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Boosting affordable housing supply: Could type approval of serially produced housing be a piece in the puzzle?

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Abstract The housing shortage has become a major political concern in Sweden and Germany. To ease tension on housing markets, both the Swedish and German central governments aim to extend housing supply and have highlighted type approval of multi-family housing as an important concept in the provision of affordable housing.

The article outlines the role of serial housing construction in a historical as well as a contemporary setting, and describes the roles of agents and institutional prerequisites related to housing policy, urban planning and building permission in the two countries. The comparative data is analysed using theories on institutional change, with the aim of tentatively explaining why and how institutional change evolves.

Results show that shifts in relative prices, technology and preferences are driving reform. Although the major agents (central governments, states, municipalities and developers) have different motives for supporting or working against reform, a majority of agents are acting in favour of reform. It is concluded that it is probable that type approval of multi-family housing will be introduced in both countries. However, the time for negotiations on the scope of reform between agents involved is expected to be shorter in Sweden than in Germany, due to Sweden's fewer layers of government and a stronger set of decisive agents. Once an agreement has been reached, reform is expected to be quicker in Germany than in Sweden as legal text and an assessment institution already exist.

Keywords Type approval · Serial housing construction · Housing policy · Building permit

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Erhöhung des Angebots an erschwinglichem Wohnraum: Könnte die Typengenehmigung des seriellen Wohnungsbaus ein Teil des Puzzles sein?

Zusammenfassung Die Wohnungsnot ist zu einem wichtigen politischen Anliegen in Schweden und Deutschland geworden. Um für Entspannung auf dem Wohnungsmarkt zu sorgen, wollen sowohl die schwedische als auch die deutsche Regierung das Wohnraumangebot erweitern und sie haben die Typengenehmigung von Mehrfamilienhäusern als wichtiges Konzept bei der Bereitstellung erschwinglicher Wohnungen hervorgehoben.

Der Artikel skizziert die Rolle des seriellen Wohnungsbaus in einem historischen sowie modernen Umfeld und er beschreibt die Rolle der Akteure und die institutionellen Voraussetzungen in Bezug auf Wohnungspolitik, Stadtplanung und Baugenehmigung in den beiden Ländern. Die Vergleichsdaten werden mithilfe von Theorien des institutionellen Wandels analysiert, mit dem Ziel, versuchsweise zu erklären, warum und wie sich die institutionelle Veränderung entwickelt.

Ergebnisse zeigen, dass Verschiebungen bei den relativen Preisen, der Technologie und den Präferenzen die Reform antreiben. Auch wenn die wichtigsten Akteuren (Regierungen, Staaten, Kommunen und Projektentwickler) unterschiedliche Motive haben, um die Reform zu unterstützen oder ihr entgegen zu wirken, arbeitet die Mehrzahl der Akteure zugunsten der Reform. Es wird der Schluss gezogen, dass die Typengenehmigung von Mehrfamilienhäusern in beiden Ländern wahrscheinlich eingeführt werden wird. Es wird jedoch erwartet, dass die Zeit für Verhandlungen über den Umfang der Reform zwischen den beteiligten Akteuren in Schweden kürzer sein wird als in Deutschland, da es in Schweden weniger Regierungsebenen und eine stärkere Gruppe maßgeblicher Akteure gibt. Nach Erreichung einer Vereinbarung wird erwartet, dass die Reform in Deutschland schneller als in Schweden erfolgt, da bereits ein Gesetzestext und eine Bewertungsinstitution vorhanden sind.

Schlüsselwörter Typengenehmigung · Serielles Bauen · Wohnungspolitik · Baugenehmigung

1 Introduction

In recent years, Sweden and Germany have experienced population growth, changing demographics, and a housing supply unable to meet demand. As a result housing costs have risen in the larger part of the housing stock and it has become difficult for many low- and mid-income households to meet their housing needs. The situation reached a critical stage after the massive influx of asylum seekers into both countries in 2015. To ease the tension on housing markets, both the Swedish and the German central governments aim to extend the affordable housing supply, mainly through construction.

A number of measures have been taken at the state and municipal levels in both countries to increase construction of affordable housing, although these measures are deemed insufficient by many market actors. Some larger cities in Germany

have implemented housing policy programs in cooperation with developers (for example, Freie und Hansestadt Hamburg 2011; Berliner Senatsverwaltung 2014). Further, municipal housing companies have been instructed to develop more affordable housing (for example, Familjebostäder 2016; SAGA 2017). To date, reforms have focused on municipal organisation, urban planning, land allocation and subsidy policies (Granath Hansson 2017a, 2017b). Both countries' central governments have presented programmes with lists of prioritised measures (BMUB 2015; Regeringskansliet 2016), in which they identify the potential of serial housing construction and highlight type approval of multi-family housing as an important concept in the provision of affordable housing.

Type approval is defined as an 'official confirmation from a government or other body that a manufactured item meets required specifications' (Oxford Dictionaries 2016). Type approval of housing is an early approval certifying that the type house or building system fulfils the building regulation (Stüer 2015). Issues related to planning regulation and the placement of the building on the plot are not included in type approval.

The introduction of type approval of multi-family housing is driven by both private and municipal developers, aiming at swifter approval processes and more secure investment conditions. Besides serial housing concepts launched by private developers, public actors are developing concepts suitable for serial production and making larger procurements. Larger procurements have recently been made by three different public actors in Sweden. The Swedish Association of Public Housing Companies has estimated a 25% price cut in the serial housing projects of their members, as compared to standard projects (SABO 2014). In Germany, GdW, an interest organisation engaging both private and public housing companies, is planning a similar procurement (GdW 2016).

The main potential positive effects of serial housing construction, pointed out by governments, are a more cost-efficient housing production and a quicker building permission process. The goal of serial and industrial construction is ideally first, to rationalise and develop construction techniques and processes and second, to use these advances to reduce housing development costs in order to achieve housing affordability goals. However, cost efficiency is a necessary, but not sufficient criterion for the development of affordable housing. Projects need to be structured in such a way that cost reductions are realised in the price or rent paid by the end-user, who preferably belongs to the envisaged target group. Lind (2017) points out that in the building sector it is demand, that is, the possible end price, that decides costs, rather than costs deciding prices. The possibility of engaging other groups of workers, at times when certain categories of construction workers are in short supply, is also considered positive by some of the involved actors.

Although central governments and some municipalities recognise the potential positive effects of an increase in serially produced housing, they are also aware of potential negative effects. Both in Germany and Sweden housing estates built in the 1960s and 1970s have presented constant challenges in terms of social texture and appropriate housing standards. Although interest organisations of municipalities, SKL in Sweden and DStGB in Germany, are generally positive towards modern serial housing construction, both organisations emphasise the importance of high

quality architecture and urban development. Central governments are also aware of the tarnished image of serial housing production in the public mind. The German government states in its housing policy programme that acceptance of modern serial housing production has to be strengthened, inter alia through architectural competitions (BMUB 2016). In light of this background, aesthetic aspects of buildings are not intended to be part of reform introducing type approval. In Sweden, SKL also considers the impact of type approval on municipal autonomy should part of the building approval process be conducted by a central government entity.

Serial housing construction has been covered by a number of interesting research studies in recent years, mainly focusing on the technical, organisational and processual aspects of its development (e. g. Unger 2006; Engström and Hedgren 2012; Lessing 2015; Lundkvist 2015). However, to the knowledge of the author, the institutional prerequisites of urban development and building law in relation to serial housing construction has not attracted the attention of researchers. The intent of this study is to contribute to the understanding of serial housing construction in today's institutional setting, focusing on type approval as a tool to increase affordable housing supply. The aim is to analyse the incentives of the different agents involved and tentatively explain why and how institutional change evolves. The following research questions will be answered: What role does serially produced housing play in central government and municipal housing policy? What are the driving forces and agent incentives behind a potential introduction of type approval and how do they shape reform? What institutional reform would be needed in order for type approval to be introduced? The questions are answered through a detailed comparative case study of German and Swedish housing policy and building permission processes. This explorative study builds on literature studies, mainly of central government housing policy documents and national and state building legislation, as well as expert interviews.

The article is organised as follows: In the second section, the role of serial housing production as a tool to expand affordable housing supply throughout the 20th and 21st centuries is described and definitions of the key terms used in the paper are presented. In the third and fourth sections, the roles and incentives of central governments, states, municipalities and developers in Germany and Sweden are outlined. The fifth section analyses and discusses the roles and incentives of agents, based on theories on institutional change. Last, conclusions are drawn and potential future research is proposed.

2 Housing shortage and serially produced housing

The development of serially produced housing and industrial construction techniques has historically walked hand in hand with new social policy and urban development visions. The main political motive for adopting serially produced housing has been to alleviate housing shortages and provide affordable housing to workers and the lower middle class.

Housing shortage might be defined as a market shortage or a needs-based shortage. From a political perspective, a needs-based shortage prevails when the housing

standards of one or more households are lower than their need, which is defined by a certain norm (Bengtsson 1992). From the market perspective, a shortage prevails when households would like to rent or buy a certain type of home but cannot find such a home at the going price or rent, instead they have to queue (Stiglitz 1993).

Affordable housing has been defined as 'shorthand for sub-market social rented housing' and 'the intermediate housing market for rent and low-cost home ownership models' (Gibb 2011, p. 358), housing with 'acceptable relationships between household income and expenditure on housing costs for housing market participants' (Worthington 2012, p. 235) and housing that is not 'expensive relative to its fundamental costs of production' (Glaeser and Gyurko 2003, p. 21). In this context, Worthington's definition is deemed to be the most relevant.

Serial and industrial construction techniques and processes have been continuously developed from the 19th century until today. The 1930s and the 1960s were especially important decades for their development and use in housing. Today, housing shortage is again in focus in major cities in Germany and Sweden, which has led to a renewed interest in serial housing development. In this article, serial housing production is defined as all types of housing construction where repetition is a fundamental principle. Such housing construction encompasses a) repeated designs in the form of type buildings with or without a specified mode of construction built on- or partly off-site or b) modular construction systems where standardized or individual apartments are built out of serially produced parts. To understand the current debate on serial housing construction, it is necessary to summarise its development, especially during the 1930s and 1960s and describe how these periods contrast to the present.

The 1920s and 30s witnessed a change in social and urban policy, which strongly influenced housing policies in many western countries. Social stability became a driver of housing reform (Bernhardt and Vonau 2009). Dense residential areas in mixed-use inner cities housing worker and lower middle class households were deemed unhealthy. Further, increasing traffic congestion also needed a solution. New architectural ideals advocating the importance of light and air, as well as use separation, gained ground. First garden cities and later housing estates, consisting of taller buildings and non-closed blocks, were promoted by architects and urban planners (e. g. Barr 2011). The modernist era saw a surge of serial housing production and industrial concepts. The use of reinforced concrete made new designs and industrialisation possible. Architects emphasised rationality, simplicity and functionality. Research on optimal designs of apartments was done, for example in the Apartment for the Breadline (*Die Wohnung für das Existenzminimum*) and the Frankfurt Kitchen (*Die Frankfurter Küche*).

In Germany, Deutscher Werkbund, the Bauhaus School and the city architects were the most important actors in the modernist era (Ahnfeldt-Mollerup 2011), involving architects such as Mies van der Rohe, Walter Gropius and Ernst May. Based on their ideals, states and employers built housing estates (*Siedlungen*) to ease housing conditions for workers. In Sweden, the Stockholm Exhibition in 1931 introduced modernism to a wider audience. The new movement was led by architects such as Uno Åhrén, Erik Gunnar Asplund and Sven Markelius. The massive housing shortage is said to have rendered Swedish modernism, or *functionalism*, less ideological

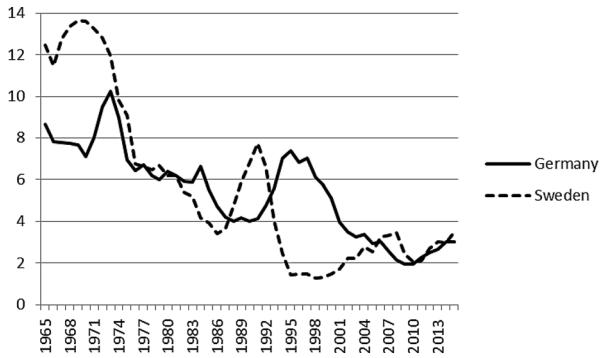

Fig. 1 Completed housing units per 1000 inhabitants in Germany and Sweden 1965–2015. Please note that completions in 1966–69 are not available for the complete German territory and shall therefore not be regarded in detail in the above graphics. Source: Destatis 2016 and Statistics Sweden 2017

and more practical (Rudberg 2011). Many of the ideas that were developed during the modernist era became models for housing construction after WWII.

The substantial housing shortage of the post-war era, caused by urbanisation and lack of construction, and in Germany also war destruction, became a political focal point in the 1960s. Large housing construction programmes were launched, mainly driven by central governments and municipalities. Substantial public subsidies supported the rapid realization of programmes. Fig. 1 shows the high levels of housing construction in the years 1965–1975. Post-modernist urban planning ideals promoting use separation and emphasising the role of transportation marked the era, as well as industrialisation in housing construction. The result was partly uniform satellite estates where housing, shopping and workplaces were separated. Accessibility by car was prioritised through large parking facilities and road construction, often separating housing estates from the rest of the agglomeration and surrounding nature (Nygaard 2011).

Both modernism and postmodernism have been criticised, even by some of its promoters, for taking too little consideration to human nature. The influence of residents is also said to have been neglected. In the 1970s, Habraken, among others, opposed this approach and wanted to bring more power to the client (Ågren and Wing 2014). A focus on customers and market demand, as opposed to centrally planned production, is also stressed by researchers today (Lessing 2015).

In the new millennium, a return to dense walkable cities, often with closed blocks, is promoted by major cities in Germany and Sweden, such as Berlin and Stockholm (Berliner Senatsverwaltung 2015; Stockholms stad 2010, 2016). Density is expected to result in sustainable urban development, environmentally inter alia through more efficient provision of utilities and infrastructure, more sustainable modes of transportation, lower energy consumption, as well as economically and socially inter alia through better access to services and employment opportunities for all (e. g. Winston 2017). The car as mode of transportation has been pushed back in favour of public transportation, bikes and walking (Ståhle 2016). Construction techniques and processes are being developed through, inter alia the lean construction concept. Today, emphasis is on private actors and financing, only complemented by public production.

In parallel, housing estates built in the 1960s and 1970s are being renewed and reshaped in order to meet present standards. New development is often promoted to create larger architectural and tenure diversity. The state-financed programme City Redevelopment East (*Stadtumbau Ost*) included the destruction of 300,000 housing units in the eastern parts of Germany (BBSR 2012).

3 The role of central governments and states in introduction of type approval

3.1 Housing policy and current status of reform

Housing policy has received increasing attention from central governments in both Germany and Sweden, at least since 2014. With elections coming up in Germany in 2017 and in Sweden in 2018, housing ministers have presented housing policy programmes defining the measures that are planned up until the elections and beyond. The need for new housing units has been quantified to 70,000 a year in Sweden, compared to present output of approximately 40,000 (Boverket 2016; Statistics Sweden 2017), and 350,000 a year in Germany, compared to present output of approximately 250,000 (BMUB 2015; Destatis 2016). Both governments point to serial housing construction as part of the solution.

Construction has increased in both countries in recent years due to generally good economic development and low interest rates. Neither country was hit hard by the 2008 recession, but the economic expansion has not reached all layers of society. New housing has to a great extent been built for households with above average incomes. Measures to increase housing construction directed towards households with lower and middle incomes have increasingly come into focus, both in the public debate and in policy. Besides satisfying parts of the electorate with weaker incomes, the municipalities have a responsibility to accommodate households that are not able to find housing for themselves, a task which has grown increasingly difficult in the present housing situation.

The German 10-point central government housing construction programme includes issues related to land, subsidies, the building-code, taxes, energy efficiency etc. (BMUB 2015). Point seven in the programme relates to serial housing construction. The ministry responsible for housing (Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit) points to the cost-saving potential of modularisation, standardisation and serial pre-fabrication. A working group consisting of representatives of the central government, the states and the industry has been given the task of presenting reforms that could help increase the volume of serially produced housing. The focus of their work to date has been on type approval, subsidy reforms, procurement and architectural competitions to improve aesthetics and increase acceptance (BMUB 2016). The housing minister conference, consisting of the housing ministers of the sixteen states, also has on its agenda evaluation of how the building-codes of the states might be reformed, including the possible introduction of a type approval process for multi-family housing. However, at their

latest meeting in October 2016, the question was not brought up for discussion (Bauministerkonferenz 2016).

The Swedish 22-point central government programme takes up, inter alia, a number of points related to building land, the urban planning process and measures to reduce building costs, including the introduction of type approval. Point five in the programme (Regeringskansliet 2016) addresses 'facilitated control of serially produced buildings'. It states, 'To developers and manufacturers of serially produced housing, it is an uncertainty that municipal building departments make different assessments of whether a building's construction is compatible with the technical requirements. This constitutes a hindrance to an increase in housing construction' (translation by the author). The National Board of Housing, Building and Planning has therefore been given the commission to suggest 'how municipalities could be freed from the commission to control whether the technical requirements of housing that is produced in series [...] have been fulfilled. The suggestion shall imply that different assessments of the same requirements of the same building shall no longer be possible' (Regeringskansliet 2016, p. 2–3). The work is to be conducted in cooperation with SKL (the Swedish Association of Local Authorities and Regions). Currently, type approval, as well as a certificate system are being investigated. The Government Inquiry is to be presented in June 2017.

Serial housing production constitutes a minor share of current housing output (Goulding et al. 2015). To encourage an increase in production, politicians wish to create an attractive investment climate. As in many other lines of industry, initial costs to develop a product, in this case a serial housing concept, and set up a production line are substantial. Only after a certain volume of production has been achieved, can economies of scale be presumed to make the investment profitable. Therefore predictability of investment conditions is deemed key to investors. Both the prevailing conditions at a certain point in time and the outlook as to future stability or reform will influence investors' risk taking willingness and capacity. When it comes to serial housing construction, investors point to similarity in assessment of serial housing between jurisdictions as the most important issue at present. In Sweden, developers have experienced that their housing concepts have been assessed differently by different municipalities. In Germany, legislation differs between states. The aim of the type approval is to preclude such possible differences in assessment for a certain number of technical parameters. Type approval would then make construction of a certain housing concept possible in a larger number of jurisdictions (or ideally the whole nation), which in turn would make it easier to achieve economies of scale. Attractive investment conditions are expected to encourage present suppliers to build out capacity and to attract new investors. In turn, housing supply is expected to expand and housing prices to decrease due to a larger existing housing supply and more intense competition. Both political and market housing shortage are then expected to decrease, as more households are able to combine housing needs with housing demand capacity.

3.2 The building permit process

Germany has three layers of government relevant to building and planning, the central government, states and municipalities, whereas Sweden has two, the central government and municipalities. Three German cities are also states: Berlin, Bremen and Hamburg.

The planning process is regulated through the Planning- and Building Code (*Plan- och bygglagen*) in Sweden and through the Building Code (*Baugesetzbuch*) in Germany.

In Sweden, the building permit process is regulated through the Planning- and Building Code (*Plan- och bygglagen*) and the Building Ordinance (*Byggförordningen*). The law is complemented by the Building Rules, issued by the National Board of Housing, Building and Planning (*Boverkets Byggregler*). In Germany, each of the sixteen states has a Building Ordinance (*Landesbauordnung*). The federal state also publishes a Model Building Ordinance (*Musterbauordnung*); however, it does not have legal force, but is only a recommendation to increase homogeneity in state legislation. The Building Ordinances are complemented by Building Documentation Ordinances (*Bauvorlagenverordnung*) and Technical Building Rules (*Technische Baubestimmungen*).

German and Swedish planning legislation is fundamentally the same, although German planning legislation includes alternative paths to reach the building permit stage which do not exist in Swedish law (Granath Hansson 2017a), and the technical building rules are more precisely defined in Germany. Municipalities act as executive bodies in the building approval process (Table 1).

In both countries, the building permit process is executed in two stages: 1) the assessment of the technical properties of the proposed construction project and 2) the fitting of the construction project into the urban texture.

The first stage includes the assessment of the project mainly in relation to public safety and health (structural strength, durability, fire protection, health, hygiene, environmental protection, security at use, noise protection and insulation). Further, energy, water and waste economy are assessed, as well as accessibility for the disabled. One or more parameters to be assessed in the first stage can be included in a type approval.

In the second stage the aesthetics of the building and how well it fits into its surroundings are assessed. This stage encompasses subjective decisions dependent

Table 1 Decision levels in the building permit process

	Germany	Sweden
Central government	The Building Code	The Planning- and Building Code
		The Building Ordinance
		The Building Rules
State	The Building Ordinance	–
	The Building Documentation Ordinance	
	The Technical Building Rules	
Municipality	Executive body	Executive body

on the urban development visions of the municipality and architectural taste, as well as more objective decisions related to technical infrastructure, such as roads, water, sewage etc., and social infrastructure, such as schools and services.

3.3 Current legislation on type approval

Type approval is an early approval certifying that the type house or building system fulfils the building regulation (Stüer 2015). Issues related to planning regulation and the placement of the building on the plot are not included in type approval, nor are, in most cases, aesthetical considerations.

Currently, type approval of multi-family housing is not practised in either Germany or Sweden. However, in Germany, such legislation existed in most states until the 00s and was included in the building-code recommendations (*Musterbauordnung*) until 2002. As house building was limited at the turn of the millennium, and building permit regulation was simplified in an effort to reduce administration, type approval was removed from the building-code in all states except Hamburg and North Rhine-Westphalia. The use of type approval in multi-family housing has been very limited (DIBt 2016). However, in recent years, the need for new construction has increased considerably and a reintroduction of the previous legislation in the whole country has been discussed (DIBt 2016; GdW 2016).

The section of the law that concerns type approval is (was) formulated in a similar way in the different states (for example, Landesbauordnung Hamburg 2016 (§ 65) and Landesbauordnung Nordrhein-Westfalen 2016 (§ 78)). The main points are: 1) Type approval is given for type buildings or building systems. The permitted variations shall be defined in the type approval. 2) Type approval is given for five years with a possibility of a five-year extension. 3) A type approval issued by one state is also accepted in the other states. 4) Holding a type approval does not exempt developers from applying for a building permit. The factors included in the type approval are considered as proven and are not tried again during the building permit process.

States have adopted additions to the above basic structure. In North Rhine-Westphalia, for example further conditions may be introduced and certain types may be excluded. Further, for a type approval to be issued, a public interest must exist. The factors to be tried in a type approval are usually technical, such as structural strength, environmental, fire and noise protection, hygiene, accessibility for the disabled etc.

At present, discussions on alternative ways to facilitate the building permit process for serially produced multi-family housing are on-going. The main aim of the process is to create uniformity in the assessment in all states. Four main solutions are being discussed (DIBt 2016): 1) use of current regulations, which could suffice if they are applied more consciously; 2) extended use of structural design type approval (*Typenprüfung*), which are limited to structural strength and fire-protection; 3) the introduction of a construction technique approval (*Bauartgenehmigung*), which also focuses on structural strength and fire-protection; 4) reintroduction of type approval (*Typengenehmigung*) in the whole federal state.

The German Institute for Construction Technology (DIBt, das Deutsche Institut für Bautechnik) is the common executive body of the sixteen states for building

products and construction technique approvals. The responsibility to issue type approvals can be transferred from states to DIBt, such that DIBt takes on the role of a national centre of competence. However, at present such transfer of authority has not taken place. Supreme building authorities of the practising states (*oberste Bauaufsichtsbehörde*) issue type approvals.

4 The role of municipalities in introduction of type approval

4.1 Municipal housing policy and the urban development process

The housing shortage has received increasing attention in many German and Swedish municipalities in recent years. Municipalities consider both the housing shortage affecting wider layers of the population as well as that affecting households in need of municipal support. The massive influx of asylum seekers into both countries has highlighted the tightness of existing housing supply.

The introduction of type approval has primarily been driven by private developers using serial construction techniques, as well as municipal organisations developing or planning to develop serially produced housing (e. g. GdW 2016; SABO 2016; SKL 2016). Municipal housing companies play a central role in the process, linking interests of the industry with housing policy goals, spurring municipalities and central governments to act. The Swedish Association of Public Housing Companies (SABO) has developed type house concepts that are being pooled and procured in larger numbers to reduce costs. The three municipal housing companies in Stockholm have followed suit and developed their own type house concept. Also SKL (the Swedish Association of Local Authorities and Regions) has recently run a major procurement of serially produced buildings, on behalf of municipalities that do not own a municipal housing company or do not wish to use these for serial production. The German Housing Industry (GdW) is also planning a larger procurement on behalf of its members that are a mix of private and public housing companies. Hamburgs' municipal housing company is also developing serial construction systems and type houses (SAGA 2017).

The introduction of type approval might be seen as a balancing act by municipalities. On the one hand, many municipal housing companies would welcome an introduction of type approval, as a one-time assessment of their chosen technical platform or type building could reduce time and costs of project development in line with housing policy, as well as create stable investment conditions. On the other hand, politicians and planning and building control departments might not wish to yield parts of their authority in an area they perceive might distinctly influence the urban development within their jurisdiction.

The building permit process might be divided into two stages: 1) the assessment of the technical properties of the proposed construction project and 2) the fitting of the construction project in the urban texture. In relation to these two stages, municipalities and (German) states might contemplate two issues: first, their ambitions related to technical demands on buildings and infrastructure, and second, their vi-

sion for urban development within their jurisdiction and the role serially produced housing may, or may not, play in the realisation of that vision.

4.2 The assessment of technical properties in the building permit

In Germany, type approvals can be issued either by the building authority of each of the sixteen states or by the technical institute DIBt, which is a common executive body of the sixteen states. In Sweden, type approvals could either be issued at the central government or municipal level. As the intention of the Swedish central government is to 'free' municipalities 'from the commission to control whether the technical requirements of housing that is produced in series [...] have been fulfilled' (Regeringskansliet 2016), it is clear that should type approval be introduced, approvals will be issued by a state body. This means that municipalities will have to yield some of their authority. In Germany each state has its own building regulation. Should a nation-wide type approval be introduced, states would have to cede some authority and conform to common standards.

Should type approval be introduced and central issuance bodies installed, states and municipalities would not have to make a number of assessments of technical factors in the building permit process. In Sweden, some municipalities previously set higher energy and accessibility standards than the national norm issued by the National Board of Housing, Building and Planning (Boverket). According to a new law introduced in 2015, municipalities are forbidden to do so (Regeringskansliet 2014). However, some municipalities might try other ways to reach such goals. An introduction of type approval would reduce their ability to act as some technical factors would then be assessed by a state authority.

As stated in the German legislation on type approval, the issuance of type approvals does not free the developer from applying for building permission. All factors related to the location of the building (place-specific factors) are regulated by the urban planning legislation. Such factors include provision of technical infrastructure, for example, connections to electricity, water and drainage, road connections, fire rescue measures etc., but also aesthetic factors such as placement of the building on the building lot, colour schemes, height etc. In some cases it might be problematic to draw the line between place and building, as, for example, fire protection include measures both inside the building and on the plot that are related to each other.

4.3 Urban development visions

Municipal urban development goals aim at environmentally and socially sound, appealing, high-quality urban landscapes, creating safe and attractive quarters for inhabitants. How such partially subjective goals are achieved might vary over time and depend on which political party is entrusted with urban development issues. Aesthetical directives are purely subjective and accordingly vary over time and depend on the stakeholders involved. However, in relation to serial housing construction, voices representing varying standpoints fear that prior mistakes made mainly in the 1960s and 1970s are to be repeated, resulting in poor building quality and large scale repetitive urban landscapes often associated with social deprivation. The combina-

tion of dense, varied, walkable cities and the economies of scale needed in serial housing production is seen as a challenge. Promoters of serial housing construction argue that modern techniques are qualitative and allow architectural variation. Economies of scale do not presuppose construction in one location, but output might be placed in several locations within a region. Further, with the increasing use of construction systems or platforms, the line between serially produced and place-built housing is no longer easy to draw.

At the same time, the social and economic dimensions of housing need to be addressed. A housing shortage is known to have severe social effects, as well as a negative impact on economic development (SOU 2015, p. 48). Social effects include limited mobility, restrictions on household formation, overcrowding and potential homelessness. The economy might be negatively influenced by low population mobility, as students and employees cannot move to education and employment opportunities (Webster and Lai 2003). Further, municipalities have a responsibility to accommodate households that are not able to find housing. The worse the housing shortage, the more households end up in need of assistance, which increases the responsibility and the budgetary burden of the municipality. The solution to the problem is twofold: to reduce the cost of apartments arranged by the municipality and to increase the general affordable housing supply such that the group in need of assistance will shrink. Cost efficiency, that is, solutions that result in as many and as high-quality dwellings as possible within the budgetary limits, has to be considered. As outlined above, central governments and some municipalities consider serial housing construction to be an appropriate tool to achieve the desired goals.

After the massive influx of asylum seekers into Sweden and Germany in 2015, the states have introduced imperative distribution schemes among municipalities of new immigrants who do not arrange their own accommodation. Municipalities with large housing shortages, such as Stockholm, have had great difficulty in meeting this requirement. It is assumed that this situation will further strengthen the case for serial housing production.

The permitted level of serial housing development in a certain location might be influenced by a number of factors: historical experiences of serially produced housing, the composition of the existing housing stock and need for new housing, the local housing and land market, local urban planning visions, the local political situation etc. Municipalities need to balance environmental/social and social/economic interests such that the electorate is mainly satisfied with urban development, households have acceptable housing conditions, municipal budget restrictions are met and enough developers are interested in investing, including municipal housing companies. Moreover, the needs of future generations also have to be taken into account.

5 Analysis and discussion

This article focuses on reform of the building code, introducing type approval. But how might reform of a formal institution such as the building code be understood? Theories on institutional change are introduced to facilitate the analysis of agents'

incentives and how those incentives influence the outcome of reform. The term agent here represents the groups of actors involved in reform, mainly central governments, German states, municipalities and developers.

North (1991) describes institutions as 'humanly devised constraints that structure political, economic and social interaction'. Such constraints can be informal (e. g. traditions or codes of conduct) or formal (e. g. laws or property rights). The durability of institutions depends partly on the extent to which they can 'create stable expectations of the behaviour of others' (Hodgson 2006, p. 2). Norms and belief structures are important for the evolvement and stability of institutions (North 1993).

In this article, housing development is argued to be an act of creating property rights and increasing the value thereof. Libecap (1989, p. 1) defines property rights as 'the social institutions that define or delimit the range of privileges granted to individuals to specific assets, such as parcels of land or water'. Property rights institutions influence agents' decisions as to how to use resources, e. g. investment decisions.

Property rights are formed through a political process in which governments and other agents, including political entrepreneurs, negotiate. The rules of the resulting contract might be bundled and formalised through an institution. The resulting contract reflects the conflicting economic interests and bargaining strengths of the agents involved (Sened 1997). The political process of defining and enforcing property rights can be decisive because of the distributional implications of different property rights allocations (Libecap 1989).

Libecap (1989) points to three reasons for renegotiating the contract: shifts in relative prices, changes in production and enforcement technology, shifts in preferences and other political parameters. Institutional change is likely to be promoted when economic benefits of the change are large. On the other hand, a large number of agents and significant heterogeneity among competing agents are likely to delay or block institutional change as it is difficult to find a consensus solution.

Sened (1997, p. 61) argues that 'to explain an institution we must show why a decisive set of agents chose a set of rules that changed the incentive structure of the event, and how they were able to enforce these rules on those, including themselves, who played a role in the relevant social event'.

5.1 Drivers of institutional change and decisive coalitions

According to Libecap (1989) there are three main reasons for agents to attempt reform of property rights institutions, in this case the building-code: shifts in relative prices, changes in production and enforcement technology and a shift in preferences and other political parameters. All three types of changes are observed in this case: Changes in production technology, in this case development of more cost-efficient serial housing production methods, have not been as decisive as in the 1930s or 1960, but a stronger focus on organisation and processes has increased efficiency. Increased customer orientation has adapted supply to present housing market preferences. The price of housing has increased dramatically in both Germany and Sweden in recent years, while the production cost of serially produced housing has not risen to the same extent. Increasing demand and a growing price-to-cost ratio has increased

suppliers' incentives to expand supply, and new suppliers have entered the market. Both in Germany and Sweden, there is a marked shift in politics and preferences. Previously, serial housing construction was often not regarded as qualitative, but the growing housing shortage, especially for no-, low- and mid-income households, has made central governments introduce new housing construction policies promoting inter alia, serially produced housing. Municipalities faced with housing shortages implement serial housing programmes through their municipal housing companies and also promote private initiatives. The housing shortage is expressed as a political norm, rather than as market demand, though it is not explicitly defined. As all three reasons for renegotiating the institutional contract are present, the drive for change is expected to be strong. However, the three reasons to renegotiate the contract influence agents differently and hence shape their incentives and drive to act in different ways, as will be seen below.

The decisive coalitions that drive the process can be identified as central governments together with developers (including municipal housing companies) and their interest organisations in both countries. States, municipalities and their interest organisations are ambivalent to reform, as the outcome could reduce their authority but could also positively influence those municipalities that need to develop affordable housing. Interest organisations are decisive players as they pool the angle of approach of different interests, which reduces information and coordination costs.

5.2 Agents' incentives and choices

Central governments, the German states, municipalities and developers have different incentives to strive for type approval and can choose between different sets of action, which will be outlined below.

5.2.1 Central governments

Politically, the introduction of type approval is expected to be a relatively risk-free action that can be taken to improve the possibility of achieving housing policy goals. Central governments are expected to gain from an introduction of type approval as a change in legislation is not expected to impose larger costs or be of longer duration and the set-up of a new assessment authority will partially be paid for by type approval applicants.

Housing construction policies can broadly be categorised into two types: policies aimed at increasing housing supply elasticity and targeted policies promoting the construction of affordable housing. As construction systems and platforms are used in all market segments today, type approval is expected to have a cost-cutting impact on a large share of the housing construction market, and hence is an initiative to increase housing supply elasticity. However, agents refer to the initiative as a targeted policy promoting affordable housing construction, in line with its historical image. Considering the influence of left-wing politicians on housing issues in both countries and major cities, this approach is expected to enhance the image of serial housing production and increase acceptance.

Type approval is only one of several initiatives in the German central government programme to increase volumes of serially produced housing, whereas in Sweden it is the only one. In Germany, measures to increase acceptance of serially produced housing, such as architectural competitions and best-practice examples, are emphasised, which gives the impression that resistance against more intensive use of serial concepts is strong. Further, German reform includes three layers of government, the central government, the states and the municipalities, which might complicate negotiation on the redistribution of power. The Swedish approach reflects the decisive agenda set by the central government, backed by private developers and the Swedish Association of Public Housing Companies (SABO). In light of the above, the Swedish central government seems to have a stronger position concerning this issue than its German counterpart and it seems likely that Swedish reform will be swifter.

5.2.2 Municipalities and the German states

Municipalities and the German states are ambivalent to the introduction of type approval. The stance of individual authorities is influenced by their varying housing policy objectives. On the one hand, they would lose some of their authority in the case of reform, which might be perceived to negatively impact implementation of urban development visions. On the other hand, an increase in serial housing production might help to decrease the housing shortage and improve investment conditions for municipal housing companies. Governments are expected to create institutions that give them more utility in the form of tax revenues and political support, than costs related to the enforcement of the institution (Sened 1997). Creating affordable housing is expected to increase political support in both countries. However, implications for future tax bases are uncertain. In this case, it is more probable that politicians will take possible reductions in public spending related to their housing provision responsibility into consideration.

Should type approval be introduced, municipalities would have to yield some of their authority on technical requirements in building permits. However, it should be pointed out that even if municipalities lose control over the assessment of some technical factors, they still have a great deal of room for action and can prevent unwanted construction projects through their planning authority. How different municipalities will prioritise between environmental/social and economic/social sustainability goals is as yet an open question. The degree of the housing shortage will most probably influence the scope of decisions.

Further, the intertwined and yet different roles of architecture and urban planning in shaping the urban texture have to be considered. The vision to create dense, varied, walkable cities might accommodate modern serially produced housing well, as a certain density is needed to reach economies of scale and variety in forms of tenure and social mix can be reached through development of affordable housing. However, urban planning has to be conscious of such goals and implement them on a larger scale in order to reach both architectural variation and economies of scale for a number of investors, which can be expected to be a long and complex process. The legitimacy of type approval and success of reform will not only be

influenced by institutional reform, but will also depend on a change of norms. Stated simply, success will depend on whether important ambivalent or opposing agents, through best-practice examples, can be convinced that serial housing construction is an appropriate tool against housing shortage, especially in a long-term perspective.

The stance taken by municipalities and German states will be mixed. Their joint alternative strategies could be a more limited reform or a promise to implement existing legislation differently. As influential major cities in both countries suffer from perceived housing shortage and municipal housing companies, for example in Stockholm and Hamburg, are procuring serially produced housing, it is probable that they will accept type approval. However, it can be expected that negotiations will be prolonged by the mixed incentives and the outcome is far from certain.

5.2.3 Public and private developers

Public and private developers and their interest organisations have been the driving force behind the introduction of type approval. Type approval could reduce uncertainty in exchange and provide developers with transparent conditions related to technical requirements that would facilitate development of construction systems and type buildings, provide better investment security and decrease transaction costs.

Serial housing production in the 1960s and 1970s was mainly a public initiative with central governments as drivers and municipalities as executors. In Sweden today, three municipal organisations are arranging larger procurements of serial housing without state support. Two of the initiatives have been taken directly by co-operating municipal housing companies. Private developers expect to deliver under these procurements. Hence, initiative is now concentrated in the hands of developers, which produces a new institutional set-up. In Germany, much of the same pattern can be seen. Although, the number of agents is large, agents are a relatively homogenous group as they all are developers expected to make a profit or at least cover costs. Moreover, they are to a large extent organized in a few interest organisations, which reduces information and coordination costs. There is therefore a good chance to arriving at a consensus solution. The choice to coordinate and strive for the introduction of type approval, rather than not doing so, is due to the low transaction costs of coordination (mainly restricted to the lobbying costs of interest organisations) and the expected large gains from an expansion of development opportunities.

6 Conclusions

Institutional reform related to serially produced housing, including the introduction of type approval, is promoted by shifts in relative prices, changes in production technology as well as shifts in preferences and other political parameters.

A decisive set of agents, consisting of central governments and powerful interest organisations, including municipal housing companies and private developers, are driving reform. The incentive of central governments is swift and low-cost reform that promotes housing policy goals. Developers hope to achieve increased investment

security and economies of scale. Municipal housing companies are also incentivised by the prospect of meeting their share of housing policy objectives.

Municipalities and German states are ambivalent to reform. It is probable that yielding authority is seen as a disincentive. Meanwhile, the potential positive effects of type approval for solving acute local housing problems might be an incentive to accept reform.

As a majority of the agents are pro-reform and the rest are ambivalent, it is probable that reform will take place, although the ambivalence of municipalities and German states might cause longer negotiations before a contract is reached.

The existing institutional framework in Germany, including present legal text and assessment institutions, would contribute to swift implementation should agreement on reform be reached. In Sweden, the process can be expected to be longer as neither a legal text nor an assessment institution exists. However, the time for negotiations on the scope of reform between agents involved is expected to be shorter in Sweden than in Germany, due to Sweden's fewer layers of government and a stronger set of decisive agents.

Common technical standards and type approval can be a first step towards increasing predictability and process efficiency, such that more housing projects become viable. However, municipalities retain decision power on all factors related to the placement of the building in the urban texture. The outcome of reform, in terms of numbers of new housing, will therefore depend mainly on municipal urban development visions and priorities in relation to the housing situation of its populations.

Future research could investigate how various municipalities work with serially produced housing and explore why it might be accepted to a larger extent in some municipalities than in others.

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