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AFFORDABILITY CRISIS AND GENTRIFICATION IN FDI EXPORT-LED ECONOMIES: PRICES IN THE DEMAND-DRIVEN HOUSING MARKET OF CLUJ-NAPOCA

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ABSTRACT[5]. This paper examines the rapid increase of prices in the residential sector of Cluj-Napoca in the context of the housing affordability crisis (Wetzstein, 2017). By using insight from the Growth Regimes literature, we look at the internal demand as a main driver of rapid price rise. As Kohl and Spielau (2018) argue, the monetary conditions needed for export-led growth regimes are restricting the outputs of the construction sector, creating under-supplied, demand-driven housing markets. We propose three alternative hypotheses regarding the major agent driving the prices within the city as major source of demand: the employees in knowledge-intensive services, the diffuse regional savings of employees in search for some yields, the specialized real estate investors. We use OLS and spatial regression (lag and error) to model the price per square meter using the social composition of the neighbourhoods, the within

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and out-of-town origin of investors, and the source of money (bank loans vs. cash payment) to demonstrate that the existing crisis is driven by the middle class's savings that also benefits from gentrification, while speculative investments in the housing markets are rather limited.

Keywords: housing demand, housing affordability, growth regimes, knowledge-intensive services, KIS employees.

Introduction

The treatment of urban land, housing and urban properties as investment vehicles has contributed to a "global affordability crisis" (Wetzstein, 2017), even for those middle classes who previously benefited from the "planetary rent gap" (Slater, 2017). While recent literature has highlighted the complex relation between gentrification and financialization (Ward, 2022), we suggest that financialization does not exhausts the whole range of effective demand that produces gentrification. Specifically, the diminishing stock of affordable housing can be linked to middle class savings, still benefiting from gentrification in economies driven by outsourced non-manual jobs (Peck, 2018). Our case study models the prices of apartments from Cluj-Napoca, the most expensive real estate market in Romania, to show that the city-wide gentrification processes are the product of employees working in foreign direct investment companies specialized in knowledge-intensive services. Apartment prices are rising as people who work in the city look to buy housing close to where they work.

The rich literature of Varieties of Capitalism (VoC) shows that residential housing, housing finance systems and welfare regimes are intertwined with domestic institutions and local cultures that produce „varieties of residential capitalism" (Schwartz & Seabrooke, 2009), deeply tied to transnational financial flows. Or it shows that the lack of housing affordability is structured by profitable tenure conversions, foreign capital mediated gentrification, deregulation of housing finance stimulated by "mobile policies" (Montero & Baiocchi, 2022) that mutate across socio-temporal contexts, creating "variegated residential capitalism" (Brenner, Peck, & Theodore, 2010), with institutional variations across geographical scales (Brenner, 2019).

However, the increasing corpus of Growth Regimes (GR) literature (Baccaro, Blyth, & Pontusson, 2022), while acknowledging the institutional complementarities at work in housing finance and its (de)regulation across scales, is interested in

construction in gross fixed capital formation (Christophers, 2018; Kohl & Spielau, 2018). As Kohl and Spielau (2018) argue, the growth regime of a country, be it led by its internal demand or by export, has important consequences for the housing market. The macroeconomic conditions tend to be opposite for demand-led growth and export-led growth (Baccaro et al., 2022). Housing construction is driven by internal demand, financialized or not, and has monetary conditions (such as exchange rates, unit labour costs, inflation rate) often in stark contrast to the need of export-oriented manufacturing companies. Central and Eastern European countries benefit from on FDI-led growth, based on labour-intensive activities and low capitalization costs, becoming key enablers of the cost competitiveness of global value chains centred in Western countries, relative to their global rivals (Ban & Adăscăliței, 2022).

In this paper we put in conversation the housing literature steaming from the VoC tradition with the GR emphasis on the source of aggregate demand to pinpoint the ongoing housing affordability crisis. Our argument is threefold. First, the "affordability crisis" in economies driven by outsourced non-manual labour emerges from the middle class's savings, that also benefits from gentrification. The FDI export-led growth has relatively modest housing outputs, while the internal demand formed by the emerging middle class puts pressure on the existing housing stock outcompeting possible rivals.

Second, the real estate markets from large cities in the outsourced economies are capitalizing on the excessive regional savings of the emerging middle class. The FDI export-led growth keeps internal consumption at depressed levels, leaving little room for consumption outlets. Real estate becomes a means for savings, generally channelled into the largest regional city. A regional class segment of employees manages to buy real estate as a form of saving and investment, which in turns strengthens their class position and at the same time raises the price of real estate. Effectively, this functions as a form of gentrification of the city by the middle classes from the region.

Third, the speculative investments in the housing market are limited in export-led economies, given the difficulties of sustaining the expansion of a domestic construction sector and, conversely, there are little incentives for the financialization of real estate. However, there is enough room for the domestic capital to invest in urban properties, to store values and speculate from the excessive valuation of the demand driven real estate market.

We use the case of Cluj-Napoca to test these three contentions using an OLS and spatial regression (lag and error) to model the price per squared meter using the social composition of the neighbourhoods, the within and out-of-town origin of buyers, and the financial source (bank loans vs. cash payment). Our case is particularly well suited to engage with both the affordability as well as

with the growth regimes literature since it is a case in point for an FDI export-led regime with increasing internal demand. On the one hand Romania is one of the Central and Eastern European countries with a consistent economic growth based on exports, while maintaining a consistent wage growth after the 2008 economic crisis. On the other hand, Cluj-Napoca is a powerhouse of Romanian service exports, with 70% of IT&C exports originating from this city (Pierre Audoin Consultants, 2016). Currently, Cluj-Napoca is the city and Cluj is the region with the highest average net wage in the country. This creates a strong internal and local demand, including the demand for housing, reflected in the highest housing prices in Romania.

The paper is organized in four sections. In the first section we discuss the literature addressing the ambiguous role of housing both as a means of social reproduction and as a store of wealth. In the second we present the local institutional context, our main hypothesis and the data used. In the third section we present the univariate, bivariate and multivariate results of our analysis and a discussion of the tested hypothesis. The final section we conclude by addressing the major issues opened by our case.

Literature review

Harvey (1985:16) argues that the realization of profit requires not only investment in production but also in the built environment that provides the physical infrastructure for production. The built environment for the realization of profit includes beside production infrastructure, the buildings where workers live, the state agencies that regulate production, and the proper transportation and storage systems that facilitate the distribution and consumption of goods. Harvey's (1985, 2006) thesis is that when over-accumulation affects production, investment "switches" from the sphere of production to the built environment. This appears to have been verified in the four decades since Harvey's initial proposed his speculative formulation: capital switching overbuilds the environment, but it does not to prevent crises of over-accumulation, but to postpones them. "As this built environment is largely and increasingly urban, periods of intensified urbanization can therefore be linked in some cases to incipient trends of economic crisis", as Christophers (2011:1348) shows, when he empirically tests this thesis, by simultaneously tracking housing markets and production volumes in the UK and the US.

Housing, along with other type of infrastructure, are both a means of social reproduction of the workers (Arundel & Ronald, 2020) and act as a store of wealth for the local or transnational capital (Ley, 2020). However, work in

Harvey's capital-switching tradition has struggled to mitigate between the role of housing as a social reproduction means for the workers and the role of housing as asset mobilised as pure financial resource (Fernandez, 2016), particularly the ambiguous role of middle classes gentrification both as a social reproduction and a capitalization strategy (Aalbers, 2019; Fernandez, Hofman, & Aalbers, 2016; Lees, 2012). In this section, we overview this literature and argue that the ambiguous role of housing should be placed in a larger institutional architecture that accounts for the aggregate demand formation both at the national scale and at the city scale.

Affordability crisis and institutional architecture

Two approaches to conceptualising the ambiguous role of housing as social reproduction mean and financial asset have been prominent in the urban studies literature. One, exemplified by Schwartz & Seabrooke (2009), ties Harvey's predicament of housing as a social reproduction tool employed by capital in search for continuous supply of labour, to the rich literature on VoC, by developing a model which accounts for the degree of homeownership and the mortgage system, in the context of the struggles over the distribution of welfare. Their analysis deepens our understanding of the embedded character of the varieties of house financing systems within the larger national institutional framework, with their particular type of capitalist flavour (liberal vs. coordinated).

A second strand of the literature follows Aalbers and Christophers (2014) to argue for the centrality of the housing system for economic growth, building on Harvey's thesis of the fluidity of property in absorbing excess capital (Fernandez et al., 2016). Their assessment connects housing to the three "modalities" of capital: as circulation, as social relationship and as ideology, to show that the real estate is a way to encourage consumption, especially at the time when investments in the productive sector tend to have diminishing returns (Christophers, 2018), as well as is the case of globalizing cities, residential real estate can functions as a 'safe deposit box' to storing excess capital in lack of alternatives for productive investments (Fernandez et al., 2016).

Both strands of literature entered in dialogue, in the last decade, by mobilizing the conceptual tool of affordability. While the question of housing availability was a field of inquiry in housing studies (Ezennia & Hoskara, 2019), the theme of affordability was developed as a methodological tool to assess urban poverty in the context of increasing financialization of housing financing systems (Haffner & Hulse, 2019). The Global Financial Crisis of 2008 triggered

by the subprime market collapse and the current escalation of prices in the larger global cities, has brought forth the idea that cities are passing through an "affordability crisis". In Wetzstein (2017:3160) formulation the "term reflects the accelerating trend of housing-related household expenses rising faster than salary and wage increases in many urban centres around the world".

The consequences can range from diminishing disposable income for daily reproduction, to overcrowded or badly maintained apartments, dislocation or evictions produced by pricing out of the poor households. Seen as a global phenomenon, this trend has been approached critically through two vantage points. On the one hand, from the perspective of land financialization of particular importance in the VoC literature (Fernandez, 2016), and, on the other hand, through the perspective of gentrification of particular interests for the fluidity of property literature (Aalbers, 2019). The two theoretical standpoints should not be distinctly considered since they overlap in the ongoing process of housing provision (Ward, 2022).

Demand for housing and growth regimes

Though Schwartz & Seabrooke (2009) argument is deeply connected to the supply-side orientation of the VoC Literature, Aalbers and Christophers (2014) follows more closely the Harvey (1985, 2006), to understanding the housing sector as a refuge of capital in the face of over-accumulation crisis. While we are deeply sympathetic to Aalbers and Christophers (2014) conceptual effort, their approach loses the edge that the VoC literature had in terms of rooting housing in national institutional complementarities. In this section we argue that the role of housing as social reproduction means or as a safe deposit box for wealth can be better understood if placed in a larger multi-scalar picture where the city and the transnational are embedded in the national.

The shortcoming of diching VoC institutionalist approach can be overcome by mobilizing Baccaro, Blyth, and Pontusson (2022) typology of the effective aggregate demand in a national context driving economic growth as either internal demand led or export-led. Recently, Schwartz (2022) and Schwartz & Blyth (2022) switched from the VoC paradigm to argue for the need to put aggregate macro demand at the heart of analysis, being one of the GR architects.

As Kohl and Spielau (2018) argue, the capital requirements, the site-specific character of developments, the large number of professionals and trades at work, the number of employees that are project specific, the long-life cycle of the building products, makes the sector highly sensitive to monetary, financial and

regulatory changes, which in turn has important macroeconomic repercussions. Conducive macroeconomic and monetary conditions are needed, such as domestic capital availability and lower capital costs, and effective demand for constructions. However, such conditions are quite the opposite of macroeconomic needs for competitive exports, facilitated by low labour cost, low inflation rate and under-valuation of effective real exchange-rates (Baccaro et al., 2022). Or, in the concise formulation of Kohl and Spielau (2018:101): "construction companies benefit from the opposite monetary conditions than export-oriented manufacturing firms."

Therefore, the growth regime of a country, demand-led or export-led, has important consequences for the housing market. The role of housing in such a line of thought is embedded in the national institutional framework. Internal demand can be either the main driver of final consumption, therefore real estate can be used as supply-driven sectors for fuelling growth, or, on the contrary, real estates are demand-driven sectors since the economic institutional framework favours exports and is not conductive for the development of a sizable construction sector. Central Europe and Romania are rather export-led economies.

The expansion of globalization over the last decade was enabled by the relocation of corporations' secondary processes to new areas specialized in operations (Edvardsson & Durst, 2014; Oshri, Kotlarsky, & Willcocks, 2015). Peck (2018) shows that the recent round of outsourcing is driven by labour arbitrage and involves a skilled and highly qualified labour force, unlike the outsourcing of industrial work that preceded it. In Europe, most of the Western European outsourcing is capitalized in Eastern and Central Europe (Ban & Adăscăliței, 2022). After 2008, the Romanian European Integration came under the guise of outsourcing and large foreign investments (Ban, 2019; Castellani, Marin, Montresor, & Zanfei, 2022), and it boosted the sluggish economy, thanks to a market-dependent model (Bohle & Greskovits, 2012).

In terms of macro-economic policies this meant strong governmental support for an export-orientated regulatory framework and appropriate monetary conditions. Nonetheless, from 2008 up until the 2020s, the number of employees in non-manual services grew, more specifically, professionals in business services grew by 35%, of which 61% in the top ten cities in Romania (Petrovici, Mare, & Moldovan, 2021). Cluj registered the highest growth rate, namely 66%. If we also consider the public sector, half of the employees in the city work as professionals and managers (Petrovici et al., 2021). The internal demand of this new class of professionals is deemed by Ban & Adăscăliței (2022) a marker of a "mixed regime of growth": one that is heavily geared toward FDI-organized exports, yet with a growing internal demand, field by wage growth.

Cluj-Napoca is particularly well-suited as a case study for the affordability crisis since the average price per square meter was €1338 in 2020, while the average monthly income was € 775. In 2020 the average bought apartment had 58 m^2 for the price of € 80 000. For the average worker that would mean 103 salaries (8 years' worth of work), while for the IT&C worker it would mean 50 salaries (4 years' worth of work). However, a scenario of 100% savings is implausible. The maximum legal requirement set by the National Bank of Romania for accessing a mortgage is 40% indebtedness from monthly earnings. For the average salary that would mean a 30-year mortgage, with a € 365 monthly rate, and an initial down-payment of € 22 000 euros to qualify for the rest of the loan. Even if legally possible, for such a mortgage, the banks in fact require a monthly income € 1 800, that is 2,3 times higher than the average income and above the average IT&C income of € 1 600. For many families with average income that the down-payment is out of hand. Nonetheless, Cluj had from 2020 to 2022 an increase with 22% of the average salary, the largest in country, suggesting an increase in the number of well-paid jobs and a filtering out effect of the low earners.

We explore these dynamics through Cluj-Napoca's city-wide gentrification and housing affordability crisis, arising from its high demand, in the context of a small supply of new housing units, given the larger macroeconomic national context to which the city contributes by being the main exporter of IT&C services.

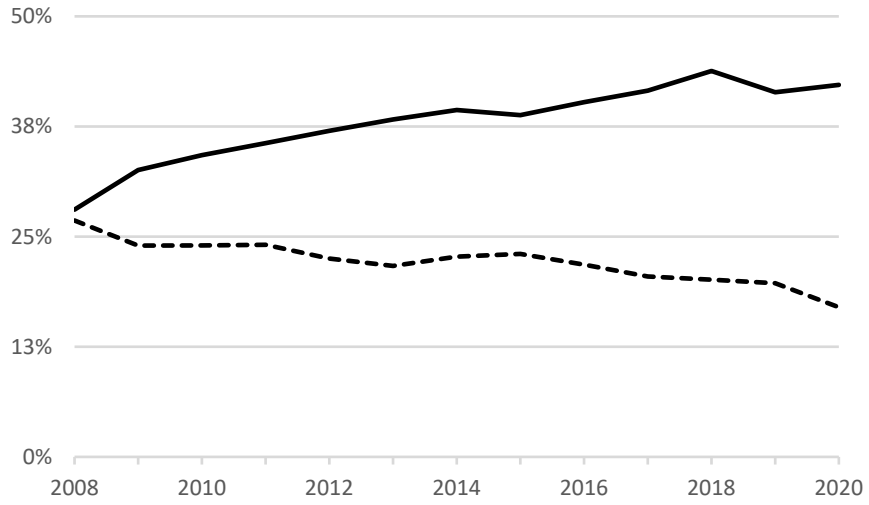
Institutional setting and empirical approach

Institutional context

To understand the overall transformation of the Cluj-Napoca and the newness of its class-based forms of exclusion a brief recourse to history is necessary. In Romania, the ITC sector as well as the business support sector have expanded since the 2008 crisis, due to their development in several major urban poles: Cluj-Napoca, Timişoara, Iaşi and especially Bucharest. The IT&C is the second contributor to the growth of the GDP (with 16%), after manufacturing (36%). IT&C is the second most important service export of Romania, 70% of IT&C exports originating in Cluj-Napoca (Pierre Audoin Consultants, 2016).

Figure 1.

Business services and manufacturing workers in the city of Cluj out of all employees, 2008-2020



Date source: author's calculations based on Companies' Balance Sheets 2008-2020.

In the Cluj metropolitan area, not only did the IT&C and business services sectors grow faster than at national level, but so did the health and social welfare and the hospitality sectors (Petrovici et al., 2021). The hospitality sector caters to local employees in IT&C globalized sectors, business services and financial services, as well as those attending the urban events generated by the booming cultural industries. In 2020, one in three employees was working in companies owned by foreign capital in the Cluj Metropolitan Area, compared to one in five at national level (Petrovici et al., 2021). While financial services have contracted throughout Romania, they have expanded in Cluj-Napoca. Alongside Bucharest, Cluj is the only city to host the headquarters of a bank, and in this case, a local one (Banca Transilvania), the largest in the country.

Since 2008, industrial work has been relocated to the metropolitan outskirts, while the city usually hosts the highly educated population working in technological development, finance, business operations and creative industries. The number of professionals in the city rose steadily from 27% in 2008 to 42% in 2020, while the number of employees in manufacturing decreased from 27% to 17% in 2020. Metropolitan localities registered an increase from 24% of employees working in manufacturing in 2008 to 35%. The expansion was

possible due to state sponsored greenfield industrial parks that host multinational companies in need of manual workers. Between 2008 and 2020, the entire labour force grew by 7% in the city, and by 60% in metropolitan localities (Petrovici et al., 2021).

Most apartments in Cluj-Napoca are owned (95%) and only 4% change their owner each year. On average, annually since 2008, the new apartments add another 1% to the existing housing stock. Given the high demand, the supply of new apartments is not enough. The effect was a significant change in the city's composition. In 1992, only 16% of city residents had a college degree, but according to the 2011 census, 34% of residents had a college degree. In 2020, 40% of the active age population were employed on positions requiring a college-diploma. The entire city is undergoing gentrification, not just in specific urban areas, while the working class is being pushed towards the metropolitan area. The changing class composition of the city also changed the materiality of the city and the city centre, by incorporating specific stylistic features.

Hypothesis

We propose three contending hypotheses regarding the major agent driving the prices within the city as major source of demand: the employees in knowledge-intensive services (KIS), the diffuse regional savings of employees in search for some yields, the specialized real estate investors (speculators).

The first hypothesis sets the employees from knowledge-intensive services (Eurostat, 2020) in the outsourced economy as the major source of demand for housing. We use KIS employees as a marker of outsourced non-manual work in the FDI export led economy. We expect a rise of housing prices both with an increase in the number of KIS employees working in a neighbourhood and with an increase in the number of residents employed in KIS jobs. As the literature on pandemic teleworking suggest (Florida, Rodríguez-Pose, & Storper, 2021), we also expect an increase in prices in 2020. The KIS employees were more prone to be teleworking and were in dire need for housing space with new home-office facilities.

The second hypothesis is that of diffuse regional savings. The economic growth of the region, due to FDIs, as well as restricted mobility during the pandemic, came with excess savings that sought to be leveraged in various ways, with the real estate market in Cluj-Napoca being a major outlet. The main actors of this hypothesis are the employees that benefit from the wages of the outsourcing economy within the region**.** If this hypothesis would be correct, the amount of out-of-town capital would have increased over the years, and even

more so in 2020. A corollary of this hypothesis is that the housing market would not follow the geography of knowledge-intensive service offices or the place of residence of those employed in these services.

The third hypothesis is that prices are driven by specialized agents focusing on investment rather than finding the right home to live in. It is not about diffuse investment (as in the previous formulation), but real estate market-based capitalization may have a new agent: players who specialized in multiple transactions, regardless of their residence (the city or the region). If this hypothesis is correct, over time, the number of transactions by owners with multiple real estate properties in Cluj-Napoca should have increased and a tendency of acceleration of the trend could be observed in 2020, with the outbreak of the pandemic.

Data and measures

This study uses three types of administrative data: Cluj-Napoca's real estate transactions, the company's accounting balance sheet and census data. The administrative data on real estate transactions was provided by Cluj-Napoca City Hall. This information represents taxes on a time-series about real estate transactions recorded by the tax office of Cluj-Napoca City Hall between 2017 and 2020. It contains details about transaction prices for all of Cluj-Napoca real estate (apartments, homes, buildings, land), surfaces (ground, built, usable and annexes), data about payment sources (bank or cash), unique buyers' identification codes, as well as their locality of residence. To be able to analyse the data, we geocoded all the transactions.

Using the Romanian company's balance sheet, available in chronological order (2008-2020) on the government's data portal (data.gov.ro), we geocoded all the addresses of the companies from Cluj-Napoca. Based on NACE code we selected the companies that activated in knowledge-intensive services using Eurostat classification (Eurostat, 2020). There is an important limitation to this strategy. The companies in this data set are listed based on their headquarters. For larger companies, often the headquarters are in Bucharest. However, this was not the case for the companies in the KIS sector, with some notable exceptions, which were handled on a case-by-case manner. The sector and occupation of the employees based on their residence is available only at the 2011 census. The data is available on census track, but for this analysis was aggregate at neighbourhood level. Only employees in KIS jobs were selected.

Table 1.

Variables used in analysis

Acronym	Description	Data source
DEPENDENT VARIABLE		
Euro per m^2		CJ-N City Hall
FACTORS		
A. Neighbourhood level		
KIS Employees in Offices	Employees in knowledge-intensive services by company headquarters, each year between 2017-2020	Balance Sheets
KIS Employees in Neighbourhood	Employees in knowledge-intensive service companies by domicile, the same value each ear as at census in 2011.	Census 2011
% Speculative Transitions	Real Estate Equity: Neighbourhood-wide proportion of transactions made by owners of 5+ properties	CJ-N City Hall
B. Type of transaction		
Non-Cluj	The transaction is carried out by a person domiciled outside the city of Cluj-Napoca	CJ-N City Hall
Bank	The transaction is financed by a bank loan	CJ-N City Hall
Non-Cluj * Bank	The transaction is financed by a bank loan and carried out by a person residing outside the city of Cluj-Napoca	CJ-N City Hall
Construction Year	Year of construction	CJ-N City Hall
Speculative	Real Estate: Transaction made by owners of at least 5 properties	CJ-N City Hall
C. Time & location		
Transaction Year	The year of the transaction	CJ-N City Hall
East-West Distance	The distance in m from the city centre (Piața Unirii) on the East-West axis	CJ-N City Hall
North-South Distance	The distance in m from the city centre (Piața Unirii) on the North-South axis	CJ-N City Hall

Acronym	Description	Data source
South	South quadrant of the city if the cartesian system in placed in the city center (Piaţa Unirii)	CJ-N City Hall
East	East quadrant of the city if the cartesian system in placed in the city center (Piaţa Unirii)	CJ-N City Hall
Est * Year	Interaction factor between east quadrant and the year of the transaction	CJ-N City Hall

Date source: authors' calculations.

Table 2.

Descriptive statistics

	Mean	St. Dev.	Min.	Max.
DEPENDENT VARIABLE				
Price/m²	1252	439	100	2990
FACTORS				
A. Neighbourhood level				
KIS Employees in Offices	1413	1880	0	7854
KIS Employees in Neighbourhood	960	984	0	3309
% Speculative Transitions	0.036	0.022	0	0.090
B. Type of transaction				
Non-Cluj	0.408	0.492	0	1
Bank	0.848	0.359	0	1
Non-Cluj * Bank	0.350	0.477	0	1
Construction Year	1999	28	0	2020
Speculative	0.072	0.259	0	1
C. Time & location				
Transaction Year	1.5	1.1	0	3

	Mean	St. Dev.	Min.	Max.
East-West Distance	2455	1520	2	8389
North-South Distance	1265	790	2	6416
South	0.553	0.497	0	1
East	0.688	0.463	0	1
East * Year	1.035	1.145	0	3

Date source: authors' calculations.

In addition, above five property transactions owners must pay different taxes (based on the 2022 Fiscal Code, art. 111-113). We classified a transaction as speculative if it has an owner who made at least other five real estate transaction in the last four years. We aggregated also at neighbourhood level the number of speculative transactions and divided to the total number of transactions in that neighbourhood in that year.

The independent variable used in this analysis is prices of the apartment per square meters. All transactions were converted in euro and deflated (with the World Bank PPP to GDP deflator) to make them comparable across the four years. Our analysis focuses exclusively on apartments. A new index was formed by dividing the price in euro of the transaction with the usable surface of the apartment. To avoid any skewness due to outliers, we trimmed the distribution of the prices per m^2 to exclude the first 1% and the last 99% percentile, that is values below 100 euro/m^2 and above 3000 euro/m^2.

We used three types of factors: neighbourhood level data, transaction level data, and time and location data. Based on the balanced sheets we aggregated at neighbourhood level the number of KIS employees for each year. Based on the census data we aggregated at neighbourhood level the number of residences that were KIS employees in 2011.

The real estate market can be used for multiple or consecutive investments to take advantage of price increases. In fact, it can be inferred that multiple investments can even cause price increases. Most landlords own a small number of properties in Cluj-Napoca, but some own multiple properties. The threshold above which we considered an owner to have multiple properties (land, apartments, houses, buildings) is five, included. We chose this threshold because above this figure the number of owners drops sharply and at the same time the number of properties grows exponentially.

The transaction level data records whether a transaction is done by someone with the residence outside of Cluj-Napoca, using a bank loan, the interaction between non-Cluj residence and bank loan, the construction year of the building where the apartment is located and if the transaction is speculative (in the above specified definition).

The time and location level data uses the year of construction variable coded as 0 for 2017 and increments for each year up until 2020. The Piața Unirii was used as the city centre. Each transaction was placed in a cartesian system along the East-West and respectively North-South axis to compute a distance from the city centre. To record the quadrant of the transaction two dummy variables were used, one for East and one for South. An interaction factor between East and the year of transaction test whether the Eastern part of the city became pricier.

Model

We inspect the spatial distribution of the dependent variable and the factors using Tableau. All visualizations are centred in the mean, and the maps are dual layered representing a lower-level scales and a higher geographical scale. To model the relations, we start by inspecting the bivariate relations. The correlation matrix was regrouped using a block algorithm, with *sjPlot* R package (Daniel Lüdecke et al., 2021), to make more relations visible. The analytical strategy consists of estimates of three different statistical models. The first model is the classical predictive least squares (OLS) model.

Statistical tests show that the residuals of the least squares' regression model are not evenly distributed in space, so the second and third explain the possibility of spatial dependence, but spatial autocorrelation is rather suggested. Moreover, the Moran's I statistics suggest a medium spatial autocorrelation of 0.348 (significant $p<0.001$, for 9999 permutations). Model 2 considers the spatial proximity of real estate transactions and tests whether there is a spatial lag or, conversely, whether proximity is an explanatory factor.

Model 3 considers prediction errors and controls the potential impact of proximity errors. As several variables may be connected or are used as proxies for the same aspect, we estimated the multicollinearity condition number (Belsley, Kuh, & Welsch, 2004). There are no intercorrelation problems between the independent variables, as the value is not surpassing the threshold (30). The spatial diagnosis tests (the Moran's I for residuals and the group of Lagrange Multipliers) reveal significant autoregressive and moving average spatial processes, along with substantial spatial autocorrelation in the residual values.

Figure 1.

Dependent variable: euro per m² in Cluj-Napoca 2017-2020

Date source: authors' calculations. The underling map: © 2022 OpenStreetMap

To treat the spatial processes the models were estimated by means of a generalized spatial two stage least squares for spatial processes (Kelejian & Prucha, 2010) originated in Cliff and Ord (1981) developments, using maximum likelihood estimations with seemingly unrelated regressions. The equation for the second model is with spatial lags:

$$y_{tg} = \rho_g W y_{tg} + X_{tg}\beta + \varepsilon_{tg}$$

The third model is with spatial errors:

$$y_{tg} = X_{tg}\beta_g + u_{tg}$$
$$utg = ,gWu_{tg} + \varepsilon_{tg}$$

Where the vector of regressor is y_{tg} and X_{tg} is the matrix of regressors. The spatial autoregressive coefficient is λ_g, while the coefficient of the spatial autoregressive component of the residuals is ρ_g, both assumed heteroskedastic of an unknown form, but with $\varepsilon \sim N(0, \sigma_i^2)$. W is spatial weighting matrix (n*n) of the spatially lagged dependent variable, the price per m², and *Wu* is the spatial lag of the errors.

The distance weight matrix was computed based on the twenty nearest neighbours for each point of the 24903 (Figure 1). In the second model the spatial autocorrelated errors *u* are respecified based on their spatial lag. In the third model the final error term of the model ε is obtained after the error correction process; the final error is normally distributed, of $E(\varepsilon) = 0$ and $E(\varepsilon\varepsilon') = \sigma^2 I$. The models were estimated with R package *spsur* (Angulo, Fernando, Minguez, & Jesús, 2021).

Results

Univariate analysis

From 2017 to 2020, Cluj-Napoca's annual transactions averaged 6746 units (of which on average 6250 units, the rest being houses)[6]. The share of trading apartments from the housing stock is very small, with an annual average of 4.6%. The prices on the real estate market from Cluj-Napoca are demand driven. The number of transactions in 2020 decreased by about 1,000 units compared to the previous year. Between 2016 and 2019, an average of 3,500 new apartments were built and put on sale in Cluj-Napoca. In 2020, there were only 2608 new units, a decrease of 1000 units (according to INS Tempo LOC10B). This would suggest that the supply side contracted in the pandemic year.

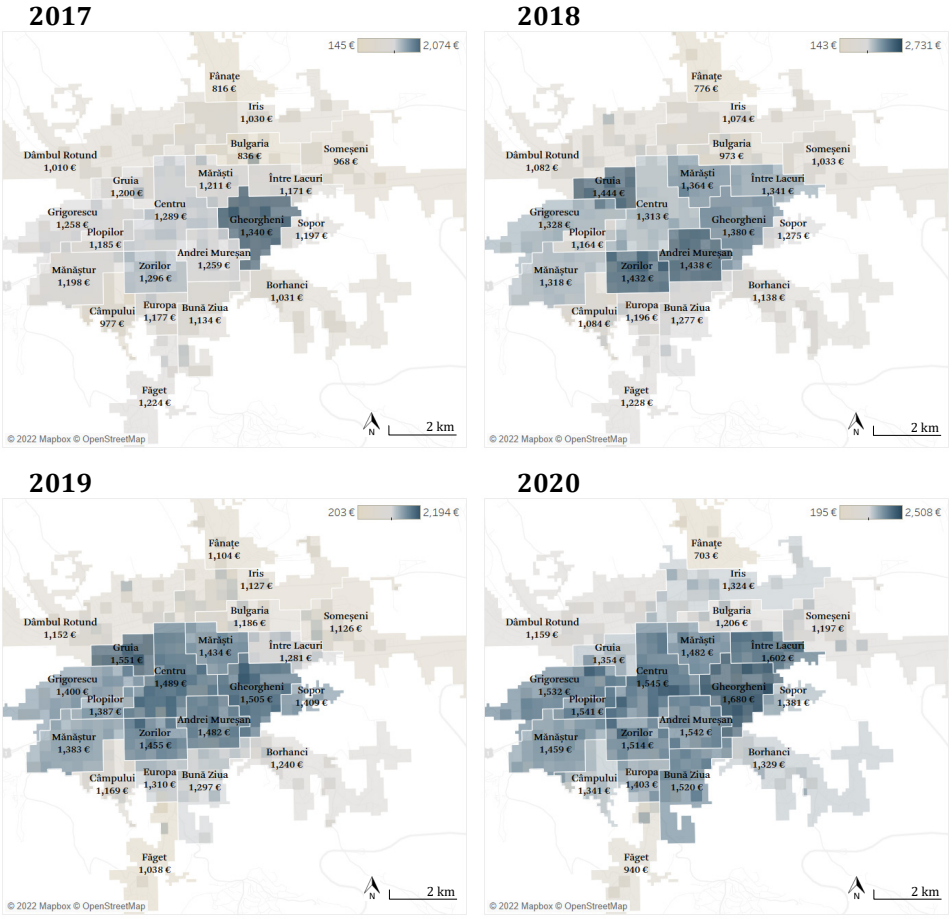
On average, between 2017 and 2020, annually, the price per square meter of the apartments increased by 81 euro (that is with 7.2%). Given the contraction of the supply in 2020, a higher price increase would have been expected. However, it is reasonable to expect a proportional decrease in demand, given the lockdowns of 2020. Nonetheless, the need for extra rooms for home-offices by 2021, bounced back the demand. The local newspaper headlines of 2021 and 2022 stay witness to the increase in demand and prices. The maps of the prices per m^2 (Figure 2) suggest the existence of a gradient from the city centre towards the periphery of the city, a model specific for the European cities (Kazepov, 2005). Also the age of the buildings gradient, the news at the fringe, is specific to the same European model (Kazepov, 2005). However, the South-Eastern part of the city became increasingly more expensive, which seems to confirm the first hypothesis that housing prices are determined by the number of KIS employees. Most of the class A office buildings

[6] We did not analyse the number of houses sold. However, approximatively 500 houses are sold each year in Cluj-Napoca, and the number of transactions are similar in 2020.

are built in the South-East area of Cluj-Napoca. Nonetheless, the city centre is the daily destination for most of the KIS employees between 2017 and 2020, while the large socialist era neighbourhoods were the preferred choice for the same employees in 2011 (Figure 3).

Figure 2.

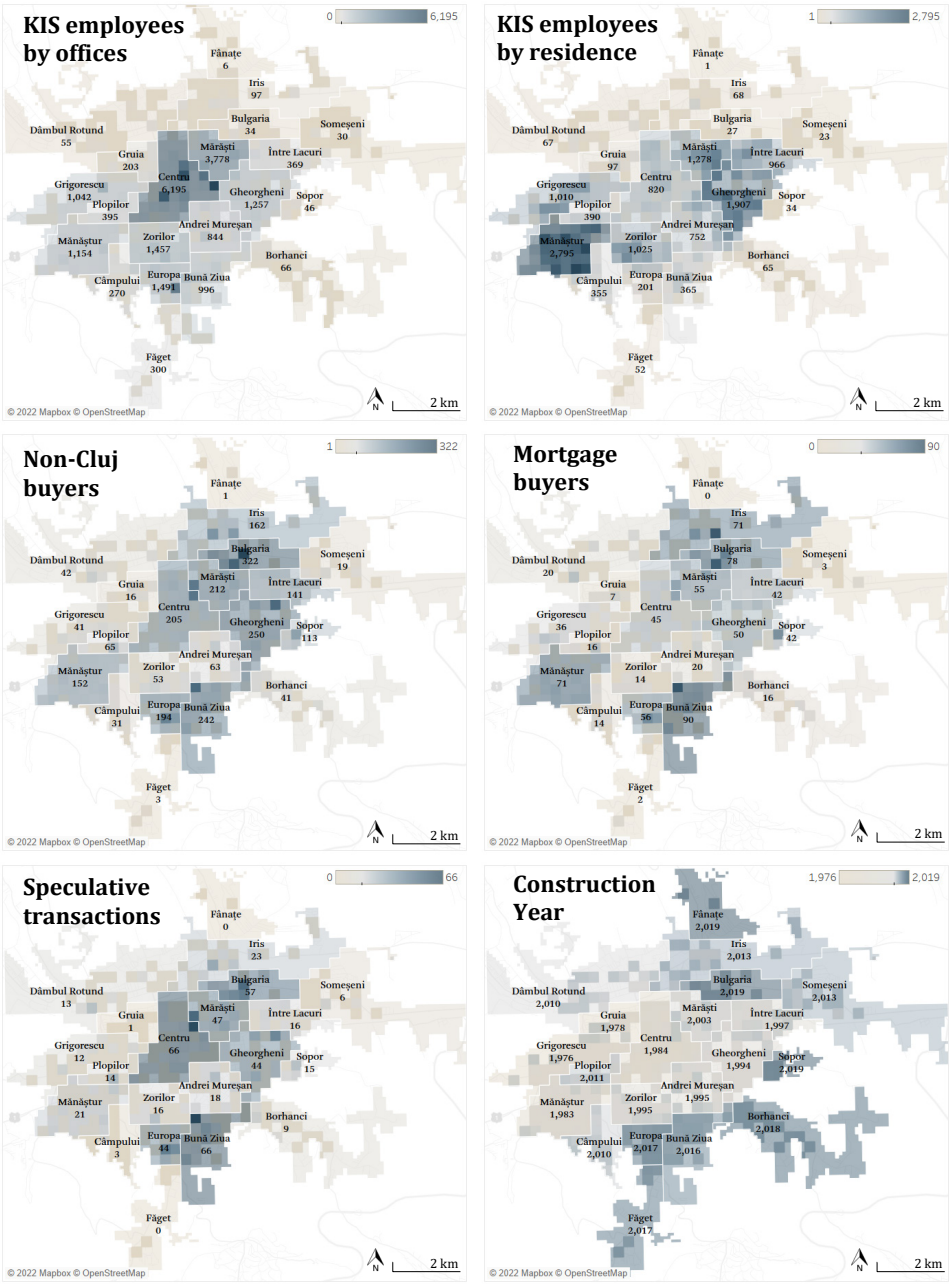
Dependent variable: euro per m² in Cluj-Napoca 2017-2020



Date source: author's calculations based on CJ-N City Hall 2017-2020.

Figure 3.

Univariate distribution of the factors – averages 2017-2020



Date source: authors' calculations.

The geography housing transaction in Figure 3 shows an overlap between the non-resident buyers, buyers relying on bank loans and speculative transactions (generally done in cash). As the univariate distributions in Table 2 shows, the out of town represented, on average, 40,8% of all transaction and 35% were out-of-town transaction based on a bank loan.

On the one hand, this partially refutes the diffuse regional capital hypothesis since it seems that non-residents prefer mortgages and not cash transfers – pointing that the buyers are middle class employees qualifying for a loan. On the other hand, this partially confirms the hypothesis of the prices driven by real estate investors, since their investment patters seem to follow the geography of demand and they buy properties where non-residents also do – the hotspots of real transactions in the city. The speculative transactions, on average, amounts to 7%, that is quite small. At the neighbourhood levels they amount to 4% on average, even smaller.

Bivariate analysis

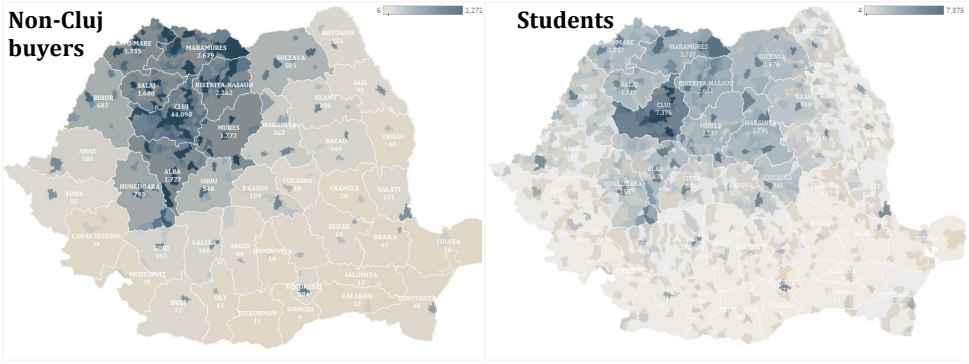
Figure 4 represents both the geography of non-residents who bought property in the city and the geography of BA students enrolled at "Babeș-Bolyai" University. The place of origin of students from" Babeș-Bolyai" University, the largest university in the city and in the country, gives us a clue about the social processes that structure the real estate market in Cluj-Napoca. There is a very high correlation between the origin of students at the university and the origin of owners – the correlation is 76% between the two logarithmic series, significant at $p<0.001$; and the partial correlation, controlling for the size of the locality, is 73%, also significant at the same level. The distribution of out-of-town owners follows the distribution of student origin.

This correlation lends weight to the hypothesis of diffused investment from the region into Cluj-Napoca. Most of the non-resident owners are living in the North-West and Center Development Regions. They also come from western Moldavia, more precisely from the counties of Suceava, Neamț and Bacău. This distribution of ownership shows that some of the capital from Transylvania and Moldova that has not been used for productive investment is absorbed into the Cluj-Napoca real estate market. The key vehicle would be the students' parents, which would be the owners of the newly bought properties.

However, the bivariate correlations in Table 3 paint an alternative explanation. The overlap between the two series, the origin of non-resident owners and the origin of students, is due to a confounding factor. Namely, both maps in Figure 4 draw the recruitment area of the higher education workforce in Cluj-Napoca. There are several arguments for such an interpretation.

Figure 4.

The locality and county of origin of non-Cluj-Napoca property buyers and of the students enrolled at the BA level at "Babeş-Bolyai" University, 2017-2020



Date source: authors' calculations based on CJ-N City Hall data and UBB student records.

There is no correlation between the year of transaction and the number of out-of-town transactions, which represent around one third of all transactions. That is, even if 2020 was a lockdown year with no students coming into the city. If parents with savings would be expected to invest in the apartments of their children enrolled in various BA programs, some negative correlations would be expected. However, that is not the case. These dynamics show that other social processes are most likely behind a high percentage of diffuse real estate investment. Second, as argued in the previous section, Cluj-Napoca's knowledge-intensive sector has grown the fastest in the last decade at the locality level, both in terms of profit rate and aggregate wages.

It is reasonable to expect that employees in this sector constitute a social category that represents par excellence the solvent demand for housing and succeed in shaping the housing market according to their spatial preferences. The neighbourhood-level correlation between the median price per square meter and the number of employees in knowledge-intensive services per company location is 35% (significant $p<0.001$), including a partial correlation that controls the time factor.

Third, at the 2011 census, there is a significant overlap of 33% between the geography of employees by firm location and the geography of where they live. The geography of these employees' homes in 2011 tracks the geography of firms' headquarters in advanced services from 2017 to 2020, but the correlation decreases over time - it is stronger in 2017 compared to 2020. This partly explains why there is no significant correlation between the median price per square meter and home in the census, or at least without other controls.

Table 3.

Correlation matrix

Variabiles	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Price per m^2	1	0.204	0.144	0.119	0.101	0.090	0.076	0.054	0.023	0.003	-0.011	-0.034	-0.065	-0.138	-0.182
2. Trans-action Year	0.204	1	0.687	0.003	-0.097	-0.058	0.009	0.019	-0.064	0.055	-0.030	0.020	0.044	0.092	0.035
3. Est * Year	0.144	0.687	1	0.004	-0.245	0.124	0.063	0.057	-0.219	0.609	-0.027	0.020	0.023	0.209	-0.019
4. KIS Emp. in Offices	0.119	0.003	0.004	1	0.176	0.609	-0.022	0.007	-0.179	-0.042	-0.478	0.077	0.082	-0.314	-0.257
5. KIS Emp. in Neighbourhoo	0.101	-0.097	-0.245	0.176	1	0.222	-0.061	-0.026	0.117	-0.338	0.227	0.001	0.064	-0.348	-0.265
6. % Speculative	0.090	-0.058	0.124	0.609	0.222	1	0.048	0.069	-0.128	0.196	-0.295	0.084	0.089	-0.168	-0.254
7. Non-Cluj	0.076	0.009	0.063	-0.022	-0.061	0.048	1	0.884	-0.001	0.091	-0.015	-0.075	0.024	0.122	0.011
8. Non-Cluj * Bank	0.054	0.019	0.057	0.007	-0.026	0.069	0.884	1	-0.016	0.070	-0.022	-0.050	0.311	0.095	-0.010
9. South	0.023	-0.064	-0.219	-0.179	0.117	-0.128	-0.001	-0.016	1	-0.288	-0.002	-0.015	-0.042	0.014	0.040
10. East	0.003	0.055	0.609	-0.042	-0.338	0.196	0.091	0.070	-0.288	1	-0.012	0.004	-0.019	0.241	-0.053
11. East-West Dist	-0.011	-0.030	-0.027	-0.478	0.227	-0.295	-0.015	-0.022	-0.002	-0.012	1	-0.066	-0.041	0.047	-0.334
12. Speculative	-0.034	0.020	0.020	0.077	0.001	0.084	-0.075	-0.050	-0.015	0.004	-0.066	1	0.077	-0.043	-0.040
13. Bank	-0.065	0.044	0.023	0.082	0.064	0.089	0.024	0.311	-0.042	-0.019	-0.041	0.077	1	-0.050	-0.063
14. Construc-tion Year	-0.138	0.092	0.209	-0.314	-0.348	-0.168	0.122	0.095	0.014	0.241	0.047	-0.043	-0.050	1	0.264
15. North-South Dist.	-0.182	0.035	-0.019	-0.257	-0.265	-0.254	0.011	-0.010	0.040	-0.053	-0.334	-0.040	-0.063	0.264	1

Date source: author's calculations.

The geography of the location of employees in knowledge-intensive services is dependent on their position in the city in 2011, but it is on the move as it is following the location of the offices of the companies where they work. All these suggest that the high percentage of buyers from outside Cluj-Napoca seems to be related to the recruitment area of Cluj employees with the highest salaries who are looking for housing in the city rather close to the offices where they work. However, for such an argument a multivariate analysis is needed

Multivariate analysis

We estimate the price in Euros per square meter of the apartments sold between 2017 and 2020 in Cluj-Napoca using three models: a classical optimal least square model, a spatial lag model and a spatial error model. We use three categories of explanatory factors: (a) neighbourhood occupational structure, (b) transaction type, (c) time and location.

Of the three models, the spatial error model has the highest explanatory power (19% of the price variance), as shown in Table 4. The spatial lag model has similar performance (explains 18% of the price variance). Given that all models do not consider the layout and structure of the apartment, but only location, their explanatory power is quite high. The information criterion diagnostics based on the log-likelihood, AIC and BIC, suggest a hierarchy among models: the spatial error with lowest values on both indexes is the best, followed by spatial lag, and the last is the OLS (with the highest scores). Not surprisingly, model three, the spatial error model, has the highest predictive power, as prices only consider spatial aspects, not attributes that describe the design and structure of dwellings.

Table 4.

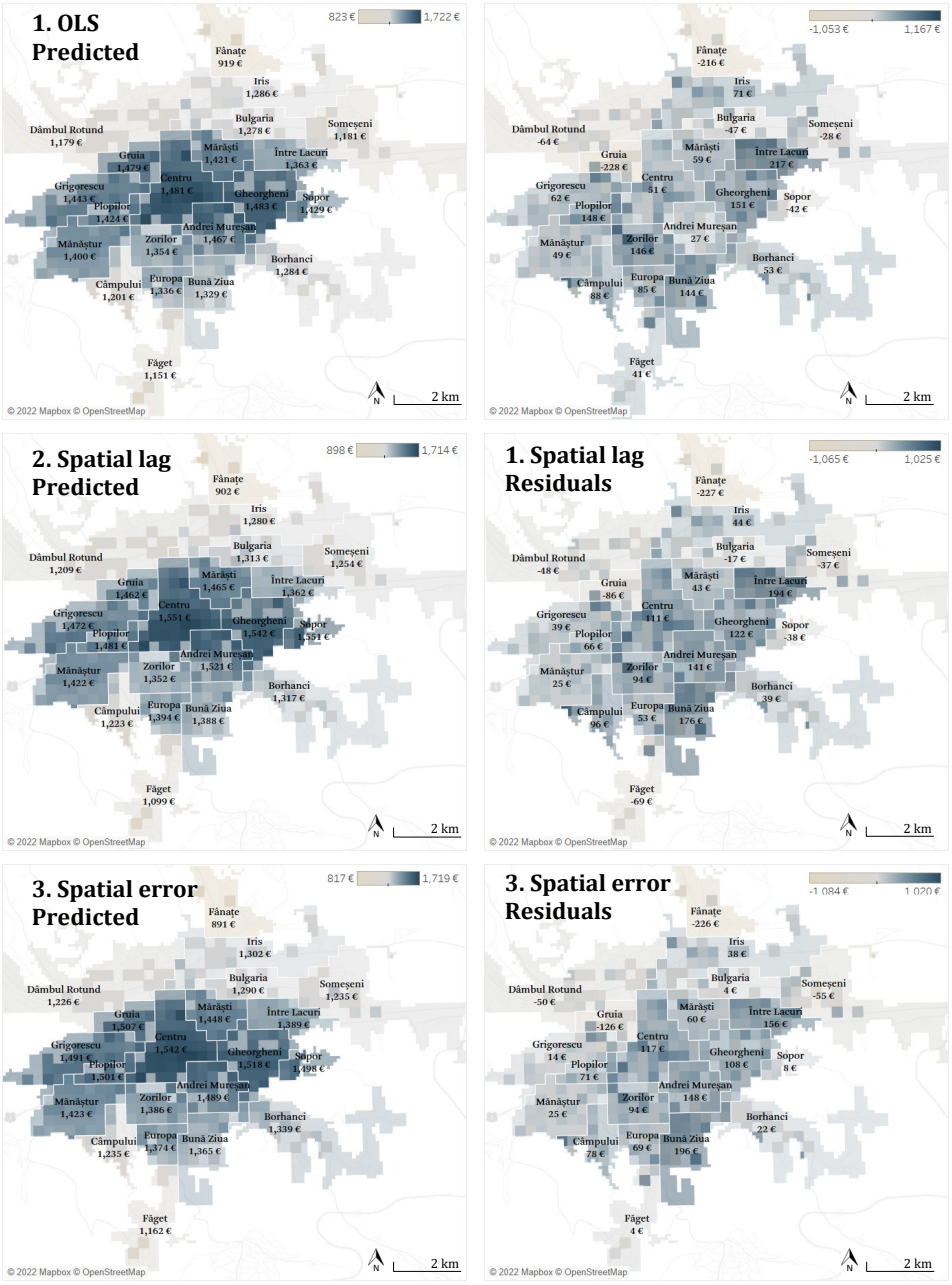
Regression models diagnostics

Diagnostic model	1. OLS	2. Spatial Lag	3. Spatial Error
R^2	12,1%	17,7%	18,5%
Log-likelihood	-185228	-184783	- 184725
AIC	370494	369606	369489
BIC	370649	369768	369643
N	24903	24903	24903

Date source: authors' calculations.

Figure 5.

Predicted and residual values for each model, 2020



Date source: author's calculations.

Table 5.

Predicted models of the median price in euros per m² in Cluj-Napoca, 2017-2020

	1. OLS	2. Spatial Lag	3. Spatial Error
A. Neighbourhood level			
KIS Employees in Offices	0.006* (0.003)	0.009*** (0.002)	0.011** (0.004)
KIS Employees in Neighbourhood	0,035*** (0,005)	0.016*** (0.003)	0.027*** (0.006)
% Speculative Transitions	0.203 (0.156)	-0.003 (0.157)	0.085 (0.215)
B. Type of transaction			
Non-Cluj	35.180*** (9.243)	33.617* (13.341)	35.353** (13.537)
Bank	- 135.154*** (5.430)	-133.412*** (9.019)	-139.185*** (9.182)
Non-Cluj * Bank	48.480*** (10.902)	42.805** (14.431)	40.581** (14.629)
Construction Year	-1.658** (0.605)	-0.906*** (0.105)	-0.711*** (0.133)
Speculative	-69.779*** (12.006)	-68.376*** (9.847)	-69.786*** (10.060)
C. Time & location			
Transaction Year	81.409*** (4.500)	79.154*** (3.444)	100.758*** (4.001)
East-West Distance	-0.014*** (0.003)	-0.003 (0.003)	-0.010* (0.005)
North-South Distance	-0.108*** (0.007)	-0.062*** (0.005)	-0.128*** (0.009)
South	49.561*** (6.427)	29.476*** (9.141)	66.090*** (13.843)
East	17.818** (8.104)	27.101*** (6.800)	43.291*** (12.731)
Est * Year	14.802* (5.659)	7.722 (4.644)	0.054 (5.336)
ρ		0.466*** (0.014)	
λ			0.505*** (0.015)

*** $p \leq 0.001$; ** $p \leq 0.010$; * $p \leq 0.050$. The errors enclosed in parentheses are robust HC3.

Date source: author's calculations.

The spatial error models the autocorrelation between the residuals, addressing a major assumption of the regression, that of the independence of the cases and, implicitly, of the residuals. If there are unaccounted variables that have spatial patterns, they show up inadvertently in the error structure. In this case, it is reasonable to assume that there are unused factors with their own urban geography that could have a significant effect on prices: that is those attributes related to the quality of an apartment. These factors are spatially clustered given the history of the architectural styles and urbanistic regulations. In the rest of the paper when not stated explicitly, we refer to the spatial error model in our interpretations.

Figure 5 represents for all three models the median predicted prices per square meter, both at grid level (300 m^2) and at neighbourhood level, across all years. In addition, the residuals between the actual values and the predicted values are represented at both scales, across years. All three models have similar performance in terms of predictive capacities when inspected geographically, with maps that are almost identical. However, given the R^2, the smallest residuals, visible also in Figure 5, are those of model 3, of the spatial error. In all models, the residuals are not evenly distributed spatially but are systematically higher in the southern and south-eastern part of the city.

The errors are stronger for 2020. The model underperforms even more in the South-Eastern area of the city and for 2020. The inaccuracy may be due to some key variables, as residence of KIS employees, are available only for 2011. We expect that the KIS employees have changed their residence preferences, gravitating more towards the city's South-East, as the survey data point (Petrovici et al., 2022).

The regression coefficients of all models as shown in Table 5 support the first hypothesis, that is KIS employees are key drivers of the price formation. There is a significant relationship between the number of employees in knowledge-intensive services and the price per square meter at neighbourhood level either in offices or in apartments.

The mechanism of apartment price formation is that KIS employees prefer apartments in the surrounding area of their offices. The transaction related coefficients do not support the second hypothesis of the diffuse regional savings. The transactions of out-of-town buyers are on average more expensive (about € 35, holding other factors constant). However, bank loan transactions are on average cheaper (about € 139) than cash transactions. Banks, through the valuation system carried out by specialists, finance more conservatively and therefore select houses that are cheaper. However, the two elements work together. A transaction will be on average more expensive (about €41) if the person who is transacting does not reside in Cluj and is doing so using a bank loan. All these

suggest that it is hardly the case that the savings from the region are put to use in real estate rents in Cluj-Napoca, the largest city in the Transylvanian region. These are not really investments, they are mortgages.

The coefficients suggest an alternative interpretation, on the lines opened-up by the bivariate correlations. The transactions made by out-of-town buyers are in fact employees in the city recruited from the whole region. People from Transylvania and western Moldova investing in Cluj-Napoca's real estate market are in fact looking for lodging in a home ownership market.

The region is the labour pool from where the city recruits its employees. While there are no administrative data referring to the educational attainment of the buyers, contextual data, as provided by high correlation between the spatial distribution of the residence of students enrolled in the largest university in the city and the spatial distribution of the residence of out-of-town buyers, suggest that the regional recruitment of labour within the city targets university degrees employees.

The third hypothesis of the prices driven by speculative investments is refuted. Those who have at least five properties in Cluj, when they purchase a dwelling, they do so at a lower price (on average by € 70). Moreover, the coefficient of the proportion of speculative transaction at the neighbourhood is not significant. This shows that speculative transactions have no effect on prices by reducing the dwellings available for purchase.

In terms of location, prices in the city follow a gradient from the centre to the periphery. The regression coefficients of distance show that prices fall as housing moves further from Union Square. Geographical axes are not equal, the coefficients are different. Price fluctuations are greater on the north-south axis than on the east-west axis. In addition, prices are higher in the east and south. Over the last four years, prices have risen not only eastward (Mărăști, Între Lacuri, Gheorgheni and Sopor), but also southward (Bună Ziua). There are exceptions to these space price dynamics. The exceptions are the apartments in Valea Chintăului, Iris and Gruia, where prices are on average high. On average, home prices in Cluj are rising each year (by € 81 per square meter).

Discussion

The three predictive models indicate that the housing needs of the KIS employee have restructured Cluj-Napoca's real estate market, causing the increases in housing prices in the city in the last four years. In 2020, the spatial pattern and the average price growth was sustained, despite the lockdowns, owing much to the newfound needs for space and home-offices of telework.

While the data does not support the hypothesis of diffuse regional savings being redirected into the local real estate, this interpretation should not necessarily be discarded. Given the role of the region as a labour pool for students and educated employees for the city, it is well plausible that the savings of the parents could be channelled into down-payments as their children find careers in the city. However, our models point to the local labour market as a key factor in sustaining a consistent local demand for housing. This upholds Wetzstein (2017) observation that the housing affordability crisis affects growing cities, in particular employment hubs and student cities. This is certainly the case of Cluj-Napoca, a growing city, a hub of the new outsourced non-manual employment industry.

Given the lack of time series data about the employment of residents, we cannot definitively argue that prices grow because KIS employees buy houses near their offices. An alternative explanation would be that land value in a neighbourhood grows as offices move in. However, the regression uses as factor the number of KIS employees in a neighbourhood, not the number of offices. The prices increase significantly with the number of employees in offices. Most probably this is the mechanism driving up the prices.

A corollary would be, in 2020, that the geography of teleworkers seems to follow the geography of offices**.** This geography is not pandemic-specific. On the contrary, we can see it pre-dates the pandemic and as the knowledge-intensive services sector has grown so has the geography of employees in this sector changed. However, 2020 highlighted key trends in building an urban geography around the housing needs of these workers. Models show that the digitalization of work incorporates housing inequalities. Employees of knowledge-intensive services represent demand with financial resources that exceed the city's average wage income. The housing needs of these employees have more structuring power than those of other employees, for reasons of differential purchasing power. The spatial distribution of the residuals was tilted towards the south-eastern part of the city, especially for 2020, the area where most of the offices are located.

While the data does also not support the hypothesis of speculative investments as key price driver, this interpretation should not necessarily be discarded. The urban geography of KIS employees in offices may generate a first wave of housing demand, which could be a signal to real estate capital to start a new wave of purchases of cheap apartments to be resold after refurbishment. Housing price growth can emerge simultaneously with the needs of KIS employees and the speculative investment in new units or by buying under-priced old units nearby offices. This process may create a spiral of price increases. However, the main driver of demand here are the KIS employees, and speculative investors are rather following the demand by offering adequate supply.

Conclusion

First, this article contributes to the growing body of literature regarding the crisis of affordability (Wetzstein, 2017) by addressing the issue from a different theoretical standpoint: that of Growth Regimes (Baccaro et al., 2022). Looking at the case of Cluj-Napoca and the growing prices in the city's residential sector, we demonstrate that this tendency, in the context of a rather limited supply, is the outcome of the development of an internal demand for housing from local knowledge-intensive services employees (Eurostat, 2020) in the outsourced economy. The three predictive models have shown that the housing requirements of KIS employees have restructured Cluj-Napoca's real estate market, and the 2020 pandemic hasn't stopped either the changing spatial patterns nor the increase of prices.

Secondly, by assessing the issue of affordable housing from a GR conceptual background, we responded to Aalbers and Christophers (2014) call for repositioning housing at the core of the political economy of contemporary capitalism. Shifting away from the VoC supply-side argument of Schwartz & Seabrooke (2009) of "varieties or residential capitalism" towards the aggregate demand-side of Schwartz (2022) and Schwartz & Blyth (2022) of GR, we use the case of Cluj-Napoca to assess the structure of domestic housing demand. As industrial work has been relocated to the metropolitan outskirts since 2008, the number of college-educated employees working in technological development, finance, business operations and creative industries grew rapidly, from 27% in 2008 to 42% in 2020. These are usually employees in the new outsourced companies which have a higher income than the average workers. Consequently, the entire city has undergone a process of gentrification, where people working in the manufacturing sector have been pushed to the surrounding localities along the new greenfield industrial plants, while the emerging middle class is outcompeting the older inner-city residents on the housing market.

Third, the city landscape changes with the gentrification driven by KIS employees. The average prices per square meter increases annually with € 81, especially in the neighbourhoods with new housing stocks, in the South-East of the city in the proximity of the new class A offices and the largest mall in the city. Not only the employees of the outsourced economy buy new housing in a demand-drive market, outcompeting other classes and class fractions, but these categories change the city after their own taste and needs.

Forth, we assess the impact of investment capital and savings on the formation of domestic demand in an export-led economy. We show that the players that buy multiple properties in Cluj-Napoca are certainly important actors – on average they control 7% of the housing transactions annually. Nonetheless, in terms of price formation, they play the role of developers and resellers on a demand-driven real estate market, unmatched by supply. In addition, out-of-town

buyers, while quite important, representing 40% of annal transactions, are rather, as the multivariate analysis shows, employees recruited from the region (probably initially as students) to work in the cities' labour market. The importance of regional saving driven into the city's real estate market cannot be discarded, yet; most probably, it is mediated by kinship ties with the relocating employees working in the knowledge intensive sector.

However, as Christophers argues, urbanization as a form of capital switching (Harvey, 1985, 2006) is essentially a thesis about the manifestation of over-accumulation, which works when indirect investment instruments are at hand, namely tradable shares of real estate companies or mortgage-backed securities. Real estate markets in Eastern and Central Europe are not yet intensely financialized, so these instruments have not generated increased volatility in real estate transactions (Pobłocki, 2021). However, the savings of service workers in advanced sectors of the Eastern European economy constitute an effective demand to create a real estate bubble and housing affordability crisis, especially in major cities that specialize in advanced services such as Cluj-Napoca.

The context of the COVID-19 pandemic pushed housing demand even more. The lockdowns created an urgent need for extra rooms and teleworkers in the advanced service sector were in dire need for home-offices. The COVID-19 pandemic, in the case of teleworkers, has come with a drastic reduction in consumption due to the elimination of commuting and associated costs (transportation, food, clothing). This was reflected also in the excess liquidity reported by commercial banks in 2021 and the inflation in 2022, among other factors. The expectation was that excess saving would be redirected into the housing market, while investment funds, in the context of declining returns on office building, were expected to switch to the housing market (Florida et al., 2021). As our case, the investments funds did not yet move into the housing markets and no signs were shown for the Eastern European markets – properties are not liquid as needed for capital switching. However, new research is needed to assess the dynamics of the aggregate demand on the FDI export-led economies as teleworking entered into the phase of the new normality of 2022.

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