

Exploring The Relationship Between Transport Accessibility and Women's Empowerment in Informal Settlements in Cairo

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Declaration

I Nour Amr Adel Gazarin confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Abstract

This thesis explores the relationship between transport accessibility and women's empowerment through consideration of how travel patterns both influence/are influenced by the social and spatial manifestations of the workings of power, accounting for the social identity of users, their social relations in the household and wider exclusionary social and urban structures.

The research uses a qualitative case study methodology, focusing on two informal settlements in Cairo. Contextualised in the daily gendered lived realities of informal settlement residents, the link between transport accessibility and empowerment allowed for a consideration of the power dynamics behind travel decision making, and consideration of the wider implications and dynamics of power resulting from the act of travel and transport use - or lack of it.

Challenging the normative assumptions underlying urban travel and the power structures governing urban transport planning, the findings demonstrate how the relationships between transport and empowerment can both influence and be influenced by the gendered construction and organisation of individuals, households, urban space and wider society. They highlight the structural constraints behind observed travel patterns and the gendered constructions which inform social control over women's mobility, their embodied experiences of travel, the utility of transport systems, access to urban opportunities and their wider engagement and appropriation of the city.

The findings on women and men's usage and experiences of informal transport modes in Cairo fill a knowledge gap about informal transport in Cairo, shedding light on both their significant contribution to meeting women's travel needs and on the extent of women's vulnerability when using informal transport due its lack of oversight and accountability. The research also highlights the extent to which transport cost, safety and distance of travel contribute to gendered trade-offs, household negotiations and restrictions over women's use of time, resources, and access to public space in intra-household decision making.

Impact Statement

The focus of this research cuts across several disciplines, each offering its own opportunities. The research methodology and analytical approach offer transport studies an alternative process of knowledge production which is considerate of and sensitive to gendered power and the urban reality of women in the Global South. As a member of the Universities Transport Study Group mailing list I have observed an overwhelming majority of quantitative and technical focused research. As was shown by this thesis there is also much that transport researchers can learn from people's every day lived narratives, thus I see that platform as well as other spaces within the transport field as opportunities for shifting mindsets. The links established between social inclusion and transport accessibility will also strengthen the argument for consideration of transport as an intermediary tool for urban social justice which could result in improved livelihoods for communities all over the world. I planned to present the findings at the AAG conference in 2020 as part of a session entitled "What about the people? Towards an understanding of perceived accessibilities". Unfortunately this plan was disrupted due to COVID-19. Still there is great interest in the topic of transport accessibility within the fields of geography and urban planning, particularly at the DPU. The findings of this thesis strengthen other work taking place at the DPU concerned with transport accessibility and its social impact in Latin America and other countries in Africa. The Gender & Development journal's latest call for contributions is on the topic of gender and public space. Publishing the research findings on the role transport plays in gendered urban exclusion and marginalisation as well as its potential position as an enabler for transformation in such journals and others concerned with women's empowerment can significantly impact women's right to the city all over the world. As Partnerships Manager at the Women's Resource Centre in the UK I have access to influential spaces where I have advocated for increased consideration of transport's role for women's well-being and empowerment. This has included drafting a response to the London Mayor's consultation on his VAWG strategy. However, the most significant impact of this work will come from its potential to support those working to improve women's ability to utilise and benefit from transport infrastructure in the Global South, as the results offer key insights in to factors involved in women's decision-making when it comes to travel and the use of certain transport modes. Interest in improving women's transport experience is high amongst international development organisations, the IMF outlines improving the safety of public transportation as a key action for improved outcomes for women as part of the conditions of Egypt's recent IMF loan. For policy makers in Cairo, there is potential to benefit from the understudied insight on women's public transport experiences, particularly the residents of informal settlements, as well as from the insight on the utility of informal transport modes. This could result in improved service provision and connectivity for both female and male informal settlement residents. An avenue for impact on this front is the connection I made with the UN-Habitat and ITDP research group who are working on ways to integrate gender considerations in to Cairo's new BRT. Sharing the research findings with them could contribute to their recommendations. Sharing the research findings with the NGOs in Ard el Lewa and Mansheyat Nasser who contributed in the production of this research will also support them in their efforts to achieve improved livelihoods in their communities and service provision in their neighbourhoods. The potential impact of the results for the women living in these settlements is an increased consideration for their right to the City they live in, improved ability to navigate it and benefit from it, as well as an enhanced quality of life for themselves and their families.

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List of acronyms and Arabic terms

ADB	Asian Development Bank
<i>Ahwa</i>	Typical Egyptian coffee house
AL	Ard el Lewa
AP	Associated Press
<i>Ashwayiatt</i>	Informal settlements in Egypt
AUC	American University In Cairo
BRT	Bus Rapid Transit
CAPMAS	Central Agency For Public Mobilisation and Statistics
CTA	Cairo Transport Authority
ECM	Egyptian Company for Metro Management and Operations
EDHS	Egypt Demographic and Health Survey
EU	European Union
<i>Gam'iyya</i>	Informal rotating savings scheme
GCR	Greater Cairo Region
GoE	Government of Egypt
GrOW	The Growth and Economic Opportunities for Women program
GTZ	German Technical Cooperation Agency now referred to as GIZ
ILO	The International Labour Organization
IMF	The International Monetary Fund
ITDP	The Institute for Transportation and Development Policy
ITF	The International Transport Forum
JICA	The Japan International Cooperation Agency
KISIP	The Kenya Informal Settlement Improvement Project
L.E.	Egyptian currency: livre égyptienne
LRT	Light rail transit
MN	Mansheyat Nasser
MOIC	The Ministry of Investment and International Cooperation Egypt
MPED	The Ministry of Planning and Economic Development Egypt
NCW	The National Council for Women in Egypt
<i>Niqab</i>	A veil for covering the hair and face except for the eyes
OECD	The Organisation for Economic Co-operation and Development
SDGs	The United Nations Sustainable Development Goals
<i>Shisha</i>	A way of smoking tobacco through a water pipe
SIS	Egyptian Government State Information Service
TADAMUN	The Cairo Urban Solidarity Initiative
TFC	Transport for Cairo
UN-Habitat	United Nations Human Settlements Programme
UNFPA	The United Nations Population Fund,
UNICEF	United Nations Children's Fund,
UNWomen	United Nations Entity for Gender Equality & the Empowerment of Women

1 Chapter 1: Introduction

1.1 Justification

This research aims to explore the relationship between transport accessibility and the empowerment of women living in Cairo's informal settlements. It builds on global findings that have highlighted differences in transport use and travel patterns between women and men, as well as findings linking transport accessibility levels to social and economic exclusion in the city.

Within the context of these research transport accessibility is understood as concern with understanding the different travel patterns of individuals according to capacities based on social identities, the way transport provision and land use work together in urban environments, and the implications in turn on connecting people with essential life necessities and places of urban opportunities. While empowerment is seen as a process of addressing and changing power relations with an acknowledgement of the term's fluidity, the role of individuals, its relational character, and the importance of societal context, as well as the transformative potential of the concept.

Exploring access to essential necessities and opportunities is operationalised in the form of ability to reach basic goods, education and healthcare services, support networks and income generation opportunities which have been identified as essential for women's well-being and empowerment. Empowerment is further represented in the analysis through examining confidence navigating the transport systems and the city, exposure to wider learning opportunities for the traveler, feelings of safety and belonging, as well as altered ways of thinking and opportunities for influencing norms and decision-making processes in the household and community as a result of travel.

The studies from around the world examining women and men's transport usage have shown that:

1. Women travel for more diverse purposes and have more complex travel chains, conducting more "side-trips" (Sarmiento, 2000; Miralles-Guasch et al., 2016).
2. Women use different transport modes from men and are more likely to walk or

- use public rather than privately owned modes (Tran and Schlyter, 2010);
3. Women generally travel for shorter distances and at different times of the day than men (Odufuwa et al., 2012; Adetunji, 2013); and
 4. Their varying transport needs are seldom taken in to account when designing transport infrastructure and services (Hamilton et al., 2005).

According to the literature, these observed different patterns are a result of the gender division of labour and its intersection with other social relations, women having less time and money to spend on travel (Turner and Fouracre, 1995; Hamilton and Jenkins, 2000; Dobbs 2007) and a large burden of travelling to do within constrained locations and times (Pickup, 1984; Lang, 1992; Hamilton et al., 2005). Additionally, they are limited by geographical, design, and temporal limitations imposed by the transport infrastructure and cities built for male mobility by predominantly male planners practising gender biased planning disciplines (Law 1999; Hamilton et al., 2005; Dobbs 2007; Levy, 2013, 2015). Different cultural contexts can further restrict women's ability to leave the house without permission, visit certain destinations and use certain travel modes (Turner and Fouracre, 1995; Rivera, 2007; Porter, 2008). Women also experience the city with a greater fear for safety than men, which affects their travelling hours and destinations (Pickup, 1984; Mashiri et al., 2005; Anand and Tiwari, 2006; Rivera, 2007). These findings all point to a link between transport access and disadvantage for women in terms of time and resources and freedom of mobility as well as ability to participate in and benefit from social, economic and political spheres.

Studies of urban low-income neighbourhoods across the Global South additionally support the need for more attention and consideration to be paid to transport's contributory role to the welfare of their residents¹.

¹ See for example: Anand and Tiwari, 2006, in Delhi, India; Ureta (2008) in Santiago, Chile; Tanzarn (2014) in Kampala, Uganda; Salon and Gulyani (2010) in Nairobi, Kenya; Oviedo and Titheridge (2016) in Soacha, Colombia; Oviedo et al. (2017) in Abuja, Nigeria; Mark and Heinrichs (2019) in Buenos Aires, Argentina

One thing that is important to recognise however, is that while many studies have been able to show a relationship between gender and transport patterns² little research has been conducted on the conditions under which women travel or the implications that varying transport usage has on women themselves.

What is often over looked in transport research, even those concerned with women's transport access, is that throughout travel and transport use decision making processes there are various dynamics of power at play both within the household as well as the city that can be attributed to the varying socially constructed gender roles and responsibilities that dictate both the need to and the potential for travel (Mashiri et al., 2005; Rivera, 2007; Hanson, 2010; Levy, 2013).

Consequently, this research aims to fill that gap by examining gender relations, transport accessibility and empowerment and analysing the relationships between them through, a lens considerate of power, to increase our understanding of the role transport plays in gendered urban exclusion and marginalisation as well as its potential position as an enabler for transformation.

While the research for this study took place in 2018, and it remains the only study to consider the transport experiences of women residents of Cairo's informal settlements, it should be acknowledged that recent years have seen increased interest and many positive contributions to this field from across the Global South, examples include studies from across Africa³, Latin America⁴, and South Asia.⁵

² See for example: Hanlon (1998) in Australia; Sarmiento (2000) in the USA; Hamilton et al. (2005) in the UK; Polk (2005) in Sweden; Tran and Schlyter (2010) in China and Vietnam; Queirós, and Costa (2012) in Portugal; Clarke (2012) in Casablanca and Sanaa; Odufuwa et al. (2012) and Adetunji, (2013) in Nigeria; Miralles-Guasch et al. (2016) in Spain

³ **Across Africa:** Ethiopia, (Kacharo et al., 2022); Ghana (Darko et al., 2023); Kenya (Muhoza et al., 2021); Morocco (Chamseddine and Ait Boubkr, 2021); Nigeria (Porter et al., 2021; Porter et al., 2023); South Africa (Parker and Rubin, 2022; Porter et al., 2023); Tanzania (Muhoza et al., 2021); Tunisia (Porter et al., 2021; Murphy et al., 2023); Uganda (Muhoza et al., 2021).

⁴ **Latin America:** Brazil (Faria, 2020; Freitas et al., 2023); Chile (Sagaris and Tiznado-Aitken, 2020); Colombia (Montoya-Robledo and Escovar-Álvarez 2020); Mexico (Infante-Vargas and Boyer, 2022); Uruguay (Olivieri and Fageda, 2021).

⁵ **South Asia:** Bangladesh (Rahman, 2022); India (Joshi et al., 2022; Mahambare and Dhanaraj, 2022); Pakistan (Iqbal et al, 2020).

1.2 Cairo context

Understanding the potential negative or positive associations between transport accessibility and empowerment for low-income women is of particular importance in the context of Cairo where the majority of urban residents reside in informal settlements, traditional gender roles and responsibilities are maintained in a patriarchal society, and women generally have a weaker economic, social and political position than men (Sieverding and Hassan, 2016; El Feki et al., 2017; Sieverding et al., 2019).

1.2.1 Transport in Cairo

In terms of the transport context in Cairo, studies concerned with transport usage point to a large discrepancy in modes used and travel experiences by wealth, with those more well off able to utilise the modes operating at higher fares in exchange for speed and comfort, as well as more privately owned modes (Metge, 2000; Boskovitch, 2015). Those on more restricted incomes are left with the more outdated public sector run modes, which while operating on cheaper fares, are limited in geographical reach, are deteriorated in quality, and offer a much slower service (World Bank, 2014).

Exploring disparities by residential location also points to a disadvantage on the part of individuals living in poorer neighbourhoods, with residents reporting less means of travel serving their neighbourhoods than more affluent areas, and much less variety in the types of transport modes they can access (Horwood, 2011). With only 11% of the Cairo's population (8.7%) of households said to own a personal car (Sims, 2012), the remaining 90% of the population rely on mass transport modes to travel, including the 16 million daily commuters who are said to utilise formal and informal modes such as the metro, CTA buses, minibuses and tuktuks (JICA, 2012a; TFC, 2017).

On average, it is estimated that transportation comprises 15% of the cost of living for an individual in Cairo. Ranking it as the 4th largest expense for households following the basic essentials of food, shelter and healthcare (TFC, 2017). Despite attempts by the government, through subsidies, to keep transport affordable, it is still highly costly for those on lower incomes. For example, a comparison of the average cost of

a bus ticket between Cairo and London shows them at almost exact percentages of the respective minimum wage in each city, standing at 7.26% and 7.32% respectively (TFC, 2019).

With the above context in mind, the concern here is to understand the extent to which Cairo's transport system, and its deficiencies by residential location and income status, is experienced by women, given the proven differential access identified in studies globally between women and men in all their diversity.

1.2.2 Women and gender relations in Cairo

In terms of gender relations and gender division of labour within the context of Egypt, studies show that women spend more time than men completing unpaid household work and caring for family members (CAPMAS, 2016). The heavier load of housework remains the same even when women are also involved in paid work, resulting in a disproportional burden on women's time use than men (Hendy, 2015). Women are also disadvantaged when it comes to control of household assets. Though, women who have earnings are reported to have greater influence on household spending decisions (EDHS, 2015; El Feki et al., 2017). It is worth noting that there exists a significant gender wage gap as well as significant gap in labour force participation between women and men (NCW, 2017).

Women make up only 16% of the formal labour market participants in Cairo (CAPMAS, 2021). This official statistic however does not account for informal sector work. Studies suggest that when women do engage in paid work, the majority of their income generation is in the informal sector, further amplifying their social and economic vulnerability (Nasr, 2010; World Bank, 2013; NCW, 2017). An inhospitable labour market environment, including a mixture of gender discriminatory practices, as well as long hours and low pay, can be said to have contributed to this phenomenon (Assaad, 2014; Hendy, 2015; Barsoum, 2018). Distance and proximity to households as well as ease of travel have further been identified as contributory barriers (Assaad and Arntz, 2005; Handoussa, 2010; Nasr, 2010). Particularly for women from low-income households – but increasingly for those from middle income households, having less time and money than men to spend on travel, obstructs women's potential to seek

income generation (Assaad and Arntz, 2005; Handoussa, 2010; Nasr, 2010). Exploring the role of geography in access to paid work, in Cairo, Tadamun (2019) find a significant disparity in women's employment rates and form of work by neighbourhood ranging from as low as 2% in some areas to 70% in other areas, as well a higher proportion of temporary and precarious employment in the lowest income neighbourhoods.

This picture is further complicated with the recognition that the lack of access to and control of resources and time, outlined above, also extend to a lack of authority and decision-making power in major aspects of women's lives. The results of a study on understanding masculinities in Egypt found that men believe in exercising strict guardianship and superiority in decision-making within the household, adhering to gendered expectations when it comes to labour within and beyond the household. This control also extends to women's mobility and access to and behaviour in public space (El Feki et al., 2017).

In terms of education, illiteracy rates of women in Egypt are said to be at 32% compared with 16% for men with the gap increasing for those more economically disadvantaged (NCW, 2017). Those living in informal settlements more specifically, also suffer a bigger disadvantage when it comes to educational attainment due to lack of accessibility to education institutions and the substantial financial burdens of education. A study examining youth's perceptions of service access in informal settlements in Cairo found only 27.7% contained schools across all education levels inside the neighbourhood. On the other end of the scale 10% of informal neighbourhoods did not have any formal educational or health service points (Sieverding et al., 2019, p.11). The most frequently available schools in all informal settlements is commonly reported to be primary schools, and the schools become less available at higher levels. When considering this fact alongside the findings from UNICEF (2013) that children aged between 12- 17 in informal settlements in Cairo are severely deprived in relation to education due the high rates of drop out after primary school post the age of 11, it can be assumed that location and in turn transport accessibility plays a role in lower educational attainment.

Women also face significant disadvantages in access to essential services such as healthcare. For example, in the Egyptian demographic and health survey published by the Ministry of Health in 2015, 73% of their sample of women in Cairo identified at least one problem in accessing healthcare (EDHS, 2015). Issues of transport accessibility were particularly stressed, with 50% of women raising the concern of absence of healthcare providers, while 22% and 18% respectively, specifically indicated having to take transport and distance to health facilities as major issues. While comparative data for men was not provided, these obstacles raised by women considered together with the absence of health care facilities in the informal settlements, suggest the significant role of transport when it comes to barriers to healthcare services.

Women's safety on the streets of Cairo is another vulnerability which often makes headlines as widespread sexual harassment practices have become a pervasive characteristic of the city. Studies conducted on sexual harassment in Egypt point to figures as high as 99.3% of women experiencing a form of harassment with 59.5% reporting being touched, 62% being stalked, 75% being ogled and 87.7% subjected to whistling and verbal abuse. The above study identified the street and public transport as the two most common sites for such incidents with 81.5% of the respondents saying it frequently occurred on transport modes (UNWOMEN, 2013). These experiences can have detrimental effects on women's feelings of safety in the city. In fact, 43% of the women in the above sample reported being scared to go out onto the street again following traumatic incidents of harassment and sexual violence. Women have also been found to change their transport use, based on their perception of the probability of sexual violence (UNFPA, 2016).

1.3 Research aims and objectives

This research aims to explore the relationship between transport accessibility and the empowerment of women living in Cairo's informal settlements.

The objective is to identify and increase understanding of how travel and transport use patterns both influence/are influenced by the workings of power affecting intersectional social identities, social relationships and urban spaces.

This is done through a qualitative case study methodology which investigates the travel and transport use of 85 (65 female and 20 male residents) in two informal settlements in Cairo.

Through an approach which uses gender and power in the everyday lens when examining transport accessibility the findings are used to answer the three following questions:

1. What are the real travel patterns of women living in informal settlements in Cairo?
2. How are gender and power reflected in these patterns, and what are the implications for transport accessibility?
3. What is the impact and significance of these patterns on women's empowerment and integration into the city?

Given the limited knowledge of these in the literature, identifying the travel patterns was chosen as a starting point to learn more about travel purpose and mode use of women living in informal settlements in Cairo, as well as, the urban land use and transport infrastructure context they are taking place in, which is integral to transport accessibility. The use of the term 'real' in the phrasing is in the spirit of this research's social constructivist approach referring to the process of acquiring contextualised knowledge reflected in the lived realities of this specific group.

The second research question asks how gender and power are reflected in the patterns in order to address oversights identified in some transport accessibility and exclusion literature which disregards the power involved in travel and transport use decision making processes. Asking this question recognises the context and conditions women's travel is taking place in, and the various dynamics of power at play both within the household as well as the city linked to varying socially constructed gender roles and responsibilities that dictate both the need to and the potential for travel. In answering it many of the elements of the relationship between transport accessibility and the empowerment can be uncovered.

Finally, the third research question explores the relationship between transport accessibility and empowerment through an exploration of the implications of the travel trends identified. The word 'impact' is used here to refer to an informal exploration of travel's potential effects or influences on women, based on identified themes, rather than a formal impact assessment. This question is posed with an awareness of the findings identified globally, as well as specifically in urban low-income neighbourhoods across the Global South, which point to transport's contributory role to justice concerns for women. The terms 'empowerment' and 'integration' refer to concern not only for spatial, social and economic inclusion/exclusion in the form of recognition of transport as an intermediary to socio-economic necessities, but also greater potential for transformative change through considering transport infrastructure as a public space in itself, as well as means to access wider public spaces that can be appropriated and experienced on differential basis, and with significant implications on how power plays out in urban spaces.

1.4 Thesis overview

Chapter 2 begins the study by presenting an overview and analysis of the existing literature concerned with social justice in the transport field. Predominant transport planning practices across the world are evaluated in terms of their impact on women, particularly those most disadvantaged globally. The differential ability to utilise transport infrastructure based on intersectional identities is presented with a specific emphasis on the disadvantages faced by women residents of informal settlements in the Global South. A detailed understanding of informal transport modes, in particular the way they are used, experienced and benefited from by women, emerges as a knowledge gap that this thesis can contribute to filling.

The relationship between transport and patterns of women's disadvantage globally related to income generation, education, healthcare, access to goods and to social networks is also explored. The literature presented aids in developing a picture of the potential negative implications for women's lives as a result of their transport disadvantage.

Predominant methods of studying transport provision in cities and the link between social welfare and transport access in transport studies such as transport accessibility, mobility related social exclusion, and the new mobilities turn are also presented as part of this chapter. An overview of the approaches' strengths and weaknesses are presented, particularly their usefulness when it comes to accounting for gender and gendered constraints. The chapter concludes by arguing for the need for increased consideration of power dynamics in the knowledge production processes of studies concerned with equitable transport provision and accessibility. In recognition of this, consideration of power takes centre stage in both the methodology and analysis of this research.

Chapter 3 further positions power as an overarching concept in the thesis's endeavour to explore the relationship between transport accessibility and empowerment. The understanding of power and empowerment adopted by the research is presented in order to establish the wider implications and dynamics of power resulting from the act of travel and transport use- or lack of it.

Within this chapter the importance of considering power in transport accessibility is also used to highlight the empowering potential of transport by outlining the emerging transformative potential of travel. The vision of transport accessibility considered of power put forth draws from and builds on the presented concepts of mobility related social exclusion, motility and right to the city.

All the different ways transport can have transformative potential for the lives of women in cities are presented. The first of this includes recognition of transport as an intermediary to access basic goods, essential services, income generation and support networks. The second relates to consideration of transport accessibility in women's right to city by considering transport infrastructure as public space in itself, as well as means to access wider public spaces that can be appropriated and experienced on differential basis and with significant implications on how power plays out in urban spaces. Themes which emerge as of particular relevance for women are: their right to appropriation, feelings of comfort and belonging, knowledge and familiarity with cities required for travel, involvement in transport planning decision making, potential for consciousness raising, and women's collective visibility.

Having demonstrated all the different ways that transport accessibility and empowerment could potentially be linked through an understanding of power, the chapter concludes by underlining the implications of this for studying transport accessibility in general, and for studying transport accessibility in this research in particular.

The concept of 'power in the everyday' examined through a gender and intersectional lens is presented as an analytical guide which addresses and accounts for power, grounded and contextualised in the lived experiences of women in an informal context in the Global South. This approach is part of the thesis's ambition to highlight the need for an alternative approach to researching and analysing women's transport accessibility which accounts for a deeper understanding of women's lives and their urban experiences.

Chapter 4 presents the methodology and data analysis processes adopted by the research. The study population was 65 women and 20 men residents of 2 informal settlements in Cairo 44 in Ard el Lewa (33 women and 11 men) and 41 in Mansheyat Nasser (32 women and 9 men). The data was gathered through semi-structured interviews which covered topics on utility of transport systems, control over mobility, embodied experiences of travel, access to urban opportunities and wider engagement and appropriation of the city.

The analytical objective for the data was to identify the extent to which travel patterns both influence and are influenced by social and spatial manifestations of workings of power, accounting for social identity of the users, social relations and wider exclusionary structures. The research findings were then used in the four following chapters to highlight the workings of power in travel patterns and transport use, travel and transport mode decision making, travel pattern implications and potential implications of travel.

Chapters 5 and 6 are concerned with answering the first research question posed by the thesis which is: "what are the real travel patterns of women living in informal settlements in Cairo?" **Chapter 5** begins by introducing the various transport modes operating across Cairo as well as introducing the informal settlements of Ard el Lewa

and Mansheyat Nasser where the research took place. The aim of the chapter is to set the scene of the urban land use and transport infrastructure context in which the respondents are living their everyday lives and their travel patterns are taking place.

Through the exploration of the context, the absence of a clear detailed understanding of the travel patterns of those relying on non-formal transport modes such as micro buses and tuktuks, emerges as a significant gap in the literature. The summary of essential services locally available to residents serves to further demonstrate the severity of the transport accessibility disadvantage posed by their residential location. This geographical exclusion also raises concern for the well-being and integration of the residents into the wider city. The absence of detailed travel patterns and transport usage broken down by sex also points to a significant gap in the literature on role of transport in the relationship between the informal settlement context and the complexity of travel in gendered everyday realities.

It is precisely this gap which is addressed in **Chapter 6**. Findings from the interviews are outlined and compared by sex as well as by settlement, examining travel purposes and transport mode use in order to understand who is travelling, why they are travelling and which modes they are using. This chapter provides insight into understudied travel patterns of travel and transport use. Some key differences emerge by sex in both mode use and purpose. Some key observations of similarity across settlements and sexes also offer very significant insight into the usage and operations of the transport modes of the city, and those accessible to informal settlement residents. Within this chapter the significant role played by informal transport modes also becomes apparent.

Chapter 7 addresses the second research question: How are gender and power reflected in these patterns, and what are the implications for transport accessibility? The chapter digs deeper into travel decision making by exploring how gender and power in the household and in the urban environment are reflected in the patterns of travel and transport use. The findings presented in the chapter highlight the wide and complex range of factors which come into consideration when examining travel and transport mode use. The variety of contributory influences identified include considerations based on individual social identities, household relationships, transport

infrastructure, transport policy as well as those related to urban planning and safety in urban space, situating transport accessibility in their intersection.

The fourth and final findings chapter, **Chapter 8**, addresses the final research question: What is the impact and significance of these patterns on women's empowerment/integration in to the city? This chapter focuses on the potential for transport accessibility to allow or facilitate the opportunity for empowerment. The perception and appropriation of transport modes and the spaces of the city beyond the settlements is analysed through the interviewees observed and proclaimed patterns of travel, feelings of safety and belonging as well as their differential access to socio-economic necessities. This chapter sheds light on the relationship between spatial and social inclusion/exclusion, the impact of this on women exercising their Right to the city and role of transport accessibility in this picture.

The concluding **Chapter 9** presents the major findings and key learning from the thesis. It also highlights the potential contribution of the key findings and methodology to the fields of gender and development, transport and urban planning in practice and research, particularly for those concerned with empowerment, social justice and the Right to the city. The research's contribution to policy in Egypt and the lives of Cairo residents is additionally presented by outlining the potential relevance and contribution of the thesis's findings to current planning and policy in Egypt, particularly the national development strategy "Egypt's Vision 2030". It is shown how all the key findings of this research such as the transport mode use patterns, informal settlement connectivity, and women's access to public space for example, are all of extreme significance and relevance to Vision 2030's ambitious targets regarding urban development, social justice and women's empowerment.

2 Chapter 2: Transport Accessibility and The Multiple Layers of Gendered Exclusion

2.1 Gendered individuals in gendered cities

2.1.1 Gendered individuals and gender relations

As one of the most extensive social structures guiding our lives, our relationships and our interactions with the world, the starting point chosen for this exploration of the relationship between transport accessibility and empowerment is gender relations.

As will be presented throughout this section, gender relations affect individual “construction of subject identities and feelings of embodiment” and, as a “symbolic code”, affect the built environment, the physical design of sites, places, and routes, infrastructures and public space (Law, 1999, p.575-583).

Additionally, through the “inscription of specific norms for masculine and feminine roles” (Jarvis et al., 2009, p.223) and the resultant implications for time use and control over material resources, gendered identities within gender relations lead to material difference in access to resources of all kinds.

As summarised by Rivera (2007, p.7) gender relations additionally: “influence the allocation of labour between different tasks, activities and domains; determine the distribution of resources, and assign authority, the ability to make choices and decision-making power”.

In speaking of gender relations between ‘gendered’ individuals and spaces there is an acknowledgement that gender is a reflection of certain ideas, values and identities with historical, geographical, cultural and political interpretations (Rivera, 2007) and that gender is not a given but “constructed through performative reiteration” (Cresswell and Uteng, 2008, p.1). Adopting this view on gender highlights the importance of context as well as dismisses the fallacy of gender constructions as being “unchanging, monolithic, and non-binary” (Blomstrom et al., 2018, p.2).

As individuals, girls and boys are socialised differently to fit certain identities of how femininity or masculinity is perceived, these are also culturally and norm specific. This then has implications for the way we carry ourselves and behave as individuals, as well as relationally, as these identities become subject to social regulation guided by how people are expected to behave with manifestations in space and place.

When it comes to freedom of mobility, various literature also suggests a relationship between rhetoric and practices of mobility, and constructs of gender that control and restrict women's movements (Cresswell and Uteng, 2008; Porter, 2011). Being mobile or being static in themselves have gendered coding, and so do means of travel. The idea of being mobile in itself is said to have historically been more associated with men than women, while women are more associated with being static or confined (Clarsen, 2014). Thus, the concepts of mobility and immobility enter discussions as already deeply gendered discourses (Sheller, 2018). Even as children, or teenagers the spaces for play and opportunities for exploration and self-expression for young women are more restricted than for young men, as the former learn where and when they can and cannot be, while the latter are encouraged to explore and expand their horizons (Masood, 2018). Additionally, as highlighted by Clarsen (2014) physical motions of women and men also have different meanings ascribed to them even when they are exactly the same.

Law (1999) attributes this to the presumed sexual vulnerability that comes with "the social coding of a body as female", which then results in imposed constraints and norms of safe or respectable behaviours in the name of sexual control and protection, from vulnerability and promiscuity (Porter, 2011). For Masood (2018, p.193), speaking in the context of Pakistan, women's mobility is "limited to transparent spaces where their movement, dress, bodies and gaze can be subject to surveillance and be monitored by their families and community." The result is a continuation and reaffirmation of women being in need of protection and control, which eventually translates into self-disciplining in space and further immobility.

Moreover, restrictions to movement and travel do not necessarily refer just to being mobile or being immobile, but in fact attention must also be paid to the conditions and circumstances under which women and men move. For Cresswell (1999, p.175)

speaking of the concept of 'embodiment', "humans are always located somewhere and at some time". In consideration of this, attention must be paid to our bodies and how they move in space (Sheller, 2018). Whatever context we are in our bodies become marked as female or male (Jarvis et, al, 2009) and this marking and resultant feelings of embodiment play a significant role in our mobility and travel experiences.

2.1.2 Gendered cities

The work of feminist geographers highlights the extent to which urban capitalist development reproduces urban planning practices across the world that are not gender neutral but in fact androcentric in nature. These urban planning practices are rooted in theories and knowledge, which disregard the experiences of women and fail to recognise the role unequal gendered power relations play in shaping individual experiences of the city, in turn resulting in urban planning policies which both produce and reinforce disadvantage for women. A particularly significant manifestation of this are the planning assumptions regarding the functioning of the state, market and households and the subsequent dichotomy of public and private spaces of the city.

Feminist authors highlight how the influence of neoliberalism on urban planning theory and infrastructure came at a heavy cost for women. Driven by neoliberal economic reforms, the "neo-liberal city" (Brenner and Theodore, 2002) prioritises economic growth at the expense of the social well-being of city inhabitants, and individualism at the expense of the collective public interest (Bayat, 2012). The emphasis on profitability saw a devaluing of what was deemed non-productive work and the state withdrew or decreased its contribution to social services to make way for market logic. As a result, women were left both more economically disadvantaged as well as shouldering more responsibility for domestic and social welfare (Elson, 1993; Meagher, 2010).

In Egypt for example where this research is focused, under President Nasser in the 1960s, a phenomenon often referred to as 'state feminism' (Hatem, 1993) saw an influx of women into the labour market and into public sector employment, in particular, following the introduction of benefits such as the right to childcare in work places,

maternity leave and healthcare. In fact, Mason (2002) cites an increase of 31% in women's public sector employment during this time.

In contrast, the period of economic reform and 'structural adjustment' (Bromley and Bush, 1994) which followed under neo-liberalist policies saw a decline in women's labour force participation due to increased privatisation in state enterprises (Assaad and Arntz, 2005). For example in the textile sector which employed large numbers of women, authors such as Assaad (2014) and Hendy (2015) have underlined the discriminatory practices of private employers, such as lower wages for women, unsafe work environments and lack of provision of paid maternity leave and childcare services, which all stand as barriers to women's employment. Additionally, Assaad and Arntz (2005) highlight the extent to which the shift of opportunities from central to more remote locations also disadvantaged women through an increased need to commute for longer distances in addition to longer working hours that meant having to travel at later times.

Adopting neoliberalist ideologies in economic reform also has exclusionary spatial manifestations. The city then becomes the mechanism of this drive for growth rather than the place where people's everyday social realities and needs are met (Bayat, 2012). One significant implication of this, for example, is that these ideals translate into a dichotomous and exclusionary reality that separates between spaces of reproduction and production, "both reflecting and influencing the sexual division of labour" associating women with the private sphere and men with the public (McDowell, 1983, Massey 1994).

This division of the built environment then has significant implications for use of and behaviour in space as it essentially dictates the 'proper' uses of and intended users of public space, creating boundaries on women's access to the city and ability to fully engage and benefit from the urban life (Molina and Grundstrom, 2012).

The separation between private and public spaces, as well as their association with certain identities compounded with the increased exposure to risks of sexual harassment, crime, and male violence in the street and on public transportation (which have been shown to be a predominant phenomenon worldwide) mutually reinforce

each other. This results in women experiencing the city with greater fear than men (Mashiri et al., 2005; Anand and Tiwari, 2006; Rivera, 2007). Masood (2018, p.190) highlights the relationship between boundaries/spatial restrictions and “disciplinary control of bodies and effective deployment of values and morals of a social order.” Making the home women’s place justifies violence when they venture into the public. Not only is it used to control behaviour, but also to control access to space - and to hold women responsible when they become victims of sexual assault, as they were not supposed to be in that place (Murray and Vincent, 2014).

2.1.3 Gendered individuals and gendered cities in transport planning

Having established the contextual reality where gendered individuals are operating within gendered social relations living in gendered spaces, the following sections will present the manifestation and consequences of this on women and men’s use of and ability to benefit from transport. Particular focus on the travel patterns and needs of individuals living in the Global South will also shed light on the extent to which these restrictions are amplified for women due to intersectional disadvantage.

If we accept that individuals are gendered and operating within gendered social relations and living in gendered spaces, it becomes essential to consider the traveller not just as a solitary individual, but as an actor within these spatial and social constructs which dictate mobility. As will be presented, the difference in travel patterns between women and men is rooted in the gendered construction and organisation of individuals, households, society and space. These constructions govern both the behaviour and the experiences of individuals through dictating the parameters of expected obligations and contributions in accordance with distinct roles which in turn guide their mobility. Division of labour, time, access to resources and gender meanings of certain mobility practices and places affects activity patterns - where to go, when, where and why. It also affects the ability to travel whether based on resource capacity, time-space constraints, or the embodied or perceived experience of travel and the meaning attributed to certain “mobility practices” (Uteng, 2012). It is within this understanding where the failures of current transport planning practices prevalent in cities across the world are most apparent.

Concern with more equitable transport planning and distribution across cities has highlighted the extent to which certain assumptions behind transport planning, with regards to who the travellers are and why they are travelling, as well as exclusionary understandings of the profile of a traveller and the way travel decisions are made, lead to a reality which fails to adequately and equitably meet the travel needs of all urban citizens, particularly women. In assuming infinite resources and time and equal needs, city planning and access to public space, there is a disregard for the power relationships and unequal social identities which impact the ability to access and move in space according to the above listed individual constraints.

The sections that follow will highlight the particularly problematic practices within transport planning to shed light on them and the ways they impact women. Emphasis will be placed more specifically on the implications for women in the context of informal settlements in cities of the Global South.

2.2 Problematic transport planning practices and assumptions

2.2.1 Reproductive work and its impact on travel

As highlighted in earlier sections, neoliberal city planning is driven by market logics rather than public interest and needs, leading to practices of privatisation of production, consumption, and public space (Bayat, 2012). In line with this, transport planning under neoliberalism adopts economic and operational efficiency as a priority rather than being led by service and individual traveller needs (Turner and Grieco, 2000). The individualistic market-led approach of transport planning relies on measures such as cost-benefit analysis, which attempt to balance economic benefits to costs (Titheridge et al., 2014). They traditionally focus on: profitability (focusing travel routes and times on more lucrative high demand routes at the neglect of others) and on speed and distance (placing more importance on efficiency, on getting the most people furthest and fastest at optimal cost) rather than on the experience of using modes (comfort, convenience and safety). In other words, in line with this approach to transport planning, traditional forms of transport service evaluations tend to show more

concern for particular purposes of travel, and on how much people travel rather than on why they travel, their experience of travel and how it impacts them (Litman, 2015).

In placing utility concerns over social justice, systems are driven away from needs that prove less profitable such as an allocated wheelchair space or a parent with a baby buggy, which could be filled by 3 or 4 passengers. This form of transport planning hinders and excludes any other type of traveller whose means limit auto mobility, or whose travel is based on more non-motorised modes, whose travel occurs outside standard commuting times, those with diverse travel purposes beyond the work trip, whose travel needs are more localised or dispersed around the city, who have to change modes multiple times or meet more than one need per trip, and those who are physically restricted for any number of reasons.

All these arrangements while not gender specific are also not gender neutral (Peters, 2013). For example, as will be highlighted throughout this chapter, in a world that places different values on women and men's time, and different values on time spent on what is deemed "productive" and "reproductive" work, approaching transport from a cost benefit analysis framework will always be gender biased (Uteng, 2021). According to de Madariaga (2013) this bias also extends to the language used within transport research and policy with terms such as 'compulsory' and 'discretionary' used to differentiate between travel for contractual obligations and financial compensations (employment and education) being labelled 'compulsory' while all other travel is deemed 'discretionary'. These imbalances disregard the fact that "care work" (ibid.) is essential to the functioning of societies – and that a large proportion of low-income women are involved in productive work.

For individuals who are tasked with caring responsibilities (predominantly women) there is then the challenge of reconciling these with other responsibilities they have, using transport systems not built to support the complexity of real life.

Transport studies' omission of travel purposes deemed non-productive, and by extension, oversight of travel outside 'peak hours' and on non-typical commuter routes, reinforces assumptions regarding the typical profile of a traveller and the role transport infrastructure plays in people's lives in cities. The typical profile of a traveller

remains the male, sole, able bodied, financially capable traveller commuting from suburban housing into the central business district for full time 9 – 5 formal employment. Different income earning models of work (part time, informal, shift working etc.) as well as travelling for reasons other than employment, such as education, healthcare, shopping, leisure, visiting family and friends and all the other different activities one engages with in their life, are all severely overlooked in the process. This in turn results in extreme limitations in the understanding of the real travel needs and patterns of urban living, predicated on high levels of mobility.

For example, while the difference in travel distance, frequency, and geographical dispersal of women's travel in comparison to men's is often used to imply a more local or static mobility pattern, a closer examination of women's daily routines would suggest that they are certainly not static. Kunieda and Gauthier (2007) for example present findings which show the average number of daily trips by women is higher than that of men in all age groups when all trips conducted by motorised and non-motorised means are accounted for. This suggests that women are more mobile than men when methods to examine travel are driven by different purposes and assumptions. When exploring travel purposes, studies from cities all across the world (for example, Venter et al., 2007, in Durban, South Africa; Tran and Schlyter, 2010, in Xian, China and Hanoi, Vietnam; Tanzarn, 2014, in Kampala, Uganda and Mark and Heinrichs, 2019, in Buenos Aires, Argentina Murphy et al., 2023, in Grand Tunis, Tunisia) found women to be highly mobile for a much wider variety of purposes than men. Women were found to travel for income generation at rates almost as equal as men (Hernández and Santos, 2020; Darko et al., 2023) while additionally conducting regular journeys for household and children related responsibilities such as escorting children to school and to medical appointments and shopping for food, which did not feature as frequently if at all in the men's journeys. The disproportionate completion of 'reproductive' travel by women has been observed all across the Global South (for example: in Montevideo, Uruguay (Hernández and Santos, 2020); Karachi, Pakistan (Iqbal et al. 2020); Belo Horizonte, Brazil (Faria, 2020); Santiago, Chile (Sagaris and Tiznado-Aitken, 2020); Casablanca city, Morocco (Chamseddine and Boubkr, 2021); and Gauteng City-Region (Parker and Rubin, 2022)).

Furthermore, as Whitzman (2013) emphasises, inclusion of reproductive tasks into mainstream transport planning is still neglecting other reasons for movement such as those for 'leisure and pleasure' which again are areas where women have been disadvantaged by travel challenges (Hernández and Santos, 2020; Iqbal et al. 2020; Darko et al., 2023; Murphy et al., 2023).

This complex nature of the gendered division of labour also imposes different time constraints on women compared to men. The travel patterns shown so far, for example, are in line with what Moser (1993) identifies as women's 'triple roles'. In her opinion within households, women's roles and responsibilities not only encompass those that are 'reproductive', in reference to child bearing, childcare and domestic maintenance, understood under 'homemaker', but also 'productive' roles, as workers/income earners, and 'community management' roles, through maintaining community resources and social networks. Research worldwide highlights that generally the need to balance these multiple roles often leads to women having less free time than men (Hamilton et al., 2005; Darko et al., 2023). Women also spend more time than men doing both paid work and domestic chores, even when working full time (Turner and Fouracre, 1995; Lang, 1992), consequently decisions need to be made about what's possible and what's not within their individual space-time parameters because they have less time to spend on travel, limiting the distances they can travel and the waiting times they can endure.

Having young children in particular has been observed to be a substantial influential factor in women's travel patterns and transport use (Doherty, 2021; Goel, 2023). Having young children particularly affects women's space time parameters for travel. Women with young children have a high need for travel, travelling more frequently than those without (Olivieri and Fageda, 2021) However their trips are usually shorter in length (see for example: in Montevideo, Uruguay (Hernández and Santos, 2020); Gauteng City-Region (Parker and Rubin, 2022); Lagos, Nigeria and Blantyre, Malawi (Vanderschuren et al, 2023)). The presence of young children has also been observed to affect the length of women's commute (Olivieri and Fageda, 2021).

Thus, there is an additional need to incorporate temporal constraints of reproductive work into transport studies to account for the complex scheduling of necessary 'non-productive' work, and travel needs of family units which are hampered by long waiting times, or irregular public transport.

To accommodate the need to incorporate all the necessary trips within time constraints, women have been found to conduct multiple stops in their journey, referred to in the literature as 'trip chaining' (Strathman and Dueker, 1995) where women, for example, drop children off at school or childcare facilities on their way to and from other responsibilities such as income generation. However, often the way a 'trip' is defined in some transport studies as having a specific origin, destination and purpose, using a single mode does not account for this trip chaining routinely done by women. Instead, they consider origin and destination without accounting for the different stops women make along the way (Kunieda and Gauthier, 2007). Also excluded by this definition are people who have to change modes multiple times. Fare structures based on the assumed single trip then become less relevant than time-based fares for example which account for trip chaining.

Having to stop multiple times for different tasks, and using multiple modes adds to the fare price, creating greater cost burdens for women. Trips of this nature are also not as likely to occur on traditional transport routes. They also might happen at off peak times when there are less frequent modes of travel. Hamilton et al. (2005) further draw attention to the fact that the reliability and lack of travel disruption of transport modes is highly significant within this complex picture.

It is worth noting that recognising trip chaining as well as the variety of responsibilities women fit into one journey also sheds light on the significant role of the informal vendors or "hawkers", selling fruits, vegetables and a variety of household and personal goods, who strategically situate themselves along the transport stations but given their informal nature are not always allowed to occupy these spaces (Hasan and Raza, 2015). The extent of travel conducted for reproductive tasks by women compared to men outlined above also points to the fact that travelling with children is predominantly part of women's travel experience (Tanzarn, 2014). Bostock (2000) draws attention to the extent to which having to travel with children can be mentally

and physically challenging. Being tasked with shopping for household needs also means that during their travel, women may often be carrying goods, adding more difficulty to their journey.

2.2.2 Unequal urban landscapes and its impact on travel

The above-described picture is not limited to transport planning but extends to urban planning at large, with the image of a 'global city' being replicated across the world, designed in the image of western neoliberal cities based on capitalist models of production. Because transport planning is directly related to the wider city design, the two planning systems influence each other. Thus transport planning is also influenced by the spread and character of cities that are dominated by privileging certain spatial arrangements over others such as placing less emphasis on context based planning (Uteng and Turner, 2019) and instead producing cities with unequal urban landscapes where public spaces of the city become dedicated to profit making (Bayat, 2012), the poorest live in excluded areas, essential services are centralised, and spaces of home and work are divided by zoning regulations which result in a need to travel longer distances to fulfil daily activities. This gendered separation of the private and public sphere has meant that the responsibilities of the household and income earning often take place in different places far away from each other, leading to long commutes and complex trips especially for women.

When translated into the context of many of the world's cities, these constructions become even more problematic because they do not recognise, or reflect the reality of the cities of the Global South, where women and men both work to make ends meet; informal and non-traditional jobs, including home based income generation are prevalent, requiring non-traditional commuting times; and people are included/excluded from spaces based on socioeconomic status, including locations of where they live and the modes of transport they have access to.

All across the world, the exclusionary nature of this type of urban development is manifested in widespread inequality in cities. However, the repercussions are exemplified in the contexts of the Global South.

Travel conditions in the Global South vary considerably than that of the North for many reasons. The first to note is that of the quality of transport options. Under neoliberal economic reforms, Western coerced 'Structural Adjustment Programs' in the Global South steered investment towards privatisation over prioritising public sector infrastructure, which had been responsible for transport provision, in turn leading to its ultimate deterioration (Turner and Fouracre, 1995). The low quality of public transport provision also led to higher rates of private transport ownership (Teoh et al., 2020), though private vehicle ownership is almost restricted to wealthier minorities of the population (Sagaris and Arora, 2017). Since then and to date an extension of these external influences can be seen in input and funding from international development organisations and consultants who are involved in mega transport plans and projects across the Global South (Boutueil et al., 2020; Oviedo and Nieto Combariza, 2021). Often these mega infrastructural projects are heavily driven and directed by the political context to serve particular agendas (Benevenuto and Caulfield, 2019). The resultant top down approaches with limited space for users to input, feedback or hold policy makers and planners accountable, result in observed lack of consideration of the distributional socio-economic impact (Boutueil et al., 2020; Benevenuto and Caulfield, 2019; 2022). Not only can such investment lead to uneven benefits, but in fact in some instances have been observed to negatively affect the already most disadvantaged and marginalised communities, further perpetuating and reinforcing their exclusion (Benevenuto and Caulfield, 2019; 2022; Klopp, 2021; Oviedo, 2021; Shaban and Sattar, 2023). Top down approaches and weak public infrastructure also manifests in fragmented institutions and a lack of coordination in policy and planning as well as lack of data collection and disaggregated analysis which makes further equitable planning more difficult (Boutueil et al., 2020; Uteng, 2021; Benevenuto and Caulfield 2019; 2022; Oviedo and Nieto Combariza, 2021; Foley et al., 2022).

Within these cities already suffering from the legacy of colonialism and discriminatory urban planning, the drive for economic growth through privatisation and commodification of land and services led to further unequal and exclusive city planning designs (Boutueil et al., 2020; Oviedo and Nieto Combariza, 2021; Foley et al., 2022). These were manifested for example in the replacement of affordable housing, and small neighbourhood businesses with highly motorised, sprawled cities of corporate megaprojects and gated communities built for the consumption of wealthier segments

(Brenner and Theodore, 2002). Thus, the second distinction of relevance to note when it comes to travel conditions in the Global South is the massive prevalence of urban inequality and disparity resultant from exclusionary urban development policies. The result is a transit system characterised by infrastructure which isolates low-income communities.

The need for increased connectivity and reliable transport is more significant and leads to further exclusion when the city opportunities are unevenly distributed. There is an observed spatial inequality of cities in the Global South where economic activity and opportunities are centrally focused while the poorer segments of the population are pushed out to the periphery (Guzman et al., 2017; Oviedo and Sabogal, 2020; Oviedo, 2021; Oviedo and Nieto Combariza, 2021). Distribution of employment opportunities as well as essential services such as hospitals, schools, and other public facilities end up disadvantaging the poorest who tend to be living in more deprived locations and have less access to both formal public transport infrastructure as well private modes. The planning of transport networks is further implicated in perpetuating this inequality, as their development continues to increase the connectivity of already economically advantaged areas and populations, while extending the geographical, and in turn social and economic exclusion of others (Oviedo, 2021).

For these individuals living in informal settlements which are lacking in basic necessities, they are left in a situation of constantly having to travel outside their local areas to engage with everyday life. The trip from the household to meet needs of education, or healthcare, for example, as well as employment then requires increased monetary and time investments because of the distances they have to travel to access opportunities, and also the limited array of modes they have to utilise in the process (Cervero, 2013). This disadvantage is intensified by the fact that even when in relatively central locations, informal settlements are still badly served by transport network routes (Linke, 2007), and lack formal inner settlement modes. This is particularly significant for women who are left attempting to cover long distances between essential facilities through restricted capability to travel. Whether it is a hospital, a school, or a public administration office, as has been shown, women as part of their gendered responsibilities are most likely as individuals or as carers to have to juggle these distances in their more complex and multipurpose travel needs.

Spatial distances between essential basic services and employment, in the form of zoning and non-mixed-use planning also result in separate physical locations for undertaking different kinds of work. When this is considered along with the gendered nature of the labour market which leaves women engaging in different kinds of employment from men, the resultant differing 'commuting' needs and the extent to which travel needs to fulfil 'productive' tasks of women are excluded from traditional transport planning practices, becomes even more apparent.

Most jobs occupied by women tend to be concentrated in the service, lower skilled, part-time, low grade pay sectors resulting in a longer or more difficult journey to work as it does not conform to typical commuter routes (Turner and Fouracre, 1995; Hamilton et al., 2005; GrOW, 2013). In the context of the Global South they are also likely to be involved in informal income generation (ILO, 2018). Additionally, in the urban South, women's employment is more widely dispersed as the opportunities are predominantly concentrated in places not centrally located, such as domestic workers, informal traders, workers in factories and nurses etc. (Venter et al., 2007; Chant, 2013). Booth et al. (2000) in Brazil found that women's work journeys were much longer than men's, having to wait longer periods and change modes more frequently because the routes from residential areas were concentrated on the travel to the industrial district where men predominantly worked. The patterns of informal work can also require unique travel which does not adhere to the same geographical or temporal patterns as formal employment (Howe and Bryceson, 2000). For example, Grieco et al. (1995) observed that for female market traders in Accra, due to restricted upfront funding and limited storage facilities, their patterns of restocking required frequent travel at random times using a variety of transport modes to accommodate the goods they were carrying. This all leads to an added challenge for women as they navigate the city through public transport which does not account for or accommodate their employment. The same logic that prioritises male work journeys then translates into contexts where men are given preferential access on board transport modes at the expense of waiting women (Peters, 2013; Nasrin, 2016). Such findings all have further implications for women's actual and perceived rights to the city which will be explored in more detailed in later chapters.

One real life representation of this failure presents itself in the predominance of informal modes of transport that are prevalent features of cities across the Global South. With public transport modes being commonly run down and old, slow and ill connected, this inefficiency has led to a widespread market of more responsive and innovative service of informal modes such as tuktuks, motorcycles and minibuses which are abundantly found in cities across Asia, Africa and South America to meet the unmet demand for public transport (Behrens et al., 2021; Klopp, 2021; Foley et al., 2022).

Informal buses and rickshaw type vehicles have been identified as highly prevalent if not the most commonly used modes of transport by a significant number of studies on mobility of low-income urban populations.⁶ These modes in their various forms serve as connectors to formal modes, to transport goods to and from the markets, as well as to access services for healthcare and education (Venter et al., 2007; Rivera 2010; Mateo-Babiano, 2016; Sagaris and Arora, 2017). They are also used in the journey to work (Joseph et al., 2020). According to the ITF (2019) informal “paratransit” modes significantly increase the number of jobs people living in informal settlements are able to reach.

The existence of informal modes not only symbolises the failure of formal planning to account for local travel needs, but also the systematic lack of recognition of these modes marginalises the vast majority of the population of many cities who rely on them to access their livelihood (Klopp and Cavoli, 2019). That includes those who find themselves living in areas not accessible by or served by formal modes, those whose travel needs are better served by the flexible, and sometimes more affordable nature of these modes, as well as those who work in the informal transport sector which has become a source of employment for many youths across the globe (Evans et al., 2018; Obiri-Yeboah et al., 2021). For women, informal transport modes can be a viable alternative source of travel that better accommodates their needs, the absence of which can have detrimental effects.

⁶ See for example studies on Chile, (Ureta, 2008); Kenya (Salon and Gulyani, 2010); Uganda (Tanzam, 2014); Pakistan (Hasan and Raza, 2015) South Africa (Porter et al., 2017); Colombia (Oviedo and Titheridge, 2016); Nigeria (Oviedo et al., 2017); and Sierra Leone (Oviedo et al., 2022).

Despite their prevalence and significance to the lives of urban populations across the Global South, they are commonly banned or and excluded from policy in most cities, instead left to illegally operate on the fringes of the formal systems (Boutueil et al., 2020; Klopp, 2021). This leads some such as Evans et al. (2018) to suggest a “collective blind spot” exists when it comes to this mode of transport which is so essential for the majority of the world’s population. However, as has been noted by some authors, it is also inaccurate to consider these modes completely outside state power and control as influence still extends to some routes and fares (Behrens et al., 2021) In fact the state is a powerful actor in determining what is informal and what is not, and what forms of informality are allowed to continue or be stopped (Roy, 2005; Heinrichs et al., 2017). Informal modes of transport are not only marginalised in policy, however, but also in research and evaluation. Falling beyond planning regulation adds a significant constraint to its incorporation into official assessments, thus, major gaps in knowledge exist regarding the true scale of prevalence, unique operations, and impact of informal transport modes (Evans et al., 2018; ITF, 2019; Behrens et al., 2021). However, there are efforts to address this gap (Brussel et al., 2019; Klopp and Cavoli 2019; Klopp, 2021). Notable examples from the ground, and in transport studies are the mapping of microbus routes done in Cairo (TFC, 2017) as well as the summarising of knowledge from across the Global South done by Behrens et al. (2021) which strongly aids in identifying patterns. The research undertaken for this thesis will also contribute to the wider understanding of these modes, particularly the significant role they play within the picture of women’s transport accessibility in the Global South.

Tensions between public transport infrastructure and these modes emerge as policy makers focus on their modernising agendas while stigmatising informal modes. These tensions in essence stem from the lack of understanding by the government of the practices of informal transport operations and general lack of distrust by informal mode operators of the government (Asimeng and Heinrichs, 2021; Jacobsen, 2021; Klopp, 2021; Agbibao, 2022; Foley et al., 2022). In reality, there is a wide web of operators involved in the provision of informal transport in the Global South. Informal transport sector drivers can operate on an owner-driver model, or they can be hired drivers working for whole fleet owners. Further insight from across the Global South regarding operational overheads, such as payments linked to corruption, also point to a wider

set of actors, these include payment to law enforcement officers, as well as street gangs to be allowed to operate, as well as obligatory fees to driver associations and unions in return for support and protection (Kinyondo, 2021; Klopp, 2021; Obiri-Yeboah et al., 2021; Agbiboa, 2022). Further complicating this picture is that the driver associations and unions, coupled with the increased dependency of the population on the informal modes, lead to significant social and political power that ensures the continuation and prevalence of informal sector operations as has been proven by the failure of most efforts to eradicate them (Agbibao, 2022). However, there have been recent positive developments as policy makers in African cities recognise the benefits of working with rather than against informal transport providers to meet their visions for BRTs and other fast rail systems (Boutueil et al., 2020; Agbibao, 2022).

Despite the sector's significant contribution to the accessibility of low-income communities, as well as the significant number of jobs the sector generates from owners to drivers to mechanics, the drivers are still often stigmatised (Klopp, 2021; Obiri-Yeboah et al., 2021; Agbibao, 2022). Harsh working conditions including long days, with low pay, amidst fierce competition, with almost no social welfare protection, as well as no training or oversight, inadvertently lead to some of the behaviours which lead to the bad reputation of informal mode drivers (Kinyondo, 2021; Klopp, 2021).

As stated, the sector is driven by profit, and vehicle ownership models can vary, however in either case the driver of the vehicle is under constant pressure either to meet the targets set by the vehicle owner in order to be paid, or to cover their own costs of owning and running the vehicle, including paying the instalments towards the vehicle ownership, plus enough left to pay themselves. This drive for profit in turn means practices such as not departing until the whole bus is full, reckless driving and focusing services on the most lucrative times and routes are prevalent (Hasan and Raza, 2015; Allen, 2018; ITF, 2019; Joseph et al., 2020; Behrens et al., 2021; Ndibatya and Booysen, 2021; Oviedo et al., 2022).

The sector is also heavily male dominated, (Kamau, 2021; Obiri-Yeboah et al., 2021) which presents a range of challenges for women who, as studies show are left vulnerable to a myriad of risks such as sexual violence (Tanzarn, 2014; Porter et al., 2017), as well as to being strong armed into paying extortionate fares (Hasan and

Raza, 2015; Oviedo et al., 2022). Kinyondo (2021) and Kamau (2021) refer to some female conductors on paratransit modes in Tanzania and Kenya, respectively, though they face additional challenges and barriers including sexual harassment, and reputational risk as well as intimidation by male vehicle owners and drivers as well as male passengers.

Advantages of informal modes include the fact that they offer a much wider coverage of the city, reaching across informal settlements and within reach for the majority of residents. The routes are demand driven, and the flexibility means they are able to adapt and change when needed (Klopp, 2021; Ndibatya and Booyesen, 2021). They are also able to access roads unreached by formal modes, meet the demand for shorter journeys, offer more flexibility on where you can be picked up and dropped off, with the potential for a door to door service and negotiation on fares (Kaltheier, 2002; Salon and Gulyani, 2010; Mateo-Babiano, 2016; Onyango, 2018; Joseph et al, 2020; Behrens et al., 2021). As the modes most relied on to reach markets, schools and health facilities, studies point to women being more likely to be the users of informal modes of transport than men. The flexibility of modes such as pedicabs and tuktuks in terms of trip duration and route are more suited to their complex travel needs (Cervero, 2000; Venter et al. 2007). Thus, it is women's travel which is most at risk when these modes are marginalised in the formulation, implementation and evaluation of transport policy and planning.

2.2.3 Unequal access to resources and its impact on travel

The economic capacity to utilise transport infrastructure is unequal across individual intersectional identities. Yet the need for travel often leads to it forming a significant portion of household budgets. Findings from across the Global South suggest that 25 – 30% of daily wages are in fact spent on travel (Kaltheier, 2002; Cervero, 2013).

Affordability of transport, of course, plays a more significant role for both women and men on lower incomes than their wealthier counterparts who are able to benefit from more options and the ability to spend more on transport.

Affordability of transport modes is further complicated by informality. Even though as has been shown, informal modes are the predominant means of travel for those on low incomes in the Global South, even they are not inclusive for all. The lack of government regulation of fares, combined with the need to utilise multiple modes with limited fare integration between them, means that the use of informal modes can prove costly. For those with restricted incomes, use of informal modes is unaffordable, leaving them instead having to walk long distances to meet their travel needs (Salon and Gulyani, 2010; Castro and Buchely, 2019; Oviedo et al., 2022).

Subsidised travel for students, or public sector workers for example also exclude those who work informally and are not integrated into the institutional economy. So even when subsidies exist, they are not always inclusive (Kaltheier, 2002). Similarly, discounted fare packages such as travel cards are also not accessible to low-income residents if they require paying large sums of money upfront (Godard, 2001).

In order to reconcile their many travel responsibilities in contexts of limited time and resources in gendered urban contexts, households make “trade-offs” of which travels to pursue, who does what and who goes where (Levy, 2013).

In other words, to meet the cost of transport, decisions have to be made about which travel expenses to prioritise (Ureta, 2008). Within this picture, households also do not operate as an equal unit, but in fact the resources and capacity to travel are unevenly distributed between members of the household (Alam, 2011). Women’s general weaker economic position when it comes to income generating opportunities in the labour market leaves them with less money. Even when there is money in the household (generated by either women or men), who controls those resources is another negotiation where gender constructs of authority in households can privilege the “male” with the idea of his perceived role as breadwinner, leading to travel resources being prioritised for his consumption. That means that increased expenditure for the men’s movement could mean less money for women to travel.

Men have also been found to have more control over the household’s private modes of transport, such as car, motorcycle, or bicycle when they exist (Hamilton and Jenkins, 2000; Dobbs, 2005; Pojani, 2011; Masood, 2018). Even when women

contributed towards the purchase of these modes for their husbands or sons through savings and taking out loans, they have been shown to not be able to utilise the modes themselves or even rely on these male family members to drive them to where they need to go (Rivera, 2007; Tanzarn, 2014; Castro and Buchely, 2019). Justifications for this trend may reflect patterns of prioritising male mobility and journeys, or suggest compliance with cultural restrictions, conforming to male associations with mobility and motorised means (Porter, 2008; Pojani, 2011; Masood, 2018).

These factors all point to a situation where women use much less of the family's resources to travel. The limited availability or ability to utilise household resources for their travel in turn results in restrictive capacity to utilise transport, as it dictates the modes and frequency of usage and can also limit their options for reaching further locations.

There are, of course, significant differences by family structures. Household size can affect the number of trips each member can make or even dictate the number of necessary trips, as does the existence and age of children. Being a single mother could also disadvantage women's access to time and money but can also mean the ability to allocate higher percentages of income to travel. Thus, it is important to recognise in transport planning the socio-economic context as well as changes in the family circumstances which can have greater impacts on women's resources and mobility. Income levels in general, of course, also matter. Wealthier women, for example, who can afford hired help, can enlist childcare services to supplement time. It is also worth noting that women often have lower levels of access to other significant resources such as education as well as technology, which could all further contribute to their decreased ability to navigate and utilise transport infrastructure (Uteng and Turner, 2019).

However, while for some women their intersectional identity like class or ethnicity can allow for a different mobility experience, it is the poorest and most disadvantaged women in the world who challenge these restrictions by being left with no alternative but to travel under much more challenging conditions.

Evidence points to low-income women being the most likely group to fulfil their travel needs through walking. This group has been consistently found to walk more frequently and for longer distances than low-income men as well as more financially well-off women and men (Tran and Schlyter, 2010; Peters, 2013; Nasrin, 2016). Studies such as those from China and Vietnam (Tran and Schlyter, 2010), Uganda (Tanzarn, 2014), Pakistan (Hasan and Raza, 2015), Kenya (Salon and Gulyani, 2010) and Bangladesh (Nasrin, 2016) suggest that the high incidence of walking in women's travel is, in fact, due to lack of ability to afford the cost of motorised means.

Women and men are not just frequently found to use different modes. They are actually found to use different transport modes even when travelling for the same purpose (Tran and Schlyter, 2010; Uteng, 2012; Miralles-Guasch et al., 2016). Women and men living and moving from the exact same locations also have different travel patterns and use different modes (Srinivasan, 2008). In fact, Tran and Schlyter (2010) report a finding where a man who owned a private business, drove every day, while his wife, who worked at the same business two or three days a week, used the bus to go to work. Evidence also points to women spending much less on their journeys to work even with similar commute times (Pojani, 2011). Both in Delhi and in Dhaka, studies find that women more commonly walked to work than men (Anand and Tiwari, 2006; Nasrin, 2016). In other instances, it was the case that women would work closer to home to save time and travel costs (Odufuwa et al., 2012). Though, Anand and Tiwari's (2006) results showed that women also spent comparatively less money than men commuting to paid work, despite having a similar travel time of 1 hour. This signals that the difference in expenditure is not only due to shorter distances, but also women using more affordable means. They observe "women spend more time travelling on slower modes because the faster and more flexible modes are more expensive" (ibid., p.78). Hasan and Raza (2015) similarly find women in Karachi to spend longer on journeys even using more overcrowded and uncomfortable means of travel to save on costs.

2.2.4 Unequal access to city space and its impact on travel

Law (1999) points to the need for increased consideration of the role of public space and the built environment in affecting travel decisions.

In earlier sections, gendered individuals and cities, and the differential freedom of mobility of different gendered bodies were introduced to highlight their relationships with access and use of public space. It should further be noted that it is not just our gendered bodies which result in unequal mobility, but also restrictions can be based on and further intensified by factors such as class, race, and physical abilities amongst others (Sheller, 2018). These intersectional identities do not only affect our physical access to spaces, but also, how we feel in these spaces (Cresswell, 1999; Jarvis et al., 2009).

The built environment itself can also give social cues that contribute to how we feel within it. In fact, these cues are present all around in the day-to-day world such as, in art and music, and on the walls in the form of graffiti and advertisements, and can all contribute to making people feel safe or threatened, comfortable or an outsider. The same feelings can be translated into embodied experiences of being mobile, walking in the street, in the park, on board a crowded bus or even alone on a public bus (Jarvis et al., 2009). Jensen (2013) for example refers to “sensuous encounters” and “elicited emotions” when being mobile in space as well as the potential for the built environment to induce and normalise particular forms of mobility, which in turn forms habits and mobile practices. For example, a cycle lane encourages the presence of cyclists, and a public square invites pedestrians.

Consideration of public space and the built environment in travel decisions then means recognising that, as Clarsen (2014, p.97) puts it: “it is not as if movement occurs through neutral physical space, but gendered bodies move through gendered social spaces, via material objects and technologies of travel and communication that themselves are often profoundly gendered”.

The acts or threats of violence and harassment women are regularly exposed to in public space have implications for women's feelings of safety and in turn, their use of spaces (McIlwaine, 2015). Not only does the real or perceived threat of danger influence women's own travel decision making but it also leads to situations where family members use concern for women's safety as an excuse to control women's movement (Phadke, 2005; Paul, 2011; Chant, 2013). Women also access and experience the city differently by day than by night and they occupy space on a different basis (Viswanath and Mehrotra, 2007). The lack of safety could be at the neighbourhood level as well as in the city at large. This can be extremely prohibitive for those living in areas with more prevalent acts of violence who have to pass through the neighbourhood on the way in and out during their travel.

With Clarsen's (2014, p.97) mention of gendered "material objects and technologies of travel" comes the reminder and realisation that transport modes and stations are also public spaces. In focusing only on transport's role as an intermediate service, "a means to an end", many of the realities of travel and their implications are overlooked. The experience of being on-board transport modes, interactions with others, and being in spaces with strangers, are all of major significance, and speak to a difference in perspectives from one where movement is seen as a way to get to a destination as opposed to mobility as an experience in itself. As will be presented in the later sections, movement itself has meaning, being onboard transport modes is an experience full of meaning and value, and when you see it in this way you can start to see how these can be experienced differently by different people.

Safety onboard transport modes and at transport stations has been found to be an issue of serious concern for women. Studies find that women are much more likely than men to state safety as being a challenge when it comes to utilising transport (Tanzarn, 2014; Graglia, 2016). Acts of sexual violence ranging from harassment to rape are prevalent features of travel onboard public transport modes all across the world (Whitzman, 2013; McIlwaine, 2015). The extent of it can vary across the different modes. In Buenos Aires for example sexual harassment was found to be a much more common occurrence on buses than on subways (Allen et al., 2017). Yet considerations of safety particularly from sexual violence are ill-accounted for in transport planning, on board modes and at stations. Examples range from stations and carriages without

staff and poor lighting, to unreliable services and long waits, extreme overcrowding, reduced services during night-time, and design features which might conceal possible attackers, amongst other things (Chant, 2013; Allen, 2018). Furthermore, as mentioned earlier while discussing informal modes of transport, these emerge in the research as posing particular risk due to the relative lack of formal oversight on the drivers (Tanzam, 2014; Hasan and Raza, 2015; Porter et al., 2017).

As a result of the prevalence of sexual violence, when moving in the city and travelling on transport modes, women learn to be in a state of high awareness and vulnerability to sexual assault, and adopt self-protection strategies. When it comes to utilising transport modes, studies all around the world from Jordan (Delatte et al., 2018) to Brazil (Linke, 2017) have found that women change routes and modes and travel times in order to avoid or reduce the risk of sexual violence (Valentine, 1989; Koskela, 1999; Mashiri et al., 2005; Rivera, 2007; Whitzman, 2013). Other strategies also include changes to dress (Graglia, 2016) as well as travelling in groups (Porter et al., 2017) and speaking to someone on the phone (Mark and Heinrich's, 2019).

So, it can be said that findings which suggest that women and men travel at different times and utilise different modes, could in reality be describing a context where women have to approach travel with greater fear than men.

It is important to note here that sex segregated transport services often emerge as solutions to the safety challenges women face while on board transport modes. Women only services can be found in Egypt where this thesis is focused as well as in many other countries such as: "Brazil, Bangladesh, Japan, India, Iran, Indonesia, Malaysia, Mexico, Taiwan, and the Philippines" (Shah, 2018). The extent to which such services are actually able to address gender-based violence however is a controversial one (Peters, 2013). This topic will be discussed further in Chapter 3.

One significant notion within the debate on sex segregated transport however is the extent to which women only modes can in fact lead to an increased feeling of appropriation (Phadke 2012; Graglia, 2016). This leads to conversations around the extent to which transport can contribute to feelings of exclusion as well as belonging in cities, a key concern of this thesis.

As stated constant acts of violence result in a feeling like you should not be there, don't belong there or don't have a right to be there (Koskela, 2005). That same feeling then can also be presumed to extend to exposure to violence while engaging with transport infrastructure. In fact, it is not only violence that can portray a general feeling that public transport is not a place for women. These notions are in fact sometimes perpetuated and reinforced by the transport operators themselves who give preferential boarding to men or refuse to let female passengers on board (Peters, 2013; Nasrin, 2016) or even ask women with children to get off to make way for customers paying adult rates (Allen, 2018).

Moreover, contributors to feelings of exclusion can take on more nuanced or subtler forms, like lack of toilets at stations, degrading advertisement on board transport modes, designs of travel modes not accommodating female dress, being outnumbered as you brave a carriage full of men (Whitzman, 2013; Turner, 2011). So the act of being on transport modes itself can create a sense of belonging or inclusion in the city under certain circumstances, but can also further increase a sense of exclusion in other circumstances. Less diversity of modes also forces people into exclusionary situations (unaffordable, inconvenient, leaving people with little options).

As outlined by Hodgson and Turner (2003, p.268):

“The built infrastructure that makes up the transport environment are significant elements in the public realm of socially excluded persons and thus they implicitly communicate messages from the dominant culture about the societal value of users of that environment: our built environment is an expression of a power structure. For example, what kind of person is expected to stand in a decrepit graffiti-covered bus shelter every day while waiting for an old, dirty, smelly, crowded, and late bus and not think that one is excluded from mainstream society?”

Hodgson and Turner's (2003) observation above also urges thought for the contexts of slums and inadequate housing conditions. Here the process of just walking through them during your travel also means being exposed to a constant reminder of one's social position (Ureta, 2008).

Observations of women and men's use of the spaces of the city result in similar findings, with women avoiding space they perceived to be male dominated and feeling discomfort in places they don't believe they have a legitimate reason to be in (Viswanath and Mehrotra, 2007). This feeling of 'discomfort' in fact suggests a deeper sense of feeling 'out of place' (Phadke et al., 2009; Habib et al., 2014).

Studies point to women perceiving the city as a dangerous inhospitable place where they are not welcome and only venture in to and engage with out of necessity (Gillot and Martinez, 2014; Castro and Buchely, 2019). Included in their perception is the "necessary evil" of travel and having to navigate the challenging transport modes (Mark and Heinrichs, 2019, p.9).

When participants in Dhaka (Habib et al., 2014) for example were asked to draw the spaces where women and men are most likely to be in the city, women were drawn in a restricted set of spaces which reflected 'legitimacy' for being there, while men were drawn in all spaces of the city. Similarly, Gillot and Martinez (2014) identify that female workers in the industrial areas of Morocco have extremely limited knowledge of the wider city beyond "the triangle of home, neighbourhood and work".

Mark and Heinrichs (2019) identify orientation issues as being particularly prohibitive to women's mobility in cities. In their study of travel patterns of women living in a slum in Buenos Aires, Argentina they found women to be less confident in navigating the city because they do not know it well enough. Transport routes and maps which are difficult to follow, and lack of properly identifiable stations and stops could of course further intensify orientation challenges especially in contexts of illiteracy and limited digital competence.

This study above as well as others from informal settlements in Nairobi, Kenya (Salon and Gulyani, 2010) and Soacha, Colombia (Oviedo and Titheridge, 2016) evidence that this can be even more significant for women living in informal settlements. That is because one of the ways they have been found to deal with their limited capacity to utilise transport is by restricting their travel outside their immediate neighbourhoods.

The restrictions to travel and resultant restricted access to the city and its opportunities

then becomes a self-enforcing cycle of exclusion and isolation. The absence or shrinking of women in public space further reinforces the notions of men's claim over it and women's discomfort within it (Paul, 2011).

2.2.5 Transport sector staff and the impact on travel

Exclusionary transport planning is further intensified and reinforced by limited and restrictive opportunities for participation in the management of transport systems. In addition to the risk of missing women in the monitoring and evaluation practices of transport services, it is worth noting that women are generally underrepresented within the transport sector, as staff or as managers and as professionals and as overall contributors to policy. As such women play a limited role in transport planning and decision-making. This is a global phenomenon. According to a recent report by Sustainable Mobility for All (2023) the transport sector ranks as one of the lowest when it comes to the number of women in positions of leadership within the industry. Similarly on the political front, women are found in extremely low numbers making up only “15.5 of ministers with transport portfolios across the 27 EU Member States” and “only 7 female ministers of transport across the 64-member countries of the International Transport Forum” (ibid., p.10).

While the mere presence of female transport planners is not a guarantee for more just policies, this gap is of most significance when considered with the androcentrism reflected in existing transport planning priorities. Not only are women left out of decision making in planning, but there is also a lack of consideration of the challenges they face in all aspects of life based on their social identities.

Women are also underrepresented within the labour force of the transport sector, accounting for less than 20% representation of the global transport workforce in 2018 (Ng and Acker, 2020). Instead, employment in the sector is dominated by men, particularly in Africa (Uteng, 2021; Porter et al., 2021; Kamau and Wright, 2022; Porter et al., 2023). Turner and Fouracre (1995, p.90) believe this scarcity could be explained by the gendered nature of the sector where a “large amount of manual and technical, as well as public-facing labour and ‘unsocial’ hours” are required. For those who are employed, Buiten (2007) expresses a concern for the gender biased organisational

cultures which can act as further impediments to their meaningful participation. This raises the issue of women working in the sector being subjected to forms of sexism in the work culture within the sector itself, potentially marginalising, silencing or sidelining progress. Studies on the topic find that women workers in the sector are exposed to an unsafe culture and conditions, verbal harassment and physical violence, and are met with resistance and obstacles from other male conductors, drivers, transport unions, as well as officials (Uteng, 2021; Mahdawi and Evans, 2022; Kamau and Wright, 2022; Porter et al., 2023).

Rivera (2007, p.14) further highlights how this absence of women in the sector further leads to barriers for women when attempting to express their needs, as it implies the need for negotiating with “powerful stakeholders” who are usually men. In fact, a distrust in officials and the police has been observed to lead to a lack of reporting of incidents of gender-based violence experienced by both female passengers onboard transport, as well as female employees in the sector (Joshi et al., 2022; Kamau and Wright, 2022).

Studies also point to women being more likely to be comforted by the presence of other women in the same space (Koskela, 1999; Parikh, 2018). Joshi et al.’s (2022) study in Delhi and Kolkata identifies the presence of women security personnel across transport infrastructure as well as female drivers and conductors as conducive to increased feelings of comfort and safety. Thus, another manifestation of the absence of women in the sector, particularly their absence from public facing functionary roles, is that it then translates into situations where women are more likely to be outnumbered and feel unsafe. In contrast, more visibility of women in these roles could offer a greater sense of legitimacy to women’s use of transport (Phadke, 2012) as will be further elaborated on in later chapters.

What the above patterns suggest is that when it comes to the movement of women in cities, especially low-income women, their ability to engage and benefit from public spaces is significantly exclusionary, or at best a form of conditional inclusion under certain terms. Understanding the repercussions of such limitations on women, particularly those residing in informal settlements, is an additional key issue of concern for this thesis.

2.3 The implications of transport planning failures on the lives of women

2.3.1 Transport affecting women's access to paid work

Given the high incidence of 'productive' work as a purpose for travel, the relationship between transport and income generation is clearly a strong one.

For those living in areas geographically disadvantaged in terms of formal employment opportunities, the capacity to utilise transport infrastructure becomes key to economic prosperity, or even just survival (Cervero, 2013). From cities in India (Joshi et al., 2022; Mahambare and Dhanaraj, 2022) to Tunisia (Porter et al., 2021; Murphy et al., 2023) to Brazil (Batista Duarte et al., 2023) there has been an observed clear link between transport accessibility and women's employment.

The link between the functioning of transport infrastructure and prospects for paid work does not just extend to the site of employment, but can also affect the job search (Titheridge et al., 2014; Porter et al., 2021; Murphy et al., 2023) as well as the ability to work more flexibly (at night, part time, in shifts) outside traditional hours (Kenyon, 2015). In some instances, particularly for women, it has also been found to affect the decision to take on employment opportunities all together (Hasan and Raza, 2015; Delatte et al., 2018; Iqbal et al, 2020). Turning down or not pursuing paid work is a privilege the majority of those living in poverty across the Global South cannot afford. Instead, restricted travel forces either extremely challenging journeys for income generation beyond their neighbourhoods or the predominance of localised/home-based endeavours (predominantly informal) (Porter et al., 2021).

Women in particular have been shown to be more significantly affected by increased distance between residential location and location of employment opportunities (Venter et al., 2007). Moser and Peake (1987, cited in Venter et al. 2007, p.657) observe significant increases in unemployment rates following the government rehousing of low-income communities in settlements to locations further away from

city centres. The restrictive implications of time poverty are also further exacerbated by the location of their households.

Displacement and relocation of informal settlement residents not only significantly affects access to employment, but also essential services such as healthcare and education, due to increasing travel time and cost, with a particular disproportional impact on women (Williams et al., 2022).

For women residing in informal settlements, lack of adequate transport provision has been shown to affect their ability to access opportunities for paid work outside their low-income neighbourhoods (Salon and Gulyani, 2010). A mapping exercise in Nairobi found men were twice as likely to travel outside their informal settlement for paid work than women (KISIP, 2017).

The location of employment for women is constrained by many further factors, particularly the constraints on freedom of mobility, norms and customs of work and household distribution of time and resources. This is sometimes overcome by women through household-based ventures for income generation (Datta, 2006). However, even for women who take on domestic based income generating activities, transport access also affects their ability to access wider markets, banks, credit and extended networks of knowledge and trade, in turn limiting the potential return on earnings (Mehrotra and Biggeri, 2005; Peters, 2013). This mismatch also works in another way, by isolating the informal business from the rest of city, limiting them to areas of less purchasing power and making the areas they live in also less accessible to the rest of the city residents (UN-Habitat, 2009). The separation of spaces of production and reproduction in cities could cause further dependency on male members of the family who step in to bridge the divide between the home-based enterprise and the external world, further deepening women's isolation and also reducing control of the profits. The extent to which informal and home-based work can leave women increasingly vulnerable cannot be over-stated (Porter, 2008; Uteng, 2012; Chant and McIlwaine, 2013).

Montoya-Robledo and Escovar-Álvarez (2020) additionally point to the interesting case study of domestic workers in Bogota, Colombia. This group of women who travel

from their home to the residence of their wealthy employers are found to suffer lengthier and more costly journeys due to the doubly disadvantaging combination of a lack of local transport infrastructure in their low-income neighbourhoods (with no access to private modes either) and the separation of spaces of production and reproduction.

2.3.2 Transport affecting women's access to education

This relationship between transport and women's access to education begins at a young age with girls' journeys to school. In particular, concerns over the safety of girls during the journey emerges as a key issue globally (McIlwaine, 2015).

In studies conducted in Uganda and South Africa young girls make specific reference to the dangers of the school journey, from references to instances of harassment by "boys in the settlement" (Porter et al., 2017, p.66) to cases of rape of "secondary school children who get caught up in the dark on their way from school" (Tanzarn, 2014, p.163). Viswanath and Mehrotra (2007) also point to these dangers leading to young girls in Delhi dropping out of school. Other considerations for the school journey are its cost, which can prove to be a burden to the household budget, potentially leading to a discrimination in the way resources for education are distributed between boys and girls (Sabry, 2010).

Residence location, particularly living in disadvantaged urban locales further intensifies this relationship. As has been observed in Delhi, India (Borker, 2020) and in Grand Tunis, Tunisia (Murphy et al., 2023). The absence of local opportunities means longer, costlier and more dangerous journeys to access education facilities.

This picture becomes further complicated when considering the level and quality of education young girls are able to benefit from. Whereas basic or primary education may be available locally, in informal residence across the Global South studies have found a need for further travel to access better and higher education (Ureta, 2008; Oviedo and Titheridge, 2016). The difficulties of the school journey of course do not affect the students alone, but are also the burden of parents or in most likelihood

mothers, who predominantly escort their children (Ureta, 2008) posing an additional strain on women's travel.

2.3.3 Transport affecting women's access to healthcare

Various studies have also been able to show a direct relationship between the ability to utilise transport and women's access to healthcare. This is intensified for residents of more deprived urban neighbourhoods who are more vulnerable to ill health, as well as commonly lacking local quality facilities, and with a terrain difficult for ambulances to manoeuvre (ADB, 2013; Titheridge et al., 2014; Uteng and Turner, 2019). It also undermines any policies related to free healthcare if those most in need cannot physically access the facilities (Kenyon, 2015). In Mexico City, Mejía-Dorantes and Villagrán (2020) find having to rely on healthcare services which are further away and difficult to reach to be particularly challenging for women who escort children and the elderly.

2.3.4 Transport affecting women's access to goods

Giuliano (2005) points to the added disadvantage of being a "captive consumer" in situations of restricted capacity to utilise transport infrastructure. The result is a higher cost of goods, as well as absence and lower quality of certain essentials in local areas. Residing in informal low-income neighbourhoods then can particularly lead to a situation of increased need and dependency on transport modes to reach more affordable larger retail establishments, or to access more specialist stores such as pharmacies, for example (Ureta, 2008; Oviedo and Titheridge, 2016).

2.3.5 Transport affecting women's access to social networks

The challenges of travel faced by low-income communities, particularly women, have additionally been found to restrict their travel beyond the context of their everyday obligations (Fleischer and Sepúlveda Sanabria, 2020). Journeys for socialising purposes and leisure for example have been observed to be the most likely to be skipped in situations where travel proves too costly or too time consuming (Venter et al., 2007; Ureta, 2008). This has been observed to be more true for women than men

(Tran and Schlyter, 2010; Tanzarn, 2014; Sanchez et al., 2014; Hernández and Santos, 2020; Iqbal et al. 2020; Darko et al, 2023).

When these findings are considered alongside dominance of nuclear families and 'social fragmentation' associated with urban life (Datta, 2006) the consequences of restricted travel for leisure and maintaining social networks becomes more significant. Restricted capacity to utilise transport can be inhibiting access to social networks which are of key importance to women's economic survival (Kalthier, 2002) and well-being (Stanley and Lucas, 2008). Being able to access the support of relatives has also been proven to be of crucial importance for mothers (Bostock, 2000). Restricted social networks have additionally been associated with inability to escape situations of domestic gender-based violence (McIlwaine, 2015).

2.4 Recognition of the importance of access in transport studies

There is an obvious mismatch between the world that is envisioned and built by capitalist development and by urban planners, and the one people occupy in everyday practices. Nowhere is that more true or obvious than it is for women whose complex daily lives have long been absent and overlooked in city and transport plans. Travel patterns in particular have been proven to be a telling example of this tension evident in the shortcomings of the neoliberalist urban planning approaches translated into the difficulties women face in utilising and benefiting from transport systems. The complexity of the details presented so far, lead to the reconsideration of whether there is enough understanding about why people travel, the way they travel, what they prioritise, how systems and infrastructure affect this and what implications this then has on individual transport users and non-users. Recent years have seen an increasing appreciation for the role of transport planning in discourses around social justice and inclusion. An approach to studying transport that stands out is Transport Accessibility.

2.4.1 Transport accessibility

Branded by Litman (2015) as a 'paradigm shift' in transport studies and planning, concern with transport accessibility is distinguishable from mobility. Whereas mobility

refers to movement, transport accessibility is more concerned with the result of movement and how transport is utilised by individuals, placing greater emphasis on the accessibility of people to where they need to go. In fact, it is considered by some to be the ultimate goal of mobility, transport policies and planning (Gutierrez, 2009; Litman, 2010; Faiz 2011) and as a significant dimension of the right to the city (Miralles-Guasch, 2006). By adopting access as a goal, this approach encourages a reflection of the consequences of transport planning practices on people and their lives, situating transport as an intermediary to accessing urban opportunities (Vasconcellos, 2001; Farrington, 2007; Banister, 2011; Oviedo et al., 2022).

Transport Accessibility as a concept is about how both people and places, a combination of characteristics and factors, individual and spatial, come together to create and facilitate access to certain places for the traveller, accounting for a starting and an end point. The main focus of literature on transport accessibility is around the efficiency of the relationship between land use and transport infrastructure. Páez et al. (2012, p.141) proclaim accessibility as: “the joint result of a transportation network and the geographical distribution of activities.” While Geurs and van Wee (2004, p.128) define transport accessibility as “the extent to which land-use and transport systems enable (groups of) individuals to reach activities or destinations by means of a (combination of) transport mode(s).” Finally, for Bocarejo and Oviedo (2012, p.143) it is: “the ease of reaching desired destinations given a number of available opportunities and intrinsic impedance to the resources used to travel from the origin to the destination”.

Predominant accessibility measures in the literature can be divided into those which are concerned with: the transport supply and demand “infrastructure-based”; the spatial location of activities “location/activity based”; individual time use and management “person-based; and finally, “utility based” (Geurs and Van Wee, 2004).

The first, classified as “infrastructure-based” measures are concerned with analysing the quality and efficiency of transport services through traditional methods of performance indicators such as economic cost, service capacity and travel time. Examples include measuring the average travel speed and congestion disruptions.

This form of analysis is one most typically used to guide governments' transport policies.

"Location / activity based" measures on the other hand acknowledge that it is not just about transport infrastructure but also about the destination, thus place higher emphasis on activities 'accessible' within the infrastructural and land use context. Examples include measures concerned with the distance and time between two location points such as home and school. Or they can be more concerned with measuring travel distance and cost from an area compared to opportunities, such as how many shops or jobs can be reached within 30 minutes from the household or within a 5-mile radius or for under £3. Another example could be measuring how far the person needs to travel to access a hospital etc.

"Person-based" measures incorporate individual time considerations such as daily schedules in to transport accessibility. Analysis takes place at a more individual level, such as observing which places a specific person can reach according to their own 'space-time constraints' using the transport systems. Analysing transport in this way can help identify how far one is able to go to reach an opportunity within a given time frame. In the process of concerning itself with time management it has touched on elements of normative individual activity patterns as well as wider societal time constraints (shop opening times, traditional work and school schedules) all of which can affect and hinder potential travel patterns.

Paez et al. (2012, p.143) suggest that through a consideration of: (1) "the differing individual profiles, including location; (2) how these profiles affect the way people perceive or experience space; and (3) authority constraints that may prevent certain segments of the population to access some types of opportunities, or at specific times" location and activity-based measures can become person based.

The 4th type of measures are those referred to as "utility based". Predominantly concerned with the cost of a travel choice on the individual, they are rooted in economic studies, and assume travel patterns to be a reflection of a set of choices where decisions of travel are made based on the benefits accrued on the individual from the activities they access. Utility based measures assume rational trade-offs in

transport accessibility decisions, for example a choice between a local employment opportunity with low pay and low travel costs, or a more lucrative employment opportunity with the added time and cost of transport. The benefits from the travel decision would then be based on the extra income to be made once travel time and costs are deducted.

As can be seen from the above outlined overview, a common theme across accessibility-based measures is that they are all concerned with analysing the balance between cost of travel and the benefits gained from the travel objective or potential opportunity of travel, whether it be for measuring the individual's accessibility from their origin location or the accessibility of a particular location or destination (Paez et al., 2012; Bocarejo and Oviedo, 2012).

For Geurs and Van Wee (2004), the 4 components which are of significant influence when it comes to measuring accessibility are: 1) "*The land use component*": supply of and demand for opportunities in origin and destination locations. 2) "*Transportation component*": the ability of an individual to use a mode of transport to reach the required destination. This component accounts for factors in the transport infrastructure as well as in the journey such as time, cost and effort required. 3) "*Temporal component*": time constraints on access to opportunities (in reference to normative scheduling of activities i.e. school time, shop closing times etc. and 4) "*Individual component*": reflects the "needs abilities and opportunities of individuals." The four components are intended to account for the need for and availability of suitable opportunities, and the usability of transport infrastructure to get there within the confines of time, cost and physical abilities. Each component, in their opinion, coordinates interdependently in order to facilitate accessibility. Similarly, for Cass et al. (2005, p.549) access is also affected by the key dimensions of "financial, physical, organisational, and temporal" factors. They suggest a greater emphasis on space-time organisation of households, facilities and the transport system in recognition of the great impact the space time equilibrium can have on access (ibid., p.543).

Consideration for space and time in studying transport accessibility sheds light on unequal spatial organisations and uneven temporal constraints governing the movement of individuals in cities. It also begins to draw attention to the dynamic and

relational aspects of transport disadvantage which are two of the three characteristics deemed by Lucas (2012) as crucial for policy makers concerned with transport equity to understand. The third characteristic raised by Lucas (ibid., p.106) is that transport disadvantage is “multi-dimensional i.e. can be located with both the circumstances of the individual who is affected and processes, institutions and structures within wider society”. This understanding in particular demonstrates the role of governance in social disadvantage and mobility related social exclusion, highlighting the significance of a more macro consideration of the powers affecting individual social identities and localities.

To account for other contributing factors to transport accessibility more in line with the predominant transport practices of the majority of the world, Oviedo et al. (2022) put forward an addition of considerations such as utilising informality and technology to the components of Geurs and Van Wee (2004). These authors also introduced a consideration of “dynamic relations of power and the role that governance and institutions play” (ibid., p.105) into their accessibility framework signalling an appreciation for the wider dynamics of power affecting equitable distribution of accessibility to opportunities. As will be presented in later paragraphs, the introduction of power in transport accessibility is a useful entry point to a more gender critical assessment which has otherwise been rarely considered in transport studies (Levy, 2013).

Understood in the above presented ways, *Transport Accessibility* can be a very strong and significant tool in transport- and urban- planning, analysing the effectiveness of both transport infrastructure and urban planning as well as examining people’s travel patterns and access to services (Oviedo et al., 2022).

Acknowledging the influence of transport on wider urban inclusion and social exclusion brings to the forefront the contributory role of transport to individual well-being and prosperity. Since transport accessibility aspires to connect people with places of life’s opportunities it allows us to gain a better understanding of the supply and demand of opportunities in given areas as well as recognise the inclusionary/exclusionary potential of travel access.

The most widely cited definition for disadvantage experienced from restricted transport accessibility is Kenyon et al.'s (2002, p. 210) mobility related social exclusion which describes it as “the process by which people are prevented from participating in the economic, political and social life of the community because of reduced accessibility to opportunities, services and social networks, due in whole or in part to insufficient mobility in a society and environment built around the assumption of high mobility”.

Exploring transport accessibility related social exclusion using the earlier outlined components, we can gain a better understanding of the supply and demand of the urban opportunities women were identified to be excluded from in Section 2.3, such as paid work, education, healthcare, goods and social networks in given areas. It can also help identify the modes of transport available to access these opportunities. Consideration of the physical, financial, spatial, organisational and temporal components can also offer some useful insight in to the ability of, and hindrances faced by the women in using the modes of transport to reach the required destination.

In fact, many researchers around the world have successfully been able to use transport accessibility measures to examine the inclusionary/exclusionary implications of individual transport access to varying social and economic opportunities offered by the city based on some socio-economic disadvantages such as financial capacity or residential location⁷.

Given the predominate reality of urban inequality linked to land use and the provision of public transport and essential services presented in Section 2.2, studies of this nature are of even more relevance in the contexts of the Global South where inequality of transport accessibility and its implications can be more pronounced (Giannotti et al., 2021). Castro et al. (2022) for example find that limited transport accessibility, because of deficient public transport in Lagos, Nigeria, leads to significant social exclusion for a low-income community. While Sharma and Patil (2021) using an accessibility approach are able to show how the uneven distribution of government healthcare services in Mumbai, India disproportionately affected residents of slums. In fact, studies

⁷ See for example: Rajé, 2007; Ureta, 2008; Lucas, 2011; Jaramillo et al., 2012; Quang 2013; Oviedo and Titheridge, 2016; Oviedo et al., 2017; Hernandez, 2018; Allen and Farber, 2020; Chikengezha and Thebe, 2022; Luz et al., 2022; Oviedo et al., 2022).

using accessibility metrics from across the Global South consistently evidence low income neighbourhoods and residents of informal settlements to be the most restricted in terms of access to healthcare, education and employment compared to those in wealthier neighbourhoods (Guzman et al., 2017; Guimarães et al., 2019; Nakamura and Avner, 2021).

However it is also worth noting that transport related social exclusion is not uniform across all informal settlements, instead a wide range of accessibility variables related to the characteristics of the individuals, transport infrastructure, and the built environment interrelate to determine the potential exclusion, further emphasising the importance of context specific research (Oviedo and Sabogal, 2020).

An additional particular observed oversight of studies adopting this approach is that they typically have lacked proper consideration of gender. As presented in Section 2.1 the physical, financial, spatial, organisational and temporal capacity of individuals are all affected by the gendered world in which they live.

Church et al. (2000 p.198 - 200) for instance, identify a list of 7 barriers that can contribute to social exclusion: “1) Physical Exclusion from transport services (i.e. disability for example) 2) Geographical Exclusion (limited transport services) 3) Exclusion from facilities (lack of schools and hospitals etc. in an accessible distance) 4) Economic Exclusion (unaffordability of transport) 5) Time-based Exclusion 6) Fear-based Exclusion 7) Space Exclusion.” Benevenuto and Caulfield (2019) add an 8th dimension called “Social Position Based Exclusion” to account for restrictions on certain social identities’ use of public space. While Yigitcanlar et al. (2019) and Luz and Portugal (2022) identify “Informational Exclusion” and “Digital Divide Exclusion” respectively to further account for the role of access to the relevant information and technology needed to utilise travel modes. Within these barriers is a consideration of transport design, built environment planning, individual abilities and exclusionary systems and circumstances. Looking at these barriers we can see how gendered exclusion in the forms presented in earlier sections such as: the gender divisions of labour in both paid and unpaid work; the dynamics of the household relationships including their influence on control over time and resources and freedom of mobility;

as well as the spatial dynamics of gender relationships within the city and the community have a significant contributory role across all of them.

Other oversights of the transport accessibility and social exclusion measurements include the fact that by the very nature of these measurements, there is a biased focus on the availability of opportunity rather than their quality. As has been presented thus far when demonstrating unequal ability to utilise transport based on social identity, merely the existence of transport infrastructure is not enough. Just because a mode or a facility is there does not mean it can be used or is even useful (Curl et al., 2011). Yet when using cumulative opportunity measures, which measure distances and time to a given location, there is an assumption, or lack of consideration of the fact that individuals in the same location, or even household, have completely different accessibility in terms of ability to travel (Srinivasan, 2008). There are also questions to be asked about whether it is distance or time which imply proximity, as naturally different modes of travel offer different speeds with the fastest modes utilised by the most privileged while the poorest as has been shown above, left to cover long distances on foot. Further as a measurement it does not allow for the ability to understand more complex barriers to why a mode may not be utilised such as adherence to social norms, or lack of confidence for example (Curl et al., 2011). Moreover, as has been discussed above, there are modes used by people (such as informal modes) offering their own set of unique advantages and challenges that are not incorporated into the formal systems and risk being overlooked. Similarly, and of most significance to women, is a recognition that proximity in terms of distance, in the context of complex travel needs, can be compounded by time poverty. Unreliable modes, infrequent schedules, long distances and traffic can be a real issue if people need to be at certain locations at certain times. Kwan (2013), for example, refers to a 1998 study conducted by the same author which proved a measurement bias when using location rather than time-based measures, where gender differences in travel were overlooked and thus were misleading.

Similar critiques have been put forth by Brussel et al. (2019) who highlight the shortcomings of SDG indicator 11.2 for its focus on physical 'access' to public transportation infrastructure. An increase in transport supply would see the indicator increase irrespective of how much it is used, how it is experienced in terms of cost and

length and safety for example, or what it is used for (access to healthcare, work, education). The authors note the language to also be exclusionary in its disregard for informal transport provision which as has been presented in Section 2.2.3 plays a significant role in the transport access and accessibility of low-income communities across the Global South.

The use of transport expenditure as a share of income to assess transport affordability is also extremely problematic and not necessarily reflective of real travel need. Since by only looking at the expenditure for trips taken, the trips that were not completed because of lack of affordability or lack of transport options or other factors are missed. These are referred to by Vasconcellos (2001) as 'impossible trips' which are either happening using a different mode, replaced by another activity, or never completed at all. The same limitations can be said to be extended to measures concerned with number of trips, distances travelled, and travel time. These patterns are not reliable in understanding travel 'preferences' or even needs as they may instead be a reflection of limited choices and contextual constraints (Levy, 2013).

Within the focus on the human right to equitable access to basic services and opportunities, concern can also be raised regarding transport accessibility's assumptions about people's ability to utilise travel modes and the assumptions regarding the opportunities deemed potentially 'accessible'.

A useful distinction to further emphasise this point can again be found in Oviedo et al. (2022). Here, the authors urge the need to distinguish between *access* and *accessibility* in recognition of the fact that being able to reach an opportunity does not mean the same as being able to utilise and derive benefit from it due to other restrictions not geographical in nature. The other restrictions are predominantly rooted in other considerations linked to individual social identities and societal norms.

Furthermore, limited or restricted access to good quality, affordable, within reach travel modes and essential services form an important part of social exclusion. But so is the lack of ability to reach further destinations and better opportunities. Kenyon (2015) uses the example of education to highlight how sometimes exclusion can be about not being able to access standard formal teaching, but also about not being able to attend

the institution of choice, or it can be about lack of ability to access tutor groups or extra circular activities, career fairs, etc. all because of lack of transport accessibility. On the other hand, it should also be noted that increased travel should certainly not be taken to indicate increased inclusion. In many instances the need to travel to meet basic needs is in fact a significant indicator of marginalisation and exclusion. Both signal uneven geographical distribution of these facilities.

Recognition of the different levels of access further leads to conversations regarding definitions of exclusion.

Transport accessibility-related social exclusion measures require an assumed ideal of inclusion and exclusion (Schwanen et al., 2015). Thus, the parameters of exclusion and access are governed by predetermined representations of exclusion rather than being reflective of peoples real lived experiences and constraints (Lyons, 2003; Cass et al., 2005). It has been noted that the concept of social exclusion which has received some attention in the global North particularly the UK, does not reflect the same experiences in the global South, where in fact those 'socially excluded' represent a majority rather than minority. It also comes to have different meanings in contexts of poverty, informality, increased urban violence and low quality state services.

As stated by Jarvis et al. (2009, p.158): "It is at least as relevant to the lives of the majority of urban dwellers to consider the time and effort it takes to fetch water and fuel on foot in numerous repeated trips, as it is to view mobility in terms of distances travelled to waged labour".

Moreover, normative understandings of exclusion governed by capitalist or consumer-based societies risk overlooking the intrinsic value of travel. This then also calls into question how we measure inclusion and exclusion, at what point does an individual become considered 'included' and to what extent individual experiences and local practices should influence what is considered inclusion and exclusion (Raje, 2007; Stanley and Brodrick, 2009). This becomes even more important in relation to non-essential activities like leisure and maintaining social networks (Cass et al., 2005), or even in situations where a choice needs to be made between investing in one kind of trip over another or over something else. This is relevant, for example, in situations of

time or resource poverty where a woman would then be “included” in one way such as, as an employee, but does not go to a health check-up because of her lack of transport access to accommodate both, or even is continuously excluded from maintaining extended networks and having social experiences that are considered important for well-being.

In the case of Ureta’s (2008, p.286) study of a low-income community in Santiago, he concludes that for the community under study:

“Social exclusion does not mean necessarily immobility. Above all, social exclusion is enacted in the way these families move through the city space, in the way they have to devote most of their motility resources to necessary trips, commonly discarding any other movement as too expensive or unnecessary. The problem is that this unnecessary movement in many cases constitutes the main way in which individuals can participate and make sense of urban space. When travelling is devoted mostly to compulsory places, the whole experience of urban space becomes ruled by the sign of necessity, a space of survival rather than a space of belonging”

It is also worth recognising that not all social exclusion can be measured quantitatively. Many of the characteristics of exclusion are non-quantifiable for example, powerlessness, self-esteem, isolation and perceptions of choice (Kenyon et al., 2002). However, they can be made visible with qualitative methods.

Given the above outlined weaknesses, as the predominant modes of analysing inequality of access in transport, the question is: do these approaches go far enough in uncovering, understanding, and addressing the structures governing the flow of movement of people within cities, which result in disadvantaging certain mobilities over others? Further, as tools concerned with social inclusion, do they engage enough with factors which construct the urban reality and institutional practices in which the exclusion and constricted accessibility of services take place?

The answer to these questions, particularly for women, is no. The reason for that can be said to come down to the fact that these approaches do not go far enough in addressing power. A consideration of power in these approaches has the potential to make them more effective in reflecting the real accessibility processes and outcomes of diverse women and men.

While transport accessibility and social exclusion focus on impacts, there is additional need to also focus on processes of exclusion (Hodgson and Turner, 2003). As suggested by Ureta (2008, p.285), “to move or not to move is not trivial but rather a powerful indicator of the way societies are ordered and the positions individuals occupy within it.” Thus, it is important to consider the social position of users, as well as the social exclusionary potential of spaces and systems when looking at transport related social exclusion (Raje, 2007).

By not engaging enough with power, this approach to studying transport related disadvantage overlooks the wider structural context that dictates needs, destinations and potential for travel.

Accounting for power in transport studies means recognising the unequal reality of social systems that govern society, cities and movement. That means, recognising power imbalances which guide the unequal distribution of housing, transport infrastructure and basic services around the city, since as has been shown, transport and city planning themselves are constructed to privilege certain identities over others (Law, 1999; Dobbs, 2007; Rivera, 2007).

It also means accounting for the real world behind individual travel decision making and the wider travel complexities and structural processes such as feelings of safety and freedom of mobility, as well as control over time and resources which often require adopting a more relational approach of situating the individual traveller in the real context of social relations and exchanges. This means a recognition that decisions around travel and transport mode use are not taken in isolation but actually as part of a world where people have unequal social positions, unequal negotiating power in households and unequal access to space. This applies to the need for travel, the time of travel, the transportation mode used, the experience of travel and of transport

modes, and the meanings assigned to it (Law, 1999; Buiten, 2007; Hanson, 2010; Uteng, 2012). It is these inequalities in transport accessibility differentiated by intersectional identities that then translate into inequality in experiences of the city, inequality in both inhabiting and benefiting from it.

As part of this picture, gendered relations within households are also extremely significant in how transport accessibility plays out (Law, 1999; Mashiri et. al., 2005; Rivera, 2007; Dobbs, 2007; Hanson, 2010; Levy, 2013). Thus, there is a further need for an added layer of analysis in transport research and planning to consider how women and men coordinate, organise and prioritise their travel in contexts of restricted time and resources, and conflicting and varying interests, in households, amongst family members and across friends and communities, balancing daily activities, responsibilities and roles, tasks, and desires, while negotiating the challenges faced by the city and the transport modes. Yet, these behind-the-scenes processes and negotiations that go into travel decision making within the household, such as household budget negotiations, conversations around safety, the internal dialogues, and resultant “trade-offs” are often overlooked in the approaches to transport and thus miss out on the workings on turn power and in turn gender in the process (Levy, 2013).

2.4.2 New mobilities as recognition of power and relationships

An attempt to incorporate power in the approaches to studying transport access is the New Mobilities Turn, introduced by scholars to account for power in mobility. Its advantage lies in 1) understanding that power affects individuals’ mobility and 2) that mobility is not just about movement, but that power is in fact ever-present in the experience of mobility itself and in the opportunities it offers. In doing so, this approach introduces another element overlooked in traditional approaches to transport planning, which is the embodied experience of being mobile, that is, the idea that travel or mobility itself is an experience differing by social identity.

The New Mobilities discourse recognises a distinction between movement and mobility. In doing so it acknowledges and touches on some of the different elements involved in defining and determining mobility rather than accepting it as a given. Uteng (2012) for example refers to Jones’s (1987) three components of individual, potential

and freedom of action, where only the first is based on observed movement while the other two acknowledge unfulfilled movement, whether through inflicted external constraints or self-imposed restrictions such as the limitations imposed by system, commitments and financial capacity for travel that affect their potential action as well as the individuals options and knowledge that they could take action if they wanted to. The importance of context is also recognised in this understanding of mobility (Cresswell, 2010).

One of the main contributions of the New Mobilities paradigm to conversations on social justice in transport is its recognition of the relational role between mobility and the influence of power on spaces, societies and norms. This means that lack of mobility can be seen not only through its infrastructural lens, but also as an outcome of privilege and power that guide planning of places and movement of people.

Kaufmann et al. (2004) highlight the relationships between 'social and spatial mobility' through the concept of motility which recognises access not only in terms of physical, temporal and contextual constraints but also, in terms of individual 'competence' or ability required to facilitate this access, and finally of 'appropriation' showing how these individuals then act as a result of their access and competence. Kaufmann et al.'s (2004) definition of motility addresses social inequality by highlighting how the act of being mobile is produced through certain abilities and systems, and access to modes which are unequal, as well as being affected by certain resources and networks which are also unequally distributed. There is an awareness of and recognition of the powers deciding why people move, who gets to move and at what cost. The authors (ibid.) suggest the concept of motility as a form of capital that represents the potential for socio-spatial movement when accounting for the context of circumstances and constraints. In doing so they also recognise that there are different degrees of motility and that comparatively, each individual can have different motility since there are many factors that affect their potential for movement. Thus, in terms of transport planning, we need to recognise that mobility cannot be considered without due consideration for the actors who are moving and the context in which they move. Referring to motility, Flamm and Kaufman (2006) differentiate it from accessibility by explaining that it is about "how an actor builds his/her relationship with space and less on the possibilities offered by a given territory." According to these authors motility

encompasses all that which affects potential movement in space. Specifically, these are “access, skills and cognitive appropriation”, all of which account for physical ability, access of the services, skills to navigate technical systems and knowledge required for travel; and finally what they term “cognitive appropriation”, which in their opinion refers to the outcome of the access and skills. Appropriation in this context is used to refer to how individuals come to perceive the ‘functional suitability’ of the travel option following an “evaluation of the available options”.

What this concept does is to unravel the processes behind simple travel decisions. It requires an understanding of all the processes, skills and knowledge required in any act of mobility, taken for granted in such a mobile world where mobility is expected and taken as a given, from the simplest, such as learning to walk, cycle, drive, to more technical such as having a driving license, navigating transport infrastructure as a disabled person, being familiar with routes, access to maps etc. Knowing the routes and timetables, knowing the modes and connections, fastest or cheapest options, all come from experience, as does knowing what options and services are available, fare systems, on-board and in-station facilities and amenities. Experiences of past travel also play a significant role in affecting travel preferences, including childhood socialisation. It shows that actually, travelling is first, something that requires certain capacities, and second, that it is a process that is learned and affected by and through experience. It is also about navigating this shared space with strangers and learning how to confront and control any situations encountered during travel (Flamm and Kaufman, 2006). When movement is understood in this way, it can then be seen how mobility is a knowledge using and accumulating experience and does not involve just passive travel from point A to point B.

Similar ideas are found in Urry’s (2003) concept of ‘network capital’ which again combines disadvantage related to social identity with inequality of access. Urry’s (2003) understanding under the New Mobilities paradigm connects the inequalities experienced in mobilities to wider inequalities in society, where a so called ‘network capital’ distributed unequally amongst people leads to disadvantage in access. Urry’s network capital is built on the understanding of the significance of co-presence and face-to-face interaction and exchanges and on how travel builds and extends networks which contributes to individuals’ power in society. The more access to the network

capital, the more opportunities to benefit and contribute to society, to create and acquire knowledge and resources, and therefore, build even more capital. Being able to grow network capital requires resources as well as privileges, which are not equally accessible to all. Thus, without intervention, it can be a vicious cycle reinforcing reduced mobility, leading to lower levels of network capital, which is ultimately disempowering, limiting the ability for benefit and growth. Based on these understandings of the relational elements involved in dictating mobility and transport access, Schwanen et al. (2015, p.9) suggest an understanding of transport disadvantage as the “outcome of a lack of access to basic resources, activities and opportunities for interaction, of a lack of cognitive knowledge, know-how, aspirations and/or autonomy regarding travel and its externalities, and of a lack of influence on decision-making in the context of transport policy and governance”.

Another approach to the New Mobilities turn and its contribution to the transport and social justice discourse, is through using the three aspects of mobility presented by Cresswell (2010, p.19): “the fact of physical movement getting from one place to another; the representations of movement that gives it shared meaning; and, finally, the experienced and embodied practice of movement.” According to Cresswell’s approach (2010, p.20) “All forms of mobility have a physical reality, are encoded culturally and socially, and are experienced through practice”.

The first aspect of mobility presented is that which is often the concern of transport planners. It is the movement itself, from place A to place B. It does not concern itself with the reasons people travel or the experiences when they do. Jensen (2015) suggests that “transport researchers take the demand for transport as largely given, as a black box not needing much further investigation”. In doing so, as stated in earlier sections, they approach transport as an intermediate good with travel being “a derived demand” valued only by the activity at destination and not as an activity in itself. However, it can be said that the added recognition of individual constraints in some accessibility studies concerned with social exclusion has also further contributed to this aspect of mobility.

The second aspect of mobility Cresswell (2010, p.19) refers to is “the representations and meanings of mobility either at the individual level or at a societal level”. This

reflects the actual fact of movement itself and the meanings it represents, for example, “freedom to loiter”, “right to the city” “exposure to difference” masculine power represented in cars, etc. Cresswell’s third aspect of mobility is about “how mobility is actually embodied and practiced” (ibid., p.19). This aspect recognises the travelling body, “a tired body”, one that is scared, “a walking body, a running body” a driver, a passenger. It also reminds us that walking does not mean the same thing as a form of exercise as it does to walking miles to collect water. Cresswell (2010) also stresses how some peoples’ mobility leads to the immobility of others. Both of these dimensions add an understanding to mobility that is considerate of the experience of the journey. In essence both aspects of mobility are arguably also significantly implicated in and contribute to inclusion/exclusion. However, they are not given their due consideration in social exclusion studies. Thus, another element to consider when approaching travel from this perspective of mobility is the need for travel. For Jensen (2011), exploring power in mobility also means exploring the forces behind mobility, what causes people to be mobile or immobile, why and how. Societies are built around an assumption of high mobility. However, if we accept, as has been presented, that not all people have the same equal capacity to be mobile, or are affected by it in the same way, then different capacities to move in a world predicated on high mobility creates inequalities.

Jiron (2010) also reminds us that the association between freedom and mobility should not be overstated. The act of being mobile is governed not only by why people move, but also by who can move and who cannot, and by where and when people can move and what they have access to. Thus, movement in itself can also be a burden, for example, in the case of women walking miles to fetch water. Having the ability to choose whether to be mobile or not can in fact be a privilege. Thus, for Urry (2008) “unforced ‘movement’ is power.” Additionally, being mobile in the city does not simultaneously result in an increasing appropriation of the city. In her work Jiron (2010) presents how in Santiago de Chile, the exclusionary nature of urban space is replicated in the experiences of travel. These understandings of mobility all point to a recognition that they are products of social relations, socially constructed and are reflections of power dynamics. People’s social identities, like gender, class, age, race, ethnicity and disability, dictate their level of mobility and access to resources (Eidse, 2018).

When mobility is seen in these multiple ways, the language for talking about power in mobility is expanded, thus enhancing the ability to understand mobile lives and the associated power in cities. For Cresswell (2010, p.20-21) “these forms of mobility (walking, driving, etc.) and these aspects of mobilities (movement, representation, and practice) are political – they are implicated in the production of power and relations of domination”.

3 Chapter 3: Power, Empowerment and The Potential of Transport for Transformation

3.1 The relationship between transport and empowerment

With the introduction of the new mobilities turn, introduced in the concluding paragraphs of Chapter 2, transport research began to consider how power affects individual mobility and how power is ever-present in the experience of mobility itself and in the opportunities it offers. With these new theories came an acknowledgement that all forms of movement have power associated with them (Cresswell, 2010). They are either as a result of, an expression of, or a process of producing power, or indeed all of the above simultaneously.

Power is also an overarching concept in this study. Linking transport accessibility to empowerment not only urges consideration of the power dynamics behind travel decision making, but also consideration of the wider implications and dynamics of power resulting from the act of travel and transport use - or lack of it. Acknowledgement of power also helps lead us to the empowering potential of transport.

3.2 Introduction to power

A cross-cutting theme across the literature provided thus far has been the significance of power relations in the gendered construction of the city and travel within it. Using a gender analysis to look at transport highlights the operation of power across different actors. Basic capacities to travel are unevenly distributed between men and women in households based on power relations. Different capacities to travel are unequal between urban residents based on positions of power. So, in this context, what is a useful way to conceptualise power?

Within the literature, power is conceptualised in many different ways. The main distinctions in its conceptualisation can be divided into two main points of difference. The first is how power is manifested and functions, and the second is the levels at which power operates.

Starting with the manifestation of power and the way it functions, through the liberal and the structuralists' theories, we see the most recognisable type of function where power is a form of dominance. As conceptualised by Lukes (1974) "A exercises power over B when A affects B in a manner contrary to B's interests". From a liberal standpoint, power is a possession of individuals who use it as a force of dominance over others, who do not possess power, to achieve their own individual interests (see: Weber, 1947; Dahl, 1961; Clegg, 1989). From a Structuralist perspective power is also manifested as a possession and functions as a form of domination but by social groups rather than individuals. For structuralist Marxists, for example, power is possessed by ruling elites over powerless subjects and functions through exploitative capitalist systems (see: Althusser 1965). Furthermore, whereas for Liberals there is an observable conflict, for Structuralists the conflict in interests is not an observable act but systemic and can even operate as "false consciousness" (Taher 1997; Squires 1999; Halford and Leonard, 2001; Sadan, 2004). In Liberal and Structural understandings, power is mainly considered as a negative force, manifested in visible concrete individual conflict, through institutional structures, such as in rules and laws and procedures of decision-making, or imbedded in hidden and invisible influential forces, which control who gets to make decisions and how forces of influence such as culture or socialisation dictate the status quo (VeneKlasen and Miller, 2002; Pettit, 2012; Mosedale, 2005). Lukes (1974) offers a useful conceptualisation of this distinction by identifying three levels where power operates which accounts for the overt (Dahl, 1961), covert (Bachrach and Baratz, 1962) and latent (Lukes, 1974) conflicts of interest (Sadan, 2004).

A further conceptualisation of power comes from Post Structuralism, particularly the work of Foucault (1980). Here power is no longer conceived of as a possession. In fact, it has no one single manifestation. Power is instead perceived to be more fluid. It is not pinpointed to a source, but instead seen as an all circulating flow (Halford and Leonard, 2001).

Based on this, it is a concept that can be experienced on many levels in differing realms, so it can be power at an individual level, or in the household, or in the city, at societal scale or globally. It also means that there are no all-powerless or all-powerful structures, but power can be operating in differing ways at each level and across

relationships. One can be subjected to a dominating form of power in one setting, but a collaborative one in another. This fluidity also means that power can be found and observed not only on the visible level through an action, but also can exist as an idea or perception embedded in routine and daily practices (Halford and Leonard, 2001).

It is precisely the fluidity of power here which makes this conceptualisation the most useful for this research.

In line with poststructuralism, in this research, power will be understood to be as “dynamic and multidimensional, changing according to context, circumstance, and interest. It’s expressions and forms can range from domination and resistance to collaboration and transformation” (VeneKlasen and Miller, 2002, p.39). This definition allows for an understanding that does not situate power in any one actor’s possession, or any one situation, or in any one form positive or negative (as conceptualised by Foucault, 1980). In this understanding, everyone and everything is subject to power and everyone and everything can exercise power, allowing for a relational perspective and the ability to identify power in non-traditional contexts. It also allows power to not just be viewed as an act of dominance or a negative repressive force, but also as positive and productive (Abu-Lughod, 1990; Mahmood, 2005).

A further significance and strength of seeing power in this way, in comparison to other understandings, is that it allows for a view of power that is present in a gendered everyday world that varies from one person to the next. This understanding of power is in line with post structuralist feminist views on gender. Through post structuralism, gender is seen as a socially constructed system of dynamic differences “generated, enacted and sustained” through everyday power (Hanson, 2010; Halford and Leonard, 2001, p.233). It also allows for an intersectional approach as it understands that power can also vary from one woman to the next and in one context to the next. As will be seen in the following sections, this definition also has implications for the way empowerment will be understood and analysed in this thesis, and the understanding of the potential role of transport access.

3.2.1 Empowerment and transformation

The concept and term 'empowerment' has come to mean and be used for different purposes in development over the years. Of particular interest to this study are definitions which refer to the term as a process of addressing and changing power relations and which acknowledge the term's fluidity, the role of individuals, its relational character and the importance of societal context, as well as the transformative potential of the concept.

Referring back to the different forms of power presented earlier, the transformative potential of the process of empowerment also requires the involvement of internal capacities and external resources to address established social practices, norms, and gendered expectations, in the different realms which account for public life, private relationships, or relationships with oneself (VeneKlasen and Miller, 2002). In doing so there is an emphasis on the significance of individual agency and consciousness, individual resources, and potential, as well as on the role of collective relationships and structures, in line with this study's understanding of power.

Batliwala (2007, p.560) defined empowerment, based on local consultations across South Asia, as:

“a process that shifts social power in three critical ways: by challenging the ideologies that justify social inequality (such as gender or caste), by changing prevailing patterns of access to and control over economic, natural, and intellectual resources, and by transforming the institutions and structures that reinforce and sustain existing power structures (such as the family, state, market, education, and media)”

A strength of this definition is the fact that it distinctly outlines levels of operation. In earlier sections, the gendering of societies and gender specific constraints were introduced to outline areas of disadvantage for women in the city. Re-examining these now with a positive lens of empowerment and an understanding of the fluidity of power,

it is useful to think of these levels of operation, as opportunities or entry points for transformation.

Considering the first level which speaks of ideologies which justify social inequality, the process of empowerment as Cornwall and Rivas (2015, p.405) outline is: “not just about improving women’s capacities to cope with situations in which they experience oppression or injustice (power over). It is about enabling women to question what they might previously have considered ‘normal’ (power within) and to begin to act to change that reality (power to) via the acquisition of a collective self-confidence that results in a feeling of ‘we can’ (power with).” The initial emphasis then is on women’s subjectivity, on consciousness. More specifically it is about recognising an injustice which changes women’s perceptions to a point where they can begin to see themselves as capable of and having the right to act individually or as a collective.

In Batliwala’s (2007) definition, the second level refers to patterns of access to and control of resources. This returns to the discussions in Chapter 2 on gendered constraints related to access to, as well as control over, resources, which take place in private and public domains, acknowledging the significance of intersectional disadvantages. One of the critical areas of power and negotiation with implications for this is the distribution of labour and processes of decision making in households i.e. the gender division of roles and responsibilities. Through their “triple role” (Moser, 1993), women can be either accepting of the status quo or under certain circumstances might negotiate access to some resources, in a situation where they are denied certain resources within the household, in the community and the city.

However, access to new resources does not translate into the same outcomes for all women. Instead, the influence of social relations and the context will always play a part in defining the parameters of possibility, leading to some situations where access to resources is more transformational than others. Furthermore, as Kabeer (1999) cautions, observing the way access is gained can be just as important and telling of power dynamics as access itself.

Batliwala’s (2007) third level of operation is: “*institutions and structures that reinforce and sustain existing power structures*”. These can take many forms, ranging from

official policies to subtle and not so subtle media portrayals which can all have implications for the available and acceptable forms of activities and potential opportunities and act as “feedback mechanisms” which can normalise, perpetuate, formalise and reinforce preconceived notions of acceptable gendered notions of masculinity and femininity (Kabeer, 2008; 2012).

The crucial point from all the above is that contexts are not uniform across all women or all cultures, but in fact are fluid and relational. It is not possible to predetermine a prescribed path, but rather empowering circumstances. Thus, there is no one size fits all that can be measured by targets. Since empowerment can change from one context to the next, that also means it is “not a fixed state nor an end point”. One is not always empowered or disempowered. Instead, it is temporary and varies from one woman to another and in one situation to another, and an empowering experience in one area of life does not automatically translate into transforming power relations in other areas of life (Cornwall, 2016, p.344). Acknowledging the relational aspects of empowerment, also suggests more attention should be drawn to the significant supporting role men can and do play in this picture of an enabling environment.

It is also important to acknowledge the role other intersectional advantages and disadvantages can play in the process, for example, the intersectional social relations of class, age, race, ethnicity and religion. Circumstances which can appear to empower one woman can in fact be disempowering for another in its wake. Often noted criticisms of empowerment literature is also the inherent Eurocentric/Western, normative, capitalist, elitist and secular biases in the understanding and thus measurements of the concept (Kabeer, 2008; Syed, 2010; Porter, 2013). As will be discussed further in the following sections, the transformative potential of transport accessibility requires due attention to be paid not only to the nuanced understandings of power and practices of empowerment, but also to the social, economic and cultural nuances of the context as well.

3.2.2 Agency

Another significant concept within this picture is ‘agency’. In comparison to structuralist understandings of power and empowerment which speak of grand

catalysts of transformation, such as revolution for example, by adopting a poststructuralist approach, there is significant emphasis on individual small acts which can then have substantial impact on transformation (Halford and Leonard, 2001). Thus, through this approach there is a recognition of the workings of power at the individual level and the involvement of different actors.

That leads to the importance of the consideration of the concept of agency. Agency is understood in this research as the “individual capacity for action” (Foucault, 1978; 1980, cited in Mahmood, 2005, p.17). This definition does not just refer to observed action, but also calls for consideration of “the meanings, motivations, skills and purpose that people bring to their actions” (Kabeer, 2008, p.20). What these observations do is highlight the role that conditions or context can play in either driving or restricting agency. Similarly, to power and empowerment, agency can be affected by both formal institutions, such as governments which define parameters of inequality, as well as informal cultures and norms, daily social encounters, action and use of language and representation (Abrams, 1999). There is also recognition of the importance of awareness and consciousness raising, as well as collectiveness that is critical to agency, which was touched upon in the earlier definition of power and will be further discussed in later sections on the transformative potential of travel.

It should be noted that liberal understandings of autonomy with the emphasis on the individual can be critiqued for overlooking the significance of the influence of social relationships. This oversight is especially inhibiting when considered with the fact that much of what is empowering and transformational relies on the ability to become aware of our social selves and how it is shaped by the structures around us (Abrams, 1999).

Authors concerned with understanding agency also caution against researcher’s being biased by their own individual subjectivity. This could result either in a dismissal of an act of agency which does not adhere to a pre-conceived notion of power, or attempts to impose an ‘agency’ label on an act within neatly formed boxes of domination, subordination and resistance (Abu-Lughod, 1990; Mahmood, 2005; Headley, 2007). If agency is only believed to be an entirely transformative grand act of rebellion, then it is possible to miss all the different ways agency is actually enacted in subtle acts of

resistance or negotiations (Abrams, 1999; Mahmoud, 2005; Datta, 2006; Headley, 2007; Kabeer, 2008; Ali, 2014).

What is urged instead is a consideration for context, capacity and repercussions when observing women's agency in conditions deemed as disempowering. That is, it is important to approach women not as independent actors, but as social beings embedded in contexts of differing (constrictive or enabling) resources, relationships, and reasoning which each contribute to the "choices" that come to be perceived as agency. Absence of protest could be as a result of a culture of silencing or of fear, or as in Bourdieu's (1977) concept of 'doxa', the reality of socialisation which sees specific ways of being and doing become entrenched and immortalised within people's consciousness as 'natural'. Alternatively, absence of protest could be a result of careful calculation and consideration based on access to resources, or even love, support and family. Some of the questions that a woman might ask while in a context deemed as disempowering are: what do I need to exit? what will I face by exiting? What will I gain or lose? what does my staying mean? (Kabeer, 1999; 2008). Further, not all acts of agency are transformational. Instead, everyday acts of power could sustain inequalities (Halford and Leonard, 2001). Power also exists without agency and agency can exist without being transformational.

Thus, when speaking of agency, both the complexity as well as the everyday nature of power needs to be considered and accounted for. That is not to say that social norms cannot be changed, otherwise talk of transformation would be futile. In fact, as Agarwal (1997) says, much of what is considered to be a norm today could well be "outcomes of past ideological struggles" (1997, p.19, cited in Mosedale, 2005, p.249). Instead, it should be recognised that people live in these constructs of norms and operate within them. The challenge for the process of empowerment then becomes breaking down these conceptions through providing an alternative image which destabilises the argument for what is accepted as 'natural' and unchanging, opening up the possibility for critical consciousness and questioning of the social order and positions within it. Recognising the structures where they operate and where agency can occur from helps to outline where transformation can take place (Headley, 2007). It should be noted that this is not an attempt to "reduce life into a narrative of succumbing or resisting relations of domination" as Mahmood (2005, p.174) cautions,

rather an exploration of the workings of power. If we accept that agency looks different in one situation to the next, based on individual relations or cultural and historical contexts, then it is only logical to argue what it will look like cannot be pre-defined.

This research recognises that women's real-life experiences are complex and cannot be understood dichotomously, and that victimisation and agency are not mutually exclusive. However, if women are not to be painted as victims or as passive recipients of power, then this suggests greater emphasis should be placed on observing women's behaviour and how they negotiate their positions and carve out alternatives. Not only can seeing women as victims reinforce notions of weakness and vulnerability, but it is also blind to and overlooks the power that women do possess. Sometimes this blindness comes from a misunderstanding or misconception of power and what exactly constitutes agency and autonomous action. This also requires a reconsideration of what resistance looks like, agreeing that it does not necessarily have to be confrontational. Sometimes non-direct manners of accommodation or subversion are calculated considerations of the bigger picture and could also still lead to changes and transformation in the long run (Kabeer, 2008). A more fluid understanding can recognise that it is possible for acts of autonomy to take place in oppressive circumstances (Headley, 2007). This understanding of agency is of particular importance when exploring the lives of Arab or Muslim women who have for too long and still today been denied voice and are often portrayed as one dimensional, docile recipients of imposed structures of oppression (Mahmood, 2005).

3.2.3 Power and agency in urban environments: infrastructure and space

Linking these definitions back to transport, it is possible to see how these understandings of the workings of power are taking place every day and are affected and do affect individual lived experience. The lives led in homes and in cities are governed by these social, economic and political structures. Additionally, and crucial to advancing an understanding of the role of transport accessibility, is the significance of the built environment and the way power manifests itself in its structures - from the way land and networks are organised, to the way bus shelters are designed.

Some of the most significant contributions to understandings of the operations of power in space are Lefebvre's (1991) ideas on the 'production of space'. In particular, it is his emphasis on daily lived space, imagined and planned space, as well as the way space is symbolically perceived and what it represents, which lends a useful analytical lens by which to understand the negotiations and contestations involved in the production of space (Whitzman, 2013; Uteng and Lucas, 2018). Together all these manifestations of power dictate and shape the experiences of daily and potential mobility, the boundaries of contribution to its development and use, and by extension also shape diverse women and men's ability to exist in and use space, as well as benefit from it (Law, 1999).

In the literature on urban inequality, these sentiments are found in the concept of "Right to the city" (Lefebvre, 1968). The right to the city is predicated on an individual's ability to not only inhabit it, but also to participate in its production. In the process there is potential for claiming space. For Harvey (2003, p.939) this "right to remake ourselves by creating a qualitatively different kind of urban sociality is one of the most precious of all human rights." However, different individual's ability to enact this right is unequal depending on social position. Whether it is inhabiting, participating in its production, or claiming space, intersectional disadvantages result in another hierarchal reality.

Fenster (2005) additionally critiques the Lefebvrian notion of the Right to the city by highlighting that it lacks consideration of patriarchal power relations. In challenging the notion, she gauges women's sense of belonging through unpacking experiences of use of space and right to participate in designing it, and finds a connection between factors such as control and access to resources, right to participate in decision-making and design, and gendered sense of belonging.

In acknowledgement of that, the understanding of "Right to the city" used in this research is guided and inspired by Whitzman's (2013, p.49) insistence that: "It derives from the perceptual realms of belonging and the pursuit of happiness in public space, including the right to treat public space as a place to linger, a destination in its own right, as well as a corridor to traverse on the way to another destination".

What both the above authors touch upon is the ability and right of women to engage with the city through everyday experiences of living and participating, and the extent to which the absence of that can lead to structural gendered exclusion even if material use exists. The right to the city also emerges as a way of challenging the exclusionary impact of neo-liberalist policies on cities and the urban experience (Beebeejaun, 2017).

3.3 Different citizens and cities: introduction to the transformative potential of transport

Based on the above understanding of power, power relations and power in the social construction of urban space, this section will begin to outline the emerging transformative potential of travel.

The vision of transport accessibility considerate of power being put forth for consideration is one that draws from and builds on the previously presented concepts of mobility related social exclusion, motility and right to the city.

From the concept of mobility related social exclusion comes the recognition of the importance of transport as an intermediary to access basic goods, essential services, income generation and support networks. Given the importance of these to women's livelihoods, well-being and empowerment as well as the evidenced exclusion of these presented in Chapters 2 and 3, improved access to these emerge as the first layer of transformative potential.

From Flamm and Kaufmann's (2006) notion of motility emerges the consideration of the factors which affect potential utilisation of transport modes, not only in terms of physical and financial capacity, which are traditionally considered in transport accessibility, but also the technologies and skills required to utilise particular modes as well as the value judgement in the decision making processes related to the use of certain modes. Gender can be a significant differentiating factor influencing motility, urging particular consideration of the way gender can impact engagement with and experiences of transport modes.

In addition to being a useful reminder of skills needed to navigate transport modes and cities, motility's reference to knowledge can be taken a step further. In recognising knowledge accumulation as part of the experience of travel in the urban environment another transformative potential of transport emerges.

For Moser (2017, p.225 - 226) the distinction between transformation and empowerment is the former's stronger emphasis on political acts of "collective action, contestation and negotiation" rather than just on individual agency and increased access to resources. Thus, for transport accessibility to be transformational it needs to allow or facilitate the opportunity for women to observe, consider and analyse the world they live in, and their position as well as relationships with others within it (Cornwall, 2016). As will be shown in the relevant sections, in exploring the concept of 'knowledge' when it comes to transport infrastructure and urban spaces, we find not only the ability to utilise, but also increased feelings of belonging as well potential for shaping of cities as is referred to in the concept of the Right to the city.

As an intermediary which facilitates wider access to city spaces, transport also allows for knowledge which takes place in the city as a result of the exposure to wider learning opportunities. It also allows access to platforms where consciousness raising can take place, as well as the ability to form collective alliances (Levy, 2015). As a public space in itself, as well as a means to access wider public spaces, Levy (ibid.) proposes that transport infrastructure use also leads to increased visibility and producing an alternative imagery which can alter ways of thinking, and influence norms and decision making processes.

3.3.1 Socio-economic implications

As was presented in Chapter 2, the lack of access to transport can have detrimental consequences on women's access to education, healthcare, income generation and other necessities. Reduced access to such resources also directly contributes to a reduced capacity to utilise and benefit from transport infrastructure, resulting in a cycle where limited transport accessibility maintains and reinforces poverty and social exclusion. This picture is further intensified by the geographical restrictions imposed by living in informal settlements. Thus, one of the most obvious empowering potentials

of a socially just urban transport system is as an intermediary service which allows for an increase in social and financial capital derived from the increased access to such essential services and income generation opportunities (Mashiri et al., 2005; ADB, 2013).

Increased levels of education for women and girls have been linked to enhanced quality of life, to better health for themselves as well as their children and to better income generating prospects (Kabeer, 2012; Chant, 2013). A recent study in Egypt also found a relationship between levels of education and women having more negotiating power in their households (Samari and Pebley, 2018).

Women's increased financial standing, as well as increased access to income generating opportunities as a result of improved travel also emerges as an obvious factor in the relationship between transport accessibility and empowerment.

Uteng and Turner (2019, p.7) for example point to findings which suggest increased saving potential and quality of living conditions for women who worked in factories that provided means of travel to and from work, as opposed to the ones that did not.

It is not going unnoticed that there are different degrees of potential of income generation for empowerment with examples across the world showing that women's increased economic participation does not necessarily lead to their advantage or greater autonomy (Kabeer, 2012).

Yet, what is of interest here are the opportunities often cited as having managed to achieve significant positive outcomes with regards to empowerment for women. It appears that it is the income generating opportunities that allowed for visibility in the public sphere and opportunities to engage with other women and extended communities, as well as those that have changed "women's capacity to imagine themselves as citizens with rights and entitlements and to be able to lay claim to what they are due" (Cornwall, 2014, p.20) which have had the most significant impact on women's empowerment. Whether the work was home-based or outside the home, formal or informal, combined with the size and reliability of the income earned, all had significant implications, with outside, formal and more lucrative work facilitating higher

levels of empowerment as they lead to increased independence (Kantor, 2003; 2009; Kabeer, 2008; 2012).

A significant finding of the studies linking women's access to work outside the home with empowerment is the importance of the increased visibility it creates of women being in public spaces, normalising their presence, as well as allowing exposure to new things. Women working alongside other women have more opportunities to form collective consciousness as well as make demands for collective struggles in addition to offering physical and emotional support to every day needs and challenges (Gilbert, 1998; Singh and Cready, 2015). The importance of the expanded social networks to transformation will be further explored in the sections on knowledge and on consciousness raising.

Women themselves are well aware of these potential gains as evidenced by the motivations they express for working outside the home (Kabeer, 2008). Regular, consistent, and substantially significant sums of income have also been found to affect household relations, with higher value and influence being linked to higher returns from the work, thus making an even greater argument for women's ability to access opportunities for employment beyond the common geographical limitations and obstructions of travel time, safety and costs. Access to secure and regular income generated outside the household has a positive impact on women's ability to control household resources, and the more money women can control also supports their ability to "exit" situations if necessary (ibid.).

3.3.2 Right to appropriation and feelings of belonging

The right to appropriate and participate in the production of urban space are both fundamental rights under the Right to the city (Lefebvre, 1968; Purcell, 2003; Fenster, 2005).

Appropriation here is understood as defined by Levy (2013, p.53) "use and occupation of urban space" which manifests itself in transport accessibility through the right to use and occupy the different travel modes used to move around the city, including using

the street through the simple act of walking, as well as through the ability to use and occupy the different spaces and opportunities the city has to offer through the connection created by transport access.

It should not go unnoticed that in arguing for women's increased access to the public domain and on board transport modes as carers, students or workers they still remain within the confines of systems of patriarchy and capitalism where they are just fitting into their ascribed roles, as well as relying on others, marking them as "good" women with a legitimate right to be in that space for an acceptable reason (Phadke et al., 2009; Masood 2018). In Chapter 2 it was highlighted how women feel the need to signal a sense of purpose when they are travelling and in public space to present a marker that gives them a legitimacy to be in that space at that time because they feel out of place (Fenster, 2005; Phadke et al., 2009; Habib et al., 2014; Parikh, 2018). Ultimately this out of placeness comes down to women being denied the unconditional right to appropriate and belong in city spaces.

Women's lack of safety in public space conflicts with their right to the city (Molina and Grundstrom, 2012). De Certeau (1984), proposes the simple act of walking through the streets of the city as a form of claiming space and a sense of belonging. However, this contradicts with most women's experiences of walking in cities who for them, more often than not, their presence in the city elicits feelings of fear and time spent trying to avoid unwanted attention. Thus, what emerges is a picture where there is a constant tension and negotiation in the feelings and experiences of using and claim over public space (Phadke, 2007; Whitzman, 2013). For this reason, Phadke (2005, p.58) advocates not for safety but rather for "comfort." In her opinion it is in women's feelings of comfort in spaces that we can gauge "an active sense of belonging".

How then can transport facilitate this sense of comfort and in turn belonging?

For Fenster (2005) a sense of belonging in spaces comes from familiarity, repeated use as well as ability to be involved in the decision making and design of spaces. Translated into the context of the city and transport infrastructure, that would mean the need for knowledge and familiarity of navigating the city and modes, opportunity to

repeatedly utilise modes, as well as involvement in the process of designing city and transport spaces.

3.3.3 Knowledge and familiarity of cities required for travel

The bustle and the chaos that form the essence of city life require a level of not only resource, but also competence to navigate in a constant process of learning.

McFarlane (2011, p.3) speaks of a process of urban learning which happens through interactions between “people–materials–environment.” People learn how to use and benefit from city spaces as well as their perceptions of them by experiencing them themselves, or through hearing about them from others, or reading about it in a book or watching it in a movie. People also learn the ways to interact with the others using the space, and how to fit into the routines and patterns of normative economic and social life. There are many things that can affect an individual’s spatial knowledge and in turn their travel patterns in cities.

In the findings of Mark and Heinrichs’ (2019, p.9) study in a slum in Buenos Aires, women expressed a lack of familiarity and knowledge of the city they live in and in turn a lack the confidence to travel around in it, with those who have regular journeys only being familiar with the particular routes they have to take. This in turn ends up limiting women’s travel horizons and access to the opportunities of the city (Dobbs, 2007).

Additionally, by not being able to engage and experience the city for themselves, women’s image, perceptions and resultant fear of the city then can easily be shaped by the opinions and pictures presented to them by others. They learn the city through the accounts of the media or men who control their mobility and those who want to protect them from it. They also miss out on the opportunities to learn how best to navigate the city, such as at what time the bus is, which routes to take to avoid traffic, which buses have more comfortable seats or what shops are available down a particular street.

It is not just the wider city which requires a knowledge to navigate and is learnt through exposure, but also transport infrastructure.

For Flamm and Kaufmann (2006, p.176) having the skills needed to navigate transport systems is “a question of accumulating experience” suggesting a need for “repeated use”. Skills involved in travel include knowledge of routes and timetables and understanding maps, where to change to get to the desired destination, how long it will take to get there, what time to leave, what time is the connection. These all need to be planned for with every destination. It also includes distinct knowledge of utilising specific modes, such as driving for example, or knowledge of fares, which are all distinct from one mode to the other.

Distinctions can also emerge depending on the transport mode used, which as has been shown can vary by social position. Mondschein et al.'s (2010) study, for example, finds that use of different transport modes, even when going to the same destination, can affect individuals' cognitive maps and in turn the way they perceive and access the city, its distances, and feasible opportunities, and in turn their travel patterns. In other words, walking to a place, driving to it, or taking the bus all results in different images of the city. Dobbs (2005) also finds women who have access to private modes of transport have more confidence when travelling and a greater knowledge and wider travel and activity horizons than those who do not.

Distinction by social position can be further reinforced by the fact that those with restricted mobility are also less likely to have access to other forms of supportive knowledge to aid their transport accessibility, such as basic literacy, or, of significant importance recently in transport, digital literacy, which could make transport more accessible - but is in fact another area where women are disadvantaged (Uteng and Turner, 2019). Akyelken's (2013, p.432) study in Turkey, for example, identifies literacy to significantly affect people's ability to independently navigate cities and transport systems referring to a cohort of elderly women who were “learning to read and write to be able to go to hospital by themselves on the minibus”.

Furthermore, for women their travels in the city require not only knowledge of travel routes, but also safety practices (Butcher, 2018). These again are learnt. Women's feelings of safety and confidence in spaces relate to how well they predict danger (Koskela, 2005). This is much easier done in familiar places. As emphasised by

Valentine (1989, p.386) women create 'mental maps' of places they deem to be dangerous through experience and information.

The issue with knowledge and familiarity and lack of them is mutually reinforcing. Knowledge of the city is necessary to move through it and this knowledge is gained through the experience. This knowledge and familiarity of travel routes and transport modes and potential capacity to navigate cities all affect travel decision making. At the same time, where people travel and how they do it all affect their perceptions and experiences of the city as well as the extent of benefit they gain from it. Confidence while travelling in the city and using transport modes contributes to feelings of belonging (Phadke's, 2012). The expansion of spaces women have access to in cities also has the potential for learning valuable knowledge and skills that would advance their position in the home, at their employment as well as in society (Spain, 1993; 2008). Another potential opportunity for learning is what Bayat (2012) refers to as the "the day to day utterances of the political street" where you are exposed to knowledge of the public opinions on political issues through casual interactions in the city. This can be in conversations on board transport modes, or as you are walking past a coffee shop, or while you are waiting in line at the bank for example.

3.3.4 Involvement in decision making and other ways of claiming and legitimising spaces of transport for women

Transport systems and infrastructure are also potential mechanisms when it comes to exercising women's right to city through participating in the production and design of urban space.

The involvement of women in transport planning can significantly alter transport system designs. For example in Toronto audits concerned with women's safety while using transport resulted in significant design changes such as: "transparent bus shelters, emergency intercoms in stations, elevators to subway platforms to improve accessibility, designated waiting areas at subway stations that are well lit and associated with intercoms and CCTV, and a request-stop programme that enables women to exit, at their request, between two regular scheduled stops in the evening, to reduce their walking time to their destination" (Whitzman, 2013, p.43).

Transport modes themselves can also be used as spaces to promote and suggest an alternative mobility experience, i.e. adverts on bus stops or on the sides of buses, promoting the safety of women while using public transport (Whitzman, 2013). Examples of this took place in 2008 in Rosario, Argentina with messages printed on bus tickets and Bogota, Colombia where messages were printed on posters held by women all across the transport network (UNWomen, 2010). In Mexico City pictures of prominent revolutionary women from Mexico's history were depicted on the sides of their 'women-only' bus fleet (Graglia, 2016).

Sometimes, the transport stations can also be public spaces that women can spend time at while feeling they have a right to be there and not feeling out of place as is the case of the factory workers using the tram in Morocco (Gillot and Martinez, 2014). The presence of female staff, as drivers, ticket sellers, or others in transport spaces can also make women feel safer (Koskela, 2005; Parikh, 2018) and is a further symbolic representation of the right of women to be in public space and on transport modes (Phadke, 2012).

There is also an argument to be made that segregated spaces in transport and women only modes give a sense of legitimacy and claim to the transport mode. In formalising and institutionalising this claim to transport spaces, women are able to travel without the concern for having to 'fight' with men over the appropriation of space, and families may be more accepting of women's use of such spaces (Uteng 2012; Phadke, 2012). Andrews and Shahrokni's (2014) work also observes a shift to women's own sense of right and legitimacy to public transport and to spaces designated for their use. This also translates into an increased sense of comfort in those spaces which women are willing to defend. Inside these segregated spaces there is also increased opportunities for many of the other factors with transformative potential being raised, such as access to increased networks and knowledge and opportunities to encounter others, with potential impacts on collective consciousness (Phadke, 2012).

3.3.5 Consciousness raising

The knowledge and learning referred to in the preceding paragraphs are not only critical to individual women's empowerment and right to the city through the ways

presented, but also to the transformative potential of increased transport accessibility through consciousness raising. A key to the processes of both empowerment and transformation is challenging the idea that social realities are unchanging, and truly becoming aware and conscious of the power dynamics embedded in the systems that perpetuate certain inequalities. Facilitating opportunities for consciousness raising is related to exposure to and experience of spaces which can allow women to become aware of and even question the social constructions around them - which might have previously gone unquestioned. Consciousness raising processes allow greater exposure and learning of ideas and concepts of discrimination and rights, and can also provide women with the support and the tools needed in situations of injustice and desire for resistance (VeneKlasen and Miller 2002; Chaudhuri, 2016). While this awareness does not necessarily automatically translate into transformation, by contributing to processes of self-awareness and self-defining, what it does is it allows for the possibility of considering alternatives to the women's current reality, which could in turn lead to a reinterpretation of situations, a reaffirmation that their situations are not inevitable or unchanging, and even resistance (Abrams, 1999). Headley (2007) refers to 'consciousness –raising groups in the 1960s and 70' where this opportunity for women to interact with other women was considered key to empowerment as they allowed for sharing and connecting, away from the presence of men. In such spaces conversations can take place which make women become aware of the collective dimensions of gendered constraints.

Similarly, when speaking of consciousness raising in the context of transport and the city, it is also about exposure and connections. It is about understanding the transformative power that exposure to the city and its opportunities holds. For example, just as there are cues in the built environment of the city which can sexualise women or remind them they are out of place, there are also elements such social political graffiti which when encountered could lead to sparking enlightenment. The increased mobility that could ensue from increased transport accessibility also allows for greater opportunities for women to engage in public space and interact and network with other women. Public spaces of the city can also be spaces for women to act as a collective towards a common political interest and have their voices heard. It can also be an opportunity to reflect on difference as well. Encountering others, similar or different from you, while being mobile across the city offers considerable potential for

structural transformation through an increased sense of self-worth and enhanced awareness of social positions and inequalities (Levy, 2015). This comes down to the fact that there is knowledge to be learned from the appropriation of urban space. Through living and experiencing the city, knowledge of different people and discourses, knowledge of the self, exposure to new objects and ideas, and a deeper understanding of our social positions and rights. Exposure to different classes and ethnicities and different examples of privilege as well as subjugation, also makes people aware of social positions, realities, and injustices. Returning to the concept of gender as defined earlier, accepting that gender dynamics are constituted differently in different contexts, and according to intersectional identities, then it could be argued that exposure to new spaces of the city inhabited by residents of different socio-economic characteristics and different behavioural and social constraints, can also trigger consciousness raising and a “a reversal of 'centre' and 'margins” (Pratt and Hanson, 1994, p.9).

3.3.6 Collective visibility and transformative influence

An additional transformative potential of transport accessibility is the prospect of transformation of household relations as well as city wide gender norms. A critical aspect of understanding the relationship between transport accessibility and empowerment is recognising the connection between the spaces of the so called private and public spheres and the extent to which they influence each other. Moreover, as was raised in earlier sections, one of the strengths of seeing gendered restrictions of women’s access to public spaces as social constructions dictated and reinforced by norms and everyday practices, is that it allows for a space of incremental change. This in fact can happen in both intended and unintended ways. For example, women’s entrance into the garment industry in large masses in Bangladesh resulted in an increased presence and use of public transport by women, and a reality where men and women were regularly having to share the spaces on buses and other modes of transport (Uteng, 2012).

It is also worth remembering that women’s restricted transport accessibility and the resultant constraints, have various negative implications on her household that affect men as well. Unsurprisingly, given the critical role men play as members of the public

and private spheres, evidence has shown that men's involvement and support, or lack thereof, plays a crucial role in the success or failure of processes of transformation, including those resulting from employment (Kabeer, 2008). Women live within patriarchal societies, and they care and are affected by how their family, household and others perceive their actions. Thus, the responses of their communities can affect and influence their actions. The support, and if not approval, at least acceptance of members of the family, particularly male ones, is often times the deciding factor in household decision making processes and the possibilities to shift away from traditional norms.

Using the concept of "patriarchal accommodation" in a study which explored women's entry into the public sphere and their increased use of public buses in Tehran, Andrews and Shahrokni (2014) argue that transport that keeps within the norms of safety and modesty can mean transformation in household decisions about women's use of public space.

Another interesting example of both the simplicity as well as complexity of the rules surrounding women's mobility and the role of community perceptions can be found in Saudi Arabia. Notoriously restrictive historical bans on female drivers appear to have been less rigid in rural areas, where women driving was accepted as an essential part of life to meet basic needs in the poorly connected desert towns. In this instance, the community, including male members of the household understood the necessity of and were supportive of women driving, despite previous legal bans and wider country sentiments, going as far as helping women navigate the bureaucracy and prejudices of the system (Peters, 2013).

It is not uncommon for women to rely on the support of trusted men to help them navigate public space in situations perceived as threatening, such as, for example, arranging to regularly ride with a trusted taxi or rickshaw driver (Phadke, 2012). Very tellingly, however, is that these drivers have also been reported to then take it upon themselves to assume the role of male protector when they deem the journey's inappropriate, and continue to attempt to exercise control over the women's movements under the guise of concern (ibid., 2012). Perceptions of women's lack of safety in public spaces creates a rationalisation for women being denied access for

their own good. Thus, increased safety - similar to increased visibility - could also influence decisions regarding freedom of mobility that are taken personally or in the household under the pretext of guardianship and protection. Additionally, the extent to which women's increased presence in public space can become one free of fear and harassment will also require an acknowledgement on behalf of men of their right to appropriate these spaces as equal citizens alongside them (Kabeer, 2008). As raised by Levy (2015), the concern for women's safety by loved ones can be part of the solution as something both women and men care about and can rally around. This means, there are opportunities for mobilising not just women collectives, but also community collectives as evidenced by the fact that women's safety from harassment while walking in the street or on board transport modes, has been a galvanising issue around the world (see for example: Take Back the Metro in Paris, *Chega de Fiu* in Brazil, and Hollaback in 84 cities around the world).

Protests and movements such as these also point to the role transport systems, modes and policies also can play. It is not just the structures in women's households which affect time use, access to resources and freedom of mobility that impact their ability and right of entry to public space. There are of course also many obstacles and solutions that can be found within transport planning itself, in design, in security measures and in policy which can alter gender norms and transform household relations.

As raised in earlier sections, within the transport policy system itself, addressing safety issues includes women as staff working in the public transport industry, visible in different work capacities on the streets and on modes, which could increase women's sense of comfort as well as serve to support their right to the spaces.

The most important outcome from all the above examples is that, with increased transport accessibility for women is the potential for changing perceptions of what is possible and what is not, not just for women themselves, but also for their families and that includes men. Through increased transport accessibility there is increased exposure to alternative possibilities than those ascribed, with opportunities to create independent friendships and networks, as well as to learn of other political principles and ways of thinking, form independent identities and a sense of agency. In this way,

transport has the potential to allow women to challenge the gendered order of households and cities, leading to a transformation of norms.

Interestingly it would not be unrealistic to suggest that the women and men inhabiting cities are all too aware of the true transformative potential of women's increased transport accessibility. For Dobbs (2007, p.93) this is evident in the way women refer to the "the spatial and economic benefits of travel rather than the way it links to physical sites." Whereas Porter (2011, p.77) suggests, perhaps the restrictions imposed on women's mobility by men signify that "for men, the potential of mobility to produce and change societies may be only too evident."

3.4 Implications for studying transport

Having demonstrated all the different ways that transport accessibility and empowerment could potentially be linked through an understanding of power, this research will attempt to explore an alternative understanding of women's travel patterns, through an exploration and deeper understanding of their lives and their urban experiences by addressing and accounting for power, grounded and contextualised in the lived experiences of women in an informal context in the Global South.

Power in this framework is seen as something that is routinely exercised, produced and sustained in everyday actions and negotiations, as both women and men experience power in different forms in their daily encounters and activities. Thus the concept of 'power in the everyday' will be adopted as an analytical structure, examined through a gender and intersectional lens in order to analyse the links between the transport accessibility and the empowerment of women living in informal settlements in Cairo.

The strength of adopting a gender lens is that it allows for the uncovering of previously taken for granted assumptions in the transport field, as it draws attention to the power negotiations overlooked in traditional transport research. It also questions the problematic priorities and models of transport planning presented in Chapter 2 which lead to the struggles of using transport systems not built to support the complexity of

real life (de Madariaga, 2013) and allows for alternative representations and viewpoints to be presented. Using gender as an analytical category also creates a space to highlight agency and the possibility for negotiation, rather than presenting women as victims. Recognising forms of power dynamics also helps to highlight disempowering influences, while also acknowledging the power women actively wield and express in their daily practices as they negotiate the resultant restrictions imposed by their transport accessibility disadvantage (Koskela, 2005; Mashiri et al., 2005).

Exploring gender within an everyday grounded and contextualised lens recognises that gender relations mean different things in different contexts, rather than accepting the universality of concepts such as the “sexual division of labour” and “productive and reproductive work” (Mohanty, 2003). Overcoming generalisations and assumptions also reframes women transport users from being considered only as role playing passive actors (Rama, 2018). Exploring the everyday can also reveal diversity and fluidity of worlds usually split apart, showing how concepts such as private and public, social, economic and political do not fit neatly under these headings (Staehele and Cope, 1994).

The everyday recognises all the complex and mundane activities that constitute daily life. It allows for a space to explore what the activities important for people’s lives are, while considering how they manage these activities and how resources are shared, as well as how individual household and transport infrastructure impact these things. It also exposes the fragility of the intricate workings involved in the process of trip making, as what is possible in the restricted constraints of resource, space, time, capacity and social relationships become visible (Jarvis et al., 2009). For example, it exposes the importance of the location of employment opportunities, the opening times of shops, the importance of catching a specific train, implications of a delayed or diverted bus, the significance of having to change platforms or utilise a transport route not used before. As highlighted by Beebeejaun (2017, p.331), it also allows for an exploration of the significance of and embodied experience of transient transport spaces in overlooked spaces of everyday such as “bus stops, walkways and restrooms”. Exploring the everyday also means looking for the pleasure, enjoyment and leisure, not just focusing on the problems. This allows for a far richer picture as it “highlights the multiple ways in which women creatively negotiate within, around and

against various spatial and social boundaries” (Kirmani, 2020, p.330). Most importantly it allows for the possibility of change through everyday actions (Halford and Leonard, 2001; Young, 2005; Jarvis et al., 2009; Phadke et al., 2009).

4 Chapter 4: Research Methodology

4.1 Introduction

This chapter outlines the methodology adopted for the research. In the chapters preceding, an overview of the literature on women and transport has been presented, establishing the intricate workings of gendered power as an overlooked and understudied area in the field of urban planning in general, and transport planning in particular. A disregard for the wider gendered structural context in which travel decisions are taken, which dictates needs, destinations and potential for travel, was highlighted as a significant gap within transport planning. The realities of worldwide urban inequality and the underlying gendered structures and relationships of power that control allocation and distribution of time, resources and freedom of mobility across households and in cities were presented as a significant oversight in the field. Similarly, the importance of concepts such as individual agency and the embodied experience in accounting for the everyday gendered urban reality in which travel and transport use takes place and in which the “accessibility” of transport infrastructure plays a critical role, were also shown to require more attention. Thus, the methodology behind this research will attempt to bridge these gaps by considering and exposing the structural constraints behind observed travel patterns, the utility of transport systems and access to urban opportunities, alongside the gendered constructions which inform control over mobility, the embodied everyday experiences of travel, and wider engagement and appropriation of the city. This will be achieved through a gender and power lens to uncover and unravel the subtle workings of power in processes behind apparent simple travel decisions. As has been demonstrated in earlier chapters and will be made clear throughout this research, a methodology which uses a gender and power lens offers the potential to uncover the contribution of transport accessibility to gendered urban exclusion and marginalisation. It also has the potential to highlight the role transport infrastructure plays in individual women’s empowerment and collective gender transformation, which with a few exceptions has been gone relatively understudied and unnoticed thus far in transport studies literature.

Contextualising the study in an informal setting in the Global South grounds it in the real life of the majority of world's inhabitants. This study also adds an urban planning and right to the city dimension that takes on new meanings when explored together in the context of daily gendered lived realities. The methodology seeks to contribute to increasing the knowledge of work around urban justice, given the possibility of transport to provide "a window" (Levy, 1991; 2013) on urban disparity, gender inequality, intersectional disadvantage, and individual negotiation of the city. The lack of real engagement or understanding of travel use patterns of informal modes of transport, despite their prevalence in cities across the Global South, has been identified as a significant gap to be addressed. Given the significance of the social, economic, cultural, and geographical context to any analysis of power relationships, initial attention of the methodology and analysis will focus on uncovering travel patterns of women and men living in a world more relatable than that which is currently portrayed in transport literature, to serve as a more realistic starting point for conversations on the potential of transport accessibility for social inclusion and gender transformation.

To achieve the above, the study utilised qualitative data collection methods. Qualitative methodology has proven to be well suited to capture the nuances of the gendered experience of travel and transport use across other contexts in the Global South. Using interviews in Mexico City (Mejía-Dorantes and Villagrán, 2020), and in Delhi and Kolkata (Joshi et al., 2022) allowed for the identification of travel barriers and potential solutions for women's transport mode use. A variety of qualitative methods including in-transit interviews also provided significant insight in the 'tactics' used by women to navigate the transport systems in Grand Tunis (Murphy et al., 2023). For residents of informal settlements in particular, qualitative methods allowed for the identification of factors influencing their daily travel patterns, and the extent to which these patterns in turn influenced the women's daily life in Buenos Aires (Mark and Heinrichs, 2019) and to identify significant travel barriers to healthcare for residents of low-income neighbourhoods in São Paulo (Guimarães et al., 2019). Other researchers have also used semi-structured interviews to increase understanding of specific elements of transport systems. Examples include researching the use of specific transport modes, such as women using the metro in Delhi (Joshi and Bailey, 2023); researching the experiences and perceptions of women's employment in the

transport sector in Abuja, Cape town, and Tunis (Porter et al., 2021); as well as researching how transport vehicle design affected the gendered experience of transport users in Ankara (Kaygan et al., 2023).

4.2 Research questions

The focus of this thesis is on exploring the relationship between transport accessibility and women's empowerment in informal settlements in Cairo.

The research questions guiding this research are:

Through an approach which uses gender and power in the everyday lens when examining transport accessibility:

1. What are the real travel patterns of women living in informal settlements in Cairo?
2. How are gender and power reflected in these patterns, and what are the implications for transport accessibility?
3. What is the impact and significance of these patterns on women's empowerment and integration into the city?

Given the limited knowledge of these in the literature, identifying the travel patterns was chosen as a starting point to learn more about travel purpose and mode use of women living in informal settlements in Cairo, as well as, the urban land use and transport infrastructure context they are taking place in, which is integral to transport accessibility. The use of the term 'real' in the phrasing is in the spirit of this research's social constructivist approach referring to the process of acquiring contextualised knowledge reflected in the lived realities of this specific group.

The second research question asks how gender and power are reflected in the patterns in order to address oversights identified in some transport accessibility and exclusion literature which disregards the power involved in travel and transport use decision making processes. Asking this question recognises the context and conditions women's travel is taking place in, and the various dynamics of power at play both within the household as well as the city linked

to varying socially constructed gender roles and responsibilities that dictate both the need to and the potential for travel. In answering it many of the elements of the relationship between transport accessibility and the empowerment can be uncovered.

Finally, the third research question explores the relationship between transport accessibility and empowerment through an exploration of the implications of the travel trends identified. The word 'impact' is used here to refer to an informal exploration of travel's potential effects or influences on women, based on identified themes, rather than a formal impact assessment. This question is posed with an awareness of the findings identified globally, as well as specifically in urban low-income neighbourhoods across the Global South, which point to transport's contributory role to justice concerns for women. The terms 'empowerment' and 'integration' refer to concern not only for spatial, social and economic inclusion/exclusion in the form of recognition of transport as an intermediary to socio-economic necessities, but also greater potential for transformative change through considering transport infrastructure as a public space in itself, as well as means to access wider public spaces that can be appropriated and experienced on differential basis and with significant implications on how power plays out in urban spaces.

4.3 Study design

The study design adopted for this research is based on a Social Constructivist approach which recognises the subjective knowledge, meanings, understandings and views of the individuals living in a social world, governed through norms and relationships. This approach was chosen due to its compatibility with post structuralist feminist research, which aspires to use the gendered world of individuals and spaces as a tool for analysis, including a recognition of its intersectional and relational aspects and its significant repercussions on women and men.

Other aspirations for feminist epistemology are also incorporated in the study. These include: addressing power, a critique of androcentric knowledge production and policies, and the desire to aspire change (Buiten, 2007). The challenge for feminist research and gender transformative urban planning is to make women's day to day and embodied experiences visible. This is endeavoured via alternative approaches of enquiry which unravel the processes of disadvantage through an examination that

accounts for gendered and intersectional power relations that create and reinforce this disadvantage (Escalante and Valdivia, 2015; Lahiri-Dutt, 2011).

An important part of this approach also recognises and places women as the experts of their own lives. Thus, the information gathering followed an abductive method, which attempted to highlight and investigate the social reality in which travel patterns take place. In line with the other transport studies which have relied on women's narratives to unravel all the complexity of travel decision making and negotiations, the emphasis is placed on individual accounts based on qualitative data centred around women's experiences of mobility and perception of their reality (Vecchio, 2020; Porter and Dungey, 2021).

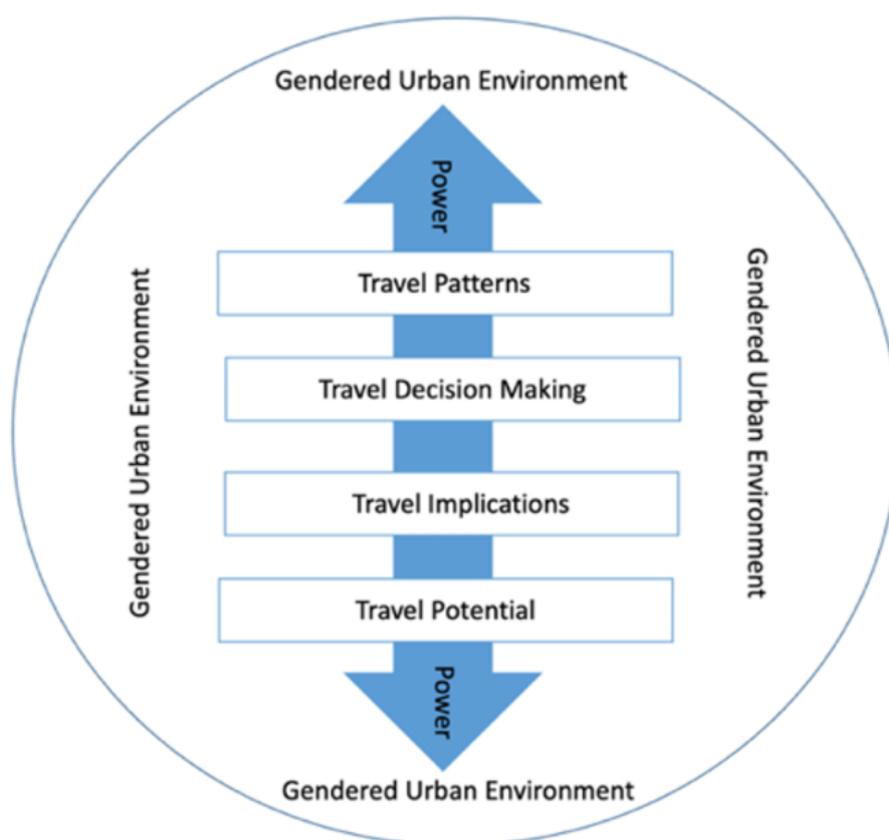
4.4 Analytical framework

As stated, this research will be using gender as an analytical category in order to draw attention to the power negotiations in social relationships and urban spaces overlooked in traditional transport research, with a specific focus on transport accessibility and its inclusionary/exclusionary implications and potential for women living in informal settlements in Cairo.

A visual representation of the analytical framework can be seen in Figure 4.1 below. The research findings will be analysed by attempting to identify and highlight the workings of power in travel patterns and transport use, travel decision making, travel implications and travel potential within the wider gendered context that dictates needs, capacities, destinations, and experiences of travel.

Figure 4.1 Analytical framework

Transport Accessibility and Mobility Related Exclusion Through a Gender and Power Lens



This framework understands power in the way that is expressed in Chapter 3 as defined by VeneKlasen and Miller (2002, p.39), that is, as “dynamic and multidimensional, changing according to context, circumstance, and interest. Its expressions and forms can range from domination and resistance to collaboration and transformation.” As previously explained, the strength of the definition is that it allows for a fluid understanding of all the different ways and places power operates. The variety of its expressions then allows for an intersectional approach to analysing individual experiences of power, observing power and shedding light on all the different ways it is expressed and the way it is negotiated. It also allows for a lens that can situate power not just in relationships, but also in spaces and places.

The choice of adopting this conception of power for the research is also its compatibility with post structuralist feminist views on gender as “generated, enacted and sustained” through the everyday workings of power (Hanson, 2010; Halford and

Leonard, 2001, p.233). The everyday nature in turn allows for empowerment to then also be viewed not as a predefined set of actions or circumstances, but as a non-uniform and contextual process of changing power relations, considerate of the complexity of the way power operates, the agency of individuals, the relational and societal context, and the embodied as well spatial manifestations of it in the urban environment.

Transport accessibility as presented in Chapter 2 is represented in the framework through its concern with understanding the different travel patterns of individuals according to capacities based on social identities, the way transport provision and land use work together in urban environments, and the implications in turn on connecting people with essential life necessities and places of urban opportunities.

Introducing the link between transport accessibility and empowerment further urges consideration of the power dynamics behind travel and transport use decision making. This is achieved through exploring the extent to which travel patterns both influence and are influenced by social and spatial manifestations of workings of power, accounting for gendered social identity of the users, gendered social relationships, and wider gendered structures in travel purpose and transport mode use.

Exploring mobility related social exclusion through a gender and power lens additionally sheds light on the wider implications and dynamics of power resulting from the act of travel and transport use - or lack of it. In particular shedding light on the role transport accessibility plays in accessing basic goods, education and healthcare services, support networks and income generation opportunities essential for women's well-being and empowerment.

By further considering aspects of mobility found in the concept of motility such as recognising the experienced and embodied properties of movement, the skills needed and knowledge gained, and what the movement means and represents, the power involved in the actual practice of travel is also explored, as is travel's transformative potential as part of women exercising their Right to the city. These are represented in the analysis through examining confidence navigating the transport systems and the city, exposure to wider learning opportunities for the traveler, feelings of safety and

belonging as well as altered ways of thinking and opportunities for influencing norms and decision-making processes in the household and community as a result of travel.

4.5 Research context and criteria for choice of settlements

The research was conducted in two informal settlements in the Greater Cairo Region (GCR) in Egypt⁸ over a period of 6 months between January and June 2018. The GCR is “one of the largest megacities in the world”, home to over 21 million people (CAPMAS, 2021) and the main urban and industrial centre in Egypt.

There is limited research available exploring the travel conditions of women in informal settlements (Mark and Heinrichs, 2019). There is also limited data in Cairo about informal settlements more widely or their female residents specifically. Thus, this study aspires to contribute to this research vacuum.

As has been previously presented, for these women, their ability to be mobile is contingent on many factors related to them as individuals, as household members, to the built environment and the wider society around them. In the context of Cairo, varying gender roles and responsibilities in the patriarchal society and the generally weaker economic and social position of women in Egypt leave them at a disadvantage. Cairo, specifically as Egypt’s capital has also recently been ranked as the most dangerous megacity for women in terms of access to healthcare, economic opportunities, sexual violence and harmful cultural practices (Thomson Reuters Foundation, 2017). This lends to the need for this research which has the potential to further highlight and address these injustices.

The context of informal settlements also provides an interesting case study as it allows for an exploration of travel decisions within a context of complex reality and disadvantage, accounting for the importance of transport and supporting infrastructures. As stated by Mark and Heinrichs (2019, p.15) “structural disadvantages of being a woman and the disadvantages of living in a slum intersect and reinforce each other.”

⁸ The GCR is used to refer to the metropolitan area known as the city of Cairo. It is made up of three governorates, the whole of Cairo Governorate and the urban parts of Giza and Qalubiya Governorates

Within the GCR it is estimated that there are “233 informal settlements which are home to approximately ‘70%’ of the population” (GTZ, 2009, p.15; Adel, 2011, p.57). Thus, residents of informal settlements can actually be considered a majority of the population of the capital. Despite this, they are the least likely to be incorporated into official census and data collection. They are also more likely to be living and working outside the normative framework of the formality accommodated by formal public transport planning. This is despite the potential heavy reliance by informal settlement dwellers on transport due to the absence of basic services and limited employment opportunities in their area. These areas, due to their informal nature, all share general themes such as: a lack proper infrastructure and basic service facilities, and an inadequate service of public transportation links. The result of this combination is an extreme restriction of the mobility and choices of low-income residents, limiting their access to essential services and opportunities (GTZ, 2009; Sabry, 2010; UN-Habitat, 2011; Abouelmagd et al., 2013).

Two informal settlements were chosen to account for the two main typologies of typical settlements existing across the GCR. Ard el Lewa, falls under typology A meaning it was developed on former private agricultural land and it can be found in the governorate of Giza on the Western end of the GCR. Mansheyat Nasser falls under typology B due to it being built on state owned desert land. It is located in the governorate of Cairo at the Eastern periphery of the GCR. A more detailed description of the typologies as well as the conditions in the two informal settlements chosen for this research will be presented in Chapter 5.

The focus on local neighbourhoods or settlements allows for more detailed information gathering on the local contexts, with the choice of two settlements allowing for a larger sample to be drawn from the same area. Their differing typologies and locations also allows for a comparison of different configurations of urban inequality, land use and transport infrastructure into the analysis.

These areas were not only selected based on their typology and locations, but also on a pre-fieldwork desk research assessment that had identified them as restricted in terms of formal transport access and lacking in service facilities despite high density and central locations. A final factor in the choice of areas was the researcher’s knowledge of local contacts that would enable access to the inhabitants. Prior to the fieldwork, two other

research sites were considered but the final selection was based on their location in relation to the city centre, as well as on the ability to identify gatekeepers.

4.6 Data collection methods

This research uses semi-structured interviews with both women and men. The choice of a qualitative method was to allow for opportunities to unravel all the complexity of travel decision making and negotiations, cover all activities people complete in their everyday lives requiring travel, as well as adequately capture elements of the embodied experience of travel. These are things that cannot really be captured by simple traditional quantitative measures of data collection alone. They need qualitative methods for further understanding and exploration of the workings of power in people's lives, experiences and decision making processes. For example, safety and security concerns, especially related to sexual harassment, which are of extreme significance to women are very often not revealed in quantitative surveys for transport planning (Allen et al., 2017). Qualitative measures are better at capturing aspects of travel related to safety which have significant implications for travel decisions, when and where to go, but also which mode to use and with who (Buiten, 2007).

Mobility mapping was considered initially as a possible tool for data collection. In the first pilot mapping exercise it was obvious how restrictive the use of mobility mapping would be. One of the reasons for this was because the tool did not allow for all the specifics and details of each trip to emerge, and was unable to accommodate easily more than one route for a trip. Another reason was the usability of the tool by respondents. From the pilot, it was clear that the ability of the respondents to spatially depict their mobility on a map demonstrated that the tool would be hampering rather than productive.

Respondents were interviewed once, increasing the anonymity of the data. Triangulation was sought through ensuring a large enough sample size for the semi-structured interviews.

To account for the absence of readily available data on the settlement residents, and on the transport infrastructure available, closed questions were added to gather this

data at the start of each interview. These allowed for a more holistic background on the study population's socio-economic characteristics, travel patterns and transport mode use. For topics covered in the interviews see Table 4.1 below.

Table 4.1 Topics covered in semi-structured interviews

Socio-economic characteristics	<ul style="list-style-type: none"> • Age, • Marital status, • Household structure, • Educational attainment level and • Employment status
Travel Patterns	<ul style="list-style-type: none"> • Purposes, • Frequency, • Destination, • Modes used, • Duration, • Cost
Transport Mode Use	<ul style="list-style-type: none"> • Experiences of using each mode, • Why they choose certain modes over others • Preferences and challenges faced when it comes to modes used
Travel for Key Purposes	<ul style="list-style-type: none"> • Education, • Healthcare, • Household shopping • Income generation, • Caring responsibilities, • Leisure
Decision Making Processes in the household	<ul style="list-style-type: none"> • How decisions about travel are taken • How labour and resources are distributed • How activities are scheduled • How and why certain destinations of travel are chosen over others

The aim was to develop and expand an understanding of the local opportunities, travel patterns and transport options to allow for an introduction to the socio economic and travel setting in the settlement. This allowed for an increased understanding of a number of issues:

- the nature of activities that were taking place by the residents both inside and outside their neighbourhoods,
- the transport modes available in the area,
- travel patterns of the residents, as well as to establish if there are any differences in these patterns and usage between women and men.

This information was also used to probe further questions throughout the interview. The use of semi-structured interviews as a data collection tool meant that in addition to planned questions there was also space for flexibility to follow up in response to the content of the interviewee's answers. Individuals were given the space to relay their lived experiences from their own perspective. The personal and face to face approach also allowed opportunities for points to be further explored and clarified (Clifton, 2003).

These interviews provided opportunities for deep discussion with the women and men about their experiences, perceptions, needs and levels of agency and control over their mobility, generating a greater understanding of their livelihoods, household relationships and wider relations and interactions in the city. The conversations allowed for space to explore the negotiation processes that go on when it comes to control over time, access to and control over resources, freedom of mobility and involvement with the local community and the city. The analytical objective was an in-depth examination of the perceptions and explanations of travel patterns and transport use. It also offered a way for participants to reflect on their own needs, capacities and experiences of transport accessibility; the amount of control they have over their movements; their priorities; the decision-making processes involved; and the extent to which they engage with the city, outlining any barriers they face.

The opportunity to have a conversation with individuals that considers all trips undertaken by them in their everyday lived realities rather than focusing on a single trip purpose or destination, allowed for exploration of all the transport needs involved in people's lives. Attention was paid to considering all trips conducted by individuals, for all purposes and by all means. That meant no trip was too short, walking was considered a mode, and it was possible to account for overlooked 'care work', borrowing from the "mobility of care" concept (de Madariaga, 2013; Miralles-Guasch et al., 2016). Further emphasis was also

placed on accounting for the embodied experience of travel (Jensen, 2013; Murray et al., 2016).

This approach allowed for the capture of the traditionally gathered data such as distance, duration, cost, and other quantifiable details of trips, but more importantly also created spaces for capturing the wide diversity of trips conducted by women. It allowed for exploration beyond just the normal day-to-day trip to include journeys that occur on a more irregular basis. It additionally strayed away from the bias that arises when focusing on certain modes or certain trip journey's (such as work or the 9-5 commute) which can exclude women. Not focusing on a single mode, allowed for a reflection of the entire journey, including all the walking and mode hopping involved in the process of getting to the mode ('walking to the station'), and the experience at bus stops (Litman, 2015). It created spaces to have conversations about transport fares that would surely be missed through a survey, such as for example, the fact that for some informal modes such as tuktuks, the cost of the journey will often require negotiation with the drivers. There was also consideration in the interviews of trips not taken, and conversations around what respondents even perceive to be feasible within temporal, financial and spatial gendered boundaries. Such consideration includes lack of affordability or lack of transport options or other factors, how their travel patterns might differ had there been other options and opportunities, and even what opportunities are there but are just not being used or accessed because of quality, safety, time, preference and/or cost.

Additionally, having a conversation rather than ticking boxes on a form meant that people were able to better express the way they feel as they navigate travel and transport systems. This was of relevance not only in terms of safety concerns, but also in terms of how they experience the city and how they perceive their mobility opportunities or hindrances, with further opportunities to comment on the ways they believe this could be improved.

4.7 Data generation and analysis process

4.7.1 Sampling and recruitment

The study population was 65 female and 20 male residents of 2 informal settlements in Cairo, 44 in Ard el Lewa (33 women and 11 men) and 41 in Mansheyat Nasser (32 women and 9 men), in an attempt to capture a wide range of different needs and factors contributing to transport accessibility levels.

The choice to include men as well as women in the study was in order to collect relational information to understand the “comparative position of women” (Mcdowell, 1997).

Given that the research is primarily concerned with individual perceptions and experiences of the users themselves, it was decided that key informants from the community or the transport planning sector in general were not necessary as part of the study population.

The sampling frame was non-probability based snowball sampling and neighbour to neighbour introductions. They were recruited based on the formal and informal networks of the residents and gatekeepers who introduced me to the community.

The gatekeepers were personnel of NGOs operating in the informal settlements. The reason for this is that through my previous work experience I learnt that an introduction through familiar contacts and entities creates trust between the community and myself as an outsider. Their knowledge and familiarity with the area and its residents also proved to be very useful as I acquainted myself with the neighbourhood, and served to ensure my personal safety.

The research took place over a period of 6 months between January and June 2018. The first 2 months involved: identifying and developing relationships with the networks who served as the entry point to the settlements; familiarising myself with the settlements, the local services and amenities as well as the transport networks; and

piloting the data collection tools and amending the research design accordingly. The interviews were then completed during the following 4 months (March – June 2018). Considering women are not as easily reached in public spaces and on the street in these areas, and given the concerns raised in earlier chapters with regards to onboard and bus stop surveys which only capture current users, attention had to be paid to where the research itself was conducted. Having discussed and agreed the research objectives with them, the headquarters of 6 local NGOs were used as a neutral space outside the household for holding the interviews.

Accessing multiple gatekeepers of varying interests and across different locations of the settlement meant that any bias in participant selection could be overcome, and a wide sample of residents could be reached, covering a variety of socio-economic characteristics. Limits were decided on based on saturation, with the exception of male participants in Mansheyat Nasser who were actively sought out following initial limitations in engagement.⁹ The sample size was also influenced by practical considerations, for example, upon the number of people who could be reached and who consented to participate in the study, within the time frames possible.

Each interview lasted between 40 - 60 minutes. They were transcribed initially in Arabic and translated into English later that day to benefit from my ability to recall the content and ensure the translation was as accurate as possible. The translation and transcription was all done by me to ensure uniformity.

To account for some time variation, some interviews were conducted during the day while others in the evenings and weekends in order to accommodate the diversity in respondents' working hours and presence in the settlement so that a wide variety of respondents could be included.

⁹ The majority of male residents of this settlement were informal casual and day labourers with no fixed working hours or days. The data collection days and times was actively varied to account for this.

4.7.2 Data analysis

The analytical objective for the data was to identify the everyday workings of power in the narratives and attempt to understand the role it plays in the conditions, experiences, perceptions, negotiations, and trade-offs involved in travel patterns and transport decision making.

The data which is presented in tables and as percentages throughout the analysis chapters was analysed utilising online data analysis platforms: Excel and Qlik which aided in the basic descriptive statistics analysis regarding the travel patterns and transport usage. For this, content analysis was utilised to identify transport modes used, frequency and purposes of travel, as well some elements of the experience such as travelling using multiple modes, or making more than one stop for trips.

The software NVIVO was used for the thematic analysis. In line with the study's abductive approach and interest in women's own narratives, the identified themes emerged from the data.

The analysis also engaged in a process of continuous comparison between settlements and sexes to highlight significant similarities and differences.

The first of the analysis chapters is Chapter 5. Based on combination of secondary data supplemented by primary data, this chapter begins setting the scene of the urban land use and transport infrastructure context in which the respondents are living their everyday lives, and the travel patterns of the respondents are taking place.

This is followed by Chapter 6, which aims to answer the first research question: What are the travel patterns of women and men living in informal settlements in Cairo? The presentation and analysis of the results from primary data highlights women and men's usage and experiences of transport modes in Cairo showing their utility of the transport system. The aim is to gain a better understanding of the understudied travel patterns of transport use, experience and perception as well as aspirations for transport systems amongst residents in informal settlements in Cairo who are excluded from

formal provision and disregarded in planning decisions despite them being representative of the majority of the city's residents.

The second and third layers of the analytical framework (Figure 4.1) referred to the extent to which power in the gendered world affects travel decision making process and has travel implications. That is the focus of Chapter 7 in response to primary data collected to address the second research question. The analysis in this chapter is a deeper exploration of travel decision making by exploring how gender and power in the household and in the urban environment are reflected in the patterns of travel and transport use identified, as well as how they reinforce them. In particular, the objective is to identify the role of transport accessibility and power in decision making for mobility in the household within the context of the gendered urban environment of differential access to and control of resources, division of labour and control over time use and freedom of mobility. Within this and the next chapter, control over mobility and embodied experiences of travel are explored.

The fourth and final analysis chapter, Chapter 8, addresses the final research question which is: What is the impact and significance of these patterns on women's empowerment/integration into the city? This relates to the fourth layer of the framework 'travel potential'. Based on the understanding of transport accessibility and empowerment literature presented in Chapters 2 and 3, here the focus is on the analysis of primary data to explore the extent to which the interviewees transport accessibility allows or facilitates the opportunity for women to not only access essential socio-economic opportunities, but also to create spaces in which they can observe, consider and analyse and even transform the world they live in, as well as their position and relationships with others within it.

To that end, the analysis in Chapter 8 includes an exploration of transport accessibility, social inclusion and empowerment through the interviewees ability to access basic goods, education and healthcare services, support networks and income generation opportunities within their physical, financial, temporal, and geographical constraints. The concept of motility is considered here through an examination of accounts related to confidence navigating the transport systems and the city, in reference to skills and knowledge required for travel, as well as through exploring feelings of safety and

belonging to account for embodied experience of travel. This chapter additionally explores the role and value of public presence and visibility, in transport accessibility's transformative potential by examining the implications of women's travel on their exercise of their Right to the city through their own sense of knowledge, engagement and appropriation of the city, its social networks, and its opportunities.

4.8 Data considerations and limitations

4.8.1 Ethics and challenges in the field

In line with the feminist approach to the research, attention was paid to maintain mutual respect throughout the entire fieldwork process. That meant completely honest exchanges with the potential interviewees about the research aims and parameters as well as great regard for the integrity of the information gathered (Lahiri-Dutt, 2011).

An initial design for this research had intended to conduct survey questionnaires with 200 respondents of both sexes in a three-stage process that filtered down. However, an urban planning expert in Cairo warned against the distribution of surveys for personal security reasons. This point was confirmed by others, including a researcher who is also a resident of Ard el Lewa. This risk was exacerbated by the general state of apprehension caused by the local political context at the time, including a presidential election and the aftermath of the murder of PhD student Giulio Regeni which all made approaching any area or anyone by myself a difficult task. Thus, practical considerations, including safety, time and respondents' unwillingness to commit to a three-stage process in the field meant that the research design had to be altered.

Overall, the interview process went smoothly and there were no problems with the interview questions. In a small number of cases during the interviews with the women, sensitive matters within the household were touched upon. This had been anticipated, and a number of measures were in place. The first measure was to ensure that respondents understood the research purpose and the nature of questions that were raised in advance, stressing that their participation was voluntary with a right to opt out of the research or to choose not to answer certain questions. The second measure

was to protect confidentiality. Assurance measures were taken such as maintaining anonymity and conducting the interviews one on one in complete privacy. Recognising the sensitivities in the culture, it was also decided to refrain from using any forms of voice or video recording so as not to alter the respondents' levels of comfort, allowing them to speak freely and also further protecting their involvement and increasing anonymity.

Additionally, written signatures on the consent forms were not appropriate for many of the respondents. A main reason for this was the high number of illiterate, or semi-literate respondents who it was inappropriate to ask to sign a form they could not read. There was also an apprehension about written signatures on the consent forms by many other literate respondents. Other researchers have also documented initial apprehension and mistrust of residents in Ard el Lewa and Mansheyat Nasser to participate in research with a particular hesitation to complete surveys and sign documents (EconServ, 2010; Elfouly, 2017). Most residents associate a signature with formal legal documents (contracts, banks etc.). For all individuals who were willing to participate in the study, but unable or unwilling to sign the consent form, the procedures for verbal consent in such cases followed the exact same processes as the written consent in accordance with ethics guidelines. This was the most appropriate way to respect their requirements, maintain their anonymity and protect them from any potential negative repercussions.

Some of the measures taken to ensure the privacy of the respondents, however, could have resulted in limitations on the semi-structured interview process, for example, the lack of voice recording as well as absence of a third person in the room to act as note taker could have led to some information getting lost in the process. However, this risk was mitigated by reviewing, translating, and recording the responses immediately after each interview to benefit from the ability to recall the information. Given the focus on subjective qualitative information, the inability to validate findings by checking interpretation with participants must be acknowledged. Nevertheless, the flexibility of the semi-structured interview process allowed me to ask for clarifications with participants at the time. In the analysis phase the thematic analysis carried out was completed rigorously and the volume of answers for each theme supports the validity of the findings.

Using gatekeepers for generating a large proportion of the sample also meant it was non-random, potentially posing a risk of bias in participant selection. However, this bias was reduced by being conscious of it and varying gatekeepers. Finally, there was a strong temporal element to the research that cannot be overlooked. Different times of the day or week can have significant implications on the research population being reached and in turn information collected (for example, those who are usually pursuing income generation outside the settlement during the day are more likely to be reached during night-time, holidays, or weekends.). As mentioned previously the research attempted to mitigate the temporal limitations by varying the data collection times and days in order to account for the widest possible number of circumstances.

4.8.2 Reflecting on positionality

Considering this is a research study concerned with power and the workings of power based on socially constructed identities, it would be a significant oversight to overlook my own gendered and classed identity in this context. Having been born, grown up and lived in Cairo until my departure to pursue studies in the UK, in some ways the fieldwork experience was a return home. While I was conducting the research, I was living in my family home and pursuing my regular activities across the city. Having said that, the similarities in my life with the lives of the respondents of this research were limited.

While limitations to my mobility based on my gendered identity do exist, they are quickly side stepped through economic advantage which affords privileges such as private transport modes and access to exclusive privatised spaces that allow me to overcome some of the implications of the gendered barriers placed on me. On the other hand, this position also comes with its own forms of exclusion, a significant one being the absence of regular use of public transport modes as well as limited exposure to unfamiliar low-income neighbourhoods of the city.

Having been a development practitioner prior to this research, however, meant that I was familiar with many of the informal settlements of Cairo, and I had previously visited both Ard el Lewa and Mansheyat Nasser a number of times in a professional capacity. Once the research process began, I was keen to ensure I spend much more time

familiarising myself with the two areas, learning the context and attempting to build some shared experiences with the local population as best as I could to support my knowledge both for interview conversations as well as in the analysis process. Part of this included an attempt to familiarise myself with as many of the public transport modes available as possible. Wanting to make up some ground in my inexperience of the modes, as well as to support my knowledge of the modes and potential routes servicing these areas, I made sure to utilise different modes of transport on my way to the settlements every time I visited for the interviews. Not being a resident of either settlement, this meant I was much better able to relate in conversations around which bus numbers serve the particular area, what the nearest metro stops were, and how much walking that involved, or how much the tuktuk from the centre of the settlement to the main road cost and so on. This familiarity in turn supported the flow of the conversations in the interviews.

Challenges arising from my economic position aside, it could be said that being a woman allowed me to access more women to take part in the research. In fact, in a conversation with a transport researcher in Cairo prior to the fieldwork, he had specifically expressed how he had struggled to incorporate the voices of women in his recent work due to a fear of how he would be perceived as a strange man approaching the women. Not only did being a woman open doors for me to start conversations with women residents in the two settlements, but it undoubtedly also affected the quality of the conversations we were able to have together. This is in contrast to the experience of the interviews with men, which in fact were much more challenging as they expressed more distrust towards me and my intentions. Additionally, having explained the research's focus being on women's transport accessibility, they were much less interested or forthcoming with the information.

Being able to conduct the research in Arabic realistically also afforded me more access than a non-native speaker would have had. However, I am conscious not to fall into a trap of suggesting an overstated sense of sisterhood or camaraderie which might overcome intersectional disadvantages by virtue of sharing being an Egyptian woman with women respondents. I cannot speak for the identities that the people who took part in the research labelled me or the extent to which they viewed me as an outsider. I imagine if my appearance or demeanour was accepted, the connotations of

institutional positionality would have ultimately been the thing that labelled me as different, that is, explaining that the research was in pursuit of a PhD degree at a university overseas. At the end of the day, I can only speak from my own experience of the interactions we had, and my memories are those of a sense of concern, trust as well as pride for me coming across from many of them. These were expressed as a concern for me as a young woman walking around the neighbourhoods by myself, trust in me and my intentions for their welfare, and if nothing else, a genuine sense of pride in and desire to support my educational progression.

However, even if I was not viewed entirely as an outsider, I certainly felt like one. While walking around the settlements I was acutely aware of my gendered and classed self. Even though I was not exposed to any real threat throughout the entire research process, and was visiting the settlements regularly for a period of 6 months, I still walked around carrying a feeling of fear rather than confidence. The fear potentially was a result of my presence as a lone woman. Walking alone as a woman, no matter in which area in Cairo, always comes with a certain level of fear. In this instance it was also fear of repercussions of visibly standing out as a non-veiled woman in a context where the absolute majority of women were veiled. While I did change the way I dress and attempted to wear more conservative and less visibly western attire, I was not wearing a head scarf which would have drawn attention to my outsider status. There were also fears that came with being a researcher in Egypt, particularly one from a foreign university. That institutional affiliation was a source of liability in the political climate and in the aftermath of both threat and harm to other researchers. The persistent fear of being identified as an outsider was also triggered by preconceived notions based on stigmatisation of the settlements and their residents. I was constantly being warned and advised to be cautious whenever anyone would hear of my work. The warnings were not just from those within my social circle, but as stated, also came from the interviewees themselves, with particular references sometimes made to how local women are safer in the settlement than outsider women. And in the one instance when I relied on a private chauffeur known to my family for a ride to Ard el Lewa, his shock at my choice of destination, and then complete refusal to leave me there unchaperoned, despite being a resident of a neighbouring settlement himself, further solidified the extent to which I may have been seen by many to be 'out of place'.

It might seem that this sense of 'out of placeness', whether real or perceived, could actually signal me as the researcher being in a position of powerlessness. In reality though, it fed into my concerns about being exploitative towards the settlements and their residents, as well as about how it might reinforce certain notions of Western superiority. Even the extent to which some respondents were keen to support my work, only further intensified these concerns of our exchanges being exploitative.

As an Egyptian woman from Cairo concerned with transport accessibility and empowerment of women in my home city where I had grown up and lived my entire life, as well as worked as a development practitioner, I could be considered an insider who is working towards a social justice goal. However, as an outsider in the two neighbourhoods, I feared I was inadvertently positioning myself as a 'saviour' and reinforcing notions of inferiority of informal settlement residents 'in need of saving'. This particular concern is intensified with the research focus being on travel. The concern here is that my research might contribute to persistent Western rhetoric about Muslim women's entrapment or immobility, especially since the research outcomes are, at least for the purpose of the PhD degree, written in English for a Western audience. Attempts to overcome this particular fear in my work have included a concentrated effort to read and include literature by Arab scholars and others from the Global South to counter these preconceived notions. Additionally, to ensure there was no 'saviour' bias, I did not work with any preconceived normative assumptions or destinations when it came to the focus on travel trends, but instead the analysis let the findings speak for themselves based on what was important to the interviewees in their own words. I also did not pre-define a restrictive definition of power or empowerment, but instead chose an understanding that meant both concepts were defined by the context. As a result, my own views and writing shifted as I read more and spoke more, particularly to women. During the process of translation I was considerate of attempting to be truthful to their voices, acknowledging that some level of discrepancy in meaning may result when translation happens. I took the decision to write my notes in the interviews in Arabic and then translate them when I got home later that day as I transcribed them on to my computer. There were two reasons for this decision: the first was to be considerate of the fact that the majority of interviewees could not read English and writing in a language foreign to them during the interviews felt disrespectful; the second was because I wanted to make sure to capture everything

they were saying, particularly since I was not able to do voice recordings. I was instead taking notes from the interviews verbatim as much as possible, which then meant that I could have a record of the exchange that I could take time translating and analysing.

Our positions also affect how we choose to present our findings, such as which quotations are used and how they are analysed. In order to ensure that the full range of views were presented, I deliberately chose to present a large number of quotes which represented the variety of responses, as well as substantial excerpts so that detail could be shown and considered by the reader. To be faithful and accountable to their views and their stories, the analysis also ensures strengths and negotiations are highlighted in the interpretation of their responses.

In the end, I believe what matters even more than being aware of one's positionalities and reflecting on how they may bias one's work, is the commitment to listen and to be flexible in our world views, with an openness to the possibility of learning and changing through the process (Mahmood, 2005; Knight and Keifer-Boyd, 2019).

The concern of what I am getting from the respondents and what I am giving back, however, has probably been the one which has had the most significant impact on my work, and has required a great deal of thought and reflection. Straight away in the field, the complexity of this arose every time an interviewee suggested that I may be able to help with a particular unrelated issue they were facing. The attempt to overcome this, and even to pre-empt it, was to ensure that prior to their consent to participate I clarified at the outset the research overview and the limits to what I was able to do. Despite repeated clarifications, however, it did happen that in the middle of the interview I sometimes had to clarify that I was not able to help in the way they wanted me to with the particular problem they raised. This is not an uncommon experience. Fujii (2012) highlights the complex workings of this relationship and how researchers need to be conscious that those who take part in the research, may still believe that they could benefit from us in other ways than what we suggest. Given the lack of policy accountability and feedback mechanisms in certain contexts, such as that of my research for instance, individuals almost never have any opportunity to have their voices heard by those in positions of power or authority, so it may then be the case that they view their participation as a form of this. The concern here of course is

that it suggests a belief on the part of the interviewee that the interviewer is in a position of power. This in turn raises fears on my part as to the extent to which their consent to participate was actually based on realistic understandings and expectations. When people did say no to participating (and many did), I actually saw this as a relief, as at least in my mind, it was a representation of an exercise of agency (Sultana, 2007).

Since this entire research rests on an understanding that power dynamics are ever present in all contexts and exchanges, I am aware that it is not something that can be avoided and was undoubtedly present in the exchanges between myself as the interviewer and the interviewees, both at the time of the interview itself and then in the analysis. However, as the understanding of power adopted by this research also shows, the way power looks varies in differing situations and contexts. With that in mind, I would like to believe that in our exchanges the interviewees were able to wield power through the semi-structured interviews, which allowed for the women to shape the conversation, have a level of control over the information they shared, and actively engage with the knowledge being produced (Jupp and Ibn Ali, 2010; Ali, 2015).

In terms of what they gain, the hope is, as with all other similar research, for a benefit to be reflected in the community as a result of the production of this research. A step towards ensuring that is the commitment on my part to share the work with the NGOs in the local community who supported its production. There are of course also aspirations for the research findings to inform wider change or at least prompt a reconsideration of transport policy in Cairo.

As someone interested in delving deeper into processes of transformation, I also wonder if it would be possible to consider that in those spaces where the interviewees were guiding the conversation on their transport accessibility they were also reflecting on their lives and aspirations, as well as choosing to act as representatives for others in similar situations, and I could take some credit for whatever empowering potential that may bring (Ali, 2015).

4.8.3 Developments since the of data collection

Transport costs in Egypt have significantly increased since the data collection took place. Over the past 6 years, the Egyptian government has taken significant economic reform measures as part of a loan agreement with the IMF. Included in these measures has been a sustained incremental reduction in subsidising the cost of fuel (Heger et al., 2019). This in turn has resulted in a continually increasing upward trend of transport costs. The government has also taken measures to increase public transport fares, which had historically been kept artificially low by government subsidy. More details on the modes available in Cairo and their cost, as well as the government's control over fare prices can be found in Chapter 5.

Another significant development since the data for this research was collected has been the emergence and disruptions caused by the COVID-19 pandemic. Though the response to the pandemic from the government in Egypt was not as severely limiting to travel as measures seen elsewhere, and the restrictions imposed were short lived (Breisinger et al., 2020), the negative impact on the country's economy could not be escaped, particularly for those earning their income in the informal sector (Assaad et al., 2022).

The measures imposed to curb the spread of the virus included a curfew from 8pm – 6am, closing all education establishments, as well as, restricting social, cultural, religious, and touristic spaces and public gatherings, including sitting in restaurants and cafes. In other sectors, such as the public sector and industrial factories, attempts to keep the economy going saw reduced working hours and shifts rather than complete lockdown (Breisinger et al., 2020; OECD, 2020). However, this still meant that the services sector, which is where the majority of Cairo's poor find their employment, was one of the most affected by the restrictive measures (Breisinger et al., 2020).

The implications of the precautionary measures taken in response to this health crisis meant that even the most basic and routine trips such as to the food shop were also affected. While shops to buy essential goods remained open, the mobility restrictions affected people's ability to access markets to buy goods, and the disruption to supply chains resulted in shortages (Assaad et al., 2022).

Additionally, notorious for high population densities and overcrowding, the onset of COVID-19 resulted in significant stigmatising of informal settlements and their residents by both the government, as well as other residents of the city. The restrictions on mobility and social interaction imposed by governments also had detrimental implications on the earnings of informal sector workers whose nature of work is heavily demand dependant (Assaad et al., 2022). In fact, 66% of informal and self-employed workers reported a loss in income compared to 21% of those formally employed (ILO, 2021). This left the informal workers particularly vulnerable when considered with the fact that they also have restricted access to social protection, insurance, and leave allowances (OECD, 2020).

Attempts by the government to cushion the financial impact of these economic restrictions on the poorest came in the form of wage increases for the public sector as well as cash transfers to the most vulnerable households. Though usually excluded from such programmes, in recognition of the extent of their vulnerability, the programme was in fact extended to informal workers. However, these measures are reported to still have been quite limited in both their reach as well as the extent of their value compared to the need (OECD, 2020; ILO, 2021; Assaad et al., 2022).

Women, in particular, were found to have been more affected by these disruptions than men. Whereas men's income was found to gradually return to normal as restrictive measures were eased, women's employment rates did not (CAPMAS, 2021; Assaad et al., 2022). Evidence also suggests that women with school aged children were significantly impacted by study from home measures, which resulted in an increased burden of care-taking responsibilities (Assaad et al., 2022). Women were also reported to experience increased levels of violence and domestic abuse, which they were left more vulnerable to through the inability to access points of refuge and support (UNWomen, 2020).

5 Chapter 5: The Marginalised Majority- Ard el Lewa and Mansheyat Nasser: Transport and Informal Settlements in The Context of Cairo

5.1 Transport and travel in Cairo

There are many different modes of transport operating across all three governorates that form the Greater Cairo Region (GCR), daily transporting its vast population of over 21 million people (CAPMAS, 2021). Each of these diverse range of modes have their own set of regulations and characteristics, as well as their own unique set of challenges that will be highlighted throughout this section.

Cairo has a reputation for its congestion, with estimates in 2015 pointing to a cost of \$8 billion and 300 hours spent per person in traffic jams a year (Mosa, 2019). This extreme congestion causes long travel times and makes travel unreliable (World Bank, 2014). Yet, motorised means continue to dominate travel, accounting for 18 million of the 25 million passenger trips said to take place daily (TFC, 2017). In fact, streets are not built to be pedestrian friendly, sidewalks are scarce and cycling is rare. Instead, buses, private cars, motorcycles and taxis own the roads and in 2015 Cairo became Uber's fastest growing city network in Europe, the Middle East and Africa (TFC, 2017).

The daily passenger transport volume of publicly facilitated transport is estimated to be around 7.6 million passengers. These are distributed between 4.6 million passengers utilising the diverse buses under the Cairo Transport Authority, and 3 million via the underground 'metro' (JICA, 2022). While ridership figures for informal means are not as readily available, privately operated minibuses and mini-vans are believed to account for a larger if not equal share of trips, with figures ranging from 6 – 8 million passengers per day (JICA, 2012a; Mosa, 2019). Added together it becomes apparent that buses in all their forms contribute to over 80% of collective transport trips (El-Dorghamy, 2015).

5.1.1 Transport modes and challenges in Cairo

Formal public transit in Cairo consists of a variety of different modes, some of which are publicly owned and operated by the public sector, and others which operate under public-private partnerships. It is worth noting that there is no overall integrated transport authority. The Metro is operated by the Egyptian Company for Metro Management and Operations (ECM) and the Ministry of Transport, while the buses are under the management of a different entity, the Cairo Transport Authority (CTA). The CTA also operates 2 Nile ferries and 2 tram systems but their usage amongst residents of the capital is very limited (Mahdy, 2012). Other modes operate privately, some in partnership with the public sector, while others completely informally.

Table 5.1 below provides an overview of the main collective transport modes in operation. Throughout the coming sections, the many different forms used most frequently by Cairo residents will be presented.

Table 5.1 Main collective transport modes in GCR and overview of operations

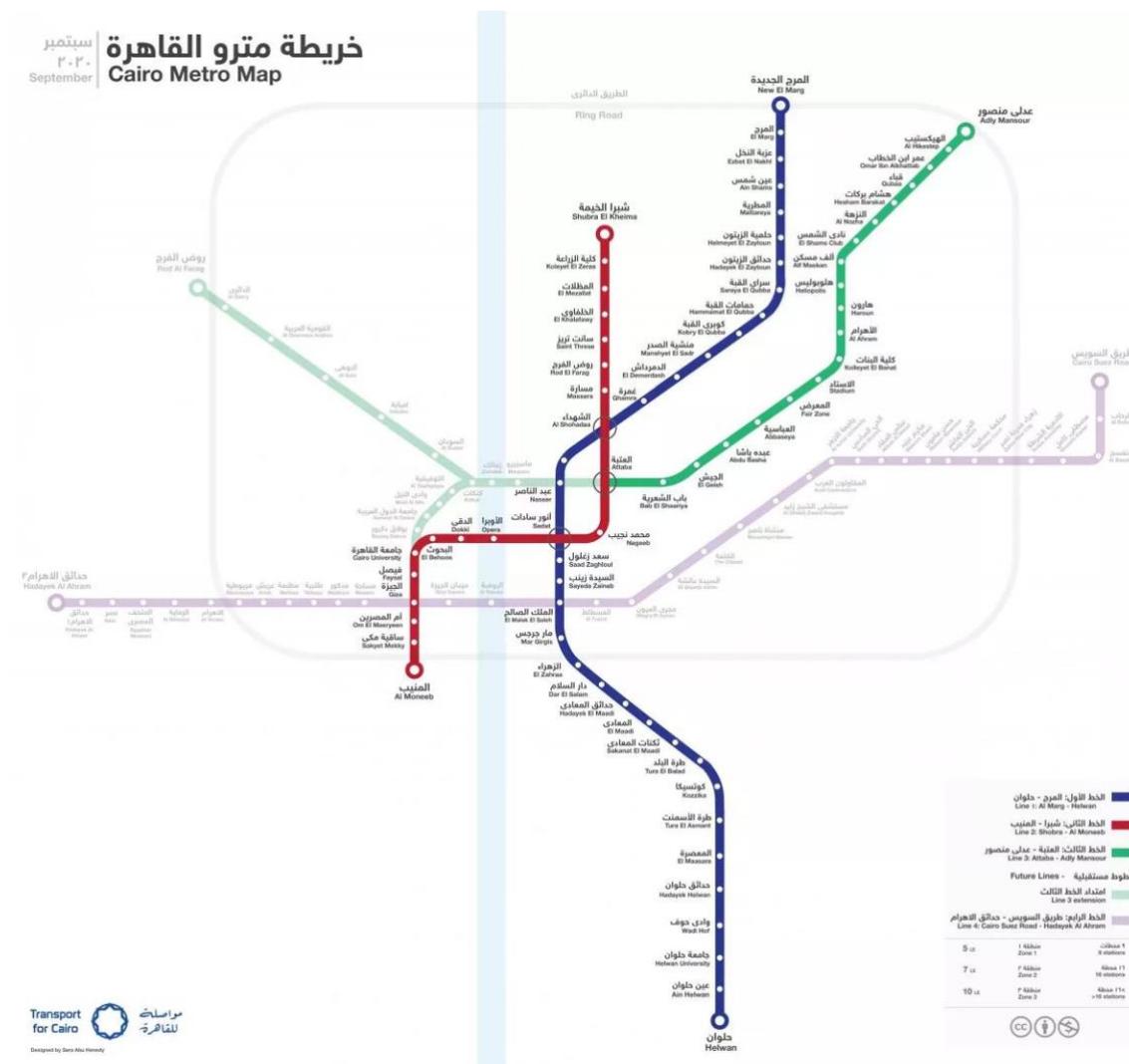
Mode	Responsible actor(s)			
	Regulation	Pricing	Routes	Stops
Metro	Public	Government	Government	Fixed
CTA Full Sized Bus	Public	CTA	CTA	Governorate
CTA Minibus	Public-Private Partnership	CTA	CTA	Governorate
Public Microbuses	Public-Private Partnership	Governorate	Governorate	Driver/Customer
Taxi	Public-Private Partnership	Governorate	Governorate	Driver/Customer
Private Microbus	Private	Driver	Driver	Driver/Customer
Mini-Van/Nano-Bus	Private	Driver	Driver	Driver/Customer
Mini-pickup truck	Private	Driver	Driver	Driver
Tuktuk	Private	Driver	Driver/Customer	Driver/Customer
Pseudo-Taxi	Private	Driver	Driver/Customer	Driver/Customer

Source: (ITDP, 2015; Rizk and Amr, 2016; TFC, 2017; Tadamun, 2017)

5.1.2 The Metro

The Cairo underground system ‘the Metro’ inaugurated in 1987 was the first of its kind to be built in Africa and the Middle East (Huzayyin and Salem, 2012). Operating across 3 lines from 5am to 12am every day, the Metro transports an average of 3 million passengers daily (JICA, 2022) and is said to have the “highest number of boarding per km of any metro system in the world” (ITDP, 2015, p.8). The first 2 lines run across the north-south axis of the GCR while the third connects the east and west axis. The network is continuously expanding, and 3 more lines are currently under construction. Figure 5.1 below depicts the current functioning stations as well as the prospective planned ones.

Figure 5.1 Map of Cairo Metro Lines



Source: TFC Maps. (n.d.)

Very few studies have been conducted that examine the characteristics of the Cairo metro users or their travel behaviour. Efforts by the World Bank in a study conducted in 2000 (when there was only 1 metro line in operation) found the metro to be used by almost all social classes with the exception of the wealthiest 2%, leading them to state that: “the metro is the most democratic mode of transport in Cairo” (World Bank, 2000, p.9).

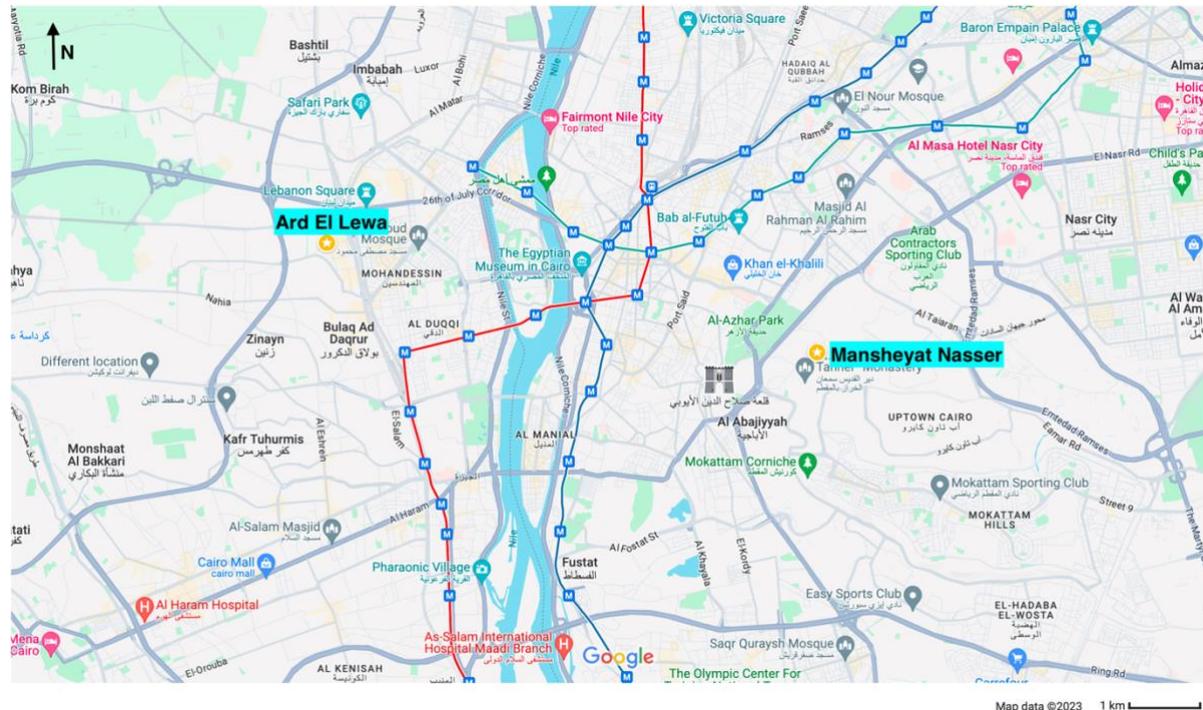
A more recent study conducted by JICA (2012b) found that the metro is a preferred method due to its speed and reliability. According to their study 87% of the metro Line 2 users they surveyed preferred the metro because it saves time.

Along with offering passengers a faster more efficient alternative to Cairo’s congestion, the metro’s increasing demand and popularity also stemmed from its longstanding static trip fare of 1 L.E. per trip, dating back to 1997, making it the most affordable public mode. It should be noted, however, that changes to the metro fare were introduced for the first time in May 2018, and then again updated in August 2020, with costs now ranging from 5 L.E.- 10.L.E. per trip depending on the length of the trip (JICA, 2022). It is important to note that the figures of usage reported above, as well as in this study, are all based on the initial fare of 1 L.E.

Despite having a high ridership amongst the formal modes, the metro is very limited in terms of geographic scale and capacity, both in relation to local demand. as well as in terms of global comparisons. A World Bank (2014) study, comparing the Cairo metro systems with underground services in other major cities, found that it compares extremely poorly in terms of supply and capacity in relationship to both KM of metro/million population as well as ridership/day/kilometre of the metro network. Thus, while it may appear to be a “democratic option” in terms of cost, disparities by residential location should not be overlooked as it also plays a significant part in this picture. For example, while metro fares were kept low, potentially offering an affordable and speedy alternative to Cairo traffic, the reach was predominantly limited to central Cairo, and the lack of a feeder infrastructure meant that it was only those who lived near it who were able to benefit the most (World Bank, 2000). This is also evidenced by the finding that almost 70% of metro users walk to access it, with the remaining 30% relying on the informal minibuses (JICA, 2012a), which as will be shown are the

most predominant modes used by those in informal settlements. Figure 5.2 below illustrates how centrally focused the 3 metro lines are.

Figure 5.2 Metro Lines Relative to Case Study Locations



Source: Google Maps

A survey of metro usage conducted by JICA (2012b) also found the average monthly income of metro users to be higher than national averages, with 27% of them being private sector employees. Additionally, over 50% of the ridership of the metro consisted of government employees and students, both of which are categories entitled to special discounted fares. These fare systems essentially favour members of formal institutions and neglect potentially much more vulnerable individuals who are part of the widespread informal sector.

5.1.3 The CTA buses

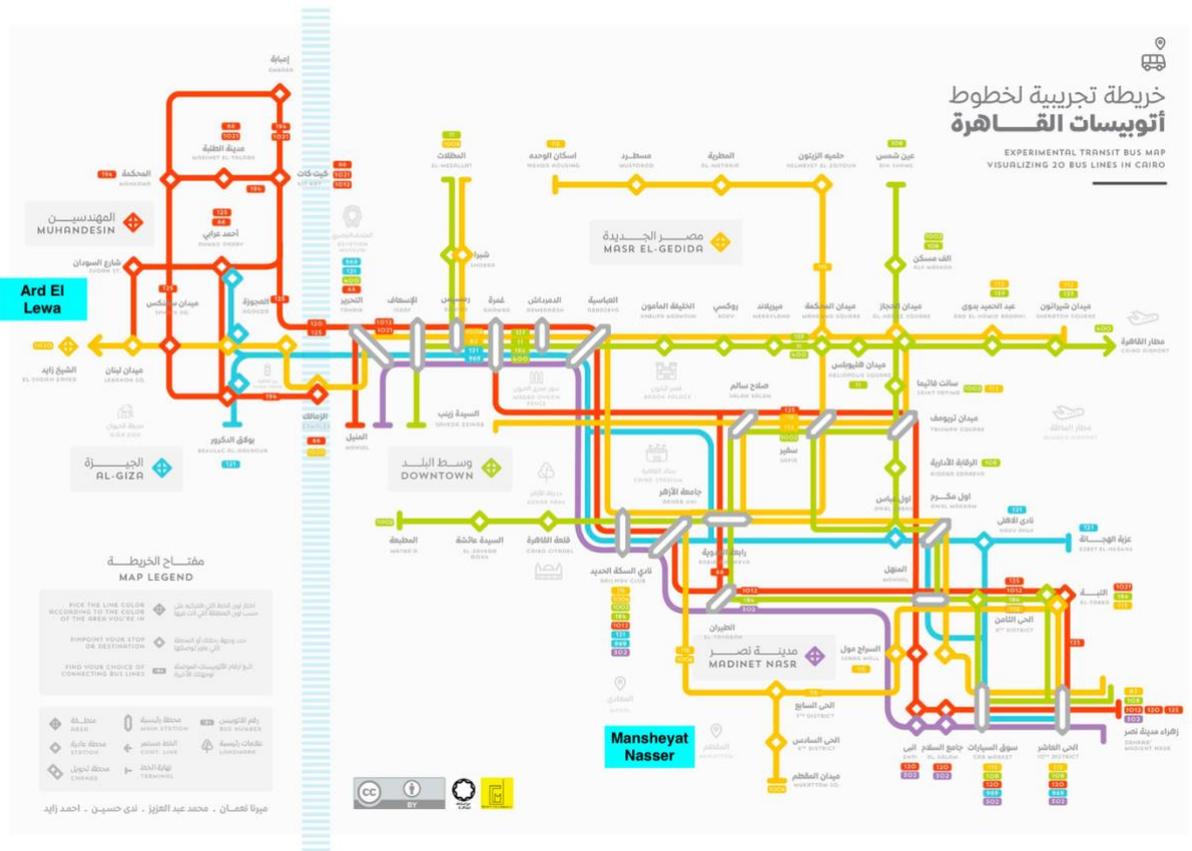
On the roads of Cairo there are old and new models of public buses as well as minibuses operated by private companies through the Cairo Transport Authority (CTA) concessions. The CTA oversees the operation of around 3000 buses of varying sizes and quality standards, operating on 350+ lines across 4000 stations in all 3

governorates of the GCR, estimated to carry 4.6 million passengers daily (Mokhtar, 2019; JICA, 2022). The buses operate in a hierarchal manner in terms of both quality and fare cost, with the fleet consisting of old deteriorated models, alongside newer upgraded buses with air-conditioning, and the most recent addition of Wi-Fi equipped fleets. Each upgrade brings with it more comfort but at a higher cost (Tutwiler et al., 2015).

Though not as popular as they once were, the CTA buses are still notoriously overcrowded. They offer passengers a cheaper fare through a mixture of subsidies and having a larger sized capacity than minibuses. However, long routes and high levels of congestion make them a very slow option (TFC, 2019). Additionally, despite the extensive fleet, the demand far outstrips the supply, and public buses fail to meet the transport needs of Cairenes, both in terms of quantity as well as quality. The majority of the fleet remains outdated and ill maintained, and both their frequency as well as geographical reach are inadequate, neither reaching “informal” and unplanned Cairo where the majority of the population now lives, nor adequately connecting to other transport modes such as the metro. Also contributing to their unpopularity is the lack of supporting infrastructure such as clear and reliable published schedules, bus lanes, or even bus stations or terminals, which means they suffer from the terrible congestion on Cairo’s roads, and provide their passengers with unreliable schedules and long unsheltered waiting times.

No multi-modal full map exists for the GCR, however some effort has been made to map the buses on the road by Transport for Cairo. Figure 5.3 is one example of the experimental maps representing 20 bus lines.

Figure 5.3 Experimental Bus Map Depicting 20 lines and Locating the 2 Case Study Areas



Source: TFC Maps. (n.d.)

5.1.4 Micro-buses (+ Mini-Van/Nano-Bus)

The minibuses (paratransit and shared taxis) are possibly the most accessible transport means in the whole city in terms of geographical reach. They are the most commonly found modes at the fringes of informal settlements. Similar to CTA buses, these also come in different sizes ranging from small 7-seater Suzuki mini-vans to larger 14-seaters.

Their presence on Cairo's roads grew out of a demand to compensate for the shortcomings of the formal modes of transport. Faster and more widely available than the CTA buses, their routes are demand driven, thus can be found at entry points of informal settlements, and sometimes they act as feeders to the formal modes, as their journeys can cover distances between neighbourhood and the closest metro stations and other formal transport access points.

Efforts to formalise them by the government have failed, and despite official registration of only 20,000 operators in 1999 when they were last registered, by 2006 the World Bank (2006) estimated that there were 80,000 on the streets of the GCR, a figure that has likely tripled since then. Usage of the officially licensed minibuses is said to be 1 million passengers daily, though that only accounts for a small fraction of the real number of minibuses on the road. Due to their informal nature, there are no official figures on their usage, but some studies suggest they are the most commonly used modes (Roushdy and Sieverding, 2015) and account for over half of the transport needs of the GCR (JICA, 2012a), with a more realistic estimated figure of 6-8 million passengers daily.

In contrast to the formal modes, the minibuses offer relative flexibility for both the passengers as well as the drivers. For instance, though they relatively adhere to predetermined zones and set destinations, routes are in fact decided by the operators/drivers and sometimes change mid-journey, for example in cases of extreme congestion (after negotiation with passengers). Additionally, the passengers and drivers also determine the choice of stops, in other words they can stop and pick up or drop off passengers anywhere on the road (TFC, 2017). This also means that they can stop less frequently and can be much faster than other modes.

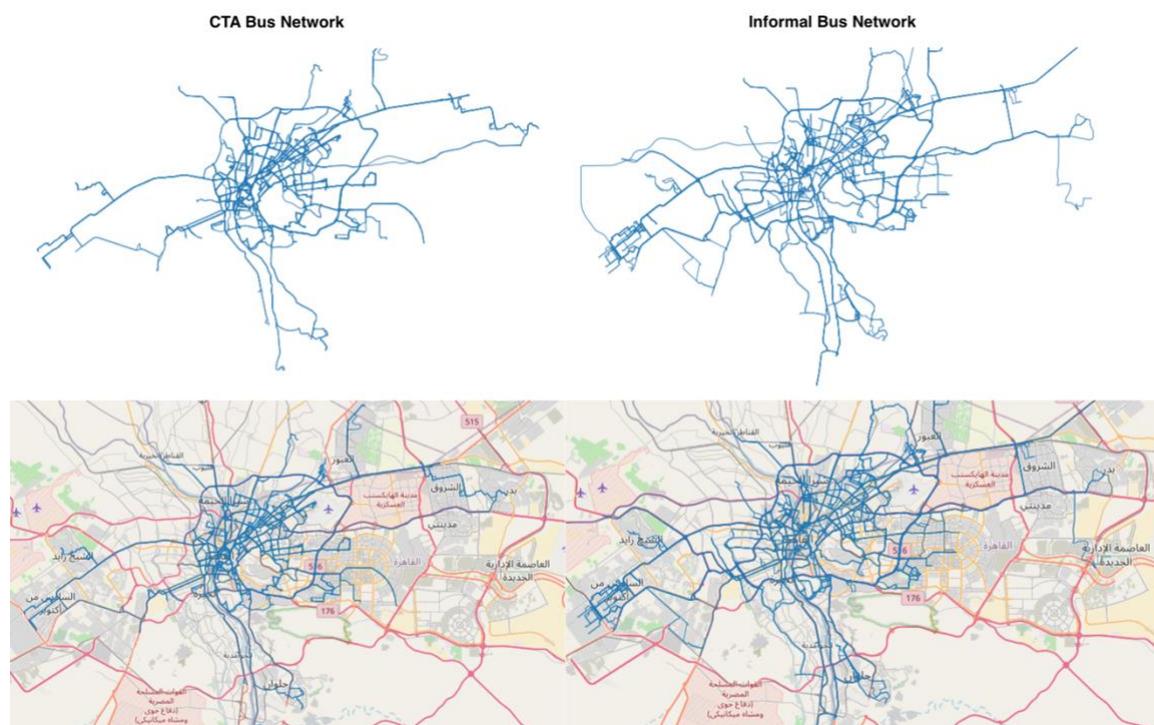
These informal minibuses, however, are not without their challenges. For example, while traditionally authorities defined their routes and pricing, they have expanded their movement beyond the predefined agreed routes. Moreover, despite acting as feeders, their fares are not integrated into formal ticketing, and they do not always abide by the ticketing costs of the government, leaving passengers vulnerable to increased travel costs. For example, the recent devaluation of the Egyptian pound and price hikes in fuel saw exaggerated or at least market price increases by the minibus drivers, despite the government's efforts to maintain relative affordability on the formal modes (Rizk and Amr, 2016).

There are also limitations to their reach. For example, the fact that they operate in designated zones means that passengers still might find themselves having to take more than one minibus. The fact that they are demand driven means that they are not likely to venture into further or more isolated areas, and the profit and commission-

based models means that they are less likely to operate during unprofitable times. The flexibility of stops also has negative implications as they in turn become unreliable often with long waiting times. For instance, they only depart when the vehicle is full to maximise their profits, making leaving times unreliable.

The lack of a formal framework for their operations also means that there is an absence of schedules and designated waiting spaces which make them difficult to use for anyone not familiar with them. There have been recent efforts by a group called Transport for Cairo (TFC) to map out their journeys and stops. Figure 5.4 below represents some of their mapping efforts and gives some indication of the wider range of the network compared to the CTA.

Figure 5.4 Spread of CTA bus network vs Informal Bus Network



Source: Author's creation using data from Transport for Cairo (n.d.)

In absence of advertised routes, lack of visible destination markers and high illiteracy rates, the drivers relay their destinations through hand signals amidst crowded chaotic scenes at pick up points. Riders also make use of the gestures similarly to inform the drivers of when they need to get off (Boskovitch, 2015; Rowell, 2018). Additionally, the

lack of supervision and accountability mechanisms of the drivers results in issues around erratic driving, ending journeys at random, and conflicts between passengers and drivers about payment.

The limited data on women's usage patterns, experiences, and challenges when it comes to the informal modes is one of the main gaps in knowledge this research aims to address through the exploration of the travel accessibility of the residents of 2 informal settlements in Cairo.

5.1.5 Transport in informal settlements

Though a wide array of diverse transport modes operates across the metropolis, studies exploring the reach of transport across the city point to a discrepancy in terms of access to transport modes by area as well as household wealth (UN-Habitat, 2011). Those living in areas considered to be informal, typically have much less means of transport serving their neighbourhoods in comparison to other areas. Furthermore, the cost burden of transport means that poorer households have a much smaller pool of options.

Within the informal settlements themselves, the narrow unpaved roads and compact buildings of both residential and commercial streets where sellers spread out on the road, restrict most vehicular access. This results in walking, mini-trucks, and tuktuks (motorised three-wheelers sometimes referred to as rickshaws) being the predominant inter-settlement modes of travel. Given the long distances between the inner settlements and the entry/exit points where transport modes to the rest of the city can be found, the residents of informal settlements also rely on these modes to take them out onto the main road, where they can access other transport (usually the paratransit modes such as micro and nano bus), thus acting as connectors between the formal city and the inner settlement. As will be seen in later sections and chapters, this extra mode then adds a major cost burden to any journey. The reliance on the tuktuk and subsequent additional cost burden of it is of particular significance when considered with the fact that tuktuks operate on a profit-making model where the tuktuk drivers need to ensure their fares are enough to cover their own income, the operational cost,

as well as the cost of the vehicle itself (either the loan to repay it if they own it, or the rental fee of the owner if they are renting).

Tuktuks are sometimes also utilised by parents to shuttle children who attend primary schools within the settlement. However, Sabry (2009) highlights how the tuktuks are often much more expensive than other means, so for those who cannot afford it, the unlicensed worn-out mini trucks are the children's mode, jumping on the truck while it is moving towards its set route. These mini trucks are in fact intended for commercial use, such as transporting goods, but they operate as makeshift paratransit modes during peak hours for extra income. The nature of their design renders them both unsafe and uncomfortable.

Due to the lack of licensing as passenger modes, it is very difficult to estimate how many pickup trucks operate in this manner. Similarly, no official figures on the spread of tuktuks exist. However, a study conducted in 2015 estimates amounts as high as 7 million across all of Egypt used by 30 million inhabitants (Alaa El-Din, 2015) offering 5 million rides daily (UNWomen, 2018). Yet, despite becoming a prominent feature of Cairo's informal settlements, both the government and public discourse around tuktuks has been controversial since their introduction. Operating in a 'legal grey area', the government has struggled to create an adequate registration framework for this mode. For example, while they have been deemed completely illegal in Cairo governorate, the governorate of Giza had allowed for the registration of 6000 vehicles, not even 0.5% of their reported number (Rizk and Amr, 2015).

In addition to being viewed by many as an objectionable symbol of informality, there is also fear and distrust of the drivers of both the mini trucks as well as the tuktuks. The lack of registration means that there are no number plates, and the drivers of the vehicles cannot be identified. Since they do not operate with licenses, the drivers are all also notoriously young and frequently labelled as 'drug addicts' (Tadamun, 2013; Alaa El-Din, 2015). Despite these issues the need for them in the settlements, obvious from the extent of their spread and demand, is undeniable.

GTZ's (2009, p.119) interview with Mohamed, the tuktuk driver, illustrates both their need as well as their presumed risks. In Mohamed's words:

“Here, this is where we really make sense. In these narrow streets. No car can get through here... (but) I think that sexual harassment has become a lot worse since the tuktuks have been around. You can just chase any girl with your tuktuk and nobody can do anything against you because it has no license plate.”

The lack of regulation of tuktuks and the drivers is a major safety concern for women. In fact, as part of their ‘safe cities anti-harassment campaign’ in Cairo, UNWomen (2018) identified tuktuks as “public spaces where women and girls experience sexual harassment on a daily basis.” In order to address the problem, their project involved targeted awareness raising and training sessions amongst young tuktuk drivers. One settlement that benefitted from the campaign was Mansheyat Nasser, one of the case study settlements of this research. UNWomen cite the case of “Nemr” a young tuktuk driver from Mansheyat Nasser who, following his involvement in the program, has become an advocate for women’s right to move around freely without fear of harassment. As part of this, he volunteers to spread awareness on the safety concerns of women amongst other tuktuk drivers and community members as well as distributing stickers saying “My tuktuk is safe from sexual harassment.” Nemr’s experiences and actions have led him to become a trusted driver amongst the women who are reported to now even save his phone number and request rides from him following safe journeys (ibid.).

5.2 Women and transport

5.2.1 Women’s transport patterns and challenges

When it comes to safety concerns, transport modes in Cairo are often identified as places where women are most exposed to incidents of sexual harassment. However, this is not just limited to the issues with tuktuks presented above, but actually, each mode of transport offers a different experience and set of challenges for women when it comes to safety.

A study on sexual harassment conducted by UNWomen (2013) found that public

transportation was the second most common place where harassment occurred, following the street, with 81.8% of the respondents stating that it happened frequently. In 2010 an Egyptian movie called '678' shed light on the phenomenon through the portrayal of one woman's constant safety struggles on her journey to and from work, highlighting the restrictions imposed on women's mobility when attempting to access the services and opportunities of the city.

The CTA bus, in particular, is notoriously a place where sexual harassment commonly occurs. Thus, its lack of popularity and low usage potentially reflect women's safety concerns (UN-Habitat, 2021). However, given the limitations of the CTA bus presented, it is also important to recognise that the CTA bus's low usage by women could also be as a result of its extremely limited capacity and reach. Similar conclusions are suggested by Shehayeb (2015). In her observations, she draws attention to the fact that women's preference for vehicles such as the microbus stem from two particular features. The first is in relation to the design of the vehicle itself, the guarantee of a seat and the lack of open standing spaces for overcrowding, which decreases the ease of harassment. The second feature relates to the wider geographic spread of such vehicles leading to decreased need to hop on and off and change modes, which also saves time and money.

One feature of public transport in Cairo that is of particular relevance with respect to women, is the metro. Studies concerned with women's access to transport globally often point to the fact that on the Cairo metro, there are 2 carriages of 9 specifically reserved for women. These are the 4th and 5th carriages. However, while the 4th carriage is always reserved for women, the 5th in fact becomes a mixed-use carriage after 9pm until 9am (Abdelfattah, 2019). It is assumed by many that there is a preference amongst women for the metro due to the availability of these segregated carriages, which offer them relative safety in comparison to other modes. These carriages, however, are not without controversy.

The first of the issues when it comes to these carriages is related to the segregated and mixed used scheduling. Many, such as Tillous and Gillot (2014), call into question the justification behind this arrangement. In their view this could be possibly explained either based on hours of most congestion and overcrowding on the metro, increasing

the need for the woman only space, or that these are the times women have been found to use the service most, and thus the addition of the second carriage is meant to serve that. However, correspondence between Abdelfattah (2019) and a previous transport Minister identified that in fact this arrangement is not based on any particular study of trends or travel patterns. Another way to view this schedule would in fact be that the morning starting time favours men's increased access during morning peak rush hours, which would typically precede 9 am for a standard workday. The 9pm end time can be viewed as a way to limit women's mobility at night-time, or in other words as suggested by Tillous and Gillot (2014), it confines the hours where women are legitimately allowed to be using public transport and accessing the city.

Whatever the justification may be, evidence points to this arrangement being problematic. In terms of day-to-day use, the limited number of women's carriages has led to issues of limited capacity and overcrowding. Moreover, designating carriages to women has created an expectation that women should be restricted to them, effectively robbing women of safe access to the remaining carriages. There are frequent reports of women encountering physical and verbal harassment for using other carriages (Boskovitch, 2015). Finally, the time change has caused incidents of confusion and confrontation between female and male passengers (Abdelfattah, 2019).

Additionally, it is important, as has been highlighted throughout this chapter and will be seen in the following chapters, not to place too much focus on the metro. When outlining the available modes of transport in Cairo in earlier sections, it was presented that the microbus is the mode most available to the majority of the population due to its geographic reach. Thus, the woman's carriage on the metro, even if used by women, actually only forms a very small part of the overall journey, requiring that any argument for the significance or true impact of the women's carriages be contextualised. This is more so since, despite serving as feeders to metro stations, the fare structures of the microbus and metro are not integrated, making mode changing during the journey costlier for women.

Similarly, recent fare structures introduced across public transport modes in Cairo, which also apply to the metro, have seen fares being calculated by journey length.

This is also disadvantageous for women, not only because they may have much longer routes, limiting them spatially, but also because of techniques adopted by women, which intentionally extend the length of their journeys such as boarding at earlier stations to find a seat and avoid overcrowding (Shehayeb, 2015).

Furthermore, despite recognising the significance of safety concerns when it comes to women's travel, Shehayeb (ibid.) also emphasises the extent to which women endure the harassment and fear for the sake of other priorities. For example, referring particularly to the case of working mothers, she states that they regularly hide these occurrences from their husbands out of fear that he would stop her from working and bringing in the income much needed for her family. Additionally, for this particular group of women, their double burden, which results in time poverty, can mean that time may be seen to supersede safety as a priority. What this clearly highlights is that there are concerns beyond safety that can impede women's use of transport modes. It also highlights the difficult daily trade-offs women are making.

UN-Habitat and the Institute for Transportation and Development Policy (UN-Habitat, 2021) were recently engaged in a consultation aimed to make the design of the new BRT system being developed in Cairo more responsive to the needs of women. Their research process involved focus group discussions, public transport terminal surveys and an online survey. In the results of their study, they find that some of the main difficulties women face when it comes to accessing and using transport modes in Cairo are indeed related to feelings of safety and comfort on board transport modes in terms of overcrowding, lack of priority seating, harassment, poor security, and unsafe driving behaviours. However, their findings also highlight that issues related to affordability, availability, reliability and quality such as high fares, multiple transfers, poor quality of footpaths at bus stops and long waits and travel times, are all also major concerns for women.

5.2.2 Women in the transport sector

As has been stated in earlier chapters, there is an absence of women's presence and voices within employment in the transport sector globally. This absence naturally, as has been suggested, results in a lack of power and influence in the design and

operations of transport facilities, causing many of the distinct gendered experiences of women to be overlooked. An observation of the breakdown by sex of the personnel in the transport sector in Greater Cairo, which can be seen in Table 5.2 below, aligns with international trends.

Table 5.2 Numbers of women and men in formal transport sector employment

Transport Sector Employees	Female	Male	Total
Board of Directors	0	23	23
Managers	39 (13%)	264	303
Operation and service workers	34 (0.17%) only CTA buses not metro	19,835	19,869
Administrators and clerks	1088 (23%)	3,591	4,679
Observers and Supervisors	0	411	411
Specialists and technicians	255 (1.6%)	15,568	15,823

Source: CAPMAS, 2017a

Across all categories of occupations, there is a notable majority of men, with a complete absence of women in positions such as the board of directors as well as positions of supervision and oversight (CAPMAS, 2017a). Public sector employment traditionally forms a large percentage of women’s employment in Cairo due to a number of workplace policies that make the sector appealing to women (Barsoum, 2018). However, observing the above figures in Table 5.2, it appears that women’s presence was more heavily concentrated in office and administrative roles at 23%, with a few women, only 13%, in managerial positions. The 1.6% representation of women as specialists and technicians, a category that encompasses engineers and maintenance workers and all of those who work in the transport facility workshops, is potentially a reflection of skill sets as a result of a gendered disparity in engineering education where men dominate. Of great significance is also the absence of women as operations and service workers. This category includes the drivers, conductors, and ticket inspectors, as well as oversight workers and even cleaners. In other words, according to the above figures, women only represent 0.17% of those who work at station sites. Considering these are the personnel most likely to be seen, accessible to, or interacting with the public transport sector users, the dominance of men in these

spaces can in turn create an intimidating atmosphere for women and make it much more difficult to report incidents or concerns. Another important thing to recognise is that the above figures only reflect the formal modes administered by the public sector, which still offers some form of accountability or oversight especially in terms of the drivers. However, as has been presented, trends of women's usage and preference of transport modes indicate that they are more likely to utilise informal means such as the microbus. As has been suggested in earlier sections, the lack of regulation of the transport mode most used by the majority of the population and most commonly used by women, leaves the passengers, especially women, extremely vulnerable.

Over the past 10 years, Cairo has seen the emergence of a new trend of female police officers patrolling the streets and on metro stations, particularly around the time of Eid where sexual harassment incidents are at a peak (Gehad, 2013). This shows a recognition on the government's part of the importance of women's presence. However, their presence remains very limited, and their role appears to be restricted to dealing with occurrences of harassment specifically during high-risk situations, rather than as all round year-long police enforcement (Rabie, 2015).

The significance of women's role in the transport sector was also recognised by the team of consultants formed of UN-Habitat and the ITDP who are advising on the introduction of the BRT system for Cairo. This is evident from their recommendations in the design and management, which include designated seating for women, female bus drivers and conductors, on-board surveillance mechanisms, more secure bus stops and pathways, as well as training and awareness campaigns (UN-Habitat, 2021).

Of course the introduction of more women in to the workforce is not a straightforward ask. As presented in section 2.2.5 the transport sector has been evidenced elsewhere to be an unsafe and intimidating workspace for women (Uteng, 2021; Mahdawi and Evans, 2022; Kamau and Wright, 2022; Porter et al., 2023). The lack of an overseeing integrated transport authority in Cairo also makes accountability regarding women's inclusion in the workforce and ensuring safe working conditions difficult. The informal transport sector which operates the most utilised modes is also heavily male dominated both in Cairo and globally posing its own set of additional challenges for

women workers who could face violence and hostility with no social protection (Kinyondo, 2021).

5.3 Ard el Lewa and Mansheyat Nasser

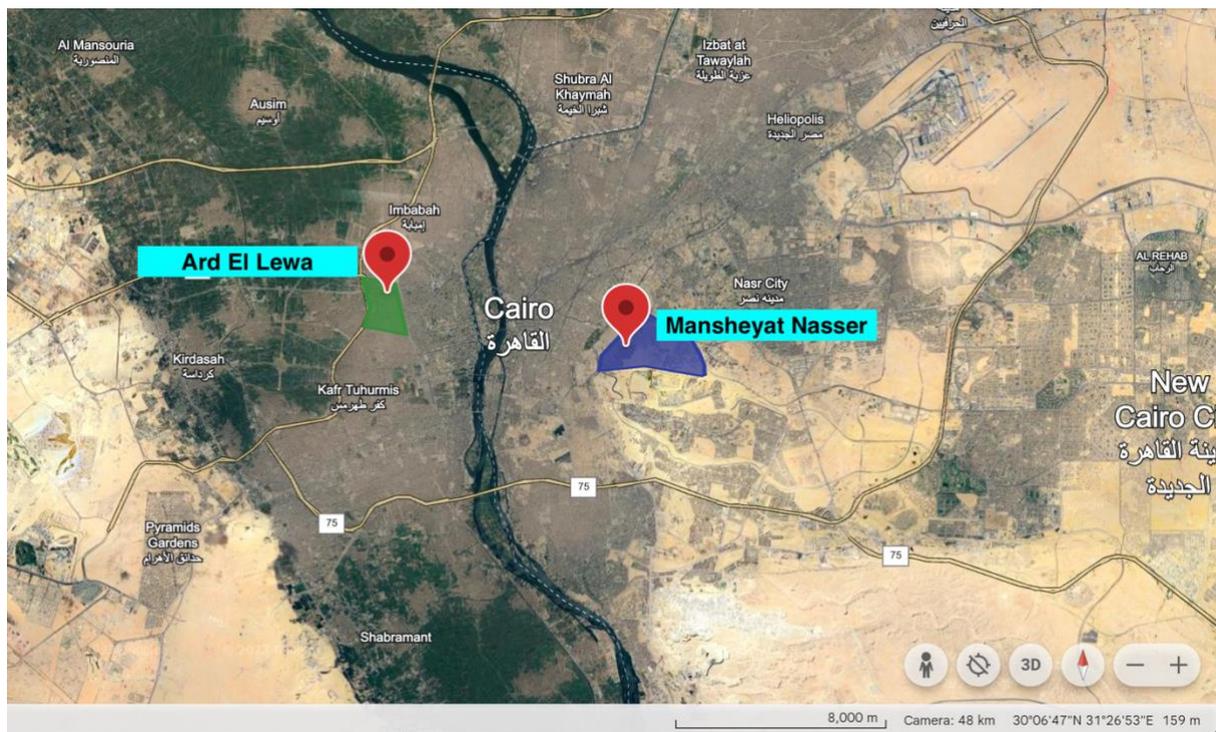
As presented in Section 4.5, this research uses as a case study two informal settlements in the Greater Cairo Region (GCR), capital of Egypt in North Africa (Figure 5.5). The two settlements are Ard el Lewa in the Western part of the city and Mansheyat Nasser in the Eastern part (Figure 5.6).

Figure 5.5 Location of Egypt and Cairo on a world map



Source: Google Maps

Figure 5.6 Locations of Ard EL Lewa and Mansheyat Nasser in Cairo



Source: Google Earth

5.3.1 History and development

The widespread emergence of informal settlements in Cairo dates back to the 1960s, and is attributed by researchers to a combination of rapid urbanisation and the failure of government housing policies. Growing informally on the city's urban fringes on agricultural or desert land, the *Ashwajiatt* as they are called in Egypt (an Arabic term that literally translates to random or haphazard in reference to their unplanned status), are a result of the state's inability to provide adequate affordable shelter to the growing population, caused by an influx of rural to urban migration and the natural increase among urban populations. Today, estimates point to 70% of the population of GCR currently living in these developments (GTZ, 2009, p.15; Adel, 2011, p.57).

Efforts by the government and researchers to define and categorise the different settlements that exist have resulted in a number of classifications. The government classification for example, which is most commonly used by state institutions, refers to 'planned', 'unplanned' and 'unsafe' areas. Within these categories, informal

settlements fall under the category of unplanned which is defined as “residential areas characterised by being developed in contradiction to planning and building laws and regulations in the absence of state’s supervision” (Khalifa, 2015, p.43). However, some planned and unplanned areas can also be technically categorised as unsafe, depending on their infrastructural condition.

Within the informal settlements themselves, researchers have also gone further to identify 2 main typologies based on physical variations and land tenure. As shown in Table 5.3 below, the two settlements in this research represent the two types.

Table 5.3 Overview of the two case studies

Informal Settlement Case Studies	Ard el Lewa	Mansheyat Nasser
Governorate	Giza	Cairo
Typology	A	B
Land Type	Former Private Agriculture Land	Former State-Owned Desert Land
Population Size	Between 300,000 - 600,000 ¹⁰	800,000
Area Size	1.9 km ²	5.54 km ²

Sources: GTZ, 2009; Nagati and ElGendy, 2013; Tadamun, 2015b; Tadamun, 2016)

The first and most commonly prevalent, accounting for over 80% of informal settlements, are those that developed on former (mostly private) agricultural land (Type A). These areas owe their informal status to being developed outside of state regulation on land designated for farming. Plots of privately owned agricultural land were informally bought and built on without any government permits or adherence to construction regulations (Sims and Sejourne, 2000; Sims, 2003; Sejourne, 2009).

¹⁰ Figures vary depending on the source.

Ard el Lewa falls within typology A. Located on the Western end of the Greater Cairo Region, Ard el Lewa (AL) is an informal settlement in the governorate of Giza. Similar to the majority of informal settlements in Cairo, Ard el Lewa's informal status derives from its illegal development on privately owned agricultural land not licensed for construction. The area, which was once an agricultural belt on the periphery of the city, has seen unplanned housing units gradually built on it over the past 30 years in parallel to the development of the neighbouring upper middle class district of ElMohandesine. Figure 5.7 below shows the development of the settlement on agricultural land over the years.

Figure 5.7 Ard el Lewa development over the years

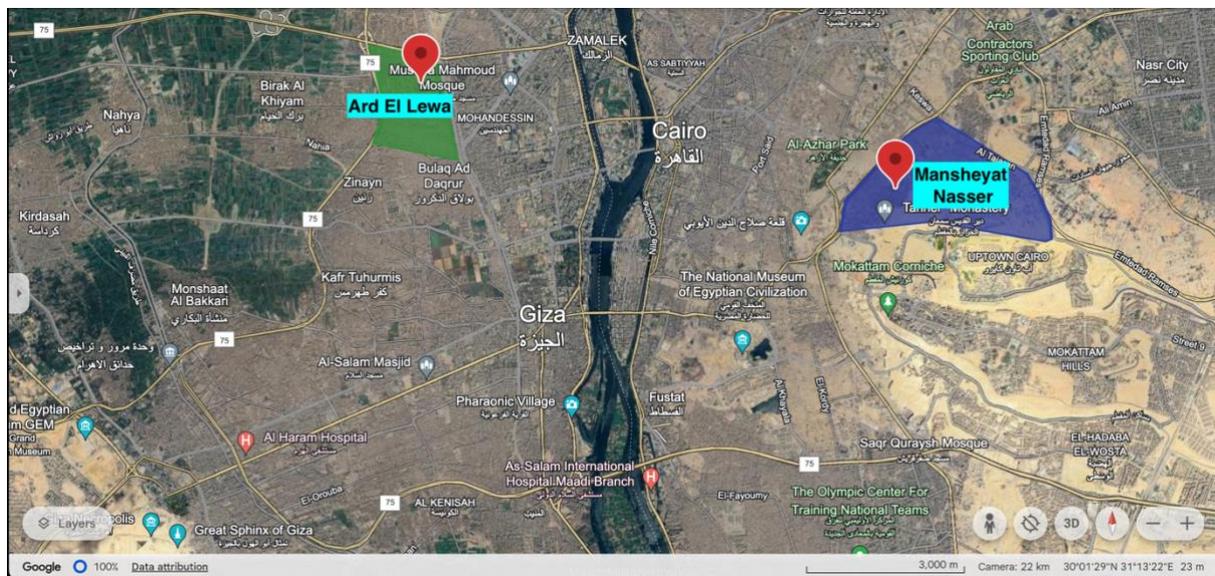


Source: Zied and Vialard, 2017, p. 6

The second of the main typologies of informal settlements are those built on state owned desert land. These areas, which account for around 12% of informal settlements in the city, developed not through financial transactions such as typology A, but for the most part through practices such as squatting and 'hand claim', since the owners of the land are in fact the state. Interestingly, the biggest settlements

developed in this manner on desert land, and characterised as Typology B, originated from early settlers assigned to the land by the government. For example, Mansheyat Nasser (MN), the second settlement case study of this research, located on the Eastern periphery of Cairo Governorate, can be classified within this typology. It originated from small groups that were relocated there by the government in the 1960s, and the area eventually expanded to become one of the largest informal settlements in the city (UN-Habitat, 2011). The location of the settlements within the Greater Cairo Region can be seen in Figure 5.8 below.

Figure 5.8 Locations of Ard el Lewa (Green) and Mansheyat Nasser (Blue) on map of GCR



Source: Google Earth

Aside from their origins, the physical attributes also vary between each typology. Settlements that fall under Typology A are characterised by good quality builds of cement and multiple stories. However, because they are built on divisions of agricultural plots, the layout is conditioned by the irrigation patterns, resulting in narrow streets, and lack of public space (Zied and Vialard, 2017). Additionally, as families expand, and the local population grows in size, new floors and units are built, leading to extremely high densities.

Type B on the other hand is characterised by poorer quality construction. Piffero (2009) attributes this to lack of tenure security and risk of eviction, which means people

are more hesitant to invest in the building quality. This could also be attributed to the residents of these areas being generally poorer than those who could afford to settle on an agriculture plot. Similarly to Ard el Lewa, residential density is said to be very high. In fact, UN-Habitat (2011) refers to areas in Mansheyat Nasser recording one of the highest densities in the world.

Despite generally being characterised by lower levels of residential and living standards, the types of buildings in these areas vary from small shacks to multiple stories, depending on the location and wealth of the residents. As will be presented in the following section, the wealth disparities in Mansheyat Nasser result in a division where the rich live in the first rows, next to the main road with taller buildings. The deeper and more uphill in the settlement and closer to the mokattam cliffs, the harsher the living conditions, the more substandard the housing and the poorer the people are (Aboulmagd et al., 2013; Tadamun, 2015a).

5.3.2 Socio-economic profile

Given the massive scale of informal settlements around Cairo, it is difficult to generalise the socio-economic conditions across all developments. It is important to note that not all areas have the same wealth status or are characterised by the same deprivation, but in fact have a varying range of basic infrastructure and living conditions. They are also, in contrast to many misconceptions, home to individuals of a wide range of socio-economic segments (Bayat and Denis, 2000; GTZ, 2009).

It is often suggested that the location of the settlement within the city is of significance to the socio-economic profile of its residents, with those residing in areas more closely located to formal opportunities being better off than those in more remote locations, in terms of access to employment opportunities and basic services (AUC Slum Development Working Group, 2014). However, the way in which informal settlements in Cairo have developed, in the absence of the state, has also meant that informality is a dominant characteristic within the settlements themselves. Beyond informal housing and informal infrastructure, the areas are characterised by informal employment and markets, as well as informal local governance mechanisms.

According to Nafeh (2015), Ard el Lewa can be considered ‘the back of the house’ of formal Cairo, as its location close to formal opportunities, separated from EIMohandesine only by a railroad on the settlement’s Eastern side traversed by a pedestrian bridge, makes it a desirable location of residence for low wage employees, most commonly working in service sector jobs in the formal city. See Figure 5.9.

The economy of the area as well as its access to services, is said to be heavily dependent on the neighbouring formal district of EIMohandesine. Donelson et al. (2018) speaking to workers in local cafes, restaurants, stores and buildings in Lebanon Street, one of the main roads of EIMohandesine, also found that many of the workers reside in the neighbouring Ard el Lewa.

Figure 5.9 The railroad separating Ard el Lewa and EIMohandesine



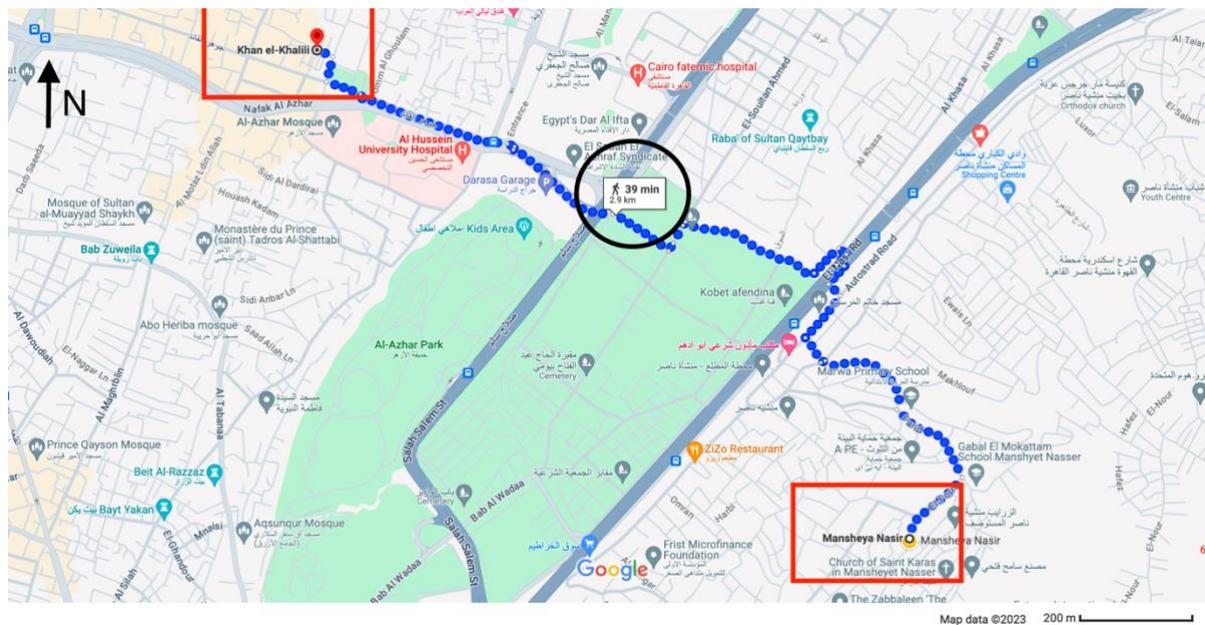
Source: Eissa et al. (2019)

Eissa et al. (2019) refer to a ‘profile of high unemployment’ in Ard el Lewa. However, as with most informal settlements, there is of course diversity in the residents who

range from wealthy business owners, local workshop operatives, working class employees and informal sector workers. The area's close proximity to Cairo University is also said to have resulted in attracting many students to the area, and in recent years, many refugees from other African countries have found a home in Ard el Lewa (Farouk, 2015; Nafeh, 2015).

In contrast, Mansheyat Nasser, is characterised by higher rates of poverty as well as high rates of illiteracy and unemployment. However as with Ard el Lewa the socio-economic profiles of the residents does vary across the settlement, with some areas much better off than others (Piffero, 2009). According to a local council member quoted in GTZ (2009, p.205), residents represent a wide range of strata, "from judges to teachers, officers, workers and skilled labourers to those who try to win their daily bread through any kind of job they can get." However, in contrast to Ard el Lewa, more detailed studies suggest that the majority of residents are self-employed and work within the area. In their research, Aboulmagd et. al (2013) find that the residents most commonly worked more than one job, both in the informal market, predominantly temporal work in informal workshops commonly found in the area. The wealthiest of the residents of Mansheyat Nasser are said to own and/or work in craft workshops in the area that feed into the businesses of downtown Cairo. These workshops, which can be found on the ground floor of houses and on the main roads, operate in a wide array of sectors, including handicrafts, aluminium, construction, and furniture making. They most commonly trade with the markets of Downtown Cairo, including the famous tourist destination of Khan el Khali Bazaar (Tadamun, 2015a), located relatively close to the settlement, approximately 3km away. See Figure 5.10 below.

Figure 5.10 Distance from Mansheyat Nasser to Khan el Khalili



Source: Google maps

Another subgroup of residents also notoriously works in garbage related activities. The neighbourhood is said to collect one-third of Cairo's waste (GTZ, 2009). While it is the garbage collector community of Mansheyat Nasser who have received much attention by academics and international development organisations, leading to the settlement often being referred to as 'garbage city', Ard el Lewa also hosts 1,500 families who derive their income from garbage collection and sorting (EconServ, 2010).

Despite the differing typologies and terrains, Ard el Lewa and Mansheyat Nasser share many similar characteristics typical of informal settlements in Cairo. This is a lack of services. In Mansheyat Nasser studies identify a set of challenges related to both infrastructure and accessibility. Most households have access to electricity, water and sewage networks, but there is limited availability and poor quality of schools, health facilities, cultural and recreational facilities and market spaces (Piffero 2009; Tadamun, 2015a).

Similarly, one public health unit serves Ard el Lewa's population of 300,00, with the quality of service offered reported to be extremely limited (Tadamun, 2015b). More public health centres can be found inside Mansheyat Nasser, however as with Ard el Lewa, they are insufficient in comparison to the size of the population. Residents in

both settlements also express dismay with the quality of service offered (Hassan et al., 2019). When available, they are usually of a deteriorated condition, offering very basic services to vast populations. The residents' options within the settlements are limited to private clinics run by local organisations, mosques and churches. Such services are not only unregulated, but also restricted in their capacity. Access to better quality medical assistance requires leaving the settlement. Their vulnerability is further exacerbated by the fact that emergency response vehicles, such as ambulances and fire trucks, are unable to enter most settlements (GTZ, 2009).

Despite constituting the majority of GCR residents, people living in informal settlements also often suffer from stigmatisation due to their place of residence. A combination of misconceptions, generalisations and unfavourable media rhetoric, result in a dominant image of lawless poverty belts with rampant crime and disorder, resulting in further exclusion. For example, in conversations with residents of Ard el Lewa, Farouk (2015) highlights the feelings of stigmatisation in the community following a widespread media story that attributed the ransacking of shops in wealthier ElMohandesine, during the time of the 2011 revolution, explicitly to residents of the neighbouring Ard el Lewa. In a survey of young people (Roushdy and Sieverding, 2015) both young women and men from Mansheyat Nasser also highlighted the social stigmas associated with their place of residence which lead them to feel marginalised and inclined to hide where they come from. GTZ's (2009) encounters with female residents of the area, also point to the fact that there is a general awareness and dismay amongst the residents of the social stigma attributed to their residential location, and concern for how it reflects on their children. Of major concern is the fact that this stigma acts as a barrier to the development of the areas and their residents. During a focus group discussion in Mansheyat Nasser, Tadamun (2015a) identify a trend where residents believe that officials treat them with these stigmas in mind, resulting in the subpar access to public services.

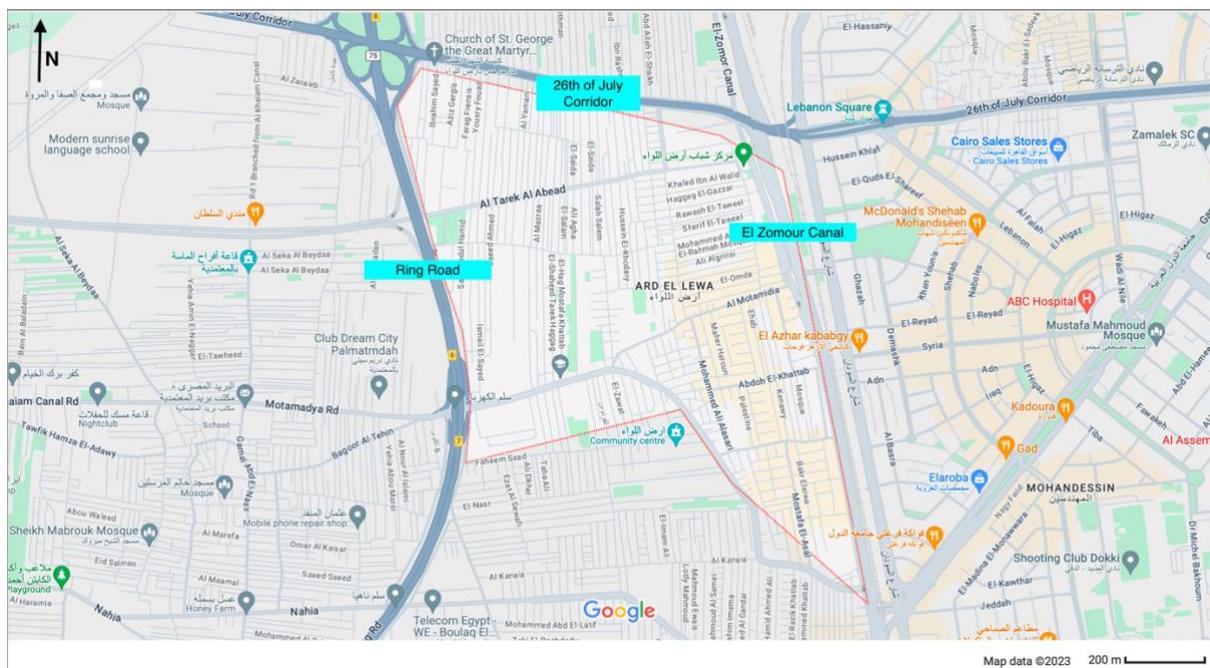
The frictional relationship with authorities also extends to the police. Residents of both settlements have been found to express a high distrust of the police. Instead, a general trend across most settlements is the existence of local dispute mechanisms involving community leaders (Farouk, 2015; Sieverding et al., 2019). Such practices are relatively common in tightknit communities with strong social ties and can be found

more predominantly in informal settlements compared to other neighbourhoods. In fact, due to dense urban patterns and the tight knit communities of family and friends, these neighbourhoods are also characterised by close relationships, mutual trust and exchanges between residents (Eldefrawi, 2015).

5.3.3 Location and transport accessibility

Growing informally and expanding rapidly at a time when major developments were occurring in the city’s landscape, Ard el Lewa stands surrounded, with limited entrance and exit points. As stated previously, it is separated from ‘formal’ Cairo on the Eastern side by the Egyptian National Railway Network rail and an irrigation canal running in parallel, bordering it to ElMohandesine. Two major freeways, the Ring Road and the 26th of July Corridor surround it from its Western and Northern borders respectively (Nafeh, 2015). See Figure 5.11.

Figure 5.11 El-Zomour Canal, Ring Road and 26th of July Corridor bordering Ard el Lewa



Source: Google Maps

The settlement itself is not internally served by any public transport offered by the CTA. Instead, as common across informal settlements in Cairo, the most common modes

of commuting within the settlement are walking or tuktuks, motorcycles and small vans. Streets are narrow and unpaved, with local shops extending onto the street providing no sidewalks. The state of the roads also means that other motorised means of transport, including private vehicles owned by residents and taxis, are mostly limited to the main streets on the outskirts of the settlement.

Thus, entering or exiting the settlement in Ard el Lewa is a challenge. In order to leave the settlement, the residents walk or use the tuktuks to reach the pedestrian bridges over the canal and railway tracks, which give them access to a main road, Sudan Street in ElMohandesine. From there the residents are then met with a fleet of informal micro-buses to transport them beyond the settlement. These pedestrian and vehicular bridges built over the railway track and canal bordering and separating them from the city, are the main, and effectively, the only two entrance and exit points to the settlement. Thus, can become extremely congested during peak hours. The congestion is increased by the fact that the areas on, underneath and around the bridge also serve as markets for street vendors, as well as tuktuk stations (Nafeh, 2015). Additionally, the staircases which can be seen in Figure 5.12 below, as well as long walks, both to, and across the bridges pose a barrier for any one with movement difficulty. They are also not equipped to accommodate any physical disability.

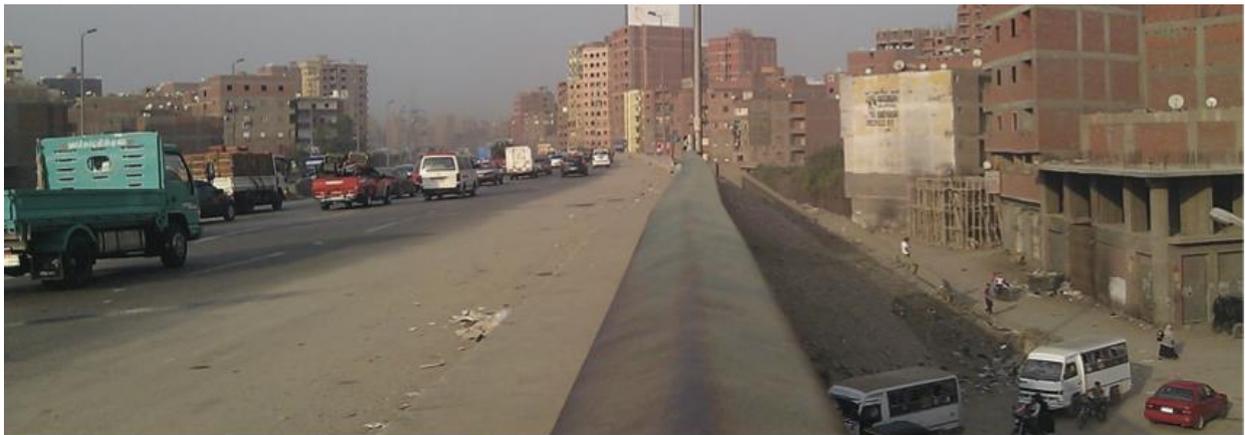
Figure 5.12 Ard el Lewa Pedestrian Bridge



Source: *Cairo24.com*, 2017

On the other side of the settlement of Ard el Lewa, a community body called 'The 'Public Coalition in Ard el Lewa,' (formed during the events of January 2011), gained recognition in recent years. Amidst the political upheaval, the coalition saw an opportunity to construct informal ramps, giving Ard el Lewa access to the Ring Road. Nagati and ElGendy (2013) suggest the existence of this major highway, so close to touch but not to access, is symbolic of the wider segregation and exclusion of the local residents to the city. See Figure 5.13. Prior to the construction of these informal ramps, those residing closer to the Western part of the settlement, had to endure a lengthy journey in and out through the canal entrances described above. These ramps were later recognised by the Governorate as official Ring Road exits. The Coalition is also said to have successfully pressured the government into building the two existing pedestrian bridges, which initially were previously informal crossings (Nagati and Stryker, 2013).

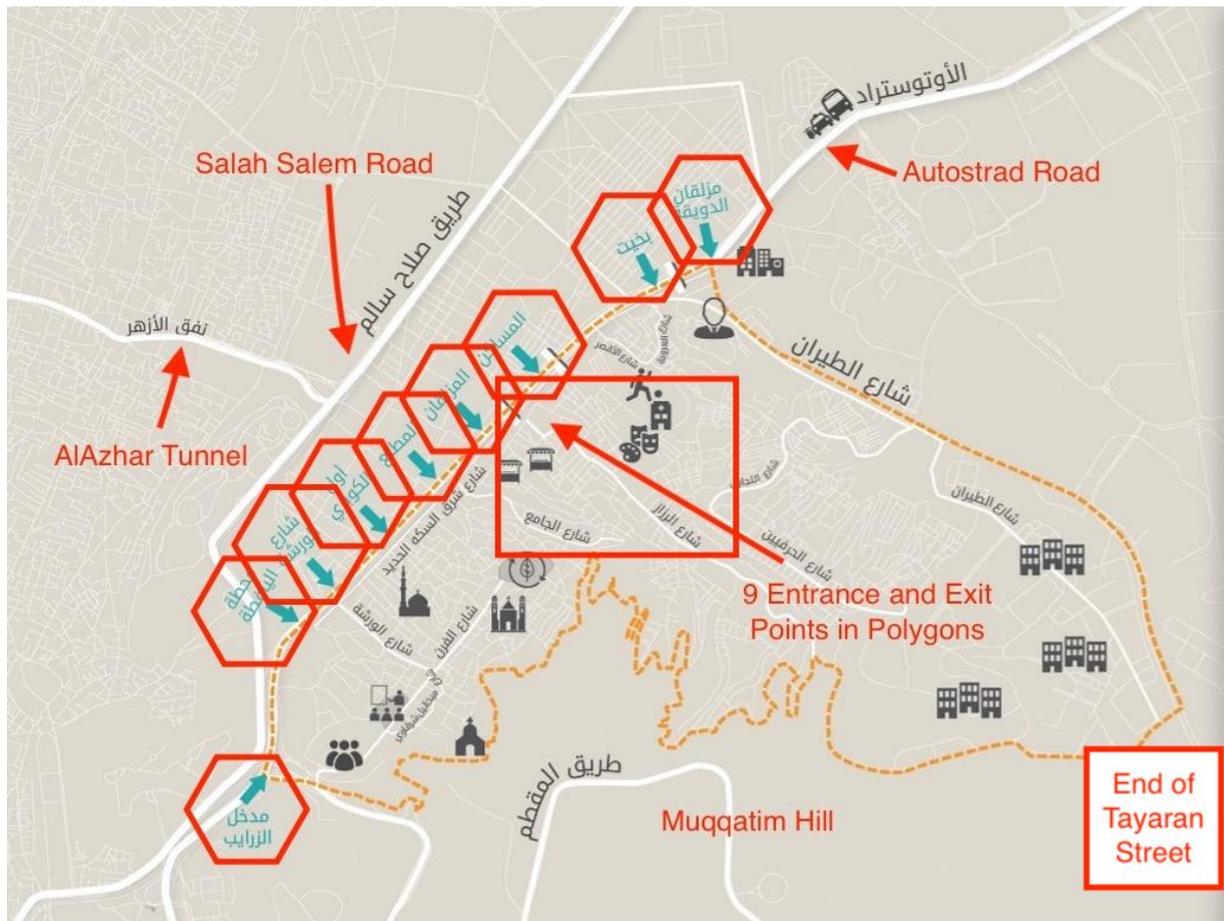
Figure 5.13 Ard el Lewa back access to the ring road



Source: Patelli, 2013.

All the way across the city, Mansheyat Nasser, similarly would appear to be well located and well connected, due to its central location within the GCR at the base of Mokattam Hill. It has close proximity to 3 major transport corridors: Autostrad road; Salah Salem road; and Al Azhar tunnel. It is also near the formal district of Nasr City, as well as downtown Cairo (Piffero, 2009). However, similarly to Ard El Lewa, it is restricted in terms of its actual physical access. In a community workshop conducted by Tadamun (2015a), the residents of Mansheyat Nasser identified 9 entrance/exit points to the settlement. Three of these points also have pedestrian bridges that connect to the other side of the road, connecting the cemetery area (where some residents live) with the rest of the settlement. These points of entrance can be seen in Figure 5.14 below. However, as noticeable in the image, all these exit points in fact lead to the exact same street, the Autostrad road, a major traffic corridor where people access transport modes that connect them with the rest of the city. The North-East border (Tayaran Street) is in fact a dead-end street. It is also worth noting that all the pedestrian entrances are in fact precariously constructed, as informal stairways were carved into the sides of the mountain. See Figure 5.15.

Figure 5.14 Nine entrance/exit points identified by Mansheyat Nasser residents



Source: Tadamun, 2016

Figure 5.15 Mansheyat Nasser Entrance Steps



Source: Tadamun 2016

Aside from the limited gateways, within the settlement itself, the roads are narrow and unpaved and difficult to access by vehicle. The terrain also makes pedestrian movement difficult, leading to further social fragmentation. For instance, aside from the differing conditions of homes and infrastructure between each quarter within Mansheyat Nasser itself, Tadamun (2015a) found that the people of one quarter could not draw a map of the other quarter. This was most evident in relation to one quarter in particular, Zara'ib quarter (where the garbage collectors live), which appeared to be

a separate, closed, and autonomous community, different from the rest of the other quarters within the settlement of Mansheyat Nasser.

5.4 Conclusion

This deeper examination of the context of transport in Cairo provides an overview of the transport options of those living in informal settlements, and in particular, the two study areas. The potential geographical disparity in the availability of transport options for those living in informal settlements, forming the majority of the city's residents, has been presented. Examining the planned formal network of transport options also highlighted the extent to which financial disparity contributes to disadvantage in a transport system which favours those on higher incomes.

The available data on the informal modes suggest them to be the most utilised and relied upon forms of transport. In this picture however, the absence of a clear detailed understanding of the travel patterns of those relying on non-formal transport modes, such as micro buses and tuktuks, also emerges as a significant gap in the literature. The lack of oversight of these informal modes also poses significant safety concerns.

The difficult terrain as well as entrance and exit options of the two study settlements, have been presented as an added barrier to accessing the city despite the relative centrality of settlement locations. The summary of essential services typically locally available to residents of informal settlements serves to further demonstrate the severity of the transport accessibility disadvantage posed by their residential location. This geographical exclusion also raises concern for the well-being and integration of the residents into the wider city.

Of particular concern to this study is the impact that these barriers pose on women. The absence of detailed travel patterns and transport usage broken down by sex, means that there is no way to understand the extent to which women are affected by their levels of transport accessibility. This leads to a significant gap in the literature on role of transport in the relationship between the informal settlement context and the complexity of travel in gendered everyday realities.

6 Chapter 6: The Marginalised on the Move: Travel Patterns and Transport Usage of Women and Men Living in Informal Settlements in Cairo

6.1 Introduction

A key gap in knowledge emerging from the literature on women and transport has been the lack of sex disaggregated data contextualised in the urban reality of women living in the Global South, particularly in relation to the use of informal transport modes. This gap exists not only globally but also at the local level in Cairo, where very little is known of the travel behaviour of informal settlement residents. This chapter aims to further our understanding of the travel and transport use patterns of women in the Global South by answering the question of: what are the real travel patterns of women living in informal settlements in Cairo?

By asking this question, we ensure that we do not replicate the biases engrained in transport research as outlined in Chapter 2. Rather than assume travel patterns based on assumed normative roles or realities of the traveller, or patterns emerging from contexts that may not be similar to the one under study, it is important to build a picture based on the local context.

The findings draw on data from semi-structured interviews conducted with 85 individuals across 2 informal settlements in Cairo. These included 44 people from the settlement of Ard el Lewa (33 women and 11 men) and 41 from the settlement of Mansheyat Nasser (32 women and 9 men). Findings of these interviews will be outlined and compared by sex as well as by settlement, examining travel purposes and transport mode use.

This allows us to understand who is travelling, why they are travelling and which modes they are using. It provides a starting point to help identify the travel needs and modes being utilised by the residents, which can then be used to highlight distinctions based on sex or residential location, and similarities or differences from global trends can also become apparent.

The decision-making process behind the patterns observed and the implications of the insights identified in this chapter will then be further analysed in Chapters 7 and 8. This will present more layers of detail behind the patterns, such as the relationships between the travel purposes and spatial distribution of activities, and how decisions on which modes to use are taken, helping to identify the role of power in the observed patterns and distinctions.

6.2 Travel purpose

6.2.1 Introduction

The decision to make the purpose of travel a starting point for presenting the data is based on a number significant considerations. The first, is that as was presented in earlier chapters, in research concerned with women and transport, the distinctions in travel purpose between women and men often features as one of the most prominent findings. In particular, the diversity of the travel purposes of women compared to men as a result of ascribed gendered roles, which place a disproportional responsibility of 'reproductive' tasks on women. This diversity conflicts with transport planning policies assuming travel to be centred predominantly on commute journeys to the neglect of all the other travel purposes in the everyday real world, including to meet essential needs such as access to basic goods and healthcare facilities. Through an examination of the most common travel purposes for the research respondents, we can shed light on the extent of the significance of this oversight by portraying how much the neglected travel purposes actually feature in women and men's journeys and, in turn, deserve further consideration in transport policy and planning.

The focus on the everyday reality contextualised in the lived world of individuals in the Global South also urges more detailed exploration of the travel purposes to shed light on the diversity of the journeys conducted under these headings, including the assumed commute. Income generation for example was chosen as a more suitable heading for the respondents in this study to reflect the diverse travel purposes that can be lost under a less inclusive title. As will be shown below, the income generating activities of the majority of the respondents did not fit neatly in to a normative daily 9

– 5 commute to a predefined location from the ‘reproductive’ to the ‘productive’ space. Not only does the time and space of their productive work not align with normative assumptions, but also the reality of their vocations, their urban environment and their financial situation also force a reconsideration of the travel needs and patterns assumed under “work” or “employment.”

Table 6.1 The reasons for travel of women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Travel Purpose	Female			Male			Total
	Ard El Lewa (33)	Mansheyat Nasser (32)	Total Female (65)	Ard El Lewa (11)	Mansheyat Nasser (9)	Total Male (20)	All Respondents (85)
Income generation	20 (61%)	28 (87.5%)	48 (74%)	11 (100%)	9 (100%)	20 (100%)	68 (80%)
Household food shopping	21 (64%)	21 (66%)	42 (65%)	2 (18%)	0	2 (10%)	44 (52%)
Education	10 (30%)	1 (3%)	11 (17%)	0	3 (33%)	3 (15%)	14 (16%)
Healthcare related	4 (12%)	6 (19%)	10 (15%)	0	2 (22%)	2 (10%)	12 (14%)
For their children	17 (51.5%)	19 (59%)	36 (55%)	4 (36%)	1 (11%)	5 (25%)	41 (48%)
Leisure	8 (24%)	8 (25%)	16 (25%)	7 (64%)	7 (78%)	14 (70%)	30 (35%)
Visiting family	15 (45%)	12 (37.5%)	27 (41%)	6 (54.5%)	1 (11%)	7 (35%)	34 (40%)
Other	1 (3%)	6 (19%)	7 (11%)	0	0	0	7 (8%)

Table 6.1 above presents a general overview of the purposes of travel which came out of the interviews with the residents of Ard el Lewa and Mansheyat Nasser. When discussing travel purpose the interviewees were asked to reflect on travel occurring within their regular daily, weekly and monthly routines.

As can be seen, travel for the purpose of income generation was conducted by the vast majority of the respondents (80%). Other commonly occurring reasons for travel included journeys for household food shopping (52%), and journeys to fulfil activities

related to the respondents' children (48% of all respondents, but in reality, 66% of respondents with children). More details about what exactly each of these headings refer to will be presented in the following section. However, the diversity of the purposes for travel occurring regularly in everyday life can already be seen. Though travel in fulfilment of income generation was part of the lived reality of the majority of the respondents of both sexes (74% and 100% respectively), distinctions in travel purpose could also already be observed between women and men. For women, in addition to income generation, household food shopping and trips related to their children were also conducted by the vast majority of them from both settlements (65% household shopping and 55% for their children) compared to a very small percentage of men (10% household shopping and 25% for their children). On the other hand, for men, the travel purposes fulfilled by most of the respondents following income generation was leisure, found to be a travel reason for 70% of male respondents in both settlements, compared to 25% of the women.

The above findings already begin to tell a story of the different ways women and men spent their time and the way household labour was divided, with a clear disproportional share of the households' travel needs shouldered by women. The fact that 48 of the 65 women interviewed conducted journeys in fulfilment of income generating activities also stands in direct contrast to any mistaken assumptions regarding women's participation in 'productive' activities and their contribution to household income.

Some distinctions between each settlement also arise, in particular related to income generation, visiting family, education and travel for purposes other than those listed as common occurrences. These will be explored further as part of the more detailed exploration of each travel purpose in the sections below.

6.2.2 Income generation

As already stated, income generation was a reason for travel for the majority of both women and men living in Ard el Lewa and Mansheyat Nasser. It could also be argued that it supports the assumption made by transport planning to prioritise travel for this purpose. However, a closer look at the travel fulfilled under this purpose would show that in reality not many women and men respondents had standard commutes as they

are normatively understood. In fact, perhaps a more normative approach to this category, i.e. one that only considers daily or 9-5 travel for example, could have produced different results.

Table 6.2 The different travel needs of income generation for women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Travel for income generation	Female			Male			Total
	Ard El Lewa (33)	Mansheyat Nasser (32)	Total Female (65)	Ard El Lewa (11)	Mansheyat Nasser (9)	Total Male (20)	All Respondents (85)
Formal daily employment	13 (39%)	13 (41%)	26 (40%)	10 (91%)	0	10 (50%)	36 (42%)
Informal daily employment	7 (21%)	13 (41%)	20 (25%)	1 (9%)	8 (89%)	9 (45%)	29 (34%)
Additional trips related to daily occupation	3 (9%)	3 (9%)	6 (9%)	1 (9%)	8 (89%)	9 (45%)	15 (18%)
Informal irregular (from home or other)	0	6 (19%)	6 (9%)	0	1 (11%)	1 (5%)	7 (8%)
Supplementary income generation (second job)	4 (12%)	7 (22%)	11 (17%)	5 (45%)	2 (22%)	7 (35%)	18 (21%)
Searching for work	0	0	0	0	1 (89%)	1 (5%)	1 (1.2%)

In Table 6.2 above, male respondents can be seen to have been engaged in almost all the income generating subcategories at a higher percentage than women. The distinction by sex is important for identifying the different gender disaggregated income generating activities. Further, a clear difference emerges between the settlements in terms of formal vs informal employment. In particular, male respondents from Mansheyat Nasser were involved predominantly in informal employment (89%), compared to a majority of formally employed male respondents from Ard el Lewa (91%). The difference was not as acute for the female respondents, however, the

pattern still persisted with 41% of female respondents from Mansheyat Nasser engaging in informal daily employment compared to 21% of those from Ard el Lewa. This distinction, its significance and the role power and transport infrastructure play within it, will all be explored in more detail in later chapters. In addition to other implications, distinguishing between formal and informal income generation is extremely important for studying transport patterns and usage given the diversity of the destinations as well as time frames they could be reflecting.

Other travel under this heading which emerged from the interviews were journeys of relevance to the daily occupation but were not the commute. One of the reasons this kind of trip purpose would stand out is because of the service nature of the jobs of some of the respondents. For example, for an individual who owns a carpeting workshop under his house or at the end of the road, his journey from home to work is down the stairs, however, his carpeting jobs as well as the purchasing of his materials happen all around the city, requiring travel. There were instances where the respondents suggested they had no travel for work, or at least no transport use because they worked locally. However, with further exploration many more journeys for income generation were uncovered. Another subcategory outlined was the informal irregular income generation, that is, activities to generate income that do not take place on a daily basis. This was in fact the only subcategory where female respondents were a higher percentage than male respondents. Under this subcategory, for example, would be a woman who sells sheets and towels from her home. Most of her income generation activities would take place in the home, however, occasional travel was required to restock. 6 female respondents in this study fell under this category. Their restocking journey was in fact of extreme significance both in the way they used transport modes as well as in the extent to which they were able to access and benefit from the city. This will become more apparent as we delve deeper into the implications of these insights.

Another distinction when it came to income generation was also the idea of having multiple jobs. A few of the residents were supplementing their insufficient incomes with other income generating activities. Some of them had formal employment journeys during the day outside the settlement and informal activities in the evenings, for example, which would require different travel. The final distinction made was for one

respondent from Mansheyat Nasser who spoke of searching for work. He had initially presented himself as unemployed. In fact, had the data collection been done through a survey he would in fact have been counted as such and that would have been the end of that story with his travel for income generation going uncovered. However, further conversation revealed that he in fact was an occasional day labourer. For him, though he was without regular employment, his travel for this purpose was constant, journeying to diverse and distant locations to find anyone in need of workers.

6.2.3 Household food shopping

The journey purpose which was most commonly mentioned by the female respondents after income generation was travel for the household daily/weekly food shopping. As shown in Table 6.3 below, similar percentages of women in both Ard el Lewa and Mansheyat Nasser, 64% and 66% respectively, travelled for this purpose. Where the clear distinction arises is in the difference between women and men. Only 18% of the male respondents in Ard el Lewa travelled for this purpose, and none from Mansheyat Nasser. This is a clear indicator of the extent to which this responsibility was carried by the women in addition to their income generation responsibilities already presented. Combining the two purposes into one journey, ‘trip chaining’ is a common practice observed worldwide in order to manage this. Other ways this is managed are through the presence of grocery vendors at transport stations so that they are able to do their shopping on route. In later chapters the different mechanisms used by families to manage and negotiate these responsibilities will be discussed in more detail.

Table 6.3 The different travel needs of household shopping for women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Travel for household food shopping	Female			Male			Total
	Ard El Lewa (33)	Mansheyat Nasser (32)	Total Female (65)	Ard El Lewa (11)	Mansheyat Nasser (9)	Total Male (20)	All Respondents (85)
Daily/weekly shop	21 (64%)	21 (66%)	42 (65%)	2 (18%)	0	2 (10%)	44 (52%)
Household provisions (Government subsidy)	2 (6%)	3 (9%)	5 (8%)	0	0	0	5 (6%)

As with the other journey purposes, under this heading there also exists different forms of household shopping. A few of the respondents (6%) mentioned that in addition to the regular shopping journeys, there was also travel which happened monthly to collect household provisions. The importance of the distinction here was not only the frequency, but also the destination. The household provisions being referred to are bulk buys of government subsidised goods. The outlets for this are less likely to be found in the informal settlements, requiring a longer, more expensive journey to outside the settlement. Other considerations of this journey, as with all the other shopping journeys, was also having to carry the goods during the travel. This also has implications in terms of the travel mode as will be further elaborated on.

6.2.4 Education

Travel for the purpose of their own education formed a small percentage for the respondents of the study who were all 18 years old and over. Its inclusion, however, was important for the 16% it applied to and can also serve to highlight the importance in accounting for social identity distinction by age when exploring the impact of travel and transport accessibility. As can be seen in Table 6.4 below, 3 female and 3 male respondents travelled to attend high school or university. Mansheyat Nasser had more male respondents travelling for this purpose while more females from Ard el Lewa travelled for high school or university. Given the small sample size however the distinction here is much more likely due to the recruitment of the participants than reflective of actual settlement trends.

Another subgroup of individuals with journeys related to their own education were 8 female respondents in Ard el Lewa who attended literacy class. This again is partially reflective of the recruitment. However, as a finding, it draws our attention to the existence of this opportunity in the settlement of Ard el Lewa and makes us aware of journeys for this purpose forming a part of some women's everyday lives. It points to the ability of the study of travel patterns to help identify local opportunities, as well as urges consideration for non-normative travel purposes and patterns that can come from a less prescriptive data collection approach.

Table 6.4 The different travel needs of education for women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Travel for education	Female			Male			Total
	Ard el Lewa (33)	Mansheyat Nasser (32)	Total Female (65)	Ard el Lewa (11)	Mansheyat Nasser (9)	Total Male (20)	All Respondents (85)
High School/ University	2 (6%)	1 (3%)	3 (5%)	0	3 (33%)	3 (15%)	6 (7%)
Literacy Class	8 (24%)	0	8 (12%)	0	0	0	8 (9%)

Of course, another fraction of respondents travelling for the purpose of education were parents who were travelling to escort their children to school. However these have been recognised as activities falling under childcare, in turn will be highlighted in Section 6.2.6 when looking at the respondents' travel purposes for their children.

6.2.5 Healthcare -related

A small percentage of the respondents (14%) spoke of travel for healthcare related purposes - not for their children. Journeys under this heading have been divided into travel relevant to their own health, or the health of their partners or parents to distinguish between purposes of relevance for themselves and those part of care related responsibilities. The breakdown by sex and settlement can be seen in Table 6.5 below.

An additional sample of respondents who travelled for healthcare related purposes as part of their childcare responsibilities have been excluded from this heading. They have instead been grouped with the 'travel for children' table to highlight their fulfilment of childcare tasks.

Table 6.5 The different travel needs of healthcare for women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Travel for healthcare related purpose	Female			Male			Total
	Ard el Lewa (33)	Mansheyat Nasser (32)	Total Female (65)	Ard el Lewa (11)	Mansheyat Nasser (9)	Total Male (20)	All Respondents (85)
For themselves	2 (9%)	4 (12.5%)	6 (9%)	0	0	0	6 (7%)
For partners	0	2 (6%)	2 (3%)	0	0	0	2 (2.3%)
For parents	2 (9%)	2 (6%)	4 (6%)	0	2 (22%)	2 (10%)	6 (7%)

Due to the small sample size, no significant trends emerge here. What these findings could suggest is that travel for this purpose was not very common. One reason for this could be that travel for this purpose could be reflecting the fact that the study population did not have a particular need to access healthcare services outside those mentioned.

However, a major concern when it comes to travel for healthcare related purposes is the fact that studies have found a relationship between transport accessibility and access to health services (Uteng and Turner, 2019). When that recognition is combined with the shortage of health facilities in both settlements (as presented in Chapter 5), a question arises of whether or not the low levels of travel for this purpose could be attributed to need. In later chapters there will be further exploration of this.

6.2.6 For their children

In Table 6.1 it was shown that travel purposes related to their children formed a significant part of the regular travel of the respondents, 55% of women, 25% of the men and 48% overall. This actually becomes 64% overall if we only count respondents who were also parents. Table 6.6 below shows the percentage of the respondents involved in the research who had children. Using those figures gives us a more accurate reflection of the extent of the travel burdens of the parents (without the overall figures for this travel purpose being misleadingly reduced by non-parents).

Table 6.6 Occurrence of travel for the purpose of their children for women and men living in Ard el Lewa and Mansheyat Nasser who have children (# and % of total interviewed)

Travel purpose for children			
Ard el Lewa	Female (22)	Male (9)	Total (31)
	17 (77%)	4 (44%)	21 (68%)
Mansheyat Nasser	Female (29)	Male (4)	Total (33)
	19 (65%)	1 (25%)	20 (61%)
Total	Female (51)	Male (13)	Total (64)
	36 (71%)	5 (38%)	41 (64%)

If we consider the figures in Table 6.6 above, we find that 36 of the 51 women (71% of female respondents who have children) had journeys related to them and 5 of the 13 men (38% of the male respondents who have children) had journeys related to them. This means that the percentage of female respondents travelling for this purpose was almost double the male respondents, clearly showing that female respondents were carrying a disproportional share of this responsibility in terms of travel and time dedicated to childcare activities.

This confirms findings from studies conducted all across the world which were referred to in earlier chapters. One example, for instance, is Mark and Heinrichs (2019) finding in Buenos Aires which also found women, in addition to their travel for income generation were almost exclusively responsible for travel for childcare reasons compared to men.

However, this heading does not adequately capture the extent of the substantial load of travel needs related to this purpose and requires more detailed exploration. Within this category there are in fact at least 6 distinguishable travel purposes, as identified in Table 6.7 below.

Naming distinct travel purposes under this heading serves to underline the substantial travel load under this category. It is an attempt to shed light on trips required as part of everyday life and parenting, and to overcome biases which consider journeys for reasons other than income generation as ‘discretionary travel’, suggesting them as

less necessary or less important, and sometimes even misleadingly grouped with travel for leisure (de Madariaga, 2013). For this same reason, distinctions have also been made between travel for own needs and travelling as escorts or in fulfilment of another person's need. These distinctions are all of extreme importance when considered with the differences between female and male respondents which showed a disproportional share of this responsibility being shouldered by women. Any misrepresentation of this data then would be blind to this inequality. Earlier chapters have already raised the notion of underlying gender power structures behind such patterns. In Chapter 7, the decision-making processes related to the household division of labour for the respondents of this study will be further explored to understand the extent to which it contributes to this difference in travel purpose between the sexes.

Table 6.7 The different travel needs of childcare for women and men parents living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Travel purposes related to their children	Female (parents)			Male (parents)			Total (parents)
	Ard el Lewa (22)	Mansheyat Nasser (29)	Total Female (51)	Ard el Lewa (9)	Mansheyat Nasser (4)	Total Male (13)	All Respondents (64)
Nursery/School	13 (59%)	11 (38%)	24 (47%)	3 (33%)	0	3 (23%)	27 (42%)
Private tutoring lessons	4 (18%)	2 (7%)	6 (12%)	1 (11%)	0	1 (8%)	7 (11%)
Sports training	1 (4.5%)	0	1 (2%)	1 (11%)	0	1 (8%)	2 (3%)
Shopping	2 (9%)	5 (17%)	7 (14%)	1 (11%)	0	1 (8%)	8 (12.5%)
Medical related	1 (4.5%)	11 (38%)	12 (23.5%)	0	1 (25%)	1 (8%)	13 (20%)
Excursions for the children	3 (14%)	0	3 (6%)	3 (33%)	0	3 (23%)	6 (9%)

As can be seen from Table 6.7, escorting children on their journey to nursery or school was the most commonly occurring travel purpose under this heading. A similar finding was observed by Ureta (2008) in Santiago, which showed travel for children's education as the highest after income generation.

More than double the percentage of female respondents travelled for this purpose compared to the male respondents. There was no substantial difference in this between the settlements for the female respondents. However, a distinction could be observed between the male respondents from Ard el Lewa and those from Mansheyat Nasser. 33% of fathers in Ard el Lewa travelled for this purpose compared to 0 from Mansheyat Nasser. As will be seen in Chapter 7, this could be a reflection of many different factors including but not limited to, location of school or employment, safety, cost, household division of labour, and access to private transport modes.

Other commonly occurring journeys relevant to education were the additional tutoring lessons occurring in addition to and outside of the school hours. Aside from the respondents who have already been presented to have travelled for reasons related to healthcare, this journey purpose also featured in journeys for their children. Other travel purposes outlined were shopping for their children, and excursions for their children. These two subheadings were again purposefully separated from the other categories, which they could have counted towards, in order to emphasise the fact that they fall under the responsibilities of childcare.

A further important point for consideration is that a large majority of this travel could take place during the same day, and in addition to the income generation travel already presented. With that in mind, we can begin to see clearly the amount of travel needs women were having to juggle. This picture is further complicated when we consider space and time restrictions. These diverse purposes of travel take place at a variety of locations and are also restricted to certain times, for example, school times. In Chapter 5 the lack of schools and health facilities and even shops within the settlements was highlighted. What then do the limitations of their residence in informal settlements mean for the way they managed these travel responsibilities and what role does transport infrastructure play in this picture?

Other things to consider which will be elaborated further in Chapter 7, are the challenges resulting from having to travel with children. Travelling with children has implications on modes used, physical comfort, safety as well as cost.

Another significant observation under this travel purpose was that female respondents fulfilled the bigger share of almost all the travel purposes listed, with the exception of one, travel for excursions for the children. Travel for this purpose was represented at 23% of the male respondents compared to 14% of the female respondents. This could be telling of a significant distinction not only in travel purpose but also destination and access to the city.

6.2.7 Socialising/leisure

As was presented in the introductory section, trips for leisure did not take place as often as other journeys in fulfilment of everyday responsibilities. Trips for leisure purposes were also more commonly featured as a travel purpose for men than for women. Within this study population there was a significant difference between the sexes with 70% of male respondents referring to journeys for the purpose of leisure compared with 25% of female respondents. In fact, while leisure was the second most commonly occurring travel purpose for the male respondents after income generation, for the female respondents it was 5th following other responsibilities. There were no obvious distinctions by settlement. This finding is not unique to this study population and has been observed in other studies (see Tran and Schlyter, 2010 in China and Vietnam for example), speaking further to gendered trends of time use and household division of labour.

Leisure can mean many different things. Already while highlighting the travel for children, journeys for leisure were identified in the form of family excursions to the park, for example. Visiting family was also commonly considered a form of leisure especially within this study context. Given this overlap, in Table 6.8 below, visiting family has been listed under the leisure headings. Travel for the two purposes identified in Table 6.8 (visiting family, and leisure for themselves) have been purposely differentiated from the above leisure statistics in an attempt to distinguish between activities completed in fulfilment of particular care roles versus individual independent forms of leisure, such as spending time with friends, or engaging in a fun activity.

Table 6.8 The different travel for socialising and leisure for women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Travel for Socialising/ Leisure	Female			Male			Total
	Ard el Lewa (33)	Mansheyat Nasser (32)	Total Female (65)	Ard el Lewa (11)	Mansheyat Nasser (9)	Total Male (20)	All Respondents (85)
Visiting family	15 (45%)	12 (37.5%)	27 (41.5%)	6 (54.5)	1 (11)	7 (35%)	34 (40%)
Leisure for themselves (excluding visiting family)	8 (24%)	8 (25%)	16 (25%)	7 (64%)	7 (78%)	14(70%)	30 (35%)

In Table 6.8 above we can see that 41.5% of women mentioned travel for the purpose of visiting their family. From the conversations it became apparent that visits, however, could be for many different sub purposes in addition to socialising. The importance of this distinction arises when we consider that 11 female respondents spoke of relying on their family for support with their children, and that 6 female respondents also acted as carers for their parents, both of which entailed trips to visit family. With that in mind, it also becomes more significant that the proportion of respondents who were visiting family was actually as low as it was, as it suggests 60% of the respondents did not visit their families regularly. A more detailed exploration of this could be of extreme significance due to the importance of these networks and connections as a form of support for women (Bostock, 2000; Ureta, 2008) and will be explored more in later chapters.

The distinction between visiting family and leisure for other purposes also reflects the destination of leisure. Common places that were visited under this heading were public spaces, such as coffee shops, the youth club, and other places outside the settlement in the city centre. The low occurrence of such travel for the female respondents then could be further signalling implications for their use of public space and more widely, use of the city. This again will be further explored in the relevant chapters.

6.2.8 Other

A number of other less frequent travel purposes were identified in the interviews and did not warrant their own headings. These were travel to collect pensions, travel to make loan repayments, and travel to places of worship. Despite not frequently occurring, their presence in the results is important as they serve to remind us of other travel purposes of great significance to the respondents which could be easily overlooked depending on the data collection as well as analytical approaches taken. The number of individuals who made reference to these trips can be found in Table 6.9 below.

Table 6.9 Other travel needs for women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Travel for other Purposes	Female			Male			Total
	Ard el Lewa (33)	Mansheyat Nasser (32)	Total Female (65)	Ard el Lewa (11)	Mansheyat Nasser (9)	Total Male (20)	All Respondents (85)
NGO (Loan Repayment)	0	2 (6%)	2 (3%)	0	0	0	2 (2.3%)
Pensions Office	0	2 (6%)	2 (3%)	0	0	0	3 (2.3%)
Worship	1 (3%)	3 (9%)	4 (6%)	0	0	0	4 (5%)

As can be seen from Table 6.9 above, only 5% or less of the respondents referred to travel for the purposes listed, and they were in fact all women, almost all from Mansheyat Nasser. A level of scepticism is warranted here, especially with the knowledge that 12 of the women participating in the research are in fact known to have been loan recipients (14% of all respondents). Similarly, weekly visits to the mosque for Friday prayers is a very common occurrence in Cairo amongst the Muslim majority, especially among men. With these thoughts in mind, it is more likely that the true extent of these journeys was not adequately captured in the conversations. This is a significant observation as it suggests a potential bias when people think of travel patterns that causes them to overlook trips of this nature, urging a reconsideration of the data collection tools.

In fact, within the literature, only Venter et al.'s (2007) study in South Africa was found to have identified church and trips for collecting pensions as occurring travel purposes. Perhaps the reason they were able to uncover these was because their findings were in fact extracted from an existing database of the results of a detailed household survey concerned with infrastructure and energy consumption, as opposed to relying on data collection tools concerned with travel.

Journeys of the nature captured under this 'other' heading are extremely significant, especially in the context of the travel of women living in informal settlements, as will become apparent in the following chapters. If we consider, for example, collecting pensions, this is much more likely to occur in 'formal' government run social affairs offices, rather than in informal locations, thus would warrant a journey outside the settlement, potentially necessitating extensive time, costs, knowledge of the city and an array of travel modes. This picture poses particular challenges for women which will be further elaborated in later chapters.

Journeys to places of worship are similarly important though for differing reasons. Mosques or churches are more likely to be available locally, not necessitating long travel distances. However, that does not make them any more accessible as other travel complexities may exist as elaborated in Chapter 2. Places of worship are important when considering empowerment as they can also be places of leisure and community networking, and even access to basic needs.

The trip to an NGO for loan repayment is also very significant. The impact of microloans on women's empowerment and freedom of mobility in communities where mobility is otherwise restricted has been the concern of much research (Singh and Cready, 2015). Despite no general consensus on whether the impact of this kind of engagement is in fact positive and transformative or not, one point of agreement is that obviously, since the process necessitates visits to the financing office, the loan does increase women's mobility outside the home. The concern for the transformative potential of such journeys will be further addressed in Chapter 8.

6.3 Transport modes

6.3.1 Introduction

The diversity of public as well as private transport modes available on the roads of Cairo means that the local population can potentially make use of a number of different mode types. As has been outlined in earlier chapters, the modes used by each person depend on particular factors of significance relevant to the user's social identity as well as a wide range of influential features of the available transport infrastructure. In Chapter 2 it was shown that studies concerned with difference in transport use by women and men worldwide identify particular distinctions for women related to level of reliance on public modes as well as a disproportional level of walking as a non-motorised method of travel. Other studies of relevance highlighted were ones shedding light on the significant role informal modes of transport play in the context of the urban Global South. Little data exists on either of these trends in this particular study context. Thus as a starting point for exploring the relationships between women's transport accessibility and empowerment for women living in informal settlements in Cairo it was important to first acquire some insight in to what transport modes are available to them and which modes they use for their travel. In later sections as well as in Chapter 7, the experience of using each mode and the decision making behind utilising which mode when and for what purpose will be further explored to analyse the extent to which power plays a role in the processes.

As an initial introduction to this discussion the different transport modes identified by the respondents have been grouped under their distinct structures of operation. The main reason for this is because the findings in themselves can already be telling of differing levels of access. For example, access to private modes of transport is indicative of wealth, compared to the reliance on walking, for example, which can suggest a number of things including shorter distances or cost-saving. Furthermore, considering the concern with informal settlements, the distinction between formal vs informal public modes can further speak to the particular distinct geographical location and the extent to which they are integrated into formal transport networks. It could also be telling of other shortages or advantages of either transport system.

In Table 6.10 below, the number of users of modes which fall under each category disaggregated by sex and settlement can be seen. Straight away, informal public transport modes stand out as modes which were used by 96% of the respondents of the study compared to only 62% users of the formal public modes. It is also worth remembering that this table reflects mode usage for any purpose and any part of the journey, which is important because in instances where in fact settlements are ill connected to formal transport, the informal modes are used as connectors. In other words, even those who rely on formal modes for part of their journeys, may well have to use an informal mode first.

The second most common form of travel was walking. Walking is one of those methods of travel that is often missed in studies on travel and transport. Sometimes this occurs because the study itself is based on a motorised bias, but it can also be because of a false understanding by the respondents who could easily miss trips completed by travel if asked about transport usage, or miss out the walking part in a long multiple mode journey. These results then could be suggestive of neighbourhood level travel which does not require motorised modes, or a reliance on walking even long distances because of unaffordability of modes, or could indicate walking as part of a multiple mode journey. For example, in the case of the informal settlements under study here, the settlements had entrance and exits which are the access points to the main roads, thus, any attempt to utilise modes on the main roads would require journeying within the settlement which could actually require walking quite long distances.

For both, informal public transport and walking, there appeared to be a very small difference in the percentages between female and male respondents, with the female respondents using the informal public transport modes at 98% compared to 96% of males, and 88% walking compared to 85% respectively. Formal public modes then follow as the third most used form of travel modes at 62% overall, again with no major difference by sex. In these 3 categories what emerges instead is a clear indication of the forms of travel modes which were being used by the population under study. When each category is divided in to its sub parts however, very clear distinctions between the sexes as well as the settlements emerge.

The distinctions both by sex as well as by settlement more obviously emerged in the category of private transport where there was an obvious advantage for male respondents 40% of which utilised private transport modes compared to only 3% of the female respondents. The difference here is heavily influenced by the male respondents from Ard el Lewa. 64% of male respondents in Ard el Lewa used private modes in comparison to only 11% in Mansheyat Nasser. These differences could be reflective of income disparities between the settlements as well as the sexes. Though when it comes to the differential access to private transport modes between women and men, as will be seen, there are many other forces of gendered power at play.

Very low levels of hired public vehicles also featured in the modes used by the respondents which will be further disaggregated in their relevant sections.

Table 6.10 Type of transport modes usage by women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Transport Modes Used	Female			Male			Total
	Ard el Lewa (33)	Mansheyat Nasser (32)	Total Female (65)	Ard el Lewa (11)	Mansheyat Nasser (9)	Total Male (20)	All Respondents (85)
'Formal' public transport	20 (61%)	21 (66%)	41 (63%)	6 (54.5)	6 (67%)	12 (60%)	53 (62%)
'Informal' public transport	32 (97%)	32 (100%)	64 (98%)	9 (82%)	9 (100%)	18 (90%)	82 (96%)
Private transport	2 (6%)	0	2 (3%)	7 (64%)	1 (11%)	8 (40%)	10 (12%)
Hired public vehicles	4 (12%)	3 (9%)	7 (11%)	2 (18%)	0	2 (10%)	9 (11%)
Walking	27 (82%)	30 (94%)	57 (88%)	7 (64%)	8 (89%)	15 (75%)	72 (85%)

6.3.2 'Formal' public transport

The types of formal public transport modes identified to form all or part of the transport usage of the respondents from Ard el Lewa and Mansheyat Nasser were the Cairo Transport Authority (CTA) bus, which is the public bus operated by the government, the metro which is the underground which had 3 functioning lines, and the taxi which

here refers to the taxi cab, considered here to be a formal mode of transport due to the fact that it is licenced and regulated by the government. The number of people who used each transport mode for the travel purposes outlined can be seen in Table 6.11 below. From this subgroup of transport modes, the taxi was the most used (38% of all respondents), followed by the metro (27% of all respondents) then the CTA bus (25% of all respondents). This order was unchanged by sex and settlement.

Table 6.11 Formal public transport modes usage by women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

'Formal' public transport	Female			Male			Total
	Ard el Lewa (33)	Mansheyat Nasser (32)	Total Female (65)	Ard el Lewa (11)	Mansheyat Nasser (9)	Total Male (20)	All Respondents (85)
CTA - Bus	9 (27%)	8 (25%)	17 (26%)	1 (9%)	3 (33%)	4 (20%)	21 (25%)
Metro	10 (30%)	10 (31%)	20 (31%)	1 (9%)	2 (22%)	3 (15%)	23 (27%)
Taxi	9 (27%)	13 (41%)	22 (34%)	5 (45%)	5 (55%)	10 (50%)	32 (38%)

6.3.2.1 CTA Bus

Of all the formal public transport modes, the CTA bus appeared to be the least used by the respondents. As can be seen in Table 6.12 below, only 23% of the Ard el Lewa respondents and 27% of those from Mansheyat Nasser used this particular mode in their journeys. Obvious distinctions however did arise by sex and settlement, a larger percentage of women than men in Ard el Lewa used this mode, 27% and 9% respectively. Whereas in Mansheyat Nasser it was in fact the men who made more reference to this particular mode, with 25% of the women compared to 33% of the men. As was presented in Chapter 5, the CTA bus system is lacking in both quantity and quality. Thus the differences in CTA bus use could have been strongly influenced by its limited routes as well as its capacity and physical comfort compared to the microbus for example. It could also have been influenced by income demographics as the cheaper more subsidised fare is one of its draws. There will be further space for exploring these trade-offs in Chapter 7.

Table 6.12 CTA bus usage by women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

CTA Bus			
Ard el Lewa	Female (33)	Male (11)	Total (44)
	9 (27%)	1 (9%)	10 (23%)
Mansheyat Nasser	Female (32)	Male (9)	Total (41)
	8 (25%)	3 (33%)	11 (27%)
Total	Female (65)	Male (20)	Total (85)
	17 (26%)	4 (20%)	21 (25%)

6.3.2.2 Metro

The metro was one of the lesser modes used amongst the respondents. It appears to have been used by a similar share in both settlements. 25% of Ard el Lewa respondents and 29% of the Mansheyat Nasser respondents used it for some of their journeys. The low reliance on the metro as a transport mode has been observed in other studies in Cairo especially based on the metro station locations (EconServ, 2012). With neither of the settlements located near a metro stop, it is unsurprising that it was not a commonly used mode. However, the fact that it was still utilised by some respondents is signalling of journeys requiring multiple modes.

Table 6.13 Metro usage by women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Metro			
Ard el Lewa	Female (33)	Male (11)	Total (44)
	10 (30%)	1 (9%)	11 (25%)
Mansheyat Nasser	Female (32)	Male (9)	Total (41)
	10 (31%)	2 (22%)	12 (29%)
Total	Female (65)	Male (20)	Total (85)
	20 (31%)	3 (15%)	23 (27%)

Though a study of youth's transport usage in Cairo found the usage of metro to be equal between women and men (Roushdy and Sieverding, 2015), amongst the respondents of this study there was a clear distinction by sex as can be observed in Table 6.13 above. Women were found to have used the metro at double the

percentage of men (31% and 15% respectively). The difference was particularly obvious in Ard el Lewa. Despite the overall low usage of this mode, as one of the only modes offering sex segregated spaces, the higher incidence of metro use by women compared to men could be suggestive of the draw of the women only carriages, though this does not emerge explicitly in the findings.

6.3.2.3 Taxi

36% of respondents mentioned the use of the taxi in some of their journeys. In Table 6.14 below it can be seen that there was a higher percentage of male respondents using this transport mode in comparison to female respondents. This was constant across both settlements. In Ard el Lewa, 27% of the women mentioned the use of the taxi in their journeys compared to 45.5% of the men. Similarly, in Mansheyat Nasser it was 41% of the women versus 56% of the men.

Table 6.14 Taxi usage by women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Taxi			
Ard el Lewa	Female (33)	Male (11)	Total (44)
	9(27%)	5(45%)	14 (32%)
Mansheyat Nasser	Female (32)	Male (9)	Total (41)
	13(41%)	5(56%)	18 (44%)
Total	Female (65)	Male (20)	Total (85)
	22 (34%)	10 (50%)	31 (38%)

The taxi in Cairo, as is common in most places, is the most expensive mode of travel, thus a difference in usage patterns between women and men could be a reflection of differential access to or control of financial resources between sexes. There also appeared to be a distinction by settlement with respondents from Mansheyat Nasser utilising the taxi more than those in Ard el Lewa. Considering the fact that residents of Ard el Lewa are presumably wealthier than those in Mansheyat Nasser, it is not immediately apparent why this distinction emerges in the results. One possible explanation could be the higher incidence of private mode ownership in Ard el Lewa which meant less of a need for taxis. Further exploration behind travel mode decision

making which will be presented in Chapter 7 could aid in providing more potential explanations. It should be noted that respondents from both settlements stated that most taxis refuse to go in to Ard El Lewa and Mansheyat Nasser, instead leaving the passengers at the pedestrian bridge, or other pick up and drop off settlement entry/exit points. This phenomenon is in fact not uncommon in informal settlements. Taxi's frequently opt not to enter areas they deem either to be potentially hazardous to their cars or where the stigma of the residents leads to them assuming they would not be lucrative passengers. Vecchio's (2018) study in Bogota also makes reference to similar hesitancy of taxis entering La Merced del Sur.

6.3.3 'Informal' public transport

The types of informal public transport modes identified to form all or part of the transport usage of the respondents from Ard el Lewa and Mansheyat Nasser, were the microbus, which is a paratransit service, the 'van' a nano bus exclusive to Mansheyat Nasser, and the tuktuk, a 3 wheeler inner settlement mode. The number of people who used each transport mode for the travel purposes outlined can be seen in Table 6.15 below. From this subgroup of transport modes, the microbus was the most used (89% of all respondents), followed by the tuktuk (72% of all respondents) then the van (11% of all respondents). This order was unchanged by sex and settlement.

Table 6.15 Informal transport modes used by women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

'Informal' public transport	Female			Male			Total
	Ard el Lewa (33)	Mansheyat Nasser (32)	Total Female (65)	Ard el Lewa (11)	Mansheyat Nasser (9)	Total Male (20)	All Respondents (85)
Micro-bus	29 (88%)	31 (97%)	60 (92%)	7 (64%)	9 (100%)	16 (80%)	76 (89%)
Van (Nano-Bus)	0	4 (12.5%)	4 (6%)	0	5 (55%)	5 (25%)	9 (11%)
Tuk-Tuk	31 (94%)	22 (69%)	53 (82%)	7 (64%)	1 (11%)	8 (40%)	61 (72%)

6.3.3.1 Microbus

The mode most used by respondents of both sexes appeared to be the microbus. 89% of the residents of Ard el Lewa and Mansheyat Nasser who took part in this research relied on the microbus to form all or part of their journeys for the travel purposes outlined. In fact, all but one of the 41 respondents from Mansheyat Nasser used the microbus. The high use percentage of the microbus confirms other findings from Cairo as found by Econserv (2012) and Roushdy and Sieverding (2015).

In Chapter 5, it was outlined that the emergence and spread of the microbus grew out of the deficiencies of the public transport system. That stands particularly true for those who live in informal settlements as they suffer from absence of formal transport infrastructure nearby. Similar trends have been observed across the Global South, from Mexico City to the Eastern Cape, to Kampala to Manila. Informal paratransit modes whether called matatus, jeepneys or minibuses are the most relied on modes for the majority of the world's urban population who prefer its flexible, fast, demand responsive nature in comparison to deteriorated formal systems (Cervero, 2000; Onyango, 2018; ITF, 2019).

The microbus remained a common mode when examining the mode usage by settlement. 82% of the Ard el Lewa respondents and 97.5% of the Mansheyat Nasser respondents all used the microbus to form part of or the whole of their journeys. In fact, it was the most commonly used mode amongst both the female and male respondents in Mansheyat Nasser. In Ard el Lewa however, the microbus was the second most used after the tuktuk for the women, and occurring the same amount as the tuktuk and walking for the men. These distinctions could be attributed to access to other modes, or to travel destinations and the differences between travel inside versus outside the settlement which will all be further explored in later chapters.

The distinctions by settlement could also be observed when comparing by sex. The dominance of the microbus as a travel mode in Mansheyat Nasser actually means that it was the male respondents who utilised the mode the most, as one woman from Mansheyat Nasser not using the microbus means a total of 100% for the male respondents compared to 97% for the female.

Table 6.16 Micro-bus usage by women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Micro-bus			
Ard el Lewa	Female (33)	Male (11)	Total (44)
	29 (88%)	7 (64%)	36 (82%)
Mansheyat Nasser	Female (32)	Male (9)	Total (41)
	31 (97%)	9 (100%)	40 (97.5%)
Total	Female (65)	Male (20)	Total (85)
	60 (92%)	16 (80%)	76 (89%)

When it comes to the overall comparison by sex however, the microbus appeared to be more dominant as a mode for the female respondents 92% vs 80%. Tanzarn (2014) and Porter et al. (2017) also observe similar overall sex differentiations in their studies in other African countries. However, Roushdy and Sieverding (2015) studying transport mode use of youth aged 18 – 35 in Cairo find more male respondents using the microbus than female youth (60.3% vs. 51.2%). The nature of the study with the specific focus on a certain age group could be the reason for this conflicting finding. Though more of the specific factors which could have led to the observed transport mode use will emerge in Chapter 7 as we gain a better understanding of the influences behind the decision-making processes of travel purpose and transport mode use.

6.3.3.2 Nano-bus

Respondents from the settlement of Mansheyat Nasser frequently made reference to the ‘van’ a mode similar to the microbus, referred to in the literature as a nano-bus. This mode is another example of the locally available transport modes. It was less regulated than more commonly found minibuses, and the particular ones the respondents referred to were exclusive to Mansheyat Nasser and its residents, with the drivers themselves also most likely being local residents. The use of the Van was mentioned by 22% of Mansheyat Nasser’s respondents, more commonly by the men, as it was used by 56% of the male respondents from that settlement compared to 12.5% of the female respondents.

Table 6.17 Van usage by women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Van (Nano-Bus)			
Ard el Lewa	Female (33)	Male (11)	Total (44)
	0	0	0
Mansheyat Nasser	Female (32)	Male (9)	Total (41)
	4 (12.5%)	5 (56%)	9 (22%)
Total	Female (65)	Male (20)	Total (85)
	4 (6%)	5 (25%)	9 (11%)

The van is a perfect example of the demand responsive nature of these informal modes as it appears to have emerged to fill a gap, with routes going directly to common central locations. In contrast to most other public transport modes, it also travelled within the settlement, being utilised by those living further away from the main entrance and exit points to form part if not all the journey. The use of this mode by men more than women could be a reflection of the nature of the journeys completed using these modes which as stated are focused on inner city centre locations rather than the destinations relevant to the common travel purposes of female respondents in Mansheyat Nasser presented in Section 6.2.

6.3.3.3 Tuktuk

Used by 72% of the respondents, the tuktuk was the second most commonly used mode of transport in the study following the microbus. Though a closer look by settlement suggests that it was in fact the most commonly used mode in Ard el Lewa, utilised by 86% (more than the 82% who use the microbus). 94% of the women from Ard el Lewa said they used the tuktuk in their journeys as well as 64% of the men.

Table 6.18 Tuktuk usage by women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Tuktuk			
Ard el Lewa	Female (33)	Male (11)	Total (44)
	31 (94%)	7 (64%)	38 (86%)
Mansheyat Nasser	Female (32)	Male (9)	Total (41)
	22 (69%)	1 (11%)	23 (56%)
Total	Female (65)	Male (20)	Total (85)
	53 (82%)	8 (40%)	61 (72%)

While still widespread amongst female respondents, it was not as commonly used in Mansheyat Nasser, where it was used by 69% of the women and 11% of the men. The difference in tuktuk usage by settlement can be attributed to either the distinctive income or spatial characteristics of each settlement.

The use of the tuktuk more by female respondents than male ones is in line with other studies from Cairo (Roushdy and Sieverding, 2015). As an inner settlement mode, this finding could be a reflection of the spatial distribution of the travel activities of each sex. Built to easily pave the roads of the informal settlements, studies across the world have found tuktuk like travel modes to be used for a wide variety of the reasons which have come up as travel purposes for women, such as household shopping, chauffeuring children to school, and to medical facilities (Mateo-Babiano; 2016).

As we explore further the experiences of women when using the tuktuk in Chapter 7 more will be presented on the extent to which it is relied on by women and for what purpose. Many of the difficulties experienced, in particular with cost and safety, due its lack of regulation will also become clear.

6.3.4 Private transport

Only 1 respondent from Mansheyat Nasser made any reference to a privately owned mode of transport. This was a male respondent who owned a private car making the total percentage of private mode use in Mansheyat Nasser by male respondents 11% forming 2% of this settlement's respondents overall. In comparison, in Ard el Lewa

over half of the male respondents (64%) mentioned the use of a private mode. As can be seen in Table 6.19 below, this included the private car, motorcycle and bicycle use. Motorcycle and bicycle use were exclusively mentioned by male respondents from Ard el Lewa, while 2 of the female respondents from that settlement used a private car.

Table 6.19 Private transport modes used by women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed)

Private transport	Female			Male			Total
	Ard el Lewa (33)	Mansheyat Nasser (32)	Total Female (65)	Ard el Lewa (11)	Mansheyat Nasser (9)	Total Male (20)	All Respondents (85)
Private Car	2 (6%)	0	2 (3%)	6 (54.5%)	1 (11%)	7 (35%)	9 (11%)
Motorcycle	0	0	0	3 (27%)	0	3 (15%)	3 (3.5%)
Bicycle	0	0	0	1 (9%)	0	1 (5%)	1 (1.2%)

The distinctions in privately owned modes, both between sexes and between settlements was most likely a reflection of the financial status of the respondents. The high cost of motor vehicles means that ownership of private transport modes, in particular the car, is often symbolic of and reflective of wealth. The difference between the men in each settlement could also be telling of the settlements' income disparities.

There was a much greater occurrence of availability of a private mode in Ard el Lewa overall as 3 other female respondents from Ard el Lewa referred to a private car in their households compared to 2 from Mansheyat Nasser (in these 5 instances the respondents themselves did not have access to the mode).

As will be seen in Chapter 7 when exploring travel mode decision making, there was also obvious gendered distinctions in access to private modes in the household. Utilising travel modes such as motorcycles and bicycles was additionally restricted by gendered constraints.

The low levels of bicycle use is unsurprising given the absence of supportive road infrastructure on the roads such as bicycle lanes, as well as the rough inner settlement

terrain. What is surprising however was the low incidence of motorcycle use, especially amongst male respondents, given that motorcycles are very common on Cairo roads. 4 female respondents in the study did say that male members of their households had motorcycles (which again were not modes the respondents themselves had access to).

6.3.5 Other: public hired vehicles

A few other modes less commonly used were referred to by a small portion of the respondents (11%). These modes all appeared to be similar in nature, i.e. they were vehicles privately hired to serve a particular trip. The breakdown of these results can be seen in Table 6.20 below.

Table 6.20 Public hired transport modes used by women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed in each settlement)

Other: hired public vehicles	Female			Male			Total
	Ard el Lewa (33)	Mansheyat Nasser (32)	Total Female (65)	Ard el Lewa (11)	Mansheyat Nasser (9)	Total Male (20)	All Respondents (85)
Uber	1 (3%)	1 (3%)	2 (3%)	1 (9%)	0	1 (5%)	3 (3.5%)
Private Taxi (Pre-booked known Driver)	0	3 (9%)	3 (5%)	0	0	0	3 (3.5%)
Travel Car (for travel outside the city)	3 (9%)	0	3 (5%)	0	0	0	3 (3.5%)
Company Bus	0	0	0	1 (9%)	0	1 (5%)	1 (1.2%)

Included in this is a mode referred to as the 'travel car', 3.5% of the respondents, all of whom were female respondents from Ard el Lewa made reference to this mode which is a public mode used for trips of longer distances to travel outside Cairo, potentially signalling that they are originally from or their families live outside Cairo. This is of relevance given the importance of visiting family as a travel purpose.

Another travel mode mentioned under this category was one that appeared to be local to Mansheyat Nasser. It is a form of chauffeuring service operated by local residents used for special occasions which was mentioned by another 3.5% of the respondents, again all female. The distinction between this mode and the publicly operated taxi service appears to be the knowledge of the driver. The significance of this distinction can already be assumed to be in relation to safety concerns, though its influence on mode decision making will be further explored in later chapters.

Other examples of modes included under this heading is a company bus which was mentioned by one man in reference to a travel mode operated by his place of employment which takes him to and from work. Given the small percentage of this occurrence it was not enough to suggest a general trend, however other studies have found women less likely to have access to transport provided by the workplace compared to men and that workplace provided transport has significant implications on women's travel and also on the level of gender-based violence they are exposed to (Uteng, 2012).

Finally, the on-demand ride hailing service 'Uber' was also mentioned by 3.5% of the respondents. These were one female and one male respondents in Ard El Lewa, and one female resident of Mansheyat Nasser. Despite being widely popular amongst the middle and upper classes in Cairo, the fact that it did not feature as much within this sample is not entirely surprising. As a mobile phone application, the use of Uber requires a much more complex and distinct set of skills than those needed for the other modes. The significance of that, especially for the female residents of these two settlements, some of which were illiterate, will be further explored in later chapters. Additionally, the terrain of the informal settlements which made it inaccessible for most modes meant they were much less likely to be able to benefit from the on-demand ride hailing features of such apps. Other concerns such as financial constraints, as well as stigma of location which was mentioned in reference to the taxis could also be of relevance here.

6.3.6 Walking

While not exactly a mode, walking, as a non-motorised method of travel is important to account for as it played a major part in the journeys of all respondents as can be seen from Table 6.21 below. Instances being counted as ‘walking as a means of travel’ were those where walking formed the entire journey for the travel purposes presented, or where walking was a significant part of the travel chain, such as having to walk to the main road to access the microbus, or walking to change from one mode to the next for example. The importance of accounting for all the above is to emphasise the importance of not overlooking this part of the travel experience.

Table 6.21 Walking as non-motorised mode used by women and men living in Ard el Lewa and Mansheyat Nasser (# and % of total interviewed in each settlement)

Walking			
Ard el Lewa	Female (33)	Male (11)	Total (44)
	27 (82%)	7 (64%)	34 (77%)
Mansheyat Nasser	Female (32)	Male (9)	Total (41)
	30 (94%)	8 (89%)	38 (93%)
Total	Female (65)	Male (20)	Total (85)
	57 (88%)	15 (75%)	72 (85%)

Studies from around the world have shown the extent to which those on low incomes, and those living in informal housing, heavily rely on walking to fulfil their travel needs as result of economic and social disadvantage, with women particularly shouldering the biggest burden of this load (Ureta, 2008; Tran and Schlyter, 2010; Salon and Gulyani, 2010; Cervero, 2013; Peters, 2013; Nasrin, 2016; Uteng and Turner, 2019; Mark and Heinrichs, 2019). The same could be observed with the respondents of this research as walking formed part or all of the journey for 85% of all the respondents.

77% of the respondents in Ard el Lewa had regular journeys that involved walking either as a whole or as a part of their journey, 82% of the women and 64% of the men. This figure was even higher in Mansheyat Nasser where 93% of the respondents had regular journeys that involved walking, 94% of the women and 89% of the men.

Income disparities again could be a main contributing factor to the distinctions seen by sex and settlement in the results. Earlier when discussing privately owned modes it was revealed that male respondents from Ard el Lewa are the most economically privileged of the four respondent groups, thus in a better position to be utilising costly motorised means, and walking less than female respondents in the study as well as the male respondents from Mansheyat Nasser. Access to private modes of transport also allows for a door to door privilege not possible for those who use public modes and need to walk the last mile between home to mode and from one mode station to the next. Of course a public mode alternative to the last mile inter-settlement walk already presented is the tukuk which is also costly. While walking as part of the journey is not limited to walking within the settlement, findings of more tuktuk users in Ard el Lewa than in Mansheyat Nasser are compatible with Mansheyat Nasser residents walking more.

Another important consideration for these distinctions could of course be travel destination. When people think of a journey that is within walking distance we often consider it to be one that is shorter in distance. That is the assumption Venter et al. (2007) for example make with their findings in Durban. The assumption with women in particular being that the fulfilment of the care related travel needs occur more locally and as such are reflected in more walking.

However, Salon and Gulyani (2010) in Nairobi observed heavy reliance on walking for slum residents even for very long trips and trips outside the settlement, suggesting cost may be the bigger contributor. The two studies serve as example of the importance of exploring more deeply the conditions and decision-making processes behind the observed travel patterns as will be done in Chapter 7. The implications of the heavy reliance on walking for travel will also be further explored in later chapters.

6.4 Conclusion

The results presented in this chapter were drawn from the semi-structured interviews conducted with a small sample of the settlements residents, involving three female participants to every male. Thus they are not meant to, nor do they aspire to be conclusively representative, but were merely intended to establish a reference for

understanding the transport patterns of the residents in a context where no previous research exists. The significant insights that were highlighted will serve to support the findings of the subsequent chapters where themes of transport in the gendered world will be further explored.

Significant findings from this chapter have been the diversity of travel purposes of the residents as well as the importance of details behind travel headings that in fact may be hiding a number of other travel purposes within them which each require their own distinct set of travel needs. In particular, it was revealed that observations regarding the distinct travel needs of the informal sector and female traders which were being raised over 20 years ago (Grieco et al., 1995; Howe and Bryceson, 2000) were still part of the reality of women's lives and not being properly accounted for in the planning and evaluation of transport infrastructure. It would be interesting to further explore how this may be affecting some of the findings from across the Global South and particularly the Middle East regarding frequency of low-incomes women's travel for employment which show them, contrary to what was observed here, travelling much less for this purpose than men such as that from Casablanca City, Morocco (Chamseddine and Boubkr, 2021) which relied on a travel survey for example.

Other points of significance was the extent to which women in fact had a very high need for travel, contrary to what may be presumed, a large share of women in this study travelled for income generation in addition to a very wide array of household and childcare responsibilities. This became especially evident when compared to the male respondents. These findings emerging from this context in Cairo confirm observations highlighting the high travel demands of 'care-taking' observed in other urban contexts across the Global South from similar contexts in North Africa (Morocco, Chamseddine and Boubkr, 2021; Tunisia, Murphy et al., 2023) and across Africa (South Africa, Parker and Rubin, 2022; Ghana, Darko et al, 2023). As well as from other continents (Brazil, Faria, 2020; Uruguay, Hernández and Santos, 2020; Pakistan, Iqbal et al., 2020; Chile, Sagaris and Tiznado-Aitken, 2020).

The findings of this research, and others, further strengthen the need for transport planning to reconsider who the main users of the systems are and what the main reasons for travel may actually be. This also suggests a greater need for consideration

for women as users in the evaluation processes, given the complexity of the travel needs observed.

In fact, when comparing mode use, women were almost as likely to utilise all the modes available as men, with no distinction between those living in Ard el Lewa or Mansheyat Nasser. The only real difference emerged when it came to use of private transport modes, which is indicative of many other exclusionary factors such as disproportional access to resources to name one. This finding aligns with other research which find women using more public modes than men, and men able to utilise more private modes in Belo Horizonte, Brazil (Faria, 2020) in Montevideo, Uruguay (Olivieri and Fageda, 2021) in Chennai, India (Mahambare and Dhanaraj, 2022) in Beijing and Shanghai (Ta et al., 2022) and in Greater Accra, Ghana (Darko et al., 2023) to name a few.

As stated the potential reasons behind all the observed travel patterns will in fact be explored in Chapter 7 where the contributory role of gendered power will become clear.

The substantial reliance on informal modes of transport was another significant finding which emerged from the data and which confirms similar research from other Global South contexts (Iqbal et al., 2020; Foley et al., 2022; Rahman, 2022; Vanderschuren et al., 2023). This calls for further consideration both for what that may be suggesting about the formal public modes, as well as about what can be done to safeguard against any disadvantages that may be emerging from the modes' informal status. For instance, what do the low levels of metro use mean for the fact that the women's only carriage on the metro is constantly being presented as the symbol of efforts for women's inclusion? What does the low use of formal public transport mean for government subsidised fares which are intended to keep prices low for those on low incomes, when in fact the modes they are actually using are operating in a free market where price is dictated by the drivers? This again will become clearer as more of the conversations around the experience of travel and the workings behind travel mode choice are revealed.

When examining these findings through a gender relations lens, they are telling of the extent to which labour and time were divided and negotiated within the household. As was reflected in their travel patterns, women predominantly shouldered the major share of household and children responsibilities, relying on other female family members support when needed. The distinction in leisure trips can also be attributed to these divisions, the added responsibilities on women could have resulted in less time and opportunities for leisure. They could also be telling of a female disadvantage in discretionary income, whether through lack of access or control. Furthermore, they could be attributed to gender relations on a wider scale, especially within the context of Cairo, where women's independent mobility and presence in public spaces are policed in the patriarchal society. Uncovering the causes of diverging travel purpose will be further investigated in the following chapters, using the women's own voices, based on an exploration of themes emerging from the conversations.

Furthermore, by highlighting the true patterns in the everyday lived reality of this study population, the findings of this chapter give us insight in to understudied travel patterns of travel and transport use, amongst residents in informal settlements in Cairo who are excluded from formal provision and disregarded in planning decisions, despite them being representative of the majority of the city's residents. Highlighting woman and men's usage and experiences of informal transport modes in Cairo, as the most utilised but formally side-lined transport modes, sheds light on both their significant impact on meeting women's travel needs as well as the potential extent of women's vulnerability due the lack of oversight and accountability. All the above observations are especially strengthened when we consider how little distinction existed in the major insights between each settlement.

The findings of this chapter thus challenge normative understandings of urban travel and the androcentric and occidocentric power structures governing urban transport planning, transport usage and travel patterns.

The following chapters will identify the workings of gender and power behind the findings presented to understand what they are a reflection of. They will also draw on the findings to understand the potential implications of these insights as well as the transformative potential of transport infrastructure within this picture.

7 Chapter 7: Travel Decision Making in the Context of Gendered Households and Informal Settlements in Cairo

7.1 Introduction

In Chapter 2, a lack of consideration of power was identified as a critique of transport accessibility studies. In particular, it was observed that there was an insufficient consideration for the unequal power dynamics existing in the wider context in which travel decision making and transport mode use take place. In missing power, the gendered structures and relationships affecting utility of transport systems and access to spaces are also missed. In response, one of the research questions posited by this thesis is concerned with identifying how gender and power in household and wider social relationships are reflected in the travel patterns and transport use of the women in Ard el Lewa and Mansheyat Nasser, and what implications this has on transport accessibility.

To answer this the narratives from the interviews conducted with the 85 female and male residents of Ard el Lewa and Mansheyat Nasser are used to explore the decision making processes behind the travel and transport mode use patterns presented in Chapter 6. The intention is to allow for a way of studying travel and transport which is considerate of the lived reality of the everyday, accounting for the real physical and social contexts in which women live and their travel takes place.

In the sections below the interviewees reveal in the discussions the decision-making processes behind their travel patterns and mode choices (or lack thereof) across the various journeys they undertook. The inter household gendered decision making, trade-offs and negotiations related to the division of labour, women's access to and control of resources and freedom of mobility and their impact on travel patterns are highlighted. Each of the travel modes identified by the women to have been part of their regular travel patterns will also be presented independently and the factors most commonly identified as affecting their use will be highlighted in order to emphasise the true extent of complexity and influence of gendered power on this process.

7.2 Decision making related to travel purpose

7.2.1 Income generation

In Chapter 6 it was revealed that travel for income generation was the most commonly occurring journey purpose amongst the interviewees 71% of women and 100% of the men conducted journeys for the purpose of income generation. This included, daily commutes, work related trips, and supplementary income generation activities. Of the 85 interviewees, 68 (80%) were involved in regular income generating activities, with 18 (28%) of them supplementing their income with further activities.

In contradicting the gendered assumptions regarding division of labour around gendered lines of productive and reproductive work the results of this study emphasise and strengthen the importance of women's ability to travel for the purpose of earning income which has been revealed to be of extreme significance for them as well as their households.

With 100% of men travelling for this purpose no variation existed by settlement amongst the male's sample. However, variation by settlement did exist amongst female interviewees. In Ard el Lewa only 61% of the women interviewed had income generation activities compared to 81% of the women interviewed in Mansheyat Nasser. Potential explanations of this distinction become clearer when we explore both the main motivations behind women engaging in these activities, as well as the nature and spatial distribution of the activities and their challenges below.

7.2.1.1 Household need and gendered restrictions

Other studies from Egypt such as Mason (2002) and Sieverding and Hassan (2016) have suggested a common gendered model in the household where the men are responsible for providing the income, and the women are given an allowance and the role of budgeting for household needs. The findings presented by this study however clearly contradict this, only 5 female interviewees out of the 65 (8%) mentioned receiving a household allowance from their husbands with 4 of these 5 stating they

added to it through income generating activities and saving schemes of their own as evidenced by the quotes by Interviewees 36 and 62 below:

“I have been married to him for 40 years and not once has he given me a household allowance.” – Interviewee 62 (Female, MN)

“The load is all on me, he takes my whole salary, I am the one who pays everything in the house, and my transport and my clothes and everything... He makes me pay for everything. ...maybe in a few years I can stop working, but right now if I stopped working I won't find money to eat.” – Interviewee 36 (Female, AL)

In the sample of women living in both these informal settlements, women's income generation emerged as a necessity for the survival of their families. In fact, of the 48 women interviewed who had income generating activities, 13 (27%) of them were the sole household breadwinners, 5 from Ard el Lewa and 8 from Mansheyat Nasser. While an additional 29 (60%) were parallel breadwinners 13 from Ard el Lewa and 16 from Mansheyat Nasser. In other words, 65% of the households of all the female interviewees in the sample were heavily reliant on their income. These figures align with another study from Egypt by Nasr (2010, p.14) who finds “among married women, 61.8% provide half or more of their families' total income and among women who were never married, 26.8% provide at least half their family's income.”

Conversations with the female interviewees regarding these activities however did reveal that women's income generating activities and in turn travel for this purpose were heavily influenced by gender and the conditions and relationships in the household. For example, the household need for money emerged as a main motivator in this picture as was expressed not only by women engaged in these activities, but also by 9 female interviewees who did not have any income generating activities but showed a desire to do so due to the material need of their household. Similar observations were raised by Sholkamy (2012) in her exploration of poor women's employment in Cairo. Given the income disparity between residents of Mansheyat Nasser and Ard el Lewa, the household need for income then could be one possible explanation for the

distinction between the settlements in terms of women engaging in income generating activities.

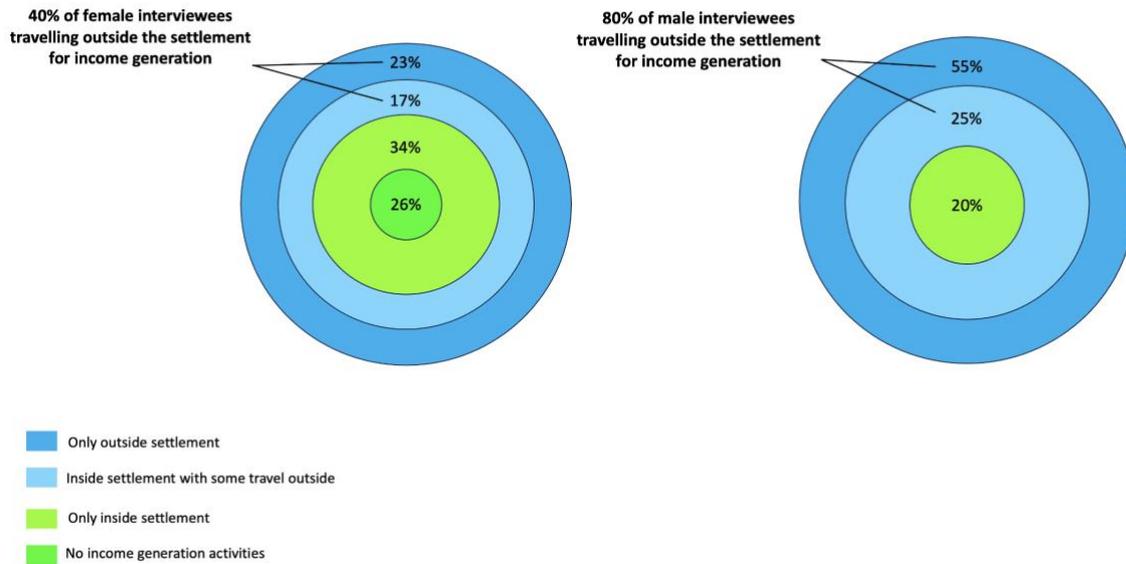
On the other hand, 7 of the 65 female interviewees (11%) suggested that though they wished to be able to engage in income generation activities they were not allowed to do so by male members of their household. Not only did such influence and control prevent some women from entering the labour force at all, but it also took women out of it, such as Interviewee 80 (Female, AL) for example who said *“I used to work until I got married - then my husband made me stay home.”* The reasons for this varied in each case, however, what was also obvious from the case of Interviewees 2 and 3 below was that attitudes about women’s work were circumstantial and not generalisable, as some would suggest. For Interviewee 2 (Female, MN) for example, interestingly there was a clash between conflicting attitudes of her family and her husband. While the conversation with Interviewee 3 showed that there can be different approaches even within the same family:

“My sister-in-law works. She is married to my husband’s brother and he is ok with it. So even though they are brothers they think differently.” – Interviewee 3 (Female, MN)

7.2.1.2 Location: inside the settlement vs outside

The high number of women and men in both settlements who engaged in income generation meant that distinctions between women and men’s work in the study did not clearly fall under the division of productive and reproductive work, but actually become more apparent when looking at the spatial distribution of activities. That is because double the amount of the male interviewees (80%) who engaged in income generation completed these activities either daily outside or had regular work journeys outside their settlements of residence in comparison to 40% of the female interviewees, thus presenting very different travel patterns in their income generation journeys.

Figure 7.1 Location of Income Generation Activities



This distinction is in line with gender disparities in the spatial distribution of women and men’s work evidenced in other parts of the world as well as in other studies from Egypt which suggest that women’s employment decisions are spatially restricted with a preference for work-home proximity. Examples include Handoussa (2010), Nasr (2010) and Assaad and Arntz (2005) who all expressed geographical mobility as a constraint for women’s employment and proximity to home as a contributor to particularly married women’s decisions when it comes to employment opportunities.

This remained true for both settlements, that is, 43% female compared to 91% male interviewees in Ard el Lewa and 37% female compared to 67% male interviewees in Mansheyat Nasser had income generation activities outside their settlements. Though both women and men in Ard el Lewa appeared to be more engaged in income generation outside the settlement than those in Mansheyat Nasser.

The location of the income generating activities of the women could also explain the distinction between the settlements. Exploring the results, we find that only 25% of the women from Ard el Lewa who completed such activities did so within their settlement compared to 54% in Mansheyat Nasser. It may be that the availability of closer opportunities was what resulted in more women from Mansheyat Nasser being able to take on these activities. On the other hand, women from Ard el Lewa who were

more likely to be formally employed required much further travel to access their places of income generation.

7.2.1.3 Cost and mode of travel

The closer work home proximity of many of the female interviewees was also reflected in the fact that the journeys of 61% of women who travelled for the purpose of income generation involved walking compared to 40% of the men. The figures of tuktuk use as part of the work journey by 41% of women and 20% of men further support this.

For those who had income generating activities, daily or less frequently outside the settlement however the distinctions were less pronounced. The microbus was the most commonly used mode for both women and men's income generation journeys, used by 59% of women and 60% of men. Moreover, contradictory to other findings globally, within this sample there was no significant difference between women and men when it comes to travel cost to income generation. Though women who had work journeys outside the settlement still spent less than men, (the average cost of this journey reported by women was 8.87 L.E. compared to 9.53 L.E. for men) women who had income generating activities generally had more control over their finances, especially when it came to work trips. That is evident from their responses in discussions about the work journey cost. Statements such as "*for the trip to work I pay it from my salary*" by Interviewee 11 (Female, AL) and "*my salary is enough to cover the cost of the journey*" by Interviewee 1 (Female, AL) were common.

Perhaps the concept of earmarking suggested by Gowayed (2018) is useful here. The necessity to work for both women and men meant that the transport cost could not be a significant deterrent. As opposed to other women's trip purposes, especially those not deemed necessary where, as it will be shown below, the cost plays an extremely influential deterring role such as for the purpose of leisure or visiting family.

The ability to spend more on journeys for income generating activities was also evidenced by 30% of the women in Mansheyat Nasser who used more expensive modes like the taxi for these journeys. For this group of women, their income

generating activities involved consistently journeying to the city centre to buy products not available in the settlements and selling them to the residents. For the majority of the women that this applied to, inventory trips happened more than once a week, with an average one way trip time of 40 minutes.

Distinctions in the journeys for income generation however did arise in ways other than cost. 61.5% of female interviewees who worked outside the settlement had difficult journeys to work, requiring multiple modes compared to 37.5% of male interviewees. This could have been a reflection of many things, including the need to stop at a number of destinations such as their children's school. It could also be as a result of the fact that 20% of the male respondents were able to utilise their private modes - either a car or a motorcycle for this journey. The latter part of this chapter (Section 7.3) will shed further light on these distinctions as a deeper exploration of the decision-making behind the use of each particular travel mode is undertaken.

7.2.1.4 Time

The other factor emerging as a significant player in the decision-making process for travel when it comes to income generation was time. Safety concerns in this context affected women's income generating journeys by influencing travel times. Infrequency or lack of availability of transport modes were often mentioned in the interviews with regards to night-time travel. Women also frequently spoke of feeling unsafe or changing their work routes at night, even taking longer ones. One example of this was Interviewee 10 quoted below:

“On the nights where I am out late, and going home after sunset from work, I change my route. It ends up taking a longer time and is a more expensive way using more modes but I do it to try to avoid that area under the Ring Road.” - Interviewee 10 (Female, AL)

The resulting constricted accessibility past sunset could be extremely inhibiting to employment, especially in those sectors requiring long hours or nighttime work.

Interviewee 1 quoted below also provided an example of journeys for the household and children's errands affecting women's schedules with implications on their travel for income generation.

“Ever since I had my son lots of things have changed. I had to change my working hours. I used to work 9 – 5 or sometimes later but now work from 10 – 4. I leave my house later in the morning because it takes longer to get ready. Then I need to drop him off at the nursery on my way to work and pick him up on the way back. It used to take me between 30 – 45 mins to get to work, now it is at least an hour.” – Interviewee 1 (Female, AL)

7.2.2 Household food shopping and for their children

As was presented in Chapter 6, journeys in fulfilment of activities for the household and children predominantly fell on the shoulders of women. One critical factor within this picture of household division of labour was the fact that it appeared as though men's minimal involvement in the household remained the case whether the women were engaged in income generating activities or not. These findings are similar to those of Hendy (2015) who emphasised the extent of women in Egypt's domestic burdens regardless of working status.

7.2.2.1 Gendered division of labour

Amongst the respondents there was a general sense that men's work and in turn, their time was of more value or takes priority over all the other responsibilities women carry. As a result, the idea of men's involvement in any household or childcare activities was presented by the female interviewees as something that was gifted rather than as a part of their responsibilities and being seen as 'help', supplementary to the women's work.

In defence of this division of labour, 2 of the women in Mansheyat Nasser also said that most of the men in the area work daily employment not full-time employment, so

they do not 'help' with errands for the household or the children because the time loss could cost them a day's wage.

There were also instances where the men responded with aggression when asked to contribute to other household tasks, as suggested by Interviewee 32 below:

"He doesn't help in the house at all, and whenever I ask him to get anything he gets angry and says why don't you get it?" - Interviewee 32 (Female, MN)

When asked why that was the case, his time was again given as an explanation, even though she in fact was also involved in 2 different income generating endeavours. Similarly, Interviewee 61 quoted below also perpetuated these ideas by undermining her contributions towards income generation:

"I am in charge of the house, and he works. But sometimes I help him at work. Sometimes I work in his shop which I opened for him with the loan from the NGO. I go to help him with inventory and things like that when I have free time. It just doesn't happen often that I have the time." – Interviewee 61 (Female, MN)

For Interviewee 61 above, her contribution in the form of the loan, as well as work in her 'husbands' shop that was only made possible by the loan, was downplayed. She maintains and makes clear in her rhetoric the division of responsibilities.

The responses by the male interviewees also confirmed this 'model' of household division of labour. 12 of the 20 male respondents were married with children. However, their travel patterns and responses regarding their household and child caring responsibilities showed little involvement with childcare and domestic work, with 7 of them directly stating that their wives performed all the household tasks and conducted the household and child-related journeys.

When asked about household or children related journeys they expressed statements such as:

“My wife is the one who gets everything for the house. I finish one job then I go to another.” – Interviewee 38 (Male, MN)

“Everything for the household or children my wife does.” – Interviewee 39 (Male, MN)

What these insights further suggested was the complexity of travel responsibilities imposed by the household division of labour on women. For example, for the 14 female interviewees who had children and travelled for income generation activities daily, the school journey formed part of their commute both on the way there and back with 4 of them additionally doing the household shopping on this trip.

“I take a tuktuk first with the kids, and drop them off at their school, this is around 7 am, then after I take the microbus to the metro, and then I am on the metro for maybe 10 minutes then I walk. By the time I have done all these things, it is over an hour.” – Interviewee 44 (Female, AL)

These journeys then presented them with additional travel challenges. In fact, all the women who had young children spoke of the difficulty of moving around with them. Carrying an infant or holding the hands of a child as you stand onboard an overcrowded bus or an underground carriage, speaks to issues of physical comfort as well as safety. For most of these women who had 3 or 4 children, it would actually have been carrying an infant as well as holding the hands of 3 other children.

“I struggle to move around with the kids, I prefer to move around alone. I can't worry about them and the journey, and if I get lost or something when I am alone I can figure it out better than if I am concerned about them.” – Interviewee 70 (Female, AL)

Additionally, as raised by Interviewee 3 below, it incurs an extra cost on the women's travel and limits their ability to easily hop on and off a transport mode. Instead they are required to wait for a less crowded bus or carriage, preferably one with seats. In other

words, it limits women's movements to times outside rush hours when the modes are not typically as overcrowded.

"It's is also an extra cost because you have to buy them a ticket as well on the microbus. I can only take one on my lap and I have 3 and you need the other 2 to sit down as well. There is not always space, sometimes you have to wait a long time for a bus with space. And people rush and shove and I have children with me so it slows me down." – Interviewee 3 (Female, MN)

It was obvious from the conversations with most of the women that no matter the mode, travel with children was a very challenging and limiting experience physically, geographically and temporally.

7.2.2.2 Cost and safety of children's journey to school

Concerns for the cost of travel as well as the safety of the children on the journeys to school and other activities requiring travel further intensified the need for the women to be escorting them to their destinations.

For Interviewee 3, quoted below for example, having a school nearby for her daughter at the primary educational level meant no added cost of transport but also meant that she did not have to be escorted, while her older sister in secondary school had to leave the settlement to access her school, and the transport cost and safety became more of a concern:

"The eldest is in secondary school in a neighbourhood nearby. I take her to school every day. She used to get a bus when it used to cost 170 L.E. per month, but then the prices increased and it got too expensive so I started walking her there myself. The middle daughter is still in primary school nearby; she walks to school by herself. The school is really close by and its safe so she can go by herself, while the youngest is still at home." – Interviewee 3 (Female, MN)

That is not to say that the journey to and from school was not a cause for concern for women with children attending school inside the settlement. In fact, many women in both settlements spoke about the lack of safety around the school and in the journeys to education even for the younger children attending schools nearby. Stories of children being kidnapped and/or raped, taken from around the school area were mentioned by 5 interviewees from Ard el Lewa and 3 from Mansheyat Nasser as a need to escort them on the journey. This concern did not only extend to young girls but was also mentioned by Interviewees 13 (Female, AL) and 67 (Male, AL) who were parents to young boys.

Safety of children on the journey to school emerged as a significant concern in Ard el Lewa in particular where 52% of interviewees who were parents of young children dropped them off at school compared to 38% in Mansheyat Nasser. A phenomenon that appeared to be more prevalent in Mansheyat Nasser, however, was children getting run over, particularly by tuktuks, with incidents of children dying as a result of these accidents.

7.2.2.3 Access to private mode of transport

Another very interesting and telling finding within the picture of travel for household needs amongst the interviews was the fact that from the men's interviews it was evident that movement with their families or children necessitated using an expensive mode like the taxi, or a private mode. In fact, 4 of the 6 male interviewees who said they regularly did errands for their house or children had access to a private mode of transport, a car or a motorbike, that they used for these trips, such as the case of Interviewee 7 below:

“All the household trips if I am free are dependent on the motorcycle if my wife or children need anything. But my wife uses public transport to go to work and back.” – Interviewee 7 (Male, AL)

4 other male interviewees who did not own private modes of transport and did not have frequent journeys for the household or childcare still relied on taxis when travelling with their children. Interview 48 (Male, MN) for example, speaking of the

regular journey to visit his parents said: *“I take a taxi to go to them because my wife and children are usually with me.”* Interviewee 16 (Male, AL) also said *“When my family is with me, we usually take a taxi.”* So did Interviewee 40 (Male, AL) who said: *“when I go out of the area with my family, we use a taxi.”* Similar to all the men above, Interviewee 29 (Male, MN) takes a taxi when going to visit his mother every week, again citing his children as the reason: *“I can’t ride public transport with my kids, they will suffer on the microbus, I always take a taxi when they are with me.”*

This was confirmed by the 6 female interviewees whose husbands had motorcycles or cars who all said that they regularly bought things from the market or completed other trips related to the house or the children. For these women their husband’s access to a private mode possibly meant that they were able to or more willing to take on household trips. Clearly, given the difficulties presented by women’s accounts with regards to travel for household responsibilities, there was an understanding and agreement that the private mode made certain trips easier.

“He is the one who takes the kids to school and back most days, because he has a car. He also buys the groceries and the bread from a neighbourhood nearby because it is better quality than the ones in our area.” - Interviewee 6 (Female, MN)

The private mode then, appears to allow the men to circumvent the challenges women face when it comes to household trips such as the difficulties they face when moving around with children and the difficulty of balancing all their roles within their time and cost constraints.

One additional point that was highlighted by Interviewee 7 (Male, AL) was the discrepancy in access to private modes between him and his wife. Interviewee 8 (Male, AL) also spoke of a similar experience where he said that he sometimes drove his children to school but that his wife was always the one who collected them after school using the metro. Interestingly both of the men were very aware of the difficulties of using public modes of transport to the extent that they had made a choice to acquire a private mode of travel to avoid the challenges presented by the public ones. Yet they appeared oblivious, or at least lacked consideration for the experiences of their wives

who continued to use the public transport modes in fulfilment of their own and household travel needs. This phenomenon was emphasised by Interviewee 10 (Female, AL) quoted below:

“My husband doesn’t understand the issues I deal with on transport because he has his motorcycle. My son used to stay home a lot from school if I cannot take him. Only recently my husband’s schedule changed slightly which meant he can help me by taking the kids to school. But on the day when he leaves the house really early for work around 6am he cannot take them.” – Interviewee 10 (Female, AL)

Husbands having access to a private mode might have made their movement easier, but it did not necessarily mean that it took the burden off women. For Interviewee 11 (Female, AL) below, as with Interviewee 10 above, it was still not something she, the children, or the house could regularly rely on.

“My husband has a motorcycle so it is easier for him to move around, so a lot of the times he picks up things for the house, and he takes the kids somewhere if they need it, but the bike can’t fit all 5 of us at the same time, so it’s either me and the youngest daughter with him, or the 2 middle kids.” – Interviewee 11 (Female, AL)

It is also necessary to note that though the results show that all the men who conducted regular trips for the household had access to a private mode, that did not mean that all the male respondents who owned a private mode were more likely to be involved in regular household journeys.

7.2.2.4 Location: inside vs outside

Another important determining factor when it came to who completed travel for household or childcare was in fact location. Within the findings, there was a clear link between men’s trips related to the household and the location of these trips.

The conversations with the women interviewees in both settlements suggested that there were many instances where responsibilities were divided by inside the settlement and outside, with men's involvement in household-related journeys increasing when it was outside.

For some women such as Interviewee 72 (Female, AL), her husband took on all responsibilities outside the household. While for others such as Interviewee 33 (Female, MN) quoted below, it was only in certain situations where her husband was able to contribute by taking on a task that she found difficult and involved a long journey into a more central area where they could collect subsidised provisions:

“If the kids get sick or something it is very rare that he would go do anything. He doesn't really know how to deal with things in most situations. But he goes to get us the bread for example with the bread card from the city centre. It is far and there are long queues.” – Interviewee 33 (Female, MN)

This also extended to sons. For example, in the interviews with the younger men, Interviewees 37 (Male, MN) and 47 (Male, MN) who lived with their parents, both spoke of buying things for the house while they were outside the settlements, or going out specifically for the purpose of fulfilling household needs for goods not locally available.

Men's participation in household trips increasing based on the location of the destination is extremely telling of women's freedom of mobility in the city.

This spatial restriction on women's mobility was most evident from the statements by Interviewees 24 (Female, MN) and 69 (Female, AL) quoted below who spoke of limitations based on distance.

“Sometimes I carry groceries, but small things I pick up on the way from around here, I don't go to the market by myself, it is far, down near the main road. My husband is the one who goes and buys the groceries” – Interviewee 24 (Female, MN)

“I don’t go out beyond the train tracks. This is my husband’s shop, I stand here, he is the one who gets the products from outside”. – Interviewee 69 (Female, AL)

For Interviewee 69 (Female, AL), her role and responsibilities were not limited to the household, she also worked alongside her husband in his local stationary shop within the settlement. However, there was a clear spatial divide. Her involvement was spatially restricted as it was her job to stay in the shop and handle the sales and any other tasks while her husband was the one who did all the trips outside the settlement such as buying the inventory. Her husband also bought the groceries for the house. According to this interviewee, the decision of who goes where was because “he has a Vespa so sometimes it is easier for him”.

7.2.3 Socialising/leisure

In Chapter 6 it was shown that trips for the purpose of leisure were more commonly conducted by men than by women. Not only did men conduct trips of this nature more frequently, but these trips were also more diverse, more public and to more distant destinations than women.

7.2.3.1 Gendered restrictions on leisure (purpose and companionship)

When asked about trips for themselves, from the interviews it becomes obvious that there was a general feeling amongst women that leisure trips, trips solely for themselves, and public leisure were not luxuries afforded to women. This is emphasised by statements by some of the women expressed in response to being asked where they go for leisure, such as: “*no, we don’t have leisure, we don’t do these things*”, “*leisure here is sitting in front of the TV with a bag of nuts*” and “*there is nowhere to go for leisure, women are trapped in their houses.*”

Other trips of a social manner mentioned were visits to family members for the most part, or for some, visits to friends/neighbours all in their homes.

42% of the female interviewees from Ard el Lewa and 44% from Mansheyat Nasser did not have regular travel for leisure at all not even to visit their family. For the female respondents who did have trips of this nature, visiting family was the most common trip purpose, mentioned by 45% of them in Ard el Lewa and 34% in Mansheyat Nasser. The youth club in Ard el Lewa was mentioned by 29% of them, while only 6% spoke of friends, or trips to the city centre. While in Mansheyat Nasser 24% of them also spoke of visiting friends and neighbours, and 10% of them made reference to the city centre and church.

Responses from women such as *“I remember maybe once when the kids were younger we all went to the Giza zoo”*, said by Interviewee 6 (Female, MN), highlight the extent to which most women spoke of public leisure in the form of activities with and for their children. Most women who did mention going outside the settlement for leisure in public places did so with their husbands and children and not alone. In contrast, men spoke of friends, youth centre, or social outings to the city centre. 40% of men of both settlements also mentioned the local coffee shop *ahwa* (a predominantly male space where men spend free time and socialise) no equivalent space exists for women.

Furthermore, in conversation with Interviewee 9 (Male, AL), he made clear that he considered just leaving Ard el Lewa in itself to be a form of leisure. Interviewee 47 (Male, MN) also shared the same view of activities within and outside the settlement of Mansheyat Nasser. Men’s accounts of leisure destinations being located outside the settlements further highlights the extent to which such social places are inaccessible to women within this picture. Several women such as Interviewee 35 (Female, AL) also highlighted the lack of social or leisure spaces in the settlement.

Whether it is the suggestion that leisure itself was not conceivable, or that it is public leisure that was unattained, all accounts were telling of the nature of the types of community and city activities in which women engaged in and which appeared to be predominately in service of their household roles or behind household doors. While in other studies, there has been an observed distinction in women’s travel for leisure according to age and marital status (See for example: Iqbal et al., 2020 in Pakistan and Murphy et al. 2023 in Tunisia), unfortunately for the female residents of Ard el

Lewa and Mansheyat Nasser there was no obvious distinction in these according to age. Both younger and older women were affected by these restrictions equally. Of those women who said they never or rarely went out for leisure 14 were between 18 – 40 years of age and 13 were over 40.

7.2.3.2 Freedom of mobility

Conversations around needing permission to go out, or to conduct certain trips all highlighted the extent to which journeys for the household or the children, or even income generation (for the house) were not as contested as other journeys that were in fulfilment of a more personal purpose.

Local inside the settlement trips in relation to women's household defined role did not require the same input from their husbands as trips outside that parameter. Women who seemed to have more controlling husbands still moved freely to the market, they went to drop off and pick up their children from school, they also went unaccompanied to the hospital and other such trips for their children. This was possibly because such journeys fell under an already agreed understanding and division of labour in line with gendered designation of responsibilities.

One example of this was Interviewee 63 (Female, MN) quoted below:

“My husband, he only lets me go to absolutely necessary journeys, because something like going to the market for example, if he said no to me, he would have to go himself, and he wouldn't want to, so he lets me. But for journeys outside, he would say yes once and no 20 times.” - Interviewee 63 (Female, MN)

It appears as though it is the necessity that dictated these women's ability to move outside their homes. The level of necessity however also appeared to be decided by the men.

Conversations with women who were involved in income generation also appeared to fall in line within these limitations as is seen by Interviewees 57 and 58's (Female, MN) accounts below:

"My husband doesn't allow me to go anywhere, even to my mum or to my brothers, they come to me while he comes and goes to wherever he pleases. He doesn't say anything about me going out for work, because I am the one who brings the money. Everything I earn just about covers the household's needs, I cover my own and house expenses." - Interviewee 57 (Female, MN)

"Sometimes he would say no if I am going to my mothers, so I stay. But for work he never says no because how else would we eat?" - Interviewee 58 (Female, MN)

These women's keen observations and understanding of the reality of this decision-making process also serves to highlight the extent to which men's dictation of women's travel was contingent on their valuation of the necessity and was limiting to any purpose of travel beyond that need. When this is considered alongside the restriction of Interviewees 57 and 58's movement with regards to visiting their family, their statement clearly highlights that as long as it was a necessity for them to work, their movements to that end were less challenged. However, visits to their family were regulated and conditioned, requiring permission and more often than not, not even getting permission. For others such as Interviewee 36 (Female, AL), visits to family were completely denied.

Interestingly examining household relationships in Egypt, almost 30 years ago Macleod (1996) found similar patterns when it comes to freedom of mobility and purpose, highlighting that men's permission was needed even to visit family.

Another significant theme arising from the study was the extent to which distance from families could affect the frequency of visits, with significant restrictions being more prominent outside the settlement.

Women who lived closer to their families visited them very regularly, with 90% of them doing so at a frequency of at least once a week. On the other hand, those who lived further from their families, conducted these trips much less regularly. Furthermore, women who did not have family in the area were more likely to say they rarely or never visited them. With only 40% of them visiting their families at least once a month, compared to 95% of the women with family in the area.

When we consider the extent to which women's ability to travel and utilise transport modes was restricted by gendered constraints, residential proximity's influence on movement raises serious concern for women who live far away from their families. With families being the main source of support for women, and also their most common destination of 'leisure', the ability to make those trips, and the regularity of them is crucial. Amongst the respondents there were in fact a group of 10 women who never visited their family (6 from AL and 4 from MN).

The above forms of entrapment and exclusion can also lead to isolation that has detrimental impacts on women. This isolation and its impact, as well as the impact of spatial exclusion of women from the city which is also of extreme significance in this picture, will be further explored in Chapter 8

7.2.3.3 Cost

Another important point which also feeds in to this picture was raised by female Interviewees 15 (MN) and 75 (MN) who suggested that not engaging in trips of this nature was also due to the high costs of not only the journey, but also the social activity itself. In trying to save and budget for their households, these women then made a decision to reduce the number of activities deemed unnecessary or not in fulfilment of an immediate need. The thought processes of cost and saving presented were not shared by the men who were interviewed, none of whom mentioned cost as a factor in the decision making of leisure trips.

Distance, difficulty, and cost of the journey were also explicitly highlighted as main barriers by Interviewee 64 (Female, MN) as well as Interviewee 56 quoted below:

“To go to my daughter, even though she is in Cairo, I would ride 4 times, 3 minibuses, and then a tuktuk to her house... [I don't see her] very regularly because as you can see it is far and expensive, and still they are saying the prices will go up again soon.” - Interviewee 56 (Female, MN)

Women's concern for the cost of the journey was also reflected in the modes used by the female and male respondents when it came to leisure trips. 45% of the men stated that they walked to some of their leisure destinations, while another 35% of them either made use of a private mode, such as their own car or motorcycle, or a hired mode, such as the taxi or uber. Only 30% of the male interviewees used a public mode for their leisure destinations. In comparison, 67% of the female respondents mentioned the use of a public mode on these trips, most commonly the microbus or the tuktuk, for 33% of them the journey involved walking, while 30% of them mentioned the taxi, but also a private car, and Uber. Reinforcing again the extent to which women relied on the informal public transport infrastructure more than men, as well as suggesting an expenditure variance between female and male respondents for these journeys with the men able to utilise more comfortable and more expensive modes.

7.3 Decision making related to travel modes use

7.3.1 Cairo Transport Authority (CTA) Bus

In Chapter 6 the CTA bus was revealed to be the least utilised form of public transport mode amongst the respondents. This remained true for both sexes and across both settlements.

With cost being such an influential factor in transport mode decision making, then as the one which has benefitted from government subsidies and is the cheapest transport fare amongst all the road modes, its low level of usage is curious.

Exploring the responses, we can learn more about the advantages and shortcomings

of this fleet of 3000 buses (UN-Habitat, 2021) operated by the CTA, as experienced by the city's residents.

7.3.1.1 Safety on board

One potential explanation could be that the low levels of CTA bus usage was representative of the trade-off between the two most significant contributory factors outlined by women. That is cost and safety. The CTA bus, in particular, is notoriously a place where sexual harassment commonly occurs (UN-Habitat, 2021).

Interviewee 28 for instance emphasised how it affects her transport use:

“The public bus, if it is just myself and my daughters, I wouldn't ride it because the men get close to you and they touch you. Sometimes we wait for an emptier one.” - Interviewee 28 (Female, MN)

Prevalence of harassment on public buses was also confirmed by male respondents:

“I really do not like the public bus because it is full of problems, pickpocketers and harassers, and you have to get involved. It becomes an exhausting journey.” – Interviewee 39 (Male, MN)

The idea of it being an exhausting journey was also one that was expressed by 2 other female interviewees who both complained of overcrowding on the CTA bus and there never being any available seats.

Being sat down versus stood up in CTA buses should not just be interpreted as an issue of physical comfort, but in fact a personal space and safety issue. The limited capacity of the CTA buses and the nature of its design mean that they are always overcrowded with passengers standing crammed against each other with no space to move, a situation that many men in Cairo habitually use as an opportunity to impose on women's bodies.

For the female respondents commonly travelling with children, this presented an added challenge to the usability of this mode with 2 female interviewees making specific reference to the difficulties of carrying a child while being stood up for long periods of time on the CTA bus. As evidenced by Interviewee 43's account below. This concern was also of relevance to those travelling with older children.

"It's very difficult, I am worried about them, and worried about myself and worried about my bag. The whole country is stuck to you on board transport modes. You can't call it riding, it is more like suffocating, we suffocate, my children and I." – Interviewee 43 (Female, AL)

7.3.1.2 Journey time and capacity

Another complaint mentioned when speaking of the CTA bus was the issue of the journey time. Unlike the flexible and demand responsive minibuses, for example, the government operated CTA bus routes follow more traditional paths with slow driving, long wait times, as well as longer routes.

This again proved a challenge for women for whom, as was presented in earlier sections, given the extensive list of their responsibilities, time was of particular importance.

This is evidenced from the 2 responses below, for example, who not only spoke of the journey being slow, but also emphasised the implications for their time schedules and travel experience.

"It is extremely slow and boring and ends up being a burden as it stops so many times." – Interviewee 11 (Female, AL)

"I was always somehow late, no matter how early I left, because the buses are so busy, you might have to wait until the third bus comes to find space to get on." - Interviewee 25 (Female, MN)

7.3.1.3 Infrastructure quality and reach

For the male respondents it appeared to be the low quality of the aged vehicles and their limited reach which were the contributory factors for limited use of the CTA bus. Issues of limited availability and reach were highlighted by Interviewee 22 (Male, AL). While others such as Interviewee 9 (Male, AL) and Interviewee 37 (Male, MN) highlighted issues of physical quality and maintenance of the available modes.

In Chapter 5 it was revealed that the CTA bus fleet consists of both old deteriorated vehicles as well as newer upgraded models. Over the years, the government has been gradually and consistently introducing newer models (at an increased fare). However, despite the wide geographical distance between the two settlements of Ard el Lewa and Mansheyat Nasser, the complaint regarding the CTA's lower quality of vehicles was interestingly mentioned by respondents from both settlements. This observation leads to questions regarding how equally the newer buses are being geographically distributed across the different areas of the capital.

This point was raised by Interviewee 37 who made specific reference to a bus he encountered in the wealthier district of the 5th settlement stating:

“There is a difference in the buses of the 5th settlement and the other buses the public use. There is this CTA bus that I have only seen there, those kinds of things do not come to our area. You don't find them around Mansheyat Nasser.” – Interviewee 37 (Male, MN)

Men's responses with regards to capacity and routes of the networks, compared to the concerns raised by women, were indicative of their own transport needs which required them to constantly be highly mobile around the city. Issues raised about the mode quality around their area and comparisons made to modes elsewhere in the city further emphasise the extent of men's spatial reach and engagement with the city compared to women. This will be explored more deeply in Chapter 8 when highlighting the implications of the observed travel patterns.

7.3.2 Metro

Another formal mode of transport with relatively low usage levels in the findings was the metro. This mode was used by only 2 more of the respondents than the CTA bus (23 vs 21 respectively), and was a similar percentage in both settlements. The distinction of mode usage however was obvious when comparing by sex, as it was used by double the percentage of females to males (31% vs 15%).

7.3.2.1 Safety and physical comfort on board

Given the role safety plays for women when it comes to transport decision making, it may be assumed that the higher use of the metro by the female respondents was due to a feature of Cairo's transport system commonly mentioned in the literature when discussing women's safety on-board transport modes, that is, the women-only carriages on the metro.

However, in the conversations with the interviewees, the women only carriages were in fact referenced by only 4 of the 85 respondents. Of them, there were only 2 female interviewees, Interviewee 25 and 57, both residents of Mansheyat Nasser, who suggested the female only carriages afforded them some ease.

Another interviewee mentioning the women only carriages in a positive light was in fact a male resident of Ard el Lewa, who, though did not utilise the mode himself, claimed a preference for it on behalf of his wife, based on the existence of the carriages:

“The one mode I hate and never use is the metro. It is just always so busy and I can't stand it. My wife uses it though, she likes it, but I think it is easier for her because there are carriages for women which are emptier than the men's.” - Interviewee 8 (Male, AL)

The fourth and final reference to the carriages was a more negative one. Contrary to the belief expressed by Interviewee 8 above, for Interviewee 6 below, the women only carriages can also be a challenge due to overcrowding:

“The metro used to be that the train arrived every 3 minutes, now it is 5 minutes since they extended the line, and can sometimes be up to a 10 minute wait time. Its unreliable because it makes people late. Plus, it makes it busier. People shove you, you get pushed and squeezed in. Even if you change your mind and don’t want to ride, you can’t get out. You get shoved and can’t breathe. And you can’t ride with the men but there are only 2 carriages for women.” – Interviewee 6 (Female, MN)

In the above quote Interviewee 6 also touches upon the potential restrictive nature of the women-only carriages. The way they have come to be used and understood is not as a sheltered option for women, but actually as the only option. In turn this restricts women to a limited space on the metro (only 2 carriages) and puts other women who use other carriages at risk.

The overcrowding she referred to on board and at the metro stations was a challenge expressed by multiple interviewees, who all similarly made reference to the discomfort experienced as well as the challenge of entering and exiting the overcrowded metro.

“It is really busy and there’s never any place to sit, and sometimes when you try to get off you aren’t able to. When I’m standing there, I just hold on to my bag. Then when I try to move out, I have to keep pushing until I can get out.” – Interviewee 81 (Female, AL)

2 of the female respondents from Ard el Lewa, Interviewees 1 and 66, who utilised the metro also made specific reference to the overcrowding which took place during “rush hour” in reference to the times formal employees and students were going to or coming back from work. For both these women, who were in full time employment outside their settlement, the overcrowding during this time period was particularly challenging.

Other interviewees raised further safety concerns related to incidents of injury as well as theft as a result of the overcrowding.

Travelling with children on board the metro was also expressed to be significantly challenging. 3 of the female interviewees from Ard eL Lewa (Interviewees: 66, 81 and 83) mentioned that when their children are with them they cannot get onto the metro and have to wait until an empty carriage arrives.

7.3.2.2 Infrastructure reach

One female respondent from Mansheyat Nasser raised the pertinent issue that there was in fact no metro station nearby and that to make use of it, you would still need to take the microbus there. This raises the issue of the need to utilise multiple modes for one journey, as well as the challenges of a lack of integrated fare structures. The significance of this observation will be further highlighted in the later section when discussing the microbus.

7.3.2.3 Journey time

That is not to say that the metro is not without its positives. A potential contributory factor for the increased use of this mode by women could have in fact been its speed which meant it can save them some valuable time. 3 of the women, Interviewee 12 (Female, AL), Interviewee 3 (Female, MN) and Interviewee 28 (Female, MN) spoke of the speed of this mode as an advantageous feature. The speed was also acknowledged by 1 male respondent, Interviewee 19 (Male, AL).

7.3.2.4 Cost

Interestingly, among the interviewees only 1 respondent referenced the cost of the metro as a draw, despite it historically being the most subsidised mode, with a long static trip fare of 1 L.E. per trip, from 1997 - 2018. As mentioned in Chapter 5, more recently there have been gradual increases to this fare, one of which coincided with the time period of the interviews. This was raised by Interviewee 69 (Female, AL) who

expressed how the price increase will in fact result in her using alternative means to the metro to save on cost, potentially requiring 4 different vehicles for the one journey she did monthly to visit her parents.

7.3.3 Taxi

A number of significant insights emerged when exploring the distinctions of taxi use between women and men, as well as by the residents of the different settlements. As was presented in Chapter 6, the taxi was used to travel by a higher percentage of male than female respondents, 50% to 34% respectively. Since the taxi was identified by the interviewees as the most expensive travel mode, the difference by sex was in line with global trends and expectations due to the differential access to and control over financial resources which allowed for the use of more costly travel modes by men. The difference in taxi use also indicates a difference in the geographical spread of journeys since within the informal settlement context a trip that necessitates such a mode is one that is outside the settlement. This finding then can also be a reflection of the gendered difference of spatial distribution of activities and the impact it has on gendered travel patterns.

One particular finding of note, which was unexpected, was the higher percentage of taxi use by residents of Mansheyat Nasser compared to those living in Ard el Lewa, 44% to 32% respectively. As mentioned in Chapter 6, this could have been linked to more Ard el Lewa interviewees owning private modes of transport, in turn reducing the need for taxis.

7.3.3.1 Cost

When exploring the decision-making process behind the use of taxis, it appears that, because of this high cost, the taxi was considered as a last option only when it was deemed to be necessary. The most common instances where the cost of this travel mode was considered justifiable for the advantage it would provide for the interviewees included for specific income generation journeys, for healthcare emergencies and for the male interviewees travelling with children.

In fact, for female Interviewee 4 from Ard el Lewa quoted below, the high cost meant that having to rely on this option was believed by her to be a “punishment”.

“The bus I need to take leaves at 7:30 am exactly, so it depends on whether I catch it or not because otherwise I have to wait another 2 hours for the next one. So, on days where I can run and catch it, I do, on days I miss it because something delays me at home, I know my punishment is to pay extra for the taxi.” – Interviewee 4 (Female, AL)

Similarly, for female respondents from Mansheyat Nasser, they deemed it a last resort, such as Interviewee 24 who said “*the taxi is very expensive and only used in special circumstances*”, and Interviewee 27 who remarked that “*only if I am really desperate do I take a taxi.*”

7.3.3.2 Comfort and Convenience

For the residents of Mansheyat Nasser, it is income generation journeys, particularly for women, which resulted in a higher share of the use of this travel mode. As was mentioned in other sections, a common way of earning income, particularly amongst the female respondents from Mansheyat Nasser, was by buying locally unavailable goods in bulk from the city centre and selling them to other female residents in the settlement. As a business venture organised by individual women from their home, the return journey for these kinds of trips meant they found themselves having to carry and take back a large number of goods to Mansheyat Nasser to sell. In these instances, the women considered the cost of the taxi as part of the business cost and a justified expense. Examples of this were Interviewees 55 and 56 quoted below:

“On the way back, I take a taxi straight for 30 L.E. because I am carrying all the clothes.” – Interviewee 55 (Female, MN)

“When the things are really heavy, I take a taxi because I cannot otherwise, but that can cost between 50 – 60 L.E.” – Interviewee 56 (Female, MN)

As for the distinction between women and men's use of the taxi, the higher share of taxi use by male respondents in both settlements was comprised of travel journeys with their families. There was a feeling amongst many of the male respondents that the taxi was a much more comfortable and preferred mode of travel to other mass public transport modes when having to accompany children.

This finding points to three very important points. Firstly, that moving onboard collective public modes of transport with children was primarily part of women's transport experience rather than men's. Secondly, it also points to issues of access to and control over resources. By having the ability to choose the use of a taxi, men appeared to be able to put comfort over cost, a choice most women did not have. Thirdly, it points to an infrequency of trips of this nature, as it is unlikely that any of the household budgets would have made it possible to pay for the taxi for every household trip. This confirms the results which emerged when examining travel purpose that pointed to the irregularity of men's involvement in household tasks.

7.3.3.3 Journey Time

The final travel purposes where the use of taxis was most commonly mentioned were those for medical needs. The nature of healthcare emergencies and other necessary journeys to medical facilities meant that the taxi was chosen for its speed and comfort over other modes which would require mode hopping, take longer, or be more uncomfortable. For Interviewee 32 (Female, MN), for example, a situation where her mother who lived outside the settlement was unwell meant having to take two taxis *"one to get to her fast, then another one to take us to the hospital."*

7.3.3.4 Safety

Perceptions of the lack of safety of taxis also emerge in the interviews affecting the use of this mode. Fear and distrust of drivers in solitary modes and unassigned routes affected the use of a number of travel modes, including taxis. This meant that there was a preference for modes such as the microbus rather than the taxi because there are other people on board, and, also, because they have assigned routes. This point

is emphasised by the 2 statements expressed by female interviewees of both settlements below:

“I feel safe in general moving around, but if I were to choose the most unsafe mode, I would say it is the taxi. I prefer the microbus because people are with me rather than the taxi especially when I am in a remote area.” – Interviewee 12 (Female, AL)

“You hear all kinds of stories about things that have happened to girls in taxis. So, a full microbus is always safer, especially because it has assigned routes as well, so you know where it is going, unlike the taxi which can take you anywhere.” – Interviewee 25 (Female, MN)

In fact, female Interviewee 63 from Mansheyat Nasser shared a story of a frightening experience that happened to her when she was younger, affecting her views on the taxi and taxi drivers. Male Interviewee 8 from Ard el Lewa also had experienced an incident that shaped his perception, a situation where he had intervened to assist a woman he heard screaming from a taxi driving past him.

7.3.3.5 Infrastructure reach

There were other instances, even when deemed less safe, that the taxi still remained a necessity, such as in the hours outside the operation of buses and minibuses.

“Sometimes if I am late at work I take a taxi home, it’s at least 25 L.E., and even then, they don’t take me straight to the house, they let me out far away. I get scared to move around alone at night its dark and the roads are emptier. But when it is late there are less transport options, there aren’t as many buses.” – Interviewee 36 (Female, AL)

Interviewee 36 above when referring to the taxi not taking her straight to the house is also pointing to another factor which affected taxi use, and that was the refusal of some taxis to go into the two study settlements. This was something that was mentioned by both female and male residents of Ard el Lewa and Mansheyat Nasser.

According to male Interviewee 9 from Ard el Lewa, the reasoning for the taxi drivers refusing to go in to the settlements and choosing to leave the customers at the pedestrian bridge instead is because:

“They don’t want to bother with the chaos. Evading tuktuks, people walking on the road in front of you, also the shops extend their product displays to the street on the already narrow streets.” – Interviewee 9 (Male, AL)

7.3.4 Microbus/Nano-bus

The Microbus had the highest percentage of users of both settlements and sexes amongst the travel modes. It was used by 89% of the interviewees. As with other modes presented thus far, the usage percentage tells an interesting and complex story of decision making and negotiation in challenging circumstances.

In earlier chapters, it was highlighted how the minibuses as informal modes had emerged to fill transport infrastructure gaps and deficiencies in the formal modes. With that in mind, on the surface of it, it would be easy to assume the high usage percentages are simply a reflection of availability. The minibuses are the modes most easily available at the settlements’ entry and exit points and thus the easiest reached by informal settlement residents. They also act as feeders to the formal transport network. Conversations with the interviewees, however, revealed a wide array of challenges, telling of a difficult travel experience when using this mode most commonly available to them.

7.3.4.1 Safety and physical comfort on board

The ability to be sat down on the microbus was raised by 6 female respondents as contributing to their preference for this mode compared to the CTA bus. The guarantee of a seat and the lack of open standing spaces for overcrowding decreases the ease of sexual harassment (Shehayeb, 2015). Though as can be seen from Interviewee 2’s account below, a seat on the microbus was still not a guarantee of safety.

“On the microbus men harass you. My mum got into a fight on the microbus because a man sat next to her and started touching her leg. And she is an old woman, but it happens to her often.” - Interviewee 2 (Female, MN)

Interviewee 2 points to another interesting factor which influences the way transport modes are used and experienced by women, that is age. Within the literature, age has been shown to significantly negatively affect travel experience and mode perception for women even more than men (Al-Rashid et al., 2021; Ibrahim et al., 2021; Foley et al., 2022).

Interestingly however within this research the findings appear to contradict this. Female interviewees between the age of 18 to 40 (of which there were 37 in this sample, 19 from AL and 19 from MN) were more likely to say that they felt unsafe while using transport modes than those over 40 years of age (of which there were 28 in this sample, 15 from AL and 13 from MN). It is unclear why this might be, however, as will be shown in Chapter 8, there is a link between the frequency of utilising modes and exposure to certain spaces, and the perception of safety and feelings of confidence navigating them. Thus experience of utilising modes could be playing a part in older women feeling more safe than the younger ones.

It is worth noting however that the oldest interviewee was 65 years of age, so it could be that the sample age is younger than those in findings which point to a significant reduction in older women’s mobility, ability to travel independently, and physical ability to utilise transport modes (Jahangir et al., 2022; Al-Rashid et al., 2023; Goel 2023).

Another reason given by female respondents from both settlements for preference of the microbus over other modes, such as the tuktuk and the taxi, was its collective nature. 4 female respondents suggested they felt safer onboard a microbus with other passengers than they did alone in a taxi or tuktuk.

The set of preferences listed in this subsection emphasise the extent to which there was consideration for safety when it came to mode use decision making amongst the female respondents.

7.3.4.2 Infrastructure, capacity and reach

Further analysis of the interviewees' narratives also urges reconsideration of the assumption of availability. Yes, minibuses are the modes with the most routes reaching the informal settlements. However for the residents of Ard el Lewa and Mansheyat Nasser, even though they had to rely on them so much, they were still not very easy to reach. Respondents from Ard el Lewa and those from Mansheyat Nasser such as Interviewees 4 and 54 below referred to the challenge of having to find their way to the pedestrian bridge or ramp so they could access the minibuses.

“To even get to the bus, those stairs of the pedestrian bridge are exhausting, and the escalator never works and by then you have already walked 15 mins to get there or have to take a tuktuk and pay.”
– Interviewee 4 (Female, AL).

“I always ride at least twice because I ride to go to the ramp to get the other modes to the rest of the city.” - Interviewee 54 (Female, MN)

Many interviewees from Ard el Lewa mentioned the journey to the pedestrian bridge being a challenge and there were 3 female interviewees who complained about the escalators not working. The journey was even longer and more difficult for those who lived furthest inside. Those living further uphill in Mansheyat Nasser also faced the same challenges in getting to the ramp where the transport modes are located.

Once the interviewees did reach the entry/exit points where the minibuses were, many of the respondents complained of the challenge of getting on board the minibus, and also about the minibus leaving times. For instance, it was mentioned by Interviewee 69 (Female, AL) and Interviewee 27 (Female, MN) that the minibuses only departed when the vehicle was full to maximise their profits, making leaving times unreliable with wait times being up to 30 minutes. These 2 respondents from each of the settlements, also referred to the struggle to find space to ride on the minibuses during the morning rush hour especially around the school time.

The fact that minibuses are demand driven means that they were not likely to venture to more isolated areas, and the profit and commission-based models meant they were less likely to operate during unprofitable times, including night time. This issue seemed to particularly affect residents of Mansheyat Nasser, potentially because it is more geographically remote than Ard el Lewa.

Issues with accessing the minibuses were even more pronounced on the return journey according to multiple interviewees from Mansheyat Nasser settlement. This challenge was raised both by female and male interviewees as is shown below.

“On the way back, I have to take 2 or 3 modes to go home. The journey is different because there is no straight route back, and no minibuses, and you have to walk a lot, and wait for long periods of time until the minibuses come.” - Interviewee 60 (Female, MN)

“On the way back from anywhere most of the time you have to use 2 modes. There are very few minibuses that take you to Mansheyat Nasser, you almost always have to use 2 transport modes, you ride anything to get you to a route that goes to Mansheyat Nasser then ride again.” - Interviewee 38 (Male, MN)

7.3.4.3 Lack of formal supervision and accountability

When exploring the usage of other modes such as the metro and the public bus, the cost of having to mode hop was raised as a challenge. Similarly, having to change buses multiple times, whether in the cases listed above or in other situations, led to a significant increase in the cost of journeys. When it came to the cost of using the minibus the interviewees suggested that their informal nature and lack of regulation of fees led to the drivers taking advantage of them, as emphasised by Interviewee 3 (Female, MN) *“It doesn’t matter if it’s a short or long journey, they charge you what they want”*.

The lack of formal supervision and accountability of the minibus drivers posed a number of challenges for the users. Interviewees 6 and 11 quoted below for example,

emphasised the impact of the lack of assigned routes, prices, schedules as well as lack of bus stops when it came to using the microbus. The resultant increases to the cost and time of travel as well as lack of reliability then acted as deterrents to women who were time and resource poor. The absence of designated bus stops further resulted in increased exposure of women to unsafe situations.

“For the microbus, sometimes the drivers charge by themselves whatever they want and don’t follow the routes. Sometimes you have to get off and get on another one when the bus decides to stop, so you can end up paying 3 different times hopping from one bus to the next.” - Interviewee 6 (Female, MN)

“They try to fit as many people as they can in the bus to make as much money as possible, so everyone is just squeezed on top of each other. And, also, sometimes because they don’t have exact stops, you try to get off and they get angry because they say oh I was just stopped 2 minutes ago why didn’t you get off there?” – Interviewee 11 (Female, AL)

The above two quotes also stress the extent to which there was a general sense of distrust of the microbus drivers. Female interviewees from both settlements raised concerns about speedy and careless driving by microbus drivers. Interviewee 28 (Female, MN) even suggested that they sometimes raced each other. Many interviewees also complained of the way the microbus drivers treated them, claiming they “*behave disrespectfully with the passengers*” “*speak to you in a rude way*” and “*degrade you*” and “*treat you as they please*”. It was also suggested by the women that the microbus drivers “bully” the passengers, such as drivers making them pay for carrying a bag even if doesn’t take up a seat. Or they refused to let them make any requests such as opening or shutting a window.

This picture is further complicated by the fact there were instances for the women interviewees, in the face of the drivers’ actions, where male presence, even if they are strangers was preferred. Interviewee 4 (Female, AL), for example, quoted below,

highlighted the vulnerability of women's experience in the face of drivers' intimidation when there are no men on-board. She explains that the drivers of minibuses sometimes stopped in the middle of the route claiming someone has not paid and they don't move again until they have the money that they think they are owed. According to her this was common practice. In these instances, drivers can stop driving for periods as long as 30 minutes.

"Sometimes it is worse when it is just women on the bus. They stop sometimes in the middle of nowhere and there is no man to fight with them, the women just give in and pay them so they agree to continue their route. You never know if they even really are owed money, they can just take advantage of you, and you are forced to pay or you are stuck there." – Interviewee 4 (Female, AL).

The issues of concern raised by women regarding the microbus drivers' behaviour were recognised by men as well. Interviewee 20 (Male, AL), for example, stated: "*microbus drivers are terrible, the way they speak to you and the way they drive and behave.*" While Interviewee 67 (Male, AL) confirmed the attitudes of drivers towards the passengers stating: "*they don't respect you and they are rude to everyone and even have people go out of the bus in the middle of the road.*"

7.3.5 Tuktuks

3 observations emerging from the research with regards to the tuktuk were: firstly, it was the second most commonly used mode of transport amongst all respondents (used by 72%) following the microbus (used by 89%); secondly, women used the tuktuk much more commonly than men, 82% of the women interviewed utilised this mode, compared to 40% of the men; finally, that there was also significant differences in how commonly the tuktuk was used within each settlement, used by only 56% of respondents in Mansheyat Nasser compared to 86% in Ard el Lewa.

Turning to the decision making behind these observations, the narratives regarding the tuktuk amongst the interviewees did not align at all with the extent of its use,

particularly in Ard el Lewa. The interviewees of both settlements, as will be shown below, constantly referred to the tuktuk being a costly and unsafe mode, two factors which have been shown with other modes to contribute significantly to mode decision-making and challenges. Yet in spite of these concerns, this did not seem to deter its use as much as would be expected. This contradiction makes the tuktuk a very interesting mode to study the trade-offs and decision-making processes behind its use.

7.3.5.1 Lack of formal supervision and accountability

The informal nature of the tuktuk which sees these modes operating without any regulatory framework, posed a distinct set of challenges for its users. Despite the high rates of use among the female respondents, there were in fact many safety concerns raised. The lack of oversight and accountability of the pricing of tuktuk drivers was also presented as a significant concern.

Women explicitly highlighted how they felt that the tuktuk drivers took advantage of them with their pricing, leaving women constantly arguing with the drivers over the fee. This issue was raised by respondents from both settlements, as can be seen below:

“I take a tuktuk, but the cost depends. Sometimes you can find someone annoying that asks for 20 L.E., or sometimes its 15 L.E. or maybe even 40 L.E.” – Interviewee 53 (Female, MN)

“With the tuktuk you have to constantly fight with them over the fee. They take advantage of people too with the prices. I take the private tuktuk, so no stranger comes with me.”– Interviewee 68 (Female, AL)

The quote from Interviewee 68 above also refers to a phenomenon which emerged in findings, that is that the drivers of the tuktuk also appeared to further take advantage of women’s concerns regarding safety by introducing an additional charge to guarantee not to have to share the tuktuk with strangers. A common feature of the tuktuk in both settlements was the fact that they offered two sets of services, a ‘private’ one where you can hire the tuktuk all to yourself, or another option where you paid for your seat and the driver could stop and pick up other passengers. Many women spoke

of having to pay the extra amount in order to avoid the risk of strange men boarding their tuktuk. This experience is underlined in the accounts from interviewees below:

“If you want to pay less, he will keep picking up strangers throughout the journey to make it to 10 L.E total for the trip. Sometimes when the 3 seats in the back are full, he would even add another 4th passenger next to him.” – Interviewee 11 (Female, AL)

7.3.5.2 Safety

The safety risk when using the tuktuk, however, was not just restricted to the potential additional passengers, but in fact, the lack of regulation of the tuktuk drivers meant there was a general distrust of them. This was apparent from statements such as those made by Interviewees 4 (Female, AL) and 54 (Female, MN) below:

“I think one of the biggest problems is the drivers. You know some of these tuktuk drivers are children, and they use the money for drugs or God knows what.” – Interviewee 4 (Female, AL)

“I am scared of the tuktuk, I never ride it. It is not safe in my opinion, I don't feel safe, I prefer other transport modes, where there is assigned routes, and people with you. But with the tuktuk I am afraid of the drivers. Also, the closest tuktuk ride that I would take would cost me 5 L.E., better to save this money for my children.” – Interviewee 54 (Female, MN)

Male Interviewees 5, 8 and 67 from Ard el Lewa also repeated similar concerns regarding their lack of trust in the tuktuk drivers due to their age and presumed drug use. A similar belief was also shared by 2 female respondents from Mansheyat Nasser, Interviewees 26 and 27.

Driver's behaviour and the risk of sexual violence from the drivers was also a recurring theme of concern in the interviews. Women were constantly alert and conscious of

the tuktuk drivers they rode with. For instance, Interviewee 17 (Female, AL) mentioned that older drivers were generally viewed to be a safer and a preferable option to younger ones. While Interview 80 (Female, AL) said she only rides with tuktuk drivers she knows, suggesting a relationship being built between the women and trusted drivers.

As stated in Chapter 5 (Section 5.1.5), the stigma surrounding tuktuk drivers is a common one across the city with women's safety on-board tuktuk's in Cairo being the focus of a UNWomen (2018) project.

Further to the issues raised above, women's perceptions of safety were also shaped by many stories shared and repeated between women. Some of the stories involved kidnap and rape stories of children around the schools by the tuktuk drivers. Other stories were in relation to the women themselves and their use of transport modes such as that shared by Interviewee 63:

“I hear all these bad things about the tuktuk that make me scared sometimes. Just yesterday I heard there was a woman that went to the hospital by tuktuk and she hasn't been seen since.” – Interviewee 63 (Female, MN)

7.3.5.3 Infrastructure reach, comfort and convenience

Despite all the above, exploring the accounts of the interviewees we find that there was an awareness amongst the respondents regarding the tensions between cost, safety and comfort when it came to the tuktuk.

“The tuktuk drivers set the price they want, sometimes it is 7 L.E., sometimes it is 10 L.E. but people use it and rely on it because it is easier and more comfortable, it is the only mode that you can take from under your house and will drop you off as well right under your house.” – Interviewee 15 (Female, MN)

Firstly, there was a sense that in spite of their concerns, the tuktuk still filled a necessary gap as an intra-settlement mode. As previously described, given the long distances between the inner settlement and the settlement entry/exit points, the residents of the 2 informal settlements relied on these modes to transport them out onto the main road where they could access other transport (usually the paratransit modes such micro and nano-bus), thus they acted as connectors between the formal city and the inner settlement.

“I have to take a tuktuk to get to me to the main road to take the transport because I live deep inside Ard el Lewa, so I always have to use the tuktuk first, after that it depends where I am going, but you always start with the tuktuk anyway.” - Interviewee 43 (Female, AL)

Thus, the tuktuk featured in the journeys for many travel purposes both local journeys and those outside the settlement. The reason there was such high rates of use amongst women however, does appear to have been mainly related to the local journeys.

Returning then to a possible explanation of the difference in usage between the sexes, it is unsurprising that the tuktuk as an intra-settlement transport mode was used more by women when considering the disparities in the spatial distribution of women and men’s trip purposes, as well as the gendered difference in responsibilities, with women’s travel purposes having been more commonly located within the settlements. More female respondents worked within the settlement than the men, as well as shopped at the local market and had local children-related activities where the tuktuk heavily featured.

The most common instances where the tuktuk appears to have won were in the trade-offs between cost, and the challenges of moving around with children. 15 of the 65 female respondents said they made use of the tuktuk whenever they were travelling with their children.

The tuktuk was also relied on in situations where speed and comfort were being prioritised. One example of this was the extent to which it was relied upon in medical emergencies. 7 respondents from Ard el Lewa and 6 from Mansheyat Nasser of both sexes said that they used the tuktuk in situations of medical need.

Other examples included respondents from both settlements, such as Interviewee 17 who referred to challenges with their physical mobility due to old age or a medical condition which made it more difficult to walk long distances and in turn meant they relied on the tuktuk. Additional instances where it was preferable to walking included: when it was too hot to walk; when they were carrying things; and when it was late at night.

In addition to potentially being more physically comfortable, it was suggested by the interviewees that the tuktuk was a more preferable alternative to walking for reasons related to their safety, particularly at night. One example of this was Interviewee 26 from Mansheyat Nasser who highlighted how the tuktuk made her feel safer because it could drop her off all the way to her door:

“I worry about transport when I am coming back at night, especially the walk up from the street, crossing the bridge and coming up having to pass the whole of Mansheyat Nasser to climb all the way up since I live at the very top. But the tuktuk has made it much easier than before, because now you can just take the tuktuk up. I feel safer in the tuktuk because its faster, it is a short journey and I know it well, he can’t go here or there.” – Interviewee 23 (Female, MN)

The door-to-door option offered by the tuktuk was something that could not be done with any of the other modes which only operated outside the settlement, meaning that no matter what, unless they used the tuktuk, women living in the settlements would always have to walk in the street on their way home from anywhere outside. Familiarity of the route also added to the sense of safety here. A matter which will be further discussed in Chapter 8.

Another example was that of Interviewee 63 (Female, MN). In her case it was her husband who preferred her to use the tuktuk rather than walking because of a belief that on the tuktuk, she could pass by quickly with no chance for people in the street to look at her - as opposed to walking in the busy streets amongst men.

7.3.6 Private transport

In Chapter 6 it was revealed that the distinction by sex when it comes to private mode use was the widest amongst all mode types. The distinction was not just limited to ownership but also the ability to utilise and benefit from private modes of transport in their travel.

A starting point for exploring the possible reasons behind this takes us back to decision making processes when it comes to access to and control over household resources. Amongst the interviewees, 27% of them (23 of the 85 respondents) had a form of motorised means of travel in their household, a car, a Vespa, or a truck, for example. Yet despite the disproportionately higher and multiple travel needs of the women, priority for use of the household's private mode of transport was given to the male members of the household in every single case.

In earlier sections when exploring decision making behind travel purpose, it was revealed that there were instances where the men's contribution to household responsibilities increased when they had access to private modes of transport. There was an acknowledgement that the advantage of the private modes meant it was easier for them to complete some journeys than for women who had to rely on public modes. The ability to travel further was also acknowledged. What is yet to be reflected on however, was the decision-making processes behind being afforded this advantage over a household resource.

As will be seen in the section below, the decision came down to a gendered access to and control over the private mode, where men's time was prioritised, even when women contributed to the purchase of the private means. Women's lack of driving skills and gendered connotations of propriety also emerged as contributing factors.

7.3.6.1 Access to and control over household resources

Interviewee 4 for example, was a woman from Ard el Lewa who worked full time as a teacher outside the settlement in addition to having a second source of income through private tutoring from her home. After a long discussion where she expressed the difficulties of her trip to work, as well as the struggles to manage her time between all her responsibilities, the conversation turned to her husband and son where it was revealed that they both owned private cars. Despite there being 2 private modes of transport in the household, she was having to rely on public modes of transport for all her journeys rather than driving, being driven, or being supported in some of her errands to make her life easier. The household reasoning for this is presented below:

“I don’t know how to drive, and also they have places to go and they also need to go to their work so they can’t go out of their way and take me to mine.” – Interviewee 4 (Female, AL)

These two reasons frequently emerged in conversations with women who were also experiencing this disadvantage. Interviewee 13 (Female, AL), Interviewee 25 (Female, MN) and Interviewee 57 (Female, MN) all suggested priority was given to the income generation activities of the men when it came to the use of private modes in their household over any other journeys including income generation by the female members of the household.

For Interviewee 1 (Female, AL) quoted below there was consideration of her accessing a private transport mode. However, the prospect of her driving or owning a car was not only limited to the cost of the car, but also meant facing a number of other obstacles. This was in spite of the fact that there was in fact a private car in her household, used by her husband.

“My husband has work, so he cannot take our son to nursery or take me to work, he works a lot and is not around much. Him and I have discussed the costs many times and have been considering how me having a car might be cheaper. He has his own car. I cannot drive but I have been trying to learn, but I cannot learn on his(car) because he

needs it. It has also been difficult finding someone to teach me in Ard el Lewa, the roads are not good and too tight - no one wants to take the risk. You have to go to ElMohandesine to find a driving instructor.”

- Interviewee 1 (Female, AL)

In contrast, being male and possessing the driving skills, even without a license, also meant that there were instances where the male interviewees had the advantage of being able to borrow private modes belonging to friends or other family members. This was the case for 3 male interviewees, (2 from Ard el Lewa and 1 from Mansheyat Nasser). No similar arrangements were mentioned by any of the female interviewees.

One of the female interviewees (Interviewee 12, AL) however, did actually know how to drive and held a license, but she did not own a car. In discussions about household negotiations and division of resources, she revealed that she used to own a car that she sold in order to pay for a down payment on their apartment. For this interviewee, she felt that part of the autonomy she has in terms of spending decisions comes from the fact that she invests a lot in the household. One thing of interest during this conversation with her, was to understand how her travel patterns or experience might have changed between owning a car and not. Her response was that, because her job required her to move around the city a lot, having a car made her life easier in the sense that she never worried about transport. The main concerns she raised was that without the car, there were many times in certain areas where she would stand or walk around in the street for a long time and it was not easy to find transport modes. With a car it was not a problem. The advantages she mentioned were similar to those acknowledged by 4 of the car and motorcycle owning male respondents in the sample. In their accounts, the themes of ease and of time saving, particularly compared to the use of collective public modes, were the most significant benefits emerging. Similar to Interviewee 12, they also mentioned the ability to travel all around Cairo with their private modes.

The advantages outlined as outcomes of using private modes of transport, an exclusively male experience amongst this sample, further highlights the extent to which the time and comfort of male household members was being given more value

and consideration than that of the female members. The mention of completing journeys all around the city also suggests a wider geographic reach afforded to men as a result of their access to private modes, which as will be shown in later chapters, had a significant impact on their urban inclusion compared to women.

Another significantly telling observation emerging from the exploration of the role of power in the decision making behind private mode use were the 2 instances amongst the respondents where women's income was directly stated to be the source of payment for the cost of the private mode, even though they were still not able to benefit from it. Similar findings were observed by Tanzarn (2014) in Uganda and Castro and Buchely, (2019) in Colombia. For Interviewee 15 (Female, MN), it was a Vespa for her son that she bought through instalments, but not only never got to use it, but also never benefited from it in any way. As she expressed: *"when I ask him to go and do something or buy something, he says no or doesn't do it."* For Interviewee 36 (Female, AL), it was a taxi that she bought for her husband, also through instalments that came out of her own earnings:

"I bought him a taxi that I paid for in instalments. A few months later he came and told me, the taxi was stolen. So, he opened the shop instead...I pay the rent for the shop, on top of the rent for our flat. It is a new shop you see, it has only been open a year, so I have borrowed money to buy him all the stock in the shop as well. I borrow money from my employers, so he wouldn't need to borrow money from anyone." – Interviewee 36 (Female, AL)

One example, that of Interviewee 63 from Mansheyat Nasser, also draws our attention to another consideration regarding the use of private means of transport, particularly modes such as the bicycle and the Vespa. This was the conservative views in the community believing it to be inappropriate for women to use certain modes:

"He has a Vespa, he doesn't really take me anywhere on it. If I am going on with him on the Vespa, he doesn't let me ride it from under

the house. I have to meet him downstairs on the main road, so people living around us don't see." - Interviewee 63 (Female, MN)

7.3.7 Walking

As highlighted in Chapter 6, one of the findings emerging from the interviewees was the extent to which walking formed a major part of the travel experience of the residents of Ard el Lewa and Mansheyat Nasser. It was shown that those living in Mansheyat Nasser walked more than the residents of Ard el Lewa, that women walked more than men in both settlements overall, and that women from Mansheyat Nasser walked the most out of all 4 subgroups.

Walking as a form of travel can be a reflection of multiple factors, such as distance for example. That is not to suggest that walking even for short distances is without its challenges. Whether to walk or not also involves decision making processes and trade-offs. The interviewees referred to safety concerns for themselves and their children, as well as physical challenges. This was seen in the earlier discussion around tuktuks for instance, where it was revealed that even when it came to travelling locally, for some women, the tuktuk was used rather than walking in order to shelter from the challenges of walking the distances to the market or children's school: in the heat; accompanied by children; or carrying heavy bags of shopping in the chaotic and uneven terrain.

7.3.7.1 Cost

As the intra-settlement mode alternative to walking, women spoke specifically about the tuktuk's high cost as the deciding factor in this trade off. Examples of this included Interviewee 6 from Mansheyat Nasser quoted below:

"I leave the house at 6am to be at work for 8. It takes me 2 whole hours. I first take the metro, then bus. it costs 6 L.E. total each way, but that is because instead of taking the tuktuk that would cost another

7 L.E, I walk quite a distance over 30 mins to the main road to save the 7 L.E each way.” – Interviewee 6 (Female, MN)

In fact, for the majority of Mansheyat Nasser interviewees, it appeared that the cost of transport was the most significant contributor to the predominance of walking, with many enduring long walks, in some cases up to an hour, as a cost saving mechanism. As Interviewee 56 (Female, MN) below puts it:

“I don’t always feel comfortable walking, sometimes there are young boys hanging around. Sometimes I am really tired, walking around, uncomfortable and exhausted, but I still continue walking, because riding is expensive.” – Interviewee 56 (Female, MN)

This is in line with the insights presented in Chapter 6, which showed that walking featured much more commonly in the residents of Mansheyat Nasser’s journeys, particularly female residents. Whereas the tuktuk was more commonly utilised by women in Ard el Lewa.

However, it should be emphasised that it is not just the cost of the tuktuk as a travel mode which contributed to this decision making process, but actually the cost of the entire journey.

“On days when I am leaving the settlement and will have to use multiple modes, I walk to the pedestrian bridge, I don’t take a tuktuk so I can save that extra cost.” – Interviewee 17 (Female, AL)

For residents of both Ard el Lewa and Mansheyat Nasser, the cost of other travel modes such as the microbus required for certain journeys, also meant they walked more to save money when they were able to. Examples included female Interviewee 43 from Ard el Lewa who mentioned walking instead of taking the bus to work because the bus is expensive, as well as female Interviewee 6 from Mansheyat Nasser who spoke of the cost of the journey to her children’s extra tutoring classes, stating:

“We either take a microbus then walk or walk the whole way. It is a long walk but already the microbus is 2.5 L.E. x 3 each way so a lot of the time we walk it and I just try to make it entertaining for them to pass the time talking and looking at shops.” – Interviewee 6 (Female, MN)

7.3.7.2 Infrastructure reach

The interviewees additionally referred to another significant contributor to the increased featuring of walking, that is the absence of transport modes locally. As was raised in earlier chapters, the travel modes which connected these settlements and their residents to the rest of the city could only be accessed on the outskirts at entrance and exit points. In other words, the vast majority of them did not have the luxury of a bus stop or a metro station under their house or at the end of the road. Instead, in most instances accessing these modes required a lengthy journey which could either be completed walking or by tuktuk, and the same naturally applied to the return journey. For those living in Mansheyat Nasser, this walk was in fact up a hill with the poorest of them living furthest away. In Ard el Lewa Interviewee 36 (Female, AL) also spoke of walking for long periods within the settlement to and from the bus as an added effort and duration to her daily journey to work.

Two female interviewees, Interviewee 11 from Ard el Lewa and Interviewee 60 from Mansheyat Nasser also raised the issue of transport infrastructure availability and reach across the city, including the long walks resulting from the lack of available transport modes, or the need to change modes. They both referred to the difficulties of this with Interviewee 11 (Female, AL) describing the experience as “*hectic*” and Interviewee 60 (Female, MN) calling it “*exhausting*”.

One thing that could side step this challenge was the use of a private mode of transport, whether it was a car, motorcycle or bicycle. This was reflected in the low incidence of walking for the men of Ard el Lewa who had the highest rate of private mode ownership and use.

The increased incidence of walking as the only affordable means of travel can be extremely restrictive on the women's ability to access both the most basic of needs as well as the wider urban benefits. The implications of this for respondents of this research will be explored further in Chapter 8.

Another interesting and telling distinction of the different experiences of walking between women and men emerged in the conflicting ways the two below residents of Mansheyat Nasser spoke of walking. For Interviewee 29, a male resident, walking was seen as an enjoyable and preferable experience. In contrast for Interviewee 59 a female resident, it was expressed as a difficult and exhausting necessity.

"I really enjoy walking, I prefer it to being on board any kind of transport mode. It gets boring when you are stuck in traffic. I just find walking faster and more enjoyable." - Interviewee 29 (Male, MN)

"Despite my body is unwell but I walk it. I carry the bread on my head and the bags of vegetables in my hands, but I am usually exhausted. I walk because I feel like it is part of the grind." - Interviewee 59 (Female, MN)

7.3.7.3 Safety, location and time of day

The most obvious difference in the experience of walking for women and men was that of feelings, perceptions and experiences of safety. It has already been shown, in the modes discussed above, that the safety of women from sexual harassment and assault played a significant role in travel mode decision making.

Similar to the distinction by age identified when it comes to feelings of safety on-board transport modes, there also appeared to be an age dimension related to feelings of safety while walking. Female interviewees who were under 40 years of age were more likely to say they do not feel safe walking, both inside the area as well as outside the area than those over 40. This remained true in both Ard el Lewa and in Mansheyat Nasser. As with the motorised modes, this distinction could be as a result of older

women having more experience and familiarity with their walking routes or be linked to cultural norms which could afford older women more respect and in turn a lesser likelihood of intimidation or sexual harassment.

Another interesting layer of the decision making process when examining the trade-offs made was the influence of travel time of day and location.

23 of the women interviewed made a distinction between walking in the morning and at night. Many of them such as Interviewee 33 below, claimed not to leave the house at all at night out of fear.

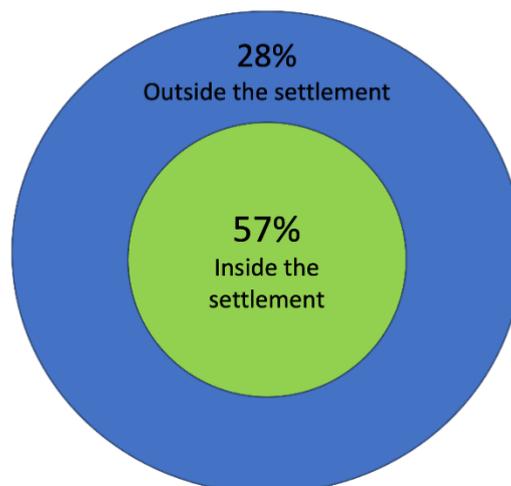
“There are sometimes men around who are drunk or high and I get scared, there are also people who sell hashish. After 9pm, I wouldn’t leave my house at all, I wouldn’t even walk in the streets around here.”

- Interviewee 33 (Female, MN)

For many of the women, the location where they would be walking also appeared to influence the decision making with an obvious distinction emerging between their reference to feelings of safety walking within their settlements compared to outside.

Figure 7.2 Women's Feelings of Safety While Walking by Location

% of female interviewees who said they felt safe while walking



The difference of feelings of safety inside the settlement versus outside is of extreme importance and telling of the exclusionary implications of their restricted transport accessibility. This point will be further elaborated in Chapter 8.

7.4 Conclusion

A significant amount of knowledge of the urban and social context was acquired through examining the decision-making processes behind the travel purpose and transport mode use. Examples include insight into intra-household decision making and a more detailed understanding of the operations and reach of the formal and informal public transport infrastructure networks.

The findings presented in this chapter also highlighted the wide and complex range of factors which come into consideration when it comes to travel and transport mode use. The variety of contributory influences identified included considerations based on individual social identities, household relationships, transport infrastructure and services as well as those related to urban planning and safety in urban space, situating transport accessibility in their intersection.

It was also shown how within that intersection there was also a gendered process of prioritising and trade-offs between these contributory influences taking place.

Women's spatial distribution of activities and freedom of mobility, in particular, were shown to have been significantly disadvantaged by the restrictions emerging in this intersection. This was reflected for instance in findings which showed a clear spatial divide in the way household tasks were allocated, and the contradictions arising between views and expenditure on women's travel for income generation versus for leisurely purposes which align with Iqbal's (2020) findings in Karachi, Pakistan.

Similar to findings from other cities in Africa which show women using slower but cheaper modes (Darko et al, 2023) and having to walk more due to high travel costs (Chamseddine and Ait Boubkr, 2021; Porter et al., 2021) women's access to and control of resources in this study also emerged as a disadvantage compared to men.

Women's disadvantage when it came to access to and control of resources was also reflected in the findings which showed male interviewees were able to utilise private household modes for their travel needs, while female members of the household who contributed to the purchase of said modes were left to face the challenges of public transport. Unlike women, men were also able to rely on private modes of transport and taxis to circumvent the challenges of travelling with children on board mass transit modes. This confirms findings emerging from other contexts in the Global South which show men being more likely to access private modes of transport, such as company transport (Darko et al., 2023 in Ghana). As well men being more likely to hold licenses and have more priority access to the household vehicles (Murphy et al., 2023 in Tunisia) and more likely to use private cars when doing household care trips (Hernández and Santos, 2020 in Uruguay).

Concern for safety in particular of course emerges as a main contributory factor in influencing travel and transport mode use of women. The experience of sexual harassment while travelling is one common for women all across the world (See for example: Porter et al., 2021 in Tunisia, Nigeria and South Africa; del Mar Rodas-Zuleta et al., 2022 in Colombia; Kacharo and Woltamo, 2022 in Ethiopia; Rahman, 2022 in Bangladesh). In fact, gender-based violence has been observed to be an overriding feature of the whole journey occurring while walking, while waiting for modes, and onboard transport modes (see for example: Iqbal et al., 2020 in Pakistan; Araya et al., 2022 in Ethiopia; Joshi et al. 2022 in India; and Vanderschuren et al., 2023 in Nigeria and Malawi).

As was seen in the findings presented in this chapter, for the low-income female interviewees living in disadvantaged settings, the tradeoff between travel safety and travel cost was constantly being calculated and negotiated. This is of extreme significance for transport planners and policy makers, since as the findings show, when it comes to use of the formal public modes, this calculation could result in avoiding cheaper subsidised public transport buses due to the experiences of overcrowding and the need to make multiple transfers. Both overcrowding and having to transfer modes have been evidenced in this study and elsewhere to increase the risk of sexual harassment (Kacharo et al., 2022; Murphy et al., 2023; Vanderschuren et al., 2023).

Some transport solutions do exist for minimising the risk of sexual harassment while travelling, such as women only services and app-based ride hailing. However, here again, the low-income residents of these settlements are at a disadvantage. Their location of residence means they are unable to fully utilise and benefit from the women only metro for example due to its distance from their homes which would require multiple changes that would ultimately just make their journey longer, costlier and still unsafe. Joshi et al., (2022) observe the same thing for informal settlements residents in Delhi, India who do not use the metro even though it was perceived to be safer. Similarly when it comes to app based ride hailing solutions the door to door feature, as well as the ability to monitor and track drivers which offers accountability, can provide some relief from sexual violence risk. However, these have been found in other studies to be mostly benefits offered only to those who can afford it, and have the digital competence needed to use it (Sabogal-Cardona et al., 2021). Neither of these are privileges the interviewees had. Additionally, as was presented in Chapter 6, their residence location actually meant that they lived in areas that taxis and ride-hailing cars do not go to, leaving them unable to benefit from the potential door to door security and instead facing the risks of walking. No-go areas in low-income neighborhoods leading to an increase in walking has similarly been observed in the Gauteng City-Region, South Africa (Parker and Rubin, 2022) and in Grand Tunis, Tunisia (Murphy et al., 2023).

Women were also at a disadvantage when it came to other travel mode use. As was observed in the findings of this research and others, informal modes of transport are more expensive and come with their own set of safety risks and exposure to gender-based violence (see for example: in Ethiopia: Araya et al. (2022) and Kacharo et al., (2022) and in Bangladesh: Rahman (2022) and Yasir et al. (2022)). A major issue of concern emerging from the narratives were the threats posed by the informal mode drivers towards women in particular. Women in this study similar to those in other contexts across the Global South have been found to experience not only sexual harassment from informal mode drivers, but also be subject to violence and intimidation through practices of overcharging, refusing to return change, and even denying access to some women because they carrying children or bags. This clearly shows how the combination of living in informal settlements with no access to formal transport infrastructure, and the lack of formal supervision and accountability of

informal transport drivers, as well as having a female body, all left women increasingly vulnerable when travelling on board the only transport modes available to them.

The implications of all the disadvantages outlined, in particular, the divide between travel inside and outside the settlement, and the concern for women's safety and what these meant for the female interviewee's ability to engage and benefit from the city, will be explored in more detail in the following chapter.

8 Chapter 8: Implications of Transport Accessibility and Transport's Potential for Transformation for Female Residents of Ard el Lewa and Mansheyat Nasser

8.1 Introduction

Chapters 6 and 7 established the patterns of travel, transport mode use, and decision making of the female and male residents of Ard el Lewa and Mansheyat Nasser. Following on from that, this chapter attempts to answer the third research question of concern in this thesis, which is: what is the impact and significance of these patterns on women's empowerment and integration into the city? In line with the 'potential' element of the framework, the findings and discussion presented in this chapter demonstrate the role transport accessibility plays in gendered urban exclusion and marginalisation, as well as its potential positioning for individual women's empowerment and collective gender transformation. The intention is to understand what constrained or improved levels of transport accessibility could ultimately mean for the female residents of these settlements, their social inclusion, and their exercise of their Right to the city, through an understanding of transport accessibility considerate of the embodied as well spatial manifestations of power in the urban environment.

To that end, the different sections of this chapter explore:

- Social exclusion through the interviewees responses regarding access to socio-economic necessities such a basic goods, essential services of health and education, support networks and income generation. These factors are of particular relevance for the interviewees given their residency in informal settlements, which can often inhibit access to resources to meet their basic needs. As was presented in Chapters 2 and 3, improved access to these are a significant component of the transformative potential of transport for women.
- Aspects of mobility found in the concept of motility such as recognising the experienced and embodied properties of movement, the skills needed and

knowledge gained, and what the movement means and represents through the interviewees responses regarding confidence navigating the transport systems and the city, exposure to wider learning opportunities for the traveler, feelings of safety and belonging as well as, altered ways of thinking and opportunities for influencing norms and decision-making processes as a result of travel. The potential of transport here as presented in Chapters 2 and 3 comes from understanding transport modes as public spaces in themselves, as well to access wider public spaces where power operates. This allows for an exploration of the processes of exclusion, processes of exercising the Right to the city¹¹, as well as opportunities for transformation.

An examination of which trips are conducted within the settlement and which require travel outside it further adds to our understanding of the nature of these neighbourhoods, both what they include as well as what they lack. Additionally, a comparison of women and men's experiences of movement within and beyond the informal settlement offers valuable insight into the way they approach the 'invisible' boundary around the settlements and the extent to which transport accessibility in this context can perpetuate or address exclusion from the city.

8.2 Implications of transport accessibility through exploration of social exclusion

As has been already presented, travel related social exclusion manifested in the lack of access to transport can have detrimental consequences on women's access to basic goods and services, support networks as well as income generation. Reduced access to resources gained from these urban opportunities also directly contributes to a reduced capacity to utilise and benefit from transport infrastructure, resulting in a cycle where limited transport accessibility maintains and reinforces poverty and social exclusion.

¹¹ Guided and inspired by Whitzman's (2013, p.49) insistence that: "It derives from the perceptual realms of belonging and the pursuit of happiness in public space, including the right to treat public space as a place to linger, a destination in its own right, as well as a corridor to traverse on the way to another destination".

This picture is further intensified by the geographical restrictions imposed by living in informal settlements.

As has been presented in Chapter 5, the two informal settlements in this study, similar to many across the city, acquired their 'informal' status as a result of their origin stories where they developed outside of formal government planning and authority. In reality, these settlements as they stand today, in many ways mimic the 'formal' city, including multi-storey buildings and local infrastructure and facilities which are self-funded and privately owned by the residents. Additionally, they also afford their residents a more localised neighbourhood experience in line with Cairo's traditional "community and street culture" that has arguably been lost in the city's more prosperous or developed areas (Horwood, 2011). In fact, studying informal settlements in Cairo, Shehayeb (GTZ, 2009, p.35) argues that the nature of life in these settlements actually represents the ultimate utopia that urban planners, environmentalists and advocates of sustainable cities are striving for as they incorporate 'work-home proximity', 'self-sufficiency', 'walkability' and a 'sense of safety and community.' Unfortunately, however, the reality of the situation is that the lack of government support and investment in these settlements leaves the residents marginalised and vulnerable to exclusion from the city, its opportunities and its basic infrastructural facilities and institutions.

Thus, one of the most obvious implications for transport accessibility and its empowering potentials is as the intermediary service which allows for an increase in social and financial capital derived from the increased access to such essential services and income generation opportunities particularly for women living in these settlements.

8.2.1 Inside vs. Outside

The interviewees in this study frequently spoke of 'inside/outside' to differentiate between activities in their settlements and those in the rest of the city. The distinction was also highlighted when speaking of feelings of safety and access to different resources and services. The majority of trip purposes pursued by respondents actually required them to go outside their settlement, as can be seen from the percentage of

respondents from both settlements who completed these activities outside of their settlement of residence: income generation (65%), child related journeys (47%), leisure (43%) and healthcare (81%).

Table 8.1 Female and male interviewees of both settlements' frequency of trips outside the settlement (# and % of total interviewed in each settlement)

Frequency of trips outside the settlement	Female			Male			Total
	Ard el Lewa (33)	Mansheyat Nasser (32)	Total Female (65)	Ard el Lewa (11)	Mansheyat Nasser (9)	Total Male (20)	All Respondents (85)
Daily or Weekly	21 (64%)	15 (47%)	36 (55%)	11 (100%)	8 (89%)	19 (95%)	55 (65%)
Monthly	4 (12%)	6 (19%)	10 (15%)	0	1 (11%)	1 (5%)	11 (13%)
Rarely/ Never	8 (24%)	11 (34%)	19 (29%)	0	0	0	19 (22%)
Total	33 (100%)	32 (100%)	65 (100%)	11 (100%)	9 (100%)	20 (100%)	85 (100%)

As Table 8.1 above shows, women left the settlements with much less frequency than men. Men in the study in both settlements were much more likely to leave the settlement daily (95% male versus 55% of all female interviewees). Also of major significance is the finding that 29% of the female interviewees reported rarely or never leaving their settlements of residence. This was not the case for any of the male interviewees. When that is taken into consideration and given the absence of formal services in the settlements, the impact of exclusion from the city reflected in lack of access of these women to even the most basic of needs, becomes more apparent. In later sections, the significance of the inside vs outside distinction to women's sense of belonging and appropriation in the wider city beyond their settlements of residence will also be explored.

8.2.2 Access to basic goods

54% of the 65 female interviewees (18 from AL, and 17 from MN) spoke of the market as a regular destination with the purpose of buying the groceries for their household. For the most part, this market was within walking distance with 74% of them accessing

it through walking (11 from AL and 15 from MN). The tuktuk was also sometimes relied on by 40% of the female respondents, who commonly used it on the return journey when the goods they were carrying were too heavy.

Whatever the means of getting there, there was a general consensus in both settlements that daily grocery needs were accessible. The modal choice in these instances indicates that the household shopping was done at a local market. The ability to access a local market daily fits in well with the financial restrictions of the respondents' economic situations. Buying groceries on a daily basis for cooking is a common practice to keep within their daily budgets, and in some cases, can also be indicative of a lack of refrigerator or suitable place for storage.

Despite that, it cannot be said that all basic goods and needs were being met within the settlement. One thing that residents did obtain in bulk and could not access within the settlements were the state subsidised household provisions. Food subsidies provided by the government typically consist of household staples such as "bread, sugar, tea, rice and cooking oil, as well as butter, beans, lentils and macaroni" (UN-Habitat, 2011, p. 119). These are commonly collected on a monthly basis from designated outlets, and the 5 female respondents from both settlements (2 from AL and 3 from MN) who mentioned them as part of their travel, spoke of having to leave the settlement to access a collection point. 100% of them relied on informal modes of transportation such as tuktuks and minibuses for this journey. Another necessity that was raised by 2 female respondents from Ard el Lewa as missing or difficult to find in the settlement was medication. Aside from grocery and medication, other products such as household goods, clothing, and things for the children were also mentioned in the interviews with the women.

Further conversations with women in Mansheyat Nasser who lived higher up on the mountain also highlighted that there was in fact a major discrepancy when it came to their ability to even access goods locally, as the area's "*big market*", as they referred to it, was in fact located all the way down on the main road. This was well beyond their daily journeys and required a long walk or an expensive tuktuk ride to get to.

Interviewees from both settlements suggested a difference in the cost between the products which could be obtained locally and those bought outside the settlement. The difference in cost was most pronounced for the women who lived further up on the mountain in Mansheyat Nasser.

As is observed by Interviewee 76 (Female, MN) quoted below, sellers capitalised on these women's difficulty to access larger markets:

"To go shopping for clothes or other items other than groceries its 40 minutes away from the ramp but the whole way can cost 30 L.E. We go shopping outside because people here take advantage of the fact that we are isolated, and overcharge." – Interviewee 76 (Female, MN)

The distance to markets and needed goods also meant that transport played a role in the trade-off between time and cost.

For some, such as the two women from Mansheyat Nasser and Ard el Lewa below, the distance and difficulty of the journeys in fact acted as deterrents to more distant markets, even if the goods would have been cheaper:

"I buy clothes and things for the house from outside, but where I go depends really. If I need to buy something quick for the children, I go to any area close by. Even if it would be a bit more expensive, I still do it instead of having to go further for cheaper, but using multiple transport modes." – Interviewee 24 (Female, MN)

Interviewee 24 above highlighted one aspect of difficulty, which was the need to use more than one or even two modes per journey. Whereas Interviewee 35 quoted below specifically raised issues of safety as well as cost:

"Even if it is more expensive here, at least you save yourself the trouble of the journey. You also save the cost of transport and also when you go out you can get robbed or something, so it is best to avoid it and cut your losses." – Interviewee 35 (Female, AL)

While increased financial resources means that one can settle for high prices, for the poorest residents the combination of high prices of goods in the settlement and difficulty and high cost of transport could be doubly disadvantaging.

For other women who left the settlement more regularly for income generation, they spoke of the different pricing and the difference of products inside and outside, and doing their grocery shopping as part of their travel journey. One example of this was Interviewee 6 (Female, MN) quoted below:

“He (her husband) also buys the groceries and the bread from a neighbourhood nearby because it is better quality than the ones in our area. I usually buy the things he can’t find on my way back from work from the grocers at the stations, it is a bit more expensive but just easier.” – Interviewee 6 (Female, MN)

Shopping during the commute is not uncommon in Cairo where many major microbus stops and metro stations have informal sellers displaying goods for this exact purpose of convenience.

When it comes to the absence of certain products from the local markets, one significant observation was the market that this had created for some women in Mansheyat Nasser. As revealed in Chapter 7, 6 of the 32 female interviewees in Mansheyat Nasser generated their income by essentially bridging the gap between the women and the city centre. In order to overcome the barriers women faced in accessing certain goods sold outside the settlement, these women instead conducted the journey for them, buying things in bulk, and returning to the settlement to sell them to other women from their homes. The women who were interviewed who had activities of this nature sold a range of products. Some did this as an extra income-generating activity on the side, while for others it was their full-time livelihood. There appeared to be a large need for this service with products ranging from children’s clothes to sheets, towels and bedding, for example. The women also appeared to conduct these trips quite frequently. Interviewee 56 (Female, MN) also mentioned she regularly buys products on request. This obviously shed light on some of the products that were missing in the settlement. More importantly however, is that it was telling of

the difficulties women might have been facing in accessing the spaces where said goods were sold. Through these creative modes of work, some women in the settlement not only increased their household's income, but also created a system where they provided goods and services to each other that could have otherwise been inaccessible. Benefits provided by these sellers included instalment payments, and access to goods and services in the safety of their own or trusted neighbours' home - instead of potentially intimidating markets. Additionally, as has been presented when addressing challenges of transport and moving around the city, these goods could have otherwise been inaccessible due to long travel distance, lack of time or increased cost of travel.

8.2.3 Access to healthcare

Despite policies of free primary healthcare in Egypt, as with access to most other basic services, there is a general lack of affordable and good quality healthcare, across most informal settlements in Cairo (UNICEF, 2013; Khalil et al., 2018). Previous studies conducted in Ard el Lewa and Mansheyat Nasser referenced in Chapter 5 specifically highlighted a lack of public health services in these settlements (Tadamun, 2015b; UN-Habitat, 2011). As a result, the residents were forced to turn to the alternatives, either local costly private doctors and facilities that offered basic limited assistance, or to public centres and hospitals outside the settlement.

The results of this study reaffirm these previous findings. Interviewees in both settlements complained of the absence of healthcare services in their areas. 73% of respondents who spoke of healthcare had to leave the settlement to access it. This in turn left the residents of both settlements who were disadvantaged in transport access, particularly vulnerable, as was the case for the young man from Mansheyat Nasser (Interviewee 50) quoted below, who was responsible for his mother and sister. His poverty left him desperate for any assistance he could find:

“If my mother is unwell, we try to put together some money from anywhere, and we go to the mosque. We walk there, I hold her up until we reach the mosque.” – Interviewee 50 (Male, MN)

While he refers to incidences of exception, this restricted access to healthcare becomes much more pronounced for those who needed to access healthcare regularly, such as the case of Interviewee 61 quoted below.

“I go every other day to El Hussein hospital for Kidney Dialysis. I take 2 minibuses from my house then I walk for a bit. It costs 4.5 L.E., and the same thing on the way back.” – Interviewee 61 (Female, MN)

In both settlements, cost played a significant role in this vulnerability, both in terms of the cost of the medical assistance needed as well as the cost of travel, which tended to form a significant part of the expense of this travel purpose, as is evidenced by Interviewees 6 and 83's account below:

“When my son broke his arm, there was nowhere to go around here. We had to travel for an hour to get to medical assistance and it cost us a lot. We paid the microbus, then we paid for him to be seen, then for the scan and the treatment.” - Interviewee 6 (Female, MN)

“I am ill and I have to go to a specialised place for regular check-ups. All the places around here are expensive and private so I have to take 2 minibuses. The check-up costs 1 L.E. but the trip there costs 7 L.E.”
– Interviewee 83 (Female, AL)

The most common modes used by the respondents during the journey to a medical facility were the microbus and the tuktuk, used by 52% and 42% of the respondents respectively as part or all of the journey. In comparison, only 16% mentioned the CTA bus as part of these journeys.

In Ard el Lewa, the tuktuk was the most popular mode while in Mansheyat Nasser the microbus featured more predominantly in the journey, with the combination of the tuktuk and microbus being the most common for the residents of that settlement.

As previously raised in Chapter 6, the tuktuk played a major role in journeys to access healthcare due to its speed. Instead of having to walk to the main road or the nearest

healthcare unit, the use of a tuktuk provided a faster and more comfortable way to transport anyone who was ill, especially given the nature of the roads in the settlements.

“The fastest mode is the tuktuk, it takes you to the closest hospital on the other side, but the hospital closest to us its expensive - but also my husband got sick recently and I took him to there and they wouldn’t admit us.” – Interviewee 66 (Female, AL)

Interviewee 66 quoted above also touches on a common point of frustration for residents of Ard el Lewa. This was the fact that the adjacent location to the affluent neighbourhood of EIMohandesine meant that the closest services and hospitals were private and unaffordable.

“There are a lot of private hospitals around on the other side in EIMohandesine and they are very close. But they don’t admit you, they are expensive and ask for an upfront deposit.” – Interviewee 4 (Female, AL)

The interviewees in both settlements also raised concern for trips for medical assistance in situations of urgency. In reference to the terrain of the settlements, concern was raised regarding the ability of fire trucks and ambulances to access them where they are located.

The importance of having access to private modes of transport when it comes to urgent health related journeys was also highlighted. Interviewee 24 (Female, MN), for example, recalled being driven to the nearest hospital on the back of her family’s garbage collecting vehicle when she was giving birth.

While Interviewee 4 (Female, AL) quoted below highlights the risks of not being able to get the assistance as urgently as required:

“If people don’t have private modes of transport they die. There is no hospital here, there is a small health unit but also not very accessible

and it is not 24 hours. Just a few weeks ago an old woman that lives near us died because they couldn't get her help fast enough. Her husband was saying he struggled getting her to the hospital and she didn't survive the journey." – Interviewee 4 (Female, AL)

Women are even more significantly disadvantaged by the lack of accessible healthcare since they carry the burden of healthcare for other members of the family as well. This not only increases the number of these types of journeys but also the added challenge of travelling with the person being cared for (children or elderly).

8.2.4 Access to education

Conversations with the interviewees revealed that journeys for education can be difficult, expensive and unsafe.

Educational attainment across Cairo varies and illiteracy for both women and men is not uncommon. The most recent census conducted in 2017 found that 25% of women and 17.5% of men in Cairo aged 10 and above are illiterate (CAPMAS, 2017b). Even when people do attend school, there are still very high dropout rates. In fact, according to this census, 33% of girls/women and 26% of boys/men of school age or above have either never been enrolled in school, or enrolled and dropped out. On the other end of the education journey, only 47% of women, and 54% of the men finished secondary school or above.

Within this research, 43% of the female respondents and 25% of the male respondents were illiterate, or literate with no qualification, while 55% of the females had completed a level of certified education (secondary school and above) compared to 75% of the males. Due to the small size of the sample, the data on education presented from this study cannot be considered as representative of the educational attainment in the informal settlements. However, they do appear to adhere to the same patterns of attainment and advantage in the city which in both the study and the census were in favour of men in literacy and enrolment rates as well as in certification.

Concern for the safety of children on the journey to school was highlighted in Chapter 7 as a main reason for increased escorting by parents.

Within the results of this research, lack of safety around the school area in particular, and fear for children and girls more specifically, was commonly mentioned by the respondents. There was no obvious preferential treatment in terms of educating sons versus daughters amongst the respondents, who all spoke about their children going to school with no reference to sex. However, most women spoke of fear for their daughters on their journeys to education. The extent of the fear as well as the danger can be felt in Interviewee 17's quote below:

“I fear for my daughter more than myself. I have seen it 3 times around the school area early in the morning a tuktuk flying past, with another guy sat in the back holding a young girl taking her clothes off and doing all kinds of things to her and she is screaming. The scream draws my attention, you see them and barely hear the scream because they are blasting music and speed off really fast. I have seen this 3 times. So I am always really scared for my daughter.” - Interviewee 17 (Female, AL)

Interviewee 77 (Female, MN) also spoke about how her daughter moved around with her friends to school and back, and to a private tutoring centre in downtown, meaning that sometimes they came back late. This had prompted her to seriously consider taking her out of school. She highlighted that many girls in the area leave school because the journey is unsafe.

3 interviewees also referred to safety issues when it came to their own education. Respondents from both Mansheyat Nasser and Ard el Lewa blamed lack of safety on the journey to and back from school as the main reason for their own lack of education completion. Interviewee 81 (Female, AL), for example, spoke about how she used to have to walk to school and used to get harassed, so her father who works on a truck started to drop her off. Eventually the journey became difficult for him, so she dropped out. For Interviewee 35 in Ard el Lewa, it was a specific incident that led her to drop out as outlined in her own words below:

“There were these young guys that used to hang out outside the school and one of them, he saw me and started following me, and kept following me every day after school for a whole week until I got too scared and said I don’t want to go anymore.”- Interviewee 35 (Female, AL)

The cost of the education journey also emerged as a cause for concern amongst the interviewees both for themselves in the past, as well as their children currently and in the future. Interviewee 25 (Female, MN), for example, who completed a university degree, spoke specifically about the burden of transport costs on her educational trajectory.

“There were days when I was going to two universities at the same time – my transport costs were very high. When I didn’t have enough money, I didn’t go. What was I going to do? Beg for the transport costs? It also used to happen to me in secondary school when I was taking money from my dad. Sometimes it wouldn’t be enough and I did not want to ask him for more.” - Interviewee 25 (Female, MN)

Sabry (2010) in her exploration of how poverty is underestimated in Cairo has pointed out the extent of the burden of the hidden costs of school, including transport. The conversations with the respondents in this research also highlighted that free education or other policies that try to enforce education or awareness raising with regards to education are not enough without accounting for the journey. Aside from severe issues in the quality of education that has been highlighted elsewhere, transport accessibility to education facilities is also of the utmost importance, specifically for those living in informal settlements where schools are a long journey away in neighbouring areas.

An example of the difficulty of these journeys can be seen in Interviewee 11’s (Female, AL) account of her daughter’s school journey below:

“My youngest takes a bus to school but it is very costly. My other daughter is in the 3rd year of high school, she takes public transport

to school. Actually her journey is very difficult, she takes three minibuses 2+2+1.5 for 5.5 L.E. total each way or if she takes a tuktuk she will pay more.” - Interviewee 11 (Female, AL)

Female Interviewees 74 and 75 from Mansheyat Nasser both spoke of the significant burden of the daily school budgets which included travel costs. For Interviewee 65 (Female, MN) quoted below, even though her children were still not of secondary school age, the increase in expenses once they reach that stage was already cause for anxiety.

“I fear for my kids to go out alone outside, and when they get older and start going to schools outside, all their expenses will increase and it will be too much.”- Interviewee 65 (Female, MN)

8.2.5 Access to support networks

Transport accessibility was also found to play a significant role in women’s access to support networks.

A major theme that was recurring in the narratives was the extent to which women relied on the support of other women to manage the load of their responsibilities and navigate their challenges including constraints of time, access, resources and mobility.

Examining household division of labour there were many accounts by the women outlining the support they got in terms of childcare while they were out managing other responsibilities, or help with the children, especially with babies while onboard transport modes, as well as help with domestic responsibilities like cleaning and preparing food. In almost all instances in the interviews with the women, when they spoke of not receiving any help from their husbands in the household, they immediately followed this with “but my mother, or my sister, or my daughter or my neighbour helps me.” In negotiating their constraints, 38% of the women interviewed (10 from Ard el Lewa and 15 from Mansheyat Nasser) mentioned leaning on other females in their family or community for support with household tasks and childcare.

Childcare support involved not only babysitting when they needed to leave the children at home, but also support while they were on journeys with the children, as evidenced by Interviewee 54's account below:

“Someone needs to be with me if I am going out with the baby, usually my mother, or I leave him at home with his sister and I go out. When I am at work I leave him with his sister, and when he is hungry, she brings him down to eat.” – Interviewee 54 (Female, MN)

Relying on the support of their daughters was raised by 7 of the 32 female interviewees from Mansheyat Nasser

“My daughter helps me at home after school, she cooks and cleans the house.” – Interviewee 62 (Female, MN)

This help was not just limited to household chores, but also extended to income generation:

“My daughters are the ones who help me, at home and at work, they come to work at the factory on Saturdays and on holidays and earn money for the house.” – Interviewee 31 (Female, MN)

The need for support unfortunately, sometimes also meant that the daughters' time and education was sacrificed to support their mothers in these tasks.

“My mum and cousins live close by, so I can walk to them or take a tuktuk. But they can't help all the time. The problem is my youngest daughter. To come here today, for example, I made my eldest daughter stay home from school to babysit her.” – Interviewee 3 (Female, MN)

It is not just daughters that were relied on, but, as said, mothers, sisters and neighbours as well. Listening to the women speak of this support a sense of camaraderie between the women was apparent. As expressed by interviewees below:

“I have friends and neighbours in the area, we all help each other like siblings.” - Interviewee 58 (Female, MN)

“There are two women outside who came here with me today. They are both my neighbours, and one of them is married to my husband’s brother. We are all in the same boat, and we help each other, and cover for one another.” – Interviewee 63 (Female, MN)

This solidarity becomes even more significant in cases where women had moved away from their families and are isolated as is the case of Interviewee 36 below:

“I don’t talk to anyone at all in our area, the only person I interact with is my neighbour upstairs, she helps me if I need something or if I am not well, and I help her.” – Interviewee 36 (Female, AL)

Further ways women relied on the support of other women was by moving in groups. Moving in groups was mentioned by many women when they spoke of going to the city centre for shopping for example. It was also mentioned by mothers when they spoke of their older daughters’ journeys to school or to private tutoring lessons outside the settlement. It was also mentioned when having to go on an errand where their husband was unable to join them. Going out in a group was also shown to be a way that women negotiated their husband’s prohibition and fear as is evidenced by Interviewee 33’s statement below:

“If I am going somewhere far alone, he would say no. But if someone is with me or we are a group he is fine. He just tells me not to go out alone. I don’t go anywhere alone.” – Interviewee 33 (Female, MN)

The extent of support offered by these networks was not just limited to day-to-day support for household chores. Some of the women interviewees made reference to a very prominent feature of low-income women’s lives in Egypt, pooled pots of savings known as ‘*gam’iyya*’. These informal saving associations are created, controlled and sustained by women through their networks. Women who need to make big purchases or have a large sum of expenses coming up informally organise these *gam’iyyas*

amongst themselves, where the idea is a small contribution from each woman on a monthly basis and the pooled sum is circulated amongst them each month. Usually the woman who needs it the most would be the first to receive the initial sum to pay for her immediate need, and spends the remainder of the time slowly paying it off, and so on. The rest of the women in the group also budget for any upcoming expenditure through the assurance that she will be receiving this sum at her designated month with some women taking part in numerous savings schemes concurrently as a household saving and budgeting mechanism. This phenomenon organised and managed by the network of women makes vital contributions to their households and the local economy.

Networks then can also be a source for material goods, and for accessing opportunities.

Personal relationships also play instrumental roles in hiring processes in Cairo. Barsoum (2018, p.5) for example highlights how “having the right contacts” can be particularly significant to employment opportunities. While Mason (2002, p.78) stresses how: “employment availability in the formal sector is often secured through the varied communal networks women and their families are part of.” The idea of having the right contacts is not only limited to employment but can also be extended to accessing all other types of opportunities including basic services such as better education and healthcare.

Within this study, as has been seen, local networks have also been shown to be a source of goods, with women trading goods with each other, through a provision of inaccessible items and instalment schemes, that would otherwise have made the goods potentially unattainable.

Drolet’s (2011) exploration of neighbourhood social networks in Cairo also finds that they are an important avenue for information sharing. The women in Drolet’s (ibid.) study shared information on goods and prices, as well as marketed their own goods and services. They also shared household and personal issues. Additionally, the women involved in the program she was observing also highlighted how they had heard about the microloan opportunity through their networks.

One noteworthy factor however was the fact that all the women in both settlements who relied on the help of their mothers or other family members outside their immediate household (i.e. not their young daughters), without exception, lived in the same settlement as them. The close proximity meant that they could access their support more easily.

Residential proximity's influence on women's networks is understandable. But what about women who live far away from their families? Women who typically leave their family home for their marital home upon marriage could find themselves living far from their families or the support networks they developed before marriage. Families in this study were found to be the main source of support for women, and also their most common destination of 'leisure', thus for those not living near their families the ability to make those trips outside the settlement, and the regularity of them is crucial.

The responses from interviewees have highlighted that those who lived further away from their families were at much higher risk of isolation, and having their mobility much more restricted.

“There is no one to help me. I am the one who does everything...I almost never leave the area. It is very rare except going to my mums.... she lives far way... I go to her maybe once every 4 or 5 months. It is an hour and a half away. I take 2 microbuses, it costs 11 L.E. in total each way for the 3 of us (her and her 2 children).” – Interviewee 30 (Female, MN)

A significant theme arising from the research which was presented in Chapter 7 was the extent to which distance from families can affect the frequency of visits. 81% of female interviewees (7 of 10 in Ard el Lewa and 10 of 11 in Mansheyat Nasser) who said they visited their family as frequently as daily, more than once a week, or weekly, had family living in the settlement. On the other end of the frequency scale, 94% (9 of 10 in Ard el Lewa and 7 of 7 in Mansheyat Nasser) of those who said they rarely or never visited family, did not have family living in the settlement. Not surprisingly, there appeared to be a direct relationship between distance and in turn the difficulty of the journey and the frequency of visits.

The difficulty of the journey in terms of transport modes used, having to use multiple modes, and the resultant high cost, were mentioned as significant obstacles to journeys of this nature significantly affecting their frequency. One example was Interviewee 57 below speaking of the journey to her brother's house:

“...The journey is not easy, you take 3 minibuses, or 4 even if you add the tuktuk to get to his house...”– Interviewee 57 (Female, MN)

The difficulty of travelling with children on these journeys was also mentioned by Interviewee 54 below:

“It is difficult, to go out even to visit relatives and things like that, because I have 4 kids, I struggle to move around with them. I struggle a lot in the transport with them. If I am alone, I move around easily, but with the children it is very difficult, and I am always worried about them.” - Interviewee 54 (Female, MN)

8.2.6 Access to Income Generation Opportunities

Women in this research and across Egypt have been demonstrated to engage in many forms of formal and informal work. Insights presented in earlier chapters have all highlighted the importance of women's financial contributions to their households. In Chapter 6 it was presented that the income generation travel patterns of the majority of the respondents did not adhere to traditional commuting, instead travelling at different times and with differing frequencies in accordance to the nature of their work. Exploring decision making further in Chapter 7 revealed the distinction between women and men's paid work was more likely to be spatial rather than working vs not working as 74% of the female interviews and 100% of male interviewees had income generation journeys. Women more commonly worked closer to home, and more men than women had journeys for the purpose of income generation which were outside the settlement of residence. The female interviewees also seemed to have more informal and irregular patterns of travel for this purpose.

The same way that informal settlements develop as a coping mechanism in the face of private investment and exclusionary urban development practices, so too does informal employment. As Mason (2002, p.81) emphasises: “it is in the informal sector that women make their stand to nurture and grow their families and to confront international capitalism. They are creative and flexible; they strive to define themselves and their families in the midst of daily assaults.”

Accounts from women in this study have shown their informal work in some instances to be their household’s sole or primary source of income. In other instances, women worked alongside their husbands, as is evidenced the case of Interviewee 61 (Female, MN) and 69 (Female, AL), who both worked with their husbands helping run local shops, Interviewee 35 (Female, AL) who worked with her parents in a small kiosk, or Interviewee 72 (Female, AL) who supported her husband in his role as a building porter.

Many other women also turned their homes into places where they engage in activities to generate income. For some their home served as their main place of income generation, while for others, it was a way to bring in some extra income, in addition to their other jobs.

These included Interviewee 54 (Female, MN) who worked as a local hairdresser, and Interviewee 4 (Female, AL) a local private tutor, who both worked in the evenings after a full days paid work elsewhere. Other examples of this are Interviewee 60 (Female, MN) who made jewellery and Interviewees 10 (Female, AL) and 30 (Female, MN) who both made clothing garments from their house after their other paid work - or even Interviewee 63 (Female, MN) who in the face of her husbands’ objection to her using her sewing machine to make marketable products, instead started using it to make items for herself and close relatives. These women are only a small representation of millions of others who use their skills to leverage better outcomes for themselves and their families.

The level of creativity, support and defiance also extends to the women who ventured out into the city to bring back inaccessible goods to other women in the settlement. A small example of these are Interviewee 32 (Female, MN) who in addition to her daily

job brought children's clothes from the city centre. Or Interviewees 56 (Female, MN) who bought sheets and bedding and the range of other goods bought by Interviewees 52, 55, and 58 referenced in the previous section on access to goods. In Mason's (2002, p.78) view, these women are the most successful due to their ability to "identify local community needs and address them through a makeshift system. She is integrated in the community as a businesswoman and a good neighbour, while increasing the standard of living for all."

Interviewees 52, 56, 58 and 62 (all from Mansheyat Nasser) had all in fact received a loan from an NGO which seemed to have provided them with the support they need to cover the costs of trips outside and also the ability to buy in bulk. It may also have provided them with extra bargaining power within the household, as they were able to turn their movement outside the settlement into a source of income generation for their households. These women's increased control of resources can also be seen in their decision-making with regards to modal choice, and travel expenditure if we consider for example that female Interviewees 55, 56, and 58 from Mansheyat Nasser were the only women to report using a taxi for income generation related journeys.

Women's ability to engage in paid work thus increased their access to financial resources which in turn increased their ability to spend on travel. Findings with regards to freedom of mobility reveal that women who were not engaged in income generation felt their mobility was restricted more than those who did (60% versus 80% respectively). Additionally, while 64% of the women who did not have any income generating activities said that they needed their husband's permission to move, only 24% of the women who did have paid work said they required their husbands' permission. The cause and effect here is not straightforward. Perhaps it is these women's increased freedom of mobility that has led them to be able to engage in these activities and not the other way around, especially given that for many women the reason reported for not being involved in "productive" work was due to restrictions imposed by male authority.

Still, 87% of women who had income generation activities, whether inside or outside the settlement, said they move alone outside. This was regardless of whether their actual income generating activities were inside or outside the settlement. In contrast,

only 33% of those who did not engage in any income generating activities, said that they move alone outside the area. Women who were involved in income generation were also more likely to say they have journeys for the purpose of leisure (inside or outside) - 35% of them, compared to only 17% of women who were not involved in income generation but still had journeys for leisure.

It is noteworthy to say that the arguments in the literature about the relationship between income generation and empowerment for women, which were previously mentioned in the literature review in Chapters 2 and 3 are not going unnoticed here. While much can be said about the empowering or disempowering effects of informal work and work from home, as well as the harsh conditions of the reality of these women's lives (see for example Kantor, 2003; 2009; Kabeer, 2008; 2012; Sholkamy, 2012), when it comes to spatial freedom of mobility, their findings are similar to those in this research. Those women who worked in either formal or informal work who had journeys for paid work outside the home had the highest rates of increased freedom of mobility. As will be seen in the later sections, when examining women's spatial movements it becomes apparent that women who were engaged in income generating activities, whether they did so out of necessity or not, and whether the conditions of work were 'empowering' or not, were able to engage with the city more frequently, more independently and more confidently.

Another interesting distinction to point out is that within the study there appeared to be a relationship between women's income generation status and division of household labour. While it remained true that women's household maintenance and child-care responsibilities continued to be substantial even when involved in productive work, there was an increased chance of support from husbands for women involved in income generation. In fact, 92% of women who reported receiving help from their husbands with regards to household and children were also engaged in income generating activities. This support eases the time burdens of women that have been presented. Exploring this finding further, we also find that, similar to paid work affecting frequency of leisure, those who reported their husbands helping with the household and children were more likely to go out for leisure than those who said their husband did not help with household tasks.

The example of Interviewee 36 below also highlights how paid work, especially working outside the settlement, allowed for more opportunities to negotiate and resist the strong authoritarian hold of her husband:

“I would rather go out and work than stay in the house alone all day. At least I go out to see people, do things....I see my family whenever I can, sometimes I go behind his (her husband) back to buy something or visit people. I ask to be excused from work a bit early or to go a bit late and I go do my journey while he thinks I am at work.” – Interviewee 36 (Female, AL)

There are of course exceptions, income generation activities in themselves were not always a guarantee for lack of isolation or entrapment as evidenced by the case of Interviewee 57 outlined below. Despite being her household’s main source of income, she was still denied travel to her family or going out beyond her household responsibilities:

“Sometimes I want to go to my brother or I have a really strong desire to go out and get some fresh air and things like that, but I don’t.” – Interviewee 57 (Female, MN)

In her case, with her income generating activities being restricted to inside the settlement, they did not translate into the same freedom of mobility of the wider city as those who had activities outside.

Interviewee 13 (Female, AL) quoted below additionally presents an example of the isolation of those not engaged in any income generation activities at all. She highlighted how the main purpose for all her trips was dedicated to her son with the journey to and back from school (inside the settlement). Yet when she was asked about her social networks and the people she interacted with, even through these responsibilities her response was:

“All my communication with the teachers are the notes they write me and send me with Aly (her son)...I don’t know any of the other parents. I don’t speak to anyone. I just drop him off and leave and go back to pick him up.” – Interviewee 13 (Female, AL)

Similarly, the conversation with Interviewee 14 (Female, AL), an elderly woman who had never worked but had been living in the settlement for over 40 years, also suggested isolation and lack of engagement with the community. When asked if she knows many people in the settlement her response was: *“No not really, just a few relatives, we don’t really interact with the residents.”*

Finally, one of the most poignant statements when it comes to isolation for those not involved in income generation came from Interviewee 2 (Female, MN) who after speaking of not being allowed to work or go anywhere alone expressed: *“I also miss being able to see my friends.”*

The insights regarding the type of work women are engaged in point to a number of different key observations with regards to the relationship between transport accessibility and women’s access to employment opportunities. As presented in Chapter 6, the first confirms women’s travel and transport use to be more likely to be disadvantaged by any planning which focuses on 9 – 5 commutes. The second as was observed in Chapter 7 is that the paid work patterns of these women (the distance, cost, and frequency and time of travel for example) raise questions regarding the choice of activity and whether they are a result of women’s preference, or a choice made within constricting exclusionary systems and structures. Finally, the points raised in the current chapter also begin to show the significance of this mutually reinforcing relationship between transport access (as the intermediary to access income generating opportunities, and all the benefits that follow from that) and employment (as a source of acquiring financial resources and other capacities needed for travel). This relationship leads on to the following section which focuses on the capacity needed for and the experience of travel, as well as the wider benefits which ensue from the travel.

8.3 Processes of exclusion, motility, and potential of transport accessibility for transformation

As previously argued, when considering transport related exclusion from a lens considerate of power, in addition to the above presented social exclusion, the social exclusionary potential of spaces and systems also needs to be accounted for. Within the context of this research and the intersectional social identity of these women, residing in informal settlements and being female, presents a reality where spaces can be exclusionary by being both unfamiliar and unsafe in turn affecting their travel and transport use.

As will be shown in the relevant sections, in exploring the concept of 'knowledge' when it comes to transport infrastructure and urban spaces, we find not only relevance for it in transport accessibility in the potential ability to travel and utilise transport modes, but also through the increased opportunities for learning and accumulating knowledge as a result of travel which has transformative potential. As an intermediary to the expansion of spaces women have access to in cities, transport facilitates exposure to wider learning opportunities and the potential for women to earn valuable knowledge and skills that would advance their position in their households and in the city.

Further exploring the interviewees relationships with space through the understanding of motility also leads to consideration for the wider implications and dynamics of power resulting from the act of travel and transport use - or lack of it represented in women's increased use and exposure to the spaces of the city, ability to navigate it and sense of belonging in it. An additional transformative potential of transport accessibility is the prospect of transformation of household relations as well as citywide gender norms by recognising the connection between the spaces of the so-called private and public spheres and the extent to which they influence each other. This can affect, women's use of space by: affecting how they themselves organise their travel and choose transport modes; by changing household decision making with regards to which travel women can and cannot do; and finally, by creating a different city where there is increased female presence and engagement allowing them to challenge the gendered order of households and cities, leading to a transformation of norms. The key to this

is safety in public spaces and the unconditional right to appropriate and belong in city spaces, a picture in which planning and policy focused on safety during travel and on board transport modes has a crucial role to play.

8.3.1 Confidence and skills to navigate transport systems and the city

In terms of knowledge and skills needed to utilise transport modes, one of the insights that emerged in the interviews when considering the decision-making processes behind the use of certain travel modes was that increased competence in navigating transport modes comes from the opportunity to repeatedly utilise them. Examples from both female and male interviewees include Interviewee 37 (Male, MN) and Interviewee 66 (Female, AL) quoted below:

“It just depends on the best way to get there, I have been moving around these same places my whole life, I know all the routes.” – Interviewee 37 (Male, MN)

“I ride whatever modes are available, because I know them and am used to them.” – Interviewee 66 (Female, AL)

Knowledge and competence gained from increased exposure and familiarity also emerged in the narratives regarding engagement with the wider city.

The knowledge and skills needed for travelling in the city could also extend to skill sets we take for granted. Some key findings emerging from the data point to a relationship between literacy levels of female interviewees and engagement with the city beyond their settlement. For example, most concerning of these figures are the female interviewees who reported rare incidence of leaving their settlement of residence for any purpose. All 4 of these female respondents were illiterate. Female interviewees with higher educational attainment were more likely to be engaged in income generating activities, (89% versus 53% who were illiterate or with no qualification), as well as more likely to be engaged in income generating activities outside of their settlement of residence (55% versus 25% who were illiterate or with no qualification).

A potential significant contributing factor to this is the fact that those with higher levels of education would have had to attend secondary school, as well as degree level education outside the settlement, leading them to be more acquainted with the city and transport modes. More educated women could also be more confident in their abilities to navigate the city independently, they might also have more negotiating power in their households as suggested by Samari and Pebley (2018), which leads to greater freedom of mobility.

There were also very substantial differences in the spatial movements and confidence navigating the city between women who had regular income generation journeys outside the settlement and those who did not. Examples of those who travelled for paid work outside include Interviewees 60 and 62 quoted below:

“For the NGO work, we have to go to lots of places. Some days we go to places with easy and known routes and others more complicated.” – Interviewee 60 (Female, MN)

“I move around and go everywhere alone, I don’t have any problems.”
– Interviewee 62 (Female, MN)

In fact, of the 72% of female respondents (23 from AL and 24 from MN) who said they can and do travel alone outside the settlements, 41 of them (or 87%) of them were involved in income generating activities of which for 63% of them involved regular travel outside the settlement for this purpose.

One group of women highlighted previously as significant outliers with regards to transport accessibility as well as engagement with the city were the 8 Interviewees who generated income by buying products from the city centre and selling them to locals. Examining their responses regarding their confidence in travelling in the city reinforces this finding. This group of women were the most likely to move outside the area alone (100%) and the majority (71%) also said they did not feel their mobility was restricted in anyway. They all left the area regularly (at least once a week), and 80% of them said they had no problems travelling at night.

For 4 of these women, Interviewees 10 (AL), 32(MN), and 60(MN) and 55(MN), generating income through this trade was actually a supplementary second job. In their narratives there was a suggestion that there was already an existent familiarity with movement outside through their employment or education that led to their increased ability to engage with the city and its markets. Their employment could also have meant that they had access to independent sources of income that they were able to use to supplement funding for this extra activity.

Women's "productive" work status as well as frequency of leaving the settlement in general were also linked to their feelings of safety outside the settlements. Women who had paid work (inside or outside) were more likely to report feeling safe outside their settlements of residence and in the wider city. This ofcourse increased for women who worked outside. In fact, 83% (15 of the 18) of the female interviewees who said they felt safe walking outside, regularly engaged in income generating activities outside. In comparison, 52% of those who said they felt unsafe walking outside either had their income generating activities restricted to inside the settlement or were not involved in any 'productive' activities at all.

This argument is strongly supported by the contrast in the statements expressed by women who did not have any income generating activities, as shown below, compared to those presented from women above:

"I never ever go outside. I wouldn't even know how or where to go. Maybe the last time I went outside Ard el Lewa, my husband took me to get some legal documents done. But I don't go outside without him."
– Interviewee 13 (Female, AL)

'I can't go outside alone so I don't really do it much. I wouldn't know where to go even, so when it is a close short distance I can go alone - but not outside.'" – Interviewee 14 (Female, AL)

"I am a not allowed to go anywhere alone. My brothers are very strict. I usually go everywhere either with my mum or my cousins." – Interviewee 2 (Female, MN)

“My husband is usually the one who does the errands outside and he gets me anything I need. But I never go outside alone. I wouldn’t even know how to go anywhere alone.” – Interviewee 31 (Female, MN)

“I have never gone anywhere alone.” – Interviewee 63 (Female, MN)

28% of female respondents (9 from AL and 9 from MN) spoke of not being able to move outside the settlement alone. They were either accompanied by their husband or other family members.

“I feel safe in general in the area, but not outside. When I am outside anywhere there is always someone with me, I am never alone, either one of my children or my husband. I wouldn’t know how to go anywhere outside the area alone anyway. Even in the big market on the main road, I am not comfortable there. That is why my husband goes.” – Interviewee 28 (Female, MN)

With regards to what they deemed to be so unsafe about this “other” outside world, from the narratives it appeared that this perception of the city was related to a sense of unfamiliarity – in contrast to familiarity with and feelings of safety inside the settlement. Sense of safety and belonging both within the settlement and in the wider city is in fact a key dimension of the exclusion of these women from the city and will be further explored in section 8.3.3.

The example of Interviewee 31 below sheds light on the significance of women being able to independently navigate the city, and the potential isolation and entrapment that can result from the lack of knowledge and confidence to travel the city and its transport networks to access her family.

“If I am going home to my family, my husband comes with me. I can’t go by myself...It is not that he doesn’t allow me, I just wouldn’t even know how to go alone. Once my mother was really sick and I went with my sister. We took a private car with a driver we trust.”– Interviewee 31 (Female, MN)

The above quotes from women who did not engage in paid work all highlight the extent to which their ability to navigate the city independently was restricted, through both male authority as well as lack of confidence and knowledge of the city. This is particularly significant as it sheds light on the extent of their vulnerability.

Examining men's responses when it came to employment decisions and decisions about where to work, the men's responses were extremely telling of the difference in navigating the city between the sexes.

Presented below are a sample of common statements by men with regards to their work journeys:

"I have work all around Cairo. You know I have been all around and know every inch of it." – Interviewee 5 (Male, AL)

"We get work everywhere, sometimes 6th of October or the 5th settlement, wherever it is we go...we ride anything we can find to take us there."- Interviewee 49 (Male, MN)

"I go for work all around Cairo. Even if it is far, work is work, I cannot say no." – Interviewee 29 (Male, MN)

"If I get work anywhere, I would go anywhere for work, doesn't matter how far because this is my livelihood." - Interviewee 38 (Male, MN)

The insight suggested by the quotes presented above was a common occurrence in the discussions with men.

For the female interviewees who were not regularly engaging with the city, their image of the city and their feelings of safety were also shaped by others, such as the stories they hear and what men tell them.

There were a number of stories emerging in the narratives regarding the dangers of travel and transport mode use. One example was Interviewee 25 who spoke of stories

she heard of what happens to girls in taxis. All the stories shared by women that caused an increased feeling of fear seemed to have one thing in common, that is, they all involved situations where women were alone onboard transport modes. Similar stories were also shared about moving alone at night whether on transport modes or not.

“I also get scared to move around at night. Recently a woman living nearby was coming home at 3am alone, and a few men started bothering her, so one of the men from the street ran down to help her and he was killed.” – Interviewee 66 (Female, AL)

Perceptions of safety can have a profound impact on women’s freedom of mobility and experiences in Cairo. De Koning (2009, p.533) for example uses the prevalence of a widely circulated rumour in Cairo of a taxi driver serial killer who was said to “kidnap, rape and murder young ‘well-dressed’ women and mutilate their bodies” to highlight the extent to which stories such as this can increase women’s exclusion from public space.

By not being able to engage and experience the city for themselves, women’s image, perceptions and resultant fear of the city then can easily be shaped by the opinions and pictures presented to them by men. This becomes especially obvious when it comes to the reasons they believe their husbands do not allow them to or have a problem with them moving outside the settlement. The responses seem to indicate a perception of men being more aware of and familiar with the city due to their increased mobility. Interviewee 73 for example states:

“The men, they go out and they know what happens outside, so of course they worry about us moving around.” – Interviewee 73 (Female, MN)

While she did not elaborate on what she believed happens outside, or what there is to worry about, another Interviewee 63 (Female, MN) expands on this point by highlighting her husband’s concerns:

“He is out and about, and he sees the markets and how busy they are, so he does not think it is a safe place for women. He does not like it when I go out to busy areas with loads of men around.” – Interviewee 63 (Female, MN)

In the case of Interviewee 63, it was not only a matter of concern for safety and a belief in the superior awareness of her husband, but also a matter of lack of autonomy. Her husband heavily dictated the trips she was able to take, their purpose and their location.

It is worth noting that women’s feelings of men’s increased competence with regards to mobility and activity outside the home is in stark contrast to the instances where, in discussions about the household division of labour, many justified doing domestic work and childcare by referencing men’s lack of abilities and knowledge on those matters. This potentially highlights the extent to which gender defined roles can reinforce a range of norms and attitudes, including about the use of space.

If people feel more confident in places they are more familiar with, then one of the ways to overcome these fears is through having experiences which negate or demystify the image portrayed by others. Women’s use of space and increased appropriation of cities then becomes a powerful act in itself.

Within the literature on transport related social exclusion, the perception of safety on-board transport modes is increasingly being recognised as a significant influencing factor to women’s transport accessibility (Busco et al., 2022; Soto et al., 2022). As stated, this perception can be shaped by a variety of sources based on personal experiences or stories people have heard, leading to a change in travel behaviour or mode use. What additionally emerges from the interviewee’s narratives is the extreme significance of men’s observed contributory role to this fear-based exclusion (Church, et al., 2000). The extent to which men within the women’s households’ shape their perceptions of safety during travel and are able to utilise it as a mechanism of control over women’s mobility, affecting their travel patterns and mode use, is a matter of extreme consequence for both women’s transport accessibility as well as empowerment deserving further research.

8.3.2 Exposure to wider learning opportunities

The concept of learning and acquiring knowledge emerges through travel and transport accessibility in many forms in the findings, particularly when we consider transport accessibility's role as a gateway or intermediary to wider city spaces of knowledge accumulation.

In an account from 1992, Macleod paints a detailed picture of all the different dynamics involved in the women's commute to work still relevant today and the potential learning opportunities of navigating the city through the journey to work:

“This traveling to and from work gives these women a knowledge of the city they never had before; they gain the ability to master the bus systems, memorise the winding streets, and acquire the know-how that makes them more successful in dealing with the bureaucracy. On the other hand, they are also away from the protective family. Men walking down the streets or sitting in sidewalk coffee shops compliment and comment; they attempt "accidental" touching and pinching... Learning to deal effectively with these situations without the help of family members is crucial for maintaining one's reputation.... They will walk far out into the street to avoid passing right in front of a sidewalk cafe and to show that they are not loose women, but moral.” (Macleod, 1992, p.32)

The above statement highlights not only the complexities of the knowledge needed by women in Cairo as they try to navigate all the societal expectations of their behaviour in public space, but also all the learning they do along the way.

In terms of valuable knowledge which is learnt through travel in cities, and presence and exposure to public spaces, its relevance is most obvious when we consider that within the findings, women's movements have been shown to be restricted to certain spaces and for specific purposes particularly in fulfilment of gender ascribed roles. Ghannam (2002, p.112) believes these restrictions are linked to the types of knowledge women are expected to and are allowed to acquire: “the attempts to control

women's access to the workplace are not limited to the desire to control the female body and female sexuality. There is also a strong desire to control women's minds, the knowledge they have access to, and the kind of solidarities they may form." Spain (1993, p.137) similarly argued that spatial gendered segregation can reduce women's access to socially valuable knowledge which is usually restricted to spaces dominated and controlled by men. She concludes that women's position in society is linked to physical arrangements of spatial segregation that "facilitate or inhibit the exchange of knowledge between those with greater and those with lesser status."

In the case of the female interviewees from both settlements in this study, their systematic exclusion from spaces where knowledge and power are accrued can then lead to the reinforcement and perpetuation of their exclusion. This exclusion is not necessarily restricted to spaces in the city but can also occur with spaces within the settlements. For example, Al Sayed (2016) highlights the practice of men not allowing women to enter an Arts Centre that is located inside their neighbourhood. Khalil et al. (2018, p.21) also highlight how the female youth are unofficially excluded from the youth centres in informal settlements "as they are de facto male-only spaces." This exclusion can be said to be motivated by the inability to control the ideas and knowledge the women will be exposed to in these spaces. Interviewee 78 made a similar suggestion when asked about the restrictions her parents impose on her mobility.

"They worry about us interacting with others who were raised differently. For example, if a woman wears trousers, and another woman befriends her, she will also want to wear trousers." – Interviewee 78 (Female, AL)

The restrictions on knowledge gathering also extends to legal literacy and women's rights. El Feki et al. (2017) in their study on 'understanding masculinities', found that men in Egypt were better informed about legislation promoting women's rights than women.

When speaking of income generation in section 8.2.5 the wider benefit resulting from engaging in activities of this nature outside the household was shown to have

empowering potential for women. When it comes to the opportunities for learning Macleod (1992) and Ghannam (2003) point to the extent to which in Egypt opportunities to work, especially outside, not only increase women's feelings of self-confidence and ability to navigate different situations and conditions, but also offer increased opportunities for autonomy and challenging oppressive structures. For Macleod (2002) for example she draws attention to the benefits of women's opportunity to meet potential husbands through the workplace, giving her the chance to get to know him better and make an informed autonomous choice, as opposed to traditional means of meeting future spouses that are heavily interlinked with family networks.

Women in this study who worked outside were also more likely to have relationships outside, beyond the domain of the settlement. In fact, working women often cite the relationships they develop as a main advantage of work. Sierverding (2012, p.100) in her interviews with women in Cairo, highlighted the extent of benefits women said they derive from working outside the home, particularly in formal employment. In her words these women had the chance to "develop stronger personalities, form wider networks of personal relationships, keep updated with current events and social changes, and generally have a life that was separated from the home." Ghannam (2003) goes a step further by drawing attention to the potential for collective consciousness of social positions and rights. In her opinion networks of colleagues formed through work also create a bond and solidarity.

Similar sentiments were shared by women in this study. Interviewee 31 for example stated:

"I have been working at this factory for 25 years. Through it I have gotten to know loads of people that I have grown close to. They visit me and I visit them if there is an occasion." – Interviewee 31 (Female, MN)

Extended wider city networks can have significant influence on women's empowerment through processes of consciousness raising.

8.3.3 Feelings of safety and belonging

Earlier in Chapter 3, when speaking of the concept of the Right the city, right to appropriation and feelings of belonging emerged as key components in fulfilment of this right. Within the findings of this research these are manifested in the feelings of safety in urban spaces and on-board transport modes, tied to feelings of familiarity, and feelings of legitimacy and right to be there. For those living in informal settlements the sense of unfamiliarity and not belonging in wider city spaces beyond their settlement can be even more pronounced.

Safety of course plays an extremely significant role in women's interaction with the city, with the inside versus outside divide significant. 72% of the women interviewed (67% from AL and 78% from MN) said they felt safe in their area compared to only 28% (21% of the female interviewees from AL and 34% from MN) feeling safe outside.

In line with the importance of increased familiarity and exposure presented in the preceding section, the explanations given for the increased feelings of safety inside versus outside all seemed to refer to a feeling of familiarity and knowledge. Expressions such as *"I know the area well"* (Interviewee 13, Female, AL) and *"I am used to it here"* (Interviewee 42, Female, AL) referred to a sense of safety through individual experiences and regular engagement. While other responses like *"the area here is like a big home and very safe, everyone knows each other"* (Interviewee 24, Female, MN) and *"I know the neighbours well and I am friends with everyone from my street. I move around freely -the street is safe"* (Interviewee 35, Female, AL), were in reference to a different level of familiarity and knowledge. That is, a sense of safety that comes from an acquaintance to the surrounding community and social actors – Though there is of course a temporal dimension that should be noted here which results in exceptions to this feeling of safety, remembering previous discussions about safety when referring to decision-making about travel and transport modes within the settlement during night time.

That is not to say that the settlements were considered to be a safe space by all. 25% of the female interviewees (36% of those from AL and 12.5% of those from MN) and 20% of the male interviewees (36% from AL and 0 from MN) all said that they felt their

settlements of residence were not safe. The statement by Interviewee 5 serves to highlight how this notion is also changing with the continued development of their settlement and the diminishing sense of community cohesion:

“The community here is not what is used to be. In recent years there have been a lot of strangers coming into the area and renting apartments. There are also a lot of immigrants. You know there was a prostitute living in the building for a while and we had no idea. She rented a flat and used to get up to no good. Then when people found out she left”. – Interviewee 5 (Male, AL)

Strong local ties are traditionally a mainstay of the social fabric in Cairo with the community playing a strong influential role in the lives of the residents. There are instances where this communal hold can prove to be oppressive for women, in particular due to community policing of women’s behaviour in public space, ensuring the patriarchal hold of the household is regulated outside it.

Shehayeb (2015) highlights how in Cairo there is increased surveillance by the community limiting acts of crime and sexual violence within the area due to this social control. Yet this same level of social control is also what leads women in her study to travel long distances for leisure away from this hold. Similar findings were expressed by Al Sayed (2016) who highlights a difference in women’s behaviour within and outside their areas (Abdelfattah, 2019).

Comparing feelings of safety by settlement, the insight from the narratives show a greater sense of lack of safety in Ard in Lewa compared to Mansheyat Nasser, with the exact same percentage of female and male respondents from Ard el Lewa appearing to feel unsafe in the area.

The responses of the male interviewees in Ard el Lewa emerge as particularly interesting, as they make reference to feeling safer outside the area than inside as can be seen in Interviewee 67's account below:

“When I walk outside the area, I feel much safer than inside the area. Inside there isn't even police patrol cars. If there was a problem they would come after the problem is finished. And the youth they take and sell drugs and they harass women in the street in front of everyone not caring about anyone.” – Interviewee 67 (Male, AL)

Interviewee 67 (Male, AL) was one of 4 interviewees who made reference to the absence of police in their settlement. The other 3 Interviewees were 5, 8, 9 (quoted below), all of whom were also male respondents from Ard el Lewa.

“The absence of police in the area causes a state of chaos and haphazardness that extends throughout the area, there are parts of Ard el Lewa towards the back that you simply cannot go.” – Interviewee 9 (Male, AL)

Not a single one of the female respondents in either settlement mentioned the police, nor did any of the male interviewees from Mansheyat Nasser, potentially signalling differential attitudes to the police and their presence in the settlement.

The 4 male interviewees from Ard el Lewa, who mentioned the police, also share the common factor of being engaged in income generation activities outside of the settlement. This potentially points to increased knowledge of the conditions of the city outside the settlement for comparison, as well as confirming that feelings of safety and awareness of the extended city and its conditions are shaped by use and exposure.

Transport modes themselves can be an embodiment of this exclusion where women are not made to feel safe or welcome onboard. As shown in the previous chapters, feelings of lack of safety onboard transport modes was a common concern for 62% of the female interviewees from both settlements, 67% in Ard el Lewa and 56% in Mansheyat Nasser. In terms of the male respondents, while there was a notable

number of men (40%) who said they did not feel safe onboard transport modes, the majority of male respondents of both settlements claimed to feel safe while onboard transport modes. Statements such as “*there is no problem in terms of safety on transport*” by Interviewee 40 (Male, AL) and “*I can’t really answer the safety question because it is not something I consider much*” by Interviewee 37 (Male, MN) were common amongst men.

In terms of conditions that lead to women feeling safe versus unsafe onboard transport modes, as was presented in Chapter 7, they were all predominantly concerned with issues of male dominance and gender-based violence from drivers as well as other passengers. In the conversations regarding decision making and feelings of safety onboard transport modes there also emerges a relationship between feelings of safety and familiarity with the travel routes as well as the drivers (in the case of the tuktuks and travel cars).

One obvious way that women attempt to circumvent the potential dangers of the city is by limiting their travel times. 23 female interviewees specifically mentioned not travelling at all at night (7 AL and 16 MN). No such suggestion was made by any of the male interviewees.

For example, Interviewee 28 states:

“I do not leave the house at night at all. If we need anything either my husband or one of my sons would go get it. Because the streets here at night are not good, even when my daughter stays out late outside the area, my husband goes to pick her up so she doesn’t come back at night alone. It is better to be safe than sorry.” – Interviewee 28 (Female, MN)

The way that Interviewee 28 and her family negotiated and challenged the need to travel at night was to rely on the support of male family members to whom the restriction did not apply. While her daughter’s movements at night were not prohibited, they were restricted and reliant on male involvement. Relying on the accompaniment

of men was in many instances actually presented as a preference. As emphasised by Interviewee 27: *“It is safer to have him with me, so no one bothers me”*.

In Chapter 7 it was also presented that there are instances where women prefer there to be male passengers onboard the minibuses to stand up to exploitative informal drivers. This is another example of the way men and women can work together against forces which restrict women’s travel, in this case by supporting women in the face of male intimidation.

The restriction in travel time is in many instances imposed by the women themselves as a precautionary measure. This was the case for Interviewee 52 (Female, MN) for example who lives with her mother while her husband is living elsewhere. In her case she stated: *“I don’t really move at night, my latest is 9 pm...I made this limit for myself since I don’t have a man, I leave the house from 6 am anyway.”* She is the primary breadwinner for herself, her mother and her daughter, and is constantly moving around the city for her work. As she said she is out from 6am every day for her livelihood. When limiting her travel patterns in this instance, she did not mention safety, or male authority as a contributing factor but instead suggested that the curfew was self-imposed as a way of self-preservation, while she took advantage of the city’s opportunities in the daylight.

It can be argued that for self-preservation, women also alter the way they dress in public space. Some authors have even suggested that the prevalence of the veil is also a resistance mechanism which women use to negotiate space while still conforming to society’s expectant standards of morality (Macleod, 1992; Ilahi, 2009).

In the case of Interviewee 25, she spoke of alternations to both her clothing as well as demeanour on transport modes as the precautionary measures she took to protect herself while navigating the city:

“I used to wear t-shirts and people would bother me, staring and making comments, so I started wearing longer sleeves. Also, when standing I hold my arms to my sides to force space and a gap and

distance between me and the people next to me.” – Interviewee 25
(Female, MN)

As for Interviewee 36, while speaking of the challenges she faces and the fear she feels moving around the city at night she also suggested that her *niqab* (full face veil) acts as an extra layer of protection.

“I get scared to move around alone at night, its dark and the roads are emptier. But also when it is late, there are less transport options, there aren’t as many buses. No one bothers me because I dress respectable when I am outside, I am fully covered, even my face.” –
Interviewee 36 (Female, AL)

De Koning’s (2009) findings in Cairo also highlight the way women carefully plan their trips in public space to avoid gaps where they could be waiting alone in public and at risk of unwanted sexualised contact.

The exclusion resulting from all the above tactics all in turn reinforce male domination over public space.

In the accounts presented earlier with regards to both female and male interviewees’ perceptions of safety, male dominance also emerged as a key factor which actually led both men and women to view public spaces as unsafe for women.

The spaces of the street, even with the women weaving past, are male dominated. Abdelfattah (2019, p.80), for example, highlights the sea of active and passive men occupying the streets of Cairo through a range of different predominantly male dominated jobs: “traffic enforcement officers, police officers, security guards employed at banks, hotels or shopping malls, doormen or porters, mechanics, shop salesmen, kiosk owners, drivers, and informal self-appointed parking assistants.” This makes the street an extremely intimidating space for women subjected to the ‘male gaze’ – a notion frequently mentioned in the literature as a regulator of women’s use of public space (Hafez, 2014).

Women in Cairo will rarely, if ever, be seen hanging around the city, strolling on the banks of the Nile, or having tea and *shisha* in one of the cities thousands of outdoor cafes (*ahwas*) that cover most of the city's sidewalks and are open and lively long into the hours of the night. The image of the woman on the street in Cairo is similar to that of her Mumbai counterparts (Phadke et al., 2009), running around from errand to errand and from one transport mode to another, trying to ignore the stares and calls of the men she passes along the way as she balances all her responsibilities.

Beyond being in the public domain for a particular purpose, women are also excluded or denied from just being present in the city on the streets. Tactics of sexual violence and intimidation were also heavily exercised by both the public and the state in the recent political uprisings (Hafez, 2014), further resulting in exclusion not only from appropriation but also from participation as posited in the Right to the city by Lefebvre (1968).

It is worth noting here, one very persistent feature in Cairo life that should not be overlooked is the extent of class disparity and division. Just by virtue of their economic status or residential location, the interviewees are already severely excluded from the city. It is important to acknowledge this intersectionality in recognition of the lack of privileges offered to these women in comparison to other women in the city. Upper and upper middleclass women of Cairo are judged by different standards and have different options. They evade the hostility of the public city and its streets through travelling by private modes, and negotiate their presence in public space by spending time in Western-like indoor cafes and shopping malls. Low-income women on the other hand are excluded from these places and are not afforded the same privileges.

8.3.4 Altered ways of thinking and opportunities for influencing norms and decision making

The past 20 years have seen a number of efforts to address sexual violence on the streets and onboard transport modes in Cairo through anti-harassment activism by young people (Abdelmonem, 2015; Langohr, 2015). Examples include: *Tahrir Bodyguard*, *Operation Anti-Sexual Harassment (OpAntish)* *Shoft Taharosh (I Saw Harassment)* and *HarrasMap.org* (a crowd sourcing online platform where people are encouraged to report incidents for documenting on a virtual map, and can also access

support resources). Though the majority of these initiatives proved to be short-lived, they did succeed in shedding light on the subject, and have also been credited for changes in legislation such as the criminalisation of sexual harassment in Egyptian Law (Abdelmonem, 2015; Cochrane et al. 2019).

In the wake of the spirit of activism and volunteering during the period of the 2011 revolution, these groups also saw increased participation of men. Their involvement was motivated by clear objection to the emerging number of notorious incidents of sexual violence being highlighted at the time. Langhor (2015) also found concern for the safety of their friends and family to be a key contributor to men's involvement. Tamami (2013) speaks of a process of "learning" in these groups that saw these male activists change some of their preconceived gender-based stereotypes about women in public space.

The intention of raising these points here are two-fold: firstly, to speak of the influence public efforts can have in rallying public support and creating change in the context of Cairo; and secondly, to learn from the experience of men's involvement. These young men who were willing to take positions on women's rights and to do so publicly, can serve as examples to contest orientalist notions of essentially misogynistic Arab masculinities. They present instead an example of the extent to which concern for loved ones' safety can be an encouraging force for action, as well as the potential of women and men to work together towards a common goal of ensuring women's safety in public space.

In the findings of this research, men's perceptions of women's safety in public space very clearly emerges as a significant contributing factor influencing household decision-making when it comes to travel. Men restrict the movement of women in their family because of concerns for safety and gender-based stereotypes about women's movement in public space. This comes across in the findings presented in Chapter 7 which showed a clear link between men's trips related to the household and location of these trips, with men's involvement in household-related journeys increasing when it was outside rather than inside the settlement or when they were at night. A number of men in the study explicitly refer to the concern for women's safety, onboard transport

modes and in various urban spaces as a motivation for them taking on more household responsibilities. Interviewee 50 (Male, MN) for example speaking of his mother said:

“I worry that she would go somewhere alone and someone would bother her on transport, so I am always with her and do her errands for her when I can.” - Interviewee 50 (Male, MN)

Furthermore, the below statement by Interviewee 5 (Male, AL) who was one of the men concerned about the safety inside Ard el Lewa, sheds light on the extent of the severity of measures which can be taken to limit women’s public presence:

“the area here is not very safe, I feel safe because I am a man and well known to the locals. Sometimes I even hang the laundry to dry for my wife so she doesn’t have to stick her head outside with all the strange men loitering on the road and on the *ahwa*, they can see into the house. I also buy groceries when I am out instead of her.” – Interviewee 5 (Male, AL)

For Interviewee 5, he felt like his social position as a man meant that he was better able to navigate the dangers of the settlement while his wife was more vulnerable to the risks. The concern by male family members for the safety of their wives, mothers, daughters etc. was also acknowledged by the female respondents.

The opinion of the two men presented above however must also be seen against some contradictory tendencies highlighted in Chapter 7, for example, women being excluded from use of the private owned vehicle, even as a passenger. Interviewee 5’s concern for the safety of his wife even within the settlement also contradicts the feelings of safety in their own community of many women which were presented earlier. What is particularly interesting about these contradictions is that they show the workings of gendered power dynamics, and the powerful exclusionary circumstances that women’s travel and transport decisions are taken in, as well as reinforce the critical role of safety in public space for women’s unconditional right to appropriate and belong in city spaces.

8.4 Conclusion

The relationship between transport and empowerment in this chapter has been explored through an examination of the relationship between spatial and social inclusion/exclusion and the impact of this on women. Exploring gendered social exclusion as well as gendered processes of exclusion shed light on the impact and significance of travel and transport use patterns on women's empowerment and integration into the city and provided insight into the extent to which consideration and reversal of this exclusion and its processes in transport could potentially have a transformative impact on women and gender relations in households and cities.

With regards to the concern for social exclusion women in these settlements were shown to have restricted transport accessibility (time, cost, distance) to essential goods, services and employment. They have additionally been shown to be excluded from the wider city, resulting in a reality where they have to resort to more expensive and limited goods, difficult expensive and unsafe journeys to education and healthcare or lower quality ones, and informal means of income generation. In terms of the findings regarding goods, education, and healthcare, these point to significant inefficiencies in the subsidy and government social support policies as will be further elaborated in Chapter 9.

If we return to the categories of transport related social exclusion presented in Chapter 2 Section 2.4 (Church et al., 2000; Benevenuto and Caulfield, 2019; Yigitcanlar et al., 2019; and Luz and Portugal, 2022) we find that the female interviewees' travel practices and strategies point to significant exclusion across all its forms. The interviewees' intersectional social identity and disadvantage makes it difficult to untangle the categories from each other, however for illustrative purposes, let us consider the journey to access healthcare. Due to the lack of healthcare services in their residential location, we find *geographical exclusion* and *exclusion from facilities*, leading to a reality where travel for this purpose was long and costly. This was not only amplified by the *economic exclusion* of the residents which meant high cost of travel and treatment was unaffordable, but as was presented in Ard el Lewa, could also be further intensified by forms of *space exclusion* such as the nearest hospital being a private facility in a neighbouring wealthy neighbourhood. If we consider that this

journey may be in fulfilment of a medical need of their child, as women were shown to be likely to do, then we can also observe significant *physical exclusion* evidenced in the difficulties of travelling with children as well as *time-based exclusion* inherent in need to juggle their multiple travel demands. *Fear based exclusion*, of course was unfortunately also constantly present as part of these women's travel and as has been shown, had implications on travel with regards to mode use, time of travel, travel companions and more.

In women's travel strategies and negotiation in particular we can observe the extent of this *fear based exclusion*. As was observed in this research and elsewhere (see for example: in Mexico city: Mejía-Dorantes and Villagrán, 2020; and in Santiago, Chile: Sagaris and Tiznado-Aitken, 2020), fear of crime and gender based violence during travel leads women to adopt strategies such as changing routes (even if this sometimes means extending the journey) as well using certain modes over others (even if they are costlier).

In this chapter, other ways this exclusion was manifested through the interviewees' strategies was through its impact on time of travel. Similar to what was observed in other studies, women restricted their travel at night, leading to a reality where women were more likely to be absent from streets and transport modes after dark (Busco et al., 2022 in Santiago, Chile; Jain and Campbell, 2022 in Delhi, India). It could also be seen in the need for travel companions. As was presented, women often travelled with other women or had to be escorted by male relatives, limiting their independent access and mobility in the city. This is not unique to Cairo but has also been observed as a safeguarding strategy in another North African setting (Murphy et al., 2023). It is worth reiterating here, as was presented in the findings, fear based exclusion is heavily influenced not just by women's own experiences of safety, but also by the perception of safety during travel transmitted from other sources such as the media and their family members and friends (Porter et al., 2021; Busco et al., 2022; Foley et al., 2022; Yasir et al., 2022).

Information and knowledge in general can be a strong influencing force in travel related social exclusion. As the findings showed, there was an obvious difference between women's travel frequency and travel confidence according to their literacy

level and their knowledge of navigating the travel modes, with implications on how they were able to engage with and benefit from the city. Given the social position of the interviewees who were both economically and educationally disadvantaged, and the lack of reliance on technology (such as maps and ride-hailing apps) in the conversations with the interviewees, it can also be assumed that technology based solutions are inadequate in this context (Joshi et al., 2022). These findings further support the addition of the travel related social exclusion categories of social position based exclusion, informational exclusion and digital divide exclusion put forth by Benevenuto and Caulfield (2019), Yigitcanlar et al. (2019) and Luz and Portugal (2022).

The significance of access to and use of space in this particular study has proven to be especially crucial due to the residence in informal settlements. The nature and growth of informal settlements in Cairo and the extent to which they are spatially immersed in the city was presented in Chapter 5. Both settlements chosen for this research have relatively 'strategic' locations in terms of close proximity to more formal locations with Ard el Lewa neighbouring ElMohandesine, and Mansheyat Nasser neighbouring Nasr City. Yet not only has transport been shown to play a crucial role in linking this planning-imposed divide between the formal and informal parts of the city, but more importantly for the aims of this study, this divide has been shown to act as a more formidable wall for women than men. When it comes to accessing and engaging with the city and its services, transport accessibility has been presented as an amplifying aspect of the exclusion.

The spatial distribution of women and men's travel and the restrictions that limit women's access to the city were also presented through insights considerate of motility such as the skills and knowledge needed for travel, as well as the embodied experience of travel. When it comes to the role transport accessibility can play to increase women's engagement with the city beyond the settlement women's feelings of safety in the street and onboard transport modes, as well as men's perceptions of their safety were shown to have a significant impact on women's access to the city beyond the settlement. Much can be learnt from the factors which were presented to result in feelings of lack of safety or increased sense of belonging, especially with regards to how men and women work together in the face of exclusionary urban

realities.

The difference in spatial and temporal distribution of activities, and the gendered experience and use of space, that have been presented, all signified a city with increased male dominance in the public sphere. Findings have also highlighted the extent to which the resultant exclusion can lead to disempowerment by limiting women's Right to the city, to its networks and knowledge. It also leaves women in a vulnerable position whether through informal employment practices or through isolation from support which both have implications for empowerment.

Additionally, a clear difference emerged in different women's ability to navigate the city, particularly differences between women engaged in income generation activities and those who were not. It was shown that the increased knowledge and exposure from engagement in income generation activities outside the settlement leads to an increased ability to negotiate the city more independently and more confidently. This suggests a significant relationship between women's transport accessibility, their involvement in income generation outside the settlement, and empowerment. It also allowed for women to have an increased freedom of mobility and the ability to engage in a wider spatial sphere than others with less experience of this regular engagement with the city.

9 Chapter 9: Conclusion

This research aimed to explore the relationship between transport accessibility and the empowerment of women living in Cairo's informal settlements. In response to literature outlining a difference in access to transport by women compared to men globally, the research aimed to identify the role gender plays in this disparity. This ambition aligns with feminist aspirations to address the neglect of gender in transport and urban planning policies by producing knowledge considerate of the experiences of women and the role unequal gendered power relations play in shaping individual experiences of the city.

To achieve this, an alternative approach to researching transport accessibility through a gender and power lens was developed. Adopting this approach allowed for the uncovering of previously taken for granted assumptions in the transport field, as it draws attention to the power negotiations overlooked in traditional transport research. This was particularly important given an observed gap in the transport accessibility and travel related social exclusion field when it comes to understanding and accounting for the wider gendered structural context within which travel decisions are taken, that dictates needs, destinations and potential for travel.

Contextualising the research in informal settlements in Cairo recognises the realities of worldwide urban inequality and contributes to filling knowledge gaps on the transport experience of women in the Global South. The insights emerging from the research contribute to increased understanding of the understudied role transport accessibility plays in gendered urban exclusion and marginalisation. For this group of women who were particularly disadvantaged by their intersectional social identities by being excluded from formal provision and disregarded in planning decisions, reduced transport accessibility translated into limitations on their experiences of the city due to the resultant restrictions on their ability to inhabit and benefit from it. Recognition of this urges reconsideration of the contributory role of transport planning policies to social justice. The research's increased consideration for the gendered structures and relationships of power that control allocation and distribution of time, resources, and freedom of mobility across households and in cities was additionally able to highlight

the role transport infrastructure plays in individual women's empowerment and its potential for collective gender transformation.

9.1 Major findings

To account for knowledge gaps and increase understanding of the travel and transport use and needs of the study population, the first research question posed by the thesis was "what are the real travel patterns of women living in informal settlements in Cairo?"

Findings included insight in to the travel purposes, which showed women in informal settlements in Cairo have a high travel demand to meet basic standards for a decent life for them and their household members. Similar to findings emerging globally these women were shown to shoulder a disproportional share of the households' travel needs to satisfy both household care and income generation tasks. The findings shed light on the substantial travel burdens of the parents of which female respondents travelling for this purpose were observed to be almost double the male respondents. Additionally, of extreme significance was the finding that 74% of women conducted journeys in fulfilment of income generating activities. This stands in direct contrast to the low figures on women's labour force participation and any mistaken assumptions regarding women's participation in 'productive' activities and contribution to household incomes. The difference is likely due to the informal nature of these income generating activities which are ill accounted for in official employment figures. On the other end, again similar to international trends, women were found to be disadvantaged in terms of travel for leisure in comparison to men.

Observations on transport modes use for both women and men were also extremely insightful. Comparing mode use by sex, women were just as likely to utilise all the modes available as men with the exception of private transport, with no distinction across settlements. This finding serves to support the need for consideration for women as main users of transport infrastructure in their own right. The difference in use of private transport modes was shown to be indicative of many other exclusionary gendered factors such as disproportional access to resources to name one.

Informal public transport modes also stood out as the modes used by 96% of the respondents of the study compared to only 62% users of the formal public modes. Informal modes were shown to have a significant impact on meeting women's travel needs, relied on for a wide range of travel purposes. Findings however did also reveal the significant vulnerability for women when utilising informal transport modes as a result of lack of official oversight and accountability, resulting in issues of safety and a wide range of unpredictable service delivery challenges, from price to journey times and destinations.

The second research question posed was "how are gender and power reflected in these patterns, and what are the implications for transport accessibility?" Findings from this research highlighted the wide and complex range of factors which come into consideration for travel and transport mode use, all of which were being affected by gender. The variety of contributory influences identified included considerations based on gendered individual social identities, gendered household relationships, and gendered urban spaces. Insights from the interviewee narratives revealed a gendered process of prioritising and negotiating taking place behind the scenes within the observed transport travel patterns and transport use. This process was influenced by differences between women and men in access to and control of resources, control over time use, and freedom of mobility. Disadvantages for women were reflected in a clear spatial divide in the way household tasks were allocated, and the contradictions arising between views and expenditure on women's travel for income generation versus for leisurely purposes. Other gendered disadvantages for women could be seen in the difference in access to household private transport modes between women and men and in men's ability to rely on more comfortable and expensive modes compared to women when travelling with children.

Safety in public space and on-board transport modes emerged as a significant contributing factor to many of the findings. As is known in the literature, feelings and perceptions of safety affect women's travel time, destination as well as mode use. This was similarly confirmed by the results of this study. the lack of formal supervision and accountability of informal transport drivers, as well as having a female body, all left women increasingly vulnerable when travelling on board transport modes. What was additionally uncovered in this study was that it was not only women's concern for their

own safety, but also their children's safety, which strongly influenced the travel women did as well as the modes they used such as escorting children to school due to safety fears. Men's concern for women and children's safety also affected their own travel purposes and mode use, as results showed that some men took on more of the reproductive-related travel load in situations deemed unsafe for women. This points to safety in public space and on transport modes being a key area for concern for transport accessibility.

The third and final question the research was aiming to answer was: "what is the impact and significance of these patterns on women's empowerment and integration into the city?"

The impact was evaluated by considering the interviewees ability to access basic goods, education and healthcare services, support networks and income generation opportunities within their physical, financial, temporal, and geographical constraints. Empowerment was further analysed through the examination of accounts related to confidence navigating the transport systems and the city in reference to skills and knowledge required for travel, as well as through exploring feelings of safety and belonging to account for embodied experience of travel as well implications of women's travel on their own sense of knowledge, engagement and appropriation of the city, its social networks, and its opportunities.

Significant insights emerged regarding access to and use of space in the city. Despite the settlements central locations, the interviewees in this study frequently spoke of 'inside/outside' to differentiate between activities in their settlements and those in the city. The distinction was also highlighted when speaking of feelings of safety and access to different resources and services. This finding points to a marginalisation and lack of integration of the informal settlement residents into the city spaces. This exclusion appeared to impact women much more than men.

Men in the study were much more likely to leave the settlement daily than women (95% versus 55%). In fact, a significant number of the women reported rarely or never leaving their settlements of residence (29%). This was not the case for any of the male interviewees. The restricted travel to outside the settlement when considered with the limited basic services and formal employment opportunities inside the settlements,

raise concern for women's well-being as it suggests increased social vulnerability and exclusion such as restricted access to healthcare and education services, increased susceptibility to precarious informal employment practices and potential isolation from social networks and support. Particularly concerning was also the finding related to restrictions to travel to access family which suggested significant vulnerability and isolation for some women.

Health and education are main priorities in the rhetoric on social protection in government policy in Egypt (Diab and Hindy, 2021; World Bank Group, 2022) and are offered on a subsidised arrangement along with essential food items. Yet insights from the interviewees regarding access to goods, education, and healthcare point to significant inefficiencies in the subsidy and government social support policies as they do not account for restricted transport accessibility. When it comes to accessing and engaging with the city and its services, transport accessibility has been presented as an amplifying aspect of the exclusion urging consideration for its role in this picture.

Exploring the concept of 'knowledge' within transport accessibility revealed its role not only in the ability to travel and utilise transport modes but also in affecting women's perceptions and ability to appropriate city spaces. Lack of regular engagement with the city outside the boundaries of their settlements also affected women's perceptions of safety in the city resulting in a self-enforcing cycle of exclusion.

Regularly engaging with the city outside of the settlement for income generation was also shown to lead to increased knowledge of the city, and increased ability to negotiate the city more independently and more confidently. This finding is of extreme significance when it comes to women's empowerment as income generation outside the settlement appeared to allow for women to have an increased freedom of mobility and the ability to engage in a wider spatial sphere than others with less experience of this regular engagement with the city.

9.2 Contribution to gender and development studies, transport and urban planning in practice and in research

Through the approach which uses gender and power in the everyday lens when examining transport accessibility, the research presented a way of studying travel and transport which is considerate of the lived reality of the everyday, accounting for the real physical and social contexts in which women live and their travel takes place.

Through the approach of examining the decision-making processes behind travel purpose and transport mode use, a significant amount of knowledge about the urban and social context was generated, knowledge that is lacking in the context of planning in Egypt and elsewhere. Examples include insight into how conditions of the city and the household influence each other when it comes to intra-household decision making about travel and transport modes use. Similarly, the research highlighted the importance of a detailed understanding of the operations and reach of the formal and informal public transport infrastructure networks, and the travel and transport use practices related to informal sector income generation, which are not properly accounted for in the planning and evaluation of transport infrastructure.

The choice of a qualitative method allowed for opportunities to unravel all the complexity of travel decision making and negotiations, cover all activities people complete in their everyday lives requiring travel, as well as adequately capture elements of the embodied experience of travel. The insight also revealed an additional array of detail regarding travel purpose and transport mode use that would not have come up in a more prescriptive data collection approach. Examples include practices of negotiation with informal sector drivers over fares, distinctions in the food shopping trip between the local one that fulfils a regular daily need and the one to collect the government subsidised food staples which takes place in a faraway location on a monthly basis, as well as the subtle distinction between 'visiting family' as a form of leisure or as part of the woman's care-taking responsibilities.

The findings of the research contribute to the ongoing efforts to highlight the significant role transport plays towards achieving social justice and fulfilling urban residents right

to the city. In line with the concepts put forth by the new mobilities turn, it also showed that a consideration of power in these approaches has the potential to make them more effective in reflecting the real accessibility processes and outcomes of diverse women and men.

In addition to reemphasising the role of transport in accessing basic social and economic needs, the thesis particularly presented unique and significant results which showed the role transport accessibility plays in gendered urban exclusion and marginalisation.

The research findings shed light on the role and significance of transport accessibility in conversations on women's empowerment through highlighting the ways transport can aid or inhibit the full participation of women in the city. In the same way that transport has been shown to play a role in the exclusion of women from formal opportunities and services, extended networks and learning from the city, the inverse in the form of increased transport accessibility can in turn increase their access to said opportunities. The research has suggested a number of different ways that transport accessibility can lead to increased empowerment for women by increasing feelings and perceptions of safety, making formal opportunities more accessible, increasing potential for extended networks and opportunities for knowledge, and facilitating increased participation and appropriation of the city.

9.3 Contribution to policy in Egypt and the lives of Cairo residents

From the perspective of policy in Cairo, the Government of Egypt (GoE) has been following a national sustainable development agenda since 2016 entitled Vision 2030 (MPED, 2016), which is aligned with the United Nations' Sustainable Development Goals (United Nations, n.d.).

Transport is a key theme in 4 of the vision's 10 pillars: economic development, energy, environment and urban development. Consequently, the transport sector has received billions in investment from the government purse as well as international partners in the past 8 years (MOIC, 2021; MPED, 2022).

Under these pillars, the transport sector is focused on as a mechanism to address priorities regarding the high financial and environment cost of traffic congestion, as well as a connector tool to support economic connectivity, particularly to new districts being built in Cairo.

Under the urban development pillar, in particular, public transport provision is considered an integral part of the strategy, reflected in its inclusion as a key performance indicator: “passengers using public transportation growth rate” with a target increase of 50% by 2030 (MPED, 2016).

A positive feature of the strategy is that it recognises the deteriorating quality, limited capacity and inefficient planning framework of the available public transport modes and outlines a number of key approaches to address these challenges. This signals a recognition and awareness on the part of the GoE of the severity of the problem as well as the importance of addressing it. One of the elements outlined includes the development of a database of the numbers of users of the transport modes used by the public, and their economic and social characteristics “such as income classes and social status” (MPED, 2016). From the findings of this thesis, consideration is also urged for accounting for informal modes, as well as disaggregating data by sex.

Egypt’s Vision 2030 also includes a Social Justice pillar (MPED, 2016). However, transport does not feature within the strategy for this goal. This thesis demonstrates that this is a significant oversight. Under the social justice pillar, there is an overall ambition of reducing inequality of provision of services of health and education, work and social protection. Given the demonstrated role of transport accessibility in facilitating inclusion and access to essential services for residents of informal settlements, transport should certainly be considered under the ambitions for people’s welfare and access to essential needs and in turn should be considered a social justice concern.

In not considering transport and social justice priorities concurrently there is a risk of overlooking the increasing vulnerability of low-income Egyptians, particularly the high proportion living in urban informal settlements. For example, since 2016 the GoE has relied on loans from the IMF, and has been under significant pressure to reduce its

role in the economy, including the transport sector, making way for private investment (IMF, 2017). This in turn has had a significant impact on the cost of travel for the public. The structural adjustments required by the loan also meant a reduction in government subsidies on fuel. In fact, fuel prices have increased 28% in Egypt since 2019 (reducing subsidies 6 times, on an almost quarterly basis) by an appointed fuel pricing committee, leading to a substantial increase in the cost of utilising transport modes (MadaMasr, 2022; Barakat, 2022a; Monsef et al., 2023). As was seen from the results of the thesis, transport cost can be particularly prohibitive to travel by low-income urban residents, and especially for low-income women.

The results of this thesis also suggest the need for reconsideration of where the significant financial investment in the transport sector is targetted. There has been a substantial amount of development in the transport sector in Cairo in the past few years. Similar to the already stated national motivations, Cairo investments are all also motivated by a drive for reducing the environmental and financial impact of traffic congestion, as well as the desire to increase connectivity of newly developed remote areas. These developments include the completion of a new metro line, as well as a new light rail transit (LRT) – which was inaugurated in July 2022 linking greater Cairo with the new administrative capital in East Cairo. Both of these new facilities have been introduced with relatively high fares and a system of incremental price increase by number of stops (Kandil, 2022). An elevated monorail also linking other parts of the GCR to the new administrative capital is additionally currently under construction (Abdel-Ghani, 2021). A bus rapid transit (BRT) lane is also currently being introduced to one of the GCR's most important and also most congested highways, the Ring Road, with intentions for its inauguration in 2023 (EgyptToday, 2020). In line with the environmental goals, other plans include a vehicle replacement scheme offering financial incentives for owners of old vehicles to swap them for newer gas efficient models (SIS, 2020), and plans for the introduction of bicycle lanes across the city to support a bike sharing system operating through a mobile application (ITDP, 2022).

As can be seen, much of this investment is concentrated on trying to get people who are in private cars onto mass transport and greener modes. However, with the exception of increasing the connectivity of remote areas, there does not appear to be much concern or investment to address the challenges faced by current users of the

existing transport infrastructure, such as concerns raised in the insights from this study relevant to cost, safety, and reach. With the knowledge that those who are most likely to be utilising private transport modes are men, and those on higher incomes (as confirmed by the insights of this thesis) this investment is already skewed away from women's travel needs. The introduction of systems such as the bike sharing scheme also overlooks local gendered sensitivities of the mode, and the requirement of advanced technology to utilise it is inconsiderate of class inequalities (for example, related to literacy) and intersecting gendered digital inequality.

It is also unclear whether there was any form of gender sensitive impact assessment as part of the introduction of these new mass transport modes. The findings of this thesis could perhaps aid in this regard, in particular in highlighting the concerns and challenges which were faced by women when engaging with the existing formal transport modes, such as the CTA bus and the metro, which emerged as the least likely modes to be used by the interviewees. This study also reveals the significant extent of reliance of women on informal modes of transport, such as the microbus and the tuktuks, for the entirety of the journey and as connectors. These new transport developments do not account for this need that emerges from an absence of formal transport provision inside and on the entrance/exit points of informal settlements. Women were shown to rely on informal modes for all travel purposes. This included income generation, education, access to healthcare as well as to buy basic goods including reaching state subsidised goods outlets. 92% of the women and 80% of the men who took part in this research relied on the microbus to form all or part of their travel, while 82% of women and 40% of men relied on the tuktuk.

Despite the significant reliance on these modes, the introduction of the BRT system is said to be an attempt to replace microbuses on the Ring Road. Once the BRT begins its operations, a ban will be imposed on microbuses prohibiting them from stopping on the Ring Road to pick up or drop off passengers. Currently all across the Ring Road there have been informal stairs and bus stops created by the locals to allow those living around the highway to access it. At the top of these stairs, the locals are met by the informal microbuses. The BRT plan by the government will instead see the introduction of formal stations along the Ring Road. The plan also includes the introduction of official stairways with designated spaces under the Ring Road for

microbuses to stop and let out their passengers. This plan is said to be an attempt to reduce the congestion and dangers created by the haphazardness of the current system (EgyptToday, 2020; EgyptToday, 2022; Afify, 2022). However, from the perspective of the passengers, what this would require in reality is an increased need for mode hopping, as either way, to reach the BRT stations passengers need to rely on another mode. For those in informal settlements, as was shown from the results of this this thesis, that mode would most likely be a microbus. As was evidenced, this process of mode hopping can be significantly costly especially since the microbus fare is not integrated into the formal public transport fare system. In fact, there is evidence from BRT projects implemented in other parts of the world that such systems have negative impacts on low-income groups. Particular pitfalls which have led to inequity in benefits are the same as those posed here for Cairo: high fare costs and limited reach to low-income neighbourhoods (Scholl et al., 2016; Linovski et al., 2018; Venter et al., 2018; Oviedo et al. 2019; Venter et al., 2019). Due to the focus on already busy key transport routes the overall impact of integrating low-income neighbourhoods in to the urban structure also tends to remain low, with the potential to even create more segregation and marginalisation (Combs, 2017; Linovski et al., 2018; Venter et al., 2018; Oviedo et al. 2019; Vecchio et al. 2020).

Limited reach to low income areas results in the need to continue to mode hop. Even turning what used to be a single mode trip in to one requiring two or three modes, with the added time and financial costs that come with this. Attempts to mitigate this include integrated fare structures so as to remove the need for paying multiple separate fares which has been found to offer some positive results (Scholl et al., 2016). However in the context of the Global South, fare integration requires integration of paratransit informal modes to act as feeders for the BRT system (Venter et al., 2018). This will also be the case in the context of Cairo based on my results which showed informal modes to be the first point of transport accessible to residents of informal settlements. There is in fact a lot of merit in formalising the already existing established microbuses as opposed to attempting to develop alternatives, since as has been shown, these systems are already much better connected and able to reach where the formal system does not. It would additionally address the many concerns raised by women in the study regarding the practices of informal drivers with regards to incidences of pricing, intimidation, and sexual violence. However, countries attempting to formalise

paratransit modes as part of BRT projects have faced varying degrees of success (Venter, 2013; Behrens et al., 2021). Challenges experienced across the Global South teach us that there is not one prescriptive model on to how best to approach the formalising process (Munoz-Raskin and Scorcio, 2017). The process is resource intensive, and rests on a degree of organisation and buy-in from the informal sector (Venter, 2013; Venter et al., 2019; Behrens et al., 2021). Thus challenges to be considerate of include resistance by the current informal transport operators (Munoz-Raskin and Scorcio, 2017; Venter et al., 2019). Cairo authorities could benefit from the learning arising from the processes and conditions which have seen positive results. These have required knowledge of the operations of paratransit modes, an alliance of the fragmented authorities responsible for transport, as well as high degree of cooperation and trust between informal operators and authorities (Behrens et al., 2021). Additionally, incentives for the sector to cooperate will rest on how much they benefit from the change, not only will authorities need to ensure these operators continue to make the same profit, but also offer additional incentives for cooperation. Gains can include more modern vehicles at no extra cost, free training, and the added security that comes from formal employment. Whatever the approach taken might be, the key message is to be conscious of the negative social and economic impact such policies might have and attempt to mitigate them (Venter, 2013; Munoz-Raskin and Scorcio, 2017). However, it should be noted, the high cost of the formalising process and subsidising fares can also prove detrimental to the project's success (Scorcio and Munoz-Raskin, 2019), thus Cairo's BRT system might not lead to the anticipated positive impact of efficiency and self-sufficiency.

When it comes to the tuktuk, there have in fact been efforts towards its formalisation. This can be considered to be a particularly positive development when we consider the concerns raised regarding women's increased risk of safety from their lack of oversight and accountability.

However, the approach taken by the GoE is not without its problems. As part of the initiative to replace vehicles with greener alternatives, a scheme has also been introduced for tuktuk owners to do a vehicle swap. Initial efforts to eradicate the tuktuks started with halting the issuing of licenses for the three wheeled vehicles. Then came a ban on importing the spare parts of the tuktuk vehicles, finally a plan was

introduced for the exchange scheme (Farouk, 2022). The plan which is due to come in to force in 2023 is for those tuktuk owners to approach the government and have it exchanged with an alternative environmentally friendly vehicle (AP News, 2019). These new vehicles will be formally licensed, reducing some of the risks previously posed. One point to note, however, is that the owners of these tuktuks are required to pay for the difference in cost between the 2 vehicles. There does not appear to have been any due consideration for the social and economic impact of this policies (Farouk, 2022). Though loan repayment options are being provided, these policies could still be financially detrimental to the sector which is said to employ over 10 million workers including low-income mechanics, factory workers, hired drivers and individual vehicle owners who all earn their livelihood in this industry (Abdallah, 2021). It is also likely that any additional cost in the industry operations would be passed on to the passengers, resulting in an increase in the cost of utilising this mode which has been shown to be tremendously relied on by women in informal settlements.

An overall remark with regards to all the above listed plans for the transport sector is that they would greatly benefit from consideration of the wider social impact. This is particularly crucial in relation to the impact they have on residents of informal settlements, who do not seem to have been properly accounted for in the plans being put forth.

Another key issue of concern is that the development of the BRT also required expansion of the Ring Road which resulted in the demolition of some informal settlement housing (Wallace, 2021). These are not the only incidences in Cairo's development plans which risk the displacement of informal settlement residents. Other large projects such as developing the 'Manhattan in Cairo' has also seen ongoing tension between the government and residents of the informal settlement of Al-Warraq (Barakat, 2022b).

The eradication of informal settlements is in fact a key ambition and performance indicator under the urban development pillar of Vision 2030, with a target of reducing the percentage of urban informal areas from 38% to 5% by 2030 (MPED, 2016). The intention behind this goal is to reduce the social and economic vulnerabilities of those residing in areas beyond the states control and service provision. The main issue of

concern with such plans is that the locations assigned for the rehousing of the residents of these central urban locations are public housing complexes in extremely remote locations on the outskirts of the city (Ezz, 2018). In the findings of this thesis accessing and engaging with the city and its services outside their settlements of residence has already been presented as a challenge despite their central locations.

The significance of being able to access the city beyond the local neighbourhood has also been shown to be of extreme significance for women in particular, resulting in increased empowering and transformational benefits. Developing strategies that do not recognise this leaves informal settlement dwellers and particularly women, in a position of social, economic and political vulnerability. This is even more likely when coupled with the restricted transport accessibility which result from the remoteness of the proposed new housing locations, resulting in the need for long and costly travel.

If we consider the significant role of transport accessibility in social inclusion, an alternative approach to the relocating of informal settlement residents could instead be investment in the improvement of the transport connections of informal settlements in order to integrate them into the city fabric - rather than them being places where the residents narrative is one of 'inside' and 'outside'. Studying the transport accessibility of the informal settlement residents can also support the identification of the availability of local services, as well as what is missing or difficult to access. This would aid urban planning policies in achieving spatial equality of both transport and essential service provision. This would also support other policies such as welfare programmes, subsidised goods provision, free education, and free primary healthcare for example, which are all currently not effectively reaching the most marginalised.

In line with Goal 5 of the SDGs to “achieve gender equality and empower all women and girls” (United Nations, n.d.), women’s empowerment is in fact another ambition of the Vision 2030 strategy which can be found under 3 of the pillars: economic development, social justice, and education and training. In support of this ambition a “National Strategy for the Empowerment of Egyptian Women 2030” was developed by the National Council for Women (NCW, 2017). The strategy focuses on women’s social, economic and political empowerment and protection.

This thesis has highlighted the extent to which policy and planning practices can be inhibiting to the full participation of women in the city. This has far reaching consequences when it comes to policies on transport and land use planning in particular, but also policies concerned with the well-being and the full integration of women in modern cities.

The plan for women's social, economic and political empowerment involves a focus on reducing gender gaps in education and employment as well as in healthcare, all of which have been demonstrated by this thesis to be linked to transport accessibility. For those living in informal settlements in particular, it has been shown how with limited transport accessibility also comes limited ability to engage with the basic services and income generation opportunities outside their settlements (which have been shown to be of extreme significance to empowerment).

Another important aspect which emerged from linking transport accessibility with empowerment was the potential for changing perceptions of what is possible and what is not, not just for women themselves, but also for their families and that includes men through an increased appropriation of the city that comes from increased safety and visibility.

Within the protection strand of the national strategy, promoting women's safe mobility and eliminating sexual harassment are also outlined as priorities. The findings of this thesis with regards to the factors which contribute to the vulnerability of women onboard transport modes and in public space, as well as the insights of the conditions which increase women's feelings of safety, and the increased commitment to women's safety by male members of their family, can all contribute to supporting these ambitions. Additionally, based on the findings, it is clear that policies concerned with protection not only need to ensure women's ability to navigate public space, but also the ease of reaching places of safety and support which can be impeded by transport accessibility.

Egypt has also made an international commitment to women's empowerment and women's safety in public transport through an agreement with the IMF. A key reform

outlined in the IMF loan agreement was “improving the safety of public transportation to make it easier for Egyptian women to work outside the home” (IMF, 2017).

As a result, there has been a number of significant efforts to challenge and change restrictive gender norms in Egypt as a whole, and in Cairo in particular over the last few years through awareness raising and advocacy campaigns (UNWomen, n.d.; NCW, 2019; IDSC, 2022). These campaigns through social media, TV, radio and enlisting the support of public figures, spread messages which: “address misconceptions, redefine gender roles, and foster women’s participation in all spheres of life” (NCW, 2019). They don’t only target women but also speak to men, engaging and encouraging their involvement to support women’s empowerment.

These efforts also included a campaign in November 2018 entitled “your life is made of stations, don’t let a station stop you”. This campaign saw large-scale posters displayed onboard Cairo metro trains and at 4 busy stations each with different awareness messages. The need for an increased sense of belonging and right to be in public spaces which has emerged from the insights of this research support using the spaces of public transport in this manner as part of transport’s potential for transformation. In fact, this campaign did not just use the platform to combat sexual harassment on board transport modes but in fact billboards and posters targeted a number of other issues such as, women’s employment, family planning, and combatting early marriage (IDSC, 2022). This campaign is said to have resulted in successes such as starting a public conversation, widespread social media engagement, and an increase in calls to the national council for women’s hotline (Mounir, 2019). Success of this method of awareness raising (using the transport infrastructure) has also been observed in other campaigns around the world (Allen, H., & Vanderschuren, M, 2016). In order to reach a wider audience, particularly the most marginalised from the city, a potentially larger campaign that is not just restricted to the underground metro but is also on public buses and on Cairo streets could result in even more success. Other methods to tackle women’s safety in public space and onboard transport modes have also enjoyed some success in the past in Cairo. Examples include Harrasmap the crowd sourcing online platform documenting incidents of harassment, which encouraged women to report incidents through its anonymity. Another was an effort by a group of anti-harassment activists ‘Basma’ to

informally secure the women only carriages on the metro from men, their efforts eventually led to interventions from the police to stop men entering this space reserved for women (Langohr, 2015). The success of these initiatives suggest that there is scope for an increased sense of right to the city, and increased visibility of women in public spaces and in the public sphere to challenge the attitudes about women's movements in/ rights to public spaces and the problematic discourses about the need to protect women.

There are a number of further initiatives worldwide providing some best practice examples and tool kits that can be referred to by transport planners in Cairo to improve women's travel experience and increase their integration and appropriation of the city and its spaces. When it comes to reporting mechanisms for example in Mexico City, Mexico alongside their visual public awareness campaign they introduced offices in the most crowded stations where women could go to report sexual harassment and speak to trained sexual violence professionals (Graglia, 2016). In Quito, Ecuador, the reporting can happen while onboard the transport mode through an SMS service which notifies the transport authority, as well as the vehicle driver and security personal of the incident in real time (UN Habitat/Flone Initiative, 2019).

Inspiration can also be found from changes to the transport infrastructure adopted in other cities such as incorporating more safety conscious features in to vehicle designs in Quito, Equador, as well as more consideration of bus stop locations in Lisbon, Portugal and increased investment in street lighting in Nairobi, Kenya (UN Habitat/Flone Initiative, 2019; Oviedo, 2023).

Support can also come from international development organisations, as evidenced by the UN Women Safe Cities program in Mexico which worked with officials to strengthen their response to sexual harassment onboard transport modes (Uteng, 2021). In fact a number of international development organisations, such as the World Bank, UN-Habitat, and the Asian Development Bank for example, as well as international transport organisations such as the ITDP and FIA foundation, have taken interest in the topic of women and transport over the past 20 years, leading to the development of a wide range of toolkits (Muhoza et al., 2021).

In terms of the findings which showed social spaces and transport modes to be dominated by men, and the resultant implications of the perceived and experienced intimidation by women, a potential solution is the increase of women's employment in the sector. Here best practice examples come from the state owned and run public transport systems in Addis Ababa, Ethiopia and Bengaluru, India where concentrated effort to hire female bus drivers and conductors through maternity friendly policies and social benefit schemes have not only resulted in increasing women's employment in sector, but also in increasing the wider societal acceptance of it (UN Habitat/Flone Initiative, 2019; Uteng, 2021).

The Egyptian National Council for Women outlines its understanding of women's empowerment in their strategy as: women "having self-appreciation and confidence in their capabilities; the right to choose among options that are availed to them; the right to access to resources and opportunities; the right and ability to control their lives; and that they are able to influence and direct towards positive social change" (NCW, 2017, p.9). This definition points to an understanding of the importance of women having greater influence in decision-making and aligns with the transformative potential of increased transport accessibility which increases women's knowledge and claim over the city and its spaces put forward by the thesis.

On that note, I leave you with the these final words from Interviewee 62 (Female, MN):
"If I waited for him to take me somewhere, I would never go anywhere."

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