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Conditions for the Introduction of Regulation for Short-Term Rentals

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Abstract: *Most cities in major agglomerations in Europe started to address the rise of short-term accommodation rentals by introducing regulation designed to protect the local housing stock. The momentum behind the widespread introduction of such regulations can be attributed to qualitative and quantitative factors. This article examines selected fields related to short-term rentals in order to uncover the (structural) triggers or conditions that are necessary and sufficient for municipalities to initiate the regulation of their housing market. The study is based on the systematic examination of the effects of those triggers and their combinations using qualitative comparative analysis (QCA). With this method, we explore the implementation or non-implementation of regulation on a sample of major German cities. The results suggest a universal set of conditions covering three central fields: housing market situation, accommodation market conditions and tourism accommodation demand.*

Keywords: short-term rentals; regulation; German housing market; Qualitative Comparative Analysis; tourism.

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Introduction

The rapid growth of short-term rentals (STRs) in major cities is causing effects on infrastructure, the housing and accommodation market, mostly in urban areas (Gurran and Phibbs 2017; Espinosa 2016; Guttentag 2015). As the 'poster child' (Dann et al., 2019) of the so-called sharing economy, Airbnb gives tenants the opportunity to become players in residential capitalism (Gurran 2018: 5). By exploiting gaps in existing regulatory regimes (Davidson and Infranca 2016: 242), the company has been able to gain a market share that is comparable to the largest hotel chains in the world (Slee 2017).

STRs affect different urban structures in both positive and negative ways. Not only do they provide residents with additional income, they also have a positive effect on local gastronomy and, in the case of legal accommodation, generate tax revenue for the municipality (Gandhi et al. 2019; Guttentag 2015). STRs also represent an opportunity for urban regeneration, especially for cities with a limited municipal budget and a lack of regional investment, in that they can reboot declining economic activities and attract foreign investment (Balampanidis et al. 2019: 16). In Germany, however, these effects are of secondary importance, as the state has its own balanced urban renewal and development agenda. Therefore, the increase of STRs is predominantly perceived as a threat and less often as an opportunity.

Located mostly in inner-city districts, where the demand for living space is already high, STRs can further accelerate the rise of apartment rents by decreasing the availability of urban housing stock (Duso et al. 2020; Horn and Merante 2017; Pawlicz 2019; Schäfer and Braun 2016). Residents in neighbourhoods with higher STR concentration complain about increasing noise and pollution in the streets, public spaces, buildings, and the apartments themselves, as well as more arrival and departure traffic (Gurran and Phibbs 2017: 91; Espinosa 2016: 601-603). The accumulation of STRs can also have the effect of altering the character of a residential area and gradually shape the orientation of the local supply infrastructure so that it is geared more towards tourists than residents. As a result, many cities are introducing regulatory measures to mitigate the negative externalities of STRs. This article aims to identify the key structural factors that lead to the introduction of regulation. Instead of addressing the local situation of STRs, we would argue that the introduction of regulation in Germany does not depend on the actual use of Airbnb, but on conditions in the housing market and tourism demand.

Regulation of short-term rentals

Many cities in major agglomerations began to react to STRs by means of various regulatory approaches, with the particular intention of protecting their local housing market. While regulations merely aim to balance the interests of residents, non-residents, owners, and the economy (Kim et al. 2017: 315), the complexity of the phenomena and the given difficulties involved in enforcing rules put into effect have increased the pressure to create new regulatory approaches that can be applied to this sector (Miller 2016). The intensity and variety of regulatory approaches widely mirror the given local situation, which includes such factors as different traditions of understanding market balances, configurations of political power, and the given planning culture (Othengrafen and Reimer 2013). In general, current approaches can be divided into three types of regulation: a complete ban on the use of housing for the purpose of providing accommodation for strangers; a laissez-faire approach with extensive tolerance of

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short-term rentals; and day- or week-based restrictions, particularly to reduce the negative externalities of STRs (Nieuwland and van Melik 2018: 2; Oskam 2019: 94-97). The latter can be combined with location restrictions on STRs to create a spatial steering effect, and/or also with density restrictions designed to prevent the accumulation of STRs in any one area (Gurran and Phibbs 2017; Jefferson-Jones 2015; Nieuwland and van Melik 2018). In almost all cases, quantitative restrictions are equally associated with qualitative ones, which link special security requirements with a certain rental intensity or type of rental (Guttentag 2015: 1207).

In Germany, there are no density or location restrictions specifically relating to STRs. Instead, a growing number of cities is deciding to introduce misappropriation laws, so called 'Zweckentfremdungsgesetz' (Cassell and Deutsch 2020: 10) to restrict the illegal use of housing units. In order to introduce municipal misappropriation laws there must be legislation in place within state law to 'empower cities with the legal authority to regulate' (Cassell and Deutsch 2020: 8). As of 2017, six of the sixteen federal states had introduced such legislation. In order to address local housing shortages, misappropriation laws prohibit the use of residential space for purposes other than housing (Schäfer and Braun 2016: 288). Misappropriation occurs when housing is vacant for longer than three months, when it is used without authorisation as commercial space (e.g. to house a medical practice or as an office), or when it is rented out as a holiday home without the main resident being present. The latter causes troubles in determining when a use concept can be assigned to residential or holiday living. Therefore, a growing number of cities allow the use of housing as a short-term rental for up to eight weeks per year (Cassell and Deutsch 2020: 13). If a residence is let to third parties for longer than the maximum daily limit, it is considered a misappropriation of housing. Not least with this and the introduction of reporting and registration obligations, the municipalities seek to improve enforcement of the law. Since 2013, 18 cities have introduced corresponding but differently designed regulations (Polívka et al. 2020: 3). Berlin's 'ZwVbG', Hamburg's 'HmbWoSchG', Munich's 'ZeS', Cologne's 'Wohnraumschutzsatzung', and Stuttgart's 'ZwEVS' are used for this study (see Table 1).

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Table 1: Design of the regulation in selected cities

Regulation in force		Requirements for renting out			
(last modified)	**Definition of misuse**	**A main residence as STR**	**A second home as STR**	**Airbnb-listings**	
Berlin 05/2016 (2020)	Use of housing space as a holiday home or for the purpose of commercial room rental	Subject to registration and permission by the district authority from the first day of rental	Subject to registration; permission-free up to 90 days per year	15 16 17	10.379 19.555 19.374
Hamburg 03/1982 (2018)	Use of housing to changing users for the purpose of non-permanent use	Subject to registration; permission-free up to eight weeks a year	Subject to registration; permission-free	15 16 17	3.321 6.976 7.410
Munich 01/1972 (2019)	See Berlin	Permission-free up to eight weeks a year	No specification	15 16 17	4.517 8.301 7.168
Cologne 07/2014 (2019)	Structural alteration or use of housing so as to make it unsuitable for housing purposes	Subject to permission for use as a holiday home	No specification	15 16 17	2.523 4.976 5.752
Stuttgart 01/2016 (-)	See Berlin and Munich	See Cologne	No specification	15 16 17	452 1.018 1.205

Source: Authors.

Data collection and methodology

For this study, we collected data on local housing markets and tourism markets for the sixteen most populous cities in Germany. Before 2015, the need to regulate STRs was not a phenomenon that affected German cities on a broad scale. In addition, much of the data are currently not yet available for the period after 2017. For this reason, this study is limited to the period of 2015 to 2017. For eleven of the sixteen cities it was possible to compile complete data sets required for further analysis (see Table 2). Five of the cities had introduced regulations for STRs by 2017 and four cities did not introduce specific regulations.

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Table 2: Data used for the QCA

Year	City	Population*	Housing units*	Guest arrivals*	Housing construction demand**	Vacancy rate***
2015	Berlin	3,520,031	1,902,675	12,369,293	20,100	1.2%
	Dusseldorf	612,178	338,243	2,663,919	1,790	1.5%
	Frankfurt o.M.	732,688	380,510	5,104,961	3,890	0.5%
	Hamburg	1,787,408	931,236	6,203,299	9,540	0.6%
	Cologne	1,060,582	553,331	3,447,209	4,870	1.1%
	Leipzig	560,472	333,562	1,535,955	1,660	5.3%
	Munich	1,450,381	777,704	6,957,469	11,180	0.2%
	Bremen	557,464	291,130	1,062,440	1,990	2.9%
	Dortmund	586,181	313,113	709,050	2,010	2.5%
	Stuttgart	623,738	308,376	1,896,259	3,160	0.8%
	Dresden	543,825	298,962	2,081,439	1,860	2.0%
2016	Berlin	3,574,830	1,916,517	12,731,640	18,780	1.1%
	Dusseldorf	613,230	340,331	2,746,579	1,720	1.5%
	Frankfurt o.M.	736,414	384,609	5,203,588	3,550	0.5%
	Hamburg	1,810,438	938,592	6,496,751	8,940	0.6%
	Cologne	1,075,935	556,331	3,346,329	4,690	1.0%
	Leipzig	571,088	335,232	1,572,073	1,410	4.7%
	Munich	1,464,301	784,422	7,042,487	10,540	0.2%
	Bremen	565,719	292,729	1,072,875	1,860	2.8%
	Dortmund	585,813	313,977	726,173	1,900	2.5%
	Stuttgart	628,032	310,310	1,998,477	2,970	0.7%
	Dresden	547,172	301,842	2,092,314	1,620	1.9%
2017	Berlin	3,613,495	1,932,296	12,966,347	17,480	0.9%
	Dusseldorf	617,280	342,966	2,922,015	1,640	1.4%
	Frankfurt o.M.	746,878	389,524	5,601,761	3,210	0.4%
	Hamburg	1,830,584	946,199	6,710,822	8,370	0.5%
	Cologne	1,080,394	558,423	3,591,996	4,480	1.0%
	Leipzig	581,980	336,885	1,708,913	1,160	3.5%
	Munich	1,456,039	791,905	7,763,333	9,890	0.2%
	Bremen	568,006	294,355	1,112,435	1,740	2.8%
	Dortmund	586,600	315,349	750,267	1,790	2.5%
	Stuttgart	632,743	312,371	2,039,241	2,780	0.6%
	Dresden	551,072	304,380	2,173,407	1,390	1.8%

Note: *DESTATIS 2018; **Housing market forecasts of the cities; ***empirica 2018.
Source: Authors.

Here we propose a model of four basic conditions: two conditions for the urban housing market and two conditions for tourism. The housing construction demand (HCD) reported by the cities shows how the local situation and the associated need for action with regard to actual construction activities is perceived. The vacancy ratio (VR) of apartments is another important indicator for the status and flexibility of the urban housing market. Both ratios are indications of the prevailing pressure on the housing stock. Two variables were included to measure the volume of tourism. First, the occupancy rate of guest beds (OR). This measure indicates how easy it is for tourists or business travellers to find professional accommodation. Second, the ratio of annual guest arrivals in the city vs the housing stock (GAH) was added. This indicator

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expresses how touristy the city in general is and how much pressure could be exerted through STRs on the housing market (see Table 3).

Table 3: Selected cases and collected data

	HCD[1]	VR[2]	GAH[3]	OR[4]
Cities where STRs are regulated (2017)				
Berlin	6	0.01	6.62	0.61
Hamburg	5	0.01	6.89	0.61
Munich	6	0	9.24	0.59
Cologne	5	0.01	6.23	0.51
Stuttgart	5	0.01	6.37	0.51
Cities where STRs are not regulated STRs (2017)				
Frankfurt o.M.*	5	0	13.78	0.51
Duesseldorf*	3	0.01	8.16	0.48
Dortmund*	4	0.03	2.32	0.46
Bremen*	4	0.03	3.7	0.46
Leipzig	3	0.05	4.79	0.51
Dresden	3	0.02	7.01	0.53

Note: * Statutory regulation introduced between 2018 and 2019.
Source: Authors.

The study used Qualitative Comparative Analysis (QCA). QCA is a method for the systematic comparison of complex cases. This method is particularly suitable for a small double-digit number of cases, where a traditional qualitative approach to comparison is no longer practicable, but at the same time standard statistical methods are not yet effective (Ragin 1987). So far, the method has only rarely been used in research fields of spatial planning and the built environment, but it holds great potential (Verweij and Trell 2019; Van Der Heijden 2017).

In QCA, the causal relationship between conditions and an outcome is examined. A single condition is necessary if it exists in all cases with a certain result. A condition is sufficient if a result is obtained whenever the condition exists. QCA focuses on how different combinations of sufficient conditions can produce a result. Unlike statistical approaches, the analysis in QCA is based on set theory and Boolean algebra (Schneider and Wagemann 2012). QCA distinguishes between crisp-set or fuzzy-set analyses. In crisp-sets, all data has a value of 1 or 0, while for fuzzy-sets intermediate values are possible. In this study, we used a fuzzy-set approach (Ragin 2008). The measures of fit of consistency and coverage were used to assess the quality of the analytical results. A threshold of 0.75 and above is usually considered a reliable result when examining the consistency of combinations of sufficient conditions. In the investigation of single necessary conditions, the threshold value of consistency is 0.9. Coverage refers to the number of cases for which a QCA model is valid. In contrast to consistency, lower coverage does not automatically mean less relevance (Ragin 2008, Schneider and Wagemann

[1] The stated new construction demand in the city according to apartments per 10,000 inhabitants. Average values for the years 2015-2017, grouped according to 1: no new construction demand, 2: to under 10, 3: 10 to under 20, 4: 20 to under 30, 5: 30 to under 40, 6: 40 and more. Source: BBSR Housing Market Forecasts 2030 (BBSR 2015).
[2] The average vacancy rate of apartments in the city in relation to the total housing stock in the years 2015-17.
[3] The average ratio of annual guest arrivals in the city in relation to the existing housing stock in the years 2015-17.
[4] The average occupancy rate of guest beds offered in the accommodation sector in the given city in the years 2015-17.

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2012; 119-150). The following analyses were performed using fsQCA software (Ragin and Davey 2016) and the R packages *SetMethods* (Oana and Schneider 2018) and *QCA* (Duşa 2019).

Empirical findings

The first step in performing a QCA is to calibrate the original data. Calibration transforms the values collected for the cases into set membership scores. Although it is possible to perform the calibration by hand, we used an algorithmic procedure called the direct method (Schneider and Wagemann 2012: 35-38). For this, we had to define cut-off values for the membership of cases in conditions, i.e. from when the cases are 'not contained', when they are 'centered', or when they are 'completely contained' within the sets. For our study we considered the following set memberships and cut-off values: cities with high housing construction demand (3.0, 4.5, 6.0), cities with low vacancy rates (0.05, 0.025, 0.015), cities with a high ratio of guest arrivals per housing stock (5, 7.5, 9), and cities with a high occupancy rates for guest beds (0.5, 0.55, 0.6). As a second step, we determined which conditions are necessary for the existence or non-existence of the outcome. Both, the effect of every single condition and its negation (~) were tested. The analysis showed that a low VR is required with a consistency of 0.99 for the introduction of regulation. The consistency of HCD is with 0.82 below but quite close to the threshold. When considering the non-existence of the outcome, i.e. which cities have not introduced regulations, it is shown that a rather low occupancy rate (~OR) is necessary for the non-imposition of regulations with a consistency of 0.93. As a third step, we checked which combinations of conditions are sufficient for the outcome. The analysis results in a well interpretable model with the solution term (HCD*VR*OR => REGULATION). The term can be interpreted as follows: a high ratio of new housing construction demand, a low vacancy rate, and a high occupancy rate (together?) lead to the introduction of regulations. The model has a consistency of 0.93 and a coverage of 0.55. The solution term includes three of the five regulating cities. The set memberships for these cities in the solution term are Berlin (0.95), Munich (0.91), and Hamburg (0.73), with a threshold of 0.5 for membership. This term is the so-called complex or conservative solution. The analysis also outputs other reduced terms, i.e. the intermediate or most parsimonious solution, but these were regarded as not as meaningfully interpretable and were therefore not further considered.

To summarise the findings, the analysis of the necessary conditions already provided an impression about the validity of the model assumptions. The existence of a 'structural' condition puts pressure on the housing market, which leads to the introduction of regulations. In the absence of a condition, no regulations are introduced. Furthermore, the analysis of sufficient conditions provided a model that can explain the introduction of regulations for three of the five regulating cities in the data set.

Discussion

The results of the QCA present a method of testing conditions which can be seen as a general 'theoretical' frame for understanding *if* German cities have reached the pre-conditions for the implementation of regulation or not. Based on the proposed conditions and analysed data from 2017, the analysis was able to explain both the existence and absence of regulation. The

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combination of housing construction demand (HCD), the vacancy ratio (VR), and the occupancy rate for guest beds (OR) shows a promising capability to form the basis of a thorough explanation of this phenomenon. Even if the ratio of annual guest arrivals in the city vs the housing stock (GAH) did not play a role in this initial model yet, we assume that this condition will also have explanatory power when it is applied to later years. Nearly all the cities analysed implemented regulations between 2017 and 2019. Therefore, as soon as the relevant data are available, the analysis should be updated to include subsequent years. In addition, the sample of German cities should be expanded. This would make it possible, to further test the conditions and to complement the model if necessary. Even if a comparison on the European level would be desirable, we suspect that the data basis for such uniform modelling is too heterogeneous, or that the database used so far is too focused on the case of Germany. The analysis also showed that beyond a general comparability and universal validity of the conditions, the characteristics of individual cities relate to the specific situations in which cities regulate STRs, such as the extremely tight housing markets in the largest cities, namely, Munich, Hamburg, and Berlin. In the cases of Cologne and Stuttgart, it can be concluded that other factors outside those used in the model could also be decisive for the introduction of regulation. For example, it is conceivable that political majorities at the municipal level could support the introduction of regulation. Furthermore, a certain tradition and experience of regulation within the municipal administration may also factor into regulatory decisions, as in the cases of Hamburg (in force since 1982) and Munich (in force since 1972).

At 51%, Germany has one of the lowest home-ownership rates in the whole of Europe (Eurostat 2020). The proportion of households that rent ranges from 65% in Stuttgart, 71% in Cologne, 73% and 75% in Munich and Hamburg, respectively, and 82% in Berlin (Zensus 2011). Residential capitalism driven by Airbnb must therefore be differentiated between owners and tenants in order to understand the development of short-term rentals in the German residential market. The number of Airbnb listings (Table 1) doubled in 2016 in all five cities with regulatory approaches. In 2017, however, growth was negative in Berlin and Munich. In Hamburg (6%), Cologne (15%) and Stuttgart (18%), the increase continued to a lesser extent than in the previous year. This simple observation suggests a correlation between the ownership rate and the effect that can be measured in a short-term rental market. Berlin and Munich, where a particular large share of the population are tenants in rental housing, an effect is more likely to be observed than in the cities with a lower proportion of tenants. Nevertheless, there are explanatory approaches for this phenomenon that can be derived from the context of the German regulatory regime. The misappropriation laws are part of a whole package of intervention instruments that are supposed to ensure the protection of tenants in Germany (Kofner 2014: 259). These include the ‘Mietpreisbremse’ and the ‘Kappungsverordnung’ (rent brake), the ‘Mietspiegel’ (rent index), and the ‘Mietendeckel’ (regulation to cap rents) that recently came into force in Berlin, to name only the most important ones. In the overall view, the conditions of the housing markets of major German cities currently present themselves as very receptive to the introduction of intensive interventions due to the high housing demand. Therefore, despite the recent decline in the use of STRs due to the COVID-19 pandemic, regulatory approaches are not expected to change.

With regard to STRs, however, the decisive lever could lie elsewhere. According to a decision of the Federal Supreme Court (BGH, 08/01/2014 - VIII ZR 210/13), landlords can issue warnings to tenants if they sublet their dwellings as STRs without explicit permission (Bueb 2016: 209). If there is recurrence of this infraction, the landlord may terminate the tenancy without notice. This form of self-regulation resulting from the relationship between tenant and

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landlord and without enforcement of a state authority, as in the case with the misappropriation laws, may end up being much more effective against illegal STRs in Germany.

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