

# **Housing in Flux: Unveiling Political Dynamics of Short-Term Rental Regulation across European Cities**

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# Author's declaration

I, Simon Fernezelyi, candidate for the MA degree in Political Science declare herewith that the present thesis is exclusively my own work, based on my research and only such external information as properly credited in notes and bibliography. I declare that no unidentified and illegitimate use was made of the work of others, and no part of the thesis infringes on any person's or institution's copyright. I also declare that no part of this thesis has been submitted in this form to any other institution or higher education for an academic degree.

Earlier version of parts of this work were submitted as coursework during at CEU for the courses *Welfare States in the Current Era: Origins, Issues and Challenges (POLS5828)* and *International Political Economy of Digital Everything (INTR5064)*. Certain portions of this thesis are based on these submissions.

Vienna, 31 May 2024

A handwritten signature in black ink, reading "Simon Fernezelyi". The signature is written in a cursive, flowing style.

# Housing in Flux: Unveiling Political Dynamics of Short-Term Rental Regulation across European Cities

Simon Fernezelyi

**Abstract:** European cities are grappling with a severe housing crisis, characterized by skyrocketing property prices, limited access to affordable housing, and the rise of homelessness and evictions. Simultaneously, there has been a surge in residential properties transitioning into the short-term rental market, facilitated by online platforms like Airbnb and Booking.com. These changes are contributing to the reduced availability of housing for long-term occupation, which may further fuel the ongoing housing crisis. This thesis explores the various approaches to regulating short-term rentals in European cities and examines how these regulations are influenced by political actors. The study delves into the multifaceted realm of short-term rental regulations in cities beyond the commonly researched, tourism-centric urban areas and establishes a novel typology of short-term rental regulation approaches. Additionally, the research performs a case study comparing the political struggles of three cities with different regulatory reactions: Prague, Budapest and Vienna. The findings indicate that institutional disparities alone do not fully explain the variety in regulatory approaches observed in European cities. Instead, the thesis argues that national contexts refract the arrival of short-term rental platforms into disputes over various policy issues. These regulatory flashpoints mobilize diverse interest groups and policymakers, influencing the framing and dynamics of regulatory struggles, and ultimately the regulatory approach of the city. In conclusion, this thesis elucidates the regulatory and political dynamics of the evolving landscape of European urban housing.

**Keywords:** housing, short-term rental, airbnb, platforms, regulatory approaches

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# 1 Introduction

On October 6, 2022, the local government of Budapest's fifth district evicted 67-year-old Zsuzsa<sup>1</sup>. The elderly woman, a respected academic with a doctorate in literary studies, had spent her life writing poetry and conducting research that significantly expanded our knowledge of late medieval Hungarian codices. Nonetheless, Zsuzsa's modest pension was insufficient to cover the subsidized rent of her municipal apartment. Civil activists quickly mobilized to defend her, initially through vocal protests and subsequently through acts of civil disobedience. But their efforts were in vain. The local government evicted her despite the fact that a moratorium on evictions from municipal rental housing was still in place. This district, the historic center of Budapest, is now heavily commercialized, with over a thousand Airbnb listings providing holiday accommodation for tourists. A decade ago, most of these apartments provided long-term housing for Budapest residents. After her eviction, Zsuzsa was placed in a temporary shelter for the homeless. After spending four months in the shelter, Zsuzsa passed away<sup>2</sup>. Zsuzsa's story is not just a personal tragedy but a reflection of a broader housing crisis sweeping through European cities.

The housing landscape in European cities is currently undergoing a significant transformation, marked by a profound housing crisis characterized by several pressing challenges. These challenges include exorbitant property prices, which have made home ownership

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<sup>1</sup> <https://avm.merce.hu/2022/10/06/szentgyorgyvolgyi-hazudik-kilakoltat/>.

Accessed on 05/25/2024.

<sup>2</sup> <https://avm.merce.hu/2023/02/19/dr-kovacs-zsuzsat-gyaszoljuk/>. Accessed on 05/25/2024.

increasingly unattainable for many residents and have exacerbated wealth inequalities. Additionally, there is a scarcity of affordable housing options, leaving a substantial portion of the population struggling to find suitable living arrangements within their financial means. This scarcity has been further compounded by a growing population that faces difficulties in securing stable housing, leading to heightened levels of housing instability. Moreover, there has been a noticeable surge in homelessness and instances of evictions, which highlights the urgent need for effective interventions to address the root causes of housing insecurity.

In parallel, there has been an unprecedented influx of residential properties into the short-term rental (STR) market. This shift has been largely facilitated by digital platforms such as Airbnb and Booking.com, which are operated by international corporations. The emergence of these platforms in the first half of the 2010s was succeeded by an explosion in their prominence in the middle of the decade. Following a two-year period of stagnation in the tourism industry due to the Covid-19 pandemic, short-term rental platforms reached an all-time high in their popularity by 2022, with 547 million guest nights booked in EU countries (Eurostat 2023b). The proliferation of short-term rentals has reduced the availability of long-term housing options, thereby intensifying the existing housing crisis.

William Beveridge (1942, 68) famously asserted that housing is a fundamental pillar of social policy and social welfare. This recognition underscores the urgent need to scrutinize the regulation of various segments of the housing market, especially in crisis. Consequently, it becomes imperative to observe how welfare states respond to the introduction of a disruptive force into a longstanding pillar of social welfare policy. This thesis explores the various approaches to regulating short-term rentals in European cities and examines how these regulations are influenced by political actors.

There is a multifaceted scholarly discourse on short-term rentals, which encompasses economic potential, social challenges, regulatory landscapes, and political dynamics. Furukawa and

Onuki (2022) classify the short-term rental regulation systems in the United States and indicate that the nature and severity of local issues shape the regulatory approaches adopted. Aguilera, Artioli, and Colomb (2021) analyze the politicization and collective action surrounding short-term rental regulations in Barcelona, Milan, and Paris, highlighting the crucial roles of stakeholder groups and their influence on policy outcomes within the local political and economic contexts. However, academic work focuses either on North American cities, or popular tourist destinations in Europe. Furthermore, there is a lack of comprehensive comparisons of STR regulatory approaches between European cities. This thesis expands upon the aforementioned scope by examining regulatory trends in large European cities with predominantly residential roles and limited tourism dependency. Consequently, this research provides a comprehensive picture of how short-term rentals affect the housing markets of “average” European cities.

This thesis expands existing knowledge through a twofold comparative analysis. Firstly, through analyzing regulatory patterns, I establish a novel typology of regulatory approaches and categorize the observed cities into these clusters. The final typology encapsulates three distinct approaches to STR regulation: Long-Term Oriented, prioritizing residents’ housing security; Tourism Oriented, accommodating tourist activity; and Laissez-Faire, denying the regulatory responsibility of the state. This novel typology provides a clear framework to understand and compare the regulatory approaches of different cities. Secondly, the research uncovers that institutional disparities alone, such as partisan politics or initial conditions, do not fully explain the differences in regulatory approaches in different cities. Instead, there is a nuanced interplay of political-economic structures and coalition formations among stakeholders. I argue that national contexts refract the arrival of STR platforms into disputes over various policy issues. This effect mobilizes diverse interest groups and policymakers, influencing the framing and dynamics of regulatory processes.

This thesis employs a structured approach. In Chapter 2, I review the current state of scholarly research on the subject of this study and put forward a theoretical argumentation. First, I examine the larger debates around welfare state research, the role of the housing market in welfare states, the perspectives on the ongoing housing crisis in Europe and the role of state intervention in social policy. Secondly, I analyze the academic literature on the expansion of the short-term rental market, with a focus on both the economic and social consequences. Third, I highlight existing work addressing the slow emergence of municipal and state level regulations of the STR market. I highlight important findings on categorizing these regulatory approaches and the political mechanisms behind the different regulatory reactions. Next, I assess previous research on digital platforms that enable the spread of short-term rentals. I underscore the unique political power of platforms in shaping policy and present some of the cutting-edge work conducted on platforms in various sectors. Finally, I hypothesize, first, that European cities beyond tourist hubs exhibit diverse regulatory landscapes for short-term rentals, and secondly, that variations in short-term rental regulation are shaped by both political actors and institutional structures.

Chapter 3 concentrates on identifying the types of approaches that cities employ towards short-term rental regulations. Through the analysis of the regulatory frameworks of 11 European cities beyond tourist hotspots, I develop a novel typology of STR regulation approaches of five regulatory systems. Additionally, I examine the interplay between various regulatory measures and market dynamics that further narrows the typology into three principal categories. These final types encapsulate three distinct approaches to STR regulation: protecting long-term housing conditions, accommodating tourist activity, and denying the regulatory responsibility of the state.

In Chapter 4, I explore the introduction and acceptance of STR platforms in cities with different regulatory approaches to understand the reasons for their diverse outcomes. The case study of three cities includes three Central-European cities: Prague, Budapest and Vienna. I identify the regulatory flashpoints around the arrival of short-term rental platforms and measure

the relative significance of these in the three countries' media coverage. Utilizing this knowledge, I follow through the political debates in the three cities, introducing main figures, noteworthy policies and their implications. Next, I examine the disparities in the institutional contexts that could also influence regulatory approaches. Finally, I evaluate the potential causes of the diverse regulatory resolutions.

I finish with a conclusion and an outlook in Chapter 5. I emphasize the key findings of the thesis and reflect on its limitations. Additionally, I highlight potential avenues in which future research should further investigate the field of short-term rental regulations.

This study is significant in that it addresses a critical and timely issue affecting housing markets across European cities but also contributes novel insights into the regulatory landscape of short-term rentals. By developing a typology of regulatory approaches and analyzing the interplay of political-economic structures and stakeholder coalitions, this research offers a comprehensive framework for understanding how different cities respond to the challenges posed by STR platforms. The findings have profound policy implications, providing a valuable resource for policymakers in currently unregulated cities seeking to craft effective regulatory strategies that balance the needs of residents and the demands of the tourism market. Furthermore, this research can empower social movements and advocacy groups by highlighting successful regulatory models and the political mechanisms that drive their implementation. Ultimately, this thesis underscores the importance of political activity and responsive regulation to safeguard housing stability and social welfare in urban environments.

## 2 Theoretical Background

This chapter reviews current research relevant to this study and presents a theoretical argument. First, it examines broader debates in welfare state research, focusing on the housing market's role and state intervention in social policy amid Europe's housing crisis. Second, it analyzes academic literature on the economic and social impacts of the short-term rental market expansion. Third, it discusses existing studies on the gradual emergence of municipal and state-level STR regulations, highlighting key regulatory approaches and political mechanisms. Furthermore, it assesses previous research on digital platforms that facilitate STRs, emphasizing their political influence and pioneering studies across sectors. Finally, the chapter summarizes identified gaps in the literature and formulates two hypotheses.

### 2.1 Housing Crisis and State Intervention

The history of European welfare states is marked by brief periods of significant change and long stretches of routine politics. Since the emergence of the welfare state after the second world war, social policies have mostly been refined and incrementally adjusted by bureaucrats and technicians during normal times. The evolution of advanced welfare states has attracted substantial scholarly interest in both political science and sociology. For a long time, the literature on welfare states focused on explaining their overall growth and the differences among OECD countries.

However, since Pierson's influential work (1994), the debate has increasingly centered on welfare state retrenchment. Pierson (1994, 146) argues that the politics of cutting back welfare programs is fundamentally different from the politics of expanding them. While expansion was about gaining credit for popular initiatives, retrenchment is about avoiding blame. As Esping-Andersen (2001, 1) puts it, Europe today faces a crossroads similar to the era when the modern welfare state was created. He argues that welfare states should now focus on initiating a new paradigm shift, emphasizing the need to adapt redistribution priorities and social rights to evolving realities, while relegating the routine work of bureaucrats and technicians to the background. Housing policy, a key pillar of the welfare state, is also affected by these shifting dynamics.

Housing occupies a central and multifaceted role within the context of welfare states. However, scholars agree, that housing is primarily seen as an asset, a valuable resource with economic value. Furthermore, housing is the personal asset with the lowest degree of decommodification, characterized by its high level of integration into market forces and its susceptibility to economic fluctuations (Olsen 2012, 336). This perspective underscores housing's dual financial role as a vehicle for wealth accumulation and a hedge against socio-economic risks such as unemployment and poverty in old age. The phenomenon of 'asset-based welfare' signals a shift in welfare provision towards emphasizing the importance of personal assets, with housing at the forefront (Doling and Ronald 2010). Moreover, housing's status as an asset extends beyond welfare provision to intersect with the dynamics of financialized neoliberal capitalism. Within this framework, housing serves as collateral for various forms of debt and investment, particularly notable for institutional investors like pension funds (Bohle and Seabrooke 2021, 415).

Housing is primarily categorized into two forms: homes available for purchase and rental housing. Throughout the capitalist world, housing is distributed primarily through market mechanisms. In this context, the accessibility, location, and quality of housing predominantly depend on one's financial capacity. While the market-driven distribution of housing may promote

economic growth and efficiency, it often overlooks the social aspects and consequences of inequalities in housing (Olsen 2012, 334).

Nevertheless, housing transcends being a mere economic asset (Hilbers et al. 2008) and assumes the position of a secure environment where individuals conduct their daily routines and act a critical role in legal procedures (Gong and Yao 2022). Housing, in this broader perspective, becomes pivotal for personal well-being and societal functioning. This perspective is also reflected in certain housing policy approaches, considering housing as a social right. In this context, achieving a satisfactory level of housing is essential for individuals to fully participate in the community, underscoring the importance of policies that guarantee every citizen access to suitable housing (Bohle and Seabrooke 2021, 415).

The emergence of the housing crisis in Europe coincides with the radical reorientation towards neoliberalism in the 1970s (Olsen 2012, 334). Privatization, deregulation, corporate tax breaks, and the pursuit of freer trade were the broad features of this ideological transition. These policy changes results in a lower-income households frequently contend with acquiring or leasing substandard and undersized dwellings lacking satisfactory hygiene or comfort standards, situated in neighborhoods with limited amenities, heightened pollution, and crime rates, further exacerbated by challenges in obtaining housing insurance and transportation constraints. Left on their own, housing markets, driven by developers, builders, landlords, and other supply-side agents, tend to prioritize profit-seeking objectives, therefore not providing sufficient quantities of affordable, quality housing (Williams 1973).

In the notion of housing as social right state intervention is essential in capitalist markets, which can address the demand for affordable housing, ensure sustainable urban development and mitigate many forms of housing inequalities (Olsen 2012; Williams 1973). State intervention in housing policy is implemented through a multifaceted array of instruments. Income support programs, such as housing allowances, are directed towards low-income families, with the form of



assistance being either direct cash payments or indirect housing allowances that are linked to income levels. Social services, encompassing social and public housing, provide rental accommodations, the majority of which are granted by the state or non-profit organizations. Additionally, social legislation, such as rent control, aims to equalize the playing field and make housing more accessible and secure (Olsen 2012, 335). Recent housing policy trends indicate a decline in state provision over the past few decades, which has led to the recomodification of the housing market and the relaxation of rent control legislation in many nations. This has also resulted in higher eviction rates (Bohle and Seabrooke 2021, 412). Previous research indicates that while regulating the housing market presents challenges, it is necessary and feasible, particularly in the evolving segments of the market, such as short-term rentals.

## **2.2 The Short-Term Rental Market**

In the recent decades, the short-term rental (STR) sector has witnessed a remarkable surge in popularity, largely driven by the rapid ascent of sharing platforms such as Airbnb and Booking.com (also often referred to as platform-mediated STR, or PM-STR). These platforms facilitate a significant expansion in the number of available STRs, with Airbnb, a global giant with a presence in over 191 countries, and an extensive inventory exceeding 5 million listings worldwide exemplifying the pinnacle of the sharing economy (Zou 2019, 270). This surge represents a seismic shift in how individuals perceive and utilize their residential properties and also evoked sharply contrasting views among scholars and politicians. Some praise the rise of short-term rentals as a utopian solution, presenting a remedy for the underutilization of resources in our society, while democratizing access to travel, lowering costs and stimulating income for households and local businesses (Kenney and Zysman 2016). In stark contrast, others paint it as a dystopian journey into digital elitism, where the advantages disproportionately favor a privileged few, specifically

second-home owners and, more significantly, capital-rich real estate investors. Critics also highlight issues such as noise, litter, and tax avoidance (Aguilera, Artioli, and Colomb 2021). Additionally, they point to the potential of further fueling gentrification and displacing local residents, as the influx of tourists and new middle-class consumers drives up property values and living costs, leading to the marginalization of long-term, lower-income residents and altering the social fabric of the community (Cocola-Gant 2018).

This remarkable boom of STRs also attracted scholarly attention. Prior research delved into the ramifications of the presence of platforms like Airbnb in residential neighborhoods (Zou 2019; Barron, Kung, and Proserpio 2021; Roelofsen 2018). Descriptive scholarly inquiries explored the characteristics and dynamics of the STR market in various cities, interpreting it as a tourism-related phenomenon, scrutinizing its effects on local economies (Roelofsen 2018; Peterka et al. 2021) and investigating the effect of this newly emerging market on its traditional competitors, such as the hotel industry (Coyle and Yeung 2016). Empirical investigations demonstrated a correlation between the presence of STRs in an area and property price as well as rent inflation. This presents positive implications for property owners, while posing challenges for low-income individuals attempting to find affordable housing and resulting in significant changes to the socioeconomic fabric of cities, including the displacement of local residents. The displacement occurs as landlords and property owners convert long-term rental units into more lucrative short-term rentals. This reduction in the availability of housing for permanent residents drives up the cost of remaining rental properties, ultimately forcing lower-income and vulnerable populations to relocate to less desirable or more affordable areas (Zou 2019; Wachsmuth and Weisler 2018). However, scholars also agree and warn that proving causality between these correlated tendencies is challenging, as they are complex phenomena intertwined with various urban socio-spatial changes, including the intricate process of gentrification (Wachsmuth and Weisler 2018). Finally, scholars highlight that STRs are present outside of historically popular tourist areas or large cities, affecting a wide range of urban spaces (Morales-Pérez, Garay-Tamajón, and Troyano-Gontá

2022). Furthermore, researcher observe that the share of professional STR activity (hosts with multiple lodgings) is higher in prevalent tourist cities than in cities off the beaten path (Ayoub et al. 2020, 81). Amidst the contentious discourse on the surge of short-term rentals, viewed by some as democratizing travel and by others as exacerbating digital elitism and favoring capital-rich investors, examining regulatory responses is crucial.

## 2.3 Short-Term Rental Regulations

Scholarly work investigated the slow emergence of municipal regulation of STRs. Nieuwland and Van Melik (2020) identify STR regulation trends in 11 European and American cities, finding that most cities adopt relatively lenient approaches avoiding outright prohibition. The restrictions rather focus on the number of guests, nights, safety measures, and information provision, aiming to mitigate the negative effects to the neighborhood rather than addressing the issue of the disruption of an industry. Finally, they also emphasize that these regulations often lack enforcement capabilities due to the nature of individual-to-individual business relations (as opposed to the traditional individual-to-business model). Furukawa and Onuki (2022) advance the study of STR regulations by proposing a taxonomy to compare regulatory approaches across different cities and formulating hypotheses on their socioeconomic impacts. Their study identifies six regulatory approaches and suggests that regulation slows STR growth while being stricter in cities with significant lodging industries and vocal criticism of STRs. The authors hypothesize that STR regulation does not necessarily increase home prices and rents and is influenced by perceptions of gentrification and highlights the complexity of addressing gentrification through STR regulation, emphasizing other socioeconomic factors. However, the conclusions are limited by the infancy of STR regulation and the lack of comprehensive data for impact analysis. Huang, Chen, and Tan (2021) explore the effect of government regulations of the disruptive STR market

on the traditional long-term market and the hotel industry in US cities. In their empirical work they find that STR regulatory intervention, to some extent helps to slow down the speed of the housing stock converting from the long-term to the short-term rental market, especially in nonaffluent neighborhoods.

A lot less attention is paid to the political mechanisms behind the formation of STR regulations. Aguilera, Artioli, and Colomb (2021) contribute one of the most valuable scholarly works in this aspect with observing the politicization process and collective action around the introduction of short-term rental regulations in three major European tourist cities, Barcelona, Milan and Paris. Their analysis highlights the pivotal influence of various stakeholders on the formulation of short-term rental policies. Some of these actors are long-established, while others have emerged alongside the growth of peer-to-peer short-term rentals, becoming significant urban influencers. They categorize six key interest groups involved in the contentious politics of short-term rental regulations: professional organizations representing legal, commercial STR operators; new associations of 'hosts' or 'home-sharers'; the hotel industry; residents' associations; 'sharing economy' advocates; and corporate platforms. Furthermore, they argue, that the regulatory outcomes are also highly dependent on which of these actors can politicize the issue and the framing they can apply in the context of the existing local political-economy structures. Political actors or actor coalitions frame issues by defining problems (diagnostic) and proposing solutions (prognostic), aiming to shape the form and content of public policies. These frames can vary from viewing STRs as one of the causes of excessive tourism flows, disruptor of daily life, fuel for gentrification, or economic opportunities requiring taxation and management.

In summary, recent scholarly research has extensively investigated the emergence and impact of municipal regulations on short-term rentals. While studies reveal a trend towards lenient approaches focusing on mitigating negative neighborhood effects rather than outright prohibition, the political mechanisms behind the formation of these regulations are often overlooked. Insights

into the politicization process and collective action surrounding the introduction of STR regulations highlight the pivotal influence of various stakeholders and the framing of issues in the context of existing local political-economy structures.

## 2.4 Platforms Mediating Short-Term Rentals

The rise of short-term rentals was enabled by the emergence of new iterations of “platform capitalism” (Srnicsek 2017, 27), driven by for-profit online platforms that coordinate supply and demand while taking a commission for their intermediary role. The most prominent examples of platforms facilitating the short-term rental market are Airbnb and Booking.com that specialize in intermediating the interaction between buyers and sellers of accommodation. Only few years after its introduction, Guttentag (2015, 1193) already described Airbnb as a “disruptive innovation” bringing attention to the fact that such platforms not only gain widespread acceptance among accommodation providers and costumers, but also function as a potent intermediary, benefiting from an expansion that circumvents outdated tourism regulations.

Other scholars highlight that the socio-technical innovation of platforms restructures economic processes and alters the flow of data, money, and power. The concept of the ‘platform economy’ suggests that the expansion of the market stems from heightened commodification, extending its influence into increasingly diverse facets of social life (Kenney, Zysman, and Bearson 2021). Despite commonly referred to as part of the “sharing economy”, Uber, Airbnb and others monetize human effort and consumer assets. In particular, short-term-rental platforms like Airbnb have forced significant transformations in existing industries (Kenney and Zysman 2016) such as housing and tourism, challenging existing regulatory frameworks.

Theorists have shown the unique power of platforms in shaping policy. Culpepper and Thelen (2020) posit that platforms possess powers that extend beyond those traditionally

associated with business, namely instrumental and structural power. The uniqueness of firms with 'platform power' stems not from direct lobbying or financial contributions, nor from the specter of disinvestment, but rather from the tacit allegiance of consumers. This allegiance - based on a presumed permissive consensus between platforms and their user base - serves as a formidable deterrent against regulatory actions that pose a threat to these platforms. However, they also caution that while consumer support is a significant source of power, it is not infallible, noting that external shocks such as privacy scandals can erode this support. Additionally, they emphasize that courts and competition authorities may ultimately be more effective in countering platform power, as these institutions are less susceptible to consumer influence.

The unique political strength of platforms was empirically observed in the case of Uber. Thelen (2018) demonstrates that the disputes regarding Uber revolved around distinct matters in different locations. Her comparative examination of Uber's reception in the United States, Germany, and Sweden highlights the diverse responses to platform disruption, emphasizing the need to dissect the specific points of contention that shape regulatory politics in each locale. Her explanation asserts that the institutional frameworks defining political economies not only uniquely influence conflicts but also transform the same phenomenon into distinct issues centered around specific regulatory "flashpoints". These flashpoints refer to particular regulatory problems triggered by Uber, ranging from taxation and consumer safety to employment conditions. She argues that these varying flashpoints mobilize different actors, establish divergent coalitions, influence policy framing, and ultimately lead to divergent policy outcomes. Finally, she also underscores the broader significance of Uber's case as emblematic of the challenges posed by digital capitalism, suggesting that similar dynamics may unfold in other contexts. Seidl (2022) argues that understanding platform capitalism politics requires examining the interplay of coalitions, narratives, and platform power. Through a case study on Uber's regulation in New York, he shows that coalition size and diversity influence regulatory success, narratives shape coalition composition, and platform companies' power and vulnerability both help and hinder

them. Additionally, he highlights the importance of narratives in justifying policies and influencing political coalitions, demonstrating that storytelling is more impactful than technical explanations in regulatory battles. However, his analysis overlooks the variability of institutional environments across different regions, which limits the generalizability of his conclusions on platform capitalism politics.

In summary, existing literature presents a multifaceted discourse on STRs, encompassing economic potential, social challenges, regulatory landscapes, and political dynamics. However, scholars often concentrate on single cases, and so far, have not studied cities beyond popular tourist destinations. Observing regulatory trends outside of these tourist hotspots is important as STR platforms are present in all kinds of urban spaces and beyond (Morales-Pérez, Garay-Tamajón, and Troyano-Gontá 2022), affecting housing prices and disrupting neighborhoods. “Average” cities might showcase unlike approaches towards STR regulation than the most popular tourist destinations, due to differences in local economy composition, community cohesion, and social structures. Additionally, the differences in ownership structure behind STRs (Ayoub et al. 2020) could also trigger diverse reactions. By embracing a more inclusive approach, relevant and actionable knowledge can be generated for policymakers of a greater number of cities worldwide. Additionally, while the significance of certain political actors was highlighted, and the political mobilization around other platform companies were analyzed in detail, we are still not aware of the reasons for cities approaching STR regulations divergently. Subsequently, it is necessary to identify the typical patterns across the different approaches towards short-term rental regulation and to create a nuanced comprehension of the political dynamics influencing short-term rental regulation in European cities, moving beyond the narrow focus of the most popular tourist locations.

## 2.5 Hypotheses

My thesis addresses the question of how and why the regulatory approaches of short-term rentals vary among European cities. Drawing from existing theories, two primary hypotheses emerge. Firstly (**H1**), it is posited that European cities beyond tourist hubs exhibit diverse regulatory landscapes for short-term rentals. Secondly (**H2**), variations in short-term rental regulation are shaped by both political actors and institutional structures.

**H1: European cities beyond major tourist hubs have a varying regulatory landscape for short-term rentals.**

**H2: Variations in short-term rental regulation approaches are influenced both by political actors and institutional structures.**

**H2.1:** Political actors, such as parties, local advocacy groups, social movements, and tourism-centric lobby groups, significantly influence the variations in short-term rental regulation approaches.

**H2.2:** The institutional structures present in various political economies refract the same phenomenon, namely the appearance short-term rental facilitating platforms into distinct challenges within different national contexts, thereby mobilizing different stakeholders around specific regulatory "flashpoints" and resulting divergent regulatory approaches.

My first hypothesis (**H1**) posits that “average” European cities, that are not prime tourist destinations or major urban centers exhibit diverse regulatory landscapes for STRs. Scholarly research acknowledges the varying approaches to regulating STRs in both North-America and popular tourist destinations across Europe (Furukawa and Onuki 2022; Huang, Chen, and Tan



2021), however STRs are present in all kinds of urban spaces and beyond (Morales-Pérez, Garay-Tamajón, and Troyano-Gontá 2022). “Average” cities might showcase a different set of approaches towards STR regulation, due to differences in local economy composition, community cohesion, social structures, and ownership structures (Ayouba et al. 2020). Drawing upon previous work (Furukawa and Onuki 2022), I propose that this diversity can be elucidated by constructing a typology of regulatory systems of European cities, which, by pinpointing commonalities across significant dimensions, will unveil clusters of cities sharing similar regulatory approaches.

My second hypothesis (**H2**) states that the diversity in approaches towards short-term rental regulation are influenced both by political actors and institutional structures. This hypothesis is divided into two parts. First (**H2.1**), based on previous findings in tourist paradises (Aguilera, Artioli, and Colomb 2021), I propose that political actors, such as parties, local advocacy groups, social movements, and tourism-centric lobby groups, significantly influence the variations in short-term rental regulation approaches. Second (**H2.2**), inspired by previous work on other platform companies (Seidl 2022; Thelen 2018), I hypothesize that the institutional structures present in various political economies refract the same phenomenon, namely the appearance short-term rental facilitating platforms into distinct challenges within different national contexts. This leads to mobilizing different stakeholders around specific regulatory "flashpoints" and ultimately resulting in divergent regulatory approaches.

## 3 Typology of STR Regulation Approaches

This chapter of this thesis concentrates on identifying the types of approaches that cities employ towards short-term rental regulations. Through the analysis of the regulatory frameworks of 11 European cities beyond tourist hotspots, I develop a novel typology of STR regulation approaches of five distinct regulatory systems. Additionally, I examine the interplay between various regulatory measures and market dynamics that further narrows the typology into three principal categories. These final types encapsulate three distinct approaches to STR regulation: protecting long-term housing conditions, accommodating tourist activity, and denying the regulatory responsibility of the state.

### 3.1 Methodology

Creating a typology of regulatory approaches involved a strategic case selection process, the identification of regulatory dimensions used by municipalities and collecting such regulatory information in the selected cities.

#### 3.1.1 Case Selection

As highlighted in Section 2.3, existing research on short-term rental regulations has primarily concentrated on American cities or within Europe, on either metropolitan area with populations exceeding 2 million, such as Paris and London, or tourist hubs such as Barcelona and

Florence (Furukawa and Onuki 2022; Huang, Chen, and Tan 2021). However, scholarly research also acknowledges the presence of STRs in diverse urban environments (Morales-Pérez, Garay-Tamajón, and Troyano-Gontá 2022). To address this gap in the literature, this research defines its scope to include European cities with a population ranging between one and two million. Additionally, the scope of the research focuses on cities that are distinguished by their residential nature and a notable yet not excessively high level of tourism activity. This allows for a comparison of cities with similar population and characteristics that often remain underrepresented in the research.

The tourist activity was measured using the ratio of annual tourist nights to the population as presented in Table 1. Moderate tourism activity was defined as having a tourist nights-to-population ratio below ten, indicating that the city's economic and social structures are not entirely oriented towards accommodating tourism. The case selection of this thesis therefore includes ten

*Table 1. Population (in millions), tourist nights spent (in millions) and their ratio in 2022 in European cities with population between 1 and 2 million plus Paris. The sources are listed in Appendix B.*

City	Nights spent (2022)	Population	Night spent / Population
Sofia	1.20	1.28	0.94
Bucharest	3.20	2.16	1.48
Belgrade	2.70	1.69	1.60
Birmingham	3.90	1.14	3.41
Warsaw	7.28	1.86	3.91
Prague	5.98	1.36	4.41
Cologne	6.30	1.08	5.81
Vienna	13.20	1.98	6.66
Hamburg	14.71	1.89	7.77
Budapest	14.00	1.67	8.38
Milan	13.30	1.35	9.82
Munich	16.00	1.51	10.58
Barcelona	19.73	1.64	12.06
Paris	50.13	2.10	23.84

European cities, namely Birmingham, Budapest, Bucharest, Cologne, Hamburg, Milan, Prague, Sofia, Vienna, and Warsaw. Additionally, the case selection encompasses the anticipated “Vienna 2024” policy. Announced in 2023<sup>3</sup> and scheduled for implementation on July 1, 2024, this regulatory framework outlines clear plans for restrictions, making it an intriguing subject for observation.

### 3.1.2 Data Collection and Processing

In order to observe STR regulations across various cities, this study employed a comprehensive approach to gather detailed data. This involved scrutinizing an array of sources to unpack both local and national regulations. Aggregating information from municipal government websites, legal analyses provided by law firms, journalistic accounts of legislative updates and entrepreneur guides by STR platforms enabled to understand the nuances of city-specific ordinances and national housing laws.

The process of data collection first involved identifying the various regulatory aspects pertinent to short-term rentals. This identification drew inspiration from multiple sources. Firstly, the guidance provided by Airbnb (2023) to hosts on the subject of navigating the intricacies of various regulations and laws pertaining to business licenses, building standards, zoning rules, permits, taxes, landlord-tenant laws, and other relevant regulations in their respective jurisdictions served as a comprehensive reference point. Additionally, insights gleaned from prior academic research (Furukawa and Onuki 2022; Huang, Chen, and Tan 2021) were incorporated to enrich the analysis. Furthermore, additional dimensions identified during the data collection phase were also considered. The final selection of variables to characterize the STR policies across different cities was informed by a rigorous criterion: accessibility of clear and consistent data across all cases.

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<sup>3</sup> <https://www.wien.gv.at/wohnen/baupolizei/pdf/merkblatt-verwendung-wohnungen-kurzzeitvermietung.pdf>. Accessed on 05/16/2024

This criterion ensured that only variables with robust data availability were included, thereby enhancing the reliability and comparability of the ensuing analysis. The final variables include:

- a) **Necessity of license:** Whether the host needs a license to operate short-term rentals varies. The majority of municipalities mandate hosts to obtain one. The presence generally describes higher administrative burdens and sometimes even involves mandatory guest reporting to authorities.
- b) **License fee:** How much does the license acquisition cost?
- c) **Occupancy tax:** Also known as tourist tax. Usually a flat rate of a few euros. However, in certain cities the occupancy tax is calculated progressively: as a percentage of the price of the accommodation. In such cases the rate was calculated by taking the determined percentage of the average daily rate for a short-term rental in the city.
- d) **Zoning:** Whether in certain area of the city STRs are prohibited or limited. Some municipalities restrict central areas or some districts.
- e) **Restriction in flat area:** Whether only a certain proportion of the flat is allowed to be rented out as short-term rental.
- f) **Restriction in days:** What proportion of the year are STRs allowed. Some municipalities set a cap on the number of days per year a dwelling can be rented out on a short-term basis. Sometimes municipalities differentiate between primary and secondary residences, mainly restricting STR operations at secondary residences.

Besides identifying patterns of short-term rental policy measures, I also aim to analyze their relationship with market dynamics (see Section 3.3). Therefore, the main characteristics of the cities' STR market and their tendencies as well as descriptors of their general touristic performance was gathered (variables g-j from AirDNA 2023):

- g) **STR occupancy rate:** The proportion of nights actually booked and occupied compared to all nights offered.
- h) **Average daily rate:** How much is paid per person for a night at an STR on average
- i) **Number of STR listings:** The amount of short-term rental listings on the market leading platform, Airbnb, on 11th of December 2023
- j) **Growth of number of STR listings:** Growth of the market since between Dember 2022 and December 2023 in percentage
- k) **Tourist nights:** Nights spent at all tourist accommodation establishments in 2022 in millions.

The evaluation of the regulatory information of the included city resulted in a complex database, which is presented in Appendix A. Subsequently, each aspect was subjected to a meticulous analysis, with the aim of quantifying the relevant data. The limiting variables ( $d, e, f$ ) are converted into normalized values<sup>4</sup>, which represents the available proportion of the city area, apartment area, and days of the year for short-term rentals. The calculations of these values are elaborate in the cases of Cologne, Hamburg, and Vienna as they operate with different yet multifaceted regulatory systems. In the German cities, estimations are made based on national averages of share of owner-occupied dwellings. In Vienna, regulations treat private estates separately from municipal housing, prohibiting STR activities in the latter. Additionally, Vienna imposes restrictions on STRs in certain parts of the cities, in the so-called residential zones<sup>5</sup>.

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<sup>4</sup> Normalization is a method used to adjust a variable so that its values fall between 0 and 1. This is calculated by subtracting the minimum value of the variable from each data point and then dividing it by the range of values.

<sup>5</sup> Residential zones, “Wohnzonen” in German, are specific areas within both residential and mixed use areas aimed at organizing urban living spaces, preserving housing stock, and promoting urban development and diversity. These zones must be clearly demarcated according to §7a of the Vienna Building Code. For more information see: <https://www.wko.at/wien/verkehr-betriebsstandort/wohnzonen>

Table 2. Regulatory measures in selected European cities as of January 2024. Sources in Appendix D

City	Necessity of license	License fee in Euros	Zoning	Restriction in the area of the flat	Restriction of days	Occupancy tax in Euros	Occupancy Rate	Average Daily Rate in Euros	Number of listings	Yearly growth in nr of listings	Tourist nights in 2022 in millions
<b>Sofia</b>	Yes	0	1	1	1	0.2	60%	57.3	2849	27%	1.2
<b>Bucharest</b>	No	0	1	1	1	0.3	57%	61.8	5402	28%	3.2
<b>Birmingham</b>	No	0	1	1	1	0	51%	124.3	4776	29%	3.9
<b>Warsaw</b>	No	0	1	1	1	0.5	59%	75	9114	39%	7.3
<b>Prague</b>	No	0	1	1	1	2.1	69%	125.1	7685	25%	6
<b>Cologne</b>	Yes	0	1	0.5	0.6	5.8	60%	116.6	2163	6%	6.3
<b>Vienna</b>	Yes	0	0.76	1	0.6	3.8	68%	118.4	10728	33%	13.2
<b>Hamburg</b>	Yes	150	1	1	0.2	3.4	70%	122.8	2628	16%	14.7
<b>Budapest</b>	Yes	7.9	1	1	1	3.5	68%	87.5	10018	34%	14
<b>Milan</b>	Yes	0	1	1	1	3.0	64%	151.3	17833	54%	13.3
<b>Vienna 2024</b>	Yes	0	1	1	0.25	4.8					

Consequently, when calculating restrictions, the estimated overlays of these restrictions had to be taken into consideration. Detailed methodology of these calculations is documented in Appendix E. A synthesis of the quantified collected data is displayed in Table 2.

## 3.2 Creating a typology

A typology of short-term rental regulations is a valuable analytical instrument, as it enables the discovery of common regulatory patterns and the identification of distinctive approaches to regulating short-term rentals across different cities. The construction of this typology begins with the categorization of regulatory frameworks into two dimensions: financial and administrative burden, and strength of restrictions. Subsequently, scores for selected cities are calculated on these dimensions. Next, clusters are created on both dimensions, contrasted, and the cities are placed in the appropriate categories. Finally, this categorization provides a valuable typology that also reflects the underlying principles of their regulatory approaches. Detailed calculations of the typology formation are presented in Appendix C.

The methodology of the creating of a typology of regulatory approaches starts with identifying two dimensions of regulatory measures. The first dimension, **financial and administrative burden**, signifies the economic and bureaucratic weight imposed by the regulatory framework. This dimension encapsulates variables necessity of obtaining a license, associated license fee, the occupancy tax. Each city's position was quantified when necessary, and then normalized. The final score for each city is calculated through the summation of the values of the involved regulatory measures<sup>6</sup>. The second dimension, **strength of restrictions**, reflects the degree to which regulatory measures constrain the scope and duration of rental activities. This

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<sup>6</sup> In calculating the scores for both dimensions, the variables were given equal weight.



dimension includes the regulatory measures of zoning restrictions, restrictions on the flat area available for rent, and a cap on the number of days a property can be rented. The score of this dimension was calculated by taking product of the involved values to reflect the compounded effect of multiple restrictions. Separating these two dimensions allows for a more nuanced analysis of regulatory frameworks.

The two-dimensional analysis is continued by creating clusters on both regulatory dimensions. The score for financial and administrative burden was placed into three categories. Cities without any financial or administrative burden are categorized as low (value = 0). Moderate encompasses cities with a somewhat increased bureaucratic cost (between 0 and 1). Finally, cities in the high category are ones where hosts have a significant burden when operating STRs (above 1). On the second dimension, strength of restrictions, also three categorical clusters were formed. The low cluster (value = 1) signifies minimal regulatory interference, allowing property owners maximum flexibility in renting out their spaces. The moderate cluster (value between 1 and 0.25) indicates a balanced approach, where some restrictions exist but still permit significant STR activity in the city. The strict cluster (value under 0.25) represents stringent regulations that heavily limit STR opportunities in the city. This categorization enables the differentiation of cities' regulatory systems on both dimensions.

Table 3. Cities plotted based on the two-dimensional analysis

		Strength of restrictions (zoning, flat area, days)		
		Low	Moderate	High
Financial and administrative burden	Low	Birmingham		
	Moderate	Bucharest Warsaw Prague		
	High	Sofia Budapest Milan	Vienna Cologne	Hamburg Vienna 2024

The cities are contrasted on the two identified dimensions. *Table 3* provides a visual representation of the cities' regulatory environments both in terms of financial and administrative burden as well as strength of restrictions. This visualization offers an at-a-glance comparison of the overall regulatory friendliness towards STRs.

A visual comparison of the included cities reveals several valuable insights. First, the cities are present in only five of the nine cells. Furthermore, the distribution of these cities across the nine cells is relatively balanced, with no single category showing overwhelming popularity, indicating five distinct and equally popular regulatory approaches. Additionally, and most interestingly, a unique pattern emerges in the regulatory approaches of these cities. Specifically, all cities that have implemented moderate or high restrictions also exhibit high financial and administrative burdens. In other words, no city has imposed stringent restrictions on short-term rentals without also increasing the financial and administrative burdens on hosts. This suggests that implementing such financial and administrative regulations is a prerequisite for cities to begin introducing limiting measures like zoning restrictions or capping the number of active short-term rental days.

Building upon the two-dimensional grid, a typology of STR regulatory approaches emerges and is presented in *Table 4*. This typology is the identification of each of the five cells that represent cities in the two-dimensional representation of regulatory frameworks. In addition to the cities' shared regulatory policies, the typology also refers to the underlying principles of their regulatory approaches. Birmingham exemplifies the absence of regulatory activity on STRs, classified as a *Laissez-Faire* approach. Cities that require the general tourist tax from short-term rental providers fall under the *General* approach (Bucharest, Warsaw, Prague). The *Tourism Oriented* approach (Sofia, Budapest, Milan) emphasizes surveillance over STR activities without imposing restrictive measures. This category is characterized by requiring mandatory guest reporting to authorities, introducing mandatory STR licenses and implementing higher tourist taxes. Cities with a *Long-term*

*Oriented* focus (Cologne, Vienna) restrict short-term rentals for certain parts of the year to prioritize long-term rentals. Hamburg represents the most stringent regulations with a *Residence Oriented* approach, which differentiates between primary and secondary residences. This approach restricts short-term rentals in secondary residences, prioritizing the interests of private home sharers over real estate investors. This novel typology provides a comprehensive framework for understanding the diverse regulatory strategies employed by European cities beyond tourist hubs, reflecting varying priorities and policy objectives.

Table 4. *Approaches to STR regulation*

<b>Laissez-Faire</b>	<b>General</b>	<b>Tourism Oriented</b>	<b>Long-term Oriented</b>	<b>Residence Oriented</b>
<i>No STR regulation</i>	<i>Enforces tourist tax</i>	<i>Mandatory guest reporting, licensing, and higher tourist taxes</i>	<i>Limiting days per year</i>	<i>Restrictions on secondary residences</i>
Birmingham	Bucharest, Warsaw, Prague	Sofia, Budapest, Milan	Cologne, Vienna	Hamburg

### 3.3 Analysis: Impact of Policy Measures on STR Market Dynamics

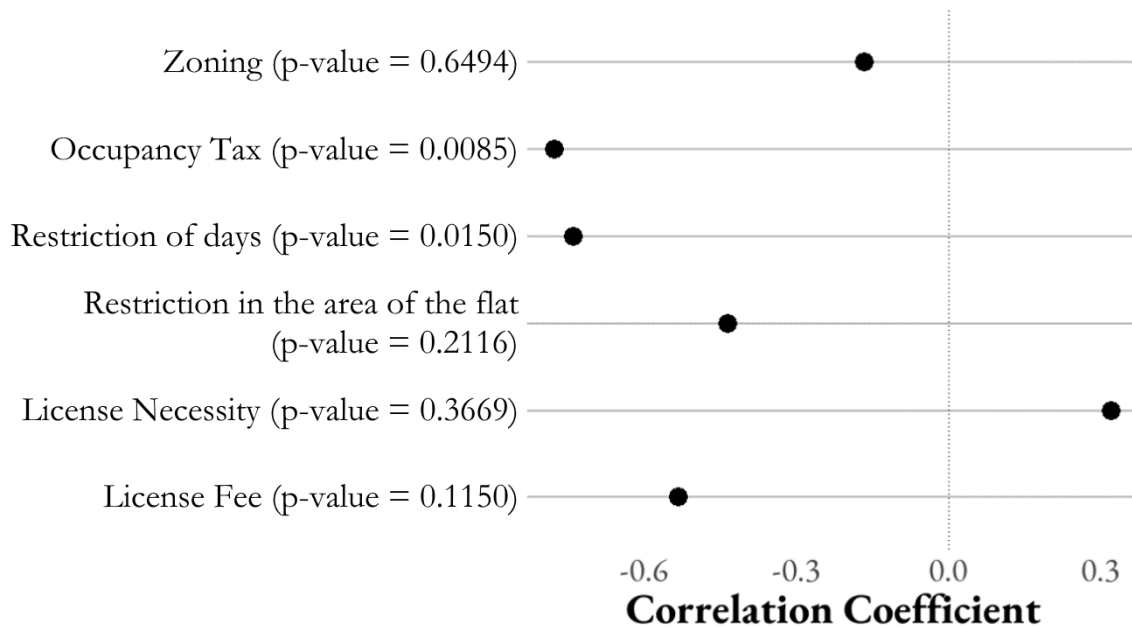
Next, the research looks at the relationship between STR policy measures and market dynamics to potentially understand their impact on the housing market. To do so, the novel formula of *STR-Happiness* was introduced (Formula 1), indicating the magnitude and the potential for sustainable growth of a city's STR market. This formula is comprised of two components. First, the ratio between the number of short-term rentals (STRs) and the number of tourist nights. An elevated ratio indicates that STRs comprise a significant portion of the tourist sector, whereas a diminished ratio indicates the sector's relative lack of representation. Second, the annual growth rate in the number of STRs is an instrumental variable. It reflects market trends and investor

confidence, acting as an indicator of the market's vitality and potential for future expansion. The average of these two values, after normalization, yields the *STR Happiness*, which is a comprehensive indicator of the market's size and potential for growth.

*Formula 1. STR Happiness*

$$STRHappiness = \frac{\frac{NumberOfSTRs}{TouristNights} + YearlyGrowthOfSTR}{2}$$

To evaluate these relationships, a correlational analysis explores the relationship between a variety of policy measures and STR Happiness (*Figure 1*). A salient initial observation is the sole positive correlation of STR Happiness with *License Necessity* (0.32), suggesting that presence of licensing aligns with a more significant STR market. Conversely, the magnitude of the *License Fees* exhibits a moderately negative correlation (-0.53), suggesting a dampening effect on market expansion with higher fees. *Zoning* demonstrates a relatively inconclusive ( $p = 0.65$ ), weak negative correlation (-0.16), which may be influenced by the limited implementation of this policy measure



*Figure 1. Correlation between STR Happiness and different policy variables*

across the dataset. *Restriction in flat area* and *Restriction of days* reveal medium to strong negative correlations (-0.45 and -0.74, respectively), with the latter displaying high statistical significance ( $p = 0.015$ ), indicating a notable relationship between rental duration constraints and the stagnation of the STR market. Notably, the most pronounced negative correlation (-0.77) with the highest statistical significance ( $p < 0.01$ ) is evident with *Occupancy tax*, a measure impacting not only STRs but also other stakeholders in the tourism accommodation sector, including traditional options such as hotels.

These findings, however, not only shed light on how policy measures may influence the STR market. The correlation between the measures might also suggest a reciprocal relationship, where changes in the STR market could prompt adjustments in policy strategies. This bidirectional influence underscores the dynamic nature of the relationship between regulatory frameworks and market dynamics, highlighting the need for adaptive policymaking approaches that consider both short-term impacts and long-term sustainability.

#### *Formula 2. STR Friendliness*

$$STRFriendliness = (2 * LicenseNecessity + LicenseFee + OccupancyTax) * Zoning * AreaLimitation * DayLimitation$$

Next, the analysis looks at how cities in our typology compare in STR Happiness and regulatory systems. Here, the study introduces the STR Friendliness score (Formula 2) to quantify the ease and permissibility of STR activities. This formula evaluates the regulatory environment of a city's short-term rental market, combining financial and operational aspects of rental regulations. The formula combines the weighted and normalized scores of the cities on the dimensions of License Necessity, License Fee, and Occupancy Tax to reflect regulatory and financial burdens. This is subsequently multiplied with the cities' scores at Zoning, Restriction in Area, and Restriction of Days to account for geographical and operational restrictions. The resulting

normalized variable is a comprehensive score that encapsulates both the ease of conducting short-term rentals and the extent of permissible rental activities.

Cities are plotted based on STR Happiness versus STR Friendliness and grouped according to their typology (Figure 2). A visible trend emerges, suggesting a positive correlation between regulatory leniency and increased market happiness. It is notable that Sofia achieved the highest STR Happiness score, indicating a thriving STR market, despite the fact that its regulatory environment is not the most conducive to STR Friendliness. Interestingly, Birmingham, despite attaining the highest score in STR Friendliness, exhibited a notably lower STR Happiness score. In stark contrast, Hamburg received the lowest scores in both metrics, suggesting an effectively restrictive environment for STRs.

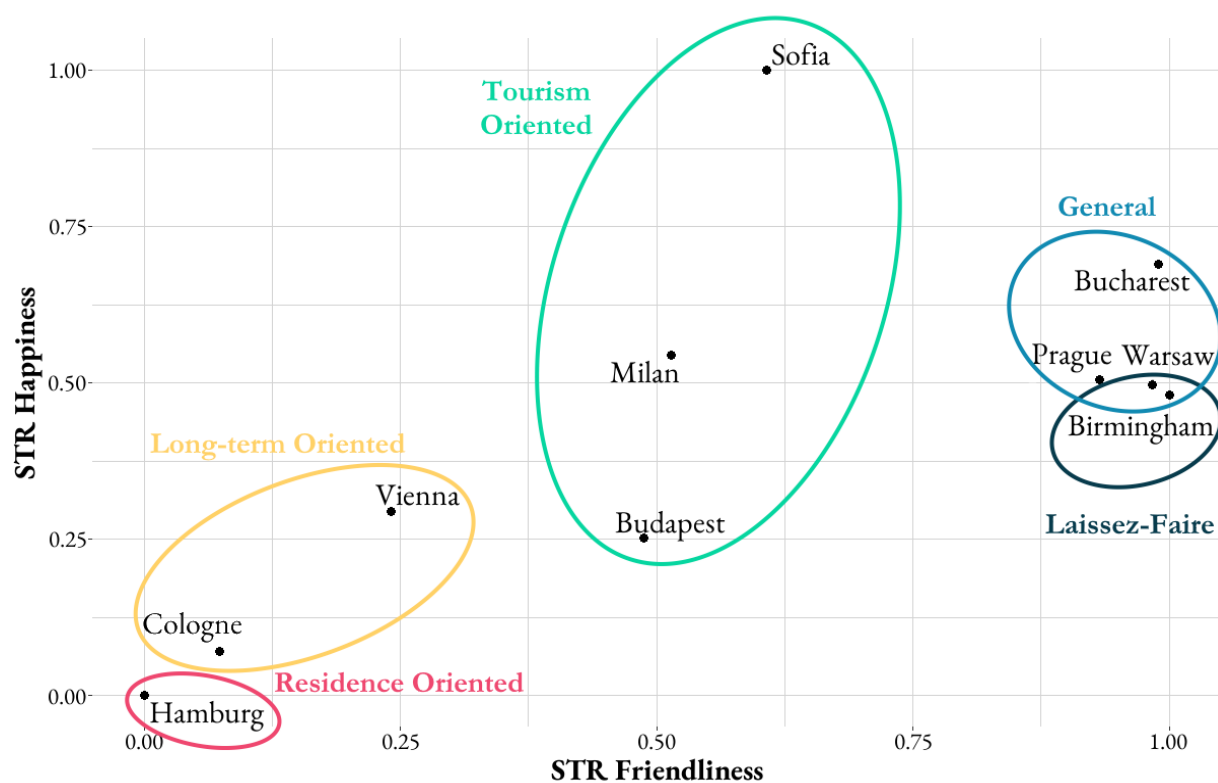


Figure 2. Cities' STR Happiness and STR Friendliness compared, and typologies marked

### 3.4 Discussion

Figure 2 presents two key insights. Firstly, the arrangement of typologies on the plot clearly shows that the five-tier typology can be consolidated into three distinct categories, which represents a valuable simplification. This consolidation is advantageous as based on these findings distinguishing significant differences between long-term and residence-oriented approaches, as well as between general and laissez-faire approaches, proves challenging. While, it is important to note that the alignment of scores may stem from slightly varying policy considerations, it is clear that the two pairs are essentially fairly similar approaches. Consequently, throughout the remainder of this thesis, I will consider these three typologies, using the names that more accurately reflect the overarching approaches. The final typology, therefore, in increasing order of stringency of regulations, is as follows: *Laissez-Faire*, *Tourism-Oriented*, and *Long-term Oriented*.

Secondly, in addition to a moderate positive correlation, there is a potential observation of a slight upside-down U-shaped curve in the relationship between STR Friendliness and STR Happiness. This pattern indicates that the lowest STR Friendliness is associated with the lowest STR Happiness, moderate STR Friendliness with high STR Happiness, and high STR Friendliness with moderate STR Happiness. It is proposed that this pattern arises from the bidirectional relationship between regulation and market forces also mentioned in Section 3.3. In particular, it can be observed that while limiting short-term rentals has the effect of slowing the growth of the market, this is in turn influenced by the level of market growth, which in turn is affected by the regulations in place. The introduction of highly restrictive regulations may act as an obstacle to market growth, leading to a reduction in the pace of expansion in this market. Conversely, if there is limited growth in this market, it may not receive the attention of the public and therefore avoid the introduction of more onerous regulations.

Both forces within this proposition find further support in the introduced correlation analysis. Firstly, moderate levels of STR activity may not prompt restrictive state intervention

(*Laissez-Faire / General*). Secondly, a flourishing STR market necessitates the implementation of a licensing system (*Tourism Oriented*), however, introducing stricter policy measures in these cities, such as day restrictions or increased occupancy taxes, leads to a decrease in the STR market (*Long-term / Residence Oriented*). These opposing forces contribute to an upside-down U-curve in the relationship between STR Friendliness and STR Happiness. However, it is crucial to note that this thesis does not aim to conclusively prove this theory; to do that, further research is warranted, particularly examining regulatory histories across a significant number of cases.

In summary, this chapter has developed a pioneering typology of short-term rental regulation approaches in European cities outside of tourist hotspots. I analyzed the regulatory frameworks on two dimensions, that suggested that implementing financial and administrative requirements is a prerequisite for cities to begin introducing limiting measures like zoning restrictions or capping the number of active short-term rental days. The two-dimensional led to the identification of five distinct regulatory approaches. Furthermore, I distilled this typology into three overarching categories by examining the interplay between various regulatory measures and market dynamics. These final categories encapsulate three distinct approaches to STR regulation: protecting long-term housing conditions (*Long-term Oriented*), accommodating tourist activity (*Tourism Oriented*), and denying the regulatory responsibility of the state (*Laissez-Faire*). However, in order to understand the diversity in regulatory approaches to a single phenomenon, it is imperative to scrutinize the political developments surrounding the emergence and acceptance of short-term rentals.



## 4 Political Actors Behind Regulatory Processes

As shown in the previous chapter, European cities exhibit a wide range of attitudes toward regulating short-term rentals. In this chapter, I explore the introduction and acceptance of STR platforms in cities with different regulatory approaches to understand the reasons for their diverse outcomes. Chapter 3 identified three major approaches towards regulating short-term rentals (the consolidated versions of the five approaches presented in Table 4), therefore this analysis contains one city from each of these categories. Prague represents the Laissez-Faire approach, Budapest showcases the Tourism Oriented approach, and Vienna exemplifies the Long-term Oriented approach. In this chapter I identify the regulatory flashpoints around the arrival of short-term rental platforms and measure the relative significance of these in the three countries' media coverage. Utilizing this knowledge, I follow through the political debates in the three cities, introducing main figures, noteworthy policies and their implications. Also, I examine the institutional contexts that could also influence regulatory approaches. Finally, I evaluate the potential causes of the diverse regulatory resolutions.

## 4.1 Regulatory Flashpoints

The analysis commenced with the exploration of “regulatory flashpoints” around the emergence of short-term rentals. These regulatory flashpoints, as used by Kathleen Thelen (2018), refer to the specific policy issues that are in the center of public and political discussion. These flashpoints were identified by synthesizing previous research (Kenney and Zysman 2016; Aguilera, Artioli, and Colomb 2021) and observing media coverage in each country. Two primary categories of regulation emerged: the **encouragement** and the **restriction** of short-term rentals. Encouraging arguments for STRs include its role in boosting tourism, creating economic opportunities, fostering income generation, and diversifying tourism offerings. Conversely, restricting arguments emphasize issues such as compliance with existing rules, question of licensing, creation of unfair competition with existing hotel industries, disturbance of locals (e.g., littering, noise), taxation and tax aviation, potential long-term housing price effects, and impacts on neighborhood character and community cohesion, including potential displacement of locals.

## 4.2 Media Analysis

A media analysis was conducted to identify the most significant regulatory flashpoints around short-term rentals in the different cities. This is based on the assumption that the media presence of these policy issues mirrors their relevance and salience in public and political discourse. The analysis was performed through gauging the relative significance of the different regulatory flashpoints (identified in Section 4.1) across the cities. First, an original corpus of articles from prominent national newspapers in each country was compiled. Articles mentioning the industry leader platform *Airbnb* were collected spanning from the first mention until the 27th of March 2024. The selected newspapers are: Idnes.cz and Seznam.cz for Prague, Index.hu, 24.hu, and Hvg.hu for Budapest, and Krone.at and DerStandard.at for Vienna. This resulted in a dataset of

3,551 articles (1,485 from Austria, 961 from the Czech Republic, and 1,105 from Hungary). The coding process employed the natural language processing model of OpenAI<sup>7</sup>. First, articles substantially not pertaining to STR in the observed country were filtered<sup>8</sup>, such as those that mentioned the platform company as an international corporation and did not discuss its local activities. The filtration resulted in a final number of 1474 articles, with 514 from Austria, 457 from Czechia, and 503 from Hungary. This smaller dataset was analyzed through utilizing a series of questions (listed in Appendix F) to ascertain the presence of the various regulatory flashpoints in the public debate in the different countries<sup>9</sup>.

Figure 3 displays the yearly analysis of article counts per country revealing interesting trends in media coverage across the three countries. Austria demonstrates steadily increasing media coverage and plateaued at a height between 2017 and 2019. Contrastingly, Hungary showed a significant increase in media attention from 2015 onwards, peaking first in 2016, and getting in the

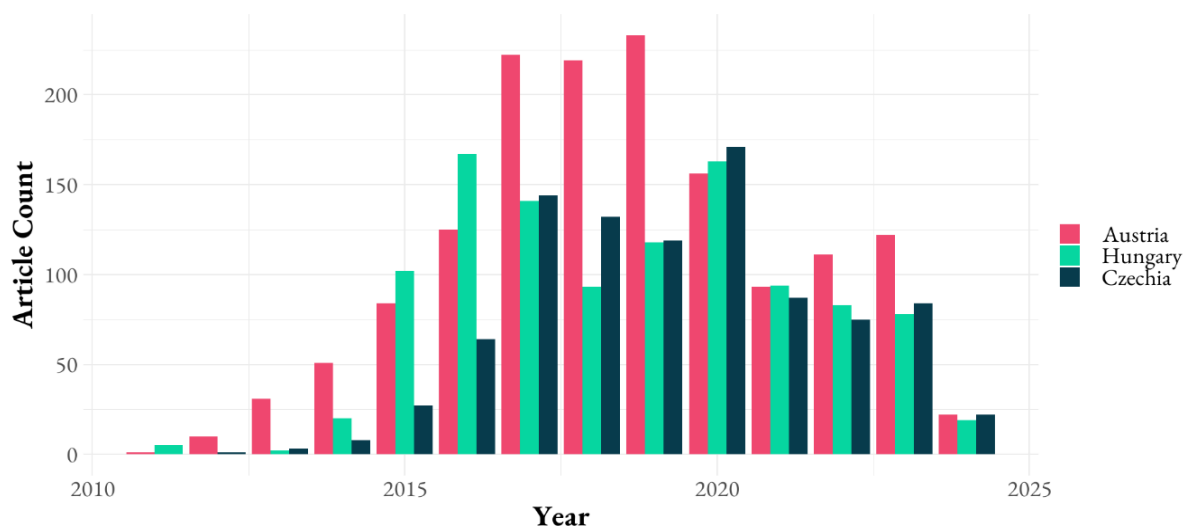


Figure 3. Number of articles per year in the observed countries

<sup>7</sup> <https://openai.com/index/openai-api/>

<sup>8</sup> By asking the question: "Does this article talk about the Airbnb (or Booking.com or short-term rentals) regarding [country], including the capital city?"

<sup>9</sup> The collection of articles, as well as the analysis is available at the following repository: [https://github.com/simiboy/airbnb\\_media\\_analysis](https://github.com/simiboy/airbnb_media_analysis)

focus for the second time in 2020. Czechia also displays fluctuating media coverage, with peaks in 2016 and 2020. All three countries demonstrate a noticeable decrease in coverage in recent years, signaling a decline in interest in media reporting on short-term rental topics. This trend suggests that the discussions on short-term rental topics have largely concluded, potentially reaching a final resolution. Furthermore, pronounced peaks highlight certain time periods when the public discourse was the most salient around STRs. These periods are given particular focus in the detailed analysis of Section 4.3.

The results of the coding of various regulatory flashpoints are presented in Figure 4, shedding light on the varying emphases placed on regulatory issues across the cities under study. Overall, a discernible pattern emerges: Austria and Czechia diverge notably in their frequency of references to each regulatory flashpoint. Meanwhile, Hungary occupies an intermediate position, sometimes leaning more towards Austria's or Czechia's position.

The Czech Republic is notable for a high level of coverage of pro-STR agendas, particularly with regard to the impact of STR on the promotion of tourism and the creation of positive competition. Both disruption to local residents and gentrification emerge as more significant concerns in comparison to other cities, although still relatively modest in comparison to other issues. Interestingly, concerns about negative competition are also notable, suggesting heightened awareness of potential market competition drawbacks.

In Hungary, the emphasis on economic opportunity exceeds that of Austria and the Czech Republic, indicating a strong belief in the economic benefits of STR. Among the restrictive considerations, the issues of taxation and long-term housing stand out, indicating a greater awareness of potential housing market impacts.

In Austria, none of the flashpoints for the accommodation of STR were of particular importance. However, there is a notable emphasis on regulatory concerns regarding licensing and taxation. However, concerns about long-term housing and gentrification appear to be relatively

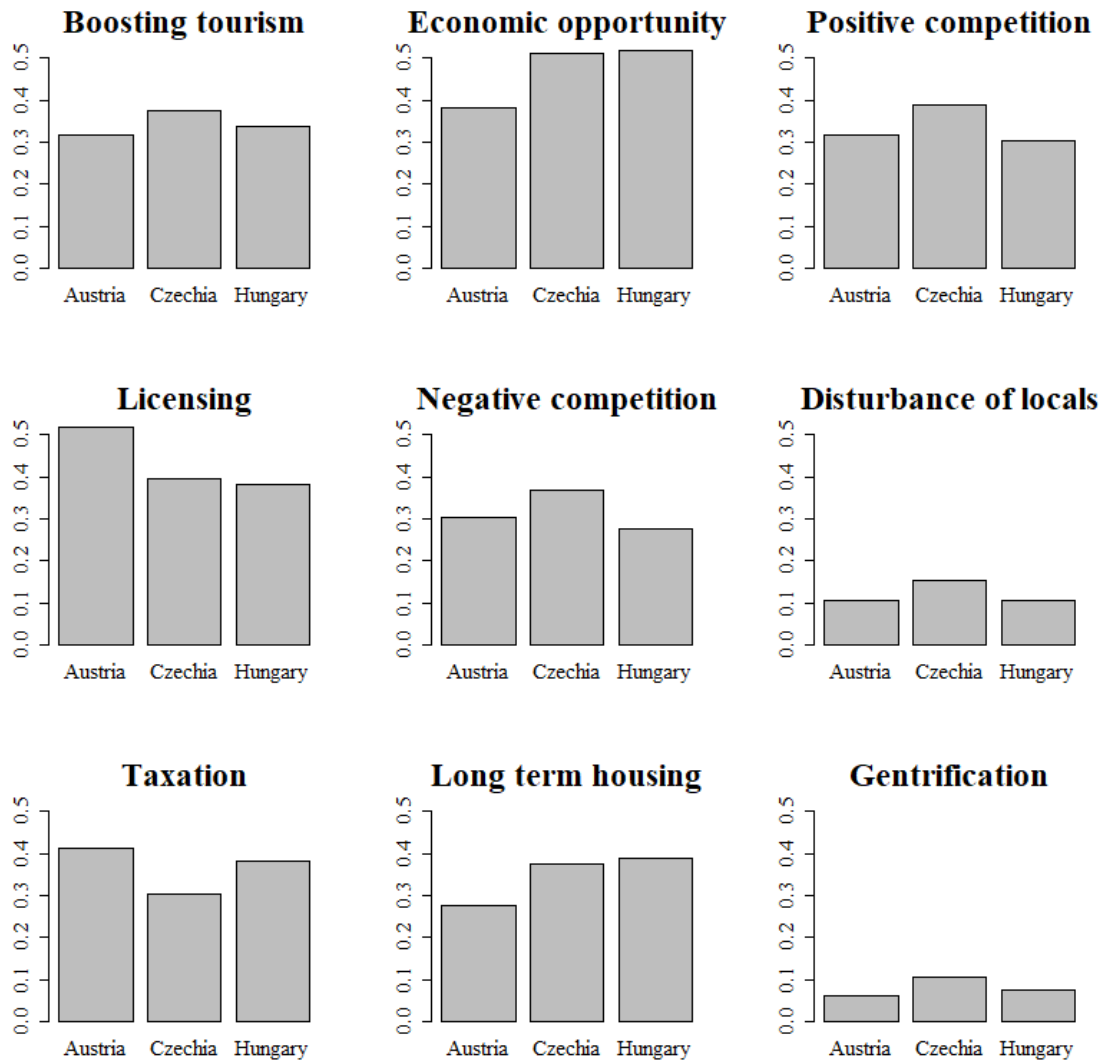


Figure 4. Share of occurrence of different regulatory flashpoints in the articles in the observed countries

less significant. This finding is interesting as it contradicts the policy output observed in Vienna, which suggests a high level of attention to maintaining affordable long-term housing options.

An extraordinary trend across countries is the consistent emphasis on economic opportunity and the regulatory aspects of licensing and taxation. However, there are differences in the prioritization of concerns, reflecting different societal attitudes and regulatory landscapes. In addition, the relatively low emphasis on gentrification across countries suggests a potential gap in the discourse regarding this aspect of STR's impact. A potential limitation is that the articles may not focus on the specific cities, but rather on a general national discourse. However, this is a

less significant concern, as the cities analyzed are, in fact, the capitals of their respective countries, which ensures a high degree of alignment between capital and national media coverage.

## 4.3 Story of Three Cities

This section explores the political dynamics surrounding the arrival and reception of short-term rental platforms in the three cities. Through this detailed analysis, I aim to uncover the motivations, challenges, and outcomes of the cities' regulatory strategies. Analyzing the political trajectories of each city's approach enables us to glean insights into the diverse factors shaping regulatory decisions and their impacts on residents and stakeholders within the evolving landscape of short-term rental accommodation.

### 4.3.1 Prague: Regulatory Gridlock

The regulatory framework for short-term rentals in Prague is arguably more lenient than that of other cities, yet this perception fails to take into account the concerted efforts to implement restrictive legislation. The phenomenon of STRs first triggered public discourse around 2016, focusing on the economic potential of STR platforms. However, hoteliers and other actors of the existing tourism industry have raised their voice claiming STR platforms have created unjust competition for them<sup>10</sup>. In 2020, voices of regulation emerged from various levels of politics. The 'Stop Airbnb' grassroots movement began hosting public workshops to raise awareness about STR impacts and advocated for regulation in Airbnb apartments. Meanwhile, Mayor Zdeněk Hřib commenced a campaign for more stringent controls on short-term rentals, proposing limitations on the use of entire apartments for STRs.<sup>11</sup> Hřib presents STRs as transforming Prague into a

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<sup>10</sup> [https://www.idnes.cz/ekonomika/domaci/airbnb-rust-v-cesku.A151206\\_172024\\_ekonomika\\_rny](https://www.idnes.cz/ekonomika/domaci/airbnb-rust-v-cesku.A151206_172024_ekonomika_rny). Accessed on 04/04/2024

<sup>11</sup> [https://www.idnes.cz/praha/zpravy/airbnb-praha-hrib-pronajmuti-jen-pokoje.A200202\\_113609\\_praha-zpravy\\_bse](https://www.idnes.cz/praha/zpravy/airbnb-praha-hrib-pronajmuti-jen-pokoje.A200202_113609_praha-zpravy_bse). Accessed on 04/04/2024

"distributed hotel" that deviates from the original concept of the sharing economy. Hřib asserts that STRs exploit the wellbeing of residents for profit, thereby necessitating regulatory intervention to preserve the city's distinctive character and address housing affordability concerns.<sup>12</sup> The proposal aimed to empower community associations by mandating that *"for short-term rent, the owner would need the consent of the community"*<sup>13</sup>.

Despite the efforts, the proposal ultimately faltered due to a mix of regulatory complexities, economic considerations, challenges in creating public consensus, and enforcement difficulties, mainly rooting in political conflicts and jurisdictional limitations with regards to online platforms<sup>14</sup>. Therefore, the housing regulation system of Prague remained largely, with no specific STR rules introduced<sup>15</sup>. This outcome is a reflection of the complexity of changes to existing laws, the leverage of international online platforms, and the lack of sufficient political support for more stringent regulation.

#### 4.3.2 Budapest: Caught in Party Politics

In Budapest, the regulatory framework for STRs is shaped by the objective of accommodating tourism within a context of political contention. Soon after the explosion of the STR industry in the mid-2010s, the Hungarian tax authorities already enforced taxation<sup>16</sup>, indicating the national attitude towards this new sector: while the revenue collection is prioritized, the social consequences are disregarded. This attitude was again evident in the government's

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<sup>12</sup> <https://www.theguardian.com/environment/2020/feb/01/overwhelmed-prague-tries-to-limit-airbnb-to-curb-tourism>. Accessed on 04/02/2024

<sup>13</sup> <https://www.seznamzpravy.cz/clanek/konec-airbnb-v-praze-vic-nez-pulka-se-mozna-vrati-rezidentum-pomuze-zakon-109197>. Accessed on 04/04/2024

<sup>14</sup> <https://www.seznamzpravy.cz/clanek/praha-zcela-pohorela-v-boji-s-airbnb-a-spol-firmy-se-ji-prakticky-vysmaly-143068>. Accessed on 04/04/2024

<sup>15</sup> <https://miastojestnasze.org/praga-przeciwko-airbnb/>. Accessed on 03/28/2024

<sup>16</sup> <https://index.hu/gazdasag/2015/08/25/airbnb/>. Accessed on 04/04/2024

decision to simplify the taxation of STR operations in 2018 by streamlining the bureaucratic process and allowing flat-rate taxation<sup>17</sup>.

A surprising turn happened in 2020, when a law instated by the governing party granted municipalities — including the mostly opposition-led district municipalities of Budapest— the power to limit the duration of STRs. However, many districts, wary of affecting the private accommodation market, have been reluctant to impose strict controls<sup>18</sup>. As an exception the mayor of district VI. attempted to regulate STRs to ensure quieter living conditions for residents, requiring owners to meet specific conditions such as obtaining condominium consent and providing 24-hour availability. However, the government's office intervened, stating that the district overstepped its legislative authority. So far, there has been no substantive response from the Prime Minister's Office to address these concerns.<sup>19</sup>

Amidst this regulatory context, there has been civil advocacy for more stringent restrictions on Airbnb rentals. Civil movements joined their forces to campaign for capping tourist apartment usage in 30 days per year, aiming to balance temporary tourist accommodations with the need for long-term, affordable housing for residents<sup>20</sup>. Nevertheless, these endeavors did not yield the anticipated regulation, reflecting the consequence of the political cleavages between local autonomy and national politics in Budapest's STR regulatory framework.

#### 4.3.3 Vienna: Historical Stability

Vienna's regulation of short-term rentals emphasizes a preference for long-term rentals, yet the initial conflict between the city and STR operators arose concerning tax matters. With the growth of STR platforms, the municipal government amended the Tourism Promotion Act in

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<sup>17</sup> <https://www.portfolio.hu/ingatlan/20170503/oriasi-konnyitest-kapnak-az-airbnb-zok-249381>. Accessed 04/04/2024

<sup>18</sup> [https://hvg.hu/kkv/20200713\\_torvenyjavaslat\\_onkormanyzatok\\_Airbnb\\_szallas](https://hvg.hu/kkv/20200713_torvenyjavaslat_onkormanyzatok_Airbnb_szallas). Accessed 04/04/2024

<sup>19</sup> [https://hvg.hu/itthon/20230804\\_Az\\_onkormanyzatok\\_harom\\_eve\\_korlatozhatnak\\_az\\_Airbnbejszakak\\_szamat\\_megsem\\_teszik](https://hvg.hu/itthon/20230804_Az_onkormanyzatok_harom_eve_korlatozhatnak_az_Airbnbejszakak_szamat_megsem_teszik). Accessed on 04/01/2024

<sup>20</sup> <https://szabad.ahang.hu/petitions/stop-airbnb-a-lakas-nem-hotel>. Accessed on 04/01/2024



2016, requiring STR platforms to disclose the data of landlords. The city felt it was necessary to know who was renting these accommodations so it could hold them accountable for paying taxes, to combat tax evasion, and to improve regulatory oversight.<sup>21</sup> First, Airbnb suggested that they would collect the tax themselves, and refused to share required data with the municipality. This approach was considered unacceptable by the Austrian Hotel Association, claiming that *“Privacy is a highly sensitive topic. But so is hiding income from the tax authorities”*<sup>22</sup> and the city council also refused to accept it.

Unlike other European cities, Vienna has uniquely developed a substantial decommodified housing stock throughout the twentieth century and has maintained remarkable stability in its housing model since the 1980s. This stability persists despite global trends towards recommodification, and the city's approach continues to enjoy strong public support for government intervention (Kadi 2015). In this context, the Vienna building regulations were revised in 2018 to establish a limit of 90 days per year for STRs in so-called residential zones<sup>23</sup>, with an outright prohibition in apartments within the subsidized public housing framework, with limited exceptions. This change, however, prompted concerns among district leaders about the diminished control of district-level building committees over residential zones<sup>24</sup>. Ultimately, the modifications were accepted. The city's strong leadership and long-standing commitment to robust social policies likely explain why concerns about long-term housing have not been prominently featured in the media, as noted in the media analysis (Section 4.2). Namely, that there is a citywide historical consensus on the need to maintain affordable long-term housing that has diverted public discourse to other regulatory issues.

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<sup>21</sup> <https://www.derstandard.at/story/2000037632490/>. Accessed on 04/04/2024

<sup>22</sup> <https://www.derstandard.at/story/2000097327139/>. Accessed on 04/04/2024

<sup>23</sup> Residential zones, “Wohnzonen” in German, are specific areas within both residential and mixed-use areas aimed at organizing urban living spaces, preserving housing stock, and promoting urban development and diversity. These zones must be clearly demarcated according to §7a of the Vienna Building Code. For more information see: <https://www.wko.at/wien/verkehr-betriebsstandort/wohnzonen>

<sup>24</sup> <https://www.derstandard.at/story/2000090296008/>. Accessed on 04/04/2024

The dispute between the city and Airbnb reached its zenith when Vienna initiated legal proceedings against Airbnb with the aim of halting the illicit subletting of municipal housing on its platform. The city demanded a comprehensive prohibition on all 220,000 council housing addresses. Airbnb, however, resisted this approach, citing data protection concerns and instead proposed the deactivation of specific listings and the implementation of an information campaign for hosts<sup>25</sup>. In anticipation of the ruling of the Vienna Commercial Court, Airbnb has put forth a series of measures designed to ensure the ethical conduct of its landlords. The five-step program included the deletion of listings for municipal housing, the implementation of a nationwide registration process for hosts, the sharing of key figures and tax data for transparency, and the establishment of a noise complaint hotline<sup>26</sup>. Ultimately, Vienna's steadfastness led to a landmark decision in favor of the city, ensuring the preservation of its municipal housing integrity.

In 2023, further amendments were announced for implementation in July 2024, extending the 90-day rental cap to all apartments in Vienna. According to the municipal government, these updates aim to strike a balance between tourism and housing market needs, aligning with urban planning goals to prevent excessively large residential zones and foster a city with shorter commutes<sup>27</sup>. These firm decisions highlight that Vienna's approach is predominantly top-down, steered by ideologically driven city leaders, and that the influence of grassroots actors is significantly less than elsewhere.

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<sup>25</sup> <https://www.derstandard.at/story/2000118865090/>. Accessed on 05/28/2024

<sup>26</sup> <https://www.derstandard.at/story/2000130425970/>. Accessed on 05/28/2024

<sup>27</sup> <https://www.derstandard.at/story/3000000213569/>. Accessed on 04/02/2024

## 4.4 Institutional differences

When examining how societies responds to the emergence of short-term rental platforms, it is crucial to take into account the surrounding socioeconomic and political circumstances. This section examines the institutional context across the three cities from multiple aspects, highlighting similarities, disparities, and overarching trends.

An institutional factor that could influence the reception of a disruption in the housing market is the state of the housing market prior to the spread of short-term rentals. The first measure of this is the structure of the housing markets, in terms of the distribution of home ownership alongside other forms of accommodation, including private rental, social housing, or service dwelling, within the total housing stock. The rate of owner-occupied dwelling is the highest in Hungary with 77.6% (Központi Statisztikai Hivatal 2022). This rate is somewhat lower in Prague with 68.3% (Czech Statistical Office 2021). On the contrary, in Vienna only 19.3% of the residents own their apartments (Statistik Austria 2022), the result of the long term efforts to cultivate a sizable partly decommodified housing stock, as mentioned in Section 4.3.3. A second measure that could influence the regulatory outcomes is the initial level of regulation of short-term rentals. In this aspect there was no variation, as all cities had unregulated short-term rental markets before the expansion of the facilitating platforms.

An additional factor to contemplate is that despite being situated within the same Central-European region, each of these three cities embarked on distinct trajectories throughout the 20th century. Following the Second World War, both Hungary and the Czech Republic found themselves within the confines of the communist bloc. The subsequent transition to market capitalism in 1989 marked a significant shift for these nations. An important factor potentially influencing regulatory outcomes is the type of market economy present in a country. With the *Varieties of Capitalism* framework Hall and Soskice (2001) distinguish market economies based on the primary method through which firms coordinate with one another and other stakeholders,

including trade unions. They categorize Austria as a prime example of a coordinated market economy, characterized by high unionization rate, collaborative inter-firm relations and industry-level bargaining. The categorization of post-socialist countries on the other hand is the subject of an ongoing scholarly debate. The common trend emerging out of this debate that the Visegrád states<sup>28</sup> are hard to categorize as either liberal or coordinated market economies. Authors came up with new typologies to resolve this issue, classifying them as dependent market economies, mixed-market economies or embedded neoliberal economies (Bohle 2017). While this debate is still undecided, it is clear that Hungary and Czechia fall into a similar cluster with fairly similar coordination indices somewhere between the two ideal types of Hall and Soskice (Baboš 2010).

Similarly, the political landscapes of cities can also shape the policies and approaches taken by local governments as well as their room for maneuver, ultimately influencing their short-term rental regulations. Since 2019, all three selected cities were being led by mayors who are members of - in the context of their national politics - opposition parties. Vienna has maintained a social democratic administration despite the dominance of the right-wing ÖVP at the national level, while Prague's mayoral leadership hails from the ideologically liberal progressive Pirate Party, in contrast to the center-right governance nationally. Similarly, Budapest has seen a green-social democrat mayor in power, diverging from the right-wing dominance of Viktor Orbán on the national stage. Consequently, it is apparent that all three cities have operated independently of political support from their respective national governments. On the other hand, the mayors' ideologies can be categorized into two groups: social-democratic in Budapest and Vienna, and liberal in Prague. In conclusion, it can be observed that the political institutions of cities also exhibit certain variation.

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<sup>28</sup> Encompassing Czechia, Hungary, Slovakia and Poland

The approach towards short-term rental regulation might also be influenced by the severity of the housing crisis, particularly the affordability of rental apartments. A practical measure of affordability of rents is the ratio of average wage to renters' wage, as reported by the Economist<sup>29</sup>. The value of renters' wage signifies the income required to afford a one-bedroom apartment, adhering to the guideline that rent should not exceed 30% of pre-tax income. Budapest stands out as the most expensive city for potential renters, with the average wage only reaching 51% of the renters' wage. In Hungary, high inflation rates contributed to a 19% increase in rental costs in the capital from 2022 to 2023. While rent prices in Prague and Vienna are similar, their affordability varies significantly. While the rent prices in Prague and Vienna are very close, their affordability differs drastically. In Prague, the ratio of actual wage to renters' wage is almost on par with Budapest (51.1%), indicating a severe housing crisis. Conversely, in Vienna, the actual wage surpasses the renters' wage by 9%, making rents comparatively affordable.

Finally, the degree to which a city relies on tourism as a primary source of income can also affect how short-term rental platforms are perceived and regulated. Through the metric of ratio of tourist nights per citizen<sup>30</sup>, Budapest (8.38) emerges as the city with the highest tourist dependency, followed by Vienna (6.66) and then Prague (4.41). Understanding the extent of tourism dependency is crucial when assessing the potential impact of short-term rental platforms, as it indicates the level of demand for accommodations and the city's reliance on tourism-related revenue streams.

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<sup>29</sup> <https://www.economist.com/graphic-detail/2024/02/20/where-are-europes-most-expensive-cities-for-renters>.

Accessed on 05/09/2024

<sup>30</sup> Initially calculated in Table 1

Table 5. Overview of Institutional Differences in the Three Cities

Institution	Metric	Prague	Budapest	Vienna
Structure of housing market	Share of owner-occupied dwellings	68.3%	77.6%	19.3%
	Initial regulation of the STR market	Unregulated	Unregulated	Unregulated
Economic orientation	Varieties of capitalism	Mixed-market economy	Mixed-market economy	Coordinated market economy
Party politics	Political position of the mayor in national politics	Opposition	Opposition	Opposition
Political ideology	Political ideology of the mayor	Liberal	Social democrat / green	Social democrat
Level of housing crisis	Average wage relative to renters' wage <sup>31</sup>	0.515	0.511	1.089
Tourist dependency	Tourist nights / population	4.41	8.38	6.66

## 4.5 Discussion

European cities exhibit a diverse array of attitudes toward regulation from relatively lenient to fairly restrictive. In this chapter I have observed the arrival and reception of short-term rental platforms in three Central European cities that have responded with different regulatory outputs. Vienna implemented the most stringent regulations, restricting short-term rentals in specific districts and prohibiting them in municipal housing. Budapest focused on regulating the taxation system without imposing further restrictions, while Prague only requires hosts to register for a license.

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<sup>31</sup> Wage needed to afford a one-bedroom apartment. Based on rent making up 30% of annual gross salary.

Explaining the disparity among the regulatory approaches in the three cities based on institutional structures and political-economic theories proves to be unsuccessful. The structure of the housing market suggests a higher dependency on rental apartments in Budapest than in Prague, yet the STR regulation is more lenient in Prague. Additionally, as STR platforms entered unregulated markets in all three cities, starting conditions do not explain the differences. Second, the Varieties of Capitalism framework seems to be failing, as both Czechia and Hungary operate similar mixed-market economies but approach STR regulations differently. Third, despite all cities being led by opposition parties in national politics, their regulatory outcomes vary, indicating that party political affiliations alone cannot elucidate these differences. Fourth, even though Vienna and Budapest are governed by mayors with similar social-democratic ideologies, their regulations differ significantly. Fifth, the severity of the housing crisis also does not align with regulatory stringency, with Budapest having the least affordable rents but a more extensive regulatory framework than Prague. Finally, the tourist dependency of these cities also does not offer a clear pattern, as Prague's lower and Budapest's higher tourism reliance do not justify their regulatory approaches.

The explanation offered here - inspired by scholarly work on Uber by Kathleen Thelen (2018) - integrates aspects of both political-economic and political rationales. I argue that the variation in the regulatory outcomes is triggered by distinct national political-economic structures refracting the "STR problem" into disputes over different issues. These distinct conflicts mobilize diverse stakeholders, influence their framing, dynamics of struggles, and potential political coalitions. All this variation ultimately shapes the policy resolutions, leading to divergent regulation approaches.

Prague was the scene of tension between traditional accommodation providers and the emergence of STR platforms. The dispute focused on perceived unfair competition and the impact on housing affordability. Grassroots movements and Mayor Zdeněk Hřib lobbied for regulation,

portraying STRs as a threat to the city's character, but the result stalled due to deficiency of higher political will, resulting in no specific STR regulations.

Budapest's regulatory landscape was characterized by tension between the government's goals of accommodating tourism and the opposition-led, timid district municipalities. At the heart of the dispute was the balance between the economic benefits and social consequences of unregulated STRs. Citizens' movements campaigned for restrictions, while the district municipalities were reluctant to impose any controls at all. However, higher level authorities have quickly introduced a new taxation system for short-term rental providers, signaling a compromise approach that addresses fiscal concerns without imposing strict operational restrictions.

Vienna illustrates a top-down policy that prioritizes the preservation of a decommodified housing stock. The conflict centered on city leaders' prioritization of long-term housing and fair competition over short-term rentals. The battles were particularly contentious over data disclosure and taxation, with both neighborhood leaders and STR platform companies expressing concerns about the new policy. Ultimately, the city council implemented the new policies, and the opposing actors also accepted the regulatory changes, exemplifying a top-down approach to managing housing needs and preserving the urban landscape.

In conclusion, the regulatory responses to short-term rental platforms in Central European cities reflect the complex interplay of local political, economic, and social factors. Each city's unique context and the diverse stakeholders shaped distinct regulatory outcomes, defying simple explanatory models. These cases emphasize the need for a nuanced understanding of urban policymaking in response to new market disruptions.



## 5 Conclusion and Outlook

Amidst a severe housing crisis in European cities, characterized by rapidly escalating property prices, there has been growing trend of residential properties being converted into short-term rentals, facilitated by online platforms such as Airbnb and Booking.com. This thesis examines the various approaches to short-term rental regulation and observes the influence of political actors on the divergent responses. The objective of this study is to comparatively examine the regulatory reactions of European cities for a disruption of housing policy, a fundamental pillar of social welfare according to Beveridge. Through the establishment of a novel typology of short-term rental regulation approaches and an investigation of the political dynamics shaping these policies, this thesis unravels the complex political and regulatory dynamics of the evolving landscape of European urban housing.

While existing literature presents a multifaceted discourse on short-term rentals, encompassing economic potential, social challenges, regulatory landscapes, and political dynamics, it often focuses on single cases or on tourist hubs. This thesis expands beyond the scope of previous studies by examining regulatory trends in large European cities with predominantly residential roles and limited tourism dependency. Consequently, this research provides a more comprehensive picture of how short-term rentals affect the housing markets of “average” European cities.

The findings of this research result in a nuanced understanding of the dynamics shaping STR regulations in European cities. First, the thesis delved into the multifaceted realm of STR regulations to uncover a spectrum of typical regulatory methods. The identification of key dimensions of STR regulation, underpinned by statistical analyses, led to the categorization of distinct regulatory types. Through the analysis of the regulatory frameworks of 11 cities, I delineated five distinct regulatory approaches. Subsequently, I distilled this typology into three overarching categories by examining the interplay between various regulatory measures and market dynamics. These final categories encapsulate three distinct approaches to STR regulation: *Long-Term Oriented*, prioritizing residents' housing conditions; *Tourism Oriented*, accommodating tourist activity; and *Laissez-Faire*, denying the regulatory responsibility of the state. This novel typology provides a clear framework to understand and compare the regulatory approaches of different cities, thus confirming the first hypothesis (H1).

Second, the study delved into the varying regulatory landscapes of short-term rentals across European cities, focusing on those with differing regulatory approaches. The case study analyzed three Central European cities: Vienna, which enacted stringent, long-term oriented regulations; Budapest, which prioritizes taxation while accommodating tourism; and Prague, which has no specific STR regulation. The research uncovered that institutional disparities alone, such as partisan politics or initial housing conditions, do not fully explain the differences in regulatory approaches. Instead, it revealed a nuanced interplay of political-economic structures and coalition formations among stakeholders, illustrating how national contexts refract the arrival of STR platforms into disputes over various "regulatory flashpoints". The variety of the different policy issues triggered mobilizes diverse interest groups and policymakers, influencing the framing and dynamics of regulatory struggles. The regulatory flashpoint approach is supported by an extensive media analysis, which sheds light on the severity of different regulatory aspects in the three cities, that reflects the framing used by political actors. Building upon these findings, I delved into the interplay among political actors in all three cities. In Prague, tensions between traditional

accommodation providers and STR platforms focused on fair competition and housing affordability, mobilizing grassroots movements and the incumbent mayor, yet the regulatory landscape remained ambiguous without specific STR rules. Budapest's regulatory landscape was characterized by tensions between the government's tourism objectives and opposition-led district municipalities. The governments' demands were achieved through the implementation of a taxation system that prioritized state revenue, while the districts' aims of reducing social consequences were politically undermined. Finally, Vienna adopted a top-down approach prioritizing the preservation of a decommodified housing stock and urban preservation, led by municipality officials. In essence, the unique circumstances of each city, alongside the involvement of diverse stakeholders, resulted in distinct regulatory outcomes. This underscores the need for a nuanced approach to urban policymaking in response to emerging market disruptions. The regulatory responses observed in Central European cities highlight the intricate interplay of local political, economic, and social dynamics, confirming the second hypothesis of the thesis (H2).

It is important to acknowledge the limitations of this research. First, the focus on European cities, with specific population sizes and tourist activity levels, may not fully capture the broader spectrum of short-term rental regulatory dynamics and political influences present in cities with differing demographic and tourism profiles. Moreover, legal expertise constraints limited the study's ability to examine significant STR policy aspects such as taxation in depth. Finally, the case study only employed a media analysis for the purpose of understanding the public discourse, which could potentially introduce a bias into the findings.

Future studies could include further quantitative analysis which would improve the robustness of the typology. Firstly, the analysis could be expanded to a broader range of cities in terms of population to allow quantitative comparisons. Including cities with population close to one million such as Glasgow and Krakow that would allow distilling the differences or the similarities within the national regulatory contexts of the UK and Poland respectively. Secondly,

quantifiable data might emerge from an in-depth investigation of the economic implications of hosting on platforms like Airbnb. In particular, examining taxation policy, such as the uniform annual tax rate active in Budapest (Balázs 2023), could reveal a defining aspect of the city's attitude towards STRs. Analyzing these fiscal policies could offer quantifiable insights into the nuances of local STR regulations, which is critical for a comprehensive understanding of the regulatory impact in diverse urban environments.

Further research could also improve the analysis of the influence of political actors on policy outcomes. First, subsequent work could analyze the political dynamics across all cities in typology, seeking to find patterns in their strategies and actions. Second, an analysis comparing the patterns identified in this research to well-studied regulatory frameworks, such as those of Amsterdam and Barcelona, should prove to be insightful. Third, in order to improve our understanding, future research should further develop the media analyses presented here. It should delve into the importance of different actors and examine their influence and agenda-setting capabilities. Fourth, the mechanisms driving policy change can be elucidated by exploring additional concepts of social movement theory, particularly the organization of the actors involved and their repertoires of action. Finally, an analysis of the differences between further institutional dimensions would allow for the elimination of alternative explanations, thus establishing a clearer causal connection between the “regulatory flashpoint” theory and the divergent regulatory outcomes. The additional dimensions could include the economic relations between the capital cities and the state, such as the regulations influencing the distribution of income such as (non-short-term rental related) taxes, fees, budgetary funds. Observing such associations might explain some of the constraints and opportunities of reliance and dependence on tourism and short-term rentals in some cities.

In conclusion, this thesis significantly advances our understanding of short-term rental regulation amidst the housing crisis in European cities. It presents a novel typology and examines

the intricate political dynamics that shape regulatory outcomes. By moving beyond the customary focus on tourist hubs and single cases, this research provides a comprehensive analysis of STR regulation in predominantly residential cities, offering valuable insights into how different urban environments address the challenges posed by platforms like Airbnb and Booking.com. The identification of three overarching regulatory categories—Long-Term Oriented, Tourism Oriented, and Laissez-Faire—serves as a crucial framework for policymakers, highlighting the diverse strategies that cities can adopt based on their unique socio-economic contexts. This study's findings are particularly relevant for cities that remain unregulated, offering them empirical evidence and strategic insights to guide the development of effective regulatory frameworks. Furthermore, civil groups advocating for stricter regulations can utilize these insights to better understand the political and economic levers that influence policy outcomes, thereby enhancing their advocacy efforts. Ultimately, this thesis underscores the necessity for nuanced, context-sensitive approaches to urban policy-making in response to the disruptive impact of short-term rentals on housing markets.

## 6 Appendix

## Appendix A - Raw data of regulatory measures in selected European cities

Sources in Appendix D

City	Necessity of license	<i>How much does the license acquisition costs?</i>	<i>How much tax is levied on STRs?</i>
		License fee	Occupancy tax
<b>Sofia</b>	yes, takes roughly one month	10.18	EUR 0.2
<b>Bucharest</b>	none	0	0.5% of the room rate per night
<b>Belgrade</b>	none	none	EUR 1.4
<b>Birmingham</b>	none	none	0
<b>Warsaw</b>	none	none	EUR 0,51
<b>Prague</b>	none	none	EUR 2.05
<b>Cologne</b>	yes for above 90 days/year	none	5% of the net room rate per night
<b>Vienna</b>	yes when done professionally	none	3.2 % of the net room rate per night
<b>Hamburg</b>	yes, different for under 8 weeks and above 8 weeks per year	free under 54 days, 150 euro for above	2.5-3% of the net room rate per night
<b>Budapest</b>	yes	HUF 3000	4% of the net room rate per night
<b>Milan</b>	yes, called CIR	none	EUR 3
<b>Vienna 2024</b>	yes	none	3.2 % of the net room rate per night

	Are STRs prohibited in certain areas?	Are STRS limited to certain portion of the flat?	Are STR operations limited to certain amount of days per year?
City	Zoning	Restriction in the area of the flat	Restriction of days
<b>Sofia</b>	none	none	none
<b>Bucharest</b>	none	none	none
<b>Belgrade</b>	none	none	none
<b>Birmingham</b>	none	none	none
<b>Warsaw</b>	none	none	none
<b>Prague</b>	none	none	none
<b>Cologne</b>	none	for more than 90 day per year it is prohibited to use more than 50% of the floor space of any residential unit	Rentals on secondary homes are limited to 90 days annually
<b>Vienna</b>	STRs in municipal buildings it is not permitted	none	90 days per year in residential zones (Wohnzonen) These are basically district 1-9 and 20.
<b>Hamburg</b>	none	none	none
<b>Budapest</b>	none	none	90 days a year in residential zones
<b>Milan</b>	none	none	54 days for primary residency, 90 days for secondary
<b>Vienna 2024</b>	STRs in municipal buildings it is not permitted	none	90 days per year in the whole city



## Appendix B - Sources for tourist nights and population in European cities.

Sources accessed on 01/30/2024

City	Nights spent (2022)	Population
<b>Sofia</b>	<a href="https://www.euronews.com/travel/2023/05/21/berlin-paris-madrid-which-european-city-has-the-busiest-hotels">https://www.euronews.com/travel/2023/05/21/berlin-paris-madrid-which-european-city-has-the-busiest-hotels</a>	<a href="https://nsi.bg/en/content/2975/population-districts-municipalities-place-residence-and-sex">https://nsi.bg/en/content/2975/population-districts-municipalities-place-residence-and-sex</a>
<b>Bucharest</b>	<a href="https://www.statista.com/statistics/1253784/romania-overnight-stays-in-hotels-in-bucharest/">https://www.statista.com/statistics/1253784/romania-overnight-stays-in-hotels-in-bucharest/</a>	<a href="http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table">http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table</a>
<b>Belgrade</b>	<a href="https://www.greeneuropeanjournal.eu/steering-tourism-to-a-greener-course-in-belgrade/">https://www.greeneuropeanjournal.eu/steering-tourism-to-a-greener-course-in-belgrade/</a>	<a href="https://publikacije.stat.gov.rs/G2023/Pdf/G20234001.pdf">https://publikacije.stat.gov.rs/G2023/Pdf/G20234001.pdf</a>
<b>Birmingham</b>	<a href="https://bhamnow.com/2023/06/13/breaking-birmingham-tourism-generated-a-record-2-4b-in-2022/">https://bhamnow.com/2023/06/13/breaking-birmingham-tourism-generated-a-record-2-4b-in-2022/</a>	<a href="https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/adminbasedpopulationestimatesforlocalauthoritiesinenglandandwales">https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/adminbasedpopulationestimatesforlocalauthoritiesinenglandandwales</a>
<b>Warsaw</b>	<a href="https://warszawa.stat.gov.pl/download/gfx/warszawa/en/defaultaktualnosci/807/14/9/1/turystyka_waw_2022_eng.pdf">https://warszawa.stat.gov.pl/download/gfx/warszawa/en/defaultaktualnosci/807/14/9/1/turystyka_waw_2022_eng.pdf</a>	<a href="https://stat.gov.pl/en/topics/population/population/population-size-and-structure-and-vital-statistics-in-poland-by-territorial-division-as-of-30-june,3,34.html">https://stat.gov.pl/en/topics/population/population/population-size-and-structure-and-vital-statistics-in-poland-by-territorial-division-as-of-30-june,3,34.html</a>
<b>Prague</b>	<a href="https://www.statista.com/statistics/738915/overnight-guest-arrivals-in-prague/">https://www.statista.com/statistics/738915/overnight-guest-arrivals-in-prague/</a>	<a href="https://www.czso.cz/csu/czso/population-of-municipalities-1-january-2023">https://www.czso.cz/csu/czso/population-of-municipalities-1-january-2023</a>
<b>Cologne</b>	<a href="https://www.statista.com/statistics/568861/arrivals-overnight-stays-cologne/">https://www.statista.com/statistics/568861/arrivals-overnight-stays-cologne/</a>	<a href="https://www.destatis.de/DE/Themen/Laender-Regionen/Regionales/Gemeindeverzeichnis/Administrativ/05-staedte.html">https://www.destatis.de/DE/Themen/Laender-Regionen/Regionales/Gemeindeverzeichnis/Administrativ/05-staedte.html</a>
<b>Vienna</b>	<a href="https://b2b.wien.info/en/newsroom/press-service/annual-result-2022-443512">https://b2b.wien.info/en/newsroom/press-service/annual-result-2022-443512</a>	<a href="https://www.statistik.at/en/statistics/population-and-society/population/population-stock/population-at-beginning-of-year/quarter">https://www.statistik.at/en/statistics/population-and-society/population/population-stock/population-at-beginning-of-year/quarter</a>
<b>Hamburg</b>	<a href="https://www.statista.com/statistics/572248/tourist-overnight-stays-hamburg-germany/">https://www.statista.com/statistics/572248/tourist-overnight-stays-hamburg-germany/</a>	<a href="https://www.destatis.de/DE/Themen/Laender-Regionen/Regionales/Gemeindeverzeichnis/Administrativ/05-staedte.html">https://www.destatis.de/DE/Themen/Laender-Regionen/Regionales/Gemeindeverzeichnis/Administrativ/05-staedte.html</a>
<b>Budapest</b>	<a href="https://turizmus.com/szabalyozas-orszagmarketing/a-2019-es-rekordevrol-budapesten-a-maganszallashelyek-tukreben-1170190">https://turizmus.com/szabalyozas-orszagmarketing/a-2019-es-rekordevrol-budapesten-a-maganszallashelyek-tukreben-1170190</a>	<a href="https://www.ksh.hu/stadat_files/nep/en/nep0037.html">https://www.ksh.hu/stadat_files/nep/en/nep0037.html</a>
<b>Milan</b>	<a href="https://an-hotels.com/en/boom-of-tourism-in-milan">https://an-hotels.com/en/boom-of-tourism-in-milan</a>	<a href="http://dati.istat.it/Index.aspx?QueryId=19101&amp;lang=en">http://dati.istat.it/Index.aspx?QueryId=19101&amp;lang=en</a>
<b>Munich</b>	<a href="https://gowithguide.com/blog/tourism-in-munich-statistics-2023-the-ultimate-guide-5530">https://gowithguide.com/blog/tourism-in-munich-statistics-2023-the-ultimate-guide-5530</a>	<a href="https://www.destatis.de/DE/Themen/Laender-Regionen/Regionales/Gemeindeverzeichnis/Administrativ/05-staedte.html">https://www.destatis.de/DE/Themen/Laender-Regionen/Regionales/Gemeindeverzeichnis/Administrativ/05-staedte.html</a>
<b>Barcelona</b>	<a href="https://www.statista.com/statistics/314340/leading-european-city-tourism-destinations-by-number-of-bednights/">https://www.statista.com/statistics/314340/leading-european-city-tourism-destinations-by-number-of-bednights/</a>	<a href="https://www.ine.es/dynt3/inebase/en/index.htm?padre=525">https://www.ine.es/dynt3/inebase/en/index.htm?padre=525</a>
<b>Paris</b>	<a href="https://www.statista.com/statistics/314340/leading-european-city-tourism-destinations-by-number-of-bednights/">https://www.statista.com/statistics/314340/leading-european-city-tourism-destinations-by-number-of-bednights/</a>	<a href="https://www.insee.fr/fr/statistiques/1893198">https://www.insee.fr/fr/statistiques/1893198</a>

## **Appendix C - Calculations of regulatory dimensions**

Sources in Appendix D

City	Calculation						F&A = A+B+C <i>(Financial and Administrative Burden, Necessity of License, License fee, Occupancy)</i>	SoL = D*E*F <i>(Strength of Restrictions (Zoning, Flat area, Days))</i>	F&A category  0 → low 0 < x < 1 → moderate 1 ≤ → high	SoL category  1 → low 0.25 < x < 1 → moderate 0.25 ≥ → high
	A Necessity of license	B License fee	C Occupancy tax	D Zoning	E Restriction in the area of the flat	F Restriction of days				
<b>Sofia</b>	1	0	0.034305	1	1	1	1.034305	1	high	low
<b>Bucharest</b>	0	0	0.052959	1	1	1	0.052959	1	moderate	low
<b>Birmingham</b>	0	0	0	1	1	1	0	1	low	low
<b>Warsaw</b>	0	0	0.087479	1	1	1	0.087479	1	moderate	low
<b>Prague</b>	0	0	0.351629	1	1	1	0.351629	1	moderate	low
<b>Cologne</b>	1	0	1	1	0.5	0.598424	2	0.299212	high	moderate
<b>Vienna</b>	1	0	0.649879	0.76	1	0.6	1.649880	0.456	high	moderate
<b>Hamburg</b>	1	1	0.579245	1	1	0.200515	2.579245	0.200515	high	high
<b>Budapest</b>	1	0.0524	0.600343	1	1	1	1.652743	1	high	low
<b>Milan</b>	1	0	0.51458	1	1	1	1.51458	1	high	low
<b>Vienna 2024</b>	1	0	0.64988	1	1	0.246575	1.64988	0.246575	high	high

## Appendix D - Sources of regulatory data of included cities

Sources accessed on 01/30/2024

City	Sources
<b>Sofia</b>	<a href="https://www.jstor.org/stable/26554736">https://www.jstor.org/stable/26554736</a> <a href="https://www.airbnb.com/help/article/2433">https://www.airbnb.com/help/article/2433</a>
<b>Bucharest</b>	<a href="https://assets.airbnb.com/help/Airbnb-Tax-Guide-2023-Romania.pdf">https://assets.airbnb.com/help/Airbnb-Tax-Guide-2023-Romania.pdf</a> <a href="https://www.airbnb.com/help/article/2454">https://www.airbnb.com/help/article/2454</a> <a href="https://www.travelmasterhotels.com/Resources/TRAVELMASTER/Pages/CityTaxes.pdf">https://www.travelmasterhotels.com/Resources/TRAVELMASTER/Pages/CityTaxes.pdf</a>
<b>Birmingham</b>	<a href="https://keynest.com/blog/understanding-airbnb-regulations-in-birmingham">https://keynest.com/blog/understanding-airbnb-regulations-in-birmingham</a> <a href="https://www.birmingham.gov.uk/info/20175/private_housing/477/private_landlords/2">https://www.birmingham.gov.uk/info/20175/private_housing/477/private_landlords/2</a> <a href="https://www.lgcplus.com/finance/exclusive-fresh-push-by-birmingham-to-levy-first-english-tourism-tax-16-01-2020/">https://www.lgcplus.com/finance/exclusive-fresh-push-by-birmingham-to-levy-first-english-tourism-tax-16-01-2020/</a>
<b>Warsaw</b>	<a href="https://www.airbnb.com/help/article/2452">https://www.airbnb.com/help/article/2452</a> <a href="https://www.delab.uw.edu.pl/en/airbnb-in-warsaw/">https://www.delab.uw.edu.pl/en/airbnb-in-warsaw/</a>
<b>Prague</b>	<a href="https://miastojestnasze.org/praga-przeciwko-airbnb/">https://miastojestnasze.org/praga-przeciwko-airbnb/</a> <a href="https://www.praha.eu/jnp/cz/potrebuji_resit/zivotni_situace/poplatky/local_fee_for_spa_or_recreational_stay.html">https://www.praha.eu/jnp/cz/potrebuji_resit/zivotni_situace/poplatky/local_fee_for_spa_or_recreational_stay.html</a> <a href="https://assets.airbnb.com/help/Airbnb-Tax-Guide-2023-Czech-Republic.pdf">https://assets.airbnb.com/help/Airbnb-Tax-Guide-2023-Czech-Republic.pdf</a> <a href="https://www.simplyoffice.cz/clanky/pronajem-bytu-a-dane-co-potrebujete-vedet-pri-kratkodobem-pronajmu">https://www.simplyoffice.cz/clanky/pronajem-bytu-a-dane-co-potrebujete-vedet-pri-kratkodobem-pronajmu</a>
<b>Cologne</b>	<a href="https://www.airbnb.com/help/article/852">https://www.airbnb.com/help/article/852</a> <a href="https://airbtics.com/airbnb-regulation-in-koln/">https://airbtics.com/airbnb-regulation-in-koln/</a>
<b>Vienna</b>	<a href="https://housinganywhere.com/de/Wien-%C3%96sterreich/kurzzeitvermietung-wien">https://housinganywhere.com/de/Wien-%C3%96sterreich/kurzzeitvermietung-wien</a> <a href="https://www.wien.gv.at/wirtschaft/standort/share-economy/privat-vermieten.html#wohnzonen">https://www.wien.gv.at/wirtschaft/standort/share-economy/privat-vermieten.html#wohnzonen</a>
<b>Hamburg</b>	<a href="https://www.airbnb.com/help/article/856">https://www.airbnb.com/help/article/856</a> <a href="https://news.airbnb.com/282288/">https://news.airbnb.com/282288/</a>
<b>Budapest</b>	<a href="https://www.investigate-europe.eu/posts/this-is-why-budapest-remains-europes-unregulated-airbnb-paradise">https://www.investigate-europe.eu/posts/this-is-why-budapest-remains-europes-unregulated-airbnb-paradise</a>
<b>Milan</b>	<a href="https://www.airbnb.com/help/article/2026">https://www.airbnb.com/help/article/2026</a> <a href="https://www.airbnb.com/help/article/1394">https://www.airbnb.com/help/article/1394</a> <a href="https://blog.keycafe.com/understanding-short-term-rentals-regulations-in-italy/">https://blog.keycafe.com/understanding-short-term-rentals-regulations-in-italy/</a> <a href="https://splawfirm.eu/rental-house-italy/guide-short-term-rentals-regulations-italy/">https://splawfirm.eu/rental-house-italy/guide-short-term-rentals-regulations-italy/</a>
<b>Vienna 2024</b>	<a href="https://www.derstandard.at/story/3000000182984/wohnungen-duerfen-in-wien-nur-noch-90-tage-an-touristen-vermietet-werden">https://www.derstandard.at/story/3000000182984/wohnungen-duerfen-in-wien-nur-noch-90-tage-an-touristen-vermietet-werden</a>
<b>Market scores in all cities</b>	<a href="https://app.airdna.co/data/at?tab=markets">https://app.airdna.co/data/at?tab=markets</a>
<b>STR VAT in all cities</b>	<a href="https://www.wko.at/oe/tourismus-freizeitwirtschaft/gastronomie/hotrec-vat-table.pdf">https://www.wko.at/oe/tourismus-freizeitwirtschaft/gastronomie/hotrec-vat-table.pdf</a>

## Appendix E - Calculations

### *Calculation 1. Restriction of days in Cologne*

Based on the facts:

- a) Rentals in secondary homes are limited to 90 days annually (Airbnb, n.d.-a)
- b) In Germany as a whole, about 46.7% of the population lived in an owner-occupied dwelling as of 2022 (Eurostat 2023a)

we can calculate the estimate of the limitations of days in Cologne.

	primary residency	secondary residency
proportion of all dwellings	46.70%	53.30%
max days allowed	365	90
proportion of the year allowed	100.00%	24.66%

Restriction of days =

primary residency share \* primary residency limitation +  
secondary residency share \* secondary residency limitation

Restriction of days =  $0.467*1 + 1.533*0.2466 = 59.84\%$

### *Calculation 2. Restriction of days in Hamburg*

Based on the facts:

- a) Rentals in secondary homes are limited to 54 days annually for primary residency, 90 days annually for secondary (Airbnb, n.d.-b)
- b) In Germany as a whole, about 46.7% of the population lived in an owner-occupied dwelling as of 2022 (Eurostat 2023a)

we can calculate the estimate of the limitations of days in Cologne.

	primary residency	secondary residency
proportion of all dwellings	46.70%	53.30%
max days allowed	54	90
proportion of the year allowed	14.79%	24.66%

Restriction of days =

primary residency share \* primary residency limitation +  
secondary residency share \* secondary residency limitation

Restriction of days =  $0.467*0.1479 + 1.533*0.2466 = 20.05\%$

### Calculation 3. Zoning and Restriction of days in Vienna

Based on the facts:

- STRs are limited for 90 days a year in residential zones (Wohnzonen) or municipal dwellings or dwelling (partially) funded by the municipality (Stadt Wien, n.d.-d).
- Close to sixty percent of its inhabitants live in municipal housing estates or in dwellings subsidized by the City of Vienna (Stadt Wien, n.d.-c).
- A bit simplified, but residential zones can be described as districts 1-9 and 20 (Stadt Wien, n.d.-b; Schwien 2023).
- Calculated based on official numbers, the proportion of the flats in districts 1-9 and 20 is 28.4% of all flats in Vienna (Stadt Wien, n.d.-a)

dwellings in residential zones	municipal dwellings
0.28	0.6

Estimate of proportion of affected dwellings according to a) =  
dwellings in residential zones + municipal dwellings – municipal dwellings in residential zones  
 $= 0.28 + 0.6 - 0.28 \cdot 0.6 = 0.71$

	Affected dwellings	Not affected dwellings
proportion of nr of dwellings	0.71	0.29
days allowed per year for STR	90	365
portion of the year allowed	0.246575342	1

Restriction of days =

proportion of affected dwellings \* days allowed in affected dwellings +  
proportion of not affected dwellings \* days allowed in not affected dwellings

Restriction of days =  $0.71 \cdot 0.247 + 0.29 \cdot 1 = 0.46$

To have separate factors for zoning and restriction of days this value was separated into two values: 0.76 and 0.6 respectively. These values have 0.46 as their product that is significant at the calculation of STR friendliness.

## Appendix F - Prompts sent to the API of OpenAI to identify different flashpoints

Position	Frame	ML Prompt
Accommodating STR	Boosting tourism	Does this article mention Airbnb (or Booking.com or short-term rentals) <b>boosting tourism</b> ?
	Economic opportunity	Does this article mention Airbnb (or short-term rentals) <b>creating economic opportunity or income generation</b> ?
	Positive competition	Does this article mention Airbnb (or short-term rentals) <b>diversifying of tourism offerings and creating competition</b> ?
Restricting STR	Licensing	Does this article mention the issue of <b>regulatory compliance and licensing</b> with regards to Airbnb (or short-term rentals)?
	Negative competition	Does this article mention the issue of <b>existing hotel industry or fair competition</b> with regards to Airbnb (or short-term rentals)?
	Disturbance of locals	Does this article mention the issue of <b>disturbance of locals (littering, noise, etc.)</b> with regards to Airbnb (or short-term rentals)?
	Taxation	Does this article mention the issue of <b>taxation</b> with regards to Airbnb (or short-term rentals)?
	Long-term housing	Does this article mention the issue of <b>long-term housing prices</b> with regards to Airbnb (or short-term rentals)?
	Gentrification	Does this article mention the issue of change in <b>neighborhood character, community cohesion or displacement of locals</b> with regards to Airbnb (or short-term rentals)?

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