



The use of apartment balconies: context, design and social norms

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ABSTRACT

The role of a balcony is well recognised in the history of urban living. If designed carefully, balconies fit certain spatial and normative contexts and respond to residents' needs. This study examines how balconies are used and what variables influence the variety and intensity of their usage. A non-participatory observation of 3000 balconies in Wrocław, Poland, was followed by interviews with relevant stakeholders. Key questions were: How do people adapt balconies to their personal needs and for what types of activities do they use balconies? Interviews ($n = 41$) were conducted with developers' representatives, estates agents, architects and residents. Results indicate what kind of physical features (size, dimensions) or contextual features (orientation, exposure, community pattern) affect balconies' usage. The residents' activities performed on balconies and type of furniture are presented: their features, estate characteristics and surrounding context. Interviews with industry stakeholders reveal that developers and designers have a poor understanding of how balconies are actually used: their assumptions are that balconies are used for leisure and not for other functions. This research identifies and confirms the variety of balconies' functions, and the most crucial features of well-designed balconies are adaptability and responsiveness to context.

PRACTICE RELEVANCE

This research shows that balconies serve a variety of functions for inhabitants and can contribute to housing adaptability if designed well. However, the supply side (*i.e.* developers and designers) has a limited understanding of how the balconies' adaptability might enhance urban living and respond to inhabitants' needs. Key physical and contextual features are identified that are important to residents and the extent of adaptability they expect from their balconies. Some findings (*e.g.* most activities observed for a northern orientation) contradict existing industry beliefs. The main barrier within the supply side to create usable balconies is the lack of relevant communication with residents to understand their needs. The present research addresses this gap by providing developers and architects with ready-to-use material for creating evidence-based guidance.

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1. INTRODUCTION

A total of 55% of the worldwide population is estimated to live in urban areas, and this is expected to reach 68% by 2050 (UNDESA 2019). Intense construction development, densification of cities and economic pressures have led to a reduction in housing quality due to the downsizing of apartment floor areas and maximising the number of units on the building's plot (Finlay *et al.* 2012; Pelsmakers & Saarimaa 2020). In Poland, the average area of new apartments in multifamily buildings in 2020 was 52.7 m², a decrease of 5.8 m² compared with 2016 (GUS 2021). The average living floor area per capita in Poland is 35 m²—one of the lowest in European Union countries (ENTRANZE n.d.). Small, difficult-to-adjust apartments with poor spatial quality are unresponsive to changing dwellers' needs and have a negative impact on their wellbeing (Park 2019; UKGBC 2016; WHO 2018). The recent experience of social isolation due to Covid has also contributed to a discussion about current housing conditions and future challenges (Housing Europe 2021). Apartment adjustability to different layouts is one of the desirable features expected by dwellers due to their changing lifestyles and life-stage needs (Altaş & Özsoy 1998; Finlay *et al.* 2012; Tarpio & Huuhka 2022). Building adaptability contributes to several declared societal goals: the circular economy (Kendall 1999), climate neutrality (European Commission n.d.), Sustainable Development Goals (UN-Habitat 2019) and social sustainability by providing more attractive long-liveable neighbourhoods with social bonds (Gruis *et al.* 2006).

The concept of spatial adaptability refers to two different scales: the capacity of a whole building to be adapted to different uses, for instance, by implementing an open plan, and a single apartment's capacity to allow for transformations within the dwelling over all the stages of its life (Goodman 2011; Pelsmakers & Saarimaa 2020; Schneider & Till 2005). The concept can include adjustability, versatility, refit capability, scalability, convertibility and movability, thus general building changeability according to users' future needs (Schmidt *et al.* 2010). The housing adaptability concept also involves the capacity of a building to respond to the effects of climate change-driven extreme weather phenomena (Gething 2010).

The apartments' interior adaptability has been researched thoroughly (Altaş & Özsoy 1998; Femenias & Geromel 2020; Pelsmakers & Saarimaa 2020), with some credit given to adjacent private outdoor spaces, such as loggias, small gardens or balconies. The latter have drawn the most research attention. The importance of balcony design, in particular in terms of its size, has been raised by Aydin & Sayar (2020). On the other hand, some researchers see a balcony as an opportunity for additional internal floor area and propose enclosure along its perimeter. Their rationale is to increase small apartments' flexibility (Altaş & Özsoy 1998). The enclosed balcony recently implemented in housing thermal modernisation contributes to adaptability by improving a dwelling's energy efficiency and spatial quality (Alonso *et al.* 2019). The capacity of balconies to improve the indoor thermal environment has been evidenced (Alonso *et al.* 2019; Antoniou & Yannas 2017; Barrio *et al.* 2013; Camponovo *et al.* 2006; Mohamed *et al.* 2009; Tschritzis 2015). A well-designed and spacious balcony can act as a substitute for a private garden or courtyard (Gray 2014; Levitt & McCafferty 2019), thereby helping to fulfil psychological needs for different spatial experiences and purposefulness (Peters 2016). The lockdown experience intensified the discussion about the need for access to outdoor spaces and nature for mental wellbeing during pandemics (Pouso *et al.* 2021; Housing Europe 2021).

The above-mentioned studies considered the balconies as spaces that significantly enhance the functional capacity of an apartment to address residents' needs, but little attention was given to the broader context. Other studies have focused on how balconies can contribute to 'social infrastructure' within an urban environment without looking at their physical properties. It has been established that balconies can contribute to a vibrant image of the street (Jacobs 1961) or can stimulate the relationships between neighbours in low-rise estates, where eye contact or oral contact can be maintained (Gehl 2001). In some cultural contexts, balconies even appear as a continuation of the public realm assembling strangers living nearby to experience some common events, but in formally private spaces (Arendt 1958; Zacka 2020).

There is a lack of studies that link the physical, spatial and contextual aspects of balconies with the capacity of that system to respond to residents' needs. This study is intended to fill this gap. A balcony is understood here as a space where the private and public spheres coexist; a space simultaneously inside and outside (Lefebvre 2004). The exclusively private access is counterbalanced with a publicly shared vision, sound and scent. It is assumed that the exposed privacy of such space means that its adaptability capacity is influenced by a broader set of criteria than the adaptability of the more secluded apartment's interior identified in the literature, *i.e.* mostly its physical properties superimposed on residents' needs.

Acknowledging the public-private tension of a balcony, this study explores its adaptability through the lens of its observable uses within a context of specific spatial characteristics, physical features and social norms. The aim of this study is twofold. First, to establish if the spatial context and layout of a balcony can be linked with the intensity and type of observable balcony use in favourable weather conditions. The assumption is that observable use of space is a proxy for its capacity to accommodate various residents' needs. Second, to understand the social norms shaping the expectations and roles assigned to balconies by relevant actors and how these influence observable use. Relevant actors are those who shape or use balconies, *i.e.* developers, designers and residents.

The paper is structured as follows. First, the three areas underpinning the mapping of balcony use (*i.e.* context, design and social norms) are briefly presented. The methods of the study conducted in Wrocław, Poland, are then introduced. These involve non-participative observation and interviews with industry representatives as well as with balcony users. Key results and findings are presented, followed by a discussion focusing on the balcony's potential to provide affordable space most needed for small apartments and the need to challenge some social norms in the wake of the climate crisis. Key industry recommendations resulting from the study are provided in the conclusions.

2. MAPPING BALCONY USE IN CONTEXT

Studies from different geographical and cultural contexts have identified a broad scope of needs that can be addressed by using balconies (Karimi *et al.* 2020; Koolhaas *et al.* 2018; Stender & Blomgren Jepsen 2021). Mapping the variety of balcony uses in Wrocław (a major city in Poland) is undertaken to explore the contextual and design factors that enable or inhibit a range of balcony uses.

An assumption is made here that the observable activity of the residents or visible space personalisation efforts are signs of a balcony's capability to address at least some of the residents' needs, *i.e.* its adaptability. Lack of any activity or no signs of its usage when adjacent to an occupied apartment suggest two possible scenarios: either the residents do not need a balcony or they cannot use it due to certain conditions. The interviews provided some evidence for the latter scenario, whereas evidence of the former was not found within the interviewed sample of residents. However, this may be due to the sample or participants: those not interested in the topic may have declined to respond.

2.1 URBAN CONTEXT

The urban context incorporates many contrasting environments that can provide varied sensory experience: visual, acoustic, thermal or chemical (Lucas & Romice 2010). Residential apartment buildings of different age, typology and economic status represent urban layouts and neighbourhoods with varied characteristics, such as height or density of the building stock and its saturation with green areas. Balcony position, height and exposure influence are influenced by the visual environment. The urban visual environment involves views towards built-up areas, open space, greenery or a mix of those. Each category may be associated with specific benefits or drawbacks, though the view towards some greenery is generally perceived as the preferred option (Guerrero-Leiva *et al.* 2021). The soundscape and air quality of a balcony context may also represent extremes such as a quiet courtyard or a road with heavy traffic and railway lines. The

orientation of a balcony and its solar gain potential may influence its usability over the seasons. Having key different residential environments represented in the studied sample underpinned the selection criteria of the estates to be covered by the study.

2.2 DESIGN FEATURES

Besides a specific location within the urban context, a balcony has specific physical properties as designed by the architect. Those most discussed in the literature and even present in some building regulations are minimum floor area (LDA 2010) or a barrier height for a balcony (Polish Minister of Infrastructure and Economic Development 2019). Barrier transparency, though not regulated, is covered in this exploratory study, as well as balcony size and shape.

2.3 SOCIAL NORMS

Social norms are informal rules that people prefer to comply with. They involve sharing what one ought to do and influencing expectations and choices (Schram & Charness 2015). Personalising a balcony, making use of a space between the public and the private spheres, seems particularly prone to the influence of social norms. Also, the design of balconies is not rooted in regulations but rather in an industry perception of what is expected: norms 'rectify market failure' (Coleman 1989: 184–185).

3. METHODS

Two research methods were adopted to achieve the research aims: non-participatory observations and semi-structured interviews. Data collection was completed between January and August 2021. Interviews with developers, real estate agencies and architects were conducted first to provide an industry perspective related to balcony provision, *i.e.* what is the industry's understanding of the role of a balcony and the associated residents' expectations. Between June and July 2021, non-participative observations of selected housing estates were then undertaken to establish any patterns of balcony use in relation to the context and physical features of the balcony. Finally, interviews with residents were conducted to provide a deeper understanding of the quantitative observation results.

3.1 NON-PARTICIPATORY OBSERVATION

The first aim of the research was to explore if the balconies' features and context influence the variety and intensity of their use. Therefore, a comparison between how balconies are used in different contexts was sought. The selection of a sample of multifamily residential buildings for non-participatory balcony observation was based on expert knowledge of all housing typologies and neighbourhood types in Wrocław (Eysymontt *et al.* 2011). The 13 estates selected represent all key typologies for the city: the pre-Second World War housing estates and tenements (1880–1930), Socialist blocks of flats (1959–85), cooperatives from the 1990s–2000s, and recently created developer-led private sector blocks. The spatial context of the observed balconies was captured, *i.e.* its orientation and exposure to noise as well as the privacy level of the surrounding context. Also, design features, such as balcony dimensions (**Figure 1**) and railing types: opaque balustrade, openwork, perforated, transparent and mixed, were recorded. In total, 3198 balconies were covered by the study. For definitions of their characteristics, see **Table S1** in the supplemental data online.

The observation was intended to capture:

- any objects introduced onto a balcony that would indicate its personalisation and adaptation of space to residents' needs; and
- residents' activities taking place on balconies to capture the temporal dimension of the usability of balconies.

SIZE CODING	DIMENSIONS	SCHEME	EXAMPLES FROM THE OBSERVED SAMPLE
XS	lengths $\leq 2.5\text{m}$; depth $\leq 1.5\text{m}$; area $< 3.8\text{m}^2$		
S(n)	lengths $> 2.5\text{m}$; depth $\leq 1.2\text{m}$ area $< 3.8\text{m}^2$		
M(s)	$2\text{m} \times 2\text{m} \div 2\text{m} \times 2.5\text{m}$		
M	$3.8\text{m}^2 \leq \text{area} < 6\text{m}^2$		
L	depth $\geq 1.5\text{m}$; $6\text{m}^2 \leq \text{area} < 11\text{m}^2$		
L(n)	depth $< 1.5\text{m}$; $6\text{m}^2 \leq \text{area} < 11\text{m}^2$		
XL	area $\geq 11\text{m}^2$		

Each balcony was photographed from street level and notes were taken of all the visible objects present within its space. The on-site observations took place on sunny and warm days when the temperature ranged between 19°C (morning) to 32°C (afternoon). For consistency, the timing of observations was set for three two-hour slots per day: 09:30–11:30, 13:00–15:00 and 17:00–19:00 hours. Each elevation of the estate was observed twice during these two-hour periods, for a short time, and all observed activities were paper-coded. A limitation of the method adopted was that the opaque balustrades, mats and curtains covering the balustrades or distance between the buildings and higher positions of balconies precluded recording all the furnishing and activities, and most likely introduced some bias into the results. The observed estates varied in terms of the number of floors, between three and 11. Most buildings were five stories high. It was not easy to set a clear boundary for observation quality. Balconies with openwork or transparent balustrades generally had a limited view from the third floor, but sometimes the observation was facilitated with the distance between blocks. However, a decision was taken to keep the observation points at street level and public areas to limit the intrusiveness of the study because the residents using the 3198 balconies observed were not asked for their consent to participate in the study.

Figure 1: Observed balcony dimensions and shape schedule.

3.2 INTERVIEWS: INDUSTRY REPRESENTATIVES

The industry interviewees were identified based on their portfolio of residential projects. An information sheet about the study was emailed to selected companies and consent was obtained from those willing to participate. Interviews were conducted with developers' sales departments representatives ($n = 5$), estates agents ($n = 4$) and architects involved in the design of housing estates ($n = 4$). Depending on the interviewee's choice, they were conducted in person in the organisations' offices or by phone. The interviews lasted between 11 and 62 minutes. All were recorded, transcribed and coded with Atlas.ti software.

3.3 INTERVIEWS: RESIDENTS

The residents ($n = 28$) living in all key building typologies observed, in different contexts and with varied balcony features (**Table 1**) were interviewed about the capacity of their balcony to adapt to their needs. Most of the interviewees were recruited through posts placed on social media groups. Three interviewees were recruited through a personal network (17FMT, 26FMP, 28FC), and three were first contacted during the observations (13FT, 22MT, 23FTB). As most of the interviewees volunteered through social media, there is a risk that the research presents a biased perspective of young balcony enthusiasts, whereas the perspective of those absent from social media, possibly also those reluctant to take advantage of balconies, remains unidentified. All the interviews were recorded by audio and video, transcribed, and coded thematically in Atlas.ti software. During the code's organisation, some patterns began to emerge.

INTERVIEWEES		BALCONIES			
ID ^a	AGE (YEARS)	DESIGN		CONTEXT	
		AREA (m ²)/ APPROXIMATE DIMENSIONS (m)	BALUSTRADE	ORIENTATION	EXPOSURE
1FD	25–35	28 m ² /depth: 1.5	Transparent	S, W	Calm street, river, trees
2FD	25–30	10 m ² /depth: 1.5	Mixed	S, W	Parking between residential blocks, river, trees
3FD	45–55	1.5 × 2	Transparent	E	Greenery and residential block
4FDP	25–35	2 × 4	Openwork	S	Parking and residential blocks
5FMD	30–40	1.6 × 13	Perforated	E	Parking and greenery
6FD	25–35	2 × 4	Openwork	W	Parking, river
		1.6 × 10	Opaque	W	Parking, inner-estate street, residential blocks
		1.2 × 2	Glazed	S	
8FD	30–40	1.5 × 3	Openwork	S	Courtyard, parking
9FD	25–35	1.5 × 3	Openwork	E	Courtyard
10FMD	25–35	1.2 × 3	Opaque	S	Parking, inner-estate street
11FD	35–45	1.2 × 2	Openwork	N-W	Courtyard
12MD	35–45	80 m ²	Transparent	S, E	Calm street, river, greenery, block of flats
		35 m ²		N, E	Parking, block of flats
13FT	35–45	2 × 2	Opaque	S	Courtyard
14FT	35–45	1 × 2.5	Opaque	S	Calm street
15FT	30–40	1.2 × 3	Openwork	N	Courtyard
16MT	35–45	1.2 × 3	Opaque	S	Courtyard
17FMT	25–35	1.5 × 3	Opaque	S	Courtyard
18FT	25–30	1.5 × 3	Opaque	S	Courtyard
		1 × 2.5		N	
19MT	30–40	1.5 × 3	Opaque	S	Courtyard
20FT	50–60	2 × 3.5	Openwork	E	Courtyard
		1 × 2		W	
21FT	25–30	1.2 × 3	Openwork	N-E	Courtyard
22MT	65–75	1.2 × 2	Openwork	W	Calm street
23FTb	70–75	1.2 × 3.5	Openwork	W	Courtyard
24MB	25–35	1.2 × 5	Opaque	S	Parking, calm street, greenery, block of flats

Table 1: Interviewees (residents) and the characteristics of their balconies.

Note: ^aF = female; M = male; FM = couple; D = newly built developer housing estate built after 2010; C = cooperative housing estate built between 1990 and 2000; B = post-war block of flats; T = tenements; and Tb = pre-war block of flats.

(Contd.)

INTERVIEWEES		BALCONIES			
ID ^a	AGE (YEARS)	DESIGN		CONTEXT	
		AREA (m ²)/ APPROXIMATE DIMENSIONS (m)	BALUSTRADE	ORIENTATION	EXPOSURE
25MB	40–45	1.5 × 3.5	Mixed	S	Calm street, greenery
26FMB	45–55	1.2 × 6	Mixed	S	Busy street, greenery
27FB	25–30	1.2 × 3.5	Opaque	E	Allotments
28FC	30–35	1 × 3.5	Opaque	S	Parking, busy street

4. RESULTS

4.1 BALCONY OBSERVATIONS: OBJECTS AS ACTIVITY INDICATORS

The 11 types of objects' categories introduced onto balconies by their users are: furniture, plants, storage, shades, privacy screens, laundry, cleaning equipment, animals/pets adaptation, decoration, property protection and mess. Empty balconies with no objects were also recorded. Quantitative results (and the coding method used to define balconies) are provided in **Table S2** in the supplementary data online, with the distribution of objects in relation to all the categories studied, *i.e.* design and contextual features such as balcony size or orientation. **Figure 2** focuses on the presence of the analysed groups of objects and empty balconies at different housing developments. Unsurprisingly the developments with the least empty balconies (7%) were also those most filled with all types of objects, and vice versa, where over half of balconies were empty (52%), few items could be seen. The most omnipresent of all object groups were plants. These could be observed on 35.6% of all balconies; however, at some developments more than 75% of balconies were decorated with plants, while at others they were present in fewer than 20%. The differences between the 13 developments in the frequency of objects observed were substantial, ranging cumulatively for all types of objects from 68% to 290%. **Figure 2** also reveals that the presence of objects on balconies can be seen not as a direct representation, but as a proxy of balcony usage. The average activity observed per development (**Figure 2**) generally increases with an increase in the number of objects observed. To provide some context for the observed pattern, the activity level is shown against the balcony size prevalent for each development (for detailed data, see **Table S3** online). For three developments, two balcony sizes were almost equally present (**Figure 2**). There is no evident link between balcony size and overall activity when analysed through the lens of the prevalent balcony size per development. Large balconies were a minority and underrepresented in such analysis. Other interesting patterns emerged, however. For example, in the historical tenements, small balconies prevailed, but some looked out over quiet streets (1STC), while others face streets with heavy traffic (2STN). For those facing heavy traffic, one-third of all balconies were equipped by residents with some form of screen or partition to limit visual exposure and increase privacy, but still less activity was observed there. The traffic noise seemed to deter activity. However, even those looking out over quiet streets had a relatively low activity level and least furnishings among the observed sample of 13 developments. In contrast, a quiet (no traffic noise) development with similar demographics to tenements of mostly older, retired residents is the champion of balcony activity (4ETbR). This c.1930 housing has medium-sized balconies with semi-opaque balustrades, facing a quiet courtyard and a river. No other development approaches the intensity of balcony usage at this location, though two developments in direct vicinity were also observed (10ECR, 11EDR).

4.2 OBSERVATION OF BALCONY USAGE

To provide a better understanding of balcony usage, active and passive categories were distinguished at the data-collection stage. Passive usage was understood as lack of residents' presence, but with signs of activity, *e.g.* drying laundry or an open balcony door, were observed. Active usage was divided into two groups of short, usually necessary, activities, happening on the balconies irrespective of outdoor space quality, and long activities, which are usually performed if the conditions were favourable (**Table 2**).

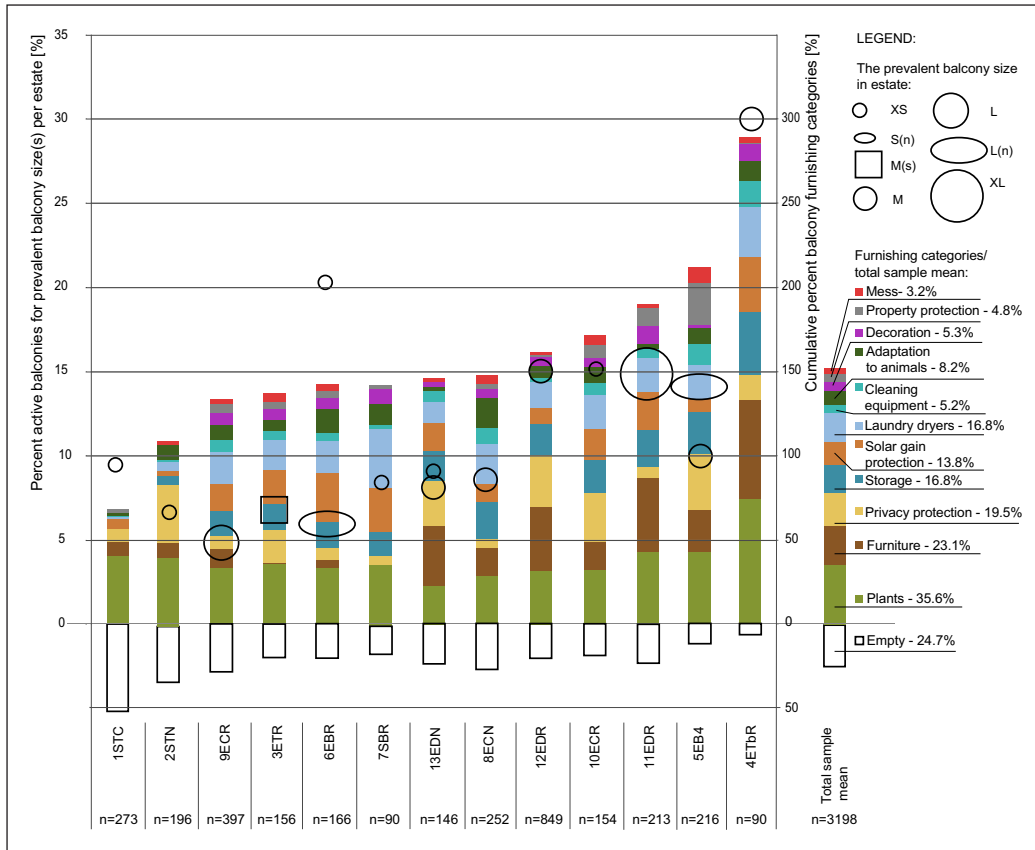


Figure 2: Balcony furnishing and activity per estate.

USAGE TYPE	USAGE CATEGORY	INSTANCES OBSERVED (n)			
		MORNING	AFTERNOON	EVENING	
Passive	Leaving open doors for ventilation	767	786	799	
	Drying laundry	210	219	223	
Activity	Short/necessary	Hanging laundry	11	29	12
		Watering plants	14	10	8
		Smoking cigarettes	17	10	13
		Cleaning/maintenance	13	12	7
		Short observations	27	27	30
	Long/optional	Sitting, relaxing, reading a book	28	35	48
		Eating/drinking	4	3	3
		Conversation in a group	12	8	18
		Conversation with a neighbour	1	4	2
		Children's play	3	10	14
		Long observations	20	22	20
		Sunbathing	0	3	2
		Home office	2	1	3
		Repairing something	0	2	3
		Animals' presence	12	7	6
		Phone call	10	4	16

Table 2: Balcony usage categories.

Figure 3 illustrates the frequency of specific activities observed for balconies of a defined size and spatial context. It reveals a clear pattern of more diverse and intensive optional activities happening on larger balconies with a quiet context, in particular with a river view. However, the comparable intensity of short and necessary activities can be observed for balconies of all sizes, and also in noisy locations. This suggests balconies as such are needed in all contexts. Small balconies exposed to a noisy context were found to have limited usage when compared with those in more pleasant surroundings.

In the studied sample, most of the balconies exposed to more hostile urban contexts were medium sized or smaller in area. The smallest balconies were found to be over seven times more common than the largest ones ($n = 154$ versus 1111). This severely limits the potential of balconies to provide some functions in favourable weather conditions, thereby increasing their adaptability.

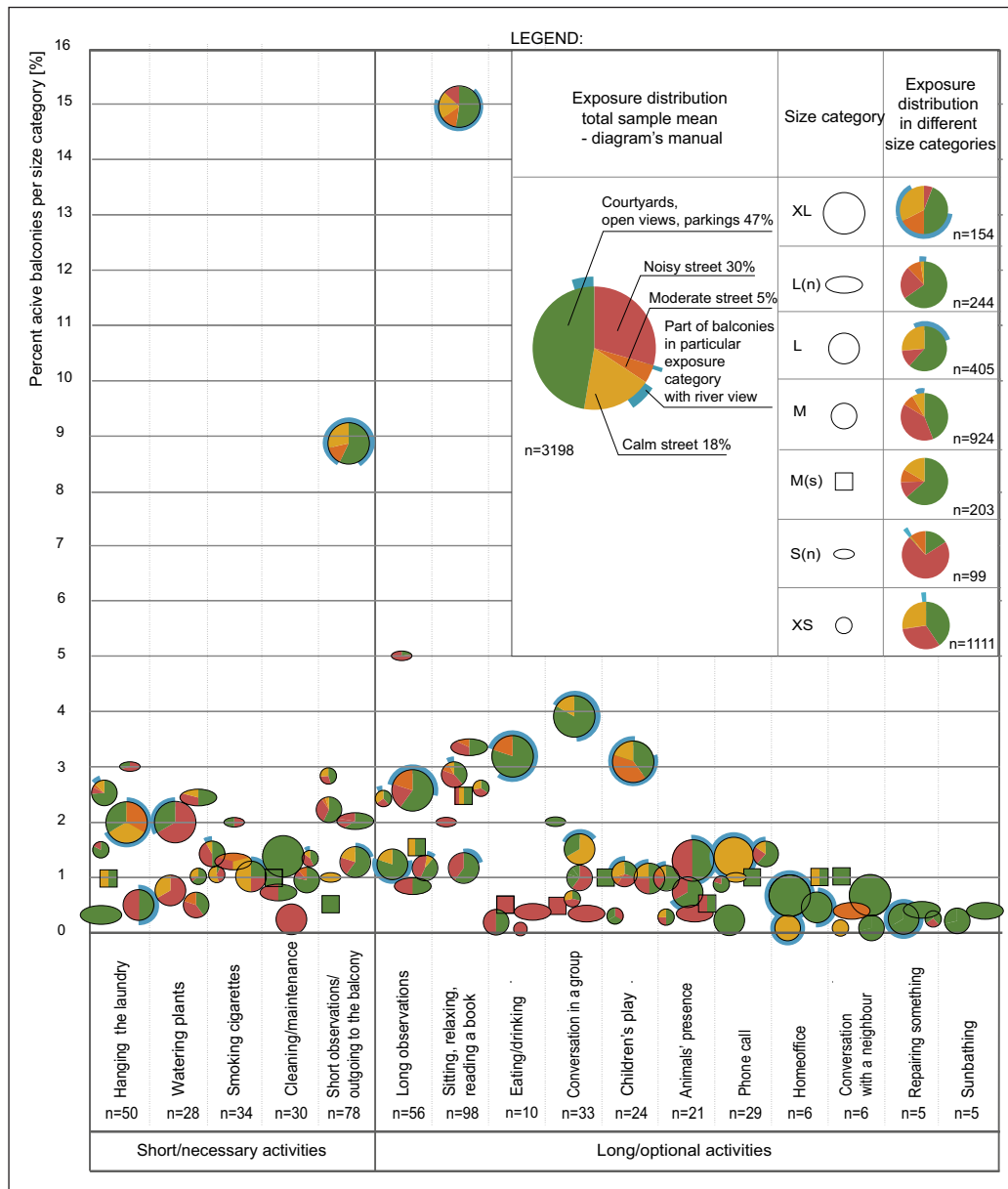
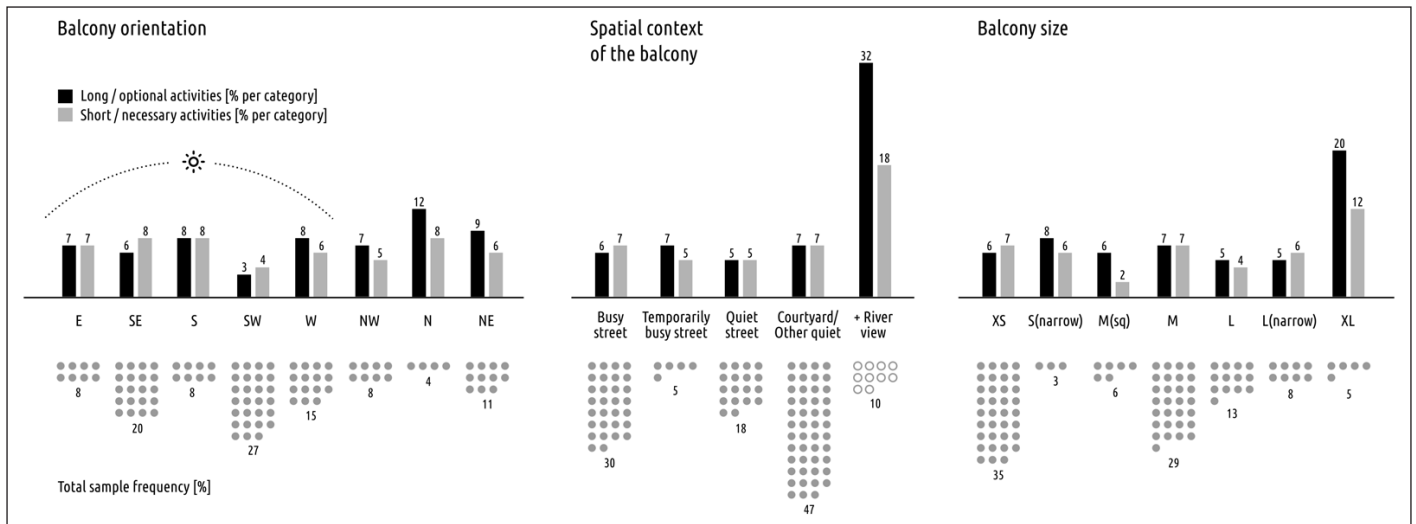


Figure 3: Active balconies per size category and their context.

Further analysis of activity level per different orientation, context type or size cross-correlated with the distribution of balconies within each category reveals their suboptimum structure. Categories where most activities were observed were the least populous: a north-facing orientation (4% of the sample), a river view (10%) or extra-large size (5%) (**Figure 4**). The difference was even more pronounced for optional activities than for the short ones, e.g. extra-large balconies were used almost three times as often as each of the smaller sizes.



4.3 INTERVIEW RESULTS: INDUSTRY REPRESENTATIVES

All the interviewed real estate agents and developers confirmed that a balcony is an obligatory feature for any apartment to be marketable. Apartments for rent in prime locations are the main exceptions to this rule. However, although a balcony is typically required, the design focus is on floor plan arrangement, with the balcony regarded as an addition rather than an integral part of the apartment. Even if architects aspire to design spacious and attractive outdoor spaces, they must follow the logic of the investment costs and return. The sales rate is a design indicator and, according to estate agents, typically all clients do not have high expectations for the presence of a balcony. In a context of high demand for new-built apartments, the purchasers/renters accept the market standard for a balcony, *i.e.* a floor area of 3.5–5.0 m² and a depth of 1.2–1.5 m (just big enough to fit in a small table and chairs). Accommodating such a furniture set is assumed to address the key balcony function as understood by the supply side. Usually, the balcony is connected to a living room, with a preference for south- or west-facing orientations. The design focus is on meeting safety requirements and contributing to the facade’s appearance. The outdoor floor space tends to be proportional to an apartment area, thus small apartments usually have very basic small balconies. Attractively designed, spacious outdoor areas are scarce and dedicated only to the most expensive apartments. The role of the estate agent—the contact during and after the sale—is typically limited to addressing complaints over technical malfunctions. No feedback is sought from residents at an occupancy stage. Both the architects and the developers expect balconies to be pleasantly arranged spaces for leisure, contributing to the visual attractiveness of a development. Also, both support estate-level policies guiding user interventions within the balcony space not to compromise the durability of facade elements and to match the overall design.

Figure 4: Activities observed (percentage of balconies per category) and total sample frequency for different balcony orientations, spatial contexts and sizes.

4.4 INTERVIEW RESULTS: RESIDENTS

4.4.1 Urban context: exposure, pollution, greenery and orientation

The interviewees repeatedly expressed an expectation to ‘feel at home’ on their own balcony, describing a place that feels shielded and private. A functional, used balcony is perceived as an extension of the apartment, where the residents can observe the environment without being exposed to the public.

Being on the balcony, I would like to be [visually] shielded from any neighbours as much as possible. So that we could not see each other. A balcony is my personal link with the outdoors and only to the outdoors, not with any people. [...] I could not use a balcony exposed directly onto another balcony. Then, such a balcony would lose meaning to me. [...] I prefer a balcony] with a view towards the water, in Wrocław—the riverside, some green areas, some parks with trees.

Such an ideal is increasingly hard to find in urban housing due to increasing density and shrinking distances between buildings. Indeed, the residents of new developments expressed a discomfort of feeling on display: ‘well, this is actually window against window’ (6FD). Those who chose to live in older apartment buildings explained that they perceived new estates as cramped, deprived of privacy with poor-quality outdoors:

I think this [historical] estate is well-designed, because there are no balconies in front of each other, as in the developer estates. [...] It was designed with a thought that most of the flats have balconies, but at the alternate sides, so everyone has privacy.

(19MT)

Actually, in historical tenements the balconies were far from being a standard feature and the few balconies in place usually were small and often facing the street. An awareness of a limited use was expressed by an interviewee using such a balcony:

I don’t leave the laundry to dry there, because I do not want to get it dusty. The dust gathers there terribly.

(14FT)

The interviews also highlighted the role of greenery in developing a sense of intimacy of space. Many residents introduced potted plants onto their balconies or let vines, such as ivy, grow to ‘separate themselves from the neighbours’ (4FDP, 11FD, 22MT). Tree crowns in the direct vicinity of balconies were highly valued for the privacy they provided even in more densely built-up areas, especially in old estates. Additionally, inhabitants appreciated the shading and its cooling effect during hot summer days:

This tree limits heat, which is positive.

(17FMT)

I wouldn’t have a problem, if there were a few more trees. It would be a bit more covered. [...] When I moved in here, the ivy was here and it began to entwine the balcony. [Its removal by facility manager] was something that completely changed staying on the balcony [for worse].

(21FT)

Well, the close distance to these blocks is a problem, right? So it is not that nice in general, but thanks to these trees [...], they cover them in the summer, when there are leaves there is no problem.

(3FD)

As mentioned in Section 4.3, designers and developers are convinced that the most preferable apartment’s orientation is south or west, and so is the balcony connected to a living room. This is due to clients’ expectations of bright daylight. However, the interviews with residents reveal a picture of varied preferences. Some confirmed the mainstream assumption while admitting some inconvenience:

Well, you can’t go out during the day, because of the sun. You need to hide. [...] On the other hand, this room is very bright. In winter it is great. If it was from the other side, it would be darker most of the year. For the few months of the year, when there is heat, [...] the balcony gets hot, so we close and cover it [...] but it’s only a few months. [...] I prefer to have good daylight most of the year in the apartment and a few months of heat, I don’t mind.

(15FT)

Nevertheless, a group of interviewees with balconies facing north appreciated having an outdoor space in which to hide during the summer heat peak:

Not having it [balcony], when it is very warm and sunny [...], actually I have a south facing living room [on the opposite site of the apartment]. [...] Staying there with a feeling that I am not capable of going out anywhere and breathing fresh air or reading

a book without such a high temperature, as in the other room, would be difficult. This [north facing balcony] is a kind of escape.

(22MT)

4.4.2 Design: dimensions and balustrade type

Size is the key feature affecting an evaluation of balconies. *Enlargement* is the most common interviewee response to a question regarding a change they would like to see for their balconies. They observe that bigger balconies are more adaptable to different functions, but due to the low standard available on the market, they are pragmatic about their own expectations. There is a shortage of apartments with spacious balconies, thus they are out of reach.

It was a difficult choice: a house or an apartment. [...] But I like city life, so for now we have chosen the city, so a balcony was a must. [...] I love sitting here. I wish I could do more here, but I miss a bit of space, but we manage anyway. [...] It would be nice if the balcony was bigger, but we have seen so many apartments. [...] But to be honest, if it was at least two meters deep, it would be great.

(14FT)

Here, at [...] larger balconies or terraces, a lot of things happen. People sunbathe there, and you can see that they are much more arranged. You can often see that the neighbours spend time there, [...] it functions like a second living room.

(21FT)

Unsurprisingly a large balcony has an impact on an apartment's marketability. Clients prefer apartments with large balconies, even at the cost of interior floor area:

When I went out on the balcony, I knew that this is what I wanted [...] it was the only apartment I liked. [...] The compromise was a smaller floor area, because I actually wanted a little bigger, but there was a balcony. I had to choose between two apartments in this building: a bigger one, but with a smaller balcony, or the smaller one, but with a bigger balcony. And this one [with the larger balcony] won, at the cost of interior floor area.

(1FD)

When asked about a balcony size, the sales representatives usually described its total area without dimensions, whereas the proportions influence its functionality. Some activities that people would like to perform outdoors, such as family gatherings and having dinner at the table, are hindered by the narrow balcony size.

It would be great then, because we like to meet with our friends and we do it quite often, so just such a table with chairs, where more people could come would be great.

(1FD)

Some interviewees with narrow, although long balconies, pointed to their preference:

for more square proportions since it was hard to manoeuvre when there were more people or furniture.

(24MB, 26FMB)

Although the designers claimed that 3.5–5.0 m² is sufficient for placing a basic furniture set on a balcony, the interviewees claimed that it was insufficient if they needed to do several things simultaneously. For this reason, the owners of long balconies appreciated the possibility of *separating functional zones*, where different activities could be performed individually or simultaneously if space allows, enhancing the flexibility of an apartment.

We have agreed to make 'zones' here. We have a zone with a table, where we either eat or paint, we have 'a farm zone', where tomatoes grow. [...] Then we have a washing area and at the end there is a chill out zone. [...] This is a kind of external corridor. [...] There is an entrance to my office on the other side, there I work remotely.

(5FMD)

Although size matters, due to a shortage of large balconies, balcony enthusiasts could accept and make an advantage of even a very small outdoor space:

When my friends come to me, [...] even though it is a small place everyone always sits here. We put some cushions on the floor. That's why I think to myself that it is big after all, because it is capable of accommodating everyone.

(3FD)

I could do yoga there. I was unfolding the mat without a problem. When I was sunbathing, [...] I was a bit twisted, but I have never felt uncomfortable. More I was thankful that I could stretch outside at the fresh air.

(9FD)

As discussed in the previous section, the residents appreciated privacy and comfort in their outdoors spaces, nevertheless the interviews provided a mixed picture of the preferences for balustrade type. With transparent, typically glazed barriers the interviewees were aware of a dilemma between the advantage of access to daylight and the open view while:

having a discomfort of being on display.

(15FT)

You feel a bit like on display. I thought about installing panels such as the bamboo ones, but on the other hand. [...] Firstly, cats would not have a view, secondly, there is a risk that there will be less daylight.

(6FD)

The dilemma also applied to opaque balustrades that offered privacy but at the same time shaded the interior of the apartment throughout the seasons (27FB, 28FC).

4.4.3 Social norms and regulations

Some interviewees openly admitted that observing neighbours influenced their perception of their balcony and its use:

I grew up in the countryside and I felt it was very strange that all those people around use these balconies. I felt very embarrassed on this balcony. [...] I had an impression someone was looking at me, etc. [...] But I have figured out that if people co-exist in this way I can get used to it, too.

(8FD)

Others confirmed that they observed balconies on Instagram (19MT), looked for interesting arrangement ideas (9FD) or avoided drying underwear there (4FDP, 3FD, 22MT), and tried similarly to contribute to the pleasant image of the neighbourhood. A balcony culture developed with more or less intuitively defined code of positive patterns. Negative behaviours by neighbours, such as cigarette smoking, noise or mess on balconies (however, cooking, grilling and barbecuing on balconies is forbidden by city-level policies), were mentioned in the interviews as factors significantly impeding the likelihood of outdoor activity. They were a sign of weak social norms with individuals not recognising their existence or value.

Another theme explored in the interviews was attitudes towards the introduction of explicit rules related to balcony use. As residents explained, balcony use requires the adaptation of its space to personal needs. Screens are placed to provide more privacy, and curtains, blinds or air-conditioners to cope with heatwaves. All these adaptive elements influence the appearance of a facade. Some interviewees assessed it positively as a part of 'space domestication' (9FD), creating diversity (24MB) in the neighbourhood, or 'tolerat[ing] the right to adapt a balcony at someone's discretion' (16MT, 18FT). Others were critical of spontaneous modifications, preferring:

opaque balustrades giving a more coherent elevation image.

(13FT, 19MT)

Me and my wife pay a lot of attention to aesthetics, so even if we had a glazed balcony, we would not cover it with panels and so on. But generally people value privacy and these balconies later look very ugly. Everyone has a different curtain, bamboo matt, etc. Unfortunately, it makes a mess. Here we do not have this problem, because there is a solid wall, so great in this respect. [...] Because a balcony arrangement is someone's own business as long as it is aesthetically coherent.

(19MT)

In new-build developer estates, some adaptations were forbidden due to warranty regulations, which prohibit any interference with the elevation during the first five years of occupancy. Someone who then 'places an air-conditioner has to reckon losing the warranty' (6FD, 9FD). Also, an air-conditioner or blinds arrangement was sometimes expected to adhere to guidelines protecting a facade's coherency. Some perceived the guidelines as an awkward nuisance:

People had problems [...] with the air conditioning units, whether they could stick out or not [...], you needed a formal agreement. A lot of people just ignored it. For me, it is annoying, because this device is getting more and more necessary. [...] If I had to spend more to make the enclosure colour to match the facade, I would be irritated.

(10FMD)

The small size of both the apartment and its balcony coinciding with rules protecting the facade can even stop balcony use altogether:

It occurred to be forbidden to hang the air conditioner outside the railing. [...] So at one side, I have a wardrobe, and on the other, the air conditioner on the floor, so the usable space has decreased by at least 1.5 m², so now we only go out to check the temperature. [...] And now the children do not use the balcony either, because they either smell the cigarettes from the neighbour or they pour out the water from the air conditioner, or climb on it [...] so, frankly speaking, we have not used this balcony for a year.

(8FD)

4.5 UNDERSTANDING OBSERVATIONS THROUGH THE LENS OF INTERVIEW FINDINGS

The interviews with different stakeholders allowed a better interpretation of the observation results. Through cross-correlation of the two data sources, key themes emerged:

- Discrepancies arose between the assumptions of building industry actors and residents' perceptions and experiences with balcony use, e.g. in terms of client expectations towards balconies or attitudes towards north-facing balconies. Observations prove the industry was precise in its account of the mainstream market offer, but unaware of the in-use phase. Lack of industry-user communication is evident and the gap in knowledge on the industry side should be addressed to deliver more usable balconies that respond better to residents' needs.
- The features influencing balcony use (and specific activities) play an important role. The permanent contextual and design features play a significant role. In addition, household characteristics, residents' personality, social norms or local rules may all foster or hinder the likelihood of balcony usage (*Figure 5*). As a result, high activity can be observed at an estate with average balcony size, but with residents working from home, on retirement or parental leave.

5. DISCUSSION

5.1 A BIGGER BALCONY FOR A SMALLER APARTMENT

Equipping an apartment with a balcony is not formally required in Poland or the UK, but it is a housing industry standard underpinned by clients' expectations and sales results (Sørensen 2019; Finlay *et al.* 2012; Kuoppa *et al.* 2020). However, due to limited understanding within the supply side (construction and real estate industries) of the potential versatility of these spaces, the mainstream standard is limiting and its full potential is rarely exploited. An opportunity is missed for a balcony to become an 'affordable space' capable of multiple uses, thereby relieving the pressure in particular for smaller apartments. Smaller, affordable apartments typically have

features defining space were identified. Third, balcony usability in relation to industry and user expectations and social norms were captured. Non-participatory observations and interviews with relevant stakeholders from the real estate and design sector as well the residents provided data for this study situated in Wrocław, Poland.

Several findings contradict mainstream supply-side assumptions regarding balcony uses and the preferences of residents. Research revealed a preference for north-facing balconies orientation compared with a southern exposure in order to avoid severe overheating. Interviewed developers and architects assumed the opposite. Newly built estates in Wrocław confirmed that most balconies are south facing. In the age of climate crisis, some long-standing design beliefs and practices need to change.

Industry representatives also associated balconies specifically with residents' leisure, and therefore the design of balconies is often limited to minimal dimensions without verification of the impacts on use and comfort. In reality, balconies contribute to many other functions related to general household duties. Residents, especially those with children, pets or working from home, confirm that a good private outdoor space significantly enhances the capacity of their apartment to accommodate different uses and address different needs.

The variety of uses by residents suggest that balconies are potentially an 'affordable space'. As the size of apartments becomes smaller due to construction and land costs, balconies cost less to construct and maintain. They offer a viable alternative space to accommodate a variety of functions (for part of the year). The physical features and context also impact on balcony use. Small, dark balconies or those too exposed to the public are less frequently used than those facing a courtyard or a green space. A sense of privacy contributes significantly to enhancing a balcony's functionality. Residents' preferences are for private outdoor spaces located some distance from other balconies, exposure to communal areas rather than public streets, and the proximity of trees shielding them from neighbours.

Social norms also influence the use of balconies. In neighbourhoods where social norms related to outdoors use have developed, some residents were able to take advantage of their tight and uncomfortable outdoor spaces.

7. RECOMMENDATIONS

- The supply side, *i.e.* developers and designers, need to acknowledge the variety of residents' requirements that can be met and satisfy this demand by proposing a high-quality balcony that allows for several functions and adaptation by individual residents.
- The design of new buildings should consider and propose guidance for residents that allows them to adapt the elevation design, *i.e.* alterations to balconies, *etc.*
- Evidence-based guidance needs to be developed for the physical features of balconies (*e.g.* sufficient size and shape, balustrades, screens and planting for privacy, balcony microclimate, location of balcony—considering minimal distances between the buildings, open view, proximity of trees).

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ETHICAL CONSENT

No personal data were collected during the study. The interviewees signed up voluntarily and were informed in writing about the aims and scope of the research, funding source, institution and researcher responsible for anonymised data processing and storing, and the right to withdraw data from the study. The informed consent of interviewees was sought before the oral interview and recording. Ethical consent was not granted as an appropriate ethical committee was not in place at the university at the time of developing the study.

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SUPPLEMENTAL DATA

For supplemental data containing further information on the detailed characteristics of balcony samples and residents' activities performed in relation to their physical and contextual features, <https://doi.org/10.5334/bc.193.s1>.

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