

EXPLORING THE REASONS BEHIND THE HOUSING MARKET PRICE SURGE IN THE
CZECH REPUBLIC DURING 2019-2021

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Abstract: Using a review of scholarly literature, industry reports, and popular media sources, the paper makes an exploratory analysis of the possible factors behind the significant price surge in the housing market in the Czech Republic during 2019-2021 (inclusive). Despite using the case study format and limited methods, the main findings provide a strong suggestion that the commonly presented factor of long delays in obtaining a building permit and connected bureaucratic obstacles in housing construction is exaggerated in its impact on the prices. Instead, the paper proposes the increase in investment purchases of housing as the likely factor that contributed to the surge the most.

Introduction

Housing is one of the basic human necessities. As such, its accessibility and affordability have far-reaching consequences both on the level of individuals and society. Therefore, they are often of interest to policymakers and researchers. While housing markets provide a service that is not changing significantly with time, and while they have reasonably stable supply and demand, they can be surprisingly volatile. Such volatilities are often a result of changes in the politico-economical systems, economy's performance, or financial crises, and these causes can usually be easily traced.

However, the significant increase in the prices of housing in the Czech Republic in the past few years (especially 2019-2021) has no such simple and apparent explanation. There is no academic research focusing on this price surge. Industry reports and popular media sources have tried to explain the rapid and substantial recent price increase. However, their proposed explanations often focus on just one possible cause, and their conclusions often contradict available data. A comprehensive analysis and thorough academic research that would identify the causes of the price surge is needed. This paper does not try to be one, as the research methods used are severely limiting in providing conclusive results. However, it attempts to be a basis for such analysis by identifying and exploratory assessing the possible causes of the current situation in the housing market in the Czech Republic.

The methodology to achieve this is based on first identifying the likely factors from a broad literature review, including industry reports and popular media sources. The identified likely factors are then assessed in a basic and exploratory way – mainly by trend comparisons and comparisons across comparable regions and time periods using secondary data and further literature review.

The findings show that the often-mentioned problem with excessive bureaucracy connected to developing housing projects and long waiting periods for building permits are unlikely to be the sole and primary causes of the recent price development. They also show that there have not been any swift and significant changes in the other proposed factors, with the exception of dwelling purchases for investment reasons. With the price increase in the regions lagging behind the increase in Prague, this suggests that the leading cause could be the purchases of housing for investment purposes and the resultant autocorrelation of prices in the housing market. Of course, this does not rule out the possibility that many of the other discussed factors could together contribute to the significant price increase despite there not being any substantial changes in any single one of them. The same is true for other potential factors not explored in this analysis.

This paper attempts to give a short summary of previous work on housing price determinants in general, the industry reports, and the popular media sources. From those, it identifies the possible factors. It then constructs a hypothesis for each of the factors and explains the methodology. An analysis of the literature and data from secondary sources follows for each factor. A discussion on implications, limitations, and future research finalizes the paper.

Situation Overview

To understand the current situation in the housing market in the Czech Republic and analyze and assess its causes, it is helpful to take a quick look at the development of the market in the past few decades. Before the revolution in 1989 and the transition to capitalism, essentially all flats were owned by the state or by the state-ran companies. People were awarded the "right to use a given flat" and paid low regulated rent. The "user right" was transferable and somewhat

closer to ownership than traditional tenancy (Lux & Mikeszova, 2012). Still, the question of what to do with the state-owned housing stock after the revolution remained.

The Czechoslovak Republic decided for restitution in kind. That is, the original owner of the dwelling, or their heirs, were returned the property. Its current "users" and their rights, however, were unaffected. They were allowed to stay in the tenancy and paid regulated rent. The state (and later the municipalities when the government transferred the ownership to them) rented out the remaining housing. However, the rights of the tenants and the conditions of these two types of renting were significantly different. For example, when the municipalities now owning the previously state-owned flats decided to continue their privatization, the current tenants had a right to buy the apartments for substantially lower prices (Lux & Mikeszova, 2012). Also, unregulated rent was allowed in newly constructed or vacated dwellings around this time. Overall, the three types of tenancies (regulated in restituted flats, regulated in state-/municipality-owned flats, and the private *unregulated* in the newly built flats) differed so significantly that it is often recognized that this furthered damaged the renting market and created a prevailing antipathy to renting (Lux et al., 2016). Given the relatively short time since those events, they likely still affect today's market.

While the early 90s were mainly about finishing the restitutions and introducing the first changes to the regulated rents, the end of the decade and the following years were marked by a price boom in the housing market. In anticipation of significant changes to the economy and the housing market after joining the EU (scheduled for 2004), the House Price Index rose by 64%, with the prices of flats close to doubling (Global Property Guide, 2021). In addition to anticipating greater demand thanks to access of the EU citizens to the Czech market, there was also an anticipated increase in future prices due to EU-entry-related changes to the VAT

(Indrová, 2012). The resultant pace and magnitude of the price rise were only comparable to the current situation and caused havoc on the market.

Unfortunately for those who decided to invest in housing, the anticipations were not fulfilled. Despite the Czech Republic joining the EU, the block's citizens were restricted from buying property in the country during the "transition period" that followed. Consequently, the market stagnated during 2004-2005 (Lux & Sunega, 2010).

Following this period of stagnation, there was a short period of another significant price increase during 2006-2008 (Global Property Guide, 2021). The reason for it was another anticipated change to VAT for the newly finished dwellings from 5% to 19% at the beginning of 2008 (*Změny v Oblasti DPH Od 1. 1. 2008*, 2007, Indrová, 2012). Additionally, at the same time, the "transition period" also concluded, so all EU citizens could buy properties in the Czech Republic with the same rights as Czechs. The resultant price increase was not as significant as before, but the HPI still rose by more than 27% in 2007 alone (Global Property Guide, 2021).

The price increase was ended by the beginning of the world financial crisis at the end of the decade. While the price drops were not as drastic as in the United States, where the housing market (or rather the mortgage market) was at the origins of the crisis, they were still not only significant but also the greatest in the short history of the Czech housing market (*Rok 2009 přinesl největší pokles realitního trhu v historii České republiky*, 2013).

Following this rare period of a price decrease, the market started to recover. At the beginning of 2014, the HPI was at 99.7 points (2015 = 100), and it started steadily growing up to 141.1 points at the end of 2018. There was an increasing trend in the growth rate, but with the exception of the first half of 2017, it was relatively stable (Czech Statistical Office, 2008–2021).

The recovery of the market is followed by the period of interest of this paper – i.e., the recent years 2019-2021 (inclusive). At the end of 2019, the HPI (Czech Statistical Office, 2008–2021) reached 153.7; at the end of 2020, it was at 167.5, and it closed the period of interest at the end of 2021 with a value of 210.7. In other words, it rose by almost 70 points in just three years! What almost seems like a methodology problem with the index is observable across all thinkable methods of tracking housing prices. The surge in the prices was unprecedented in its magnitude and especially in its pace since the country's transition to the market economy. Another striking change about the price surge was that the housing prices were increasing across the Czech Republic – often even suppressing the rate of the price increase in Prague, where prices and their increases have been historically higher than in the rest of the country (Cadil, 2009).

Literature Review

While there is an enormous amount of research on housing markets and their determinants worldwide and in the Czech Republic, very little work focuses on the recent surge in the prices in the Czech housing market. This is likely caused by the fact that the trend of the sharp price increase is still continuing (Jakesova, 2022) and the relatively short time period since its start. Furthermore, most studies concerning the determinants of prices in the housing markets focus predominantly on the long-term development rather than on shocks such as the one observed in the Czech Republic. Therefore, this paper also uses industry reports and popular media sources, which often make their own analyses and cite researchers and industry experts, to identify the likely factors behind the price surge. However, scholarly research still provides significant and valuable insights about the 'common' factors responsible for changes in housing markets and their structures, and it is, therefore, worth looking into.

This paper, therefore, presents some of the often-considered price determinants across the literature and scholarly work. The factors that researchers typically find to be the price determinants of the housing markets can be divided into two major categories: the factors affecting the demand side and the factors affecting the supply side.

On the demand side, there is a general agreement that the population changes significantly contribute to the changes in prices (Cunha & Lobão, 2021). However, given the pace of the price surge in question and the relative stability of the Czech population, it is unlikely that there could have been any major changes in the population that could explain the recent development of the Czech housing market. It is a classic example of the abovementioned problem, with most studies focusing on the long-term development of the markets.

Among the more realistic factors for the situation in the Czech housing market that are usually considered in scholarly work are the changes in rent prices and mortgages availability. Especially the mortgage rates, which tend to be the most influential to the availability of the mortgages, are almost always part of the demand side models concerning housing markets (Égert & Mihaljek, 2007, Geng, 2018). The idea is that given that housing is one of the most expensive assets that households typically purchase, they often need external financing for doing so. Considering that, unlike in the Western world, mortgages were not available to Czech before the Velvet Revolution and are, therefore, a relatively new instrument (Lux & Mikeszova, 2012), this factor could be significant in the current development.

Similarly, as was already mentioned in the previous section, the rental market is also a relatively new thing in the Czech Republic and was severely regulated until recently (Kostelecký, 2000). Therefore, significant consideration of rent prices' effects on the whole housing market across the literature (Meen & Whitehead, 2020, Geng, 2018, Green &

Hendershott, 1993) means that the rent prices could be another significant factor that the paper is looking for.

On the market's supply side, researchers (Égert & Mihaljek, 2007, Andrlé, 2019, Geng, 2018, Cunha & Lobão, 2021) usually focus on the pace of construction of new housing units and the corresponding bureaucratic requirements. However, while there is significant evidence for this to be a particularly important factor (Égert & Mihaljek, 2007, Andrlé, 2019, Geng, 2018), some studies suggest that this factor is insignificant as a determinant of the housing market prices (Cunha & Lobão, 2021). Nevertheless, given the relatively short presence of the market economy in the Czech Republic, it is safer to assume that this could also be an important factor in the recent price surge. Lastly, price autocorrelation and a possibility of a price bubble in the housing markets are sometimes suggested (Cadil, 2009).

While lacking the depth of academic work, industry reports are essential in identifying factors possibly responsible for the housing price surge in the Czech Republic for several reasons. Namely, they work with the most up-to-date data, they are often co-authored by researchers focusing on the industry, and there is a strong economic incentive for their correctness.

The industry reports mostly confirm the presence of the factors suggested by the scholarly literature. Namely, ARTN 2021 report (ARTN.cz, 2022) identifies broad mortgages availability and low rates, together with long delays in obtaining building permits and connected bureaucratic obstacles in housing developments, as the factors responsible for the recent housing price surge. Deloitte's article from 2018 (Hána, 2018) about the future of housing prices in the Czech Republic states low mortgage rates, long delays in obtaining building permits, and connected bureaucratic obstacles in housing developments and rent prices are among the reasons

for a future expected price increase. Similarly, Hypotecni banka (2022), in its regular "HB Index Report," mentions the low mortgage rates as the main driver of the price increase.

However, in the case of industry reports, other factors are also suggested. Deloitte's article (Hána, 2018) also mentions changes in household structures, such as a greater divorce rate, fewer multigeneration households, or an extremely high homeownership rate. The more comprehensive and backward-looking ARTN 2021 report (ARTN.cz, 2022) adds significant investment purchases and the turning housing stock into short-term rentals like Airbnb.

Given the industry reports' authors' access to the fresh information and the fact that all these reports deal precisely with the current situation in the Czech Republic, the factors presented need to be further explored. This is especially the case for the factor of the problems on the supply side caused by the government regulations, as there might be a possible conflict of interest given that the industry reports are usually prepared by people and organizations directly connected to the developer market. With the discussions about the new construction laws, the possible conflict of interest might play an even greater role.

Finally, given the significant and justified interest of the public in the reasons behind the housing price surge, it is also important to cover the popular media sources. The benefit of doing so is that media can provide even more up-to-date information than industry reports, have their own analysis, and often present insights from the people in the industry and academia. In a way, they simply provide a distilled and more up-to-date version of the scholarly work and industry reports. The obvious downside is the general unreliability of popular media as a source. However, it is precisely the popular media that most of the population gets their information about the development of the situation from—this more than justifies considering factors suggested by them.

The popular media are full of articles describing the dire situation in the Czech housing market. The typical examples are information such as the need for 16 annual average wages for a Prague citizen to buy a 70 square meter flat (ČTK, 2021) or the Czech Republic having one of the fastest-growing housing prices in the EU (Hrstkova, 2021).

When it comes to the reasons for such development, most popular media usually report the problems with long delays in issuing building permits and other bureaucratic obstacles – with those being based on interviews with the representatives of the developer industry (Jansová, 2021). Interestingly, while the media often report that low mortgage rates boost the demand (ČTK, 2021a), they also inform the readers about the outlook that even higher mortgage rates will not stop the price growth (ČTK, 2021c, Hrabec, 2021). Another often mentioned factor in the price surge is the purchase of housing as an investment (Hrstkova, 2021) or for purposes of turning it into a short-term rental (Mahdalová, 2020).

These proposed factors from popular media are essentially identical to those found in the industry reports. That's hardly surprising, given that the sources of the press are usually people from the industry. However, it is important to cover them as well to complete the picture perceived by the public. Additionally, a review of the popular media is essential as any factors proposed there should be explored even if not mentioned in the academic research or industry reports.

Overall, with this literature review in mind, there are six major factors that could have likely caused the unprecedented surge in housing prices in the Czech Republic. These are surely not exclusive; however, they seem to be most important and most likely to have been responsible for the development. Namely, they are mortgages availability, rent prices, long delays in obtaining building permits & connected bureaucratic obstacles in housing development, changes

in the household structures, turning housing stock into short-term rentals, and investment purchases.

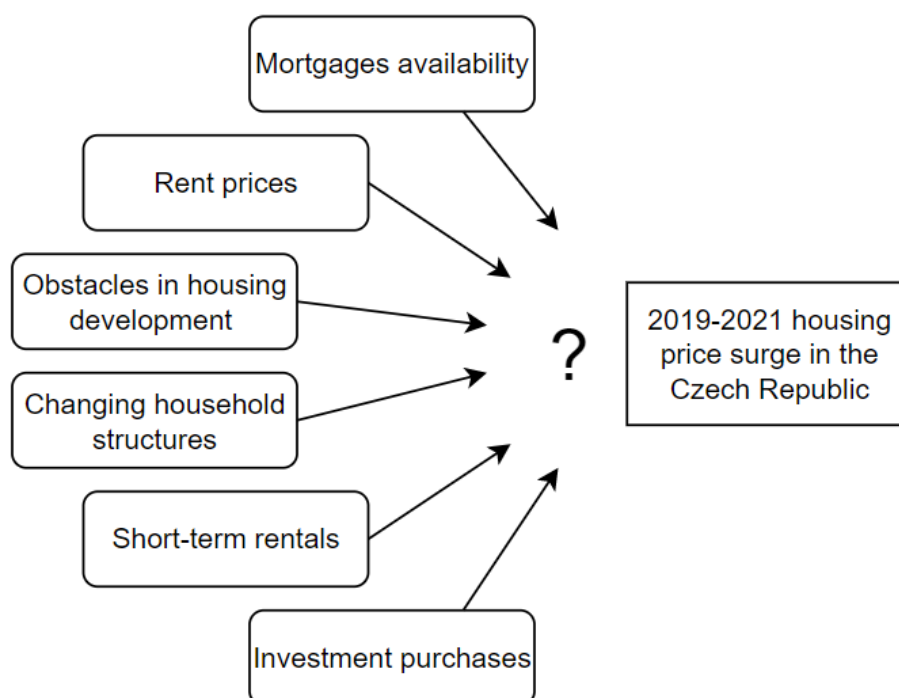


Figure 1: Identified possible factors behind the price surge

However, while the literature provides a list of possible factors that could have caused the housing price surge, there are still several problems with it. Namely, the industry reports and the popular media sources do not fully agree on the relative importance of the factors that caused the surge nor on a complete list. However, the even bigger problem is that there is no academic research that would focus on the recent development (note that all scholarly sources in the Literature review provided only generally accepted price determinants in typical market developments). Therefore, there is no comprehensive analysis that would assess the actual contribution of the factors suggested by industry and media personas using scientific methods.

As already mentioned, this paper does not attempt to be one. It merely tries to perform some exploratory analysis using case study methods and shed at least some light on the proposed factors. As such, it provides a baseline for further, more thorough research.

Theory and hypothesis

All the possible factors for exploration were chosen from the available literature. There were no significant suggestions against their effect on the price for any of them. It is, therefore, logical for each of the factors to assume that it was significant for the price surge as the hypothesis. The paper, thus, now presents some underlying theory for each of the factors and the expected observation assuming the hypothesis to be true for each of the factors individually.

The first factor that appears throughout all the sources and makes sense intuitively is the availability of mortgages. Mortgages are used as a means to compensate, complement, or replace disposable income as a financial source for housing purchases (Greenwald & Guren, 2021). As such, their availability directly affects the demand side of the housing market (Meen & Whitehead, 2020). In practice, there are effectively three main factors that affect the availability of the mortgages: the mortgage rates, the portion of the required down payment, and conditions for being approved for a mortgage (a proof of regular income, for example) (Banky.cz, n.d.). Together they are formed by the economy's state, government rules, and the banks' internal rules and strategies. General mortgage availability will be directly visible in the number of mortgages approved and their average amounts. However, it is also worth looking at the individual factors affecting their availability as this can affect the type of customers taking the mortgages and thus the housing market development. Namely, suppose the availability of the mortgages caused the housing price surge, as the hypothesis assumes. In that case, there should be a significant

lowering of the mortgage rates and easing of the other requirements before or at about the start of the period of interest.

Continuing with the factors identified in the scholarly work, rent prices are next. The tenancy is the major alternative to homeownership. Therefore, there is a direct relationship between the rent prices and the appeal of owning one's own home. Renting protects the tenants from the fluctuations in the housing prices, and conversely, higher rent prices make renting relatively less beneficial than taking a mortgage and buying a property (Sinai & Souleles, 2003). Therefore, should rent prices be a factor behind the recent price increase in the housing market in the Czech Republic, there should be a noticeable and significant increase in the prices that precedes and exceeds (in relative terms) the increase in the prices of dwellings.

The factor on the supply side of the housing market that was also present in all three kinds of sources used and highlighted by the industry reports and popular media is the long delays in obtaining building permits and the connected bureaucratic obstacles in housing development. The idea behind it is that even in the markets with extremely slow depreciation of goods, such as the housing market, a sufficient provision of new supply is essential for stable prices (Saylor Academy, 2012). Furthermore, new dwellings are essentially a different category of housing. Therefore, a supply shock in the category of new housing can significantly increase the prices within the category, which will create a positive price pressure across the market (Zahirovich-Herbert & Gibler, 2014). As many housing projects are sold even before finishing the developer project (Vejvodová, 2021), it is essential to consider both the housing units finished and the housing units the construction of which just began. A significant decrease in either of those could result in a sharp price increase (with some delay) and confirm the

hypothesis that the bureaucratic issues in the construction of new houses are the key factor behind the housing price surge.

An intuitively less likely factor that could be responsible for the price surge is the significant changes in the structure of households. The changes proposed in the literature include more divorces or the end of multigeneration households. Such changes affect the average household size and thus can create a positive pressure on demand which in turn increases prices. Such development has been observed in various parts of the world over the past *centuries* (Salcedo et al., 2009). However, since the period of interest is only three years long, it seems unlikely that any significant change in the household structure should occur this rapidly. To analyze them anyway, however, the paper focuses on the changes in the average household size. If there were any rapid changes in the structure of households that would affect the housing prices, they should manifest themselves through changes to the average household size.

The second possible factor on the supply side is the rise of short-term rental services such as Airbnb. With the success of such services in the Czech Republic, many property owners transformed their long-term rental units into short-term rentals (Mahdalová, 2020). This is a trend that is observed worldwide, particularly in attractive tourist destinations. Doing so, however, increases the prices on the housing market as the previous tenants need to find new tenancy or buy a home. Even in the case when the unit is not occupied at the exact moment of the change, turning it into short-term rentals decreases the supply in either the rental or housing market (Oskam, 2019). If this was among the significant factors behind the housing price increase, there should be an observable increasing trend in the number of housing units used for this purpose. Furthermore, this trend should be observable throughout the country as the price increases during 2019-2021 were not limited to Prague.

Finally, the last identified possible factor from the literature is the purchase of housing as an investment. The expectations from the investment may have different forms, for example, a regular income in the form of rent, market appreciation, or securing a place to live for one's future self or their children (Bajtler, 2021). The appreciation expectation could be particularly determining in the recent price surge as the investment flats often remain empty and are, therefore, effectively not contributing to the fulfillment of the housing demand (Očenášková, 2021). However, even investment purchases of flats where the main expectation is the rental income or anything else can contribute to the price surge simply by creating further pressure on the demand in the housing market. Therefore, to test this hypothesis, it is necessary to look at the structure of the buyers of the properties in the Czech Republic. Should investment purchases be the key factor behind the price surge, a significant increase of investors should be expected among the buyers.

Methodology/Research Design

The general research design of this paper is a case study. The paper focuses on the housing market in the Czech Republic, particularly during the years 2019-2021 (inclusive). Through a review of academic literature, industry reports, and popular media sources, it attempts to identify factors that may have the highest likelihood to cause the significant housing price surge during the abovementioned period. Additionally, using further review of the literature and secondary data, it tries to do an exploratory analysis of the role the identified factors played in the price surge. This is done by approaching each of the proposed factors and the respective hypotheses individually. For each of them, some fundamental analysis is used to assess the likelihood of the hypothesis being correct, which would then suggest that the given factor was significantly responsible for the price increase observed. The methods used include assessing

underlying indices and basic comparisons across time periods and regions both within the Czech Republic and across comparable countries experiencing similar development. Since the particular methods differ and are often unique to a given factor/hypothesis, they are explained in greater detail when used.

Findings

Already with the first proposed factor of the availability of the mortgages, there are some interesting data. From the aggregated data from the Czech National Bank (CNB) (2000-2021), it is clear that starting in the second half of 2019, there was a significant increase in the amount of money lent out for housing purchases. While the year 2019 in total almost did not differ from 2018 because of the weaker first half, the year 2020 saw a close to 90% increase in the amount of money in new mortgages, and in 2021 it increased by another 20%. The monthly average amount of money in new mortgages in 2021 was more than double of the long-term average from 2015-2020!

Additionally, there were several changes to the CNB's rules for mortgages that the individual banks need to adhere to. The first change easing the requirements was announced in April 2020 and confirmed later that summer, bringing even looser requirements than previously announced (CNB, 2020). Interestingly enough, CNB did so even though it concurrently deemed the Czech housing market overvalued by up to 25% (CNB, 2020b)! The reversal of the previous easing came in late November 2021 when CNB essentially brought back the pre-academic rules.

At the same time, the development of the interest rates on mortgages is striking. The rates observed a local maximum at the beginning of 2019 and fell from there to a minimum of about 2% at the beginning of 2021 (CNB, 2000–2021). The fact that the amount of money lent kept

increasing even though the rates went quite fast up in the second part of 2021 could be caused by people's desire to get a mortgage before the rates worsen even more (Kovanda, 2021). However, the interest rates on mortgages were similarly low for the majority of 2015-2017, and the rates, in general, were significantly lower than in the years before.

Overall, it seems that the mortgages were undeniably a significant source of financing for housing purchases during the 2019-2021 period, and they could have contributed to the price surge by providing greater liquidity for the buyers. However, it seems unlikely that their wider availability was the driver for the housing price surge as there were similar conditions (arguably even better ones with no pandemic happening) on the market before without any such drastic price increase.

The second possible factor and the corresponding hypothesis is that the rent prices were the determining factor in the housing price increase. In 2020, only about a fifth of the population lived in rented housing, while the majority lived in owner-occupied dwellings. The ratio of tenants to the total population is, thus, significantly lower than in the rest of the EU (Eurostat, 2021). Still, it is possible that a significant price increase in rents could incentivize some of the tenants to seek their own housing.

However, while there was a slight increase in the rental prices in 2019-2021, the rate of the increase was significantly lower than, for example, in any of the years 2007-2012 (when the housing market experienced a boom, a crisis, and a beginning of a slow recovery) (Eurostat, 1996–2021). Additionally, the rate of the rent increase was not at all comparable to the rate of the housing price increase and, unlike the housing prices, deviated from the EU average only a little. For example, in neighboring Slovakia, the rent prices stagnated, while the country also experienced a housing price increase (albeit by no means comparable to the one in the Czech

Republic). From industry reports by Deloitte (Deloitte, 2022), it is even suggested that starting in the second half of 2020, the rent prices actually stagnated or even decreased across the regions, even in the Czech Republic.

Finally, it also follows the theory that if the rate of increase of the rent prices is lower than the rate of increase in the housing prices, renting becomes more appealing, rather than less. Therefore, this hypothesis about rent prices causing the historical housing price surge also does not seem to hold.

There is no question that the Czech Republic has a serious problem regarding construction laws and the ease of developing housing projects. In the 2019 World Bank's report (2020) "Doing Business," it was ranked 156th in dealing with construction permits out of the 190 countries. According to the report, it took on average 246 days to get the building permit which is just one of the 21 procedures needed. In Prague and other big cities, it takes even longer (Zlámalová, 2019). It is, therefore, clear that simplifying the process and easing the bureaucratic requirements for housing construction would provide a greater supply to the market and help reduce the housing price or, at least, the rate of their increase.

However, this is by no means a new problem which raises the question of whether it is the main driver behind the recent price surge as suggested by the industry reports and popular media sources. According to the Czech Statistical Office data (1999-2021), the number of housing projects, particularly flats/apartment buildings, both started and finished, hit its minimum in about 2013 and has kept increasing ever since. Even in 2020, when the number of new projects decreased, likely because of the COVID-19 pandemic, the number of new projects was higher than in any year between 2010 and 2018! In Prague, where the situation is typically considered the worst, the numbers of finished multi-dwelling buildings were similar to the

previous years in 2019 and 2020, and it only slightly decreased in 2021 (to a level still higher than in 2013). The similar is true in the case of new projects in Prague, where the year 2019 almost reached the previous peak from 2008, and more new projects were started in 2021 than in any year since at least 2006. The number of new building permits in Prague issued in 2021 was even the highest since at least 1997 (ČTK, 2022). A similar situation could be observed in the regions in most of which more new flats were introduced to the market in 2019 and 2020 than in the previous years. Therefore, if anything, more housing units were finished, and more new projects started during 2019-2021 despite the undeniable reported obstacles. This is true not only for the regions but also for the capital of Prague. Consequently, it is extremely unlikely that the problems on the supply side caused by the long delays in obtaining building permits and the connected bureaucratic obstacles in housing development are the driving factor behind the 2019-2021 housing price surge.

Likewise, it seems unlikely that the changes in household structures would be the factor either. Besides the already mentioned problem with the timeframes in which such changes are likely to occur and in which the price surge was observed, there are other arguments against this hypothesis. For example, the number of divorces in the Czech Republic is actually decreasing in a trend that started at about the beginning of the previous decade. This could be explained by a reduced number of marriages which is observable in the data. However, the decrease in the number of divorces is greater than the decrease in the number of new marriages in both absolute and relative terms (Czech Statistical Office, 2022). At the same time, this finding cannot be used to refute the hypothesis as firstly, it covers only one of the possible household structure changes, and secondly, there is actually a noticeable and significant increase in the number of children

born out of marriage, suggesting that the marriage data is no longer a reliable indicator of the household structures.

An easier way to test the hypothesis about the household structure changes being responsible for the housing price surge is to look at the average household sizes. As already established, any change in the house structures that would be directly important to the prices on the housing market would manifest themselves through changes to the average household size. However, the changes in the average household size seem to be also very slow – and this is true across the whole EU as measured by Eurostat (2003–2020). While there is an observable decrease in the average household size in the Czech Republic from 2.4 to 2.3 in 2019, it is important to note that the metric is limited by one decimal place. Therefore, this decrease is impossible to interpret. Furthermore, previous decreases of the metric and current decreases of the metric in other states of the EU are not connected to any observable housing price surge like the one experienced by the Czech Republic. Overall, there is very little tangible data to evaluate this factor. Since the period of the housing price surge was relatively short while structural changes to households typically take longer, there should be some observable and rather drastic changes –while none were observed. Therefore, it is safer to assume that changes to the structure of households were not a determining factor in the housing price surge.

Turning housing stock into short-term rentals, on the other hand, seems like a much more likely factor to affect the prices. It was also widely discussed in industry reports and popular media sources. While several companies focus on short-term rentals in the Czech Republic, Airbnb operates the overwhelming majority of the market (Váchal & Pokorný, 2017). Therefore, the analysis only focuses on Airbnb as a reasonable proxy for the whole market.

There is evidence that the demand for flats suitable for offering on Airbnb has an effect on the prices of housing in Prague (Schütznerová, 2018). The question of whether it caused the 2019-2021 price surge that was observable in the housing market in the whole country. And the answer is that it seems unlikely, and there are two main reasons for that.

Firstly, the 2019-2021 housing price surge was not at all limited to Prague; in fact, the rate of the increase in the prices was often much higher in regions than in Prague. However, Airbnb's offer in the Czech Republic has been limited almost entirely to Prague throughout its presence on the Czech market. Even more so, most of the flats offered on Airbnb are located in Prague's inner center (Hrabětová, 2022). Additionally, Airbnb operates all around the EU (and the world), including the countries with no unusual development in their respective housing markets. Consequently, there is a strong argument region-comparison-based argument against the short-term rentals as a decisive factor in the housing price surge in the Czech market.

Secondly, there is also a time-based argument. While in 2019, investment in housing for short-term rentals was promoted and even advised (Hlavac, 2019), the situation drastically changed with the COVID-19 pandemic in 2020. Based on estimates published in the ARTN trend report, the number of offers on Airbnb in Prague dropped by more than a third in 2020. Additionally, there is evidence that a significant number of flats that were offered for short-term rental before the pandemic was moved to the market offering long-term renting (Hrabětová, 2022). Such development in the short-term rental market would be expected actually to lower the housing prices rather than increase them. Overall, given that more than half of the period of interest was affected by to COVID-19 pandemic that negatively impacted the short-term rental business, it seems very unlikely that the demands of the very business would be the cause of the price surge in 2019-2021.

However, this does not rule out the possibility that the market was affected by the investment purchases in general. There are some suggestions that already in 2018, more people were drawn to take advantage of the low mortgage rates and invest in housing (Hána, 2018). Additionally, while Prague was always an attractive place for foreign and institutional investors, more individual investors, particularly Czechs, started entering the market even before the period 2019-2021 (At Home Network, 2016). The trend significantly strengthened in 2020 with the COVID-19 pandemic, as confirmed by industry sources (Očenášková, 2021), that reported a massive increase of individual investors to which one in every four flats was sold.

The enormous increase in investment purchases is also visible in the already discussed amount of money lent out in mortgages. Or, for example, in further industry reports (Savills Research, 2020), which break down the investments in real estate by sector. These show that while the total investments decreased slightly in 2020, the residential real estate category accounted for more than half of the total investment amount, even though the same category was essentially negligible in the preceding years.

It also seems that many institutional investors, who are more interested in investments in residential property as a hedge against inflation and a regular rent income rather than mere price speculations, started looking for properties outside Prague (Savills Research, 2020). The reason for this is likely the already extremely high prices in Prague and corresponding low rent yields. In fact, the average rental yield in Prague is lower than anywhere else in the Czech Republic.

This seems like a likely explanation for why the housing prices increase across the country (and more in regions than in Prague) in 2019-2021; as the possible price bubble in Prague (Novotny, 2020) and lower prices (and thus lower entry requirements) in the regions could shift the investors' interest to the regions. Such change could have a significant and fast

impact on the housing prices – not dissimilar to the one that was observed in the Czech Republic. Furthermore, the wave of individual investors could also contribute to this phenomenon. As more and more Czechs wanted to protect their money from increasing inflation, investment in housing seemed like a natural answer to many (Bidrmanová, 2022). And given the prices in Prague and that people are likely to invest in their own regions, investment purchases of individual investors in regions could further impact the housing prices.

Finally, the fact that there was no other observable significant change on the market and that COVID-19 probably discouraged families from taking on large risks, such as housing purchases, it seems likely that investment purchases were the major reason for the record sales of housing in the Czech Republic in 2021 (Nove byty.cz, 2022). Similarly, the observed increase in the number of individual investors and in the desire to invest outside of Prague would perfectly explain the comparatively greater relative increase of prices in regions than in Prague. Overall, even though there are quite a few assumptions, the boom of investment purchases in housing does, indeed, seem to be a significant driver of the 2019-2021 price surge.

Discussion of your research findings

The most crucial finding is that the influence of the cumbersome and prolonged bureaucratic process connected to the development of new flats and houses seems to play a much smaller role than usually presented. There is no doubt that this is a serious problem in the Czech Republic and that solving it would likely lower the housing prices or at least slow down their increase – especially in Prague. However, even without regression analysis on the prices, it seems extremely unlikely that it is the single leading cause of the 2019-2021 price surge, as the popular media and industry reports try to make the public believe.

While it is entirely possible that the factors that were individually found to be likely insignificant play an important role together (or other factors that were not even explored do so), there is no way of assessing that without an advanced analysis of the market – which this paper does not provide. At the same time, the fact that there is no strong hint that any factor, besides the investment purchases, could be determining to the prices and that they all seem to follow previous trends without any extreme changes provides some credibility to the suggestion that it could be indeed the investment purchases factor that is responsible for the price surge. This idea seems even more plausible given that the rate of the increase in regions was lagging behind the one in Prague, where the prices were already extremely high relative to the rest of the country and the average income. Together with the overall increase in investment purchases, this could mean that both the individual investors and funds/companies decided to protect themselves from high prices and decreasing rent yield in Prague and decided to expand their investing activities beyond the capital's borders. Further support for this comes from the finding that the increase in sales and prices of flats in regions became faster than in Prague in recent years.

While it is impossible to assess the weights and importance of the individual factors without further and more comprehensive analysis, the factor of mortgages availability is likely to be tested by the market itself soon. Given the continuing inflation and the corresponding increase in interest rates by the Czech National Bank, the mortgage rates are rising quickly and are projected to keep doing so (Zámečnicková, 2022). In addition to that, as was already mentioned, the CNB tightened the requirements for acquiring a mortgage again at the end of 2021. Therefore, it will be interesting to observe whether this will be reflected in the future development of the Czech housing market prices.

Conclusions

It needs to be stressed once again that this paper does not try to pretend to be a detailed analysis of the housing market in the Czech Republic nor makes any conclusions about the reasons for the significant price increase in the market prices during the years 2019-2021. What it does is that it provides some exploratory analysis of the possible factors causing this price increase. It does so by conducting a basic analysis of observable facts and trend comparisons across time periods and regions. Such methods cannot claim any causality. They are severely limited in the identification of the weights of the individual factors and liable to the number of hypotheses and assumptions used as well as random trend correlations.

Furthermore, they cannot assess the effects of several seemingly less observable factors severely affecting the price increase together. Similarly, the paper takes into account only a number of possible factors that seem most likely to have caused the surge, as suggested by the existing literature and sources. However, there is no guarantee that there cannot be other important factors or a collection of them that are not discussed here. Lastly, and this is a big limitation, the paper deals with the real price increase relative to the rest of the economy – as such, it does not consider the changes in prices of building materials that are likely to affect the prices in the housing market and that might differ from the general inflation.

Despite its limitations, however, the paper offers an interesting insight into the market's current development. Based on its findings, it suggests that the generally accepted truth about the high rise in the housing prices being caused by a cumbersome and prolonged bureaucratic process connected to the development of new flats may be overplayed. If proven correct, this would be a finding of great significance as the significance of this factor is used in the public debate to pressure a faster adoption of new construction law.

At the same time, the paper also hints that the current prices might result from a wave of investment in real estate that spread from Prague to regions. Lastly, the paper's findings indicate that considering the increased investments and given no other significant and obvious factor in the price increase in the past years, it is quite likely that the market experiences a considerable autocorrelation of prices that is typical for housing markets and that can turn into a price bubble, in extreme cases.

Based on this and the data on the already extremely high homeownership rate in the Czech Republic, this paper also suggests that the Czech Republic might not face a housing crisis. Rather than that, it seems that it is purely an affordability crisis. While also problematic, it is probably depicted as a housing crisis because of the historical insistence of Czechs to own their homes.

A natural continuation of this exploratory study would be to gather enough statistical data to create a model and run a regression on the data. However, given the nature of this fast and unprecedented price surge, mere data from the historical development of the housing market in the Czech Republic might not be enough. If this were to be the case, thorough research on similar fast price increases elsewhere would have to be done, and the model would have to use data from those other occurrences adjusted for the regional differences. However, doing so is beyond the scope of this paper.

Finally, the findings, even if proven correct later through means of regressions and thorough analysis, might, unfortunately, lose their significance as the ongoing invasion of Ukraine by Russia and the connected refugee wave is likely to change the market's structure altogether. Similarly, the fast and severe inflation of the past few months and the resulting increase in the interest rate are almost guaranteed to affect the availability of mortgages and the

desire to invest in real estate. It might be such a drastic change to the economy and the housing market that, once again, the results of the proposed comprehensive analysis using regression methods might lose their significance.

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