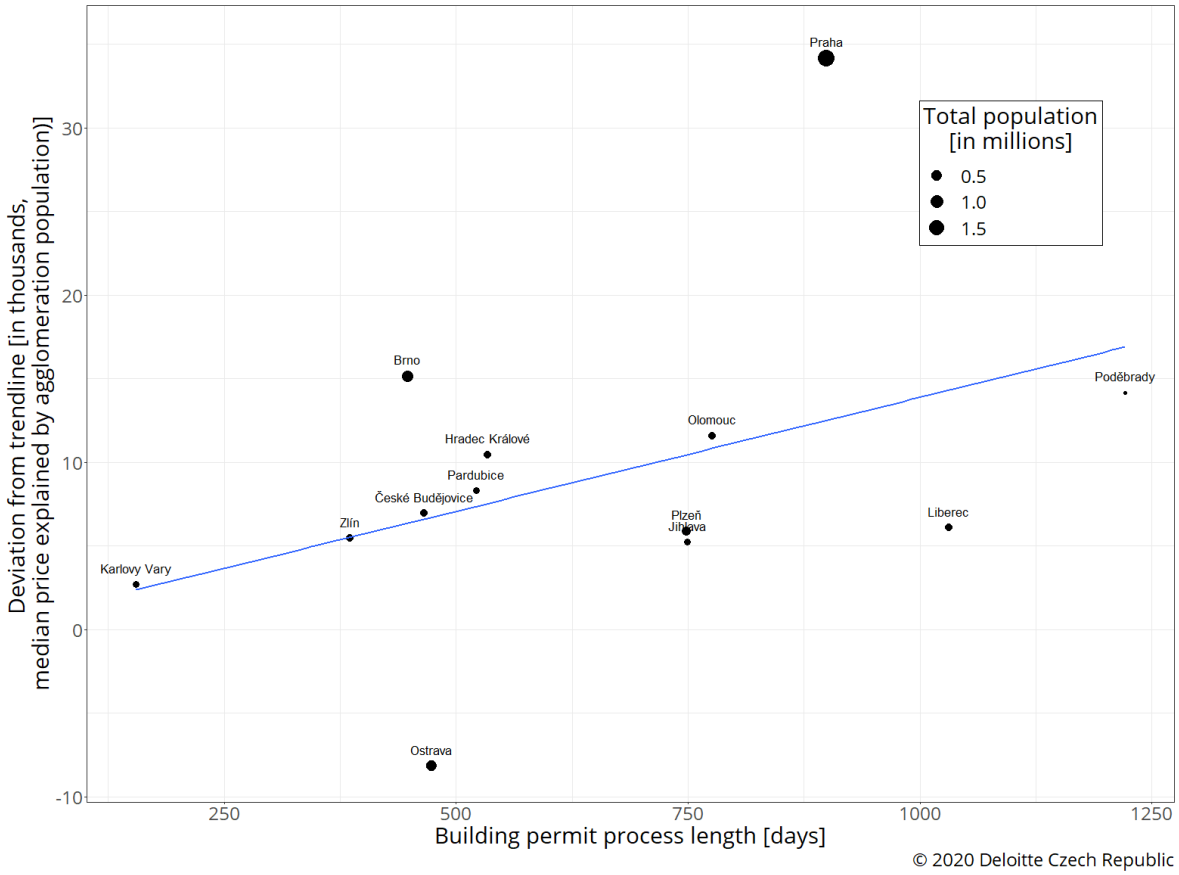
Figure 50: Relation between building permit length and deviation of housing prices from national trend



The effect of proximity to the centre of the agglomeration is inconclusive. The effect is positive and suggests 10% increase in distance from the CBD is associated with 1.25% longer permitting process, but the result is not statistically significant not even at the 10% level. Also the direction of the effect is counterintuitive as relatively shorter permitting processes were expected further away from the agglomeration centre.

The size of the development project has expected effects signs but both effects are not statistically significant even on the 10% level. The increase of number of units in a development project by 10% is associated with 0.5% increase in permitting length while development project that has only one building has on average 10% shorter permitting process.

The effect of mean education achieved by officers at the building permitting authority seems to have expected sign, large magnitude and in some specifications is significant on 10% level while in some specifications is not, but it might be caused by multicollinearity as officers' education is positively correlated with local education attainment and population size. According to the model 10% longer schooling of officers is associated on average with 8% shorter permitting process. The effect of average education length in the area of building permitting authority is six times smaller and not significant. It has turned out the length of working experience of officers does not seem to have any effect. Similarly the number of units in development projects per officer does not have any effect.

Then the effect of having a valid spatial plan on the length of building permitting process was tested. The variable in the data captures the share of municipalities within the administrative area of a given building permitting authority in percentage points. The result shows the increase of municipalities with valid zoning plan by 10 percentage points is on average associated with

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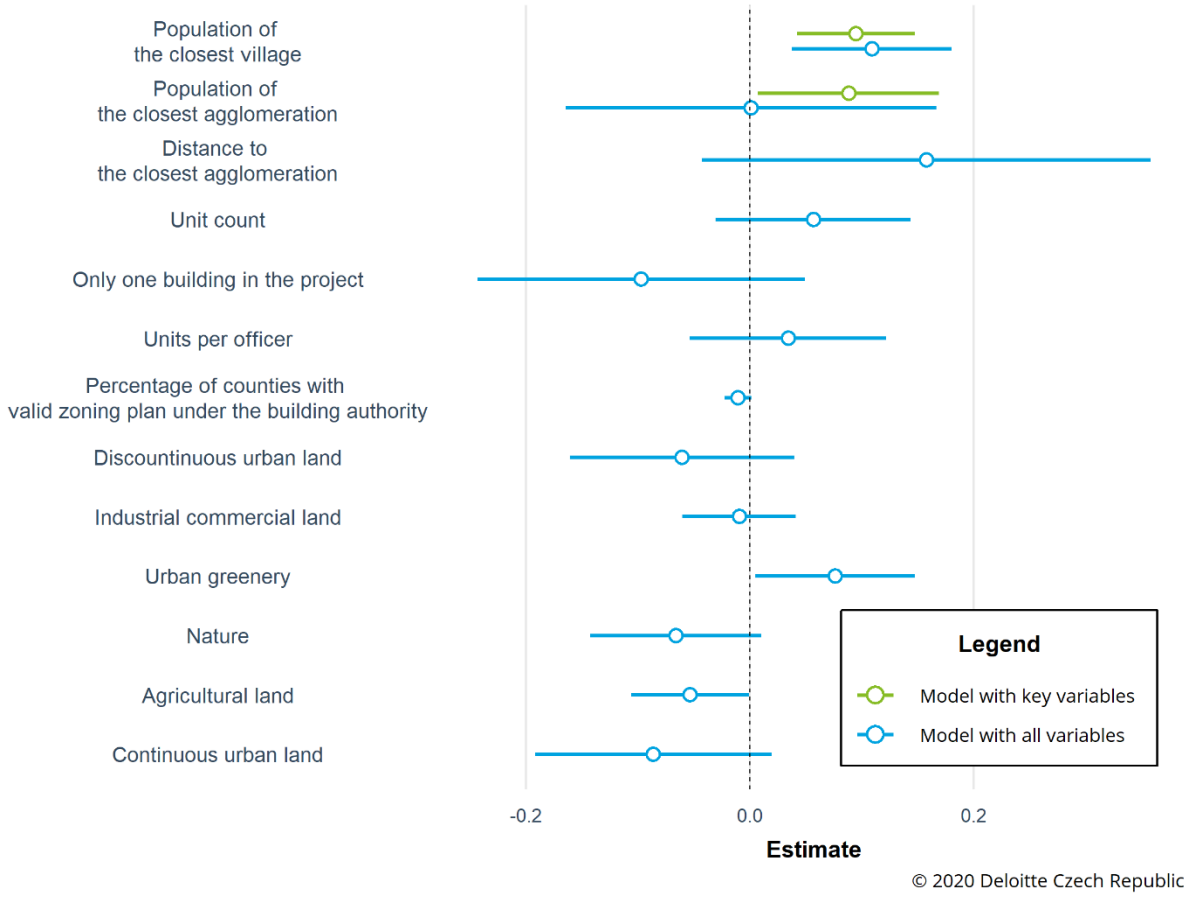
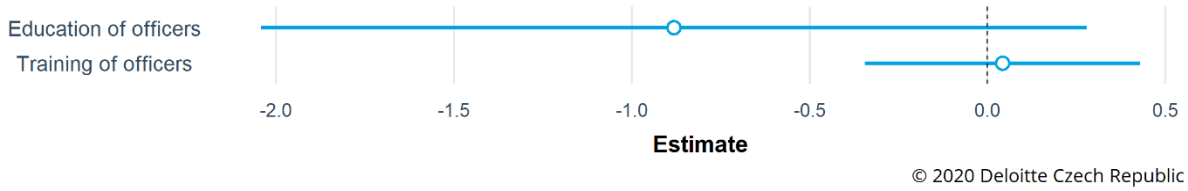
permitting processes length decrease by 11% and the result is statistically significant on the 10% level.

In the final part of the model the effects of land-use type in the development project proximity is tested. If the share of urban green spaces increase by 10% the building permitting process is on average longer by 0.7% and the result is significant on 5% level. Increase of continuous urban fabric, agricultural land and natural land by 10% is on average associated with shorter permitting process by 0.9%, 0.5% and 0.65% respectively and all these three results are statistically significant on a 10% level.

Figure 51: Building permitting lengths' variation analysis – percentage effects of 1% change in chosen variables

Statistical details provided on page 167





In the last set of two scatter plots the relationship between mean education of officers at each building permitting office and mean education of the administrative area of a given building permitting office. In the first plot vertical axis marks education of officers and horizontal axis marks mean local education within the administrative area of a building office. Although the relationship is not strong, there is a positive correlation between both variables.

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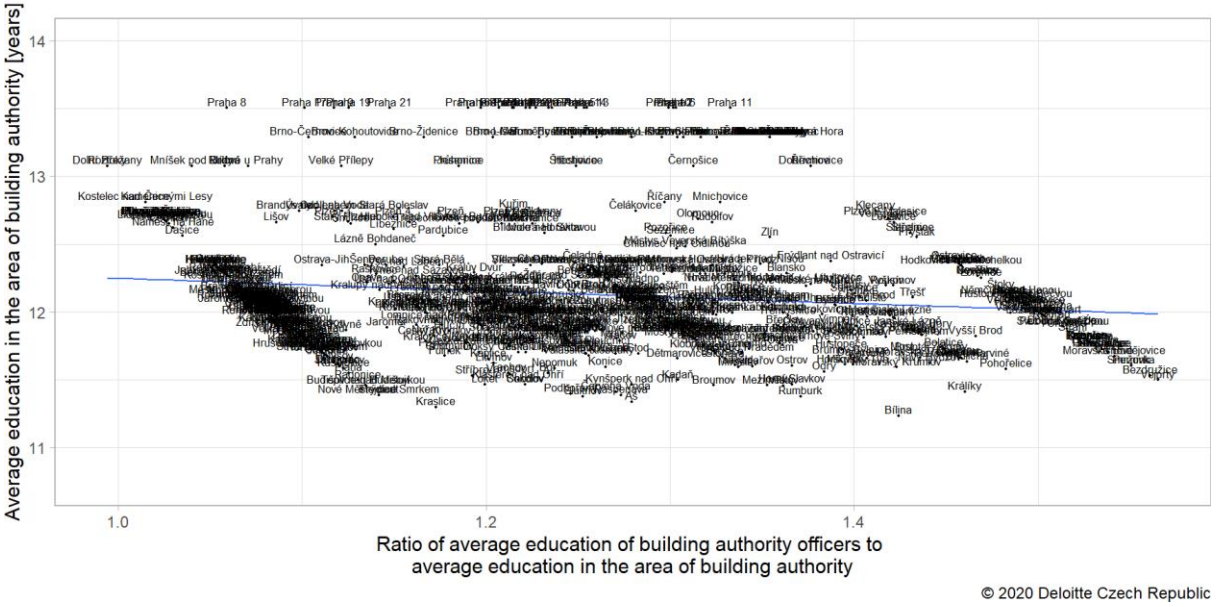
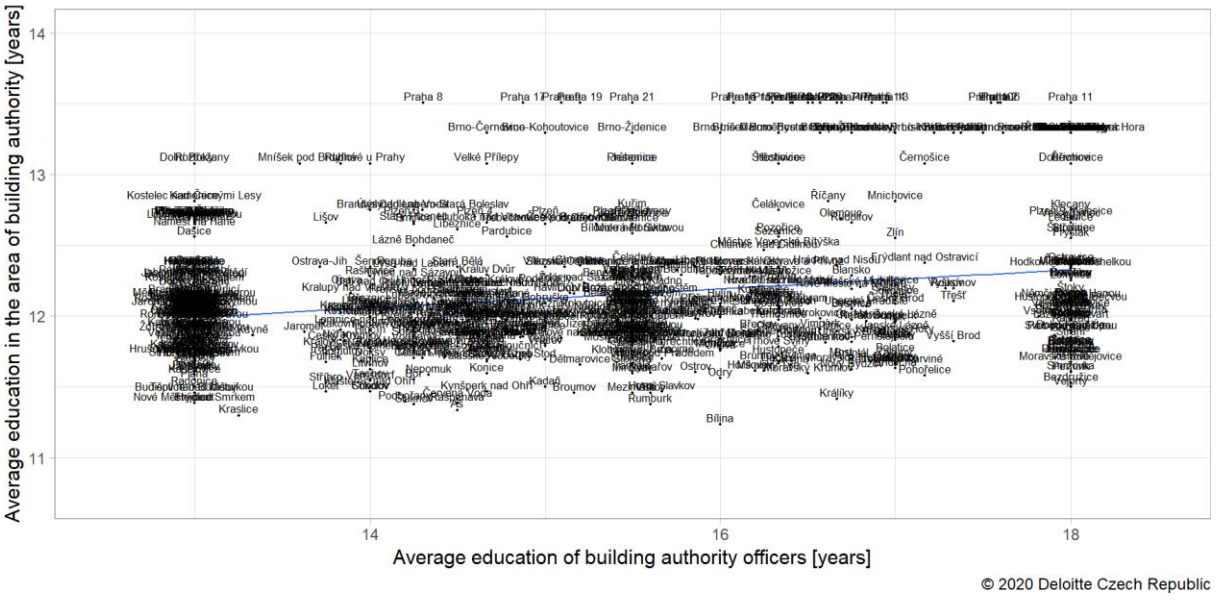
The second plot has on the vertical axis mean education of officers in years and on the horizontal axis the education of officers is divided by mean education in the administrative area. The negative relationship reveals there are smaller differences between education of officers and local population in areas where officers are more educated, in other words in generally more educated regions. Where officers have on average lower education their education is still relatively higher compared to local population.

Figure 52: Building permitting officers' and local education levels





Time pattern of building permitting process differentiation

To analyze differences in permitting processes' lengths in the past different method is used, because results of simple regression of permitting length on year when the process started would yield biased results. Problem of such an analysis arise from selection bias problem. In this case we observe development projects authorized by the building permitting authority up to the end of the year 2019. When we would split our hypothetical sample into projects that took long time to permit (for instance more than 6 years) and projects that took short time to permit (for instance up to 1

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year) we would observe different average permitting durations for projects started in 2012 and 2016 despite there is no actual real change in the permitting process. It is due to the fact that we observe both 'long' and 'short' projects commenced in the 2012 and therefore average permitting process duration of a project commenced in 2012 would be medium, while for projects commenced in 2016 we observe only 'short' projects, because 'long' projects are still in the permitting process and not authorized yet. For that reason in the data only 'short' projects commenced in 2016 are observed.

To overcome selection bias problem the dataset used for the spatial variation in the permitting processes is combined projects that have not been authorized yet. From these data cumulative distributions of projects with respect to their length of permitting process are constructed. In other words the share of projects that got authorized up to the first and every following month after the project is commenced. This share is by definition 0 when projects are commenced and is approaching 1 after a decade, when almost all of commenced projects are authorized.

This cumulative distribution function is plotted separately for projects commenced in given period. The baseline category are pre-crisis and crisis projects from 2004 to 2010. Then follows recent post-crisis projects from 2011 to 2014. This period also coincides with major amendment of Building Act. Then follows recent projects from 2015 to 2018. If the plotted cumulative distribution functions do significantly deviate one from the other then it might be interpreted as a change in the permitting processes' lengths.

The baseline pre-crisis category exhibits relatively quick approval of some 30% of projects, but the remaining become quite lengthy as these projects have entered the crisis and there was most probably not such as pressure to speed-up the process. The projects whose building approval process was initiated during the years following world financial crisis had on average slower pace of obtaining the building permit in the beginning and the share of projects that had obtained the permit linearly grew over the period. Significant changes are observable in both post-crisis periods.

Almost 40% of projects that begun building permitting process between 2012 and 2014 have obtained their permit within 15 months that is approximately equal to pre-crisis value. Then projects that entered the building permitting process after the 2014 seem to be faster as some 60% of projects have obtained the permit within 15 months. But it worth noting the share of permitted projects after 2014 is converging towards the projects from 2012 to 2014. It could be the case the majority of easier projects are permitted faster but the remaining 25% of more complicated projects are not affected in terms of permitting speed.

These results however cannot conclude the permitting process is becoming faster because it might be the case some sub processes were moved to the earlier stage of spatial permit and therefore building permit has become less complicated.

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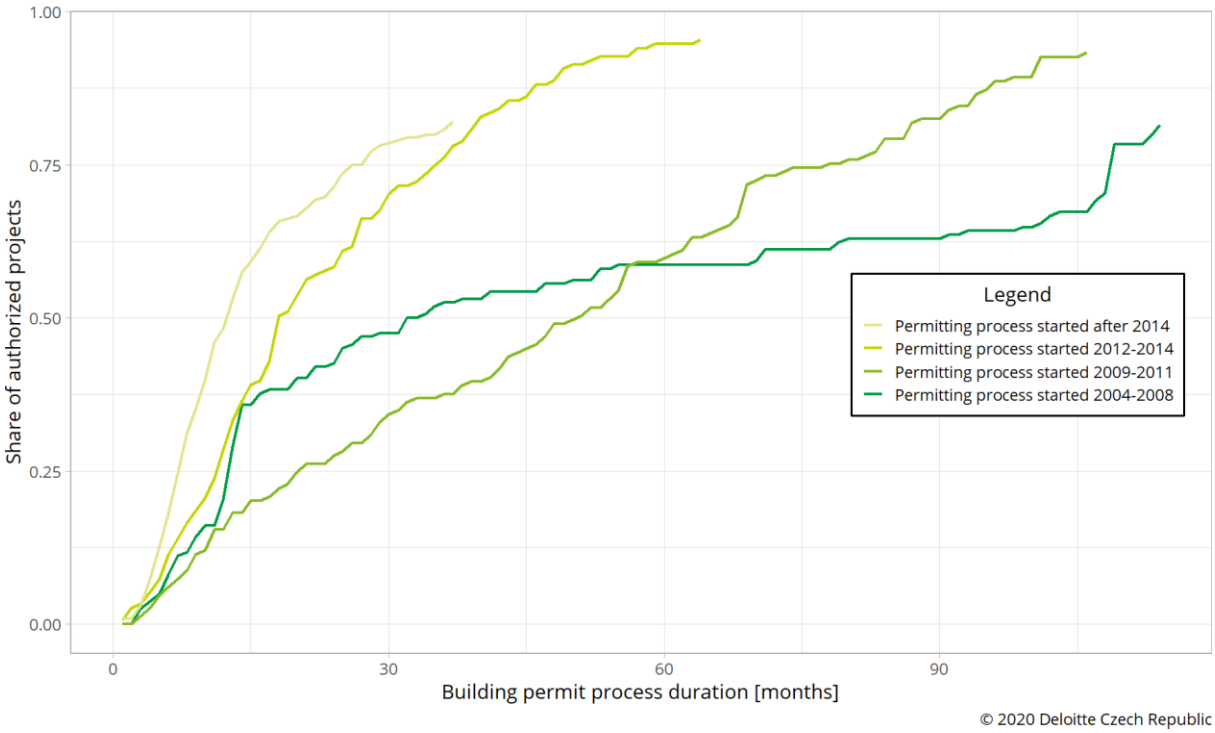
Figure 53: Evolution of building permitting process



6.4. Spatial permitting process lengths' variation analysis

The spatial (zoning) permitting process length analysis is done on a reduced dataset of residential development projects prepared in Prague after 2014. As a period analyzed is time starting from administrative decision whether the project has to or has not to be assessed in EIA and ends when the spatial permit is issued. Therefore if the project has to be assessed in EIA process the length of the assessment is included within the variable of spatial permit length.

Due to the limited number of observations results are in some cases inconclusive because they are not statistically significant, but generally most of variables have expected effects and are consistent with results of previous model focused on building permitting process.

The effect of number of units in a development project on spatial permit length is positive, but effect is low and insignificant. If the development project has only one building the spatial permit is on average 25% shorter, but the result is not statistically significant.

Regarding the characteristics of project's location statistically significant and relatively large in magnitudes is the proximity to the city centre or local subcentres measured as number of Prague jobs opportunities within 10 kilometres. Increase of jobs opportunities by 10% is associated with 13% longer spatial permit on average. Additionally taking into account structural density measured by gross floor area it turns out getting a spatial permit takes longer in denser areas, but the results are not statistically significant. When taking local jobs and residents composition into account it turns out the higher share of jobs on jobs and residents combined the shorter spatial permit is.

These results partly address the issue why we observe so much of a "greenfield" development. The analysis confirms it takes longer to obtain a spatial permit for a residential development project if the project is located closer to the city centre and if it is located in a structurally denser neighbourhood. This leads to more construction in areas that are less developed and further away from the city centre. The results also suggest it might be related to local residents' unwillingness for development known as NIMBY problem, because all else being equal in the locations where there is relatively more residents and less jobs the permitting process is on average longer.

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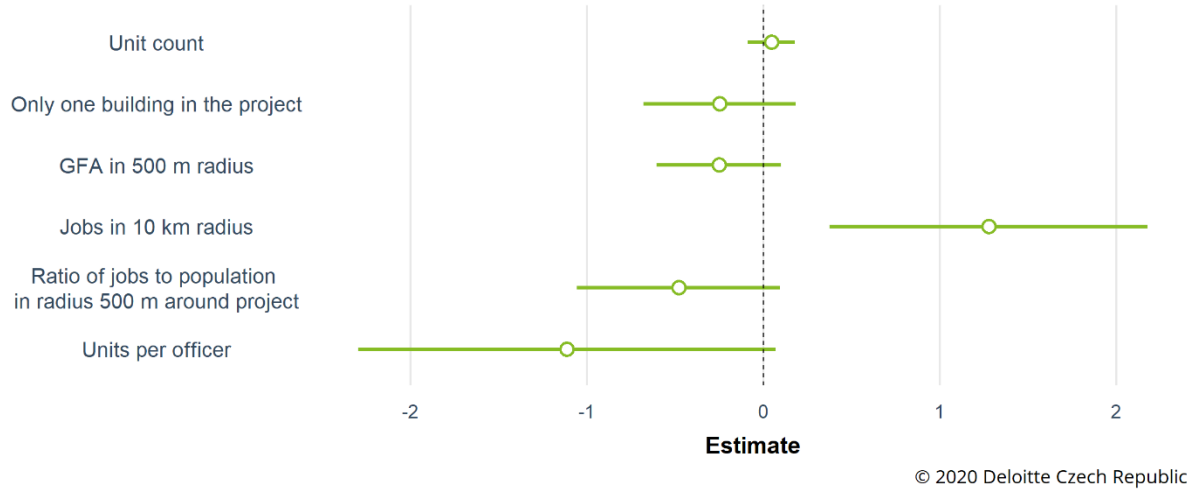
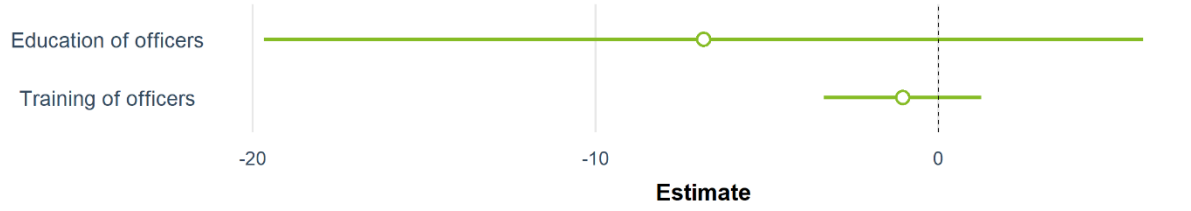
Both education and working experience of building permitting authority have negative effects on spatial permit length with higher magnitude for education. Nevertheless the coefficients' estimates have very high standard errors and are not statistically significant. Unexpected sign is for number of development units per officer that shows the more units is per officer the shorter it takes to obtain spatial permit.

Figure 54: Zoning permitting process lengths' factors
Statistical details provided on page 170





Conclusions

Both analysis of spatial permits lengths and building permits lengths revealed it takes shorter time to obtain permit in smaller municipalities (building permit, analysis of the whole Czech Republic) and within a large city permitting processes are shorter further away from the city centre and in less dense areas (spatial permit, analysis on Prague data). These factors support suburbanization trends as they push new development out of agglomeration core cities into smaller municipalities beyond their borders and within the core cities outside of their centres.

There is some evidence local residents might be unwilling to accept new development. This is based on finding the higher share of residents on residents and jobs in an area is the longer spatial permits on average are. Additionally building permitting processes takes longer when there is higher share of urban green spaces that are amenities valued by local residents.

The higher education of officers at building authorities is associated with shorter permitting processes while effects of working experience is inconclusive.

It seems building permitting processes are slightly faster since 2014, but only for projects that obtain permit quicker. In case of projects that do not obtain building permit within 30 months results of projects starting permitting process after 2014 and between 2012 and 2014 are similar.

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Recommendations

To keep new development compact within the currently built-up city limits it is necessary to keep permitting processes in the central city at least as short and predictable as at the city outskirts or otherwise developers are always motivated to build further from the centre. According to the results the problem of longer permitting processes in larger cities and in more central locations is not driven by more agenda per each officer represented by number of units in development projects per officer. Therefore it seems appropriate response to the problem is largely based in other instruments that will ease development in desirable locations and impede it in less suitable areas.

Increasing overall level of officers' education attainment in areas where more development is desirable might partly decrease permitting processes' length there and make these areas more attractive for initiation of new development.

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7. Annex 5 - EU Member States planning framework analysis

7.1. General overview of practice in EU and OECD member countries

This section of the report looks at spatial and land-use planning systems of selected EU member states. The aim of this section is to identify key characteristics of planning frameworks in a given country and primarily focuses on following aspects of planning frameworks:

1. Which planning instruments are in place and how do these interact?
2. What are the main procedures and processes linked to adoption of planning documentation?
3. How does law support the above-mentioned and what implications does this law poses for planning at national, state, regional and local levels?

OECD in its survey from 2015 and 2016 (Land-use Planning Systems in the OECD, Country Fact Sheets, 2017a) has studied land-use planning systems in 32 countries and identified in total 229 types of unique spatial and land-use plans. One of the main findings of the survey is the fact that on average the distribution of responsibilities over creation and adoption of these plans are almost equally split among the national governments (responsible for 37% of plans), regional governments (responsible for 32% of plans) and local governments (responsible for 32% of plans).

From the geographical point of view, the study has divided plans into following categories based on their geographical coverage:

- National plans;
- Regional plans;
- Sub-regional plans;
- Metropolitan or inter-municipal plans;
- Municipal plans;
- Sub-municipal plans;
- Plans that does not have strict horizontal geographical coverage and vary in this respect;
- Other plans that may intersect the hierarchy vertically.

This division reflects generally accepted hierarchy in spatial planning and provides a better insight into each of the planning systems that we look into later. The largest groups of unique types of plans when taking into account geographical perspective are plans at the municipal and sub-municipal levels. This fact further supports a simplified argument and a common view, that land-use and spatial planning is being elaborated on municipal or local level, although it cannot be easily said to what extent upper-level governments intervene into it.

Within the context of this report, the important issue arises when speaking about metropolitan plans – documents that have lately attracted attention of many large cities in EU countries. This attraction could be partly explained by a lack of adequate tools to regulate and steer urban development in large agglomerations. Based on the OECD, metropolitan plans are mostly covering an area of entire region, which places them on the same level as regional or sub-regional plans in most countries and therefore are not "metropolitan" by definition.

Pure metropolitan plans are rare within EU member states and common characteristic is that the approval and adoption process is subject to different regulation in context of planning framework. For example, national government approves the metropolitan plans in Budapest and Copenhagen, while separate metropolitan authority consisting of various public and semi-public bodies approves metropolitan plan in London.

In terms of geographical coverage, similar to metropolitan plans are inter-municipal plans. These could be characterised as plans adopted by a body formed of representatives from multiple municipalities. The approval and adoption process in this case may happen either before (by

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appointing a work group responsible for oversight of drafting process) or after (in form of decision of self-governing body of the member municipality).

In order to comprehensively describe planning systems and instruments of each country, the simplification of the functions of plans had to be made. The report (Land-use Planning Systems in the OECD, Country Fact Sheets, 2017a) has concluded three main functions of the plans:

- **Policy guidelines** – this function of the plans has no direct effect on utilization of the land and primarily tries to present key policies for lower level plans. These guidelines take into account vast scale of themes even outside of the issues and spatial planning. Policies therefore aim to present themes such as transportation strategies, environmental strategies or other objectives with non-spatial relation. This function is highly visible mainly at the level of national and regional plans, where spatial references would be highly inaccurate. The most important aspect of this function is to provide procedural overview and sometimes simplified methodological support for spatial planning processes.

- **Strategic plans** – the main objective of these plans is to present specific challenges which should be addressed for the given geography within area of spatial planning and suggests actions or policies to tackle these challenges. Strategic plans also often outline important infrastructure corridors and divide the geography into smaller areas which are expected to be covered by specific zoning plans.

- **Zoning or boundary plans** – generally this sets out specific land-uses in plans in forms of map-based documentation. The level of detail and specificity for this function of plans varies and is closely connected to flexibility of planning framework. Also, regulatives (zoning areas with different anticipated utilization) in plans are commonly the only legally binding elements steering the land-use and are mostly present in this function of spatial planning framework.

The above-mentioned functions are not stand-alone elements but mostly are combined within the given document. Below is a brief summary of functions and thematic focus of most-widely used types of plans following the hierarchy of administrative division of EU countries.

National and state plans

According to report (Land-use Planning Systems in the OECD, Country Fact Sheets, 2017a) more than 75% of national and state plans contain policy guidelines and strategic plans with anticipated challenges. Zoning is the least represented function and national plans contain it very rarely. In terms of regulation, most of these plans contain binding provisions for lower level documents. Regarding the austerity of these guidelines, the OECD concludes: "Frequently, national plans and guidelines are not reflected in lower level planning and compliance of lower level plans with national plans is not always enforced." There are several reasons for such low enforceability. First are the vague and general formulations which can be attributed to enhance flexibility of the plans and to formally comply with a need for this plan. Secondly, the enforcement mechanisms are absent or tools are poorly designed within broader context of regulation and law. Third, the creation and adoption of plans is subject to input of many stakeholder and dependent not only on horizontal but also on vertical coordination of interests – unsatisfactory policies from the point of view of single stakeholder then may mean refusal of compliance with such policies. Lastly, as national plans take form of regulatory decision, the responsible body of government may prove to be hesitant with adoption of plan which is not politically aligned.

Regional and sub-regional plans

On the level of regional and sub-regional plans, the balance between strategy and policy is most visible. Strategic planning – making an assumptions about various challenges specific for given geography or its part and proposition of actions or steps to be taken and considerations for the lower level documentation. Again, the function of zoning or boundary plans in satisfactory detail is generally absent and if present, the detail provided is usable just for limited group of stakeholders. The already

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mentioned enforceability of policies and guidelines issues is very similar for regional level plans too which is emphasized by their generally weaker status comparing to other documents.

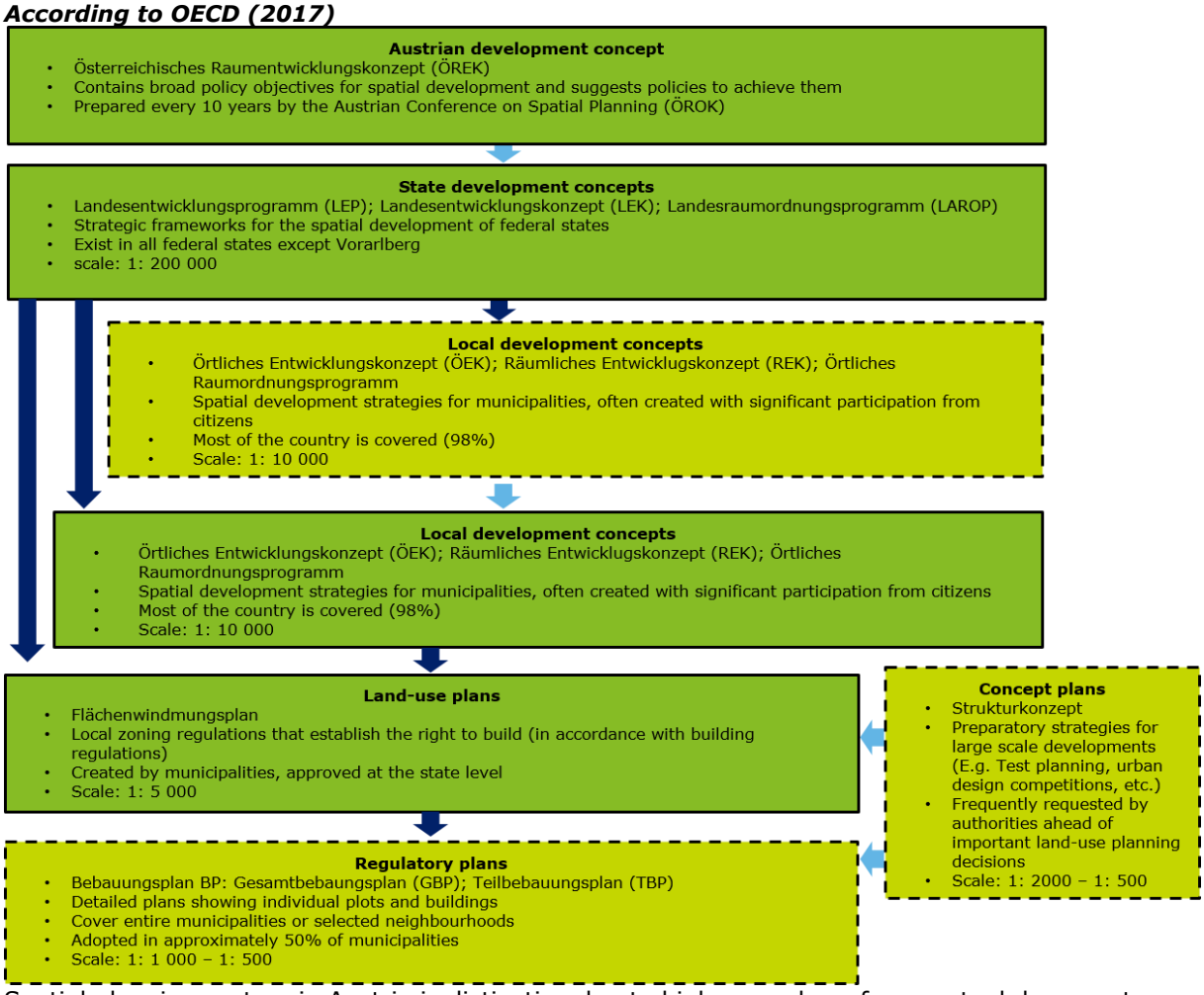
Municipal and sub-municipal plans

Land-use plans on level of municipalities from those examined by the OECD have predominantly form of boundary (zoning) plans. At the same time, these plans are the only legally binding and statutory documents that determine permitted land use for a given area. The map-based nature of plans is in place to ensure proper enforceability. Common characteristic is that these plans regulate land-use at the very local level and thus majority of the plans are approved through vote of elected body.

7.2. Planning system in Austria

Austrian spatial planning system is in some respects very decentralised as the government on federal level has very limited powers in this area. Mostly the federal government transfers the powers and responsibilities for spatial planning to states – Lander, which continue to pursue its own legislation. Federal government, however, plays a key role within coordination of spatial planning across states and municipalities via ÖROK – Austrian Conference on Spatial Planning. This body ensures coordination and administers talks between various stakeholders. Moreover, Austrian municipalities are small with approx. 4 000 inhabitants on average and this fact has contributed to need of inter-municipal coordination in form of municipal associations which prepare joint planning documents.

Figure 55: Spatial planning system hierarchy in Austria
According to OECD (2017)



Spatial planning system in Austria is distinctive due to higher number of conceptual documents which currently exist at all levels of government – national, state, regional and local. National level

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concept defines broad policy objectives and suggests parties, which should be involved in implementation of such policies. Due to federal organization of the country, each of the states creates its own state spatial planning concept, which are similar to national level concepts but policies and guidelines are state-specific and not necessarily aligned with national level plan. In comparison with other planning documents within the system, the process of creation of regional level concepts differs among the states. In some of them, regional concepts are not prepared in a way that would cover the whole area of the state but only a part of it, for example urban areas, natural heritage parks or ski resorts. Also, there is no strict policy whether concepts at this level have to be land-use oriented – this is left to be sorted out by the state itself. However, common characteristic of these concepts is their governance and citizen-involvement focus. Below the regional level concepts in most Austrian states are local concepts – these are at the same time the only legally-binding documents among the concepts and have implications for land-use plans at the local level.
In terms of map-based plans, Austrian system leaves this area to competencies of municipalities. Due to relatively high number of municipalities, the states have instruments in place to encourage inter-municipal cooperation, making the adoption and approval process of such plan more efficient. Plans at the local level are legally binding and show permitted land use. Citizen involvement at the local level is furthermore emphasized by utilization of so-called concept plans, goal of which is to test responses of general public to various projects later adopted by local land-use plans. Outputs from concept plans later also form key part of regulatory plans – documents adopted for a part or a whole of municipality and prepared for all the proposed development projects. In terms of cooperation, the most important part of the framework is OROK – conference on spatial planning, which coordinates interests of public and private subjects within the process and steers the overall direction of planning.

Examples of Austrian planning documents

National Level Concept (ÖREK) has been last published in 2011 and could be considered as a key strategic document. It is regularly prepared by Austrian Conference on Spatial Planning (ÖROK) and currently, the works had already started on publication in 2030. Moreover, each year a 2-day conference is held by OROK with presence of representatives from all levels of the government to discuss most relevant topics. The process of creation the concept itself is outsourced to private companies – for the 2030 publication a consortium of planning, communication and transportation expert groups has been selected.

As mentioned in the general overview of the Austrian planning system, state-level concepts vary greatly across the country. Each state prepares its own legislation and legal framework for spatial planning. But despite this freedom, general aspects of the concepts are similar and based on the best practice. Example shown here is state concept for Niederoesterreich – Lower Austria (Concept, Perspectives for regions). Approved in 2004, the state concept aims to define principles and goals of spatial development and serves as a key resource for regional concepts. The institution responsible for preparation is Department for regional planning of Lower Austrian Provincial Government.

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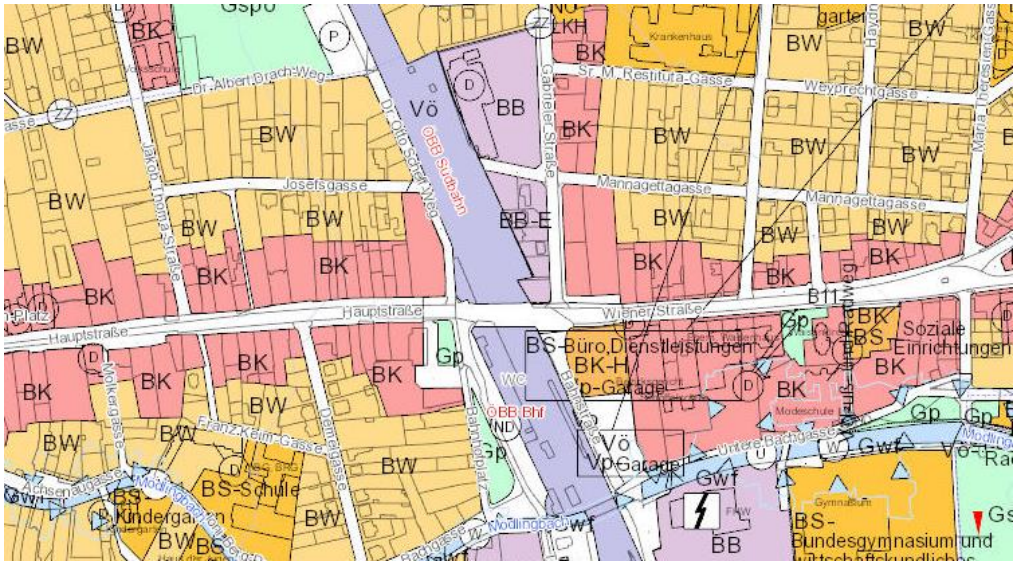
Figure 56: Section of Modling local land-use plan

Development concepts for regions of respective states contain generally more detailed policies and



strategies. Example here adheres to Lower Austria regions of Northern Vienna, Modling, Sudost. These 3 regions have adopted a joint development concept which is more specific and also contain for example mobility and waterways guidelines with detailed maps.

Local land-use plans in Austrian system tend to be very similar as companies creating them operate on a wider than local areas and therefore have experience across the states or country which is supported by the fact that list of these experts and companies can be found on respective federal government's website. In terms of content, these plans are map-based and mostly follow division of land by expected functional utilization as shown in Figure 56: Section of Modling local land-use plan (map, text).

7.3. Planning system in Germany

Planning system in Germany as a federation of 16 states is in some respects very similar to the system that is in place in Austria. In Germany, federal and state governments share responsibilities for the area of spatial planning. Both levels of governments have powers to pass legislation regarding this topic. In practice this legislation then follows a principle when the latest of the regulation applies regardless of its origin in national or federal government. Distinct feature of the planning system is application of so-called counter-flow principle. This principle enables for flexibility of the system by mixing top-down and bottom-up elements in decision-making.

Figure 57: Spatial planning system hierarchy in Germany

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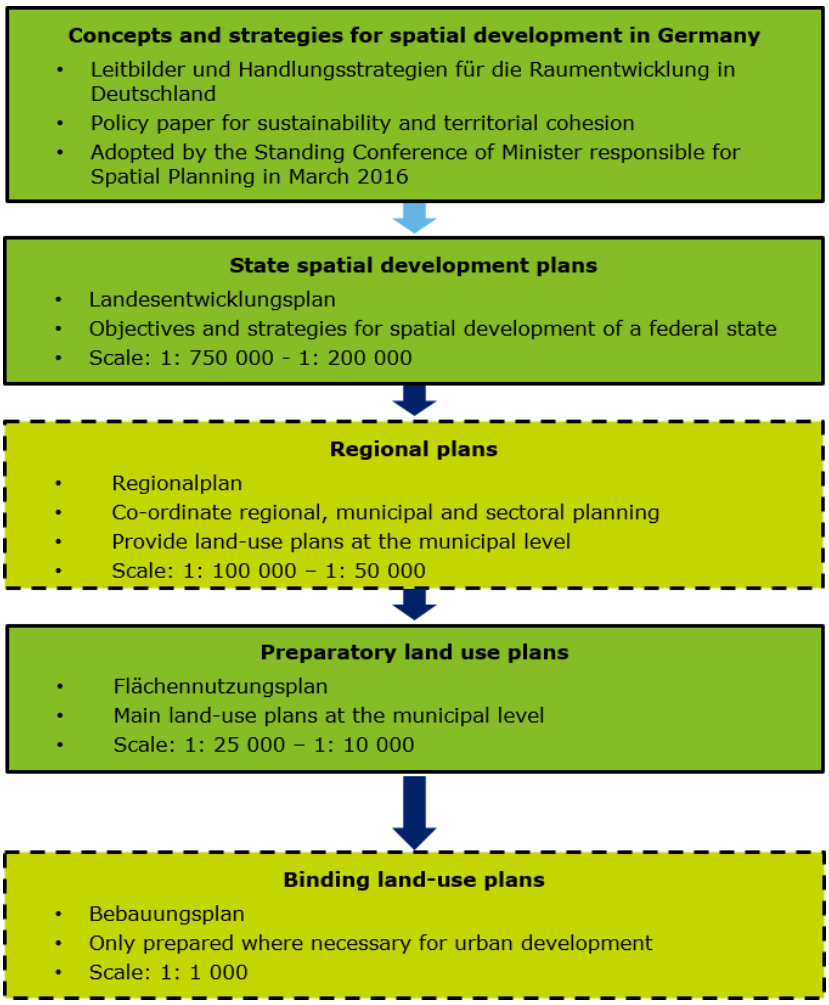
According to OECD (2017)\z



In spatial planning hierarchy, the top-most document at the national level is policy document prepared by Standing Conference of Ministers (Ministerkonferenz für Raumordnung, MKRO) responsible for Spatial Development in Germany. Thematically this documents contain wide range of policies and guidelines form competitiveness to transport.

At lower level, State Spatial Development plans are prepared. Partially, these documents mirror key policies of the national level policies but adoption procedure and approval processes differ across German states. At the same time, State Spatial Development plans are legally binding for municipal or local governments.

Below the state level, regional plans further address challenges stated in state level plans. Regional plans are usually created for so-called planning regions, which are approximately of size between 10-30% of the respective state. These regional plans at the same time serve as a key tool for coordination between national, federal and local administrations. Process of creation of regional plans varies between states, but Federal Spatial Planning Act allows for multiple options of drawing (state administration, districts, regional associations, metropolitan authorities).

At the lowest level of spatial planning system in Germany is the municipal government. In general, at the municipal level, two types of plans exist – preparatory land use plans and binding land use plans. Preparatory land use plans outline functions of current settlements and usually cover the entire area of municipality. In contrast, binding land use plans (Bebauungsplan, B-Plan) are usually mandatory for proposed development areas and are similar to generally known regulatory plans.

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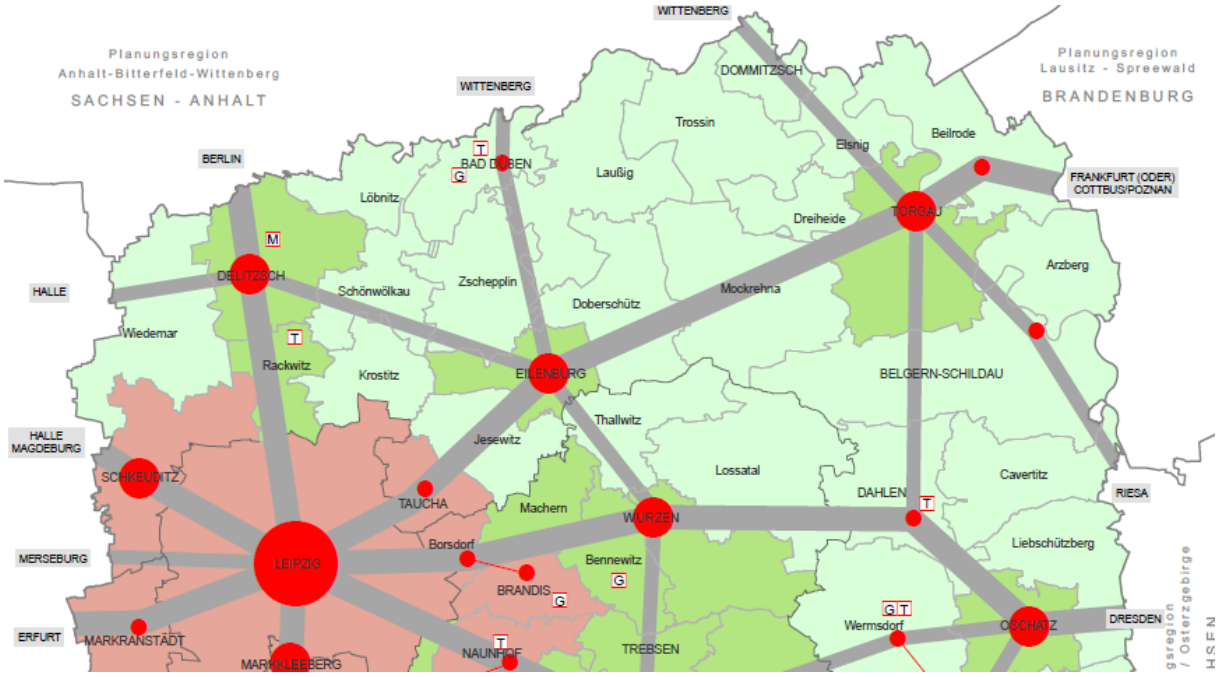
Examples of German spatial planning documents

At the national level, Standing Conference of Ministers responsible for spatial planning issues Concepts and Strategies for Spatial Development in Germany. The concepts were previously published in 2006, which was also the first such publication after reunification of the country. Substantial changes to this publication are done in updates with various periodicity, the last of them done in March 2016. The document itself is quite simple with only 50 pages and from content point of view it mentions themes such as enhancing competitiveness, provision of public services, climate change issue or sustainable land use. From sectoral point of view, the publication also addresses issues connected to transportation or energy system. Broadly speaking, it contains political declarations and proposes approaches to be elaborated on in lower level documents.

State Spatial Development Plans (LEPs) are key documents on state level. For the purposes of this report, we have briefly examined LEPs of Bayern and Saxony. LEP for Saxony has been prepared by state government in 2013 with vision to 2025 and this trend of 10-year horizon is also observed in LEP of Bayern. Publications, however, anticipate fast-moving world and in case of need allow for earlier update. Looking at public involvement, these plans are target of interest to general public and often receive large amounts of statements and comments. Also, publications commonly define goals of spatial planning, objectives on state level and partially differentiate between urban settlements and free landscapes. As the area covered by these plans is large, usually zoning at this level is absent and map-based resources contain broad topics such as environment or mobility.

Regional plans (Leipzig-Westsachsen – text, maps) provide among others a planning framework for spatial planning at the municipal level towards land-use planning. Commonly these are prepared by joint regional planning associations. They are somewhat derived from higher level LEPs and mostly conform to key elements. Planning associations responsible for regional level plans are created with aim to have a relevant say on state and national level and so the members (municipalities) are selected accordingly. Creation of such associations is guaranteed by respective state law and for example in Saxony, a board of the planning association consists of 16 councillors from various municipalities.

Figure 58: Section of Leipzig-Westsachsen regional plan



As previously mentioned, at the local level, two types of plans exist. Example here is the one of Leipzig's (interactive, maps) Preliminary Functional Zoning Plan. It provides planning framework for

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urban development for a given period of time and also contains map-based resources with functional division of zoning areas. Generally, the higher level planning framework takes into account municipal regulations and its planning principles. The other type of plan at the local level (Bebauugsplan) is dedicated for areas which are subject to development in the future. These plans however, have to also comply with some general rules set out in planning framework at the municipal level otherwise risk being rejected by authorities. Also, in most states in Germany, the right to build comes from B-plans rather than preliminary zoning plans which are binding only for state administration.

7.4. Planning system in the Netherlands

Spatial planning system in the Netherlands relies on 3-tier government system with national, provincial and municipal levels and has several distinct features in comparison to those previously mentioned in Austria or Germany. Established practice in planning follows principles of subsidiarity, where the system gives the powers to the lowest level of government when possible and to a higher level of government when necessary. National government has overall huge say in steering development of infrastructure projects which later affects all the other levels of governments in the country. Within the system, key document for each level of the government is structure plan – a strategic policy document with implications for other, land-use focused plans.

At the national level, the government prepares National Structure Plan which highlights important networks and areas to be developed. Under this plan, the central government can also offer incentives for lower-level administrations so desirable projects and developments may happen.

Generally speaking, in terms of spatial planning, provincial governments are quite independent from central one. These also adopt structural plans but also have an important say in decisions of municipal governments. This right is predominantly intended to prevent decisions which could potentially harm other municipalities and so this way the provincial governments coordinate actions.

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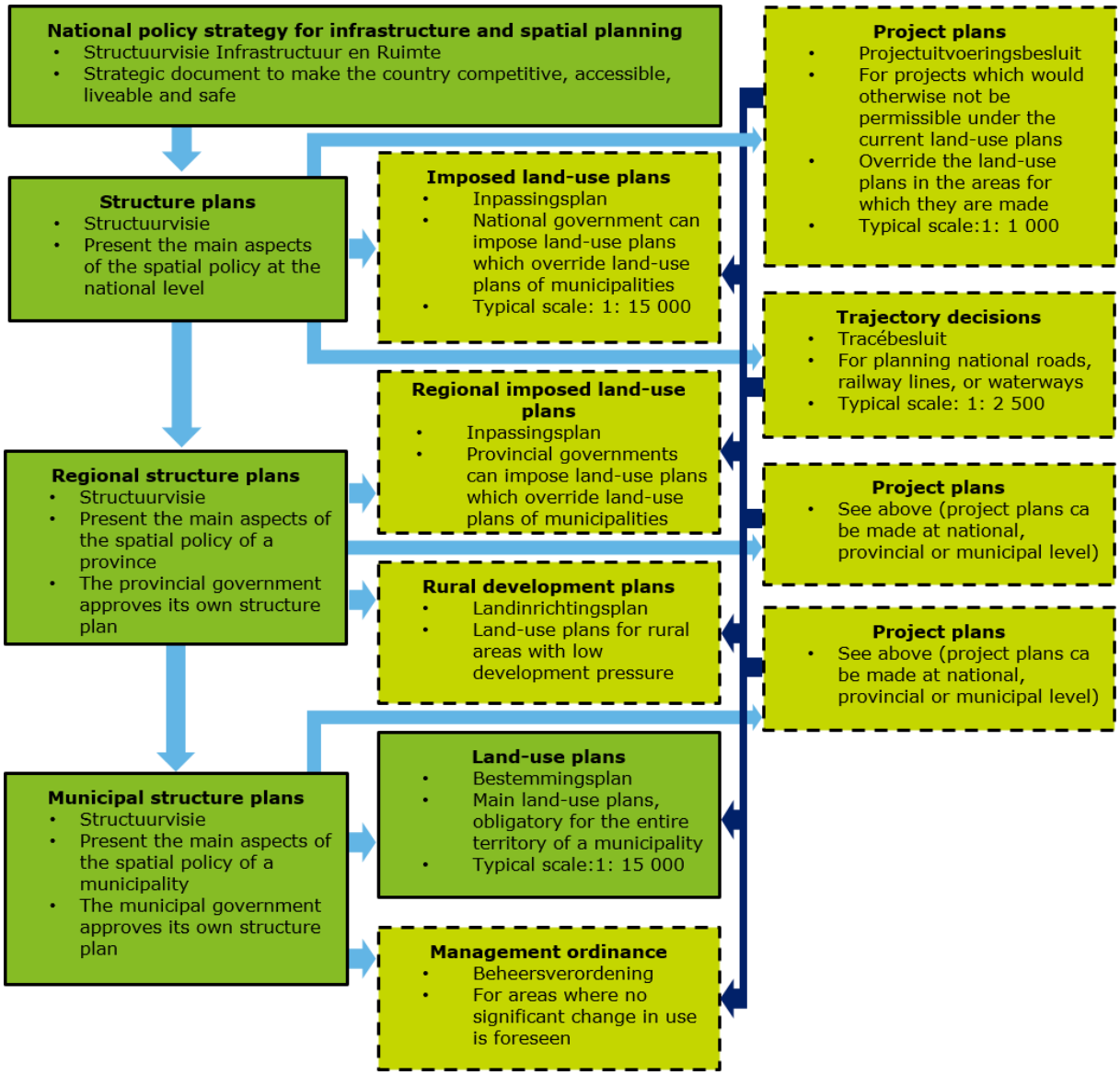
Figure 59: Spatial planning system hierarchy in the Netherlands
According to OECD (2017)



Within the system, the most influential are municipal governments. They prepare structure plans but also engage in pro-active planning and are active on property or land markets through acquisition of land for development. The important role of the municipality contains veto rights for spatial planning and on the other hand enforcement of zoning changes for desirable projects. Legally binding documents are land-use plans which serve as a basis when deciding on planning application. Municipalities traditionally prepare these but as mentioned in the beginning, other levels of government have a right to intervene and may use so-called imposed plans or project plans, which effectively override lower level documents.

Apart from structural plans and land-use plans, the system enables for use of management ordinances which are common in areas with no major development expected and also use of rural development plans which serve primarily for the purposes of infrastructure projects. The system also counts on pro-active approach towards inter-municipal and inter-provincial cooperation. Relevant stakeholders are reminded that once a consensus is not reached then a plan by higher level of government would by imposed.

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Examples of planning documents in the Netherlands

Ministry of Infrastructure and Environment prepares National Policy Strategy for infrastructure and spatial planning (SVIR). The strategic document has been published in 2011 with vision towards 2040. It provides overview of central government's policies and objectives. General assumption made in this document is that lower level documents will comply with the objectives mentioned here which were at the same time heavily consulted with public during participative phase. Document also acknowledges that responsibilities are transferred to lower level governments.

At the regional level, structure plans are prepared by provincial administrations. Example of South Holland shows, that the documents are compiled in a way that provides perspectives for the desired developments instead of a clearly defined spatial image of the province. Example here of South Holland has 3 parts. Program space describes operational goals and indicates instruments to use in order to achieve them. Program mobility which further details operational goals and measures and which anticipates update every 4 years. Last is regulation space in which provincial administration sets rules for municipal zoning plans which are basically general provincial interests.

Figure 60: Section of Dordrecht structure plan

Municipalities then prepare both, structure plans (Dordrecht) and more specific land-use plans (Dordrecht – Historical City). Structure plans are again more strategically-focused documents and the Dordrecht example has been in place since 2013 with vision towards 2040. In order for certain development to take place, the plan has to be amended by more specific project plan. Process for adoption of land-use plans in municipalities has in general 2 stages. First one being drafts of zoning plans which show the areas due to adoption of new plans with anticipated changes. Public participation may be in place in form of door-to-door local newspaper and 6-week period during which interested parties can submit comments and opinions. These are later reviewed by municipality which has a final say. Second stage is the approval by municipal government upon which the plan is legally binding. Generally, land-use plan for a given city consists of 2 or more zoning plans for specific localities. Each zoning plan has a written part and a map-based part with anticipated utilization in the future.

7.5. Planning system in Poland

Spatial planning system in Poland formally consists of 4 level of government but in practice one of them has an observation function and does not effectively intervene in spatial planning. National

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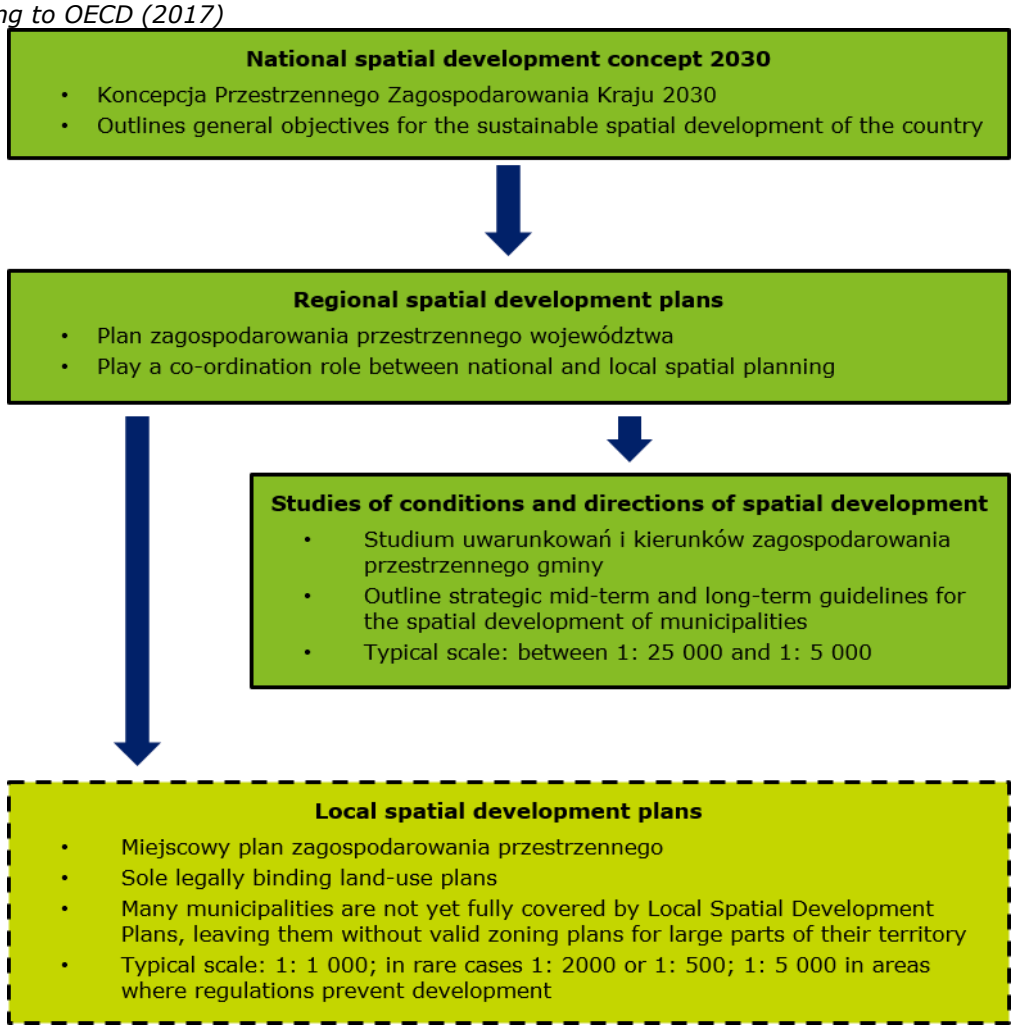
government is responsible for development of national spatial planning concept and proved legal framework for lower-level administrations. Moreover, the central administration takes care about large infrastructure projects and provides methodology and framework to be used in case the area is not covered by lower level documents. In addition to UEFA 2012 event, many acts at various governmental levels have passed to enable construction of necessary venues and infrastructure.

Within the hierarchy, below the national level, regional governments prepare Regional Spatial Plans as strategic documents. The head of powiat (unit of government between municipality and region) issues non-binding opinion on local level plans and thus bears weak position within the system. Regional governments, on the contrary, play an important role in the process of approval of municipal level plan through various degree of engagement and the approval decision itself.

Figure 61: Spatial planning system hierarchy in Poland
According to OECD (2017)



Majority of the responsibilities is therefore transferred to local administrations, which adopt and approve Local Spatial Development plans as the only legally-binding documents and at the same time due to lack of enforcement are almost free from any restrictions set out in higher level documents. Due to a recent reform, large parts of the urban areas in Poland does not have these plans and a separate regime including discussion of developers with municipality is in place for spatial planning there. Local authority based on outputs from the discussion process later issues approval decision.

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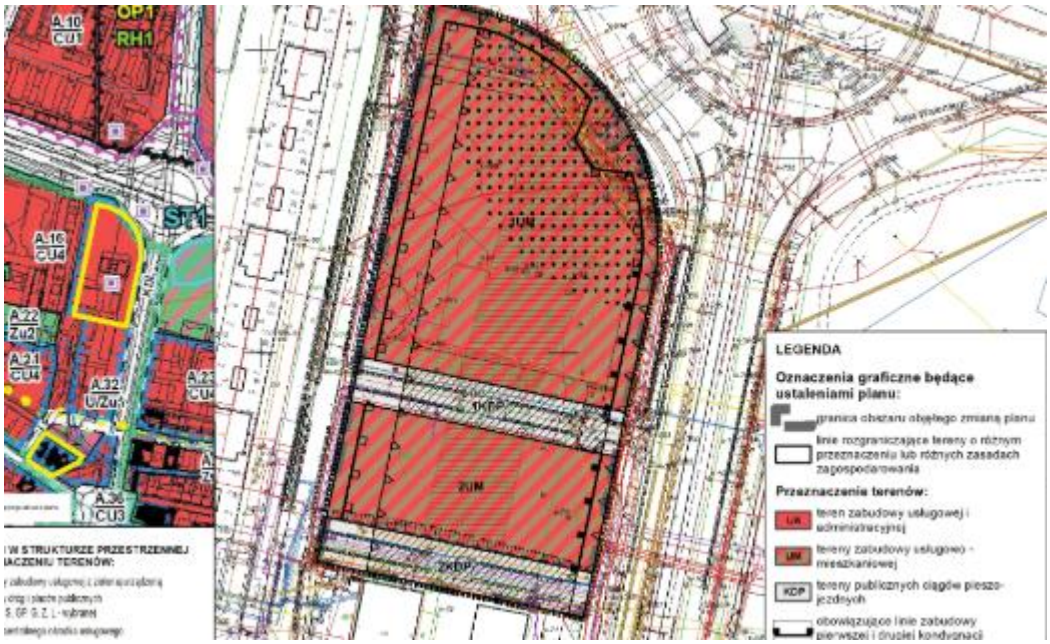
Examples of planning documents in Poland

Ministry of regional development prepares National Spatial Development Concept 2030. As a key strategic document it defines goals and objectives and at the same time also provides rules and framework for coordination of various stakeholders' interests. This concept also proposes reorganization and legal measures for renewal of spatial management process and defines investment priorities. Published in 2012 it presents a spatial vision up to 2030.

Regional governments devolve responsibilities for creation of Regional Spatial Development Plans to Spatial Planning Departments. Example of Silesia region has been adopted in 2016 and it envisages the spatial planning at the regional level beyond 2020. Prior to approval, the plan had to undergo SEA procedure. The document defines basic elements of spatial system and their relations and also defines substantive framework and conditions for making spatial decisions. Regional plans are not basis for issuance of administrative decisions within spatial planning.

Two types of documents are formulated on the municipal level – strategic ones and more specific land-use ones. For example in Katowice, Studies of conditions and directions of spatial development is a strategic document which sets out planned urban investments and opportunities in various detail but also sometimes contain map-based part with functional zoning areas. It was prepared by municipal government in 2012 and a usually has several annexes or changes.

Figure 62: Section of Katowice Local spatial development plan



Apart from this strategic document, for individual locations in urban area, Local spatial development plans may be prepared (Katowice – Aleja Korfanty). These plans are only legally binding land-use documents in the system and contain detailed functional zoning and regulations. Eventually plan for some locations may have a form of almost regulatory plan with high degree of details including public utilities and volumes of construction. As mentioned before, some parts of the urban areas are not covered by these plans and by the decision of local government, some locations might pursue adoption of a joint plan.

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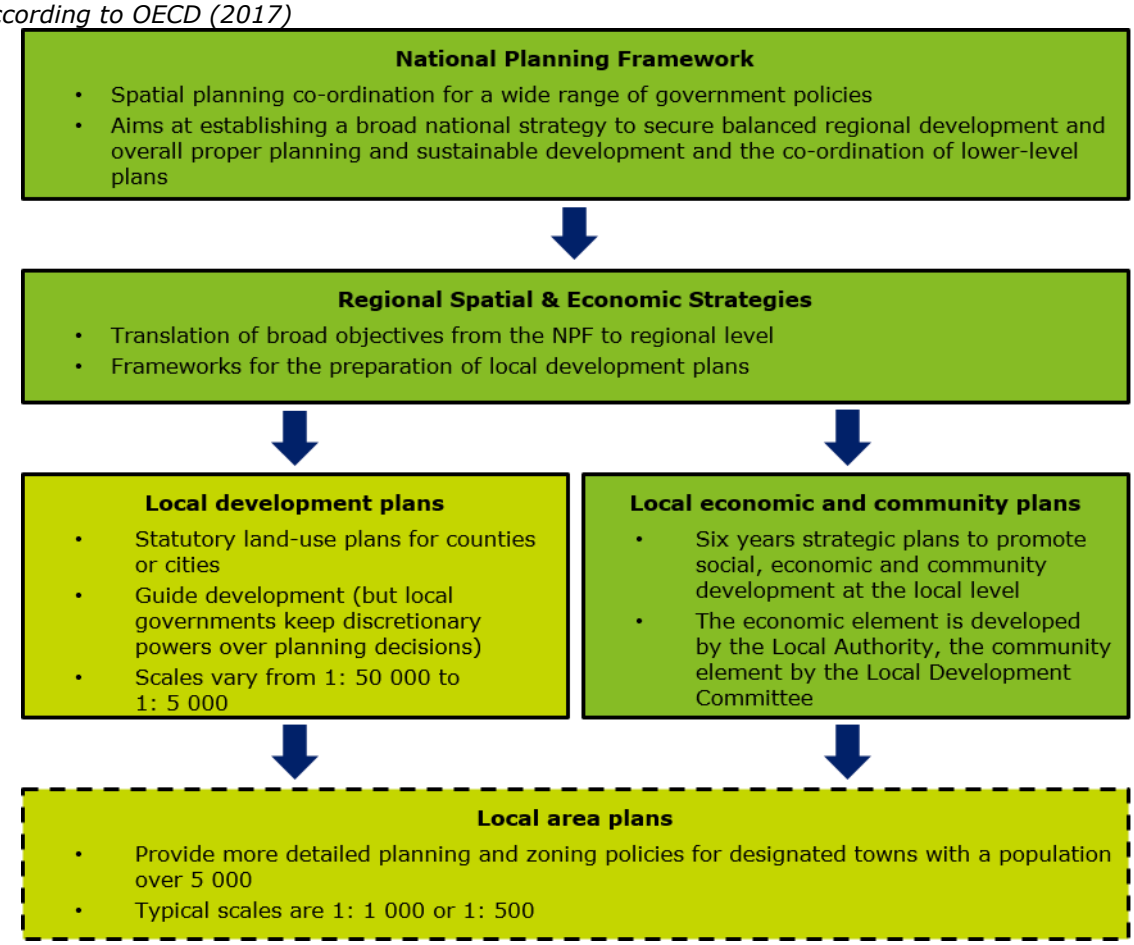
7.6. Planning system in Ireland

Irish spatial planning system has been a subject of major reform connected to country administration in 2014 that dissolved mid-level regional authorities and replaced them with more compact regional assemblies. At national level, Department for Housing, Planning, Community and Local (DHPCL) government provides legislation and formulates one strategic document – National Planning Framework. Overall, the role of the central government is to advise on spatial planning and to issue various guidelines in support of lower level local authorities which effectively decide on land use.

A separate body – Planning Appeals Board plays a key role within the spatial planning system. It is responsible for applications on strategical infrastructure projects but more importantly serves as an arbitration institution for decisions made by lower level local authorities. Conditions and requirements for a project to be listed as strategic are publicly available and Planning Appeals Board has derived its own procedures.

Figure 63: Spatial planning system hierarchy in Ireland
According to OECD (2017)



The mid-level regional governments are then creating Regional Spatial and Economic Strategies focusing on promotion and coordination of stakeholders within 3 large regions in the country. Their aim is also to enforce effectiveness of public services and local governments and partially are created with help of regional development agencies.

Most of the responsibilities are transferred to municipalities or local governments. Their councils prepare statutory Development Plans with text and map-based parts and also prepare detailed Local Area Plans. These are adopted for all the settlements above 5 000 inhabitants. Both types of plans and connected procedures are in a wider sense subject to review by responsible minister of the central government. This body may direct local planning authorities to take action when:

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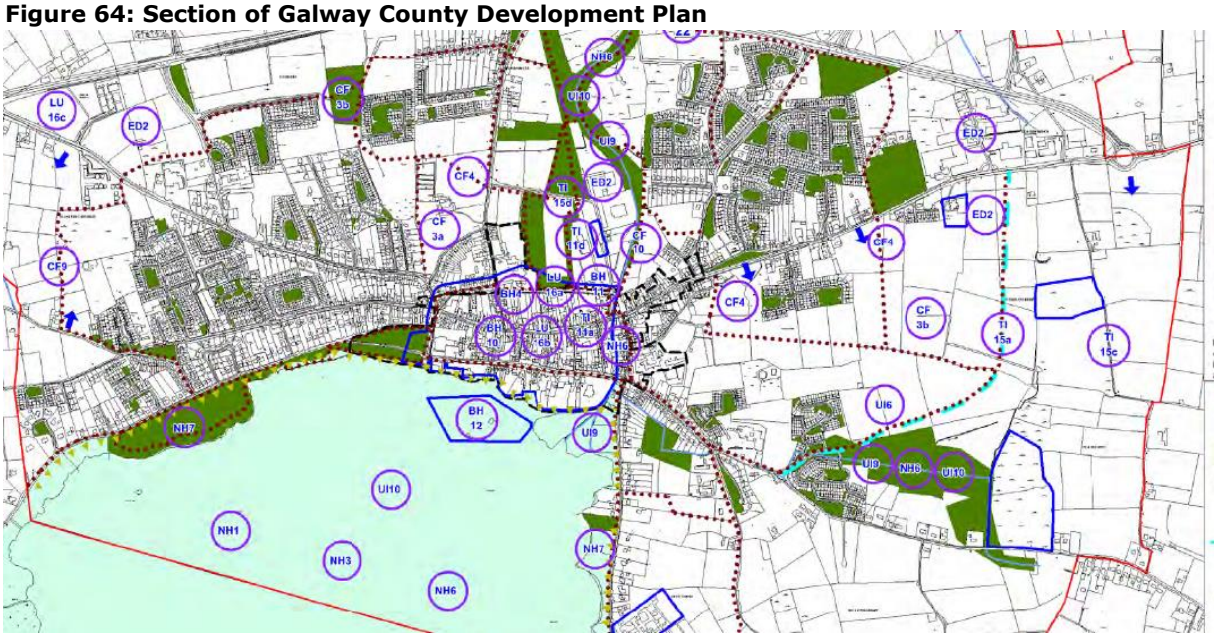
- Planning authority has ignored minister's observations;
- Plan fails to set out overall strategy for proper planning;
- Plan is not in compliance with Planning Acts.

Examples of planning documents in Ireland

Department for Housing, Planning, Community and Local Government is responsible for preparation of National Planning Framework (NPF), the last publication is called Project Ireland 2040 and has been published in 2018 after 4 years of works. By its nature it cover wide range of topics associated with spatial planning and so does not serve as a specific spatial planning document. Prior to adoption, it had to be reviewed by SEA, AA and SFRA procedures. It sets strategic investment priorities aligned with vision for the country. Content is multidisciplinary, promotes ideas from other strategic documents at national level – investments, innovations, sustainability, employment, maritime, offshore energies, and sets some 75 specific objectives for them.

Regional Assemblies (3 in total) each prepare Regional Spatial & Economic Strategies (RSES). Example here of Eastern and Midland Regional Assembly. It has been prepared in conjunction to redistribution of regional competencies in 2015, so the topics mentioned are up to date and aims to serve at least until 2031. Contains policy declarations and guidelines in connection to NPF but these are transposed to be regionally-focused. Publication contains sub-regions (Eastern-Midland-Dublin) with their own key objectives. Preparation of RSES includes multiple consultations with public and participative meetings and the expectation is that RSES would in future provide resources for creation of NPF.

Figure 64: Section of Galway County Development Plan



At the municipal level, County Councils prepare and adopt County Development Plans, example here shown here is Galway. This was prepared in 2015 with defined period until 2021. Development plans are generally more specific but also contain strategic objectives in a sense of economic development. Important feature is specification of major development sites and planned utilization of them. Also, in some cases these documents take into account national cultural heritage sites.

Most detailed are Local Area Plans Galway county (Loughrea). These are divided to written statement and map-based parts. Text part characterises the type of settlements and proposes development

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options while maps describe proposed zoning by functional division of areas. Local Area Plan by law has to conform with higher level documentation and are legally binding documents.

7.7. Transferable good practice

Municipalities cooperation

A fact that municipalities tend not to cooperate among themselves is widely present throughout the Europe. Some mechanisms are in place for example in Italy and Hungary which could outline a way how to approach inter-municipal cooperation within spatial planning in the Czech Republic. In Italy, basic function of municipalities with less than 5 000 inhabitants must be procured by a municipal unions and thus sharing resources. Hungary has come a long way in this respect with legal requirement for some municipalities to create an association. This step has prompted smaller municipalities to merge and 2010 reform has seen another municipalities with less than 2 000 inhabitants to relocate to joint offices while preserving their self-governance.

Combined strategic and spatial planning

Cases of Ireland and Denmark show that an effective way to integrate spatial and strategic planning exists. This is clearly visible on national level in strategic spatial planning documents where the range of topics covered is not limited to urban development but also take into account various other aspects such as mobility, waterways, energies, housing or environment. Moreover, the planning system follows hierarchical order and does not try to provide zoning or functional regulation at regional or national level but leaves this to municipalities. Such practice is widely used in Copenhagen, where the regulation for new development is closely linked to strategic needs of the city and the development areas themselves are regulated at the lowest level by Lokalplans. Using these the city is able to fulfil its requirements in the future and at the same time, unique locations can retain their character.

Public-private partnerships in development

Cooperation of public and private actors within real estate developments has emerged as under-used locations in many European cities are due to transformation. This is also the case of Amsterdam's Zuidas district. For a long time, the location has been reserved by planning documentation for a development of infrastructure projects. Change in the public view came in 1994 when the national government has acknowledged economic and competitive advantages of mixed-use developments in the area. Located precisely between the Schipol airport and Amsterdam city centre, the location provided opportunities for high-density projects. The key issue to be solved was the fact that land ownership has been public and there was a need for construction of a tunnel for central transportation corridor in order to eliminate physical and visual noise. This has been finally resolved by creation of Zuidas Coalition - a company composed of public and private stakeholders with the aim to develop the area. Central to the projects in the area, a 2 billion EUR cost for the tunnel has been financed from 30% by the state and municipal authorities and the rest has been provided by future commercial development which are supposed to build in total a 2,7 mil. sqm of floor space.

Higher share of property taxes on tax revenues

OECD study form 2016 reveals that the share of property tax on total tax revenues of member countries vary across the European region but in general stay at an average of 1%. At the forefront of this ranking property taxes in the United Kingdom and France contribute the most (3,2% and 2,5%) while several post-communist countries (including the Czech republic) does not even contribute by 1% to total taxation. From another perspective, however, the share of property taxes forms more than 30% of sub-central taxes take which may prove to be a critical lifeline for many municipalities or regions. From its nature, the property tax is very efficient, changes in such

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legislation have in practice very little negative effect on public behaviour and in some cases it has also helped to stabilise housing markets.

Metropolitan and inter-municipal plans

Trends of urbanization, commuting from areas surrounding successful cities and blending urban settlements have created a need of reconsideration of the scale and area on which spatial planning is done. Creation of metropolitan plan has a tradition in Denmark, where Copenhagen's Finger Plan serves as a strategic document for planning in an area with more than 2 mil. inhabitants and proved to be successful when tackling urban sprawl and developments in peripheral parts of the city. In case of Copenhagen, the importance of the region surrounding the capital has been also formally recognized by central government and Finger Plan has a distinct position within the planning system. Similarly, due to large number of small municipalities, since the beginning of 2000s, Austria has been heavily promoting inter-municipal cooperation. This effort has resulted in creation of inter-municipal associations, which address issues such as spatial planning through joint committees which adopt inter-municipal plans as legally binding documents.

Spatial planning within the competencies of local government

Tendencies to transfer as much competencies within area of spatial planning to local governments can be seen in countries all across the Europe. This is done directly through legislation (Ireland) promoting local bodies as key elements for steering land-use and moving the roles of central government to act as an advisor. Some countries, for example Poland, are achieving this indirectly through lack of enforcement mechanisms which would bind local governments to take into account all the implications from regional or national level documents.

Inclusion of economic tools in spatial development and planning

Formalised practices with aim to promote economic tools in spatial planning are most common in western European developed systems such as those of Germany, Denmark, Austria, Netherlands or Ireland. The last mentioned has introduced possibilities for so-called Development Contribution Schemes in 2000s. These contributions vary across the country but common characteristic is that they finance delivery of essential infrastructure in conjunction with central exchequer. Basis for these schemes lies in Planning and Development Acts which also guarantee that creation of schemes is a reserved function of the elected members of the local authorities while central government provides support and advice.

Professional reviewal body

Presence of professional reviewal body within spatial planning system is visible in both Ireland and the United Kingdom. In Ireland, Planning Appeals Board as a national institution bears significant responsibilities in other countries transferred directly to courts, decides on appeals made by all the stakeholders involved in spatial planning and also approves infrastructure projects of national importance. In the United Kingdom, similar role is conveyed directly by Scottish and Welsh governments, which decide on appeals made on a local level and also have power to fast-track infrastructure projects.

Independent expert assessing which objections to consider

In the United Kingdom Planning Inspectors from the Government's Planning Inspectorate assess system's most detailed local plans and submit their opinions on the overall process of adoption. In case there has been a breach of "duty to cooperate" - refusal of cooperation when preparing a Local Development Plan or there is an unresolved issue with this local plan, the planning inspector has power to suspend adoption until the issue is solved. The equivalent role in the Czech Republic has the regional planning office.

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Merger of spatial ministries

In 2010 the The Ministry of Housing, Spatial Planning and the Environment of the Netherlands which was the main governmental body responsible for strategies in area of spatial planning, land use and urban renewal has been merged with the Ministry of Transport, Public Works and Water Management. The newly created Ministry of Infrastructure and the Environment is therefore a cross-disciplinary integrated body with 2 government agencies and 3 directorate with annual budget of 15.7 billion EUR in 2018.

ZAC - Concerted Development Zones in France

Principle of ZAC lies on coordination of commercial and infrastructure projects in designated areas in France. Introduced in 1967, ZAC provides necessary framework for contracts between public bodies owning the land and private developers with heavy participation of local stakeholders. Key point is that infrastructure parts of projects listed as ZAC are funded on a priority basis and property developers which are later to build on the land plots are selected in tenders focused on quality, not the highest bid. It is a common practice for municipalities to delegate tasks connected to planning or tendering to public local development companies such as SEMAPA in Paris or Lyon Confluence.

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8. Annex 6 – Statistical analysis supplement

8.1. Building permitting lengths models

Model results

	Full specification model			Limited model		
Coefficient	**Estimate**	**Std. Error**	**P-value**	**Estimate**	**Std. Error**	**P-value**
log_municipality_population	0,10883	0,036345	0,00287	0,09483	0,02680	0,00043
log_closest_agglomeration_population	0,001073	0,084182	0,98984	0,08815	0,04110	0,03234
log_closest_agglomeration_distance	0,157581	0,101994	0,122903			
log_unit_count	0,05657	0,04428	0,201924			
only_one_building	-0,09698	0,074347	0,192599			
log_officers_education	-0,88149	0,590878	0,136298			
log_officers_training	0,042655	0,196987	0,828645			
log_units_per_officer	0,034216	0,044573	0,443028			
municipalities_with_valid_zoning_plan	-0,01058	0,006052	0,081018			
log_continuous_urban	-0,08623	0,053738	0,10912			
log_discontinuous_urban	-0,06049	0,050995	0,236005			
log_industrial_commercial	-0,00946	0,025777	0,71377			
log_urban_green	0,076255	0,036243	0,035817			
log_agriculture	-0,05327	0,026785	0,047185			
log_natural	-0,06598	0,038975	0,091009			

Test on heteroscedasticity

Breusch-Pagan test

	Test statistic	P-value
Full specification model	39,60309	0,00052
Limited model	21,9417	0,0000172

The null hypothesis of homoscedasticity is rejected at 1% confidence interval for both models. In other words, there is a strong evidence of heteroscedasticity. Therefore, robust standard errors were used.

Test on normality of residuals

Shapiro-Wilk test

	Test statistic	P value
Full specification model	0,991528	0,001538
Limited model	0,989861	0,000219

Kolmogorov-Smirnov test

	Test statistic	P-value	Alternative hypothesis

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Full specification model	0,081386	0,000652	Two-sided
Limited model	0,060857	0,017729	Two-sided

Both tests rejected the null hypothesis of normality of residuals. It implies that residuals are not normally distributed.

Figure 65: Building permitting lengths' factors – correlation matrix

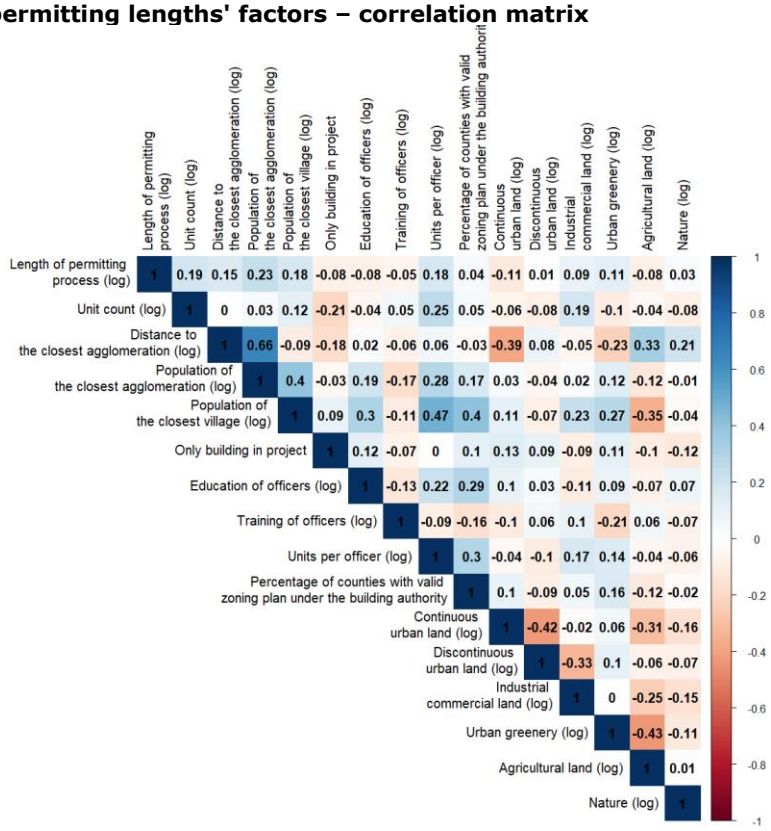

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Figure 66: Building permitting lengths' factors – original distributions and their logarithmic transformations

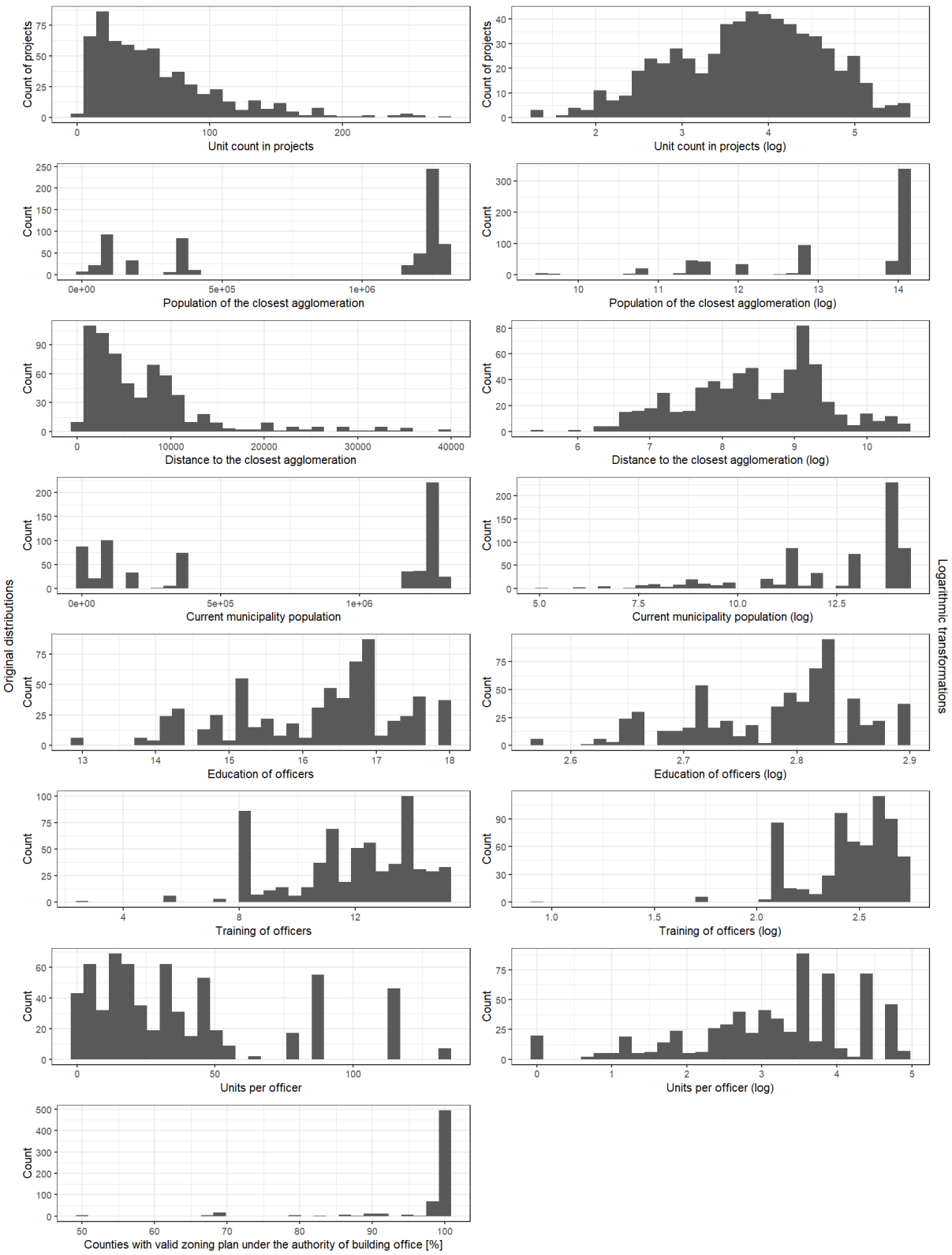

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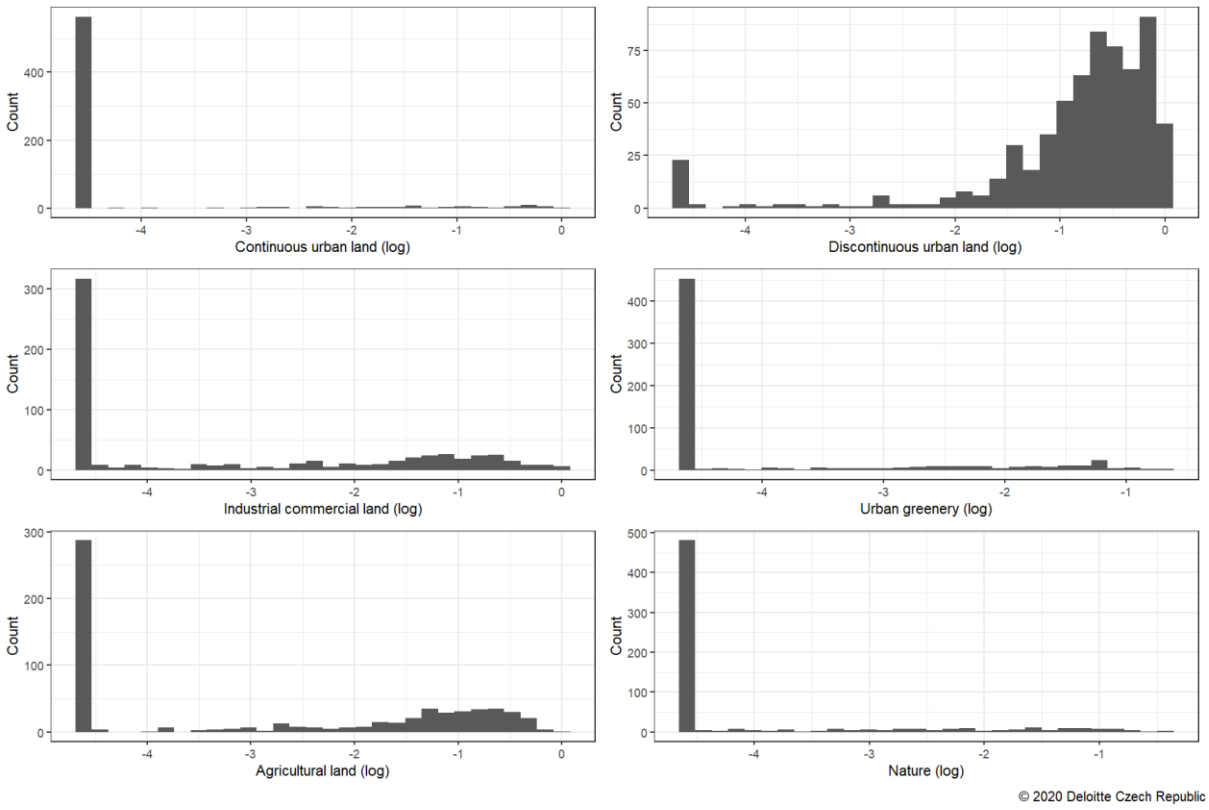
Figure 67: Building permitting lengths' factors – land use factors' distributions



8.2. Zoning permitting lengths model

Model results

Coefficients	Estimate	Std. Error	P-value
log_unit_count	0,043822	0,066683	0,512626
only_one_building	-0,24887	0,21728	0,254871
log_GFA_0.5	-0,25376	0,177692	0,156485
log_jobs_10	1,275274	0,454249	0,006037
log_ratio_jobs_to_population	-0,48197	0,289703	0,099404
log_officers_education	-6,84679	6,458812	0,291745
log_officers_training	-1,04295	1,156201	0,369265
log_units_per_officer	-1,11549	0,596357	0,064429

Test on heteroscedasticity

Breusch-Pagan test

Test statistic	P-value
3,435047	0,904172

The null hypothesis of homoscedasticity is not rejected even at 10% confidence interval. In other words, there is not enough evidence of heteroscedasticity.

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Test on normality of residuals

Shapiro-Wilk test

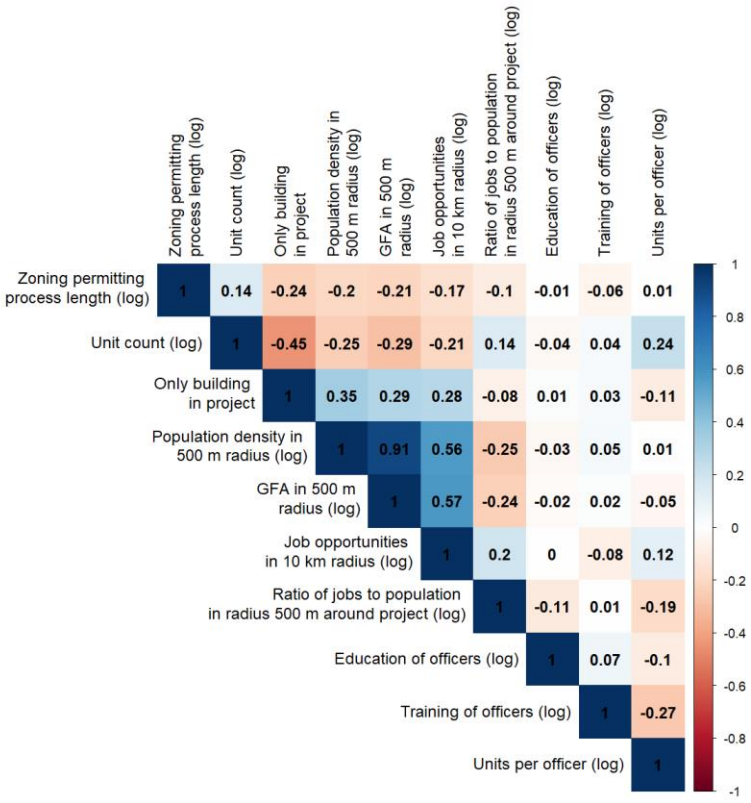
Test statistic	P value
0,976389	0,026418

Kolmogorov-Smirnov test

Test statistic	P-value	Alternative hypothesis
0,104331	0,128718	Two-sided

Both tests do not reject the null hypothesis of normality of residuals.

Figure 68: Zoning permitting lengths' factors – correlation matrix



Spatial Planning Analysis was carried out with funding by the European Union via the Structural Reform Support Programme and in cooperation with the European Commission's DG REFORM, contract number: SRSS/SC2019/150

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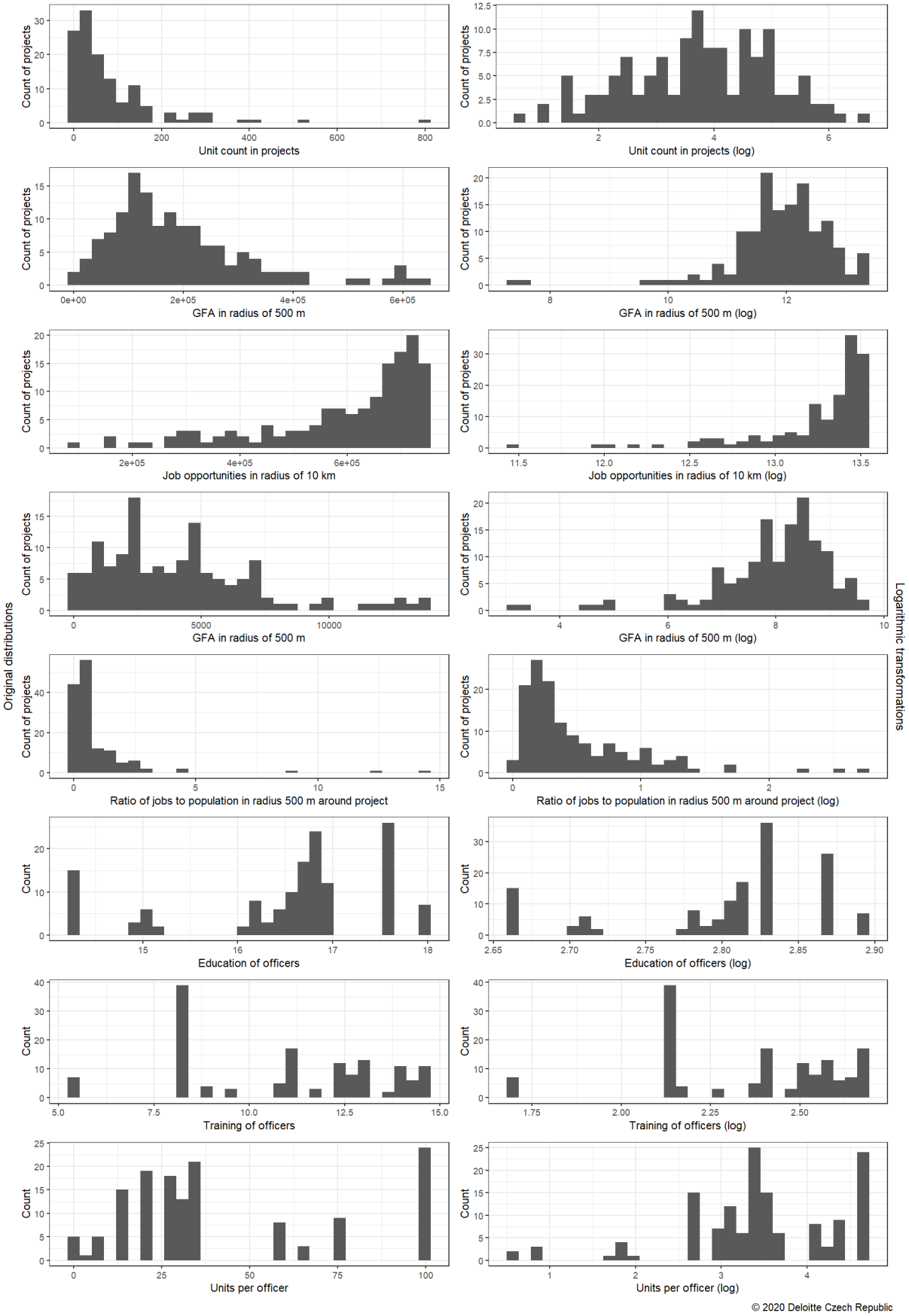
Figure 69: Zoning permitting lengths' factors – land use factors' distributions and their logarithmic transformations



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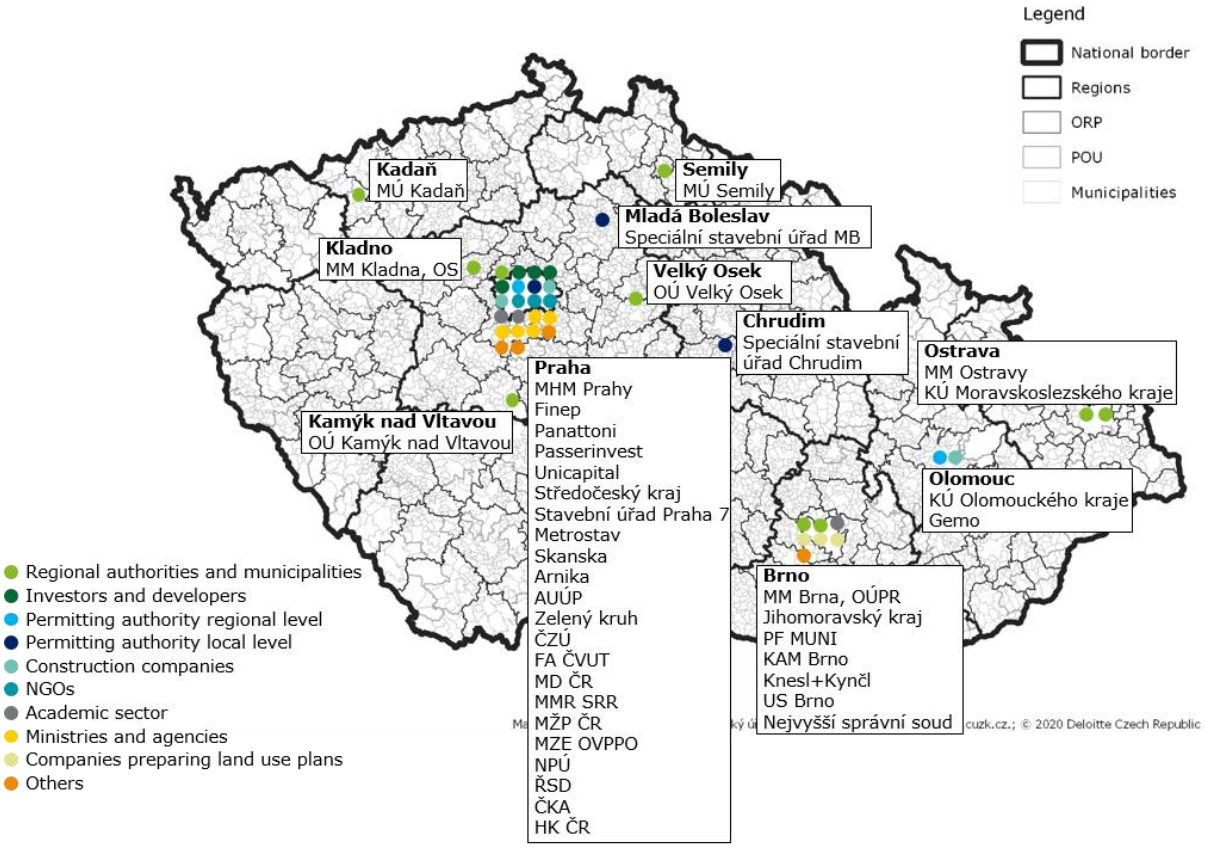
9. Annex 7 – Interviews with stakeholders

Interviews took place mostly during April 2020. Due to the Global coronavirus pandemic, declared by the World Health Organisation on 11 March 2020, individual interviews were mostly done as videocalls. All stakeholders were in advance given interview form with questions regarding spatial planning and spatial development. Stakeholders were encouraged to fill-in the form prior the interview itself and send it to us for selecting major issues that will be later covered in the interview. Interview forms in both Czech and English final version are listed below. Some stakeholders were sent previous version of the form that could be found as an attachment to the management document.

Czech stakeholders were selected to represent various interests in spatial planning and development following the Contract and also their spatial distribution across the Czech Republic was considered to capture possible site specific problems. Seeming overrepresentation of Prague and Brno is partly caused by the fact these two major cities host national offices and agencies as well as are headquarters of firms.

Figure 70: Location of interviewed stakeholders



Generally the willingness to participate in the interviews was high among all stakeholders as they consider issues related to reform of spatial planning reform as important. It is worth to mention two representatives of public authorities refused to participate in the interview due to excessive amount of agenda that does not allow them to allocate enough time for this project.

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List of respondents

Name	Location	Category	Representatives
Magistrát města Brna (City of Brno, Department of Spatial Planning and Development)	Brno	Regional authorities and municipalities	Pavla Pannová
Jihomoravský kraj (South-Moravian region)	Brno	Regional authorities and municipalities	-
Městský úřad Kadaň (Kadaň municipality, department of regional development, spatial planning and monument care)	Kadaň	Regional authorities and municipalities	-
Obecní úřad Kamýk nad Vltavou (Kamýk nad Vltavou municipality, the mayor/Association of Local Authorities of the Czech Republic)	Kamýk nad Vltavou	Regional authorities and municipalities	Petr Halada
Moravskoslezský kraj (Moravian-Silesian Region, Spatial planning department)	Ostrava	Regional authorities and municipalities	Ervín Severa
Magistrát města Ostrava (City of Ostrava, the deputy mayor)	Ostrava	Regional authorities and municipalities	Zuzana Bajgarová
Magistrát Hlavního města Prahy (City of Praguem, the deputy mayor for spatial planning)	Praha	Regional authorities and municipalities	Petr Hlaváček, Martin Kloda, Martin Červinka
Městský úřad Semily (Semily municipality, the secretary of the city, spatial planning department, department of development and asset management)	Semily	Regional authorities and municipalities	Radim Šimůnek, Jiří Lánský, Lenka Soukupová
Obecní úřad Velký Osek (Velký OSek municipality, the mayor/Union of Towns and Municipalities of the Czech Republic)	Velký Osek	Regional authorities and municipalities	Pavel Drahovzal
Magistrát města Kladna (City of Kladno, spatial planning department, building department, department of projects)	Kladno	Regional authorities and municipalities	-
Finep	Praha	Investors and developers	-
Panattoni	Praha	Investors and developers	Pavel Sovička, Jan Andrejco, Matěj Hejma
Passerinvest	Praha	Investors and developers	-
Unicapital	Praha	Investors and developers	Simona Kulhánková
Krajský úřad Středočeského kraje (Regional Office of the Central Bohemian Region, spatial planning department)	Praha	Permitting authority regional level	-
Krajský úřad Olomouckého kraje, (Regional Office of the Olomouc Region, regional development department)	Olomouc	Permitting authority regional level	-
Městský úřad Chrudim (Chrudim municipality, special building (water) authority)	Chrudim	Permitting authority local level	Pavel Koreček

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Magistrát města Mladá Boleslav, (City of Mladá Boleslav, special building (water) authority)	Mladá Boleslav	Permitting authority local level	Kristýna Novotná
Stavební úřad MČ Praha 7 (Prague 7, building authority)	Praha	Permitting authority local level	Helena Lubasová
Gemo	Olomouc	Construction companies / developer	Libor Tandler
Metrostav	Praha	Construction companies / developer	Ondřej Buršík, David Olša
Skanska	Praha	Construction companies / developer	Jan Šulc, Martin Machů, Tomáš Vařecha, Thomas Arnold, Simona Haiderová
Arnika	Praha	NGOs	-
AUÚP	Praha	NGOs	-
Zelený kruh	Praha	NGOs	Petra Kolínská
Academic sector	Praha	Academic sector	Karel Maier
Fakulta architektury ČVUT (Faculty of Architecture, Czech Technical University in Prague)	Praha	Academic sector	Jan Jehlík, Jiří Plos
Právnická fakulta MUNI (Faculty of Law, Masaryk University in Brno)	Brno	Academic sector	Jakub Hanák
Ministerstvo dopravy ČR, (Ministry of Transport of the Czech Republic, Spatial Planning Department)	Praha	Ministries and agencies	Marie Soukupová, Jana Beranová, Filip Zelený
Ministerstvo místního rozvoje ČR, Sekce regionálního rozvoje (Ministry of Regional Development of the Czech Republic, Regional Development Section)	Praha	Ministries and agencies	-
Ministerstvo životního prostředí ČR, (Ministry of the Environment of the Czech Republic, Legislative department, Department of EIA and Integrated Prevention)	Praha	Ministries and agencies	Libor Dvořák, Veronika Šímová
Ministerstvo zemědělství ČR (Ministry of Agriculture of the Czech Republic, Department of water management policy and flood protection measures)	Praha	Ministries and agencies	-
Národní památkový ústav (National Heritage Institution)	Praha	Ministries and agencies	Alena Krusová
KAM Brno	Brno	Companies preparing land use plans	-
Knesl + Kynčl	Brno	Companies preparing land use plans	-
Urbanistické středisko Brno	Brno	Companies preparing land use plans	-
Ředitelství silnic a dálnic (Directorate of Roads and Motorways of the Czech Republic)	Praha	Others	-
Česká komora architektů (Czech Chamber of Architects)	Praha	Others	Vladimír Mackovič Ivan Plicka Vlasta Poláčková Milan Svoboda Stašek Žerava Jaromír Hainc

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			Hana Zachová Eva Faltusová Marek Job
Nejvyšší správní soud (Supreme Administrative Court)	Brno	Others	Filip Dienstbier
Hospodářská komora ČR (Chamber of Commerce of the CR)	Praha	Others	Lenka Janáková
ČEPS	Praha	Others	Zdeněk Hruška

9.1. Czech stakeholder interview form

Formulář rozhovorů se stakeholdery

Verze dokumentu CZ 2.0

Projekt:

Analysis, recommendations and legislative proposals for a Building Act reform in the area of spatial planning

Klient:

European Commission – DG REFORM & Ministry of Regional Development of the Czech Republic

Zpracovatel:

Deloitte Advisory s.r.o.

Základní údaje:	
Skupina stakeholderů	
Organizace	

Údaje o zaznamenání rozhovoru a jejich následné zpracování a zpřístupnění:	
Souhlasíte s pořízením zvukového záznamu rozhovoru, který bude sloužit výlučně pro potřeby Zpracovatele?	Ano -- Ne
Máte zájem být ve výsledném dokumentu uveden (uvedeni) Vašim jménem (Vašimi jmény) jako účastníci rozhovorů? Pokud zvolíte možnost „Ne", bude uvedena pouze organizace, kterou reprezentujete.	Ano -- Ne
Souhlasíte s tím, aby byl tento formulář a písemné poznámky pořízené během rozhovoru archivovány a předány Klientovi pro možnost dalšího zpracování? Pokud zvolíte možnost „Ano", poznámky nebudou v originální podobě zveřejněny a budou sloužit pouze jako podklad pro další analytické zpracování nebo kontrolu projektu. Pokud zvolíte možnost „Ne", bude archivována a předána pouze tato titulní stránka formuláře.	Ano -- Ne
Máte předběžně zájem se v červnu 2020 zúčastnit setkání stakeholderů k analýze a návrhu reformy systému územního plánování, které bude součástí další fáze tohoto projektu?	Ano -- Ne

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Údaje o rozhovoru:

Účastníci za stranu stakeholdera	
Účastníci za stranu zpracovatele	
Datum a místo konání rozhovoru	
Doba trvání rozhovoru	

Témata rozhovoru

Otázky se zaměřují na široké spektrum aktérů v oblasti územního plánování a územního rozvoje. Otázky, které nepovažujete ze své pozice za relevantní nebo na ně nelze z Vašeho pohledu odpovědět, můžeme během rozhovoru vynechat a zaměřit se na ty, které jsou z Vašeho pohledu zásadní.

Územní rozvoj, územní plánování a jeho společenská role

- Jaké jsou podle vás stávající cíle našeho systému územního plánování a jaké by měly být?

Vaši odpověď můžete uvést sem…

Ohodnoťte prosím stanovené cíle územního plánování v Česku na škále od 1(nejlepší) do 5 (nejhorší)

0

- Jaký je podle Vás stav systému územního plánování v Česku?

Vaši odpověď můžete uvést sem…

Ohodnoťte prosím stav územního plánování v Česku na škále od 1(nejlepší) do 5 (nejhorší)

0

- Vnímáte v posledních desetiletích změny v disciplíně územního plánování, na národní i mezinárodní scéně?

Vaši odpověď můžete uvést sem…

- Jaké trendy v současném územním rozvoji v Česku považujete za nejvíce příznivé?

Vaši odpověď můžete uvést sem…

- Jaké trendy v současném územním rozvoji v Česku považujete za nejvíce nepříznivé?

Vaši odpověď můžete uvést sem…

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- Jak se podle Vás daří plánovat a realizovat projekty regionálního a národního významu? Co jsou podle Vás největší překážky?

Vaši odpověď můžete uvést sem…

Ohodnoťte prosím, jak se daří plánovat a realizovat projekty regionálního a národního významu na škále od 1(nejlepší) do 5 (nejhorší)

0

Nástroje územního plánování

- Jak efektivní jsou stávající závazné plánovací dokumenty (například zásady územního rozvoje, územní plány a regulační plány) a nezávazné plánovací dokumenty (například územní studie, strategické dokumenty, společná memoranda), odpovídají jejich nástroje a způsob zpracování existující potřebě?

Vaši odpověď můžete uvést sem…

Ohodnoťte prosím, jak efektivní jsou stávající závazné plánovací dokumenty na škále od 1(nejlepší) do 5 (nejhorší)

0

Ohodnoťte prosím, jak efektivní jsou stávající nezávazné dokumenty plánovací dokumenty na škále od 1(nejlepší) do 5 (nejhorší)

0

- Domníváte se, že by u některých plánovacích dokumentů měla být vyšší nebo nižší míra závaznosti?

Vaši odpověď můžete uvést sem…

- Jak jsou podle Vás efektivní nástroje posouzení vlivu na životní prostředí (EIA), strategického posuzování vlivů na životní prostředí (SEA) a posuzování teritoriálních dopadů?

Vaši odpověď můžete uvést sem…

Ohodnoťte prosím, jak efektivní jsou nástroje EIA, SEA a případně posuzování teritoriálních dopadů na škále od 1(nejlepší) do 5 (nejhorší)

0

- Jaké části systému územního plánování by se měly standardizovat a případně do jaké míry?

Vaši odpověď můžete uvést sem…

- Jaké cíle by podle Vás standardizace v územním plánování měla sledovat?

Vaši odpověď můžete uvést sem…

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- Jaká data by měla být pro potřeby územního plánování a rozvoje sledována a nyní sledována nejsou?

Vaši odpověď můžete uvést sem…

- Měly by mezi nástroji územního plánování být i ekonomické nástroje? Pokud ano, které by podle Vás byly vhodné?

Vaši odpověď můžete uvést sem…

- Jak hodnotíte propojení mezi strategickým a územním plánováním?

Vaši odpověď můžete uvést sem…

Ohodnoťte prosím, jak dobré je propojení mezi strategickým a územním plánováním od 1(nejlepší) do 5 (nejhorší)

0

- Jak hodnotíte vymahatelnost nástrojů územního plánování a jejich závaznost pro další postup při umisťování staveb?

Vaši odpověď můžete uvést sem…

Ohodnoťte prosím, jak hodnotíte vymahatelnost nástrojů územního plánování a jejich závaznost pro další postup při umisťování staveb na škále od 1(nejlepší) do 5 (nejhorší)

0

- Jak hodnotíte stabilitu nástrojů územního plánování, tzn. jejich obhajitelnost při správním a soudním přezkumu?

Vaši odpověď můžete uvést sem…

Ohodnoťte prosím, jak hodnotíte stabilitu nástrojů územního plánování, tzn. jejich obhajitelnost při správním a soudním přezkumu na škále od 1(nejlepší) do 5 (nejhorší)

0

Aktéři územního plánování a územního rozvoje

- Jaký by podle Vás měl být vztah státní správy a samosprávy v oblasti územního plánování, rozhodování o umístění staveb a povolování staveb? Má tento vztah vliv na vyváženost jednotlivých veřejných zájmů v nástrojích územního plánování?

Vaši odpověď můžete uvést sem…

- Jaká je podle Vás spolupráce mezi aktéry územního plánování a územního rozvoje? Jsou podle Vás dostatečně ošetřena práva jednotlivých aktérů územního plánování v rámci procesu přijímání nástrojů územního plánování? Za aktéry považujeme široký okruh reprezentantů samosprávy, státní správy, občanů a občanských zájmových sdružení, profesních organizací, nadřazených samosprávných celků a soukromých subjektů podnikajících v oblasti výstavby a územního rozvoje.

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Vaši odpověď můžete uvést sem…

Ohodnoťte prosím, jaká je podle Vás spolupráce mezi aktéry územního plánování a územního rozvoje na škále od 1(nejlepší) do 5 (nejhorší)

0

- Měla by být oproti současnému stavu jinak nastavena práva a povinnosti jednotlivých aktérů územního plánování, rozvoje a výstavby?

Vaši odpověď můžete uvést sem…

- Jaký je podle Vás vliv rozhodování soudů na územní plánování a územní rozvoj?

Vaši odpověď můžete uvést sem…

- Považujete současný soudní přezkum v oblasti územního plánování za efektivní, resp. co je dle Vašeho názoru největším úskalím ve věci soudního přezkumu územně plánovací dokumentace?

Vaši odpověď můžete uvést sem…

- Jaké podle Vás přináší hlavní pozitivum Vaše organizace jako aktér do procesu územního rozvoje?

Vaši odpověď můžete uvést sem…

Závěr

- Jaké jsou podle Vás hlavní přednosti českého systému územního plánování?

Vaši odpověď můžete uvést sem…

- Jaké jsou podle Vás hlavní nedostatky českého systému územního plánování?

Vaši odpověď můžete uvést sem…

- Jaké oblasti systému územního plánování by měly být prioritně změněny?

Vaši odpověď můžete uvést sem…

- Co považujete za největší hrozby v oblasti územního rozvoje a plánování?

Vaši odpověď můžete uvést sem…

- Jaká tematická oblast podle Vás není dostatečně v tomto formuláři zahrnuta a měla by být?

Vaši odpověď můžete uvést sem…

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9.1. English stakeholders' interview form

Stakeholders' interview form

Document version EN 2.0

Project:

Analysis, recommendations and legislative proposals for a Building Act reform in the area of spatial planning

Client:

European Commission – DG REFORM & Ministry of Regional Development of the Czech Republic

Contractor:

Deloitte Advisory s.r.o. (Czech Republic)

Identification:

Country	
Stakeholders' group	
Stakeholder	

Information about interview records and their processing and accessibility:

Do you agree with audio recording of the interview that will be accessible only to the Contractor?	Yes -- No
Do you agree to be personally named in the resulting document as interviewed stakeholder? If you choose option "No" only the organization you represent will be mentioned.	Yes -- No
Do you agree with archiving this form together with written notes from the interview and forwarding them to the Client for potential further processing? If you choose "Yes" either the form or interview notes will not be disclosed and will only serve as an input for further analytical processing or project control. If you choose option "No", only this interview form cover page will be archived.	Yes -- No

Interview details:

Stakeholder's participants	
Contractor's participants	
Date and location of an interview	
Interview duration	

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Interview topics

The questions target various range of stakeholders in the field of spatial planning and spatial development. Questions you consider not relevant for you as a stakeholder or ones you are unable to answer could be left blank and does not need to be addressed during the interview and we can instead focus on question you consider to be crucial.

Spatial development, spatial planning and their social role

- What are the goals of the spatial planning system in your country and what do you think they should be?

You can provide your answer here…

Please rate stated goals of the spatial planning in your country on the scale from 1 (best) to 5 (worst)

0

- In your opinion what is a current state of the spatial planning system in your country?

You can provide your answer here…

Please rate the state of the system of spatial planning in your country on the scale from 1 (best) to 5 (worst)

0

- Do you perceive changes in the discipline of spatial planning in recent decades, both on your national level and internationally?

You can provide your answer here…

- What positive trends you currently see in spatial development in your country?

You can provide your answer here…

- What negative trends you currently see in spatial development in your country?

You can provide your answer here…

- How successful you think is planning and realization of projects related to spatial development that are of regional and national importance? What do you think the biggest obstacles are?

You can provide your answer here…

Please rate how successful you think is planning and realization of projects related to spatial development that are of regional and national importance on the scale from 1 (best) to 5 (worst)

0

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Spatial planning tools

- How efficient are current legally binding and non-binding planning tools in your country? Do their set of planning instruments, process of their elaboration and implementation meet existing needs?

You can provide your answer here…

Please rate how efficient legally binding spatial planning tools are on the scale from 1 (best) to 5 (worst)

0

Please rate how efficient legally non-binding spatial planning tools are on the scale from 1 (best) to 5 (worst)

0

- Would you say some spatial planning tools should be more or less legally binding?

You can provide your answer here…

- How efficient would you say are Environmental impact assessment (EIA), Strategic environmental assessment (SEA) and Territorial impact assessment?

You can provide your answer here…

Please rate how efficient EIA, SEA and eventually Territorial impact assessment are on the scale from 1 (best) to 5 (worst)

0

- If there is national-wide standardization of the spatial planning instruments what should be the goal of such standardization?

You can provide your answer here…

- What additional data currently not monitored for the purpose of spatial planning in your country should be collected?

You can provide your answer here…

- Are there in your country currently being used economic instruments in spatial planning? Are there some economic instruments that are not currently employed, but you consider them suitable?

You can provide your answer here…

- How do you assess connectedness of spatial and strategic planning in your country?

You can provide your answer here…

Please rate how do you assess connectedness of spatial and strategic planning in your country on the scale from 1 (best) to 5 (worst)

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0

- How do you rate enforceability of spatial planning documents and their obligatoriness for construction (development) permitting process?

You can provide your answer here…

Please indicate how do you rate enforceability of spatial planning documents and their obligatoriness for construction (development) permitting process on the scale from 1 (best) to 5 (worst)

0

- How do you rate the stability of spatial planning documents in case of judicial review?

You can provide your answer here…

Please indicate how do you rate the stability of spatial planning documents in case of judicial review on the scale from 1 (best) to 5 (worst)?

0

Stakeholders in spatial planning and spatial development

- What are competencies of local (municipal or regional) and national governments in your country regarding spatial planning and decision making in the process of new construction permitting? Do you think these competencies are balanced?

You can provide your answer here…

- How is in your country established cooperation among stakeholders in spatial planning and spatial development? Do you think rights of all stakeholders are appropriately reflected in the process of preparation and adoption of spatial planning tools/documents? Among stakeholders we include wide range of local governments representatives, national government an administration, citizens, NGOs, professional organizations and chambers, regional self-governing bodies and private entities involved in construction and development.

You can provide your answer here…

Please rate how successful is cooperation among stakeholders in spatial planning and spatial development on the scale from 1 (best) to 5 (worst)

0

- Do you think rights and responsibilities of stakeholders within the field of spatial planning, development and construction should differ from current state?

You can provide your answer here…

- In your opinion how influential are court decisions on spatial planning and development?

You can provide your answer here…

- Do you consider current court cases in the area of spatial planning efficient; in other words what are the main drawbacks of court cases regarding spatial planning documents?

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You can provide your answer here…

Conclusions

- What do you consider as the main positives of the spatial planning system in your country?

You can provide your answer here…

- What are the main negatives of the spatial planning system in your country?

You can provide your answer here…

- What areas of the spatial planning system do you think should by changed with highest priority?

You can provide your answer here…

- What do you consider as main threads in the area of spatial planning in development in your country?

You can provide your answer here…

- What topic in the field of spatial planning and spatial development you do consider important and is not addressed enough in this form?

You can provide your answer here…

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10. Annex 8 – Notes

10.1. Literature

Spatial and urban planning in Czech literature

Among the Czech authors of urban and spatial planning literature special attention was paid to three authors: Jan Jehlík, Karel Maier and Roman Koucký. Each of them represents different perspective on spatial planning and its aims. All of these authors are active in academia and research and are prolific authors. On top of that Roman Koucký is also practicing expert and the head of the Metropolitan plan office that is currently preparing new Prague zoning plan (called the Metropolitan plan).

Valuable insights about the process of Metropolitan plan preparation are captured in two books of collected interviews with Roman Koucký: Metropolitní rozhovory - Roman Koucký 2012/2016 (Koucký, 2017) and following book Metropolitní rozhovory II - Roman Koucký 2017/2018 (Koucký, 2019). These two books contain together 27 interviews over the span of 7 years of Metropolitan plan preparation process and to our knowledge are unique source of information as no other zoning plan preparation process is recorded in such a detail.

Many empirical findings we refer to are from the case of Prague. This is not because Prague would be considered more important, but rather Prague Institute of Planning and Development has done a detailed in-depth analysis of the current state of urban planning in the city of Prague and published many of their findings in the Justification Concept for the Metropolitan plan (IPR Praha, 2014). Additionally supplementary analytical findings could be also found in the Prague spatial analytical materials (IPR Praha, 2017b). This valuable analytical work uncommon in other cities therefore provided us with many important findings.

References from English speaking countries

Analysis frequently refers to English-speaking countries literature, especially US literature. Although US-based literature and legal cases might seem irrelevant for our continental legal tradition they might provide interesting insights into relations of various stakeholders in spatial development. As current liberal free-market economic system has largely developed in English speaking countries under the rule of their legal frameworks one might argue those legal systems are better developed to deal with private property ownership and considering land and real estate as an economic assets and therefore might provide fruitful examples of good practice in spatial planning and spatial development management.

10.2. Quantitative analysis

The quantitative analysis was done in R programming language (R Core Team, 2000) with additional libraries. Data stored in MS Excel formal were uploaded with packages xlsx (Dragulescu & Arendt, 2018) and readxl (Wickham & Bryan, readxl: Read Excel Files, 2019). Other data formats were uploaded with package readr (Wickham, Hester, & Francois, readr: Read Rectangular Text Data, 2018).

For data manipulation, cleaning and aggregation packages zoo (Zeileis & Grothendieck, zoo: S3 Infrastructure for Regular and Irregular Time Series, 2005), magrittr (Bache & Wickham, 2014), purrr (Henry & Wickham, purrr: Functional Programming Tools, 2019), tidyverse (Wickham, tidyverse: Easily Install and Load the 'Tidyverse', 2017), tidyr (Wickham & Henry, tidyr: Tidy Messy Data, 2019) and reshape2 (Wickham, Reshaping Data with the ´reshape´ Package, 2007). For working with strings and dates packages stringr (Wickham, stringr: Simple, Consistent Wrappers for Common String Operations, 2019) and lubridate (Spinu, a další, 2011) were used.

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Data was visualized with packages ggplot2 (Wickham, ggplot2: Elegant Graphics for Data Analysis, 2016), ggpubr (Kassambara, 2019), ggstance (Henry, Wickham, & Chang, ggstance: Horizontal 'ggplot2' Components, 2019)

Spatial data were uploaded, processed and plotted with packages rgdal (Bivand, Keitt, & Rowlingson, 2019), geosphere (Hijmans, 2019), gdalUtils (Greenberg & Mattiuzzi, 2020), gridExtra (Auguie, 2017), measurements (Birk, 2019) and sf (Pebesma, Simple Features for R: Standardized Support for Spatial Vector Data, 2018).

Regression models were created with packages sandwich (Zeileis, Econometric computing with HC and HAC covariance matrix estimators, 2004), estimatr (Blair, Cooper, Coppock, Humphreys, & Sonnet, 2019), tsoutliers (López-de-Lacalle, 2019) and lmtest (Zeileis & Hothorn, Diagnostic Checking in Regression Relationships, 2002). Variables used in regression models, their relationships and results of the models were visualized with packages lwgeom (Pebesma, lwgeom: Bindings to Selected 'liblwgeom' Functions for Simple Features, 2020), corrplot (Wei, a další, 2017) and corrgram (Wright K. , 2018). Regression results were exported using packages openxlsx (Walker, 2019) and broom (Robinson & Hayes, 2019). The analytical source codes are available upon request.

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11. List of abbreviations and technical terms

CBD	Central business district in the monocentric city concept (Fujita, Urban economic theory: land use and city size, 1989)
CSU	Czech Statistical Office
DG – REFORM	The EU Commission's Directorate-General for Structural Reform Support
EIA	Environmental impact assessment
MRD or the Ministry	Ministry of Regional Development of the Czech Republic
ORP	Municipalities with extended powers / Obce s rozšířenou působností
POU	Municipalities with authorized administration / Obce s pověřeným úřadem
SEA	Strategic environmental assessment
SLDB 2011	2011 Census / Sčítání lidu, domů a bytů 2011
Spatial development principles	Binding spatial planning documentation on the regional level / Zásady územního rozvoje
Spatial plan	Binding spatial planning documentation on the municipal level / Územní plán
Systematic bias	Explained in detail in 6.1/ Systémová podjatost
TIA	Territoral impact assessment
VAT	Value added tax

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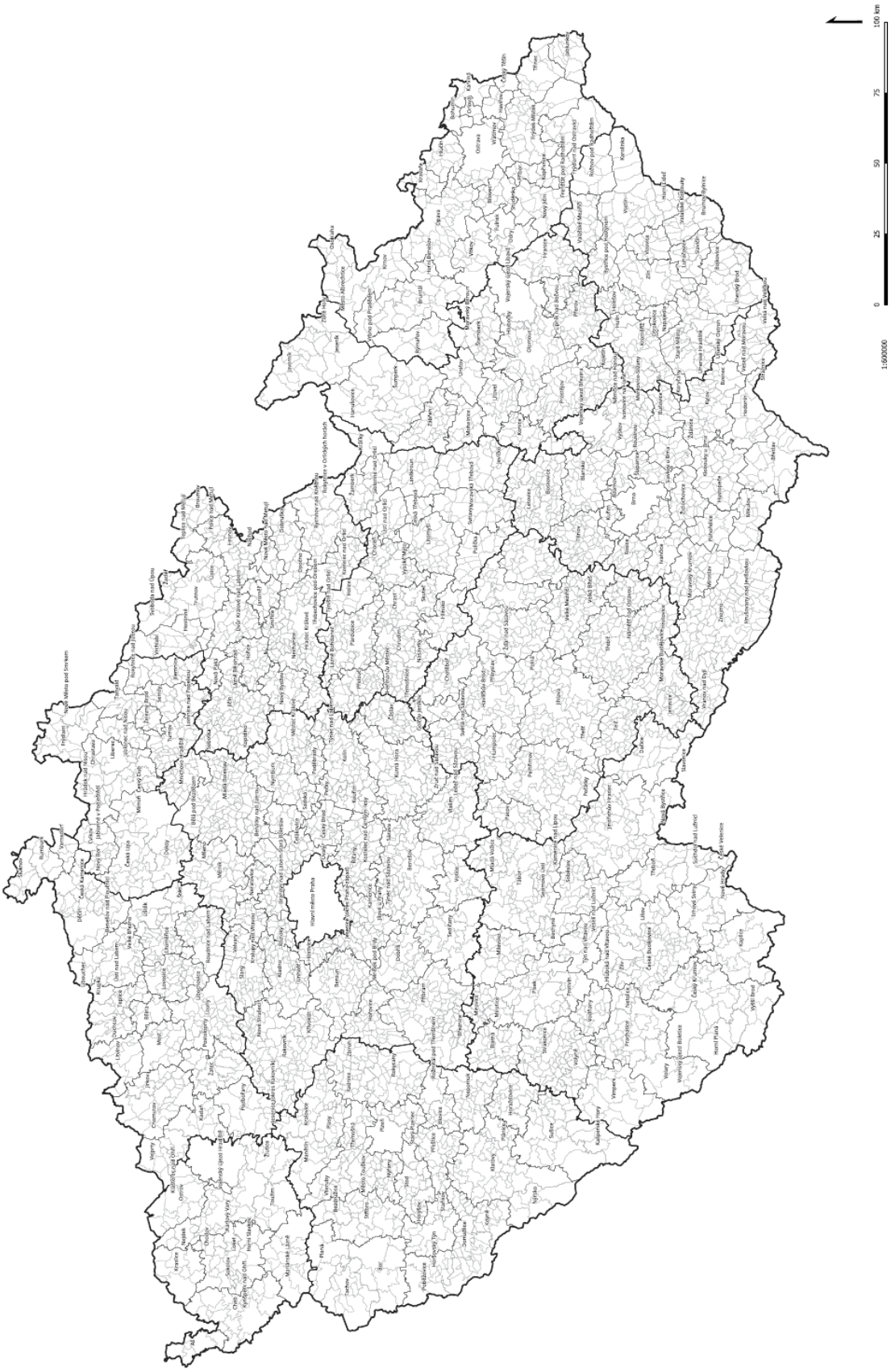
Deloitte.

13. Administrative subdivision map



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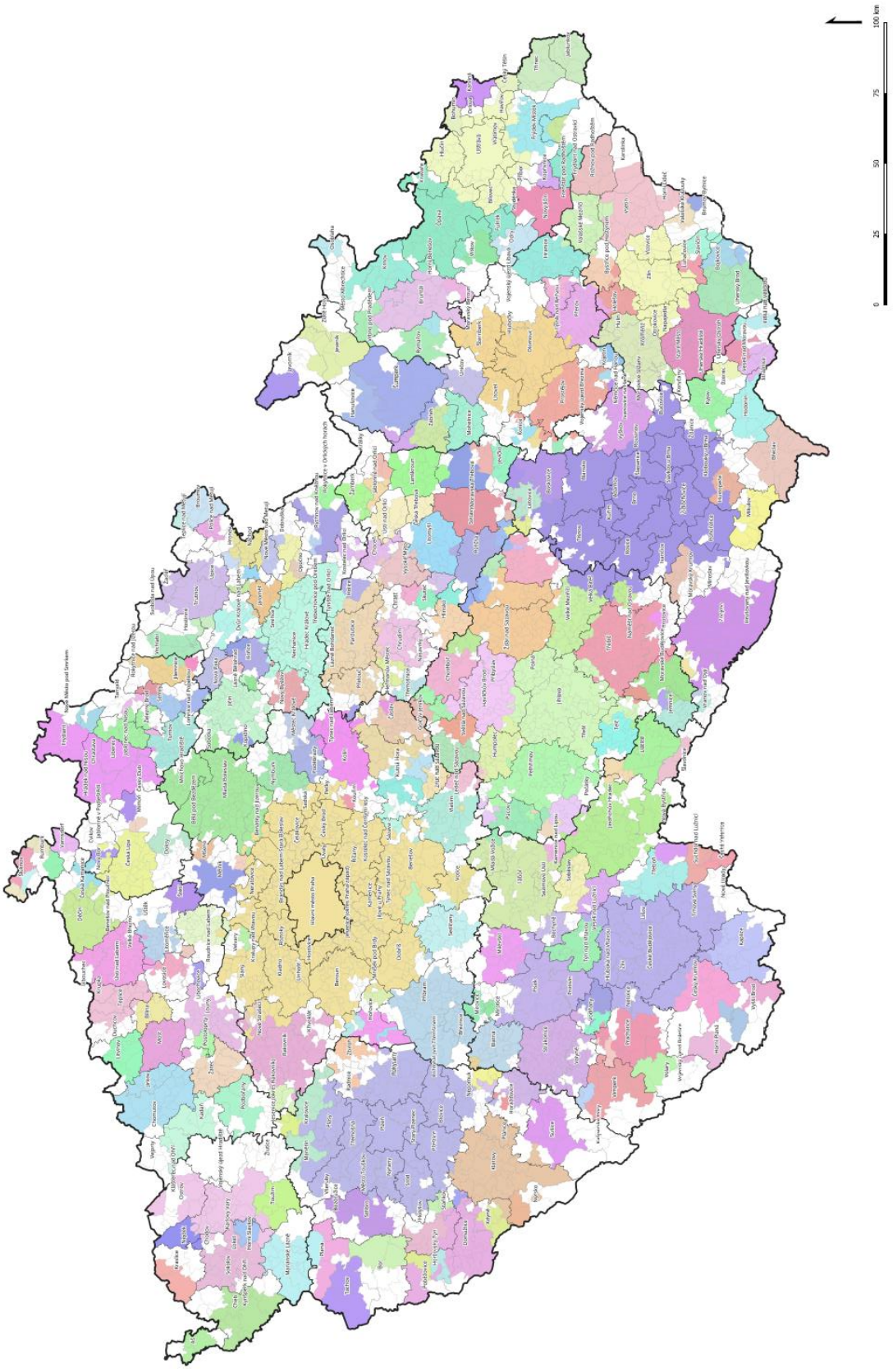
Deloitte.

14. Administrative and functional subdivision map



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