

Differences in Neighbourhood Equipment between Socialist and Post-Socialist Housing Estates in Croatia and Slovenia

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ABSTRACT

The study analyses differences in the quality of neighbourhood equipment between socialist (old) and post-socialist (new) large housing estates in Croatia and Slovenia. A total of 2,193 participants from the four largest cities in Croatia (Zagreb, Split, Rijeka, and Osijek) and the two largest cities in Slovenia (Ljubljana and Maribor) were surveyed in 2022. Satisfaction with neighbourhood equipment was evaluated based on the following aspects of the housing estate: *accessibility of primary and secondary services and facilities* as well as *overall satisfaction with the estate*. Residents, regardless of the country, Croatia or Slovenia, and the type of estate, were generally satisfied with all key aspects of the housing estates. The results also indicated a generally higher urbanistic standard in both types of estates in Slovenia compared to those in Croatia. Furthermore, indicators of satisfaction with neighbourhood equipment generally demonstrated weak correlations with residents' individual characteristics – gender, age, tenure, and length of residence in the estate. In accordance with the initial assumption, socialist estates were not rated worse overall compared to post-socialist housing estates.

Key words: socialist and post-socialist housing estates; satisfaction with primary and secondary neighbourhood equipment; comparative analysis of Croatia and Slovenia; individual characteristics of residents

INTRODUCTION

Croatia and Slovenia share a common history of expansion of large housing estates (LHEs) in Europe after the Second World War and in ex-Yugoslavia during the socialist period (1945–1990). As in other socialist countries of Central and South-eastern Europe (CSEE), LHEs were mostly built by the end of the 1980s. With the introduction of the new socio-political and economic system after 1990, new types of collective housing began to emerge, partly as new housing estates built with state or city subsidies, but predominantly as private and commercial residential constructions. These private housing investments, in both Croatia and Slovenia, mainly took the form of so-called “in-spot” construction, either within or beside existing older estates or on cities’ outskirts. Therefore, compared to socialist LHEs, post-socialist housing estates in both countries often contain smaller multi-family buildings with fewer apartments and fewer tenants. In line with these changes in housing and the way housing estates are constructed, this paper analyses differences in neighbourhood equipment between the so-called socialist (built after WWII) LHEs and so-called post-socialist (built after the 1990s) housing estates and locations in the two countries, Croatia and Slovenia.

Socialist LHEs in both countries still represent an important type of housing and make up a significant share of the total housing stock¹. However, it can be assumed, especially for Croatia, that this older housing stock is no longer adequate for quality housing due to obsolescence and the neglected management and maintenance of multi-family buildings. Therefore, comprehensive and systematic renewal at the state level is needed. In Slovenia, the situation is significantly better, mainly due to Slovenia’s earlier accession to the EU, already in 2004, which allowed for a longer period of adjustment. Nevertheless, neither Croatia nor Slovenia has adopted national housing strategies based on which multi-family buildings and estates could be renewed more comprehensively, including other aspects of renewal, primarily social, demographic, and economic. The current study therefore aims to fill the existing research gap by contrasting socialist (old) and post-socialist (new) estates according to indicators of the quality of equipment of neighbourhood focusing on the estates’ primary and secondary equipment and facilities at both national levels. In doing so, it proceeds from the hypothesis that residents of socialist LHEs in both countries, despite the age and deterioration of the socialist housing stock, are more

¹ In Croatia, according to the year of construction, 12% of the total stock of multi-family buildings at the national level were built before 1945, 62% during the socialist period (until 1990), and 26% in the post-socialist period (after 1990) (Ministry of Physical Planning, Construction and State Assets, 2021). In Slovenia, 31.6% of multi-family buildings were built before 1945, 51.8% during the socialist period, and 16.6% after 1991 (Surveying and Mapping Authority of the Republic of Slovenia, 2021).

satisfied with primary and secondary equipment in their neighbourhoods compared to residents of post-socialist housing estates. The presented results can serve as a basis for guidelines and recommendations for the renewal and maintenance of old housing estates, as well as the planning and management of new ones.

LARGE HOUSING ESTATES IN THE SOCIALIST AND POST-SOCIALIST CONTEXT

Generally, European LHEs were planned according to the principles of “The Functional City” defined by CIAM (*Congrès Internationaux d’Architecture Moderne*), as modernist and functional estates intended to house various social classes (Dekker et al., 2005; Wassenberg, 2018). As such, these estates represented great confidence in the idea that “Modernism”, when applied to housing and urban planning, could deliver a more equal and fair society (Turkington, van Kempen and Wassenberg, 2004). In that spirit, these estates were often planned with various and separate functions, featuring large green and public areas safe from traffic and a carefully designed urban landscape (Dekker et al., 2005). Protection from traffic was usually a guiding principle, ensuring that internal neighbourhood services were within a comfortable walking distance (Hess, Tammaru and van Ham, 2018).

In Croatia and Slovenia, LHEs built between 1945 and 1990 were part of large-scale egalitarian housing programmes under the former socialist regime. Similar to other European countries, especially those of the former Eastern bloc, LHEs in Croatia and Slovenia were built primarily to resolve the housing issues within the broader processes of post-war regeneration, state-level industrialisation and consequent mass urbanisation. Constructed on a massive or industrial scale, these LHEs were supposed to provide housing for large portions of the population, primarily for members of the working and middle-classes in the cities of the newly industrialised society (Bežovan, 1993; Rogić, 1990; Sendi and Kerbler, 2021). As a rule, socialist LHEs were also conceptualised as semi-autonomous residential communities within cities that could meet the day-to-day needs of their residents, providing necessary services (kindergartens, schools, shops, health centres, etc.) and infrastructure (e.g., public space and public transport) (Slavuj, 2012; Svirčić Gotovac, Ursić and Vukić, 2023; Jukić, Mlinar and Smokvina, 2011). They were planned by applying the urbanistic standards that considered the total number of residents.

However, although marked by initial optimism, the actual construction of socialist LHEs faced severe criticism. The demand for low-cost and fast construction led to the use of industrial methods, implementing cheap and prefabricated elements and suboptimal architectural and constructional solutions (Nedučin, Škorić

and Krklješ, 2019; Pojani and Baar, 2016; Hess et al., 2018). These LHEs were often located on the outskirts of cities, even as new cities within existing ones (e.g., Novi Zagreb in Zagreb or Fužine in Ljubljana) resulting in more dispersed housing, spatial isolation, higher costs of commuting, higher infrastructure costs, and higher energy costs (Hegedüs and Tosics, 1998; Hegedüs, Tosics and Mayo, 1996). High building density, monolithic design and focus on residence (in comparison to other functions), together with ill-designed, neglected or sometimes unfinished public and green areas, were customary characteristics of socialist LHEs (Bolt, 2018; Rogić, 1990; Seferagić, 1988; Dekker and Van Kempen, 2004; Musterd et al., 2017). Over time, many of the socialist LHEs, which were constructed between the 1950s and 1980s, experienced significant deterioration. Poor maintenance and management further contributed to the decay of the built environment and infrastructure (Černić Mali et al., 2003; Svirčić Gotovac, Đokić and Adamović, 2023).

The new, post-socialist housing estates and locations refer to those built after 1990. These are either independent housing units or building complexes (so-called “new residential construction”) interpolated into already existing, older estates. Most of the new and private residential construction, located either on city outskirts or in city zones, is being built “in spots” and aimed at younger families from the middle and higher social classes as potential buyers (Svirčić Gotovac, 2015). This is a direct consequence of the state-led housing privatisation process at the beginning of the 1990s (Hegedüs and Tosics, 1998; Sendi and Kerbler, 2021; Spevec and Klempić Bogadi, 2009) – the housing policy implemented as the repurchase or so-called giveaway privatisation (Stephens, Lux and Sunega, 2015; Lux and Sunega, 2014). This major housing transition, carried out by the “Right to Buy” model (Murie, Knorr-Siedow and Van Kempen, 2003), has resulted in an almost total disappearance of the public and rental type of housing in Croatia and Slovenia. Today, Croatia has one of the largest shares of private apartment ownership in the EU, with 90.5% of apartments privately owned or co-owned (Eurostat, 2021). In Slovenia, this percentage is 91.0% (Statistical Office of the Republic of Slovenia, 2021). Moreover, homeownership remains the most widely promoted form of housing status, both socially and institutionally, in both countries.

This situation has been widely used by private investors and real-estate entrepreneurs seeking extra profit in the housing sector. Across CSEE, public space is under growing pressure from potential investors who are constantly looking for any “spare” space that may be exploited for new construction (Sendi, Aalbers and Trigueiro, 2009). Croatia and Slovenia are not exceptions. Investors “develop the city” (Svirčić Gotovac, 2015) by converting public space into residential or commercial areas. Almost three decades later, these locations have been overbuilt and lack the basic infrastructure and public facilities needed for daily urban life,

especially on the outskirts of cities. All this adds extra pressure on the old estates, which were formerly better planned urbanistically, with primary and additional infrastructure (services, public institutions, public and green spaces, etc.) (Svirčić Gotovac, 2015).

In this context, it is not surprising that socialist LHEs, despite their above- stated shortcomings, and primarily owing to their better equipment and spatial layout, still maintain their reputation as desirable places to live (Grossmann, Kabisch and Kabisch, 2017; Dekker et al., 2005; Kovács and Herfert, 2012). However, in old LHEs, a gradual change in the population structure is taking place because residents of lower social classes mostly remain living in older estates as they often have neither the choice nor the financial means to leave (Mandič and Filipovič Hrast, 2019; Černič Mali et al., 2003), while new estates attract younger and more affluent residents. If these trends persist, further demographic degradation, along with the deterioration of the physical state of multi-family buildings, particularly in older LHEs due to their poor maintenance and management (Svirčić Gotovac, Đokić and Adamović, 2023), will steadily lead to significant social and demographic issues, similar to those in LHEs in the West. As an illustration, LHEs in Western and Northern European cities, compared to those in Central and Eastern Europe, more frequently face numerous social problems linked to economic poverty and issues of segregation and stigmatisation (Dekker et al., 2005), as well as ethnic isolation, and neglected buildings and public spaces (Bolt, 2018). On the other hand, new estates are often more attractive and desirable, offering better construction and residential quality, which compensates for deficiencies at the estate level, as residents make up for these by relying on the equipment of nearby older neighbourhoods

DIFFERENCES IN NEIGHBOURHOOD EQUIPMENT AND ENVIRONMENT

In the scientific literature, there is no consensus on the definition of a neighbourhood (Miletić, 2015), but the concept of a neighbourhood as a housing unit can be based on certain expectations and idealised images of what a neighbourhood should look like (Martin, 2003). Thus, at an operationalization and/or conceptual level, different actors may delineate a (specific) neighbourhood using various criteria and in different boundaries. Residents typically adopt “subjective” conceptions of their neighbourhood, often based on the “social definitions of ‘us’ and ‘them’ or their time-space paths in the residential area” (Ruonavaara, 2022: 382). In contrast, “objective” definitions, used in an academic context, tend to frame neighbourhoods within geographical or architectural coordinates. To address this ambiguity, the estates in this study were primarily defined by their period of construction as

socialist or post-socialist. The older LHEs included in the study were selected as large housing estates consisting of a cluster of (large) buildings with a substantial number of housing units, planned by the state or with state support between 1945 and 1990 (see Dekker et al., 2011: 496). As such, these estates can be recognised as distinct geographical areas and housing units, allowing for a clear distinction from post-socialist estates and new residential location constructed after 1990. This operationalisation is straightforward enough to communicate to a diverse lay audience (including the study participants), while at the same time considering objective features of the built and natural environment of the residential areas, including the estates' physical boundaries, as well as their history as a community (Ruonavaara, 2022).

There can be different levels of neighbourhood equipment with public facilities and this could be the source of residents' greater or lower satisfaction with the neighbourhood environment (Slavuj, 2012; Šiljeg, Marić and Cavrić, 2018). Satisfaction with the neighbourhood or estate implies that tenants like their neighbours, the physical state of the area, or the location in relation to the city centre (Dekker et al., 2011) or that residents are satisfied with their immediate living surroundings in terms of both social and physical aspects. In this regard, it is important to evaluate which housing units, services, and neighbourhood environments meet residents' housing needs, expectations, and aspirations. It is also a measure of how individuals or households benefit from consuming housing as a product and a bundle of services (Adewale et al., 2019).

This perception on a daily basis depends very strongly on the existence and quality of basic or primary facilities and services within the estate. These services may include the quality of the housing stock, urban design, physical appearance, cleanliness, quality of public spaces, safety, etc. (Van Gent, 2009; Diaz-Serrano, 2006). Satisfaction with the estate creates stability in the neighbourhood, because satisfaction is a significant predictor of residents' decision to stay. Dissatisfied people may tend to move out, especially when they know that there are available and affordable opportunities (Feijten and Van Ham, 2009). Therefore, understanding the factors that result in residents' satisfaction "can play a critical part in making successful housing policies" (Lu, 1999: 264 cited in Dekker et al., 2011). Insights into how residents perceive the performance of their immediate environment in meeting their housing needs and expectations are important in identifying the aspects of the residential environment that residents are happiest or unhappiest with (Buys and Miller, 2012; Galster, 1985; Adewale et al., 2019).

Therefore, our analysis of the two types of housing estates started with how neighbourhood environment and equipment are assessed from the infrastructural point of view. Besides the overall satisfaction with the estate, we also looked into

the differences between the availability of primary and secondary services and facilities (e.g., public transport, school, kindergarten, grocery store, dental clinic, food services, cultural services, etc.) within these two types of housing estates. In doing so, we compared which estates, old or new in Croatia and Slovenia, better fulfil residents' daily needs.

METHODOLOGY

A customised questionnaire was developed for the purposes of the survey, based on a review of relevant literature on the quality of housing. All analysed variables were measured on a Likert-type agreement scale, ranging from 1 – *not satisfied at all* to 5 – *very satisfied*.

The survey data were gathered between April and June 2022 as part of the Slovenian-Croatian bilateral project, *Quality of Living in the Housing Estates of the Socialist and Post-socialist Era: A Comparative Analysis between Slovenia and Croatia*. The research in Croatia was conducted in the four largest cities – Osijek, Rijeka, Split and Zagreb – while in Slovenia, the two largest cities, Ljubljana and Maribor, were included. The research participants ($N = 2,193$) were residents (aged 18 and above) of multi-family buildings in selected old and new estates. The detailed sample structure by country, city, and type of estate is presented in Table 1.

Table 1. Sample structure by country, city and type of estate

Country	City	Type of estate				Total	
		Old (1945–1990)		New (after 1990)			
		n	%	n	%	n	%
Croatia	Zagreb	400	64.41	221	35.59	621	100.00
	Split	242	65.76	126	34.24	368	100.00
	Rijeka	155	61.26	98	38.74	253	100.00
	Osijek	164	65.34	87	34.66	251	100.00
	Total	961	64.37	532	35.63	1493	100.00
Slovenia	Ljubljana	453	86.45	71	13.55	524	100.00
	Maribor	161	91.48	15	8.52	176	100.00
	Total	614	87.71	86	12.29	700	100.00
Total		1575	71.82	618	28.18	2193	100.00

In Croatia, the sample was disproportionate at the level of individual cities but generally took into account the size of the cities, with the largest share of participants from Zagreb, the largest of the four cities, and the smallest share of participants from Osijek, the smallest among the included cities. There were a total of 39 estates in the sample, of which 21 were old and 18 new. In all Croatian cities, the proportion of residents in older estates was around 60% compared to those in new estates (around 35–40%), reflecting the actual proportion of old and new estates in the total housing stock.

The sample in Slovenia included respondents from 110 housing estates, of which 87 were built during the socialist period and 23 during the post-socialist period (see Sendi, Šeme and Kerbler, 2023). Based on the construction period of the housing estates, 87.6% of respondents live in buildings from the socialist period, while 12.4% live in buildings from the post-socialist period. The ratio of socialist to post-socialist housing construction in the total housing stock of the selected cities is similar, at 89.2% and 10.8%, respectively.

In Croatia, the survey was conducted through face-to-face interviews with a random sampling of households and respondents. In Zagreb, due to an insufficient response rate, fewer than 15% of the total number of interviews at the city level were completed by telephone survey. Consent for participation in a telephone survey was obtained verbally. Those who declined to participate in the survey had the option to terminate the phone call. By employing a probabilistic design at the level of individual households and participants, it was attempted to ensure that the sample was representative in terms of basic socio-demographic variables (sex and age). The data in Slovenia were collected through a telephone survey, by connecting addresses of apartments in selected estates with the telephone registry of the Republic of Slovenia (Kerbler and Sendi, 2022). Consent for participation in a telephone survey was obtained verbally and those who declined to participate in the survey had the option to terminate the phone call. The response rate to the telephone survey, after excluding unanswered calls or calls to wrong numbers, was 3.7%.

Table 2 presents the sample demographic structure by country, city, and type of estate. The share of female respondents was higher in both types of estates in Slovenia (between 65% and 70%), compared to those in Croatia (approx. 60%). In addition, the average age of respondents was considerably higher in Slovenia (68 in old and 65 years in new estates) than in Croatia (45 and 41 years, respectively)².

² It is assumed that there are probably two reasons for the high average age of respondents in Slovenia. First, the telephone numbers of landline telephones are listed in the telephone registry of Slovenia, which are mostly owned by households with older individuals. Secondly, it is likely that this segment of the population is more willing to participate in telephone surveys.

Despite the high average age, it should be emphasised that the Slovenian part of the sample included significantly younger respondents from post-socialist housing estates. The share of those under sixty years old was 41%, compared to 24% in old LHEs. Respondents in socialist LHEs have also lived there for a longer period than those in post-socialist ones, and this difference was also more pronounced in Slovenia. In both countries, respondents living in socialist apartments are more likely to own their apartments compared to those living in post-socialist apartments. However, the percentage of homeowners is higher in estates in Slovenia than in corresponding ones in Croatia (Table 2).

Table 2. Descriptive statistics of respondents in the sample

Variable	Croatia		Slovenia	
	Old (1945–1990)	New (after 1990)	Old (1945–1990)	New (after 1990)
Housing status (%)				
Owner/co-owner	60.71	52.63	91.04	77.91
Tenant	24.97	27.63	7.17	18.60
Other	14.32	19.74	1.79	3.49
Sex (%)				
Male	41.62	41.17	34.36	31.40
Female	58.38	58.83	65.64	68.60
Education (%)				
Primary school	3.44	1.51	5.06	1.16
Specialised high school	-	-	7.34	1.16
High school	54.49	47.74	41.92	22.09
College or university	42.07	50.75	45.68	75.58
Average number of household members	2.33	2.87	1.94	2.24
Average length of residence (years)	17.21	9.03	35.14	17.23
Average age of respondents (years)	45.15	41.40	68.20	64.78
Average income (euros)*	1198.00	1728.00	1463.00	1993.00

Note: Unanswered questions (missing values) and "I do not know" answers are excluded.

* Median values (instead of means) are presented.

RESULTS

Due to large differences in the sizes of subsamples and the subsequent inhomogeneity of variances, non-parametric procedures were applied for the statistical tests of the hypothesis: an omnibus Kruskal-Wallis test for the simultaneous comparison of all four housing estate categories (old and new housing estates in Croatia and Slovenia) and, in the case of statistical significance of the omnibus test, a Mann-Whitney test for the planned comparison of individual housing estate categories. Omnibus Kruskal-Wallis tests were run at the $\alpha = .05$ level of significance. The tests of the hypothesis included two cross-country planned comparisons of corresponding housing estates (old vs. old and new vs. new, between Croatia and Slovenia) as well as two within-country comparisons (old vs. new estates, both in Croatia and Slovenia). Due to the large number of analysed items (and, consequently, a large number of statistical tests), planned comparisons between individual estates were run at $\alpha = .01$ level (and $\alpha = .02$ for marginal significance) to protect against Type I error.

Satisfaction with the accessibility of primary services

Participants initially assessed their satisfaction with the housing estate by rating the accessibility of nine primary services and facilities within the estate: *public transport, parking, school, preschool, pharmacy, post office, bank, grocery store, and health centre* (Table 3). Slovenian participants were more satisfied than their Croatian counterparts with this general aspect of their estates. Thus, total means combining all nine indicators together were 3.99 ($SD = 1.01$) and 3.93 ($SD = .97$) in Croatia, compared to 4.11 ($SD = 1.18$) and 4.06 ($SD = 1.11$) in Slovenia, for old and new estates, respectively (the omnibus Kruskal-Wallis test was significant at $p < .001$). The only exceptions rated higher by Croatian residents were the *sufficiency of parking spaces* and *accessibility of health centres*, in the case of old estates, and the *accessibility of grocery stores*, in the case of new estates. Accordingly, the general level of residents' satisfaction with the accessibility of primary services in the estate was significantly higher in Slovenia than in Croatia, for both old and new housing estates (both $ps < .001$).

In both countries, the total mean of satisfaction with the accessibility of primary equipment was higher for old than for new estates, but only in Croatia did this difference reach statistical significance at the $\alpha = .01$ level ($p < .001$ in Croatia and $p = .03$ in Slovenia). As an illustration, while in Croatia, the *sufficiency of parking spaces* was the only indicator rated better for new estates than for old ones, in Slovenia, this was also the case for the *accessibility of pharmacy and health centre*.

Table 3. Satisfaction with the accessibility of primary services by country and type of estate

Country	Estate type	Primary service accessibility	n	M	SD
Croatia	a) Old (1945–1990)	Public transport ^{b,c}	957	4.19	.83
		Sufficient parking spaces ^{b,c}	951	2.82	1.34
		School ^c	941	4.24	.69
		Preschool ^c	939	4.15	.77
		Pharmacy ^c	951	4.28	.75
		Post office ^{b,c}	896	4.09	.81
		Bank ^c	803	3.83	.99
		Grocery store ^c	949	4.31	.86
		Health centre ^b	810	3.98	.93
	b) New (after 1990)	Public transport ^{a,d}	527	3.95	.86
		Sufficient parking spaces ^a	529	3.17	1.21
		School	437	4.12	.86
		Preschool	461	4.09	.87
		Pharmacy ^d	471	4.30	.69
		Post office ^{a,d}	380	3.69	.94
		Bank	379	3.78	.98
		Grocery store	527	4.28	.76
		Health centre ^a	410	3.80	.90
Slovenia	c) Old (1945–1990)	Public transport ^a	583	4.33	.85
		Sufficient parking spaces ^{a,d}	603	2.61	1.28
		School ^{a,d}	563	4.59	.70
		Preschool ^{a,d}	559	4.64	.62
		Pharmacy ^a	564	4.45	.94
		Post office ^a	544	4.08	1.17
		Bank ^a	513	3.91	1.27
		Grocery store ^{a,d}	606	4.52	.81
		Health centre	481	3.89	1.20
	d) New (after 1990)	Public transport ^b	82	4.23	.95
		Sufficient parking spaces ^c	85	3.28	1.34
		School ^c	73	4.33	.83
		Preschool ^c	72	4.29	.85
		Pharmacy ^b	80	4.54	.79
		Post office ^b	74	4.01	1.07
		Bank	76	3.89	1.27
		Grocery store ^c	80	4.01	1.16
		Health centre	70	4.01	1.06

^{a, b, c, d} Letters in superscript indicate a significant difference (at $\alpha = .01$) between corresponding categories of housing estates.

At the level of individual indicators, differences across the four subsamples tested by omnibus Kruskal-Wallis tests were statistically significant in all nine instances (all $ps \leq .001$).

Residents of old estates in Slovenia, compared to those in Croatia, were significantly more satisfied with seven out of the nine criteria for the accessibility of primary services in their estates: *public transport*, *school*, *preschool*, *pharmacy*, *post office*, *bank*, and *grocery store* (all $ps \leq .003$). On the other hand, the *sufficiency of parking spaces* was rated significantly better in old estates in Croatia ($p = .003$), while the difference in the accessibility of *health centre* was non-significant. A comparison of new estates also revealed significantly higher rates of satisfaction in Slovenia in the case of the accessibility of *public transport*, *pharmacy* and *post office* (all $ps \leq .004$).

In Croatia, residents of old estates were significantly more satisfied with the *accessibility of public transport*, *post office*, and *health centre* (all $ps < .001$), while residents of new estates rated the *sufficiency of parking spaces* ($p < .001$) more favourably. In Slovenia, significant differences in favour of old estates were observed for the *accessibility of preschool*, *school*, and *grocery store* (all $ps \leq .003$), while the *sufficiency of parking spaces* was again better rated in new estates ($p < .001$).

Satisfaction with the accessibility of secondary services

The average rates for seven indicators of accessibility of secondary services (*food services*, *personal care services*, *dental clinics*, *cultural services*, *library*, *church/place of worship*, and *leisure activities*) are presented in Table 4. General satisfaction among residents in old estates was again significantly higher in Slovenia (total $M = 3.89$, $SD = 1.18$) than in Croatia (total $M = 3.83$, $SD = 1.00$), $p < .001$, but for new estates, this difference was non-significant: the total mean in Croatia was 3.87 ($SD = .91$) vs. 3.81 ($SD = 1.23$) in Slovenia, $p > .05$ (the omnibus Kruskal-Wallis test was significant at the $p < .001$ level). As an illustration, in the category of old estates, all but two indicators – *accessibility of dental clinics* and *cultural services* – were rated higher in Slovenia. In the case of new estates, the accessibility criteria of *dental clinics*, *food services*, and *cultural services* were rated higher in Croatia, while the remaining four criteria were rated higher in Slovenia.

Comparisons within countries showed that in Croatia, residents in old estates were more satisfied with the accessibility of three secondary services (*dental clinics*, *library*, and *church/place of worship*), whereas those in new estates were more satisfied with the remaining four. In Slovenia, *accessibility of food services*, *library*, *church/place of worship*, and *leisure activities* were each rated higher in old than in new estates, while *accessibility of dental services* was rated higher in new estates.

Accessibility of personal care services and *cultural services* were rated equally in the two types of estates. This pattern resulted in a non-significant difference in total means between the two types of housing estates, both in Croatia and Slovenia (both p s > .05).

Table 4. Satisfaction with the accessibility of secondary services by country and type of estate

Country	Estate type	Secondary service accessibility	n	M	SD
Croatia	a) Old (1945–1990)	Dental clinic ^c	797	3.89	.97
		Food services (e.g., restaurant, café)	947	3.99	.95
		Personal care services (e.g., hairdresser) ^{b,c}	922	3.96	.88
		Cultural services (e.g., cinema, theatre) ^c	505	3.31	1.17
		Library ^{b,c}	672	3.83	1.03
		Church/place of worship ^{b,c}	843	3.95	.96
		Leisure activities (e.g., gym, education) ^c	900	3.62	.99
	b) New (after 1990)	Dental clinic	466	3.82	.86
		Food services (e.g., restaurant, café)	528	4.14	.75
		Personal care services (e.g., hairdresser) ^a	524	4.19	.75
		Cultural services (e.g., cinema, theatre) ^d	278	3.40	1.18
		Library ^a	332	3.69	.94
		Church/place of worship ^{a,d}	397	3.76	1.00
		Leisure activities (e.g., gym, education)	489	3.74	.83
Slovenia	c) Old (1945–1990)	Dental clinic ^a	440	3.57	1.32
		Food services (e.g., restaurant, café)	542	4.06	.97
		Personal care services (e.g., hairdresser) ^a	560	4.32	.84
		Cultural services (e.g., cinema, theatre) ^a	345	2.90	1.37
		Library ^a	468	4.03	1.13
		Church/place of worship ^a	459	4.08	1.08
		Leisure activities (e.g., gym, education) ^a	464	3.90	1.11
	d) New (after 1990)	Dental clinic	65	3.66	1.34
		Food services (e.g., restaurant, café)	82	4.01	1.02
		Personal care services (e.g., hairdresser)	80	4.28	.89
		Cultural services (e.g., cinema, theatre) ^b	57	2.91	1.42
		Library	69	3.77	1.27
		Church/place of worship ^b	59	4.02	1.15
		Leisure activities (e.g., gym, education)	68	3.79	1.19

^{a, b, c, d} Letters in superscript indicate a significant difference (at $\alpha = .01$) between corresponding categories of housing estates.

Six out of seven observed criteria indicated statistically significant differences between the four categories of housing estates (all omnibus Kruskal-Wallis tests significant at $p < .01$); the only exception was the *accessibility of food services*, which, accordingly, was excluded from the planned comparisons.

Residents of old estates in Croatia were significantly more satisfied with the accessibility criteria of *dental clinics* and *cultural services* (both $ps \leq .001$). At the same time, Slovenian participants were more satisfied with the availability of *personal care services*, *libraries*, *churches/places of worship*, and *leisure activities* (all $ps < .001$). When comparing new estates, Croatian participants were significantly more satisfied with the availability of *cultural services* ($p = .011$), while Slovenian participants were (marginally) more satisfied with the availability of *churches/places of worship* ($p = .018$).

In Croatia, significantly higher levels of satisfaction were observed in old than in new estates for the *accessibility of libraries* and *churches/places of worship* (both $p \leq .001$), while for *personal care services*, the difference was in the opposite direction ($p < .001$). In Slovenia, no statistically significant differences were observed between the two types of estates.

However, the results presented above could be affected by residents' individual characteristics, especially in the context of the pronounced differences in the demographic structure of the four subsamples. To examine this possibility, we performed within-subsample analyses by correlating each of the 16 indicators of accessibility of primary and secondary services (as presented in Table 3 and Table 4) with four residents' attributes – gender, age, tenure, and length of residence in the estate³. All tests of significance for the observed Pearson correlation coefficients were run at the $\alpha = .01$ level.

The majority of correlations were low in magnitude and non-significant. Respondents' gender was a significant predictor – indicating that women were more satisfied than men – almost exclusively in the subsample of old LHEs in Slovenia (*accessibility of public transport*, $r = .12$; *school*, $r = .13$; *preschool*, $r = .11$; *personal care services*, $r = .13$; *library*, $r = .15$; *church/place of worship*, $r = .16$; *leisure activities*, $r = .12$). In the remaining subsamples, this was the case only in new estates in Croatia – for *pharmacy* ($r = .14$). For respondents' age, six significant correlations were observed exclusively in old estates: one in Croatia (*preschool*, $r = .08$), and the remaining five, showing a decrease in satisfaction with age, in Slovenia (*cultural services*, $r = -.17$; *library*, $r = -.15$; *food services*, $r = -.14$; and both *pharmacy* and *post office*, $r = -.12$). All significant correlations for tenure indicated higher levels of satisfaction among homeowners than among tenants; this was especially the case for *accessibility of public transport* in new estates in Slovenia ($r = -.31$), but also for *school* ($r = -.14$), *preschool* ($r = -.13$), and *bank* ($r = -.11$) in old estates in Croatia, as well as for *church/place of worship* ($r = -.18$) in new estates in Croatia. Most of the significant correlation coefficients for the length of residence in the estate were

³ Gender was coded as 1 (male) and 2 (female); tenure was coded as 1 (homeowner) and 2 (tenant).

observed in the subsample of old LHEs in Croatia, all indicating increasing satisfaction with longer residency (*post office*, $r = .14$; *health centre*, $r = .13$; *pharmacy* and *bank*, $r = .12$; *grocery store* and *dental clinic*, $r = .11$; *school*, *preschool*, and *church/place of worship*, $r = .10$; *leisure activities*, $r = .09$). Additionally, tenure negatively predicted satisfaction with the *sufficiency of parking spaces* ($r = -.20$) and positively predicted satisfaction with the *accessibility of preschool* and *personal care services* ($r = .13$, for both), in the subsample of new estates in Croatia. It also predicted satisfaction with the *accessibility of grocery store* (showing the highest coefficient, $r = -.33$) and *library* ($r = .27$).

Furthermore, simple regression analyses for residential satisfaction composite scores, calculated as averages of scores for individual indicators, also demonstrated a weak effect of the four predictors. Specifically, the proportion of explained variance of satisfaction with the accessibility of primary services ranged from 1%, in the subsample of new estates in Croatia to 6%, in the subsample of new estates in Slovenia. The proportion of explained variance of satisfaction with the accessibility of secondary services ranged from 2%, in old LHEs in Croatia, to 4%, in old LHEs in Slovenia.

This pattern of weak relationships suggests that residents' attributes are not crucial factors in their satisfaction with the level of neighbourhood equipment. In other words, the validity of comparisons among the four types of housing estates in our study is not undermined, regardless of potential demographic differences.

General satisfaction with housing estates

The average rates of *general* or *overall satisfaction with the housing estate* summed up nicely the above-observed differences between estates in Croatia and Slovenia. Thus, the respective average rates of *overall satisfaction* with old and new estates were 4.10 ($SD = .71$) and 4.05 ($SD = .80$) in Croatia, and 4.20 ($SD = .76$) and 4.33 ($SD = .86$) in Slovenia. These cross-country differences were confirmed as statistically significant. Since the omnibus Kruskal-Wallis test was significant ($p < .001$), planned comparisons revealed that residents from both old and new estates in Slovenia assessed their overall satisfaction with their estates as higher than their Croatian counterparts (both $ps \leq .003$). No statistically significant differences were observed for the comparisons between the two types of estates within each of the two countries ($ps > .05$, for both Croatia and Slovenia). However, it should also be stressed that general satisfaction with the estates – both old and new ones – appears to be quite high in both countries.

DISCUSSION AND CONCLUSION

The current study presents the first empirical comparison between socialist and post-socialist urban estates in Croatia and Slovenia, focusing on residents' satisfaction with the accessibility of neighbourhood services and infrastructure. The results demonstrate that residents in both countries and both types of housing estates were generally satisfied with the key aspects of their neighbourhoods. Specifically, the overall average ratings for neighbourhood quality indicators – accessibility of primary and secondary services, and general satisfaction with the estate – ranged between the values of 3.8 and 4.3. Alongside high scores for general satisfaction, residents in both countries were somewhat more satisfied with the accessibility of primary than with secondary services and neighbourhood equipment. However, the markedly lowest rates in new, but even more so in old estates in both countries were observed for the (in)sufficiency of parking spaces (for similar results, see also Slavuj, 2012).

This level of satisfaction in old neighbourhoods aligns with trends observed in other post-socialist CSEE countries, characterised by high levels of satisfaction with LHEs from the socialist period (Dekker et al., 2011; Hess et al., 2018; Dekker and Van Kempen, 2004; Murie et al., 2003). The enduring functionality of these estates can be attributed to the comprehensive city planning of the socialist era (Kerbler and Sendi, 2022; Jukić et al., 2011). Despite their age, the primary and secondary infrastructure of these estates still appears to meet residents' day-to-day needs. Although self-sufficient and located on the periphery of the city, these LHEs are well-connected to the city centre through public transportation, thus highlighting another advantage of socialist housing estates.

Another implication of our results is that new estates, especially in Croatia, have not yet managed to raise the bar of the quality of the neighbourhood equipment in comparison to old LHEs. Specifically, in Slovenia, all three key aspects of residents' satisfaction – satisfaction with the accessibility of primary and secondary services, as well as general satisfaction with the neighbourhood – were rated as (statistically) equal in old and new estates. At the level of individual indicators, there were three significant differences, all in favour of old housing estates. In Croatia, these differences were more pronounced in favour of old estates: at the level of total means, the accessibility of primary services was rated significantly higher in old estates, while for the remaining two general indicators, there was no statistically significant difference between old and new estates. In addition, out of seven significant differences between the two types of estates at the level of individual indicators, five of them were in favour of old estates. For further illustration, in the category of accessibility of primary services, almost none of the indicators

were rated better in new than in old Croatian estates. The only exception was the sufficiency of parking spaces, as this indicator indeed reflected one of the most substantial advantages of new estates.

Thus, the described pattern of results allows for at least partial confirmation of our initial hypothesis. Both in Slovenia and even more so in Croatia, residents of socialist LHEs express satisfaction with the quality of housing comparable to that of residents in post-socialist housing estates.

These results, again – especially in Croatia, reflect decades of transition marked by the dominance of private and developer-driven housing and the lack of comprehensive urban planning (Vasilevska, Vranic and Marinkovic, 2014; Svirčić Gotovac, Ursić and Vukić, 2023). In the new multi-family neighbourhoods, open green areas and social services are no longer considered mandatory neighbourhood components (Sendi and Kerbler, 2021). This approach to post-socialist overbuilding often exploits and places additional pressure on the old estates and their facilities from the socialist period (Svirčić Gotovac, 2015).

Such developments have made it possible for old LHEs to remain a strong benchmark for assessing the quality of housing and living, as shown in similar post-socialist findings (Hess et al., 2018; Kovács and Herfert, 2012; Grossmann et al., 2017). Conceptually, this could mean that high satisfaction rates in our study do not necessarily indicate a high standard of neighbourhood facilities and services, but possibly a low level of residents' aspirations (e.g., Nakazato, Schimmack, and Oishi, 2011). Specifically, since it has not succeeded in producing a qualitative breakthrough, the development of new estates has failed to drive changes in housing norms and standards for the urban population (see Emami and Sadeghlou, 2020). That being the case, old LHEs remain the "reference condition" (Galster, 1985), at least in the context of assessing neighbourhood equipment. In other words, it is possible that the construction of new estates mainly as residential locations and "spots", did not break the decades-long cycle of residents' adaptation to and satisfaction with conditions in old estates. As a result, this has failed to initiate a new cycle of dissatisfaction and increasing aspirations for improving one's housing conditions (Nakazato et al., 2011; Šiljeg et al., 2018). Therefore, one of the most important findings of the current study is that post-socialist residential housing types have not triggered changes in the attitudes of residents of socialist LHEs regarding their expectations and levels of satisfaction with their living environment. Thus, it seems that there have been no changes in the mindset concerning what people generally perceive as the quality condition of their immediate neighbourhood (see Sendi and Kerbler, 2021: 15).

Furthermore, according to most indicators across all three key aspects of neighbourhood quality, the results, although often showing small differences, were in fa-

vour of estates in Slovenia. At the general level, the accessibility of primary services and general satisfaction with the estate were rated significantly better in old and new estates in Slovenia than in the corresponding ones in Croatia. In addition, satisfaction with the accessibility of secondary services was also significantly higher in old estates in Slovenia than in Croatia. At the level of individual indicators, out of 14 statistically significant cross-country differences in the category of old estates, 11 of them were “in favour” of the estates in Slovenia. In this regard, probably the most prominent illustration of higher levels of satisfaction among Slovenian residents was the aspect of accessibility of primary services, where seven out of nine indicators were rated significantly better in Slovenian old estates than in Croatian ones. This tally was similar for new estates as well: out of five significant differences between the two countries, four favoured the estates in Slovenia. It seems that Slovenia’s new estates are (still) not affected by private and market-oriented profit patterns as those in Croatia, and certain shortcomings of post-socialist housing construction are less visible. In general, this pattern of results indicates a trend of better housing and urban standards in Slovenian than in Croatian old and new housing estates. This, at least partially, could be attributed to Croatia’s lagging in modernising urban policies and accessing structural funds, both of which are consequences of its later accession to the EU compared to Slovenia (Pandžić, 2021). At the same time, these findings suggest there is room for improvement in both old and new estates in Croatia to achieve the level of neighbourhood quality found in estates in Slovenia.

Our study also contributes to the existing body of literature by exploring how residents’ individual characteristics might influence their perception of the specific urban environment (socialist or post-socialist) in which they reside. In general, our results confirmed previously observed effects of residents’ individual characteristics – such as gender, age, homeownership, or length of living in a neighbourhood (for an overview, please refer to Emami and Sadeghlou, 2020) – but only sporadically, appearing in specific subsamples and for particular indicators. The overall effect of these predictors was also low. It is possible that residents’ individual attributes lose their power in explaining residential satisfaction as the analysis progresses from lower to higher levels within the dwelling–building–neighbourhood hierarchy of the residential environment (see Emami and Sadeghlou, 2020). Additionally, in our analyses, individual determinants could lose their explanatory power due to the relative homogeneity of their distributions – for instance, the ratio of homeowners was multiple times higher than the ratio of tenants, and participants were predominantly older residents, as seen in the subsample of old LHEs in Slovenia. Based on these notions, future studies should compare residents’ satisfaction across various levels of the residential environment. Various sampling techniques could be considered,

such as quota sampling with predetermined ratios of specific demographics, or sampling a few demographically diverse neighbourhoods, or even households, for more in-depth study and comparison (see Dekker et al., 2011; Miletić, 2015).

The scope of applicable statistical analyses in the current study was also limited by the unbalanced sizes of the subsamples – particularly the small proportion of respondents from old LHEs in Slovenia. Thus, only non-parametric statistical tests were applied for cross-sample analyses, while more advanced analyses, such as regression analyses, were possible only within specific subsamples. This certainly limited the ability to generalise our findings more broadly.

In that sense, alongside indicators of the quality of the physical environment, it would also be valuable to consider measures of residents' satisfaction with social aspects of their neighbourhoods, such as social cohesion, neighbourly relations, or a sense of belonging. Residential areas should also serve as spaces for connection, fostering attachment and a sense of belonging (see, e.g., Kearns and Parkinson, 2001). At the same time, "neighbours are nevertheless people who potentially share locality-based interests and can potentially form a community furthering them" (Ruonavaara, 2022: 386). It would be interesting to explore whether satisfaction with the neighbourhood increases with better social integration among residents, or whether more integrated communities are more motivated to engage in neighbourhood improvement, including enhancing its services and infrastructure (or, conversely, whether less social integration correlates with lower satisfaction and a stronger desire to leave).

However, our study is an important step towards better understanding the current state of socialist and post-socialist estates in Croatia and Slovenia, as well as their potential for further improvement and protection. We empirically demonstrated that levels of residents' satisfaction with the accessibility of primary and secondary services, as well as their general satisfaction with their neighbourhoods, are comparable between old and new estates in both Slovenia and Croatia. Therefore, our study fills a gap in the literature by positioning Croatia and Slovenia alongside other CSEE countries known for high levels of satisfaction with socialist-era LHEs (see Hess et al., 2018). From the practical policy perspective, these results imply that old LHEs in both countries are worth further investments in order to rehabilitate and improve their current state. On the other hand, it can be noted that most of the deficiencies found in new housing estates and locations are due to an inadequate level of neighbourhood equipment. Thus, upcoming urbanistic plans should circumvent these and other typical shortcomings of post-socialist housing construction, especially the lack of public and green spaces, services and supporting infrastructure. In addition, existing estates could also be subsequently upgraded to better fulfil the everyday needs of residents. In order to enhance the quality of living, cities

should therefore adopt a more holistic approach to planning future housing estates (Kerbler and Sendi, 2022; Svirčić Gotovac et al., 2023). The current study detects significant issues in both old LHEs and new estates, so these deficiencies must be addressed at the level of city policies. This is crucial to prevent further degradation of current satisfaction and housing quality, which could negatively impact overall resident satisfaction in both new and old LHEs. For example, instead of solely selling land to housing developers for capital gain, cities should allocate a portion of the land for the construction of public infrastructure that caters to the needs of future residents. The development of necessary infrastructure should be integrated concurrently with the construction of housing estates without delay, to create an environment that is more adequate than the current one. Further research should focus on strategies to achieve and implement these objectives.

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CONFLICT OF INTEREST

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

ETHICAL APPROVAL

Ethics Committee of the Institute for Social Research in Zagreb.

DATA ACCESS AND TRANSPARENCY

The data presented in this study are available upon request from the corresponding author.

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Razlike u opremljenosti socijalističkih i post-socijalističkih stambenih naselja u Hrvatskoj i Sloveniji

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SAŽETAK

Studija analizira razlike u zadovoljstvu kvalitetom opremljenosti socijalističkih (starih) i postsocijalističkih (novih) velikih stambenih naselja u Hrvatskoj i Sloveniji. Anketno istraživanje provedeno je 2022. godine na ukupnom uzorku od 2193 sudionika iz četiriju najvećih gradova u Hrvatskoj (Zagreb, Split, Rijeka i Osijek) i dvaju najvećih gradova u Sloveniji (Ljubljana i Maribor). Zadovoljstvo opremljenošću naselja procijenjeno je prema aspektima dostupnosti primarnih i sekundarnih usluga i sadržaja kao i prema općem zadovoljstvu naseljem. Stanovnici su općenito bili zadovoljni svim ključnim aspektima stambenih naselja, bez obzira na državu ili vrstu naselja. Rezultati su također pokazali općenito viši urbanistički standard u objema vrstama naselja u Sloveniji u usporedbi s onima u Hrvatskoj. Nadalje, pokazatelji zadovoljstva opremljenošću naselja općenito su bili u niskim korelacijama s individualnim karakteristikama stanara – spolom, dobi, stambenim statusom i duljinom stanovanja u naselju. U skladu s početnom pretpostavkom, socijalistička stambena naselja općenito nisu bila lošije ocijenjena od naselja iz postsocijalističkog perioda.

Ključne riječi: socijalistička i postsocijalistička stambena naselja; zadovoljstvo primarnom i sekundarnom opremljenošću naselja; komparativna analiza Hrvatske i Slovenije; individualne karakteristike stanara

