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Research Article

Forms of vertical segregation in the contemporary city of Athens

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Abstract: Vertical social segregation as a separation of different social groups in apartment buildings is a phenomenon that mainly appears in the cities of Southern Europe and in some cities of Western and Central Europe. The focus of this paper is the Athenian model of vertical segregation, which shares similarities with the models of other European cities but has its own distinct features. By focusing on the Athenian case, this paper aims to contribute to the broader discussion of segregation at the micro-scale. The study documented here, based on two specific cases, will shed light on the details of the Athenian case. The data were collected within the framework of a recently completed research project on the Municipality of Athens, where vertical segregation is very present. Therefore, this paper is based on the micro-data of the ISTOPOL project (<https://www.istopol.gr/>) and on their analysis as part of the SeDe (<https://www.sedeproject.eu/>), an ongoing research project. The paper describes the types of micro-segregation existing in two apartment blocks located in different neighbourhoods of the inner city. The main questions addressed were whether these two buildings followed the typical vertical segregation model and whether the structure and the internal design of the specific buildings affected the type of segregation. The study reveals that while the model of vertical segregation is evident in the two case studies, the actual reality is more complex than theoretically expected. The internal design of the buildings has significantly influenced the type of segregation.

Keywords: Athenian model of vertical segregation; European context; hierarchical structure; socio-professional categories; ethnic segregation; micro-segregation; building regulation code; case studies; qualitative research approach

Highlights:

- Vertical segregation observed in European countries and other parts of the world.
- The paper explores the pattern of vertical segregation in Athens.
- The findings reveal that the buildings' internal design impacts segregation patterns.

1. Introduction: Definitions & the contemporary debate about segregation

'Social segregation' is the spatial distance between two or more social groups of the population that takes place when that population groups 'occupy different spaces within the same city' (Gregory et al., 2009, p. 673).

One type of segregation is 'horizontal social segregation', which refers to the differentiation of the social composition of residents at the neighbourhood or community level (Maloutas & Karadimitriou, 2001). The unilateral focus on the horizontal dimension of segregation has been more pronounced in the US and countries of Northern and Western Europe (Maloutas & Karadimitriou, 2001)¹. In the US, the discussion about segregation² and the majority of published papers have focused more on ethnic-racial segregation (see more Dmowska & Stepinski, 2023; Elbers, 2024; Massey, 2020; Rosenbaum & Friedman, 2024;) and less on socio-economic segregation³, as is the case in European countries (see more Daconto & Montesano, 2024; Haandrikman et al., 2021; Musterd, 2005; Preteceille, 2007; Tamaru et al., 2019). According to Arbaci (2007; 2008), ethnic segregation is present in Northern European cities, but it exhibits distinct patterns compared with Southern Europe. In Southern European cities, despite the increase in immigrant flows since the 1990s, there is a combination of high levels of deprivation and relatively low levels of spatial segregation at the neighbourhood level, the so-called 'segregation paradox' (Arbaci, 2019).

¹ However, there are other studies on horizontal segregation in Asia, Africa and South America (see the Handbook of Urban Segregation edited by Musterd, 2020).

² The Chicago School sociologists who first investigated the segregation phenomenon focused on the ethnic-racial population groups and the different areas these groups occupied in US cities (Park, 1926, p. 5).

³ Studies included in Urban Socio-Economic Segregation and Income Inequality (edited by van Ham et al., 2021) argue that socio-economic segregation in US cities such as Chicago has been rising due to growing income inequality since the 1980s. Meanwhile, Los Angeles exhibits a high level of socio-economic segregation, influenced by both income disparities and urban development patterns that reinforce divisions (Smith et al., 2021). However, in New York City, there is a complex mix of both socio-economic and ethnic-racial segregation (Zapatka et al., 2021).

In respect to Europe, a segment of the literature about ethnic segregation has focused on Roma communities who experience high rates of spatial segregation, stigmatization and discrimination. For instance, according to Berescu (2011), Roma segregation in Europe has been primarily enforced through housing policies, urban planning practices and public policies that create and maintain marginalized, isolated settlements or ghettos. He argued that there is a systematic approach across Europe that keeps Roma populations physically segregated, socially marginalised and legally constrained. Moreover, Malovics et al. (2019) examined how Roma communities in Szeged, Hungary experience spatial segregation while also developing a sense of place attachment. Through participatory action, this study revealed that while physical isolation and poor housing limit Roma integration, residents develop strong community ties and attachments to their neighbourhoods, which provide both emotional and material support. However, this attachment has also reinforced exclusion, complicating their ability to move beyond these spaces and impacting opportunities for integration and well-being. Moreover, Maloutas et al. (2024) examined the social exclusion and segregation of Roma communities in Greece through two case studies. They found that despite being part of urban centres, Roma communities experience exclusion due to physical barriers (such as rail tracks, roads or industrial zones), limited access to services and persistent discrimination.

The main discussion on socio-economic or ethnic-racial segregation has focused on the horizontal dimension (social or ethnic-racial) that mainly concerns the English-speaking world (Maloutas, 2024). Prominent reference books, handbooks and papers of urban social geography (Gregory et al., 2009; Knox & Pinch, 2006; Massey & Denton, 1988) have emphasised only that dimension of segregation. In contrast, ‘vertical segregation’ as a form of micro-segregation⁴ on the scale of an apartment building attracted much less attention in the English-speaking world⁵. Urban social geographers consider this phenomenon a marginal issue related to the past or a specific feature of very few cities that could not gain global scientific interest (Maloutas, 2024, p. 186).

However, even though the vertical dimension of segregation has been more pronounced in Athens and other Southern European cities, it has also developed in other cities around the world (Maloutas, 2024). For instance, it has also been observed in the high-rise building stock of Asia, Latin America and parts of Africa (Musterd, 2020), but not necessarily following the same pattern. Therefore, the analysis of the Athenian case could contribute to a wider understanding of micro-segregation and mainly vertical segregation.

Recently there has been an increasing number of publications focused on segregation at the micro-scale in the edited volume *Vertical Cities: Micro-segregation, Social Mix and Urban Housing Markets* (Maloutas & Karadimitriou, 2022), in the special issue *Urban Micro-Segregation* of the journal *Land* and in other papers (Maloutas, 2024; Myofa, 2023b).

The study detailed here was primarily focused on the Municipality of Athens because significant construction of apartment buildings enabling vertical segregation was developed in this area. In fact, from 1950 to 1980 (a period of intense building development), about 35,000 apartment buildings were constructed with the land-for-flats system (*antiparochi*) in the neighbourhoods of the Municipality of Athens (Maloutas & Spyrellis, 2015).

The aim of the study was to illustrate the types of segregation in two Athenian apartment blocks through a qualitative research approach (see Section 3) and to examine the differences between them. These two apartment blocks were built following a different building regulation code, which affected the degree and intensity of social and/or ethnic segregation and housing mobility within them.

The investigation addressed the following two questions: 1) Do these two apartment blocks represent the typical vertical social and/or ethnic segregation model (i.e. the lower social categories and/or immigrants⁶ overrepresented on the lower floors, and the higher social categories and/or the dominant ethnic groups on the upper floors), or is the detailed reality more complex than would be theoretically expected? and 2) Do the structure and internal design of these apartment blocks affect the type of segregation that exists, and how do they do this?

2. Literature Review

2.1 The phenomenon of vertical segregation in the contemporary cities of Europe

As already mentioned, although the phenomenon of vertical segregation mainly appeared in Southern Europe, it also developed among other cities of the world, such as those in Western and Central Europe (Maloutas & Karadimitriou, 2001). In this chapter, will analysed the patterns of vertical segregation observed in cities other than Athens, focusing mainly on Europe. The aim is to highlight the patterns observed in other cities in Southern, Western and Central Europe (Musterd, 2020).

More specifically, in the historic centre of Naples in Italy, there is a coexistence of the upper social class on the first and second floors, middle social strata (public employees, shopkeepers, professionals) on the upper floors and lower social strata (popular masses) on the street level (mainly dwellings on the ground floor and in the courtyard hovels) (Pfirsch, 2023; Dines & Mattiucci, 2022). This model concerns the northern and western parts of the historic centre, where the buildings were mainly constructed during the sixteenth and seventeenth centuries. The main characteristics of these buildings that vary by floor are the size of the dwellings, the height of the ceilings, the size of the windows and the light and ventilation of the apartments (Dines & Mattiucci, 2022).

Another southern European city where the pattern of vertical ethnic segregation is observed is the capital of Spain, Madrid. Due to inadequate social housing, immigrants find low-cost affordable housing for rent on the lower floors of the five-story apartment buildings in Madrid. Consequently, there is a concentration of immigrants from low-income countries on the lower floors of apartment buildings, while they are underrepresented on the upper floors (Leal & Sorando, 2022).

In central Paris, the first well-known example of vertical segregation was developed in modern times in apartment buildings constructed during the nineteenth century (Maloutas, 2024). The social segregation pattern in these apartment buildings was closer to the Naples model: the upper socio-professional classes occupied the lower floors, where the apartments were luxurious and larger, while the lower classes occupied the smaller apartments on the upper floors (Maloutas & Spyrellis, 2015). Additionally, the rooms on the top floor of the building were rented to low-

⁴ Micro-segregation refers to social hierarchies below the neighbourhood level where diverse and unequal individuals live in close proximity (Maloutas & Karadimitriou, 2022 p. 1). Micro-segregation may be present within census tracts, within city blocks, at the street level or even within apartment buildings.

⁵ White (1984, 156) argued that ‘vertical stratification has been less present in the cities of Northern than of Southern Europe: in the north, nineteenth-century industrial growth led to the creation of worker housing or tenements and “normal” spatial segregation quickly developed’.

⁶ Greece experienced a large wave of immigration after the collapse of socialist regimes in 1989–1990 (Kandylis & Maloutas, 2017). Since the beginning of the 1990s, these immigrants primarily came from Albania, other Balkan countries and ex-Soviet countries. Later, after 2000, a second wave took place. This wave also included immigrants and refugees from Asia, the Middle East and Africa (Balampanidis, 2020).

income people, ‘mostly servants and day laborers’ (Marcińczak & Hess, 2020, p. 826). Today, it does not exist due to the upgrading of the dwellings on the upper floors, which changed the social physiognomy of their tenants (Maloutas & Spyrellis, 2015). Marcińczak and Hess (2020, p. 827) argued that micro-segregation still exists in Paris, even though horizontal segregation has solidified.

In Bucharest and Budapest, in the apartment buildings of both the pre-socialist and socialist periods, different patterns of vertical segregation can be observed. These apartment buildings are differentiated socially and demographically by floor (Marcińczak & Hess, 2022). For example, in Bucharest, in the socialist era’s apartment buildings of five to nine floors, the ground and the upper floors were designated for residents of lower socio-economic categories, while the middle floors were reserved for richer residents (Marcińczak & Hess, 2020, pp. 829, 842). Marcińczak and Hess (2020, pp. 842–843) argued that the difference in the patterns of vertical segregation between the socialist cities and other cities of Southern and Western Europe (where the phenomenon occurs) is the quality characteristics of the apartments per floor. In the case of socialist cities, there is no differentiation per floor since the apartments are uniform.

As previously mentioned in Section 1, except for micro-segregation at the level of apartment buildings (that is, vertical segregation), differentiation may occur at other levels below the neighbourhood. For instance, Crisci and Santurro (2023) examined the micro-segregation of various national groups (Bangladeshis, Chinese, Filipinos, Romanians) in the ethnically mixed micro-areas in Rome. More specifically, they identified census tracks where an ethnic group was highly concentrated despite being generally under-represented in the broader neighbourhood. Another paradigm was described in the study of Musil and Kaucic (2024), which investigated micro-segregation within Vienna, focusing on the impact of housing market segmentation in two inner city districts, Mariahilf and Neubau. In these mixed-income areas, distinct housing segments have led to micro-level spatial separation, where income groups occupy different spaces within the same buildings or between buildings on the same block. This arrangement has created a situation where these diverse groups live in close proximity but remain socially distinct groupings within the urban fabric. Moreover, Vámos et al. (2023) studied the patterns of micro-segregation in a Szeged neighbourhood in Hungary, where the housing stock is very diverse and includes both old and new buildings. As a result, a mix of residents from different socio-economic groups live there. This diversity does not prevent segregation, but instead, it results in clusters where certain social groups are more concentrated.

Thus, it is clear from the analysis of the studies just mentioned that the model of vertical segregation that occurs in the majority of European cities is not the same. There are differences among the cities of Europe concerning the pattern of vertical segregation.

2.2 The Athenian context of vertical segregation

The first reference to the term ‘social segregation’ by Greek scientists was made at the end of the 1980s, when there was an active discussion about segregation in the interwar period between WWI and WWII (Gizeli, 1984; Leontidou, 1990; Nikolaidou, 1993). In the context of this scientific discussion, it was found that one type of interwar segregation – that is, the division between refugee settlements and natives’ neighbourhoods – had essentially disappeared during the post-WWII period. However, Leontidou managed to define a new, exceptional type of separation that first appeared during the post-WWII period in the high-rise building neighbourhoods of Athens. She defined this type as ‘vertical differentiation’, which is segregation at the micro-scale (the scale of the residential buildings) (Leontidou, 1990).

It was not until the early 2000s, ten years after Leontidou first defined the term ‘vertical differentiation’, that the first quantitative analysis of this phenomenon took place (Maloutas & Karadimitriou, 2001). These data came from a small sample of 254 households located in a neighbourhood in the centre of Athens (Ambelokipoi). For the analysis, the socio-professional characteristics of the households were correlated with the specific floors of the residence. The catalyst for documenting the phenomenon using quantitative data was the addition of the floors (that the households occupy) to the 2011 census data (Dimitrakou et al., 2022; Maloutas & Spyrellis, 2015; 2016).

The term ‘vertical segregation’ means that a mixture of different social classes lives together in *polykatoikies* (the Greek term for block of flats or condominiums). These social classes dwell in apartments differentiated vertically by floor in terms of the dwelling size and in general the characteristics of the dwellings (in contrast with the lower floors, the upper floor dwellings are characterised by a better view, less noise, more light, better ventilation, usable balconies, etc.) (Maloutas & Spyrellis, 2015). Therefore, different social strata occupy different apartments. Thus, the distribution of social groups at the micro-scale according to Maloutas and Karadimitriou (2022) follows a hierarchical structure. That is, the upper and upper-middle social classes and natives dwelled in higher floor apartments (4th and above), while the lower social classes and immigrants dwelled in lower floor apartments (basement and ground floor). The existence of hierarchies in the distribution of social groups in the apartment building space was the main reason Maloutas and Karadimitriou (2022) adopted the term vertical social ‘segregation’ instead of ‘differentiation’, as Leontidou did (1990, p. 12). The term ‘differentiation’ implies difference but not necessarily hierarchies (Maloutas & Karadimitriou, 2022, pp. 1, 17). The two terms are not identical, although they are often used as if they are (Maloutas & Karadimitriou, 2001, pp. 699–700). The term ‘vertical segregation’ refers to the vertical hierarchy and the inequalities that arise due to this hierarchy, i.e. this term emphasises the social distance, while the term ‘social differentiation’ is broader and implies the differentiation that is due to this vertical cross-class hierarchy (Maloutas & Karadimitriou, 2001; Maloutas & Karadimitriou, 2022).

As previously mentioned, the type of apartment buildings where the Athenian phenomenon of vertical segregation occurs is the *polykatoikies* (building of five or more storeys) that were constructed based on an *antiparochi* system during the period 1950–1980 of intense housing construction (Leontidou, 1990, p. 234; Dragonas, 2014). The *antiparochi* system was based on the agreement between the landowner and the builder–contractor (Maloutas & Spyrellis, 2015). The landowner would grant the land – usually a small-size parcel because, in Athens, it was the case that land was fragmented into small parcels mainly for clientelistic and political reasons (Mantouvalou et al., 1995) – to the builder – contractor to construct a *polykatoikia*. In exchange, the landowner would receive from the contractor a number of apartments in the building, while a number of apartments would be sold (often in advance) to finance the construction investment (Antonopoulou, 1990; Hastaoglou et al., 1987). Usually, the future owners bought the apartment off the plan (without a specific or completed floor plan). Therefore, during the construction of the apartment building, they probably would request changes according to their needs (Theocharopoulou, 2022). Therefore, the financial ability (or not) of future owners is reflected in the final product. It is important to mention here that the distinctiveness of the *antiparochi* system was that it constituted a significant barrier for major players (such as large construction firms and private banks) to enter the building sector (Hastaoglou et al., 1987; Theocharopoulou, 2022).

The first dwellers of apartments in these buildings belonged to upper and upper-middle social categories and either participated in the process as landowners, contractors or engineers or as affluent apartment buyers (mainly occupying the upper floors) (Maloutas & Spyrellis, 2016). In contrast, the lower (and most disadvantaged) floors were destined for rent for those who could not afford to buy an apartment or those who were in transitional stages concerning their employment or students who had not become independent of the parental household (Maloutas &

Spyrellis, 2016). Gradually, however, these apartments were resided in by people from a wider range of social categories (Maloutas & Karadimitriou, 2001).

Since the mid-1970s, the relocation of many residents of the Municipality of Athens from the upper and upper-middle social strata to the suburbs (north and south Athens) has had a great effect on the rather homogeneous structure of the *polykatoikies* that were constructed with the *antiparochi* system (Maloutas, 2004). The population of the Municipality of Athens, while growing rapidly (35%) in the period from 1951–1971 and after a very slight increase (2%) in the decade 1971–1981, began to show a strong decline after the 1981 census, which continued in the following years (Figure 1). During the period from 1981–2011, the decline of the population was very significant (33%), and it is about equal to the increase during the period from 1951–1971. However, during the decade 2011–2021, the population decline was very low (3%). The Municipality of Athens has followed a different growth pattern in comparison with the metropolitan area of Athens,⁷ except for the period from 1951–1971. The population increase was rapid in both areas during the post-war period. However, in the metropolitan area of Athens, this increase continued until 1981. From that time until 2021, the increase in population was less rapid in the Athens metropolitan area, while in the Municipality of Athens, the decrease was significant (Figure 1).

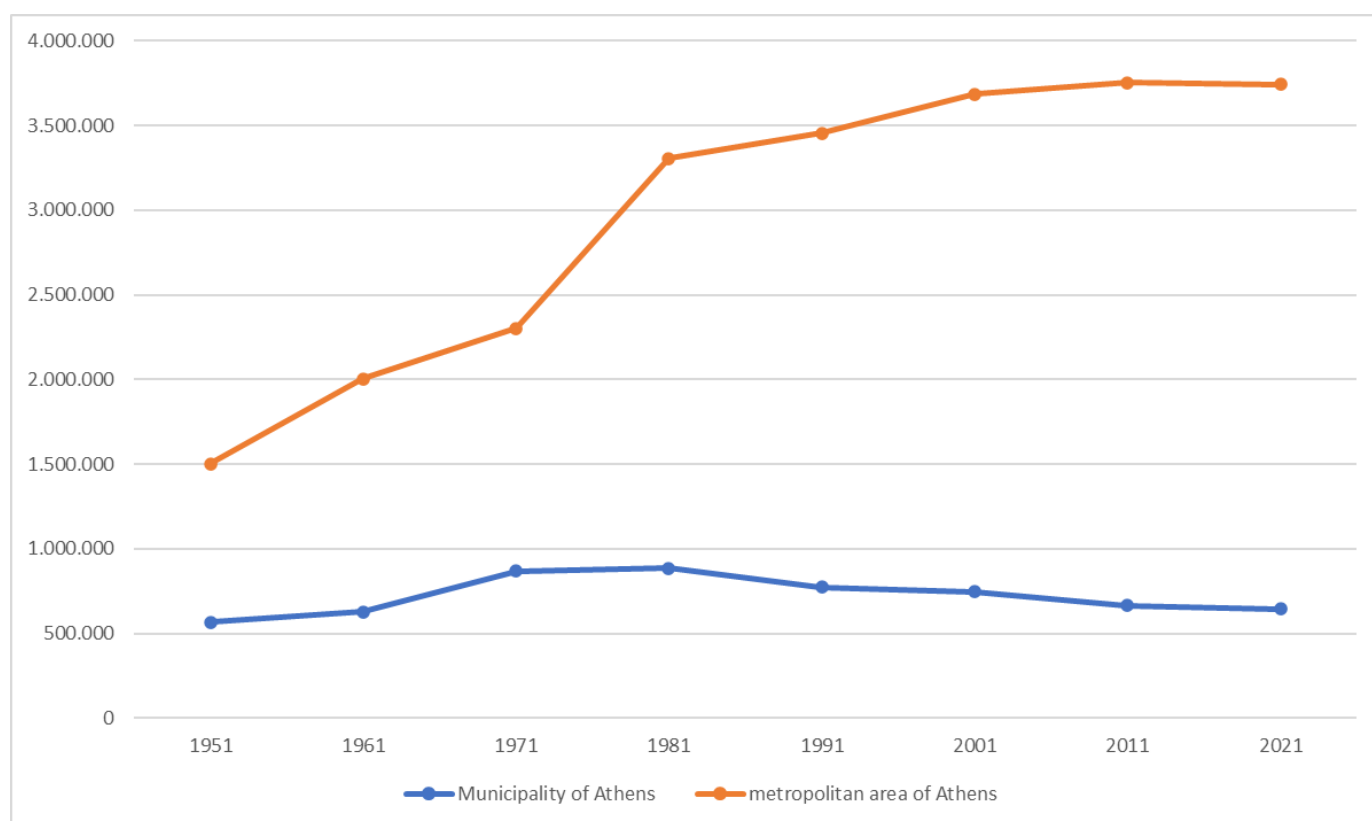


Figure 1. The growth of population in the Municipality of Athens during the period from 1951–2021 compared with that of the metropolitan area of Athens. Data Source: National Statistical Service of Greece (1955, 1964, 1972, 1994); EKKE-ELSTAT 2015; Hellenic Statistical Authority 2023.

The degradation of living conditions in the centre of Athens due to overcrowding in combination with the relocation of the more affluent households to the suburbs led to the phenomenon of vertical social segregation. This happened because, in the vacant apartments, which emerged due to the outflow of the most affluent socio-economic categories, lower socio-economic categories were installed. The segregation in these *polykatoikies* occurred between the upper and upper-middle social categories that remained and the newly entered lower social categories (Maloutas & Karadimitriou, 2001). In addition, since the 1990s, immigrants⁸ had been looking for housing in apartment buildings in the centre of Athens, especially on the lower floors with the smallest floor space, due to low rental prices because of the deterioration of the housing stock as a result of age and the worsening of living conditions in the city centre (Kandylis & Maloutas, 2017; Balampanidis, 2020). According to census data, the presence of immigrants from other countries⁹ in Athens municipality increased significantly from 2% in 1991 to 21% in 2011, while in the metropolitan area of Athens over the same period of time, the percentage increased less dramatically from 1% to 10% (Figure 2).

⁷ The metropolitan area of Athens is defined as the wider area of the Attica Region without the Regional Unit of Islands (Salamina, Ydra, Agistri, Aegina, Kythira, Poros, Spetses and Troizina).

⁸ These were primarily labour immigrants, who 'fuelled especially the vast informal labour market with cheap and flexible workforce' in Greece and in the other Southern European countries (Kandylis & Maloutas, 2017, p. 133).

⁹ According to 2011 census data, immigrants from other (non-economically developed countries) are foreigners from East Europe (Bulgaria, Romania), the Middle East, North Africa, the Indian Peninsula and other countries outside Europe.

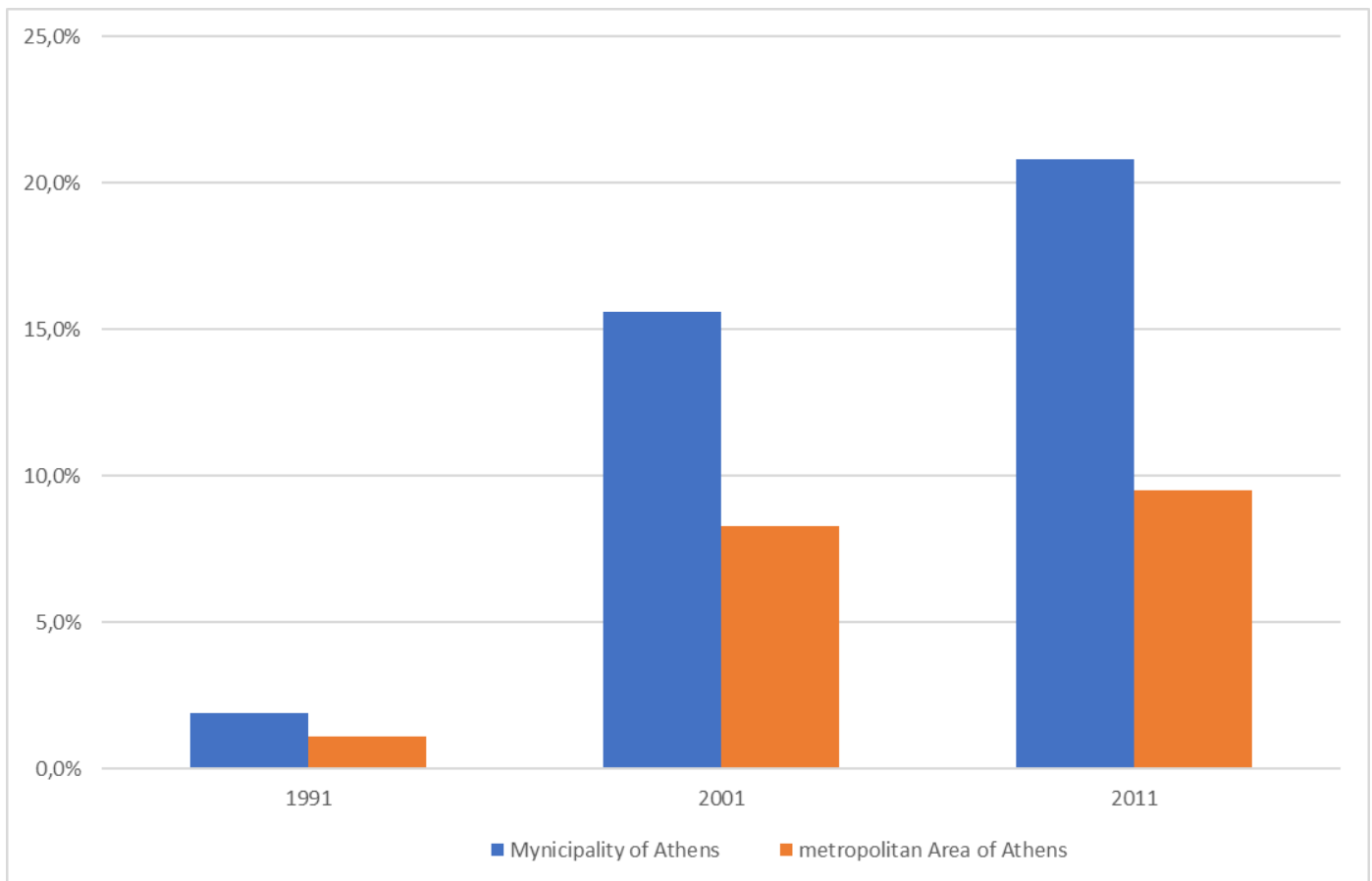


Figure 2. The percentage of immigrants from other countries in the Municipality of Athens in contrast with the metropolitan area of Athens, per census year. Data Source: EKKE-ELSTAT 2015

It is worth mentioning that Albanians, the largest immigrant population group in Greece and in the metropolitan area of Athens where, according to 2011 census data, they represented 47% of the total immigrant population (EKKE-ELSTAT, 2015), showed a differentiation in housing practices and are now facing various challenges due to increasing housing market financialization (Polyzou & Spyrellis, 2024). While they have achieved higher home ownership in contrast to other immigrant groups, they live in poor housing conditions. Albanian immigrants still face micro-segregation within the Athenian residential buildings, but the pattern is different in relation to the other immigrants. They often reside on the middle floors of apartment buildings rather than on the lower floors (which are occupied by immigrant groups from developing countries) or upper floors (which are more commonly occupied by Greeks) (Polyzou & Spyrellis, 2024).

In recent years, there has been an increase in the number of third country nationals. The refugee crisis of 2015 (due to the outbreak of warfare in the Middle East and in Asian countries) increased the number of refugee flows from Syria, Afghanistan and Iraq (Myofa & Stavrianakis, 2019). These refugees settled either formally or informally in the central areas of Athens (Siatitsa, 2022). In addition, since 2017, short-term rentals have affected the real estate market in the centre of Athens. Recently, policies that target the promotion of Athens as a tourist destination have resulted in an increase in the influx of upper-class newcomers and investors (golden visa individuals or companies) (Siatitsa, 2022). These newcomers have led to the displacement of the lower socio-economic strata and/or immigrants who lived in the low-cost apartments on the lower floors of the Athenian *polykatoikia* (Siatitsa, 2022).

What are the characteristics, in terms of vertical segregation, of the *polykatoikies* constructed before 1980, according to the Building Regulation Code of 1955 that was replaced by the new Code of 1973? According to Maloutas and Spyrellis (2015), these buildings have ‘a structure and an internal design favouring vertical social segregation’. One can find affordable small-size apartments on the semi-basement level (partially above ground) and on the ground floor in comparison with the medium-size apartments on the middle floors (1st to 3rd) and, even more, with the large apartments on the privileged upper floors (4th or higher). Specifically, between the lower and upper floors, apartments on different floors are significantly different in terms of size (small, medium and large apartments correspond on average to 35, 70–80 and 120–150 sq m (Theocharopoulou, 2022) and exposure to noise, access to view, light, ventilation and balconies (Maloutas & Spyrellis 2015). These differences in the qualities of apartments by floor produce a social hierarchy at the micro-scale (Maloutas & Karadimitriou, 2001), with the largest, brightest and least noisy apartments of upper floors occupied by upper and upper-middle class households in contrast with those on lower floors occupied by lower social class households and immigrants.

In a paper under review, an analysis revealed the changes among the Building Regulation Codes of 1955, 1973 and 1985 that influenced the social physiognomy of the apartment blocks in Athens. The focus was on the changes concerning the uses of basements and ground floors, where the most vulnerable households are concentrated. According to the Building Regulation Code of 1955, residential use was mainly expected at the semi-basement and ground floor levels. The Code of 1973 also allowed the use of parking space and/or professional-commercial uses in the basement, replacing residential uses which, however, were not prohibited. The Code of 1985 also introduced the massive use of *pilotis* (parking

space) as the solution to the severe parking problem in the centre of Athens (Maloutas & Spyrellis, 2016). This change was formalised with the Code of 1985, which led to the displacement of housing in basements and on ground floors, thus having a more pronounced effect on vertical segregation compared with the effect of the provisions of the previous codes.

The Code of 1955 allowed the construction of additional floors, the so-called *retirés* (penthouses). Numerous *retirés* were built, and the Code of 1973 maintained this clause. Additional floors in retreat were constructed to allow more light and better ventilation in lower floors and to provide big balconies and better views in upper floor apartments. *Retirés* became the residential space of upper socio-economic households due to their privileged position within the apartment blocks of Athens (Theocharopoulou, 2022).

The provisions of the Building Regulation Codes of 1955 and 1973 significantly influenced the social physiognomy of the Athenian apartment blocks constructed from 1950 through 1980, even though this was not the legislators' intention. In other words, vertical segregation has not been an intentional political decision but rather the aggregated result of the strategies of contractors and landlords trying to maximise the exploitation of the plot and to follow the clauses of the building codes. Investment in apartments on upper floors was driven by their attractiveness to affluent buyers, combined with the omnipresence of elevators, while the lower floor apartments remained affordable since they attracted much less demand. The changes in the use of lower floors brought about by the 1985 Code could have significantly affected vertical segregation. However, this did not happen for two reasons. First, building activity has decreased significantly since the 1980s, and the number of new apartment blocks with much less residential use on lower floors has been reduced. Second, the influx of immigrants in the 1990s maintained and reinforced vertical social segregation, combining it with ethnic segregation.

According to Buitelaar and Cozzolino (2019), segregation often emerges as a result of economic and spatial inequalities, where low-income or marginalized groups are confined to specific areas due to limited resources and access to affordable housing. Because low-income individuals or ethnic minorities may lack the economic means to choose where they live, this implies that segregation is generally involuntary. In the vertically segregated Athenian *polykatoikies*, the lower socio-economic strata and, later, the immigrants are allocated to low-cost housing on the lower floors without a choice.

3. Case studies: two Athenian apartment buildings as part of a broader research project

This section will focus on two apartment buildings that are part of the 132 buildings in total that were investigated through interviews during the period May 2020–September 2021. The main research method used in the ISTOPOL project was qualitative and consisted of structured in-depth interviews with residents of these apartment buildings. The interviews were conducted with residents of these buildings that were constructed from 1950–1980 in the Municipality of Athens, where, as previously mentioned, vertical segregation developed.

Two main types of interview questionnaires were developed:

A building identity questionnaire. Through this questionnaire, the research team intended to determine the history of the building and its current socio-economic composition. The topics included general information, current condition, tenure and household profiles per apartment. The team accessed 132 apartment buildings, out of which the building profiles of 111 were completed. For the remaining 21 buildings, it was not possible to complete their profiles. In these cases, interviewees were either tenants or new residents who did not know much about the building. Also, these interviewees usually did not know another resident or other residents the interviewer could contact.

Questionnaires with residents of the apartment buildings, which depended on the tenure relation: owners by acquisition or by inheritance, initial land owners or constructors, any absentee property owners, residents to whom the property was granted, tenants and professionals (owners or tenants of the property). Interviewees were asked to narrate their housing trajectory, their relation to the building and the neighbourhood and their opinions regarding real estate property, public policies etc. Also, there were questions about the socio-economic characteristics of the interviewees and the other members of the household, such as their age, nationality, occupational status, education level and monthly household income¹⁰ (not the absolute number but a range of values with seven possible answers). Regarding income, there were three more qualitative questions (such as whether the income was sufficient to cover the housing operating expenses, the rest of the household's needs and the emergency housing needs). A total of 320 in-depth interviews were conducted. The largest percentage (32%) were interviews with owners by acquisition, while the lowest percentage (3%) were interviews with initial landowners. In total, the majority of interviewees were owners (52%), while the percentage of tenants was lower (28%), which meant that the choice made in the project was not completely different from reality (since, according to 2011 census data, the percentages of owners and tenants in the Municipality of Athens were 56% and 38%, respectively) (EKKE-ELSTAT, 2015).

The interviewees of the sample consisted of people living in these apartments, the majority of whom were people from our own network of contacts (friends, acquaintances, relatives, colleagues etc.). Later on, we followed the 'snowball method', that is these interviewees brought us in contact with people of their own network, while to a lesser extent we approached new interviewees with whom we had no previous direct or indirect contact. The qualitative research was conducted during the period from May 2020–September 2021, and despite the difficulties due to the covid-19 pandemic restrictions to travel and social interactions, it was successfully completed.

However, some limitations of the method and the data emerged due to the COVID-19 pandemic restrictions. The main limitations had to do with the difficulties faced in contacting interviewees with whom there had been no previous relationships. More specifically, the initial goal was to hold interviews not only with the residents of the upper and middle floors of the apartment buildings but also with those of the lower social categories and/or other third country nationals who lived on the lower floors. Thus, in order to reduce the consequences of the sample bias that would result from the inability to contact the residents of the more deprived apartments on the lower floors, the sample was extended to include more apartment buildings. In this way, the sample included a range of Athenian neighbourhoods (Figure 3). Also, the initial goal was to conduct

¹⁰ The research team selected data only for the interviewees' households and not for each apartment in the building. Generally, collecting information about household income is challenging because it is a personal and sensitive topic. Interviewees may feel that their privacy is being violated and may, therefore, provide inaccurate or intentionally misleading answers. To address this, the research team avoided asking for an exact income figure and instead provided seven income ranges as response options. Additionally, questions related to income – as well as other qualitative questions that assessed the household's financial capability to manage regular housing expenses and handle emergency costs – were placed at the end of the questionnaire. This allowed for the establishment of trust between the interviewer and the interviewee, increasing the likelihood of honest responses.

at least two interviews per building. This goal was achieved. For the majority of the buildings (89), the research team conducted up to two interviews, while more than two (up to 13 at most in one case) were carried out in the remaining 43 buildings (33%).

A considerable amount of material was collected through the interviews, which in the next stage of the research was transcribed and entered into LimeSurvey. This task was completed by the end of the programme in October 2022. One of the goals of the current programme is to further analyse this material.

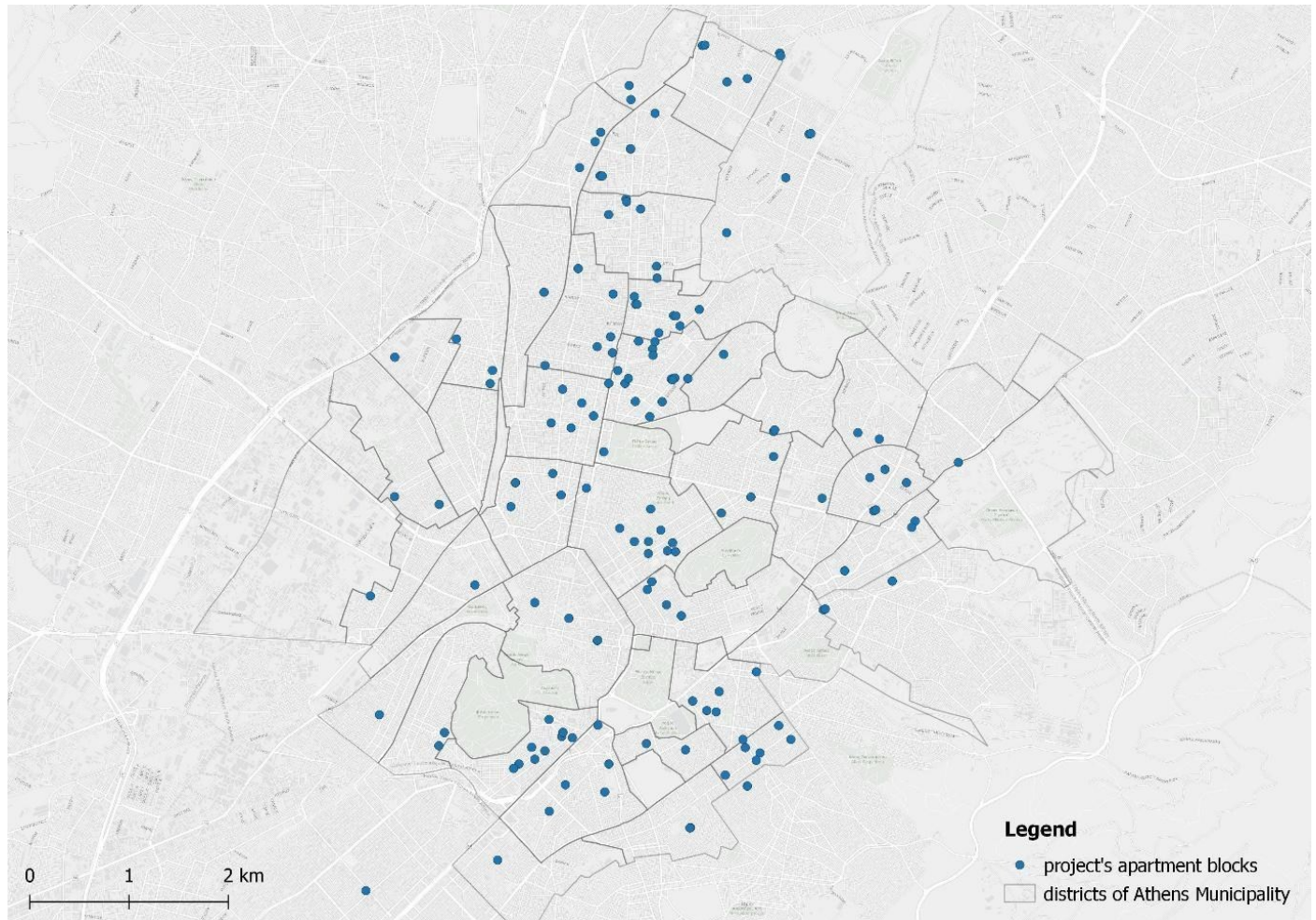


Figure 3. Distribution of the project apartment blocks. Source: project

The two apartment buildings that were focused on are located in the densely built up areas of the Municipality of Athens. The first apartment building is located very close to a central avenue in the northern part of the Municipality of Athens in *Ano Patisia*, which is characterised as a working-class neighbourhood with a significant ethnic mix. The second is located in the *Ambelokipoi*, a neighbourhood in the northeastern part of the Municipality of Athens, very close to a metro station, which is a distant neighbourhood composed of residents from intermediate socio-economic categories. Regarding vertical segregation, Ambelokipoi is characterised as an area where vertical segregation ranges from strong to very strong (Maloutas & Spyrellis, 2016). Also, *Ano Patisia* is characterised as an area with strong vertical segregation, but part of this area is over-represented by residents from lower social categories, and often there is a concentration of poor immigrants (Maloutas & Spyrellis, 2016).

The aim of the detailed presentation of each case study is to answer the main question of this paper about the type of segregation facilitated in these two buildings. In order to study the type of social segregation in these two buildings, it was important to take into account the socio-professional categories of the residents for the entire apartment building. For this reason, the occupations were aggregated into three categories coded by ELSTAT on the ISCO-08 model: upper (managers and professionals), middle (technicians, office clerks and employees in service provision), and low (skilled craftspersons, machine tool operators and unskilled and manual workers). Regarding their ethnic composition, there were two categories used concerning ethnicity (level of development) according to the Human Development Index (HDI) of the UN Development Program (UNDP) in 2011: Native Greeks and foreigners (third country nationals).

3.1 An example of a building that is part of a housing estate in *Ano Patisia*

The first building is part of a housing estate that occupies an entire building block. Therefore, the scale of the estate is larger than the scale of an ordinary Athenian *polykatoikia* built with the *antiparochi* system. However, the housing estates are exceptional in Athens and in Greece in general, since they constitute a small portion of the total built environment (Myofa, 2023a).

The estate according to the survey consists of four apartment buildings with five stories and 116 apartments in total. These buildings are placed next to each other, forming a courtyard (Figure 4). The ground floor apartments of the estate have independent entrances through individual gardens. The ground floor apartments on the main street were used as local shops. Today, these spaces have been turned into café which also attracts residents from other areas.



Figure 4. A. The courtyard from the roof joins all four buildings of the estate. B. This free space was converted into a courtyard by the first residents, where they gathered and socialised. Source: Personal archive

One of the apartment buildings of this estate has a basement and a ground floor with an independent entrance (Figure 5). In recent years, 18 of the 21 apartments have been used as residential premises. More specifically, nine apartments are owner-occupied, eight are rented, and one is vacant. The other three apartments are used as business premises (a storage room and an office that belongs to the same company and a privately owned doctor's office). Regarding the demographic characteristics of the residents, the majority were women (16), and there were seven men and only three children. Also, half of the residents are young adults (under 50), and the rest are over 50 years of age, with two people over 75 (who are residents in the two largest apartments on the upper floors) (Figure 6).



Figure 5. The front view of the apartment building.

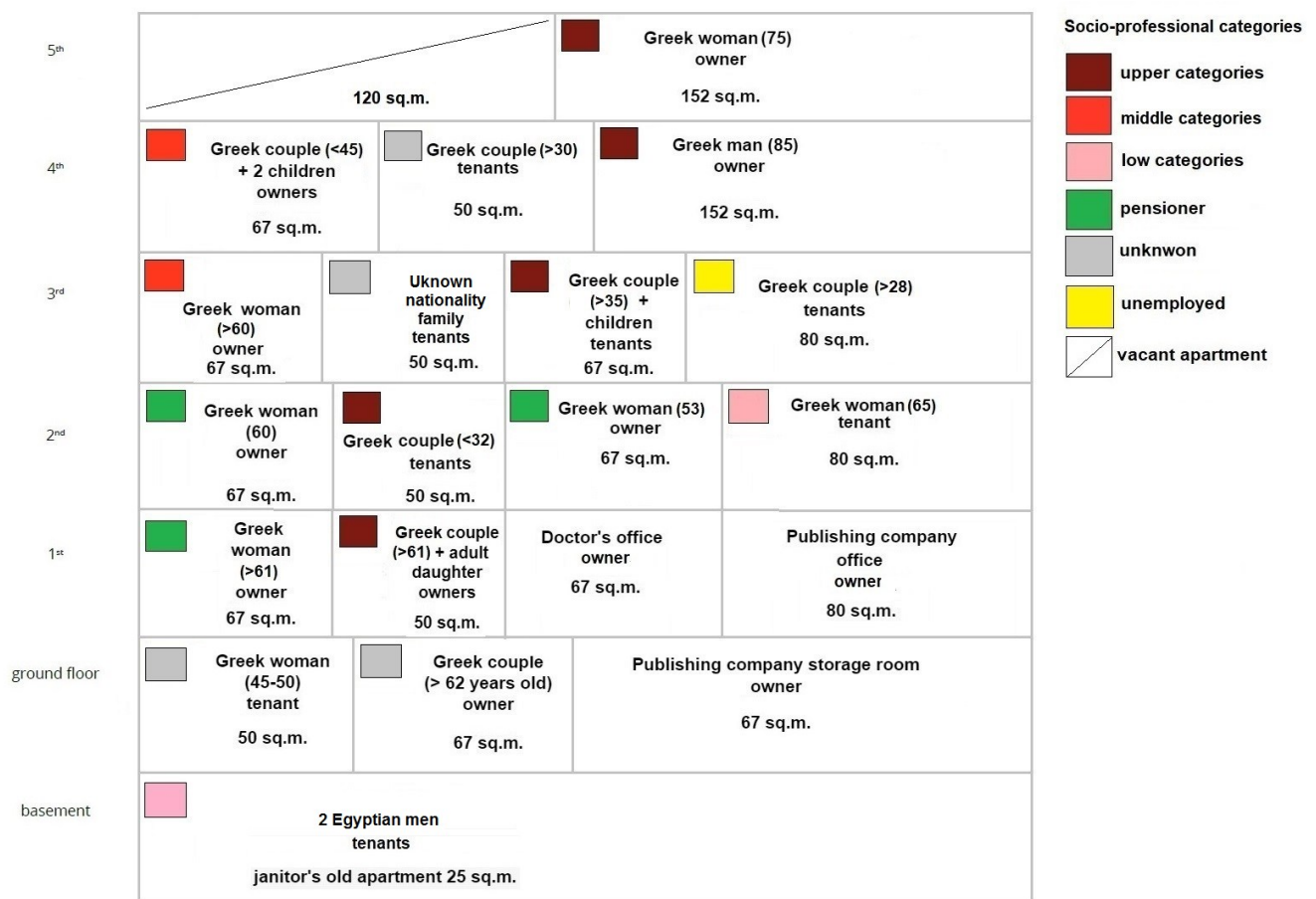


Figure 6. The distribution of the socio-professional categories of households per floor and apartment in the first building. Source: Personal archive

Concerning the distribution of households per floor, it was observed the two larger apartments on the upper floors (fourth and fifth) are owner-occupied by a single-member household. The tenant in the fifth-floor apartment is a widow (her husband was a doctor), while the tenant in the fourth-floor apartment is a retired engineering professional. The third large apartment has been empty since the death of its elderly owner, who settled there right after the construction of the apartment building. The rest of the small- and middle-sized apartments on the fourth floor and below are either owner-occupied or rented. Moreover, they are inhabited by households with either one member or small households that belong to the upper-middle socio-professional categories (working in the financial sector, law enforcement professional, retired from the legal sector etc.), while there are also households with members who belong to the lower-middle socio-professional categories (retired general duty employee and private employee) or households where either one or both members are unemployed (Figure 6).

Moreover, the majority of the residents are of Greek nationality, with the exception of the concierge's old apartment on the basement level and one of the apartments on the third floor, which have been rented to a family of unknown nationality. Specifically, the concierge's apartment had been vacant for many years after the last concierge retired, but in recent years, it has been rented to two men from Egypt at a low price (Figure 7). This change in the ethnic composition of the until very recently homogenous polykatoikia has to do with the increase of residential mobility. The apartments that remain vacant in combination with the need for cheap housing have brought about this change, although there was an informal agreement between the owners not to rent to immigrants, according to interviewees.

3.2 An apartment building that was constructed in the 1980s in Ambelokipoi

The second apartment building was constructed on a plot of 310 sq m, which is smaller than that of the second *polykatoikia*. This plot, like many in the area, was given (free) by the state to war-disabled soldiers. In 1961, the landowner built a detached house for the accommodation of his family. Afterwards, he decided to give the plot for a *polykatoikia* to be constructed.

The total number of apartments in this *polykatoikia* is 12. One is used as a business premise, and the other 11 are residential spaces. Currently, eight apartments of the total eleven are owner-occupied, and three are rented (Figure 8). The main ways of acquiring the apartments in this building were *antiparochi*, inheritance and purchase. Today, the three apartments that are rented were acquired through the *antiparochi* system, while the majority of apartments (three) that are owner-occupied were acquired through inheritance, two through purchase, one through *antiparochi*, and two by means that were not able to be determined.

This building is not a typical *polykatoikia* constructed with the *antiparochi* model. The main characteristics of this building are that there are no apartments on the basement level or ground floor (only parking space, that is *pilotis*) that will facilitate vertical social segregation, and there is no differentiation per floor mainly regarding residential space (Figure 9). There are only two types of apartments per floor, one medium-size or small-size and one large-size apartment.



Figure 7. Entrance to the concierge's old apartment. Source: Personal archive

Concerning the distribution of the tenure system per floor, does not follow a specific pattern. There are apartments located on the lower and upper floors that are rented, and others that are owner-occupied. However, regarding the dwellings' floor space, the apartments that are rented are the ones with the smallest size, in contrast with the rest of them, which are larger and are owner-occupied. In addition, the apartments owned by the landlord and acquired through the *antiparochi* system are located on the lower and upper floors. The landlord's family lives in the largest apartment (124 sq m) of the *polykatoikia* on the fifth floor. However, they moved to different apartments three times in accordance with their family choices and their housing needs. First, the landlord and his wife lived in a first-floor apartment before converting it into a doctor's office. Then, they moved to the second floor, and when their children were born, due to the need for more residential space, they moved to the fifth floor, where they still live, although their children have moved out (Figure 8).

Furthermore, no dramatic changes have taken place regarding the mobility of the residents, in contrast with the other two cases. The majority of owners have lived for many years (some since the early 1980s) in this apartment building, while the tenants, who, due to the nature of the tenure system are the most mobile (Maloutas 2004), are underrepresented in this apartment building. The housing strategies of the owners are based on their family needs in this apartment building, and these needs are very important to them. Except for the landlord and his family, who moved into different apartments, there are also other similar cases. For example, in the larger apartment on the sixth floor, the current occupant chose to continue living in the apartment she inherited from her parents. She had lived there with her parents, and when she moved on and started her own family, her parents conceded the apartment to their daughter's family. Moreover, the family that lives in the smallest apartment on the third floor acquired it through inheritance. The first owner purchased the apartment from the contractor. In addition, the owner of the next-door apartment on the third floor is the first occupant who has lived there since 1982. It was purchased from the contractor by the current owner's father. He bought it for his daughter. The same family, who were living in this apartment, purchased another one on the third floor. Originally, this apartment had been purchased by the landlord from the contractor. The landlord's family lived in the apartment for a brief period and then rented it to a family who stayed for an extended period until 2007. In 2007, the apartment was bought by the family on the third floor, who purchased it for their children so the children could live independently from the parental housing when they reached adulthood. This apartment is also the only one that differs from the rest regarding the mobility of its residents. Today, the two siblings live in this apartment. Due to the absence of a social housing policy from the state (Emmanuel, 2006; Myofa, 2023a), this parental provision has served as a viable response to the state's inadequacy (Allen et al., 2004). So, in this building the influx of new residents due to the movements of the older ones was never that intense (mainly because the number of apartments that are rented are very small, and consist of only three) and the only movements that took place had to do with well-considered family choices (see Allen et al., 2004, pp. 144–151 for more about the role of family to the housing).

Concerning the demographic characteristics of the residents, the majority are women (11), while there are five men and four children. The majority of residents (10) are over 50 years of age (with the oldest resident being 70), while seven residents are young adults under 50 years of age and inhabit apartments on various floors. Also, the majority of households (five) are composed of two members (nuclear family), and they are mainly located on the lower floors (first and second) and the upper floor (fifth). Moreover, concerning the nationality of residents, the majority of them are of Greek nationality, with the exception of an apartment on the sixth floor, which is rented by one member of Greek-American nationality, and on the first floor, one apartment is owner-occupied by a family of Albanian nationality (Figure 8).

6 th	 Greek woman (55)+ daughter (25) owners 92 sq.m.	 Greek-American woman (29) tenant 55 sq.m.	Socio-professional categories  upper categories  middle categories  low categories  pensioner  student
5 th	 Greek couple(<70) owners 124 sq.m.	 Greek woman (18) tenant 45 sq.m.	
4 th	 Greek single mother (50) + 2 adult children owners 92 sq.m.	 Greek man (65) owner 77 sq.m.	
3 rd	 Greek couple (<56) owners 92 sq.m.	 Greek couple (<40) + 2 children owners 77 sq.m.	
2 nd	 Greeks, 2 siblings (<35) owners 92 sq.m.	 Greek woman (21) tenant 77 sq.m.	
1 st	 Doctor's office owner 92 sq.m.	 Albanian couple (<50) owners 77 sq.m.	
ground floor	Pilotis		
basement	Storages		

Figure 8. The distribution of the socio-professional categories of households per floor and apartment in the second building. Source: Personal archive

4. Discussion

The two *polykatoikies* examined in this paper were built with a land-for-flats system (*antiparochi*). The first was built with the Building Regulation Code of 1955 and the second with the 1973 Code. The first is a typical *polykatoikia* of the boom period (1950–1980) with commercial and mixed uses (residential and commercial) on the ground floor, while the second has *pilotis* on the ground floor for parking space. One apartment – initially inhabited by the old concierge – is used as a residential space in the first apartment block's basement, while the second has no residential use on that floor. The first *polykatoikia* comprises a variety of apartment sizes on each floor and, in contrast to the second, is much more unequal by floor in terms of apartment size. This difference in the internal design of these two buildings affects the level of segregation.

The first *polykatoikia* is socially and demographically mixed but ethnically homogenous in the current transition process. This transition is related to the settlement of immigrants looking for low-cost housing in the small apartments of the basement and the third floor. Vertical segregation exists between the homeowners (upper socio-professional categories) of the more privileged large apartments on higher floors and the occupants (lower categories and pensioners) – tenants and homeowners – of smaller apartments on lower floors.

The second *polykatoikia* is also socially and demographically mixed but ethnically more homogenous. Vertical segregation exists between the largest apartments on the higher and intermediate floors occupied by homeowners of upper socio-professional categories and those of the middle and lower floors occupied by tenants and homeowners of lower-middle and lower socio-professional categories. Vertical segregation has also developed in this *polykatoikia*, although it was built under the Building Regulation Code of 1973, which introduced *pilotis* instead of residences on the ground floor and made the apartment block less unequal by floor.

The model of vertical segregation is manifest in the two cases, although their different internal designs have influenced the form of segregation. The existence of residential uses on the basement and ground floor –the most affordable parts of the city's apartment blocks– is an important factor in shaping the vertical segregation model. However, the social profile of the second building reveals that vertical hierarchies have also developed in apartment buildings with no residential uses on the lower floors.



Figure 9. The front view of the apartment building. The main use on the ground floor is parking space. Source: Personal archive

The model of vertical segregation in Athens has similarities to but also some differences from the vertical segregation in other European cities. For instance, in Naples, the lower social strata are concentrated on the lower floors but often in separate adjacent buildings, while in Madrid, poor immigrants are settled on lower floor apartments, but this varies significantly among the neighbourhoods of the city and their housing stock (Leal & Sorando, 2022). Vertical segregation in Athens may have some unique elements, but similar patterns of micro-segregation within apartment blocks exist across, and probably beyond, Europe.

5. Concluding remarks

This study examined the phenomenon of vertical segregation in Athens through the example of two apartment blocks, describing how social and ethnic groups are unevenly distributed across floors and exploring whether the design of these buildings influences segregation patterns. The findings confirm that vertical segregation is present in both cases and that building design features play a critical role in forming segregation. Moreover, vertical segregation does not seem to be the outcome of a political decision but rather the aggregate result of the strategies of small contractors and landowners to maximise the exploitation of the land plot and therefore their profit.

This analysis aims to contribute to the debate about vertical segregation and segregation at the micro-scale in Europe by providing an inside look at the particularities of the Athenian model through the cases of two apartment blocks. It points out the need to examine how different forms of micro-segregation have significantly affected the ways that different social and ethnic groups that live in close proximity cope with their everyday life (for example, the management of their common spaces and infrastructures) as well as the ways they cope with these issues affects the

relationships (harmonious or conflictual) that develop among them. Another important aspect is the impact of micro-segregation on socio-spatial inequalities and, more importantly, on the access to housing. For example, the increase in short-term rentals and the purchase of apartments by foreign companies has reduced the availability of affordable housing and made access to it more difficult for wider population groups.

On a broader scale, this study contributes to the ongoing international discussion about micro-segregation in urban settings, particularly regarding marginalized groups such as the Roma. Although the specific patterns differ – Roma communities typically experience horizontal segregation at the neighbourhood level, while third country nationals and low-income residents also face vertical segregation within the Athenian apartment blocks – both reflect how urban and housing policies shape and reinforce social hierarchies and limit integration. Thus, the outcomes of the Athens case study align with findings on urban Roma segregation in Europe, where segregation often restricts access to opportunities and resources.

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