

Pathways to sustaining rural accessibility: Insights from perceived accessibility

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EXTENDED ABSTRACT

Research goal

Traditional approaches in transport planning that encourage motorized mobility have induced the upscaling and spatial concentration of opportunities while aiming to maximize overall economic growth (Bastiaanssen & Breedijk, 2022; Lucas & Jones, 2012). Car-based land-use development and the associated spatial accessibility inequalities have resulted in mobility becoming vital for accessing economic and social opportunities, particularly in rural areas. However, the status quo, of car use as a means of reducing accessibility inequalities, could increasingly prove incompatible with emerging broader transport policy agendas that include social inclusion and environmental objectives (see Snellen, Bastiaanssen, & 't Hoen, 2021).

Some inequality in accessibility is unavoidable, as activity locations and transport infrastructure are inevitably unequally distributed across space. The normative issue that then arises is how to balance the economic and societal benefits of spatial concentration and personal mobility against potential negative impacts on the environment and quality of life in rural areas, where residents may face reduced opportunities for local participation in activities. Individual heterogeneity in activity participation requirements and abilities complicates the evaluation of accessibility adequacy and setting policy goals in such places with few locally available opportunities. Accessibility evaluations typically comprise top-down approaches using accessibility indicators calculated from spatial data that rely on aggregated assumptions on how individuals perceive accessibility (Ryan & Pereira, 2021; Vecchio & Martens, 2021), but potentially overlook much of the heterogeneity in needs, desires and abilities that shape perceived levels of accessibility (Curl, Nelson, & Anable, 2015; Lättman, Olsson, & Friman, 2018; Pot, van Wee, & Tillema, 2021; Vlugt, Curl, & Scheiner, 2022).

This paper describes how giving consideration to perceived accessibility can contribute to the design of effective, efficient and fair accessibility policies for rural areas. First, it argues that understanding perceived accessibility can help to normatively assess the impact and fairness of inequalities in spatial accessibility. Subsequently it is argued that subjective experiences can provide valuable information regarding balancing accessibility policy goals against other, potentially conflicting, social and environmental policy goals related to transport. This is illustrated by scrutinizing some pathways to sustain rural accessibility oriented towards facilitating spatial proximity, physical mobility and digital connectivity (i.e. the 'triple access system' put forward by Lyons & Davidson, 2016), while considering some of the practical issues when attempting to integrate perceived accessibility in policy practice.

Perceived accessibility as an indicator of a fair accessibility distribution

The way in which inequalities in spatial accessibility are assessed, and subsequently addressed in policies depends on the ethical perspective adopted and the resulting political priorities and normative judgments regarding inequalities in accessibility (Van Wee, 2022). From a utilitarian perspective, inequalities are acceptable if they nevertheless maximize aggregated preference satisfaction. Other frameworks that are prominent in the accessibility and equity debate include egalitarianism, intrinsically

valuing an equal accessibility distribution, and sufficientarianism, positing that everyone should at least have a level of accessibility above a certain threshold value (see also Pereira, Schwanen, & Banister, 2017). There is no consensus about when to use which ethical framework (Van Wee & Mouter, 2021). Nevertheless, a fair allocation of accessibility, following philosophical analyses by Dworkin, would result in there being ‘no envy’ within the population regarding differences in possibilities to access opportunities, as in his hypothetical world people would bid for a combination of scarce resources related to accessibility on equal footing (e.g. highly accessible residential locations, good access to public transportation, and dwelling space) (Dworkin, 2000 in Martens, 2017). Perceived accessibility levels indicate this degree of preference satisfaction and can thus be seen as a proxy for envy. Therefore, gauging the extent to which accessibility preferences are met is informative when it comes to judging the fairness of inequalities in accessibility.

Empirical analyses consistently indicate that perceived accessibility levels are considerably less variable spatially than the magnitudes of the opportunities offered by the land-use and transport system (e.g. Lättman et al., 2018; Pot, Koster, & Tillema, 2023). First, there are diminishing returns to the number of opportunities. This means that differences between rural and urban areas in the number of opportunities do not proportionally translate into differences in perceived accessibility. This might imply that a loss of facilities mainly constitutes a loss of choice, but that for many people there are still sufficient activities available. Second, processes of residential self-selection would suggest that people living in rural areas consider the presence of locally available opportunities less important than those living in more urbanized residential contexts.

Judging whether inequalities in perceived accessibility are sufficiently large to constitute an injustice that requires policy action is ultimately a political matter. Perceived accessibility as a fairness indicator can complement the normative judgment of accessibility inequalities from all three dominant perspectives. Firstly, by probing satisfaction with accessibility, it aligns with utilitarian principles. Secondly, from an egalitarian standpoint, it acknowledges the practical impossibility of achieving spatial accessibility equality and highlights the importance of aiming for equal perceived accessibility levels instead. Lastly, from a sufficientarian perspective, it offers insights into identifying the threshold of satisfactory accessibility and the factors influencing it. Therefore, regardless of the ethical framework employed, perceived accessibility, explicitly reflecting the alignment of the land-use and transport system with personal requirements, emerges as an informative indicator of fairness alongside spatial data.

‘Triple access’ and perceived accessibility in rural areas

Consequently, policy approaches that focus on spatial proximity rather than physical mobility are likely to be less efficient given the current car-based configuration of the transport system. However, below a certain point, fewer facilities, possibly combined with higher mobility costs, will quickly push larger groups of people below the threshold. Therefore, one could consider improving accessibility by starting with counteracting or even reversing the depletion of amenities in rural areas, even if this comes at the expense of economic efficiency due to a decrease in economies of scale.

Proximity, mobility, and, increasingly, digital connectivity, known as the Triple Access System together shape access to economic and social activities. By definition, rural areas lag behind in terms of proximity. Scale economies and personal mobility could mean that most rural residents, even if more local alternatives were available, will still use more distant activity locations that better meet their needs (Van Wee, 2011). Automobility thereby contributes to reducing inequality between rural and urban areas, but paradoxically leads to greater inequality within rural areas. Policy aimed at restoring local amenities or traditional public transport can offer a welcome solution for a small group with limited mobility, but this comes with significant societal and environmental costs. On the other hand, restricting car usage can increase support for these small-scale amenities and rural public transport while simultaneously making the mobility system more sustainable. This results in less inequality within rural areas, but may make access to high-quality amenities more difficult and widen the gap with cities. Digitization might have the potential to compensate for a lack of spatial accessibility. However, the question arises as to the extent to which these digital alternatives are inclusive and on par with physical

experiences. Therefore, there is a complex balance between efficiency, inclusion, and sustainability, without a clear "right" or "wrong."

Guidelines to ensure sustain rural accessibility

Perceived accessibility as an indicator has the potential to assist in balancing potentially conflicting policy goals. The first step is identifying the scale and nature of accessibility issues, complementing distance and travel time calculations with perceived accessibility levels. This helps determine whether large-scale changes or smaller scale tailored solutions are needed. Although most rural residents currently have adequate access to amenities due to cars, this balance is delicate, and prevention is preferable to dealing with further depletion of resources and rising mobility costs.

A next step is to determine how generic accessibility goals should be. Public opinion and analytical frameworks can help distinguish uniform and broadly valued amenities that the government should always and everywhere ensure. For other amenities and services, tailored solutions based on regional or local accessibility experiences are more effective. The local community plays an important role in determining what is important and feasible. In this regard, the government can play a more facilitating role by financially and organizationally supporting market parties and volunteer initiatives.

Finally, accessibility goals can be concretized. Given regional differences in needs and possibilities, there is no one-size-fits-all solution. Goals are ideally formulated comprehensively and not solely based on, for example, distance. After all, satisfactory accessibility can be achieved through a combination of physical proximity, mobility, and digitalization.

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