Scientific Research Publishing

Current Urban Studies, 2022, 10, 329-341
https://www.scirp.org/journal/cus
ISSN Online: 2328-4919
ISSN Print: 2328-4900

Analyzing Housing and Household Evolution and Actuality in Lisbon, 2000-2020

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How to cite this paper: Moreira, A., & Farias, H. (2022). Analyzing Housing and Household Evolution and Actuality in Lisbon, 2000-2020. *Current Urban Studies, 10,* 329-341.
https://doi.org/10.4236/cus.2022.102020

Received: March 10, 2022
Accepted: June 20, 2022
Published: June 23, 2022

Abstract

Housing is a form of culture and, as such, is greatly influenced by social context and its transformation. Household composition and characteristics, modes of living and housing typologies and attributes are undoubtedly linked. This paper proposes an analysis of Lisbon's housing reality, from the year 2000 to 2020, relating it to social change, namely household evolution in the same period. The analyzed data were collected from Portuguese National Censuses from 2001 and 2011 and statistical information gathered yearly by the national statistics institute (INE) regarding population and building. The analysis shows that Lisbon's housing and household reality differs from the national context, and that in the 21st century, housing in Lisbon has tended to a reduction in size—both typology and area—but also that the average Portuguese household (and Lisbon's correspondingly) has decreased in dimension and composition type, indicating that increasingly smaller households are offered smaller units and that new and nontraditional household compositions and associated alternative modes of living could be determining a shift in housing programs.

Keywords

Urban Housing, Households, Social Change, Lisbon

1. Introduction

The house is a cultural consequence, inherent to the society that produces it and directly determined by its characteristics and traits. As society evolves, and households transform, so does housing, its forms and spatial and functional organization. As Rapoport (1969: p. 47) stated (…) *house form is not simply the result of physical forces or any single causal factor, but it is the consequence of a*

whole range of socio-cultural factors seen in their broadest terms.

This article focuses on the analysis of these two important aspects of urban living: housing and households—the settings and its occupants—in the Portuguese context, and especially in Lisbon, the capital and the most populated and densified city. The time period that was selected—2000-2020—aims at understanding the contemporary context and recent changes in order to eventually predict future tendencies, which can be useful for a myriad of professionals and areas, from sociologists, to architects, but also to promoters and builders. The source of the data was statistical information collected and made available by the national statistics institute (INE—Instituto Nacional de Estatística), having been especially relevant an examination of the last two censuses as suggested in Censos, 2001 and Censos, 2011.

First, a presentation and examination of housing is proposed in section 2 of the paper, with the characterization of built typologies and its representativity; followed by the study of the population, namely household composition and dimension, with an assessment of the average family unit, in section 3. In section 4, the crossing of the data is the basis for a conclusion and the portrait of Lisbon's contemporary housing and households.

2. Housing Statistics in Lisbon, 2000-2020

As mentioned, in this section an examination of the housing reality is carried out, based on data available at INE's website and its publications. Apart from censuses' data and reports, INE publishes *Construction and Housing Statistics* on a yearly basis, having been analyzed and compared the information regarding the years 2001, 2006, 2011 and 2019.

The examination of housing statistics data is divided in two sub-sections: existing housing[1] and newly built housing. The paper focuses on typological[2] distribution of dwelling units.

When available, Lisbon-*City* data is presented, when otherwise data concerning Lisbon-*Metropolitan Area* is considered.

2.1. Existing Housing

Table 1 and Table 2 demonstrate the total of existing dwelling units in Portugal, Mainland Portugal and Lisbon Metropolitan Area, as well as the total of dwelling units per typology, in 2006, 2011 and 2019. Through these data it is apparent that, since 2006 until today, the most common typology in Portugal (entire territory and mainland) is the T3 (three-bedroom apartment), but that in the Lisbon Metropolitan Area, the most representative units are smaller, being the T2 (two-bedroom) the most representative, followed then by the T3.

[1]Information about typologies in existing buildings was only implemented in 2006, and so, in this section, the examination will focus alone on the years 2006, 2011 and 2019, and the evolution within this time span.

[2]In Portugal, typologies of apartments are identified with the letter T followed by a number, which signifies the number of bedrooms.

Table 1. Dwelling units—total and by typology, NUTS III[3], 2006, 2011, 2019. (The table omits the total of nonspecified typologies).

Year	NUTS III	Dwelling Units						
		Total	T0	T1	T2	T3	T4	T5+
2006	Portugal	5,519,654	71,587	378,552	1,297,917	1,427,876	503,694	369,727
	Mainland	5,304,170	67,365	358,028	1,250,859	1,376,985	479,750	347,165
	Lisbon MA	1,379,716	18,878	125,321	441,566	329,747	92,878	60,202
2011	Portugal	5,773,065	76,454	397,975	1,365,013	1,544,888	541,184	375,403
	Mainland	5,541,910	72,005	375,558	1,312,351	1,487,591	515,956	354,430
	Lisbon MA	1,427,613	19,446	128,602	456,391	350,345	99,374	62,331
2019	Portugal	5,968,354	62,715	366,537	1,227,988	1,355,547	557,795	529,344
	Mainland	5,724,357	58,298	344,722	1,179,216	1,306,974	532,055	500,568
	Lisbon MA	1,502,206	19,963	133,953	452,939	351,010	112,705	75,630

Table 2. Dwelling units—percentage by typology, NUTS III, 2006, 2011, 2019.

Year	NUTS III	Dwelling Units (%)			
		T0 & T1[a]	T2	T3	T4+ [a]
2006	Portugal	8.16	23.51	25.87	15.82
	Mainland	8.02	23.58	25.96	15.59
	Lisbon MA	10.45	32.00	23.9	11.1
2011	Portugal	8.22	23.64	26.76	15.88
	Mainland	8.08	23.68	26.84	15.71
	Lisbon MA	10.37	31.97	24.54	11.33
2019	Portugal	7.19	20.57	22.71	18.22
	Mainland	7.04	20.6	22.83	18.04
	Lisbon MA	10.25	30.15	23.37	12.54
Var. 2006-2019	Portugal	−11.81	−12.5	−12.2	15.11
	Mainland	−12.21	−12.65	−12.05	15.71
	Lisbon MA	−1.96	−5.79	−2.23	13.00

a. For a coherent comparison with new builds, T0 is added to T1, and T4+ aggregates all larger typologies.

Although average size typologies are noticeably the most representative, both in the Lisbon Metropolitan Area and nationwide, it is important to point out that between 2006 and 2019 smaller and average size typologies (ranging from T0—studio—to T3) have registered a negative variation, whereas larger typologies (T4 and T5 or over) suffered a positive variation, indicating growth in its

[3]NUTS refers to the statistical definition of a country's division in regions and was firstly defined by Eurostat, meaning *Nomenclature of Territorial Units for Statistics*. NUTS III was created in 2013 by INE and is the most subdivided of all Portuguese NUTS.

presence in the housing scene. Even though this is the case, absolute figures as well as percentages demonstrate that the representativity of larger typologies (T4 or over) is still shy of that of T2 and T3 and that these two combined represent more than half of the dwelling units on a national scale, and, of course, in the Lisbon Metropolitan Area.

Examining the percentages in Table 2, it is interesting to realize that the reality of existing housing units in the Lisbon Metropolitan Area is in fact very different from the rest of the Portuguese territory. In fact, smaller typologies (T0 & T1 and T2) have greater representativity in the Lisbon MA than in the rest of the country and also that, by opposition, larger typologies (T3 and T4+) are less frequent in this NUTS III region.

Another interesting reading, when crossing data from Table 1 and Table 2, is that the negative variation of representativity observed in typologies T0 & T1, T2 and T3 is directly linked to a reduction of the number of dwellings of each typology, between 2006 and 2019, i.e., the absolute value of dwellings of these typologies has decreased in this period in spite of an increase of the total for each region, which indicates that smaller and average-sized dwellings have been transformed (either by demolition and rebuild, combination of units or use transformation, among other possible factors) and larger dwellings (T4+) have been formed/built instead.

Moreover, analyzing variation values for the Lisbon MA, it is noteworthy that the T2 typology is the one that loses the most relevance and that larger typologies (T4+) show considerable growth (13%) (Table 2). Nonetheless, presently (2019 data) the two-bedroom unit (T2) remains as predominant, followed by the three-bedroom unit (T3), the larger units (T4+) and lastly the smaller dwellings (T0 & T1), as perceived in Figure 1.

2.2. Newly Built Housing

New builds tend to represent and reflect new tendencies in the housing market and households' modes of living and living ideals and because of this, the examination of this data will show different results. The presented statistics will cover the previously analyzed years but also 2001, whose information is available for new builds, and Lisbon-*City* data is specified.

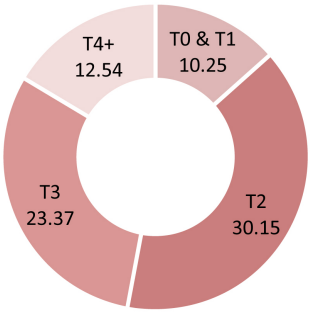

Figure 1. Typological distribution in Lisbon MA, 2019.

According to INE's 2019 publication of *Construction and Housing Statistics* regarding the evolution of new builds' characteristics, *in 2014 and 2015 the total number of built dwelling units and built dwelling units in new construction for family housing has decreased.* (…) *From 2016 the number of built units increased continuously.* (…) *The predominance of T3 typologies was maintained in 2019* [*comparatively to 2014*], *affirming the increase in proportion in the total of units* (…). *Likewise, T0 and T1 typology units gained importance, 12.5% in 2014 to 17.5/in 2019. The relative importance of T2 and T4+ typologies decreased*[4].

Table 3 and Table 4 and Figure 2 represent the typological distribution in housing new builds. The figures and percentages show that in the last decade the T3 typology was the most frequent in new developments nationwide, which has been the case since 2001, having registered growth in representativity since then (18% growth in mainland Portugal, from 2001 to 2019) and representing, in 2019, more than half of the dwelling units. The second most built typology, on a national level, the T2 typology has, by opposition, registered a great decrease in relevance (in mainland Portugal, between 2001 and 2019, T2 registered a negative variation of 36.52%), which is a significant fact that can correspond to a shift in housing markets and real estate strategies or a change in dwellers ideals and demand. T2 typology is, indeed, the only typology that since 2001 has registered loss in relevance, the only one that has negative variations for the Portuguese territory (entirety and mainland).

Table 3. Dwelling units in new builds—total and by typology, NUTS III, 2001, 2006, 2011, 2019.

Year	NUTS III	Dwelling Units (%)				
		Total	T0 & T1	T2	T3	T4+
2001	Portugal	115,154	10,840	37,156	50,357	14,735
	Mainland	109,997	10,126	35,244	48,391	14,237
	Lisbon	1440	229	416	571	208
2006	Portugal	68,764	6562	19,463	31,505	11,232
	Mainland	63,928	5867	17,767	29,464	10,829
	Lisbon	37	1	21	15	0
2011	Portugal	26,255	2287	5812	12,730	5426
	Mainland	24,906	2152	5440	12,044	5270
	Lisbon	352	61	64	100	127
2019	Portugal	14,190	1542	2988	7261	2399
	Mainland	13,451	1437	2736	6975	2303
	Lisbon	199	92	23	59	25

[4] *Estatísticas da Construção e Habitação* (2019: pp. 38-39).

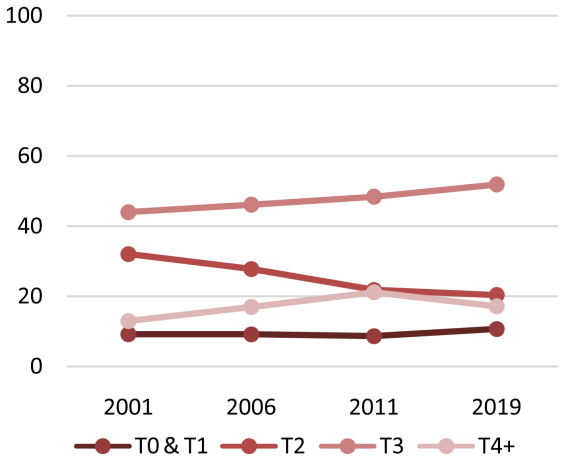

Figure 2. Typological distribution in mainland Portugal (%), 2001-2019.

Table 4. Dwelling units in new builds by typology (%), NUTS III, 2001, 2006, 2011, 2019.

Year	NUTS III	Dwelling Units (%)			
		T0 & T1	T2	T3	T4+
2001	Portugal	9.41	32.27	43.73	12.8
	Mainland	9.21	32.04	43.99	12.94
	Lisbon	15.9	28.89	39.65	14.44
2006	Portugal	9.54	28.3	45.82	16.33
	Mainland	9.18	27.79	46.09	16.94
	Lisbon	2.7	56.76	40.54	0.00
2011	Portugal	8.71	22.14	48.49	20.67
	Mainland	8.64	21.84	48.36	21.16
	Lisbon	17.33	18.18	28.41	36.08
2019	Portugal	10.87	21.06	51.17	16.91
	Mainland	10.68	20.34	51.85	17.12
	Lisbon	46.23	11.56	29.65	12.56
Var. 2001-2011	Portugal	−7.47	−31.39	10.88	61.51
	Mainland	−6.14	−31.83	9.92	63.48
	Lisbon	8.97	−37.06	−28.36	149.78
Var. 2011-2019	Portugal	24.75	−4.88	5.54	−18.19
	Mainland	23.64	−6.87	7.23	−19.08
	Lisbon	166.78	−36.43	4.36	−65.18
Var. 2001-2019	Portugal	15.44	−34.74	17.01	32.12
	Mainland	16.05	−36.52	17.87	32.28
	Lisbon	190.71	−59.99	−25.23	−13.03

T0 & T1 and T4+ don't have a linear progression and each one has an opposite path: T0 & T1 new built units decreased between 2001 and 2011 to then have a significant increase between 2011 and 2019; being inverse, T4+ registered massive growth between 2001 and 2011 (more than 63% in mainland Portugal) followed by a reduction in relevance between 2011 and 2019. Nonetheless, both show progression if we analyze the totality of the time span (2001-2019).

Addressing solely the last year, 2019, that represents the current circumstance, and for the macro NUTS—Portugal and Mainland Portugal—T3 were the most built, followed by T2 and T4 (separated by a few percentual points—3% in mainland Portugal) and lastly T0 & T1, indicating a clear preference for larger typologies.

Focusing only on Lisbon-city, it is apparent that the reality is diverse and that since 2006 the capital has been the hub for a different programmatic pattern when it comes to new builds. If in 2001 Lisbon had the same tendency as the country's, preferring T3 typology and, in second, T2, after 2006 and in each following analyzed year the preferred typology changes: T2 in 2006 (more than half of all new dwelling units, in a year when no T4+ were built), T4+ in 2011 and T0 & T1 in 2019 (almost half of the built units). **Figure 3** shows this constant shift and the typological distribution in 2019, when the second most built typology was T3, followed by T4+ and finally T2, the typology that in the beginning of the millennium was one of the most predominant in new builds.

Variation-wise, between 2001 and 2019 and in the city of Lisbon, the smaller typologies (T0 & T1) were the ones that registered larger growth (a very significant 190% increase in representativity) and, as pointed out, the T2 had the biggest decrease (almost 60%). Also important is the fact that in this 20 year-period all typologies apart from T0 & T1 suffered a decrease in relevance, which is very indicative of where the housing market is going and of the market's demand.

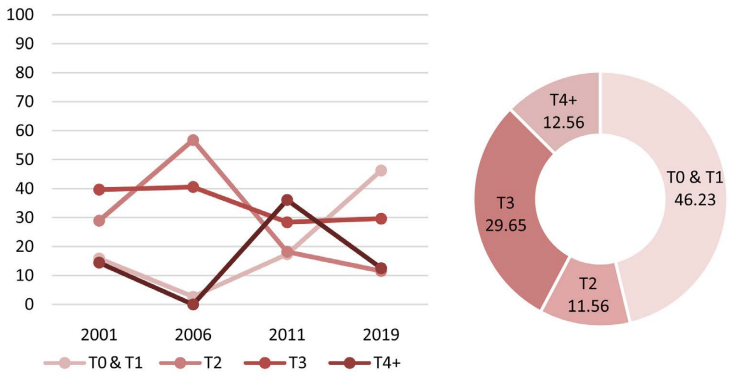

Figure 3. Evolution of typological distribution in the city of Lisbon (%), 2001-2019, and typological distribution in the city of Lisbon (%) in 2019. The evolution of typological distribution (left chart) depicts the variation shown in **Table 4**, where the significant increase in representativity of T0 & T1 is noticeable (between 2001 and 2019 the percentage of these typologies in the built total of that year has increased almost three fold—190%) as is the decrease of representativity of T2 (between 2001 and 2019 it has decreased from 28.89% to 11.56%, a variation of 60%).

Apart from typological distribution it is important to examine dwelling units' size, in terms of average area. Table 5 contains information on number of units per building, number of compartments per unit, compartment average area and unit average area and Figure 4 demonstrates evolution of these indicators over time, in the years that have been previously analyzed (2001, 2006, 2011 and 2019). Data show that in the first decade of the 21st century there was an increase of both units' average area and compartments' average area and that both these indexes suffered a decrease in the second decade. The number of compartments per unit shows the same progression—growth until 2011 and a decrease from then up to 2019. In the city of Lisbon the progress of these indicators is analogous to that of the rest of the territory, being noteworthy the noticeable difference

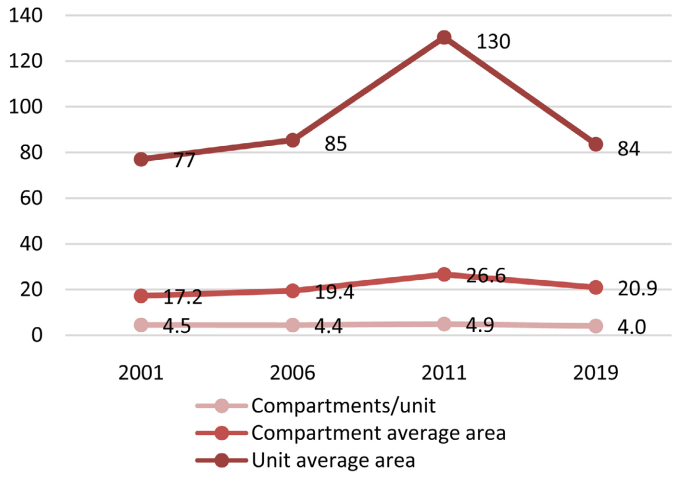

Figure 4. Evolution of new builds' Indicators in the city of Lisbon, 2001-2019.

Table 5. New Builds' Indicators, NUTS III, 2006, 2011, 2019.

Year	NUTS	Units/building	Compartments/unit	Compartment average area (m^2)	Unit average area (m^2)
2001	Portugal	2.7	4.7	17.4	82
	Mainland	2.7	4.7	17.5	82
	Lisbon	21.8	4.5	17.2	77
2006	Portugal	2.3	4.8	19.6	94
	Mainland	2.3	4.8	19.8	95
	Lisbon	9.3	4.4	19.4	85
2011	Portugal	1.9	5.0	21.5	107
	Mainland	1.9	5.0	21.0	104
	Lisbon	11.4	4.9	26.6	130
2019	Portugal	1.7	4.9	19.9	98
	Mainland	1.7	4.9	20.0	98
	Lisbon	13.3	4.0	20.9	84

of building density (the number of units per building in the city of Lisbon is far greater than in the rest of the country) and the number of compartments per unit (less than in the rest of the country and in 2019 by the significant difference of one room). As consequence of less compartments and smaller compartment average area, the unit average area in the city of Lisbon is smaller than in the other two addressed NUTS.

3. Household Transformation and Actuality

Data regarding population are collected every 10 years in the national Census. In the last census interval, 2001-2011, households grew smaller, in all analyzed NUTS—Portugal, mainland Portugal and Lisbon MA—which indicates that Portuguese (and Lisbon's) families tend to be composed by fewer members. Table 6 demonstrates that in 2001 and 2011 the majority of households were composed by 2 people and that in the city of Lisbon, in 2011, most households were a single-person-household. It is also noticeable, looking at the variation in this period, that single-person-households were the ones that grew the most and that the only other households that registered growth were composed by 2 people. Bigger households—3 people and more—all registered negative variations, which means that they lost relevance and representativity (the bigger the household, the larger the loss).

Data regarding households in the city of Lisbon, in 2011 (date of the last population census, with published results[5]) demonstrate that the great majority of

Table 6. Households' size (%), NUTS III, 2001, 2011.

Year	NUTS	Households' Size (number of people)								
		1	2	3	4	5	6	7	8	9+
2001	Portugal	17.30	28.39	25.17	19.68	6.20	2.10	0.70	0.26	0.21
	Mainland	17.45	28.64	25.28	19.63	6.00	1.98	0.63	0.23	0.17
	Lisbon MA	20.87	30.09	25.39	17.00	4.47	1.37	0.46	0.19	0.16
2011	Portugal	21.44	31.59	23.88	16.60	4.50	1.39	0.38	0.13	0.09
	Mainland	21.57	31.87	23.88	16.47	4.36	1.32	0.34	0.11	0.07
	Lisbon MA	25.55	32.84	22.29	13.99	3.66	1.13	0.33	0.12	0.09
	Lisbon	34.95	32.58	16.80	10.59	3.42	1.11	0.33	0.13	0.11
Var. 2001-2011	Portugal	23.87	11.30	−5.09	−15.68	−27.36	−33.65	−46.05	−50.38	−56.29
	Mainland	23.63	11.27	−5.56	−16.09	−27.31	−32.99	−45.35	−50.34	−56.92
	Lisbon MA	22.40	9.13	−12.21	−17.73	−17.98	−17.44	−29.55	−35.20	−40.50

[5]In 2021 the yearly census was carried out but definitive results haven't been divulged yet. Nonetheless, provisional results indicate that in 2021 the majority of households is composed by 2 people (33.3%) and that one person households represent 24.8% of the total. Lisbon MA is the region where one person households are most predominant (28.2%). These percentages show a continuity in the tendency for household reduction revealed in the first decade.

the population is a part of a small household—single-person or two-person household, that combined represent 67.5% of the families—and that the percentage of three-people or four-people households is significantly smaller than that of the rest of the territory, indicating that the reality in the city of Lisbon is different from the rest of the country's, tending to an existence of smaller households.

The average dimension of a Portuguese household is presented in Table 7 and its evolution depicted in Figure 5. It is noticeable that a constant reduction of the average family size has been occurring since 1970. Provisional data from the 2021 Census reveal that the tendency for reduction continues.

Compared to the national reality, Lisbon MA and the city of Lisbon are the regions where the average dimension is smaller, corroborating the previous examination. In the city of Lisbon, the average household consists of 2.21 individuals.

Other than size, it is essential to understand family composition. Although INE defines several household types according to the existence and dimension of a nucleus, this paper focuses on the representativity of the following compositions:

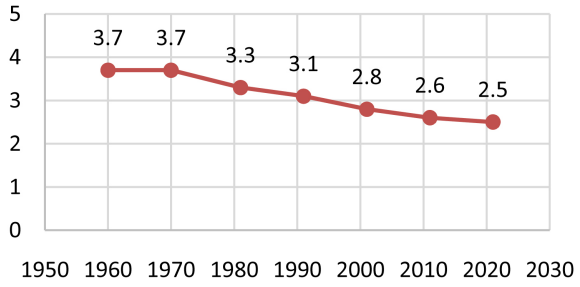

Figure 5. Evolution of average household dimension, 1970-2021[6].

Table 7. Households' average dimension, NUTS III, 2001, 2011.

Year	NUTS	
2001	Portugal	2.81
	Mainland	2.79
	Lisbon MA	2.62
2011	Portugal	2.58
	Mainland	2.57
	Lisbon MA	2.43
	Lisbon	2.21
Var. 2001-2011	Portugal	−8.12
	Mainland	−7.98
	Lisbon MA	−7.16

[6]Data for 2021 is still provisional.

single person (no nucleus), couple without kids (one nucleus), couple with kids (one nucleus) and single-parent household (one nucleus). It is important to point out that between 2001 and 2011 there has been an increase of nonnuclear families and a decrease of one nucleus families. The city of Lisbon has a very high prevalence of nonnuclear households (Table 8).

Table 9 depicts percentage distribution among the selected household composition types. Data show that the *couple with kids* household has been and is still predominant in the Portuguese context and in Lisbon MA. However, 2011 results for the city of Lisbon demonstrate that in the capital the single-person household is the most prevalent and that the *couple without kids* comes second, only slightly above the *couple with kids* household. Variation results prove that in the Lisbon MA single persons' households have been growing the most and the *couple with kids* unit is the only one that has decreased in relevance.

All of the examined data permit to infer that significant changes in domestic households have been and are taking place in the Portuguese and Lisbon's context:

- Loss of predominance of *Couple with Kids* household (the only composition type with negative variation between 2001 and 2011).
- Increase in prevalence of nontraditional household composition types—single-person households, couples without kids and single-parent households.
- Rise of single-person households as predominant in the city of Lisbon.

Table 8. Household composition in terms of nucleus, NUTS III, 2001, 2011.

Year	NUTS	Nonnuclear	One Nucleus
2001	Portugal	19.17	77.71
	Lisbon MA	23.33	74.71
2011	Portugal	23.26	73.81
	Lisbon MA	27.87	70.09
	Lisbon	38.69	59.36

Table 9. Household composition, NUTS III, 2001, 2011[7].

Household composition type	NUTS							Variation 2001-2011	
	Portugal			Lisbon MA			Lisbon	Portugal	Lisbon MA
	1991	2001	2011	1991	2001	2011	2011		
Single-person	13.85	17.30	21.44	15.57	20.87	25.55	34.95	23.93	22.42
Couple no kids	22.2	23.56	25.64	23.47	23.79	25.40	23.79	8.83	6.81
Couple + Kids	49.92	45.19	37.92	47.83	40.40	32.86	23.73	−16.09	−18.66
Single parent + kids	6.81	8.25	10.25	6.82	9.70	11.83	11.84	24.24	22.03

[7]The sum of each year's percentage, per region, is lower than 100% because the table only presents the selected household composition types.

- Reality in Lisbon as different of the rest of the territory, with bigger prevalence of more reduced households—single-person as predominant, followed by couples without kids—where the image of the traditional family is most put in question and new family compositions have grown.

4. Conclusion: Household and Housing Context in the 21st Century

(…) *people with very different attitudes and ideals respond to varied physical environments.* (…) *Because building a house is a cultural phenomenon, its form and organization are greatly influenced by the cultural milieu to which it belongs* (Rapoport, 1969: p. 46).

In this sentence, Rapoport (1969) demonstrates that changes in society are linked with transformations of living structures. In the previous sections the patterns of alteration in the last 20 years of both these aspects of urban living were examined and it is now possible to accomplish a compared analysis and compose a draft of the Portuguese reality. The afore displayed data permit to characterize the Portuguese household as reduced (under 3 people, on average), living in medium-sized dwellings (typology wise). In Lisbon, the average family is composed of 2.2 persons and lives in a two-bedroom unit (T2). If the same family dwells in a newly built unit it is more probable that this is a studio or a one-bedroom unit (T0 & T1), or a dwelling with an average of four compartments.

The statistical analysis of the last 20 years reveals that Portugal, and especially Lisbon (MA and more so the city) have been witnessing important transformations both in housing and household's characteristics. Dwelling units have tended to a reduction in typology (and consequently of size) and households have progressively become smaller, composed of fewer people and in different grouping types. The nuclear family of parents and kids has lost its importance and prevalence and more reduced and less traditional compositions have taken its place, a tendency that persists according to the provisional data of 2021 Census.

Since the last data collected regarding population (family composition and dimension) are already 10 years old (Censos, 2011), further research on the issue will focus on the analysis of the last Censos (2021) once it is published, and further publications of Housing Statistics to verify if the tendencies suggested by the data presented in this paper persist or are accentuated, or if other tendencies arise.

Acknowledgements

This work is financed by national funds through FCT—Fundação para a Ciência e a Tecnologia, I.P., under the Strategic Project with the references UIDB/04008/2020 and UIDP/04008/2020.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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