Transport poverty scrutinized by mobility thresholds

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Introduction

Commissioned by the four major cities in the Netherlands (Amsterdam, Rotterdam, The Hague and Utrecht), Van der Bijl & Van der Steenhoven (2019) executed an empirical, 'ethnographic' inspired study of transport poverty in low income neighbourhoods within these cities (and a prosperous reference neighbourhood in each of those cities). Transport poverty is hard to grasp since it is not explicitly included in existing official data and its categories, nor is there full awareness of transport poverty in the collective mind of society. Therefore, for this study the existing data on transport poverty-related indicators (see below) was supplemented with ethnographic fieldwork in the form of in-depth interviews with key-experts, free conversations with various representative stakeholders in the case-neighbourhoods, spontaneous meetings, and ad hoc interactions on site. In this way, we studied mobility behaviours of actors within their own situations and networks.

As such, we have been able to define and elaborate on transport poverty into a series of factors that can have an adverse effect on those at risk for transport poverty from a social point of view. Finally, we have outlined a series of agendas based on which relevant actors, factors, and institutions can be identified for deploying necessary policies and solutions.

Thresholds impede mobility

Transport poverty is often associated with having inadequate means of transport, which complicates or even prevents people from participating in society. The UK served as a case in developing this definition (see Sustrans, 2012). A more elaborate definition of transport poverty is given by Kenyon, Rafferty, & Lyons (2002): *"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."* Various scientists from Australia, England, and the Netherlands that deal with topics like social exclusion and transport disadvantages—for instance Banister (2018),

Bastiaanssen (2012), Currie, (2011), Lucas, (2004), and Martens (2017)—hold comparable views and use similar definitions of transport poverty. Additional research shows that factors like not owning a driving license, hence reducing one's opportunities to get jobs, play a significant role as well (Fransen, 2017).

We have operationalized the 'Kenyon' definition of transport poverty with the help of a two-fold series of societal thresholds (respective external and internal thresholds, inspired by Karen Lucas). She emphasizes that limited transport options do not necessarily lead to transport poverty. She highlights that this is only the case once the two types of thresholds (i.e. disadvantage-factors) overlap (Lucas, 2012). This transport poverty leads to inaccessibility of destinations outside one's own neighbourhood, with the ultimate consequence of social exclusion.

These societal thresholds are considered as the extent to which involuntary transport disadvantages (Jeekel, 2018) are present within a certain neighbourhood. These disadvantages determine the extent to which means of transport (car, public transport, bicycle, etc.) are insufficient or even unavailable for those who need these means to participate in society.

Based on transport poverty literature, we defined 10 of such thresholds. The first four (E1-4) relate to context (external thresholds, i.e. context factors regarding social disadvantages). The second batch of six thresholds (I1-6) relate directly to mobility (internal thresholds, i.e. mobility factors regarding transport disadvantages). Based on data analyses and ethnographic field work, we have analysed the degree to which these thresholds exist in the neighbourhoods discussed above.

EXTERNAL THRESHOLDS (Context Factors)

E1 - Demography and culture

Characteristics of the population and its (local) culture determine to a certain extent how citizens relate themselves to the outside world. Populations in our case neighbourhoods have a predominantly non-western background (e.g. CBS (2014) for The Hague, 81%, against 9% for the reference). As such, and according to one of our oral sources, there is a strong inward-looking culture. *"The city too easily expects responsible parents, but those parents are also limited. The world is becoming small this way." "People have turned their back to Dutch society. Incidentally, the reverse also applies,"* another source explained. Moreover, crime represents a problem in all of the case neighbourhoods. For instance, the Utrecht case city data (2017) show a higher crime share of young people from our neighbourhood compared to our reference (25% versus 15% respectively). These indicators reveal a high risk of cultural isolation and victimization which makes the population vulnerable to transport poverty.

E2 - Health and education

The physical and mental state of citizens determines their mobility opportunities. Someone who is unhealthy or poorly educated is most likely constrained in mobility options or even significantly immobile once mobility disadvantages (see internal thresholds below) cross their paths.
Many of our oral sources highlighted this overall bad situation. *"There is a lot of stress, since people suffer mental problems. Health of many isn't very well. Social control is an obstacle of well-being."* Moreover, data (CBS, 2014) show low levels of education. For instance in our Amsterdam case, the percentage of low-skilled school-leavers is 10,7% (against 3,9% for our reference case). Rotterdam also faces severe figures. According to municipal data (2014) only 47% of the young people successfully obtained a school qualification (against 77,8% for our reference).

E3 - Income and unemployment

Unemployment is also an unfavourable factor for adequate mobility. Our fieldwork shows there is omnipresent poverty in the case neighbourhoods, implying a severe risk of lack of sufficient transport means. Low incomes and relatively high unemployment are present in every case (confirmed in all official data). For instance, in the Utrecht case 35% of the inhabitants say it is difficult for them *"to make ends meet."*

E4 - Housing and amenities

Our fieldwork in all four case neighbourhoods confirms the availability of reasonably good social housing, while daily amenities are present nearby, confirmed in many of our conversations with locals. Still, our local sources emphasize the high rents. Another issue mentioned is the decreased accessibility of medical facilities and special schools due to scaling-up. The latter implies longer distances, hence higher risk of transport disadvantage.

INTERNAL THRESHOLDS (Mobility Factors)

I1 - Social safety and traffic safety

Our oral sources have confirmed that residents and entrepreneurs in the neighbourhoods are concerned about road safety and crime. *"Unknown, unloved."* That may explain why social unsafety is a barrier for entering and using public spaces. *"Many residents do not even dare to use public transport."* Traffic is seen as dangerous. Cycling is also considered as unsafe. Moreover: *"Stealing of bicycles is common. But here in our district only two police stations remained, while the city neglects maintaining law enforcement and fears costs."*

I2 - Distances and barriers

Generally the risk of transport poverty increases as soon as the distances to be bridged become longer, or simply too long (physically and/or mentally), and barriers to be taken are higher or even too high (again: physically and/or mentally). However, residents shared a nuanced story during our fieldwork. *“Daily amenities are not far away, often very close indeed,”* they said. *“Many schools are also nearby, except some special schools.”* In The Hague, a group of somewhat older men confirmed that much low-skilled work is far away. Physical barriers play a minor role, except in Rotterdam where the high and steep bridge over the river Maas was mentioned in various conversations. Another oral source referred to jobs: *"Places to work or apply are often too far away, apart from the high costs of bridging the longer distances by public transport."* Many conversations made it clear that generally the *“outside world"* is experienced as (very) far away. Mentally, distances and barriers appear very real.

Complementary to hard-official and soft-oral data, OpenStreetMaps has been used to measure a representative set of distances, e.g. jobs in the table below, showing nearby and far job destinations for all four cases (in this demonstration this is mirrored by bicycle ownership).

	Bicycle ownership case / reference		Nearby jobs	Far jobs
Amsterdam	61%	72%	6,6 km.	14 km.
Rotterdam	53%	77%	3,4 km.	33 km.
Den Haag	60%	90%	4,0 km.	11 km.
Utrecht	88%	97%	3,3 km.	9,5 km.

Table – Distances to jobs
Sources: bicycle ownership case / reference [1] - Nearby jobs[2] - Far jobs [3]

I3 - Legibility and comprehensibility

Our oral sources confirm that the high illiteracy of large groups of residents appears to be a major problem. People have a hard time understanding or ‘reading’ the outside world and mobility systems. There is a lack of knowledge about how city and mobility ‘work’. In other words, the legibility of the transport system is insufficient.

[1] Based on various (e.g. municipal) data sources
[2] Relative to selected, central points in every case neighbourhood
[3] Relative to selected, central points in every case neighbourhood

The Dutch public transport debit card (*OV chip card*) turns out to be a barrier for many users. The system is complicated and not clear and understandable enough for alliterated residents from the case neighbourhoods. *“Such a card can be understood by students, but not by many mothers living here,”* emphasized a local source in The Hague. *"Moreover, there are too few charging points in the neighbourhood for those mothers."*

I4 - Physical accessibility

When a mode of transport is physically inaccessible for a user (or difficult or hardly accessible), it immediately undermines its usefulness. Usually this factor implies technical-physical limitations of a particular mode of transport related to physical or mental disabilities of users. Indeed, in the conversations in which physical access is mentioned, our sources referred to non-user-friendly access of some local buses (though no data is available yet to confirm this in general terms).

I5 - Affordability

Affordability represents a key threshold since all modes of transport imply costs. These costs can relate to acquisition and maintenance of transport means. Particularly usage of these means requires money, for instance to buy fuel or public transport tickets. Unfortunately, many conversations showed that affordability of mobility is under great pressure. The costs of mobility (public transport, car, etc.) represent a considerable financial threshold. This becomes clear with ‘the mothers’, *“since they are at the end of household’s ‘financial pipeline’”*. One of the sources: *"because in the end it always comes at the expense of the mother!"*

The word ‘expensive’ is mentioned frequently. According to figures of Nibud [4], most households in the case-neighbourhoods cannot afford a car although, during fieldwork this issue is not openly and directly discussed with us (probably out of shame). However, the considered high costs of a bicycle have been mentioned many times. And most striking: the high costs of public transport became quite evident. *“My twelve-year-old daughter came home crying recently, because she also wanted a public transport card. But such a card is very expensive, too expensive for many. Parents sometimes are skipping parent conversations at the child's school due to expensive public transport. For the same reason elderly avoid care,”* explained a local resident.

Nibud calculates household budgets. Their 2016 figures, for example, determine a standard minimum travel budget of 52 euros per month for an average households, which confirms the opinion of our sources that mobility is not affordable for many.

[4] The Dutch National Institute for Family Finance Information.

I6 - Reliability

Usefulness of a mode of transport is compromised if its reliability cannot be guaranteed sufficiently, even if the mobility offer is considered or perceived as unreliable (rightly or not). The issue, however, is only mentioned by our oral sources if they complain about the unreliability of the neighbourhood bus or designated taxi services for the elderly to reach medical facilities (though no data is available yet to confirm this in general terms).

Transport poverty: a real problem

Our findings—the collected hard-data of official sources and the soft-oral-data acquired in the field—confirm the vision of Lucas (2012), that transport poverty only exists when the two types of thresholds (social and mobility related) overlap. However, in our research we noticed that there is often only circumstantial evidence for transport poverty as a real problem. Even though it is hardly possible to indicate transport poverty explicitly and directly, figures from the city of Rotterdam regarding general poverty allowed us to compile a serious estimate. For the Rotterdam case-neighbourhood, it is likely that approximately 20% of the population actually is suffering from transport poverty, since the general poverty is high. Even a basic necessity of life such as housing has become unaffordable for many. According to the available figures (2014) 18% to more than 23% of the population in our Rotterdam case (thus average about 20%) were at risk of payment for their social housing rent. Thus, there is hardly any money for mobility left. Indirectly this estimate is conformed in the calculated very small transport budgets of Nibud, mentioned earlier.

Cycling as a solution?

It was not the intention of this research to identify solutions, but rather to create awareness of the *existence* of transport poverty within Dutch cities. During recent discussions on our work though, challenges for addressing transport poverty solutions (see also the European project HiReach that deals with ‘inadequate transport facilities’) got significant attention. For example, our fieldwork in the four cities revealed that many politicians and experts consider cycling as an innovative and also rather easy solution for transport poverty. However, our additional research for the Dutch ‘Fietscommunity’ (2016-2018) [5] revealed a series of (institutional) factors and (human) actors which determines the way cycling mobility performs.

[5] Funded by the Netherlands Organisation for Scientific Research (NWO).

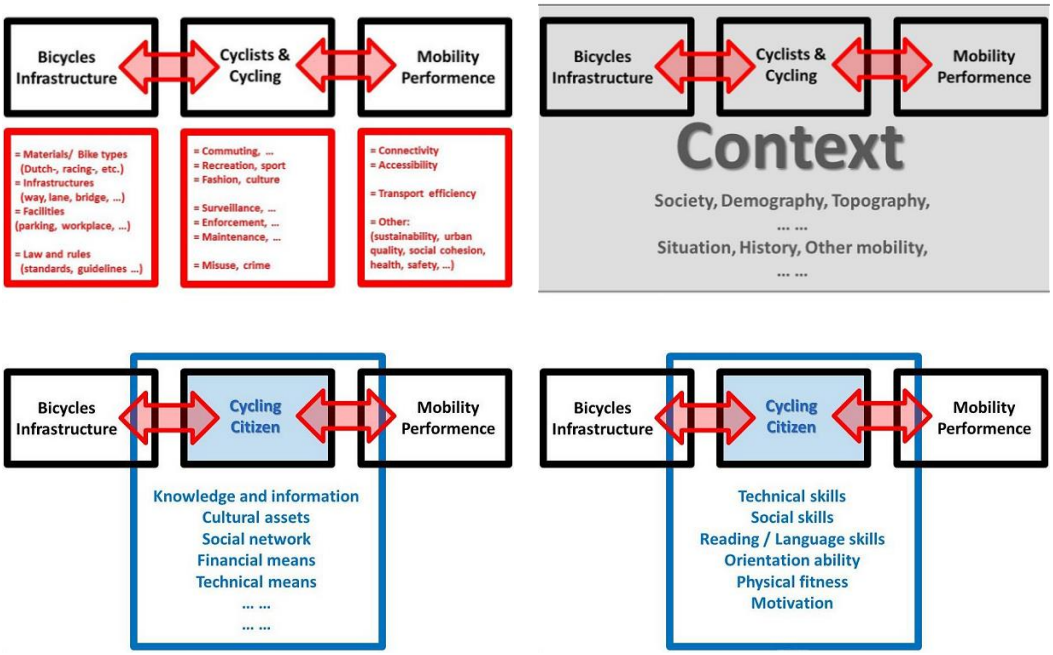

Figure – Cycling as an example. [6]

Cycling citizens first require two important features: property and skills (see the blue boxes in the figure above). Next to being able to own a bike, without properties such as knowledge, information, cultural assets, social networks, etc., the 'bicycle system' (the black and red boxes) is hardly accessible, hence, the actor lacking these properties is hardly able to cycle. When the same actor is without particular skills, cycling is again a no-go area, since without technical and social skills, and without physical fitness or motivation, cycling is nearly impossible.

The benefits of cycling are widely known and the opportunities for cycling are widely available in the Netherlands. However, that does not mean cycling is a matter of course for everyone. For those who are familiar with Dutch culture, who are used to Dutch traffic, and for whom their (urban) environment appears familiar, access to the bicycle system is a natural affair. For those who do not belong to that group, cycling can be a complicated and sometimes too difficult task. Similar obstacles—lacking properties, skills, or cultural familiarity—prevent (to some extent) usage of cars and public transport (and even walking).

[6] Source: Rob van der Bijl, Fietscommunity, 2018.

Towards solutions – Agendas

Our research shows that transport poverty is a multi-facetted problem, analogous to the mythological Hydra monster. The Hydra monster had several heads, and if one would succeed in chopping off one of those heads, two new heads would grow immediately. Transport poverty is also such a multi-headed phenomenon. It is neither intrinsic nor absolute, but relational in the sense of receiving meaning only from the context and from other subjects, and influencing them in turn (Boelens & De Roo, 2014). Our aim is therefore to activate, somewhere in the institutional world, a Herakles (either in the form of an actors or factors) who is able to find social and practical solutions against the multi-headed monster.

For future solutions to combat poverty, therefore, more than one agenda has to be drawn and no doubt new ones later. In our research we therefore proposed to the policy makers of the four cities we studied (Amsterdam, Rotterdam, The Hague and Utrecht) to compile at least three agendas, which immediately identify the responsible institutions, namely municipalities and regions (or similar jurisdictions like borough, precinct, city, as well as transport authorities, including provinces). The three agendas:

- Reduce car-dependency and offer alternative forms of mobility;
- Improve public transport usability, that is, make public transport more affordable, understandable, and fair;
- Unlock the bicycle system by creating bicycle facilities and by offering bicycle information, education, and training.

These agendas can be elaborated based on the factors mentioned under the internal thresholds. In addition, each factor must be related to actors and institutions that are representative of the relevant threshold. For example: the safety factor related to the police as an actor and institutions such as the Dutch SWOV [7] that are responsible for scientific research on road safety. Another example: when it comes to the affordability factor, several authorities are involved, such as the relevant ministries and (for the Dutch situation) the aforementioned Nibud, while, for example, a factor such as the public transport tariff structure is the prime responsibility of public transport authorities (e.g., regions or provinces).

A fourth agenda concerns the context elaborated based on the factors from the external thresholds, such as striving for balanced population structure, improving public health, offering better education, combating poverty, and creating jobs and social services. The municipal and national government institutions are leading here. This is not only to set up the context agenda, but also to connect this agenda to the three mobility agendas,

[7] Dutch institute for road safety research

because—bearing Karen Lukas (2012) in mind—the lack of this connection is precisely the cause of transport poverty. The key actor who should be subject at the heart of all conceivable agendas is actually the one who bears the risk of transport poverty. It would therefore do no harm, in addition to the agendas described here briefly, to draw up a fifth agenda with local programs in consultation and commonality with all local actors. In this way factors can be placed on the agenda that people already do control, or can take control over, so that government-related institutional dominance of the first four agendas is complemented by local empowerment. An inspiring example of this from the Netherlands is the now famous Mama Agatha's cycling training for migrant and refugee women in Amsterdam Zuidoost (see the cycling documentary at YouTube) (Hindash, 2019), the European Inclusion program (see the web pages on the Horizon2020 site), or the success of citizens in our case neighbourhoods (see Box).

Projects like Mama Agatha address crucial factors like cycling skills, or having stakeholders of the Inclusion project take responsibly care for many other factors (e.g. affordable public transport fares), again analogous with the Hydra myth. In this myth, Iolaos supported Herakles. Immediately when Herakles had cut off a head, Iolaos used his flame to burn the Hydra's flesh closed, thus preventing a new head from growing. Eventually, an actor-relational approach can reveal the way a Iolaos (like the little girl in our Rotterdam case-neighbourhood – see box) in connection with other actors could address the meaning and value of transport disadvantages and poverty. Moreover, these actors can identify factors and related institutions that bear policies and interventions in the fight against transport poverty.

BOX – “The bicycle is my mother's car”

For this research we initially only used literature and existing data (e.g. Statistics Netherlands, CBS). However, we realized more was needed for a deep understanding of transport poverty. We turned towards ethnographically inspired conversations with residents and local stakeholders.
During the preparations for our investigation, we got into a conversation in a street in the Bloemhof neighbourhood (Rotterdam) with a girl who turned out to have a beautiful Gazelle bicycle. She told us about her mother who also cycles, *"... because the bicycle is my mother's car."* That meeting (shortly afterwards with the girl's mother too) impressed and inspired us to investigate the phenomenon of transport poverty mainly on the spot in conversations.

We are aware that such conversations do not produce hard, scientific evidence, but we are convinced that anecdotal results can be very powerful and useful. [8] In this way we discovered that the social status of the car is high, otherwise the girl would never have compared her mother's bicycle to a car. And we also learned that sometimes the bicycle is indeed an effective way to fight transport poverty.



The girl with the Gazelle bicycle represents a wonderful example of a key actor who has managed to remove many thresholds' obstacles (factors). Both the girl and her mother consider car-dependency as obvious and inevitable, yet the bicycle is recognized by them as a means of transport offering enough freedom to participate in society, that is, to go to school independently, to participate in the neighbourhood's social life (only in the long run she will perhaps need a car or public transport to reach destinations (far) outside her neighbourhood). The fact that the girl considers herself transport-prosperous is of course because her mother, particularly, has taken care of removing the contextual obstacles (the factors of the external thresholds). The family is apparently in physical good shape, has sufficient income, is able to send the child to school, and able to allow her using amenities.

[8] Clayton Christensen, the author of Disruptive Innovation and Competing Against Luck (2016) puts those so aptly when he says that sometimes you need a few really in-depth data points more than you need tons of shallow data points.

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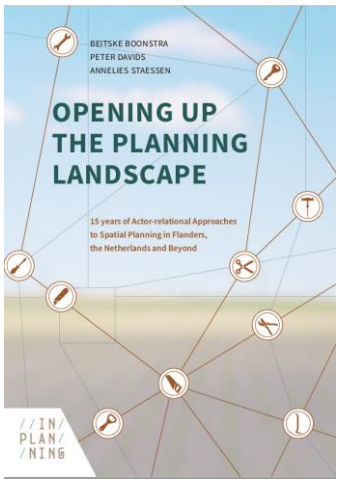

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