Article

The Gender–Poverty–Mobility Nexus and the Post-Pandemic Era in South Africa

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Abstract

As part of long-term comparative research into the Gauteng City-Region, this article presents mixed-methods studies in the informal settlement of Denver, located in the industrial belt southeast of Johannesburg's city center. It unpacks the results of focus groups, ethnographic and expert interviews, as well as mapping with an innovative smartphone tracking application, comparing everyday life for several households in this area before the pandemic in 2019 and during the pandemic in 2020. Findings show that the pandemic exacerbated the disproportionate burdens related to gendered roles of household management, childcare, and mobility, both on the macro- as well as the micro-scale. The article thus defines the "gender–poverty–mobility nexus" that shapes space and everyday life in the Gauteng City-Region, precluding places like Denver from overcoming their marginality. Post-pandemic planning policy could be transformative for such spaces if it can build on this knowledge to better identify the needs of these vulnerable social groups and connect them to opportunities. It concludes with suggestions on how these empirically revealed dynamics could be translated into responses on the urban and regional scales, in the name of more equitable, resilient planning futures for Johannesburg and beyond.

Issue

This article is part of the issue "The Resilient Metropolis: Planning in an Era of Decentralization" edited by Thomas J. Vicino (Northeastern University).

1. Introduction

When the Covid-19 pandemic arrived in South Africa, the nation underwent one of the worldwide strictest lockdowns: no movement outside the household except for essential services like grocery shopping and medical care, and not even sales of alcohol were permitted (Smart et al., 2020). The normally pulsating city of Johannesburg, center of the regional and national economy (Abrahams & Everatt, 2019), suddenly came to a grinding halt. And all of this occurred in the middle of a large-scale, collaborative research project into how transport infrastructure is used by residents of several sites in Johannesburg and Maputo, Mozambique, with the aim of locating people's lived experiences relative to government transport

plans and policies. Despite participants' everyday lives and corresponding patterns of movement upended, the project continued with adapted methodologies, shedding light on the complex intersections between household gender relations, poverty, and mobility.

Where the data collected in this project became particularly interesting was in the informal settlement of Denver, in the center of the Gauteng City-Region (GCR) in South Africa. Located in the industrial belt southeast of the city of Johannesburg's central business district, this area of less than two square kilometers housed more than 7,500 people at the time of the last national census (Firth, 2011). Several households from Denver participated not just in the 2020 project but had been involved in four total studies between 2015 and 2020.

This amalgamated longitudinal data, which primarily speaks to the everyday experiences of households navigating this urban region, reveals the "nexus" between gender, poverty, and mobility, as well as how it was exacerbated by the Covid crisis in a number of intersectional ways. It serves as a microcosm for the dynamics that shape the everyday production of the urban by the people as they attempt to negotiate this complex space and overcome their extreme marginality (Howe, 2021a).

This article thus presents results from this range of mixed-methods studies in Denver, demonstrating how the three aspects of gender, poverty, and mobility mutually constitute one another in their relation to space. First, it briefly contextualizes the area and its relevance for the research projects, along with the utilized methodologies. Then, it discusses the three aspects of the proposed "nexus" that perpetuate inequality, drawing information from mapping and interview material, primarily from 2019 and 2020. The article also unpacks the pandemic-specific findings, noting that the pandemic exacerbated the disproportionate burdens related to gendered roles of household management, childcare, and mobility on the individual level and on the micro- and macro-scale. Finally, it concludes with a discussion of the implications of this kind of research, and how it could possibly contribute to a more equitable policy approach in the post-pandemic era.

2. Contextualizing Denver

The GCR includes the major metropolitan areas of Johannesburg and Pretoria, and despite comprising only 1.5% of South Africa's total land mass, the greater provincial area has a gross domestic product of over 100 billion USD per year and accounts for approximately 35% of the country's total GDP (Statistics South Africa, 2017). The story of the GCR began with mining along the gold-containing ridge called the Witwatersrand; sites of extraction were linked to emerging urban centralities locally but were financially and politically connected to the rest of the world through global flows of capital and labor (cf. Harrison & Zack, 2012). The intensive urbanization of the region over the 100 years that followed ingrained these initial patterns of privilege and poverty, culminating in the system of apartheid that asserted control over black bodies in an attempt to create a complete overlap between race, class, and space (Whitehead, 2013).

Rapid growth within what initially appears to be a tightly controlled system also characterizes the informal settlement of Denver. The area was first developed in the late 1940s as housing for single men to work in Johannesburg's industrial areas (Beinart, 2014). At the time, just predating the official period of apartheid, non-white populations were not legally permitted to reside in urban areas; male laborers were restricted to specific locations, which included single-sex "hostels" built by the proprietors of mining or industrial areas (the

contemporary state of the hostels in Denver today is shown in Figure 1). In part because segregationist ethnic divisions were perpetuated by this system, laborers from other regions and provinces were clustered deliberately; however, these concentrations also occurred due to the agency of people, for example advertising jobs through their own networks that afforded them small levels of power. "Migrants from particular areas held virtual monopolies over jobs in specific factories," explains James (1999, p. 25) in her history of female migrants arriving in Johannesburg. Denver was strongly linked to the Zulu ethnicity (Mathiba, 2019), and historically served as a means to reside in near proximity to economic opportunities (Scorgie et al., 2017).

These cultural enclaves were therefore extensions of regional areas within and without the city's urban space through personal networks (Cross et al., 1998), and migration began to dissolve the strictly male construct of the Denver hostels. Indeed, as early as the 1960s, women and children began to move into the area, constructing their own housing directly adjacent to the space of the hostels. As the apartheid system was gradually disassembled from the 1980s forward, when there were no more legal restrictions on where people of racial groups could live and move around, these settlements intensified and became less pronouncedly gendered. Nevertheless, research revealed that the dynamic of men residing in the hostels while a mix of genders (although mostly women and children) resides in the surrounding informal settlement, still persists today. It also remains a primarily residential area, within the greater industrial urban fabric, and therefore lacks even the most basic access to services and amenities.

The circumstances of this settlement area, as such, are particularly precarious; Denver is considered one of the most dangerous places in the city-region, in regard to the safety of people and the built environment (interview with a spatial planning professor, 2014; Maseko, 2015). Outside the hostel, the built environment primarily consists of corrugated metal shacks, aligning with stereotypical imaginings of an informal settlement (see Figure 2 for a female participant's photo of her family in this space today). As one participant explained:

> The place here is small, so what one has to do is assess what's of importance, to see if I can live with this thing or not live with it…how much do I want it. Like here…what I think is important is a bed to sleep on, a stove to cook with, and maybe a TV and a radio. (D07)

The area includes 27% formal housing, 30% apartment buildings, and 43% informal housing (Statistics South Africa, 2012, as cited in Kgantsi et al., 2018). Extreme fire events are an ever-present threat among the shacks in particular; hundreds were left homeless after large-scale fires in 2010 and 2018 (SAPA, 2010), and, during the course of studies in 2019 and 2020, one household was significantly impacted by a catastrophic

Figure 1. A view of the Denver Men's Hostel. Source: Photo by the author, 2019.

Figure 2. The family of one of the female heads of household from Denver draws water from a communal tap to do laundry, next to a water trough built after a serious fire. Source: Photo by participant D6, 2019.

fire loss (D6). As research continually revealed, vulnerable social groups, particularly women and children, have very few options in Denver (Willan et al., 2020). Because it is emblematic of the most difficult, entrenched conditions of poverty and inequality that can be observed in informal settlements around the GCR and had seldom been the subject of previous academic study, it was selected as a particularly important site of investigation beginning in 2015.

3. Methods and Study Participants

A mixed-methods approach, including focus groups, ethnographic and expert interviews, as well as mapping with an innovative smartphone tracking application was developed over the course of several projects, culminating in intensive studies in Denver in 2019 and 2020. There were two participants from Denver in a 2015 study, in which the primary purpose was to track individual movements and conduct detailed interviews with a total of 30 people living in informal settlements throughout the GCR, as they went about the routine activities of their everyday lives. Volunteered geographic information (VGI) including GPS locations, modes of transportation, and a survey of demographic data was collected by this application, and provided to participants along with a smartphone, for 30 days. This data was visualized as individual maps as well as filtered into maps along lines like race, income, or geographical location (Howe, 2021b).

For mapping, each GPS point collected can be visualized individually, or connected with colored lines that represent the participant's mode of transportation, primarily blue for walking and green for vehicular travel (see Figures 3–6). The application also presents as yellow when people are actively utilizing the screen of their phones. This is a feature automatically recognized by the mobile sensing of the phone. Small yellow points typically indicate waiting or a transfer point; longer yellow lines typically mean that people are walking while looking at their phones. This often indicates where a person has gotten on or off a taxi, which is a flexible procedure. The maps are thus relative and require contextualization, which is provided by discussing the maps with participants in follow-up interviews. There were three participants from Denver in a 2016 study that built on these methods but focused on a collection of VGI with several hundred participants of all backgrounds throughout the GCR.

The methodology proved to be most effective and rewarding with a relatively small sample size and with a mixed-methods approach, in which participants were first recruited in a personal manner to build trust, then conducted the smartphone tracking for several weeks, and finally discussed the maps as part of in-depth, semi-structured interviews. Thus, the studies conceived for the GCR in 2019 that focused on aspects of gender and mobility across a range of demographic groups and incomes, and in comparison with a range of areas in

Maputo in 2020, followed this process: beginning with focus groups, recruiting several households to conduct VGI collection for two weeks, and finishing with interviews. Participant selection occurred through local community leaders, two of whom themselves also participated in several studies (which had political implications as well as social implications for the selection of participants). There were eight participants from Denver in July 2019 (five women and three men); half of them also participated in the 2020 study, which commenced just over a year later, in October 2020. This study had 12 participants from Denver (eight women and four men). Methods in both of these studies also included WhatsApp groups for each area, autophotography exercises, and audio journaling through voice notes. Digital communication played a pronounced role in the fieldwork undertaken during the Covid-19 pandemic.

The 2020 study primarily focused on how people living in what were considered marginalized areas of Maputo and Johannesburg used transport infrastructure and attempted to situate their lived experiences in relation to government transport plans and policies. The project conducted the methodology described above in order to approach household and micro-level experiences. In Denver, it was not possible to conduct a focus group due to the lockdown restrictions that applied during the time of fieldwork; participants were recruited through contacts from the previous studies. In all of the studies, consideration was given to demographic characteristics such as race, language, household composition, and level of income. The 2020 study also included a second component, comprising expert interviews with key actors in transport and infrastructure planning, such as transit planners and government officials with the Gautrain Management Authority, Gauteng Provincial Department of Transport, the City of Johannesburg Transport, and the City of Tshwane Transport.

In Denver, the structure of a household was often complex and sometimes hard to define; some participants lived under the same roof with three generations and had a large network of family members living far away from Johannesburg, in the province of KwaZulu-Natal (KZN; see Section 4). Total household incomes ranged from 2,500 ZAR (ca. 165 USD) to 7,500 ZAR (ca. 500 USD) per month. Spending on transport ranged from nothing, for those who primarily traveled on foot, to as much as 34% of their monthly household income (see Table 1). Because we had repeat participants and households across multiple studies, their everyday lives and patterns of movement could be compared before the pandemic in 2019 and during the pandemic in 2020. Two participants (D04 and D011) participated in all of the studies. All of this "longitudinal" data provided deep insight into the impact of household decision-making on the everyday activities of life, like work and childcare, constrained by the conditions of poverty and socio-spatial inequality that characterize Denver, and indeed much of the GCR. Combined with

Table 1. The 2020 Denver study consisted of 12 participants, including eight women and four men from nine households.

Participant and Household	Accommodation	Monthly Household Income	Monthly Transport Expenditure
D01 female, 2 adults + 3 grandchildren (ages 6, 3, 3): with daughter (28) Works as an artisanal miner	3 room shack	±R3,200 including child support grants	R400–500 per month (16%)
D02 male, lives with partner D03: 2 adults Works as a security guard	2 room shack, renting	Not reported	More than R500 per month
D03 female, lives with partner D02 Works odd jobs	2 room shack, renting	R4,000–5,000	R500 (10%)
D04 male, former partner of D012: 1 adult Student and politically active in the community	1 room shack	R2,500–R3,500	Doesn't use public transport
D05 female, 2 adults + 2 children (ages 15, 9) + 1 adult nephew who left the house because of the pandemic Community health worker	1 room shack, renting	R3,500 from work (sent as remittance home) R1,400 from grants R600 from shack rental +/- R5,000 in total	R112 (2%)
D06 female, 4 adults (partner + 2 adult children) + 2 grandchildren Works as a cleaner (CWP)	Owns 4 room shack	Just over R4,000 including grants and rental income	R120 (3%)
D07 male, lives with wife (D08): 2 adults + 2 children (ages 13, 6)	Owns a brick shack, also has a space in the hostel	Wife earns an income so doesn't know	Less than R500 — has a car
D08 female, lives with husband (D07): 2 adults + 2 children (ages 13, 6) + 2 adult children (23, 18) who sleep at the hostel	2 room shack	R3,000 (wife) + R5,000 (husband) R8,000	R1,200–1,300 — mostly on transport between JHB and KZN (16%)
D09 male, lives alone: 1 adult Works as a community safety patroller	1 room shack owned Rents out 2 other shacks	R2,500 + R700 (rental income) ±R3200	R450 on transport and petrol (14%)
D010 female, lives alone: 1 adult Works as a community healthcare worker	1 room shack	R7,500	Walks so doesn't spend money on transport
D011 female, lives with adult child and grandchild: 2 adults + 1 child	1 room shack	R5,000	R1,700 (34%)
D012 female, former partner of D04: 1 adult	2 room shack	R7,500	R1,600 (21%)

Source: Table data by Alexandra Parker.

the expert interviews in the second project component, the project also reflected on the question of who benefits from large-scale infrastructure projects, and what it means for people to be resilient in marginalized places like Denver.

4. The Gender–Poverty–Mobility Nexus

Synthesizing multiple years of mobility mapping with qualitative research and reviewing policy documentation pointed towards several factors that precluded Denver from overcoming its advanced state of marginality (Wacquant, 1996): gender, poverty, and mobility. First, the dynamics of gender between members of households, as well as perceptions about social roles and conventions were driven by "traditional" gender roles, but whoever earns money in the household tended to have the power. Second, the precarity of both life and the built environment in Denver meant that people often struggled to meet their most basic needs, and poverty took a variety of forms. Third, participants' lives almost always spanned between Denver as a "toehold" in the urban centrality and their "home," oftentimes in the province of KZN, driving macro-scale processes of urbanization (Howe, 2022). These divisions from apartheid, which were ingrained into social and spatial practices, continue to significantly impact life in Denver today. These findings can be loosely categorized, but they also cannot be severed from one another. The article thus describes their mutual constitution as a "nexus" of gender, poverty, and mobility.

4.1. Gender

Dynamics between members of the household are based on gender constructs, which determine how roles and resources are allocated. Previous research into the gendered space of the city in the GCR, for example, demonstrates how the socio-spatial inequalities established under apartheid as well as new, contemporary forms of inequality impact the everyday movements and spatial practices of women, subject to a form of "moral geography" that results in compromises and sacrifices for both mother and child (Rubin & Parker, 2017). These studies aligned with those findings, emphasizing very traditional gender relations and the role of "breadwinning" in determining power within complex, modern households (Rubin et al., 2022). Many people in Denver across the years implied that whoever earns money has more right to make decisions for the family, as noted by this participant in 2019:

> When it comes to cleaning and looking after the child that's [my partner's] job, she is responsible for those duties in the house as a woman. With regards to paying [bills] it differs. It all depends on who is working at that time. If we are both working…or let's say I'm the one who's working, that's my responsibility as a man.

But if it happens that I'm not working, she is forced to help out so that life can go on. (D3)

Within this framing, however, there was a wide range of decision-making processes about how to allocate limited resources and who was responsible for which tasks in the household. As another participant from a different household stated: "The person who pays is the man of the house and when it comes to cooking, we alternate. Sometimes I cook and sometimes he does" (D03). Cultural traditions and politics also play an important role in the fashioning of gender relations; in Denver, this is shaped by its strong Zulu presence and links to "traditional'' expectations in the agricultural areas of KZN, from which many of the participants originated and sent significant remittances to. Denver thus acts as a form of the *entrepôt* described by Zack and Landau (2021, p. 1) as for "vulnerable and mobile people wishing to be in but not of the city," connecting in from the greater urban region.

This already indicates how difficult it is to disentangle aspects of gender from those of poverty within the space of Denver. Moments of individual flexibility towards certain specific tasks like cooking or doing laundry did exist, as indicated by the partner of the previously quoted participant:

> If you had come tomorrow you would've seen me carrying the laundry…just imagine me carrying this laundry around other men, carrying a skirt….I live with boys [in the Denver Men's Hostel, but] I iron that skirt. They will always judge, you know, Zulu people…they don't believe that a man can cook when a woman is around, they do cook here because females can't come in, but at home in KZN the wife has to cook. With others, they expect that the woman should pour water for them to drink. Can you not stand up and pour your own water to drink? (D07)

Yet despite these small moments, with the exception of one single father, childcare was solely the responsibility of female members of the households.

The female partner of the man quoted above in the 2020 study described how the Covid-19 pandemic had led to shifting gender roles in her household: She continued working while her two adult, male children did not; they began to shop, cook, and care for the household in ways that previously would have been unimaginable for any of them (D08). It is noteworthy that the couple quoted above had a comparatively higher income for the area, due to the wife's regular work. Future research could fruitfully investigate the links between the most pressing conditions of poverty and more progressive attitudes towards gender, perhaps in the case of financially successful female partners and whether or not this correlates with flexible attitudes towards gender roles. Otherwise, initial findings from the 2020 study, aligned with findings worldwide, indicate that the

Covid-19 pandemic largely exacerbated existing inequalities along gendered lines in particular as related to the burdens of childcare and household management (see next section).

4.2. Poverty

As the history of Denver indicates, this small plot of land adjacent to the Men's Hostel, embedded into the industrial belt, was never intended for residential purposes. Life is a daily struggle, as many participants said over the years in precisely these words, and "no one is in Denver by choice" (D1). However, the very centrality of the space and proximity to opportunities that can be reached on foot, without having to pay for transportation, is also the very reason why people accept these circumstances. It is therefore a kind of "toehold" or arrival zone in the city (Howe, 2022; Landau, 2016). A 2019 study participant described the choice to come to Johannesburg thus: "I came here with my husband. Because things were bad back home in KZN, I came looking for work here in Johannesburg, trying to make a living" (D08). She described accepting the precarity of the built environment as a necessity because they had no money to seek other options:

> We don't have formal structures; you build a house that's made of boards, it's built with wood and cov-

ered with a sail and there is no ventilation. At other times there are no windows, things like that. For me to say there is a bathroom, no. There is a bedroom this side and kitchen on this side...the rent here at the squatter camp is not expensive. With the little bit of money that you have, you try to live and support the people back home. (D08)

Poverty therefore appears not just as a lack of income, or as present in a space, but in the fragmenting of lives that occurs as poverty is spread across vast regional spaces (cf. Roy & Shaw Crane, 2015). Families are split, and people's spatial footprints regularly traverse extended urban regions of hundreds of kilometers. Without this labor, the GCR could not function as it does, nor produce the kind of GDP it sustains.

In fact, most respondents in 2019 and 2020 noted that they do not just send remittances, but have children living in KZN, ranging across all ages. One woman who participated in the 2019 and 2020 studies noted that she has two children; one lived with her and also took part in the project, while her second child was "back home" living with her aunt (D01). She travelled there once during the course of the VGI study, taking long-distance taxis for an entire day to reach her family (the pathway she took is indicated by the green lines in Figure 3). Another household of two married people noted that they have two children from different relationships, both
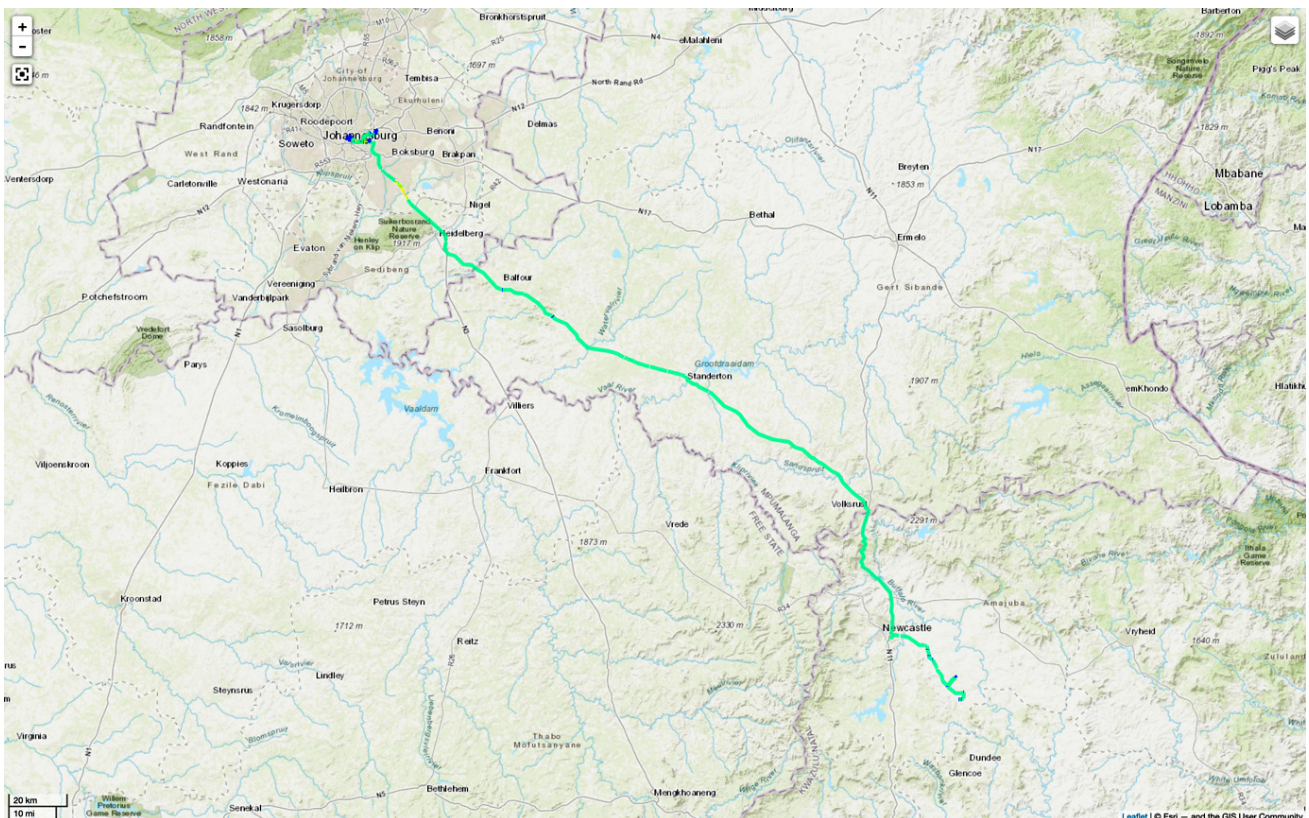
Figure 3. Map produced by the location data of participant D01. The green line indicates how she travelled with a minibus taxi "home" to KwaZulu Natal. Source: Map by Chantal Bekkering, 2020.

of whom live in KZN with their respective grandmothers (D02 and D03). These remittances exerted an extreme amount of pressure on study participants, who often reported having enough difficulty providing for themselves; most had irregular or temporary jobs, many of which could be described as physically unsafe (Charlton et al., 2022, p. 55).

There are strong gendered aspects to these choices about work and family life, and the spread of these activities between the GCR and KZN. But one of the most common underlying factors for fragmentation was related to income: the lack of money to support family members locally, because even in Denver life is significantly more expensive than in the villages of the adjacent province. Sending money home maximizes limited income. A male participant who took place in all the studies between 2016 and 2020 noted that "my whole family is in KZN. Here we just come looking for work so that we are able to provide for the family back home" (D04). Living in Denver was perceived, in a sense, as it was constructed during apartheid: Life in the city is a temporary, income-generating sojourn, and home remains on the periphery. Another related common factor was the desire to protect family members, children in particular, from the often-harsh conditions of Denver itself.

Contributing to the idea of the "nexus," conditions of gender and poverty snowball. Women in particular reported disproportionally shouldering the burdens of poverty, because not only is childcare their responsibility to manage on a daily basis within a multi-partner household (Rubin & Parker, 2017), they are subject to continual societal biases that impact their choices about how to use their time and money (Rubin et al., 2022). Like the quasi-incongruity of Denver providing both opportunity and ingraining precarity as a toehold in the urban environment, women are either the head of the household with increased pressure to provide financially while still fulfilling childcare obligations, or they are in a partnership in which their decision-making power tends to decrease if their partner is the "breadwinner."

4.3. Mobility

Mobility is also related to the idea of Denver as a place of arrival and access, in attempt to overcome marginality: It is not just near Johannesburg's CBD, but the physical infrastructure to get to other places, too, is usually accessible by walking or a short taxi ride. For example, the same VGI study participant (shown in Figure 3) usually remained in the area of Denver, walking around (indicated by the blue lines in Figure 4); she once took a taxi into the CBD (indicated by the green lines), and once to a wealthier neighborhood northeast of Denver to work as a cleaner, changing taxis at the Eastgate Mall. Transport was a major expense for the majority of the households, despite Denver's "central" location; several
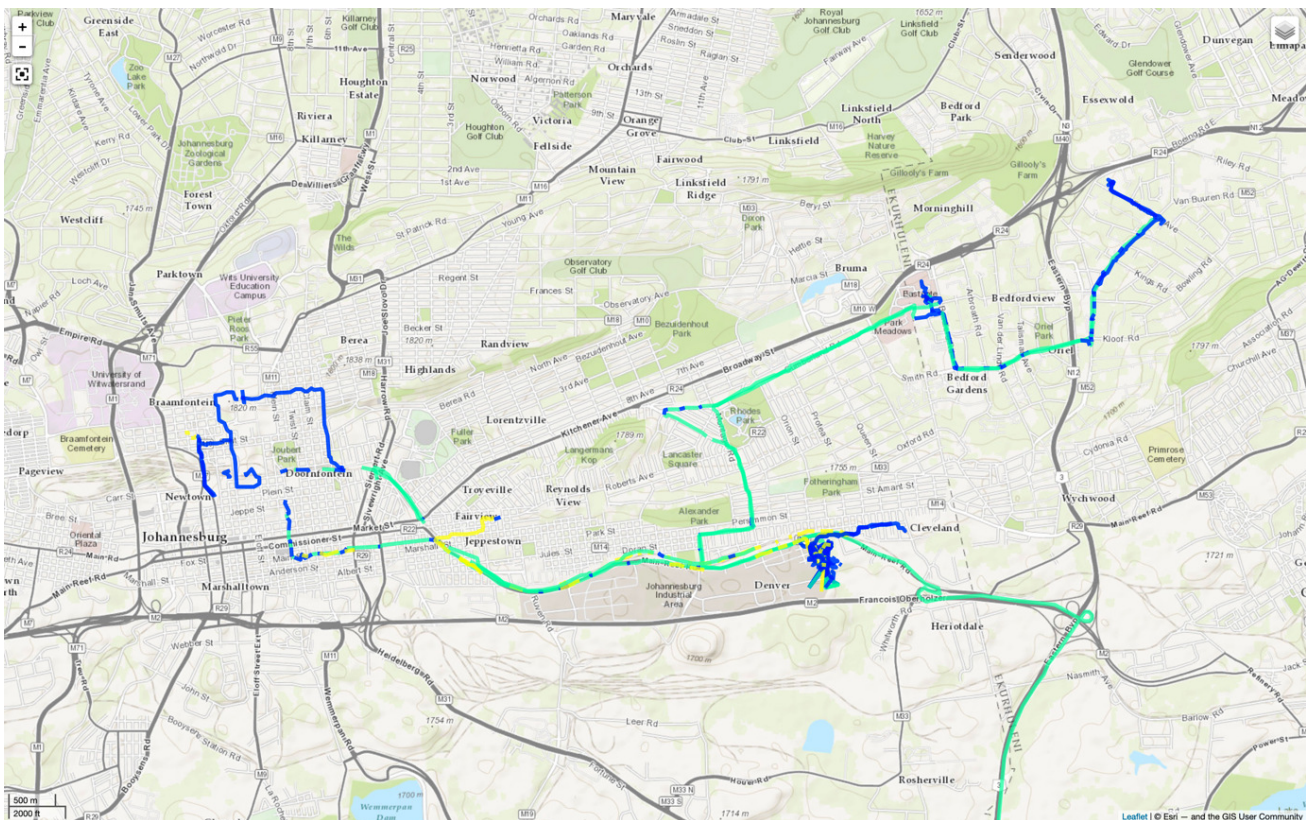
Figure 4. A map of typical patterns of movement by participant D6 around Denver, in which the blue lines indicate walking. Source: Map by Chantal Bekkering, 2020.

participants in each year of the study noted needing to make sacrifices in other areas in order to pay for transit. Again, this reveals the continuation of difficulties in work and income translating into everyday struggles of concerning mobility, as transportation often played an over-proportional role in the use of household resources, and how, in particular, people used their time.

As in many other case study areas in both South Africa and Mozambique from the entire range of studies, participants consistently talked about the difficulties of negotiating transport for conducting the activities of everyday life, like taking children to daycare and accessing services, and how high a percentage of their income is required to do so. These are often very complex negotiations, involving several modes of transport for different times of the day. Speaking about their household decision-making processes, one participant in 2020 noted:

> If it was up to [my wife] I would use taxis all the time, but [for] money issues. We realized that the money was not enough, and we would end up starving in the house. So, if it's like that I will walk, I will get used to it. I am a human being. (D02)

Both his and his wife's situation were complicated by the fact that a train stop several kilometers away was shut down during the Covid-19 pandemic (see next section). The train closing impacted the time it took them to conduct their daily activities as well as the expenses they accrued for needing to take a more expensive form of transport.

Once again, these experiences were different for men and women. Safety was a concern for most of the participants questioned in 2019 and 2020; for example, many described feeling unsafe in taxis due to dangerous driving. Unsafe walking due to the risk of being mugged—which people primarily described as doing out of financial necessity—was also typically mentioned by both genders. Yet the safety concerns, such as aspects of sexual harassment or rape, were experienced more acutely by women and contained more potential moments of physical violence beyond psychological judgement, as many previous studies have found (cf. Vanderschuren et al., 2019). All of these concerns were heightened during the Covid-19 pandemic (see next section).

5. The Impact of Covid-19

Moving through the urban fabric is a necessary part of everyday life, not merely for accessing essential supplies, but conducting the activities of caring that make work possible. This is true for the broader population; during the Covid-19 pandemic, there was a marked decline in the number and proportion of people travelling for work throughout the GCR. Culwick Fatti (2021) describes a noticeable decline in the proportion of people travelling to work and for job seeking, as well as an increase

in the proportion of Gauteng residents whose most frequent travel motivation was shopping instead of working. She also noted that the overall length of trips decreased, suggesting that people maybe be traversing shorter distances, and conducting the activities of everyday life closer to home. However, people in Denver were at increased risk during the pandemic, first of all in the densely built environment of the informal settlement with many shared resources and a lack of ability to social distance; and second of all, because people needed to continue seeking or conducting work activities in person, with corresponding safety issues. This was a burden not just of precarity and income generation, but psychologically, as many people worried about needing to take their children on transport as well as about the judgement they faced for doing so.

Public transport in particular was rapidly identified as a prime site of coronavirus transmission (cf. Zhen et al., 2020) as well as an increased source of personal risk beyond the virus, as discussed above. Transport was limited and caused significant difficulties in accessing work and basic services, as many study participants noted in interviews. When asked in October 2020 what Covid-19 had changed about their daily lives, for example, one woman explained: "A lot of things, because even now I can't even look for work. Before, I was able to wake up and go job hunting. I can't go to a lot of places that I used to go to" (D01). This was in part due to strict lockdown conditions, but also because of the lack of available public transport, or, in Denver, conditions that were imposed upon the taxis. As one man described:

> There are no buses here around Denver. We used to have a train, but it's broken, and it's no longer running. It was easier when there was a train. I could move around much more easily, and I could get to a lot of places. So, the trains are not working anymore it's only taxis that are available, and these taxis are far too expensive. (D04)

The scaling down of transport operations thus had a "cascading effect on people's ability to earn an income" (Charlton et al., 2022, p. 15) across multiple sectors, from those using the taxis to those driving them. For example, one male participant working as a driver noted that he was driving significantly fewer routes during the pandemic, which impacted both his daily life and his ability to be a "breadwinner" for the family (his routes are indicated by the green lines in Figure 5). An older female participant described how she was "stuck" at home during the pandemic and rarely left her house at all (as evident from her extremely limited mobility depicted in Figure 6).

Because people, in general, became desperate for work during the pandemic, the experience of public transport was also reported as worse and more dangerous, both by participants who had been or feared being robbed, to the actual physical destruction of public transport infrastructure. Before the pandemic, for example in
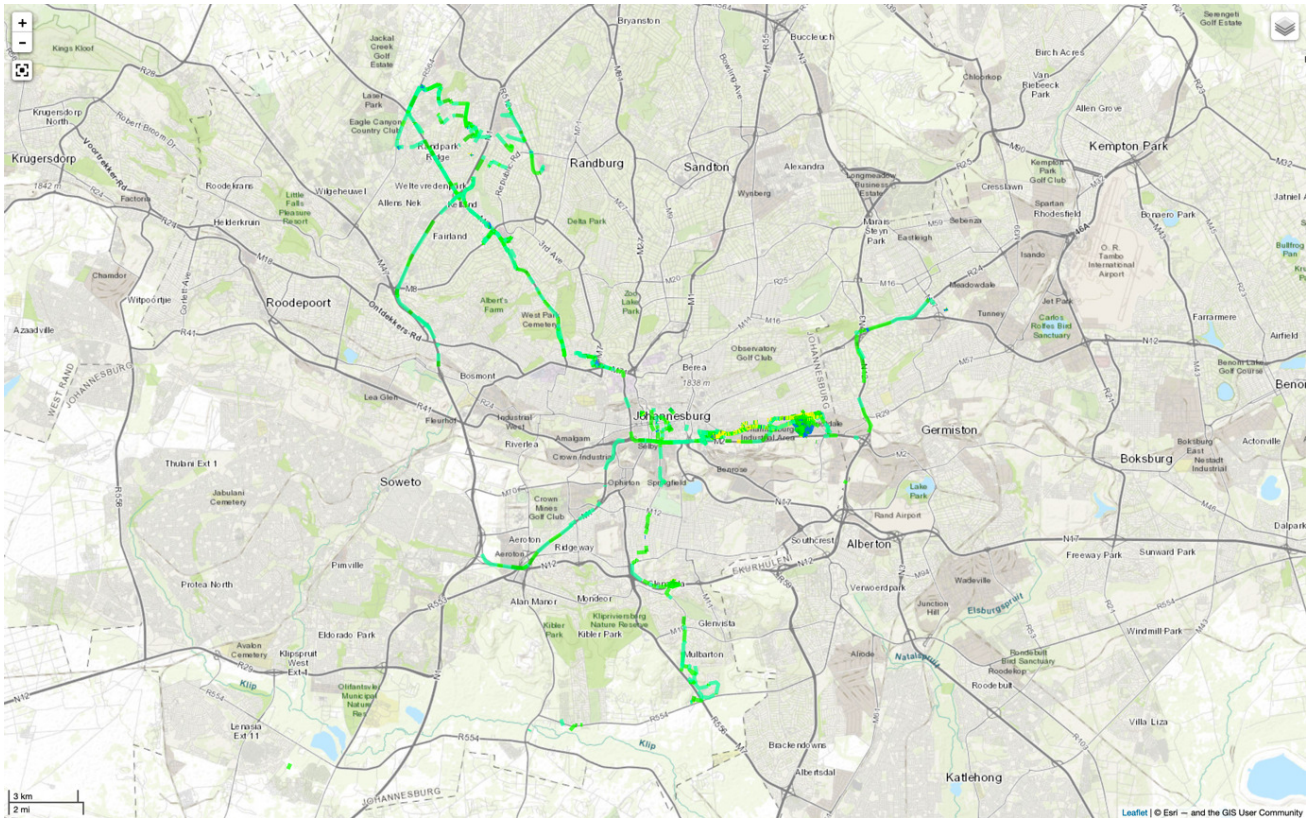
Figure 5. One participant working as a driver shows blue lines for walking around Denver, but otherwise many more green lines indicating vehicular travel throughout the greater Johannesburg area. Source: Map by Chantal Bekkering, 2020.

Figure 6. The presence of "markers" without connecting lines represents a day in which this Denver participant did not move more than 20 m from her initial location. Source: Map by Chantal Bekkering, 2020.

the 2015, 2016, and 2019 studies, participants reported taking the train in the morning to access urban centralities like Johannesburg (primarily for government services) or to industrial areas like Germiston (to seek work in the industrial sectors). In 2020, people spoke about the theft of elements from transit stations that made them unsafe, the burning of rail infrastructure during the strictest phases of lockdown (Mabena, 2020), and even how the rails themselves became an alternate form of space for people to move goods like scrap metal to sell (Kornienko, 2021). One male study participant spoke about the damage to public infrastructure thus:

> Everything that is metal is being cut and taken to the scrapyard. There were chairs before, even at the station, benches were there but now, because they were metal, they have all been cut and they no longer exist. Anything that is plastic…there's also a place that takes plastic scraps. There's nothing that isn't getting sold, so there's nothing. (D07)

The taxis were thus the only remaining system available to the majority of participants from Denver. While government policy technically restricted the number of passengers to align with social distancing requirements, participants reported that it was not enforced. For taxi drivers, every unfilled seat is simply lost income, and there are little to no consequences from people or the government if their passengers feel unsafe. As a result, people (again, primarily women) often left their children at home or walked long distances, when otherwise they would have brought them in taxis.

This imposed a significant psychological burden on participants; although they did not describe it in these terms; both women and men reported feelings of fear and judgement beyond what previous studies had indicated. One described constant anxiety about contracting the coronavirus in a taxi, explaining:

> In the taxi, there are 15 or 16 people. You don't know where the person was the night before or where they went today and even with me. It might be that in this taxi of 15 people, one person already has this virus. (D07)

Many women spoke about fearing for their children, but also themselves. One woman noted: "But now since it's lockdown I don't go with [my daughter] because they will ask where we are going with children…are we trying to kill our children" (D08).

Continuing the idea of "cascading consequences" for people's ability to generate income described in the previous section, people were also precluded from conducting their typical circuits of migration regionally. When asked how their expenses for transport had changed during the pandemic, one woman responded: "It's less because we had not even been traveling to KZN, we had three months of not going home. We would just

send the money…but now that everything is now open, we are *forced* to go home" (D011, emphasis by the author). A participant in all four studies, this woman's maps revealed an indeed significant drop in regional travel; in past years, she had travelled to KZN, on average, every two weeks for a long weekend. As she continued to describe, the lack of ability to generate income during the pandemic put additional pressure on her remittances, and she also worried about the ability to care for her mother according to these usual patterns: "We need to go buy groceries for my mom. We just go home to check up on how things are down there" (D011).

While the information from the 2020 study is still being evaluated, these preliminary findings indicate that the pandemic exacerbated the already existing burdens related to gendered roles of household management, childcare, and mobility, from the individual to the macro-scale. This ties to larger issues of inequality at the nexus of gender, poverty, and mobility. Peden and Kobusingye (2020), for example, note how the reduction in available public transit during Covid-19 disproportionally impacted the urban poor, who were often unable to access health care facilities for routine services. In Denver, this exacerbated an existing inequality, because there are no local clinics; participants discussed the need to walk more than an hour or take an expensive taxi to receive medical care for their children at a local hospital (D01). But revealing the extreme form some of these existing inequalities took is already a first step in creating a more equitable urban environment in the post-pandemic era, and it is to this topic that the final section of this article turns.

6. Conclusion and Policy Implications

Reflecting upon years of empirical work, it is clear that it is practically impossible to extract aspects of gender or poverty or mobility that shape everyday life from one another. They all act to reproduce conditions that make it incredibly difficult to overcome the specific and variegated forms of marginality that exist in Denver—but simultaneously speak to an extreme resilience of people, in their negotiations of the urban fabric and in the face of their advanced marginality. While the subject of this article is describing the aspects of gender, poverty, and mobility that emerged through studies into transport and everyday life, these three issues are related to the decentralized urbanization processes shaping the metropolitan region, and the "circuits of migration" that underpin livelihoods both in urban informal settlements and "home" on the regional-scale peripheries. Inequality prevails both on the macro-scale (related to poverty-necessitated mobility) as well as on the micro-scale and between individuals (related to societal constructs of gender and household management).

In a broader sense, most study participants felt they had very little choice in regard to their mobility, and were skeptical of utilizing public transport systems beyond the

"mini-bus" taxi systems. Their hesitancy was related, first of all, to perceived and actual costs; some forms of public transportation by bus, for example, were not necessarily more expensive, but they disagreed (cf. Howe, 2016). People simply did not trust or were unfamiliar with other forms of transport beyond the taxis, which could possibly be linked to a lack of trust in government institutions, residual from the apartheid and because of the new forms of inequality (Harrison et al., 2019). Trust is therefore a key issue that could be addressed on the micro-scale in the post-pandemic era. Another problem that emerged in the studies was accessibility; in places like Denver, stops were located several kilometers away, entailing long walks or more expensive multimodal transfers. Public transit lines lack relevant destinations for where the users wish to travel.

There are thus two related recommendations that can be drawn from the results of the study that would help address the "nexus" of gender, poverty, and mobility. The first is to improve user experiences on the micro-scale, in a way that explicitly addresses gender. The second is to improve accessibility on the macro-scale, by utilizing the taxi system as an instrument to reach destinations that are currently underserved by public transit.

6.1. Improving (Gendered) User Experiences

The intersection of gender roles within households and society with the spatial practices of mobility in the series of studies in the GCR and Maputo mean that women regularly experience transit more negatively. As the 2020 project's final report concludes: "Women experience multiple socio-economic issues, and the inadequacy of the public transport system worsens the situation" (Charlton et al., 2022, p. 22). As such, focusing on the experiences of women and children and building trust with areas typically neglected by planning processes would be a meaningful place to start innovative policy in the post-pandemic era, aiming to provide better ways for vulnerable social groups to access opportunities and travel more safely.

Improved public transport experiences, including feelings of safety and ease of the systems for women and children with relevant destinations for their daily routines, would make a big difference in people living in settlements like Denver. Comparable spaces exist throughout the city region, in which people for example primarily walk because it is what they can afford, or they must spend a large proportion of their income on transportation (Howe, 2022). Research into gender and space in the GCR (Rubin & Parker, 2017) as well as broader research into poverty alleviation mechanisms (Whillans & West, 2022) has revealed that what people need, especially women, to overcome poverty is more money and time, or money to win time and reduce the pressure to constantly work. Focusing on gendered user perspectives, gleaned through fine-grained qualitative

and ethnographic research with high levels of personal contact, would provide precisely such opportunities to build trust and gain the information needed to plan better for people.

6.2. Improving Accessibility

Long-term, addressing the gender–poverty–mobility nexus would also necessarily involve structural changes on the macro-scale. The taxi industry plays a vital role in serving people's needs not met by formalized, state-led transit systems; the industry would not exist if public transit provided a viable alternative. Yet interviews with planning agencies consistently reveal that it remains perceived as illegitimate. Peripheralized spaces are seldom along the lines of transport identified by planners as ideal for infrastructural masterplans, so peripheralized social groups remain so. Addressing such disconnects between lived experiences and the conception of space would involve extending opportunities for public transport where people are and building on the locations where people reside and need to go to, instead of homogenizing livelihoods and asking them to move unilaterally towards centralized urban corridors (cf. Howe, 2016, 2021a). The taxi industry is well-positioned to provide these services if it can be incentivized to address issues such as safety. It would require a significant shift in mindset towards the taxis to see them as partners rather than competition, but if the state could mediate between (gendered) user perspectives and the taxis to integrate destinations rather than expunging systems, it could have a transformative impact.

Covid-19 was unfortunately wielded to try and gain further control over the taxi industry in the GCR, rather than taking the opportunity to learn from it or devise ways to make it more integrative as a collective good. The consequences of dispossession are becoming even greater, as climate change and resource scarcity increase, and society is confronted with phenomena like global pandemics that sharply reveal the complex dynamics of gender, poverty, and mobility shaping space and everyday life. Connecting the experiences of people in Denver to broader trends shows that there is a danger of widening existing divides, and increasing processes that lead to social, economic, and spatial peripheralization of vulnerable social groups. As Madden (2020, p. 678) describes, during the pandemic:

> Essential workers—many in poorly renumerated but socially vital roles—were required to continue showing up. Other types of work have been put on hold entirely. The overall situation is both unjust and untenable: Work has become inconsistent and uncertain, yet the rent continues to steadily accrue.

If the chance is missed to rethink policies based on the Covid-19 experience and address the existing inequality of the social and urban fabric, both cities and the

extended urban regions they connect to are in danger of falling prey to "a broader pattern of capitalist crises [that] bears their telltale sign: a widening, painful divergence between that which is socially necessary and that which is economically viable" (Madden, 2020, p. 677).

Despite the difficulties of the Covid-19 pandemic, and its disproportionate burden on the people of Denver and other such areas of precarity, these events do provide opportunities to learn and change course. Bringing the findings from projects like this collaborative, comparative research in the GCR and Maputo into conversation with other contexts could lead to further insight into the constitution of inequality through aspects of gender, poverty, and mobility to benefit vulnerable people and spaces far beyond Southern Africa.

Acknowledgments

Conflict of Interests

The author declares no conflict of interests.

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