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Which public support? Comparing voting instruments in the context of transformative urban mobility policy proposals

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ABSTRACT

In many cities, policymakers struggle with public support for transformative changes in public spaces, moving away from private cars to other functionalities such as safe bike paths, greenery, housing and leisure. Binary referenda often suggest there is no support for transformative changes. Other voting instruments are sparsely used but might produce different results. This paper compares the (dis)advantages of binary, multi-option and portfolio voting schemes and provides arguments for selecting the appropriate instrument. Next, we compare a binary referendum and a portfolio voting scheme (based on the Participatory Value Evaluation method), organized between March-June 2024, about a transformative mobility policy package in Haarlem, the Netherlands. We investigate to what extent these instruments allowed voters to express their preferences, produced different measures of public support and equipped policymakers with actionable insights. We find that 82% voted against this proposal in the referendum, whereas the PVE indicates there are several groups of opinions regarding the policy proposal, correlating with socio-demographic variables (e.g. primary commuting modality and financial situation). Based on a discussion of the limitations of both instruments, we conclude binary referenda can be a useful if policymakers want to know if there is (no) majority support for a proposal. But if a majority votes against a complex proposal, binary referenda provide no insights about how to proceed, and its simplicity becomes an obstacle. PVE provides more insights on how to adapt a proposal to citizens preferences, values and concerns although ensuring its design is perceived as legitimacy remains challenging.

1. Introduction

Urban planners worldwide face increasingly complex challenges related to the design of public spaces and transport systems (Banister, 2008; Ceder, 2020). City space is scarce, and many competing interests appeal to it: more space is needed to accommodate the growing number of residents, to make cities greener and more resilient to climate change and to improve the safety of pedestrians and cyclists (Gössling, 2020; McLeod et al., 2017). Catering for these challenges requires a significant redistribution of public space; to shift the balance of city streets away from motorized traffic and towards active transportation and stationary uses of public space, such as playing and socializing in the pursuit of a vision of "streets for people", rather than "streets for traffic" (Bertolini 2020; Lydon & Garcia, 2015; Walker & te Brömmelstroet, 2025). Challenging any status quo inevitably creates resistance to change, as people who feel they are losing out will speak out in favor of keeping the status quo. So, while the benefits of the abovementioned transformation are widely acknowledged, policy proposals in this direction commonly raise strong resistance from residents and business owners (Gärling & Schuitema, 2007; Van Wee et al., 2023). In many cases such resistance hinders progress (Kong et al., 2024; van der Lee & Veeneman, 2025), but there are indications that decision-makers tend to have a skewed understanding of this resistance because only the loudest voices are heard in the debate. For instance, the phenomenon of pluralistic ignorance may cause them to overestimate the size of this resistance and underestimate the size of the silent majority supporting change (Walker & te Brömmelstroet, 2025).

To address these issues, there is a need to consider and include all stakeholders (including citizens) in transformative urban (mobility) policymaking processes (Cattino & Reckien, 2021; Przeybilovicz, 2020; Raynor et al., 2017). Citizen forums and participatory events are increasingly applied in urban (mobility) planning (Silver et al., 2010)

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and small-scale participatory events have contributed to notable successes at the neighborhood and district level by creating context-specific solutions with strong local support (Dierwechter & Coffey, 2010; Gill et al., 2011; Quick et al., 2015). However, small-scale participatory events are limited in scope and reach when policymakers want to foster broad societal support for transformative changes at the city or regional level. Hence, there remains an urgent need for innovative large-scale instruments to provide policymakers with a broader understanding of the opinions in society (Heyen & Wicki, 2024; Kalbekken, 2023; Walker & te Brömmelstroet, 2025).

Currently, binary referenda in which citizens vote in favor or against a policy proposal are commonly organized to measure public support for urban mobility policies (Gu et al., 2018; Hensher and Li, 2013; Vonk Noordgraaf et al., 2014). However, these referenda have only resulted in majority support in a few cases, including Stockholm (Eliasson & Johnsson, 2011; Schuitema et al., 2010) and Milan (Boggio & Beria, 2019; Percoco, 2017). There are many more cases where a majority voted against transformative urban mobility policies (Gaunt et al., 2007; Hensher & Li, 2013; Jaensirisak et al., 2005). In the Netherlands, three recent binary referenda about transformative mobility policies, organized in Gemeente Amersfoort (2023), Gemeente Haarlem (2024a) and Katwijk (2024), for instance all yielded a majority rejection (74-82%) of the proposals. These outcomes could indicate that public support for transformative urban mobility policies is lacking, but they could also be distorted by how public support is measured (van Wee et al., 2023; Walker & te Brömmelstroet, 2025).

This paper investigates to what extent different instruments for measuring public support produce different outcomes. Section 2 compares binary voting with multi-option voting and portfolio choice voting based on the Participatory Value Evaluation (PVE) method. We build on Wagenaar (2019), who distinguishes four disadvantages of binary referenda – preference limitation, conservative bias, uncertain outcome and conflictual tendency – and argues these become increasingly problematic as a policy issue becomes increasingly complex. Scientific studies on multi-option referenda are sparse, but Wagenaar (2019) has recently theorized that this instrument can address these disadvantages of binary referenda. More research is needed in this direction though, to which this paper seeks to contribute. Specifically, we expand Wagenaar's (2019) framework to argue that multi-option voting still has shortcomings when seeking to understand public support for very complex (i.e. transformative) policy proposals, which portfolio voting schemes (e.g. based on the PVE method) might be able to overcome. The essence of a PVE is that participants virtually 'step in the shoes of a policymaker' and experience a policy dilemma (e.g. how to (re)allocate public spaces). In an interactive choice task, they see multiple policy options and their effects on certain constraints (e.g. costs, scarce public space). Subsequently, participants choose their preferred policy portfolio and provide written motivations for these choices (Mouter et al., 2021a). This method is increasingly used to engage large groups of citizens in complex policymaking process in various domains including; defense (Boshuijzen-Burken et al., 2025a, 2025b) health (Boxebeld et al., 2024b; Mouter et al., 2021b, 2021c, 2022; Rotteveel et al., 2022), energy (Mouter et al. 2021d; de Vries et al., 2026) climate (de Vries & Mouter, 2026; van Beek et al., 2024) and transport (de Ruijter et al., 2025; Hössinger et al., 2023; Mouter et al., 2021e; 2025). These studies suggest that PVE can alleviate several shortcomings of conventional instruments for measuring public support, but no studies have explicitly investigated to what extent PVE produces different results than referendum voting and to what extent these results equip policymakers with insights to enrich their policies and foster public support. This paper addresses this research gap by comparing a binary referendum and PVE about a very complex mobility policy package aimed at reducing car use and facilitating other modalities in Haarlem, the Netherlands (section 3). We selected this as our case study, because both instruments were applied within a short timespan (March-June 2024), allowing us to empirically investigate the following research questions in the results (section 4) and discussion (section 5) of this paper: To what extent do these instruments produce different results (as a measure of public support)? To what extent do these instruments equip policy makers with actionable insights? To what extent can voters express their preferences through these instruments?

2. Referendum voting vs. participatory value evaluation

2.1. Binary referendum voting

Wagenaar (2019) distinguishes four advantages of binary referendum voting (1-4 in Table 1). In short, its simplicity is its main advantage:

Table 1
Comparison of referendum voting and PVE (extended from Wagenaar, 2019).

Characteristic	Binary referendums	Multi-option referendums	PVE
1. Preference expression	+ *Ballot simplicity:* easier for voters to understand and use. - *Preference limitation*: inability to express preferred compromise or improvements.	+ *Voter empowerment*: increased possibilities for voters to express detailed preferences. - *Higher balloting demands:* cognitive demands to weigh more options and comprehend voting method	+ *Voter empowerment*: increased possibilities for voters to express detailed and informed preferences. - *Highest balloting demands:* cognitive demands to weigh more options and comprehend voting methods.
2. Choice task design	+ *Design simplicity:* two mutually exclusive options; no need to formulate alternatives. - *Conservative bias*: conservative or no-voting by middle ground supporters.	+ *Constructive voting:* reduced bias to reject overamendable or off-topic objections. - *Agenda-setting demands:* necessity to formulate limited but relevant sets of options.	+ *Realistic voting:* reduced bias to unrealistic choices by making choices subject to constraints. - *Design demands:* necessity to design the decision problem including a relevant set of options, impacts, constraints.
3. Expected outcome	+ *Method singularity:* simple majority rules satisfy procedural fairness criteria. - *Uncertain outcome*: unclear policy consequences of rejection ahead of vote.	+ *Detailed signal:* insight into support for ranges of alternatives beyond two extremes. - *Method plurality:* potentially diverse outcomes under different voting methods.	+ *Conditional signal:* insight into support for policy mixes, including underlying values and conditions. - *Method plurality:* diverse outcomes under different voting and aggregation methods.
4. Political dynamic	+ *Guaranteed majority:* option with absolute majority guaranteed to emerge. - *Conflictual tendency*: potential polarization and small majority dictation.	+ *Consensual signal:* potential insight into preferences beyond most favorite options. - *Unguaranteed majority:* unguaranteed absolute majority.	+ *Value pluralism:* insight into preferences and shared or conflicting values. - *Unguaranteed majority:* unguaranteed absolute majority.
5. Sampling	+ *Very low entry barriers:* very easy to participate. - *Overrepresentation:* of dominant voices and interests.	+ *Low entry barriers:* easy to participate. - *Overrepresentation:* of dominant voices and interests.	+ *Representativeness:* through post-sampling weights. - *Online voting demands*: not inclusive for digitally illiterates.

binary voting is the easiest way to express (lack of) support for a policy proposal. This arguably makes binary voting the most suitable approach to measure public support for policy issues with a clear yes or no answer. For example, Paris recently organized two referenda resulting in majority support for the following issues: Should owners of bigger vehicles (e.g. SUVs) pay a higher parking fee? (Köllinger, 2024). Or should the city implement a ban on electric scooters? (González, 2023). In such situations, binary voting allows citizens to easily weigh the advantages and disadvantages of two options, whereas more complex voting schemes would unnecessarily obscure the matter.

But binary voting also has disadvantages (Table 1), which become increasingly problematic as a policy issue or proposal becomes more complex (Wagenaar, 2019). Firstly, binary choices conceal a larger set of alternative options (*preference limitation*). Secondly, preferences may be distorted by offering respondents binary choices, especially when issues are complex or unfamiliar, then there tends to be a bias in favor of the status quo (*conservative bias*) in accordance with the adage 'if you don't know, vote no'. This relates to a third limitation: that it is often unclear to voters what the exact implication of a majority rejection is: a maintenance of the status quo or an amendment of the proposal (*uncertain outcome*). This can confuse voters and cause disappointment and dissatisfaction. Finally, presenting a complex policy issue as a sharp binary choice can increase polarization into two opposing camps through media influence and political framing during the referendum campaign, which could prohibit the necessary political consensus-seeking afterwards (*conflictual tendency*).

2.2. Multi-option referendum voting

According to Wagenaar (2019), these disadvantages can be overcome with multi-option voting, whose advantages (Table 1) arguably make this method most suitable for measuring public support for mobility policy proposals aimed at moderately complex issues, i.e. proposals that are too complex to give a clear yes or no answer but structured enough so that citizens can comprehend and cast a vote about several policy options without the additional information that can be provided in a PVE (section 2.3). An example of such a policy proposal could be the implementation of a parking permit scheme in a city district. For example, a multi-option referendum led to majority support for one of several proposals to reduce cars in the city center of Amsterdam (Reformatorisch Dagblad, 1992). Since scientific references to multi-option referenda about mobility policy are scant, another example comes from several authors of this paper, who recently designed a multi-option voting scheme about the implementation of parking permits in neighborhoods around a large shopping mall (the Mall of the Netherlands), aimed at preventing shoppers from parking here. This scheme consisted of three answer-options: (i) support the permit scheme with the conditions of the municipality (e.g. a certain price, amount of visitor hours, exemptions etc.), (ii) support under alternative conditions (in the online respondents could indicate which conditions had to be altered) and (iii) no support regardless of the conditions. The vote did not result in unconditional majority support for the municipality's proposal, but by combining options (i) and (ii), (Tuit et al., 2025) show that under different conditions (i.e., a lower price) there is high public support (60-70%) in most neighborhoods. This example illustrates how multi-option voting can potentially prevent a conservatively biased outcome, contribute to voter empowerment and constructive voting while providing detailed and consensual signals to the policymakers (Table 1).

2.3. Participatory value evaluation (PVE)

Although multi-option voting seems promising in moderately complex contexts, it has limitations when used to measure public support for very complex issues (e.g. a city-wide policy package aimed at transformative change in public spaces), which can potentially be overcome with PVE, which builds on the advantages of multi-open preference expression (Table 1). A key difference with referendum voting is that in a PVE, participants do not cast one vote about two or more policy options. Instead, they integrally evaluate multiple policy options in relation to each other (Boxebeld et al., 2024a), meaning citizens express their vote through making several choices in one portfolio choice task. Below, we argue this has five advantages over multi-option voting. Naturally, introducing more complexity also has disadvantages (Table 1), which we address in our case study and reflect upon in the discussion.

A first advantage of PVE is that it contributes most to *voter empowerment*. Simple voting schemes do not capture the intensity and conditionality of people's preferences, which is crucial information for policymakers seeking to properly understand public perceptions about complex policy proposals (Kalbekken, 2023; Walker & te Brömmelstroet, 2025). Multi-option voting can do this to a certain extent. But in very complex situations, it might be necessary to examine public attitudes in a more interactive way, i.e. through an interactive portfolio choice task (Demski et al., 2015; Hössinger et al., 2023). An important argument for this is that under such circumstances, people are unlikely to have fully formed views, thus there is a need to engage with the processes through which beliefs are constituted (Macnaghten, 2010). For example, people's judgements of stringent policy measures such as road pricing schemes have been shown to strongly depend on other aspects being realized, such as more green infrastructure or public transport (Eliasson & Jonsson, 2011; Lichtin et al., 2024). In practice, mobility policymakers often conduct integral assessments of the policy mixes necessary to realize transformative, sustainable transitions (Badwaj et al., 2020) but in referenda, these considerations are not actively communicated to citizens, who are expected to retrieve these complex considerations from policy documents or media campaigns. Consequently, people's attention and the public discourse often tends to be captured by the most impactful instrument (e.g. paid parking) and other measures recede into the background (cf. Flyvbjerg 1998). Hence, it can be argued that *empowering voters* requires rendering complex trade-offs transparent by letting participants make integral decisions themselves through a portfolio choice task.

Secondly, PVE facilitates more *realistic voting* by forcing participants to make decisions within the constraint(s) faced by policymakers such as a limited budget or scarce public space (Boxebeld et al., 2024a; Mouter et al., 2021d). This way, portfolio choice tasks facilitate the need to account for the highly conditional nature of public views about complex issues. Consequently, PVE can further mitigate status quo bias by sensitizing respondents to the conditions necessitating transformative change (de Vries & Mouter, 2026). In the absence of such framing, citizens may lack realistic reference points based on which they can adequately evaluate transformative mobility policies (Lakoff, 2010), which could explain why public support for such policies is frequently higher after implementation (van Wee et al., 2023). Moleman et al. (2025) provide support for this claim. By conducting a counterfactual test, they show that respondents preferred various transformative mobility policies (e.g. road pricing or a 30km/h speed limit) when it was framed as the status quo and that support declines when it is presented as an alternative situation. This suggests finding ways to frame the (negative) consequences of (not) implementing transformative proposals in voting instruments is inevitable to arrive at true indicators of public support for transformative policies (Lakoff, 2010). Several PVE studies are promising in this regard, producing different (and more detailed) measures of (the conditions under which there is) public support for proposals aimed at addressing complex policy issues (Hössinger et al., 2023; Boshuijzen-Burken et al., 2025a; de Vries & Mouter, 2026). For example, a PVE about national climate policy packages in the Netherlands suggests that social acceptability for policies aimed at reducing aviation could be significantly higher compared to studies using simple (unconditional) voting schemes (de Vries & Mouter, 2026).

Relatedly, a third advantage of PVE is that it provides insights in public support for policy mixes. When several scenarios or policy variations are plausible, this can provide policymakers with detailed insights about the conditions (i.e. the policy portfolios) under which there is sufficient support (Mouter et al., 2021a). Moreover, participants can motivate their choices, so a PVE can provide policymakers with detailed insights (*conditional signal*) in the values and concerns underlying participants' preferences (Mouter et al., 2021e, de Vries & Mouter, 2026).

This relates to the fourth advantage of PVE (*value pluralism*). Keeney (1996) argues that when faced with complex decision-problems, a value-focused approach can convert the polarizing dynamic of forcing people to choose between two or more pre-defined alternatives into opportunities for creative decision-making. He suggests this can improve the quality of communication and collection of information, which can help to uncover hidden objectives of various stakeholders (Keeney, 1996). Relatedly, scholars argue citizen engagement should focus on people's values and concerns when policy proposals encompass highly complex sets of transformations containing multiple elements that will be both unfamiliar to people, and inherently uncertain (Demski et al., 2015).

Finally, we extended Wagenaar's (2019) framework with a fifth characteristic related to the sampling of participants (Table 1). After all, an advantage of online voting is that respondents can be asked to fill in certain personal characteristics (e.g. age, gender, address), allowing researchers to weight the sample and achieve *representativeness*. Besides, several studies show that PVE can help to include hard to reach target groups in participatory processes, such as young people (Mouter et al., 2021d). Walker and te Brömmelstroet (2025) suggest that the nuanced voting approach of PVE could mitigate the phenomenon of pluralistic ignorance – where people overestimate the size of extreme voices and underestimate the size of the 'silent majority' (Prentice & Miller, 1996). They argue that referenda (with its conflictual tendency) are especially prone to distort the societal debate in this way and that consequently, public support for transformative change could become hidden. However, online voting also has disadvantages. Most notably, certain groups in society (e.g. digitally illiterate) might struggle to participate in a PVE.

3. Methodology

3.1. Case selection

The remainder of this paper compares a binary referendum and PVE about a transformative mobility policy proposal of the municipality of Haarlem. We selected this as our case study, because both instruments were applied within a short timespan (March-June 2024), allowing us to empirically compare the results and to what extent these equipped policymakers with actionable insights. Besides, authors 1-3 were involved in designing, executing and analyzing the PVE (de Vries et al., 2024) after the referendum organized by the municipality was considered unsatisfactory (see section 4.1). Author 1 was invited as a 'citizen consultation expert' to a seminar organized by a citizen initiative called Haarlem Klem (2023), which can be translated as 'Haarlem Stuck'. The seminar was titled: 'what is the next step for Haarlem after the parking referendum?' Here, the author presented case studies of PVE consultations that were recently in other domains (e.g. de Vries et al., 2026). Shortly after, authors 1-3 were invited to execute the PVE for the municipality (see section 4 for further details).

3.2. 3.2 Case description

The municipality's transformative parking policy proposal, announced in March 2023, consisted of a package of measures through which the city council wanted to address the rising parking pressure and ensure that the city remains livable in the future (Gemeente Haarlem, 2023). It included two key demand-oriented development measures. The first was to automatically introduce paid parking in neighborhoods where the average parking space occupancy exceeds 85%, which implied expanding paid parking from the city center (zone B) to 11 neighborhoods (zones C-D), according to the most recent measurement of parking space occupancy (Fig. 1). The second measure included the implementation of a limited number of parking permits within each zone to ensure distributed parking permits match the number of public parking spaces. With these two demand-oriented measures, the municipality wanted to realize its environmental vision and "restore the balance between parking space and other essential functions in public spaces" (Gemeente Haarlem, 2023). More precisely, the municipality aimed to become a "more attractive, accessible and healthy city" by "prioritizing the necessary greening of the city and the improvement of the living environment." Key issues arising from high parking pressure in Haarlem are poor accessibility of sidewalks due to large numbers of parked cars and issues with traffic safety (e.g. parking at intersections obstructing visibility). By decreasing parking pressure, the proposal stated parking spaces can eventually make way for additional green spaces, play areas, meeting spaces, and bicycle parking facilities. To further facilitate this transformation, the policy proposal included several stimulating measures to maximize on-site parking, increase shared mobility and better utilize public parking garages and private parking capacity.

3.3. Research design

We analyze to what extent the binary referendum (section 4.1) and PVE (section 4.2) produced different measures of public support and to what extent these instruments equipped policymakers with actionable insights. To this end we first examine the rationales of politicians (aldermen, coalition parties, opposition parties) and organized

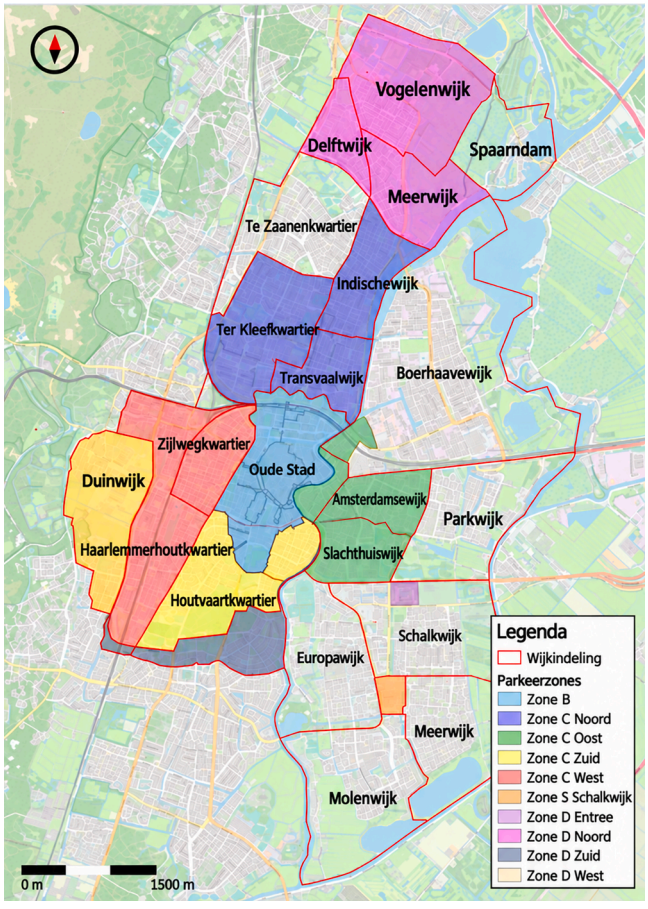

Fig. 1. Proposed expansion of paid parking zones (Gemeente Haarlem, 2023).

stakeholders (active citizen groups) for organizing or contesting the referendum and PVE through a policy analysis of all policy documents, council meetings, media articles and interviews (reported in articles) that we could find about the case. This analysis is necessary to interpret the design choices and results of both instruments. Besides, we expand this analysis after presenting the results to examine how different stakeholders responded to the results of the referendum and the PVE. The analysis of the PVE results is divided into three sub-sections, since the PVE consultation produced more fine-grained data than the referendum. First, we describe the socio-demographic characteristics of the participants and their voting behavior in the referendum based on survey questions included at the beginning of the online consultation. Next, we present the design and results of two PVE choice tasks included in the PVE consultation. The PVE consisted of two choice tasks because policymakers were interested whether citizens express different preferences about the allocation of public space at the city level and in their own neighborhood. Finally, section 4.3 presents the results of a content analysis (Krippendorff, 2004) about how voters experienced both the binary referendum and PVE. We asked PVE participants who did not vote in the referendum to provide reasons for this in an open question, which we coded for a random sample (n = 300 participants). Moreover, two survey questions about the face validity – i.e. the perceived 'accessibility' and 'fairness' of the PVE (de Ruijter et al., 2026) – and an open feedback form about the PVE consultation were included at the end of the questionnaire. These we also coded for a random sample (n = 300 participants).

4. Results

4.1. The referendum

Following the announcement of the transformative parking policy proposal of the Gemeente Haarlem (2023), resistance arose among residents. A group of citizens united and submitted a request for an advisory referendum about the proposal which the municipal executive tried to disregard (de Mijtteraere, 2024), but this was prevented through a court case initiated by active citizens and opposition parties (NOS, 2024). The municipality argued that citizens cannot demand a referendum about taxation policies (e.g. paid parking) according to its own referendum regulations (Stadszaken, 2023). However, the court ruled the referendum permissible because a substantial portion of the proposal did not concern taxation (Rechtbank Noord-Holland, 2023). In the end though, this topic was foregrounded in the question that was posed in the referendum: 'Do you support or oppose the 'Proposal Elaboration of Parking Regulations: expansion of paid parking in Haarlem?' This "convoluted formulation" of the question reflects the complexity of the referendum which *de jure* concerned "the entire package of measures specified in the policy proposal" (de Mijtteraere, 2024) but *de facto* focused on the expansion of paid parking, which was continuously foregrounded in the public debate — throughout discussions of the policy proposal, the feasibility of a referendum, the information campaigns organized by different stakeholders, and eventually in the referendum question itself (Wtenweerde, 2024a). Eventually, the referendum was organized on March 6th, 2024, the referendum turn-out threshold of 30% was met (37.72% of 132,000 eligible voters) and a large majority of 81.61% voted against the policy proposal.

This led to a lively public debate about the referendum, its applicability for measuring public support about the proposed policy package and the meaning of the results (i.e. the characteristics in Table 1). Several members of the municipal council openly stated it was unclear what part of the proposal people voted against (*preference limitation*) (Sikma & Wtenweerde, 2024; van Opstal, 2024). One council member explicitly stated: "Such a proposal contains a lot of information, and the referendum was limited to a 'for' or 'against' question. When you then hear all sorts of terrible things […] that paid parking will be introduced everywhere, and that if you sell your house the new owner won't get a permit, I understand that as an ordinary Haarlem resident, you become uncertain and angry" (Wtenweerde, 2024b). In the same interview, this council member implied that these dynamics contributed to *conservative bias*, stating: "I don't think there has ever been a referendum that ended in a victory for the proponents" (Wtenweerde, 2024b). Various sources also report it was uncertain what the municipality would do with the result (*uncertain outcome*). Although the coalition parties soon stated they would not push through the original policy proposal, they also stressed that a return to the status quo was impossible. For instance, one member of a coalition party stated "the referendum has not suddenly made Haarlem much bigger … one way or another, we have to work it out together" (Sikma & Wtenweerde, 2024). At the end of a council meeting in which the difference between "withdrawing" and "amending" the policy proposal was hotly debated – one council member even consulted a dictionary stating "withdrawing is canceling, and that's not the same as amending. Don't play with words!" (Wtenweerde, 2024c) – the proposal was eventually withdrawn (Gemeente Haarlem, 2024b). In the same meeting, the motion 'in conversation with the city' was adopted (Gemeente Haarlem, 2024a) mandating a societal debate about the referendum result. This was considered necessary because the referendum had polarized the debate (*conflictual tendency*). The alderman for mobility explicitly stated: "politicians and residents have grown apart in recent weeks, so we need to come together again to find a solution" (van Opstal, 2024).

4.2. The participatory value evaluation (PVE)

4.2.1. Critical policy analysis: rationales for organizing or contesting the PVE

The societal debate was facilitated using three participatory instruments: thirteen neighborhood conversations (May – July), a PVE consultation (12-26 June) and a citizens' assembly (September – November). This set-up was contested by opposition parties, who proposed to organize two online consultations instead, to first gather ideas and subsequently measure public support for these ideas (Engelbart, 2024a). The municipal council rejected this proposal though, opting for one PVE to learn about the ideal city and street design according to residents (Engelbart, 2024bc). More precisely, two PVE choice tasks were included in the consultation because policymakers wanted to know to what extent citizens prioritized public values concerning public street space in the city and how citizens would allocate scarce public space over different forms of spatial utilization in their neighborhood. A second objective of the PVE was to gain more insights into the results of the referendum (Gemeente Haarlem, 2024b). To this end, questions about people's referendum voting behavior were asked before participants conducted the PVE choice tasks. Prior to this, the policy issue and the municipality's objectives were communicated to participants through an animation video included on the introduction screen of the online consultation.

4.2.2. PVE results

4.2.2.1. Demographic characteristics and referendum voting behavior of PVE participants. Between 12-26 June, 10.324 citizens participated in the PVE. This is 13.1% of the 75.000 households who received a letter inviting one eligible voter for the PVE consultation with a unique 8-digit code. To check the representativeness of the sample, participants were asked to fill in certain socio-demographic characteristics. Citizens of all age groups, education levels, and neighborhoods participated, but the sample was not entirely representative of the population (Table 2). Therefore, post-stratified weights were applied to make the data representative for each neighborhood, in terms of gender, age, and education (de Vries et al., 2024). Table 2 also shows that voter turn-out in the referendum was the lowest for the following groups: residents under 35 years old, who do not own a car, and who primarily use public transport

Table 2
Socio-demographic characteristics of the PVE sample.

	Population Haarlem*	PVE participants	% Voted in referendum
Gender			
Male	49.0%	51.6% (5,181)	72.9%
Female	51.0%	48.4% (4,857)	72.8%
Age			
16 - 35 years old	29.9%	12.9% (1,323)	61.8%
35 - 64 years old	49.6%	58.0% (5,932)	73.1%
65+ years old	20.5%	29.1% (2,974)	77.7%
Education*			
Low	24.2%	9.0% (877)	76.5%
Middle	34.9%	21.6% (2,115)	77.6%
High	40.9%	69.4% (6,802)	71.0%
Neighbourhood			
Amsterdamsewijk	4.9%	6.0% (616)	73.8%
Boerhaavewijk	4.4%	3.5% (354)	64.4%
Delftwijk	3.1%	3.7% (380)	84.0%
Duinwijk	3.5%	3.4% (349)	85.6%
Europawijk	6.2%	4.4% (452)	62.0%
Haarlemmerhoutkwartier	8.0%	7.7% (783)	71.1%
Houtvaartkwartier	5.1%	6.6% (675)	79.9%
Indische wijk	5.7%	6.8% (690)	84.9%
Meerwijk	5.3%	3.3% (335)	65.9%
Molenwijk	5.0%	3.9% (394)	65.3%
Oude Stad	8.7%	10.0% (1,022)	50.8%
Parkwijk	4.1%	3.1% (318)	77.5%
Slachthuiswijk	3.4%	3.8% (389)	76.8%
Spaarndam	0.4%	0.3% (31)	59.3%
Te Zaanenkwartier	5.6%	7.2% (738)	83.6%
Ter Kleefkwartier	8.2%	7.8% (792)	74.6%
Transvaalwijk	5.5%	4.8% (485)	68.8%
Vogelenwijk	3.2%	3.7% (380)	83.6%
Vondelkwartier	3.5%	4.1% (421)	86.5%
Waarder- en Veerpolder	1.1%	1.5% (151)	74.1%
Zijlwegkwartier	5.1%	4.5% (455)	61.6%
Car ownership			
Multiple cars		17.9% (1,609)	81.9%
One car		69.2% (6,210)	72.9%
No car		12.9% (1,161)	60.9%
Primary commuting modality			
Car		46.5% (2,755)	74.8%
Public transport		21.4% (1,271)	63.3%
Bicycle		23.5% (1,390)	74.2%
Walking		1.7% (102)	67.7%
I work from home		5.5% (323)	64.1%
Unknown / other		1.4% (85)	70.6%

to commute to work.

4.2.2.2. Points mode PVE: prioritizing public values in the city. In the first PVE choice task participants prioritized public values concerning public street space in the city, to investigate to what extent there is consensus about the principles on which the city's mobility policy should be based. In this choice task, participants distributed a total of 100 points across 10 options (Fig. 2). Such a 'points mode PVE' is commonly used when no specific constraints (e.g. limited budget or space) can be determined (e.g. de Ruijter et al., 2025).

Fig. 3 shows that, on average, most citizens prioritize two public values: 'it is easy to walk and cycle to important places' and 'the city is green'. Subsequently, two safety related public values are prioritized: 'everyone feels safe in traffic' and 'children can play outside in many places'. This indicates that the key objectives which the municipality of Haarlem (2023) wanted to realize through its transformative parking policy proposal are broadly shared. However, the way in which participants prioritize parking significantly differs: 24% of participants do not give this public value any points, whereas 23% of participants give this more points than the baseline (100 points / 10 options = 10).

A Latent Class Cluster Analysis (LCCA) distinguishes four clusters of citizens with different priorities at the city level (Table 3), especially regarding car accessibility and parking. This method is commonly used to distinguish patterns in PVE datasets (e.g. de Ruijter et al., 2025) because it can identify clusters that are maximally homogeneous within clusters (i.e. making similar trade-offs and with similar socio-demographic characteristics) and maximally heterogeneous between clusters (for details, see appendix A). An important disadvantage, however, is that it is susceptible to *method plurality* (Table 1); as (slightly) different outcomes are achieved under different model specifications. Combined with a qualitative analysis of participants' written motivations (de Vries et al., 2024), the LCCA nonetheless provided valuable insights into 'target groups' with similar priorities and socio-demographic characteristics (see Table 3, also see de Vries et al., 2024 for crosstables). All covariates included in the LCCA model significantly influenced choice behavior, except gender and age, which are therefore not included in Table 3. Together with policymakers from the Gemeente Haarlem (2024c), the four groups were labeled as follows. The 'moderate group' is the largest (40%). This group allocated slightly less points to car accessibility and car parking, but no options receive significantly more points than the baseline (10 points). Two smaller clusters represent opposing poles: the 'principled redesigners' (23%) strongly prioritized active mobility and greenery and allocated no points to car-related values, while the 'automobile prioritizers' (10%) strongly prioritized car accessibility and parking. Finally, the 'pragmatic commuters' (27%) occupy an intermediate position. They prioritized car parking for commuting purposes while maintaining support for cycling and green spaces.

4.2.2.3. Slider mode PVE: distributing public space in the neighborhood. In the second PVE choice task (Fig. 4), participants allocated scarce public space in their neighborhood over seven different options by moving a slider to the left (less space) or right (more space). This 'slider mode PVE' is commonly used to evaluate strategic policymaking issues, including important effects of the policy options (e.g. Boxebeld et al., 2024b). In this choice task, participants could not exceed the initial space allocation; the meter turns red if attempted. When allocating more space to one option, participants thus had to reduce space for another option. Moreover, options required different amounts of space (e.g., cars require more space than bicycles), which (de Vries et al., 2024) estimated together with policymakers from the municipality.

Fig. 5 presents the descriptive results of the second PVE choice task. A significant proportion of participants (32%) allocated more space to green space for children's play areas (22%) in their neighborhood, which were also the two highest prioritized public values at the city level. Moreover, many participants allocated less space to sports facilities (32%) and public meeting places (36%). Preferences about parking also significantly differed at the neighborhood level: 25% of participants allocated less space for automobile parking in their neighborhood, while the remaining participants preferred to maintain the current spatial allocation (58%) or increase parking space (17%).

The different preferences at the neighborhood level become even more apparent by analyzing the choices made by residents from different neighborhoods. Fig. 6 shows that in the city center and several directly adjacent neighborhoods, most participants allocated less space for car parking and more space for greenery and play areas. Many

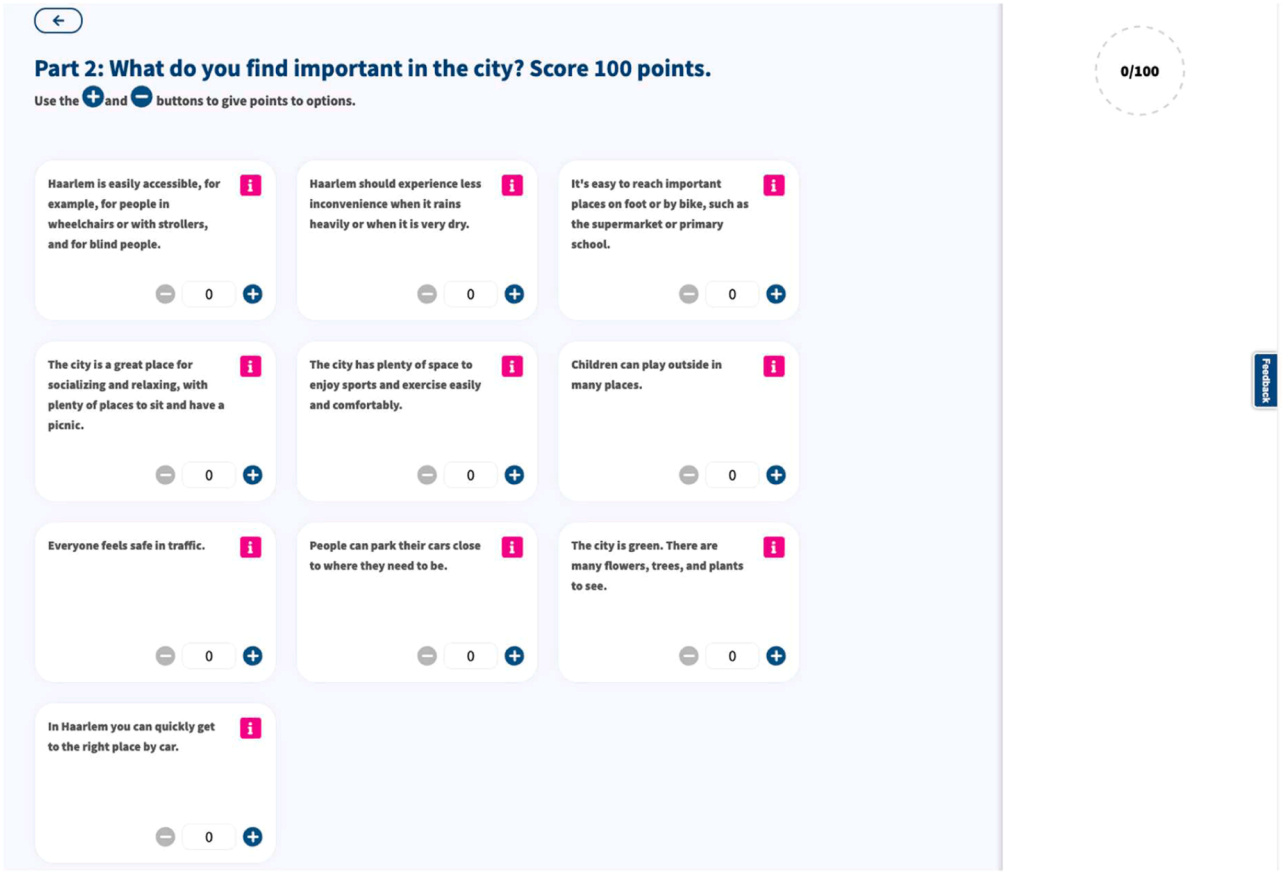

Fig. 2. Screenshot of the points PVE choice task.

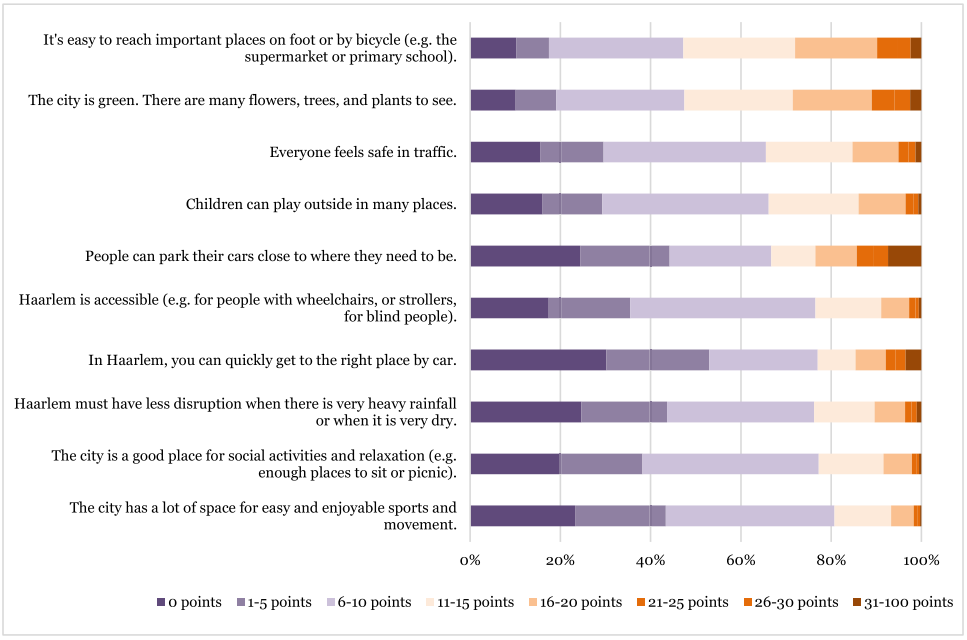

Fig. 3. Descriptive results of the points mode PVE.

residents of these neighborhoods experienced high parking pressure and considered parking regulation necessary to enhance livability, according to a thematic analysis of the written motivations participants (n = 300 from each neighborhood) provided for their choices (see de Vries et al., 2024). Farther away from the city center, different trade-offs are observed. In the south-eastern neighborhoods, where the municipality did not plan to impose parking regulation (except Amsterdamsewijk), many participants allocated more space for car parking. Motivating this, residents often stated that they experienced parking issues, while they depend on their cars for various reasons, including commuting to work

Table 3
LCCA results: average points and socio-demographic characteristics per cluster.

Public values	Moderate group (40%)	Pragmatic commuters (27%)	Principled redesigners (22%)	Car prioritizers (10%)	Average
It's easy to reach important places on foot or by bicycle (e.g. the supermarket or primary school).	12.9	12.5	16.9	12.5	13.4
The city is green. There are many flowers, trees, and plants.	13.1	12.0	19.5	10.6	13.3
People can park their cars close to where they need to be.	7.9	16.6	0.0	27.6	11.9
Everyone feels safe in traffic.	10.8	8.9	12.2	10.7	10.3
Children can play outside in many places.	11.2	8.7	12.8	6.6	10.0
Haarlem is accessible (e.g. for people with wheelchairs, or strollers, for blind people).	9.7	7.1	10.0	7.7	8.8
In Haarlem, you can quickly get to the right place by car.	6.6	11.8	0.0	17.4	8.5
The city is a good place for social activities and relaxation (e.g. enough places to sit or picnic).	9.7	8.7	10.5	0.0	8.4
Haarlem should have less disruption when there is heavy rainfall or when it's very dry.	9.0	6.8	9.5	7.4	8.2
The city has plenty of space to exercise and move around easily and pleasantly.	9.0	7.4	8.7	0.0	7.6
Significant covariates*					
Car ownership					
Multiple cars	17%	23%	8%	20%	
One car	71%	70%	60%	74%	
No car	12%	7%	31%	6%	
Experienced parking pressure					
Very busy	19%	22%	32%	25%	
Busy	27%	22%	28%	19%	
Reasonably busy	23%	21%	18%	18%	
Somewhat busy	18%	19%	12%	20%	
Not busy	13%	15%	9%	18%	
Primary commuting modality					
Car	31%	44%	14%	38%	
Public transport	15%	11%	26%	9%	
Bicycle	18%	12%	22%	14%	
Walking	1%	1%	2%	1%	
I work from home	3%	4%	5%	3%	
Unknown / other	32%	28%	30%	36%	
Experienced financial situation					
Lots of savings every month	22%	19%	32%	20%	
A little savings every month	49%	42%	47%	40%	
Just making ends meet every month	24%	31%	17%	33%	
Using savings every month	4%	6%	4%	7%	
Going into debt every month	1%	1%	0%	2%	
Education level					
High	74%	66%	85%	65%	
Middle	18%	24%	12%	25%	
Low	7%	9%	3%	10%	

* Percentages do not add up to 100% because not everyone answered these questions.

or an inability to pay the high cost of public transportation. In the northern neighborhoods furthest away from the city center, residents more frequently allocated more space to car parking. These residents often stated they were dependent on their cars. Besides, many experienced disturbances to the livability due to high parking pressure, but they were often not convinced the proposed policy measures were the best solution. They often stated that these disturbances were caused by non-residents parking their vehicles in these neighborhoods, for example to travel into the city (or Amsterdam, which is a 10-15 train ride away). Two other frequently mentioned problems were residents parking their commercial vehicles or second and third cars in the neighborhoods. Finally, in the south-western neighborhoods, where education and income levels are relatively high, very few residents allocated more space for car parking. The analyses of their written motivations indicated that these residents were often satisfied with the status quo.

4.2.3. Policy analysis: stakeholder responses to the PVE results

In this section, we expand the critical analysis of the rationales of politicians (aldermen, coalition parties, opposition parties) and organized stakeholders (active citizen groups) for organizing or contesting the PVE (section 4.2.1) based on all policy documents, council meetings, media articles and interviews (reported in articles) that we could find about the case. The aim was to examine how different stakeholders responded to the results of the referendum and the PVE.

Shortly after the PVE was launched, it was criticized by activist citizen groups and opposition parties, who commissioned a report about its design (Engelbart, 2024d). This report concluded that the points PVE was "totally out of balance" because "only two options address the parking topic" (Engelbart, 2024d). By including eight other topics (e.g. recreation and bicycle safety), the report argued that the PVE "will make it more likely to unintentionally reveal that Haarlem residents do not consider parking very important." Moreover, it stated "the way in which the questions are explained is steering, as positive qualifications are used for green and social activities, while car mobility is framed as a problem that leads to unsafety or inaccessibility." In an interview, a citizen who actively campaigned for the referendum referred to this report, stated: "we think that the questions posed were very steering and an expert agrees. For example: if you say you are in favor of more greenery, according to the municipality that means you are against cars, which is nonsense of course" (Wtenweerde, 2024d). The latter was not communicated in the PVE, but apparently, some perceived the restrictions (i.e. limited points or public space) this way. In response to these criticisms, two aldermen defended the set-up of the PVE, stating the questions are not "steering", but "presented as realistically as possible" (Engelbart, 2024d). In the same article, a spokesperson explained: "the city

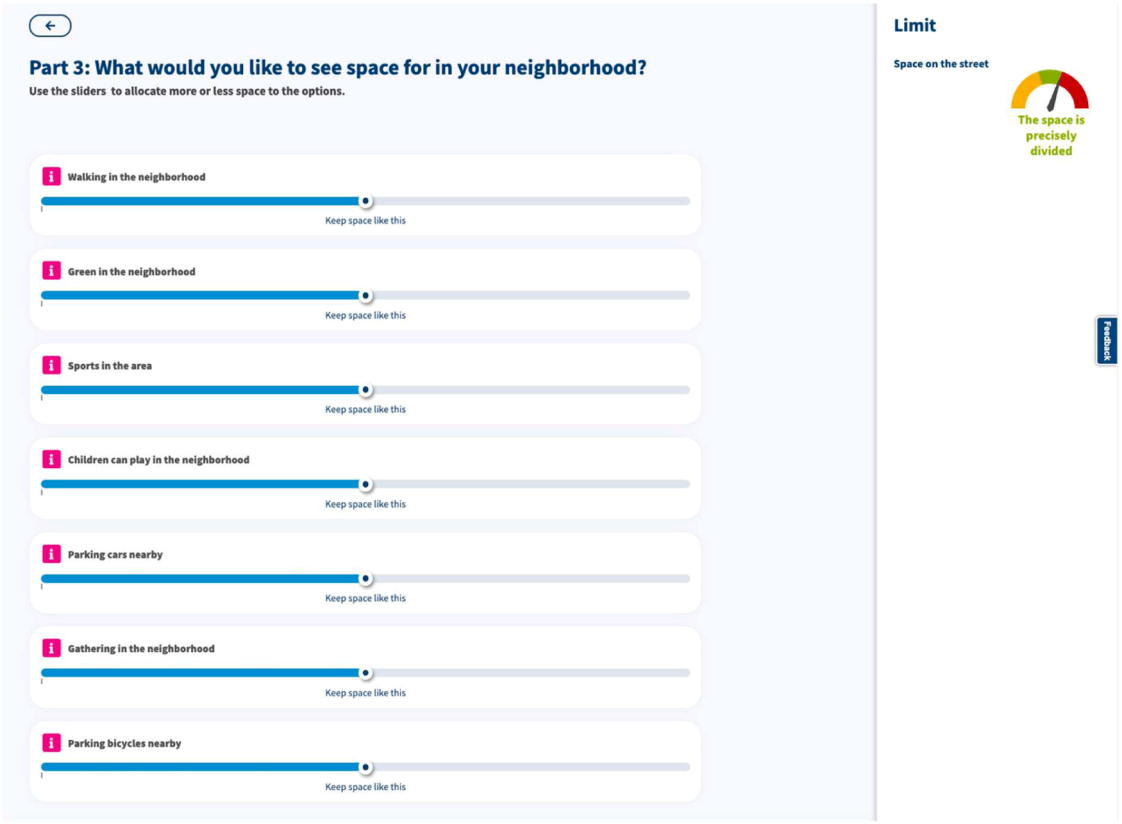

Fig. 4. Slider mode PVE choice task.

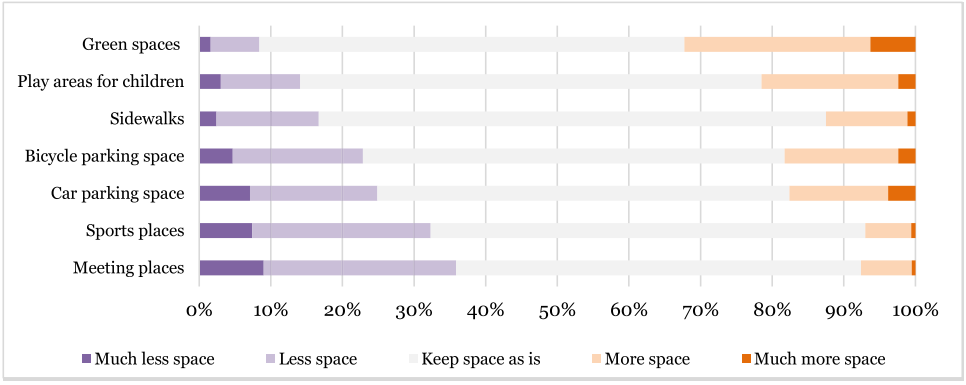

Fig. 5. Slider mode PVE descriptive results.

council has provided very clear frameworks, such as the environmental vision and mobility policy. This means that not everything is possible anymore, and the public space in Haarlem can no longer be redistributed indefinitely." The aldermen acknowledged that "some may perceive this as steering, because we are limiting the issue to aspects that the municipality can actually act on", but also stressed "this ensures the results are usable" (Engelbart, 2024d). "Had the reports reasoning [to formulate more neutral questions and choice options] been followed", the aldermen continued, "a sham survey would have been conducted" (Engelbart, 2024d). This indicates that the aldermen considered maintaining the status quo impossible given the commitments the municipal council made in its environmental vision and mobility policy.

Despite this disagreement, the PVE results, which were extensively described in the final report about the implementation of the motion 'in conversation with the city' (Gemeente Haarlem, 2024c), contributed towards consensus building within the municipal council. The results were used to inform two opinion notes of the municipal council on 'parking policy dilemmas' (Gemeente Haarlem, 2024d) and 'space for humans and mobility: building blocks for a new parking policy framework' (Gemeente Haarlem, 2024e), which were discussed in a council commission meeting (Gemeente Haarlem, 2024f) before the aldermen presented a new parking policy proposal. The two responsible aldermen considered this intermediate step appropriate given that the new parking policy was developed following extensive public consultation, stating "this allows council members to evaluate all arguments and ideas with complete transparency" (Engelbart, 2024g). One dilemma derived from the PVE posed to the municipal council for example was: "participants in the neighborhood discussions report no parking problems, even in areas where objective parking pressure studies demonstrate high parking density and frequent illegal parking. Concurrently, the digital consultation and other residential surveys in these areas indicate that some residents do experience parking-related issues. What does the

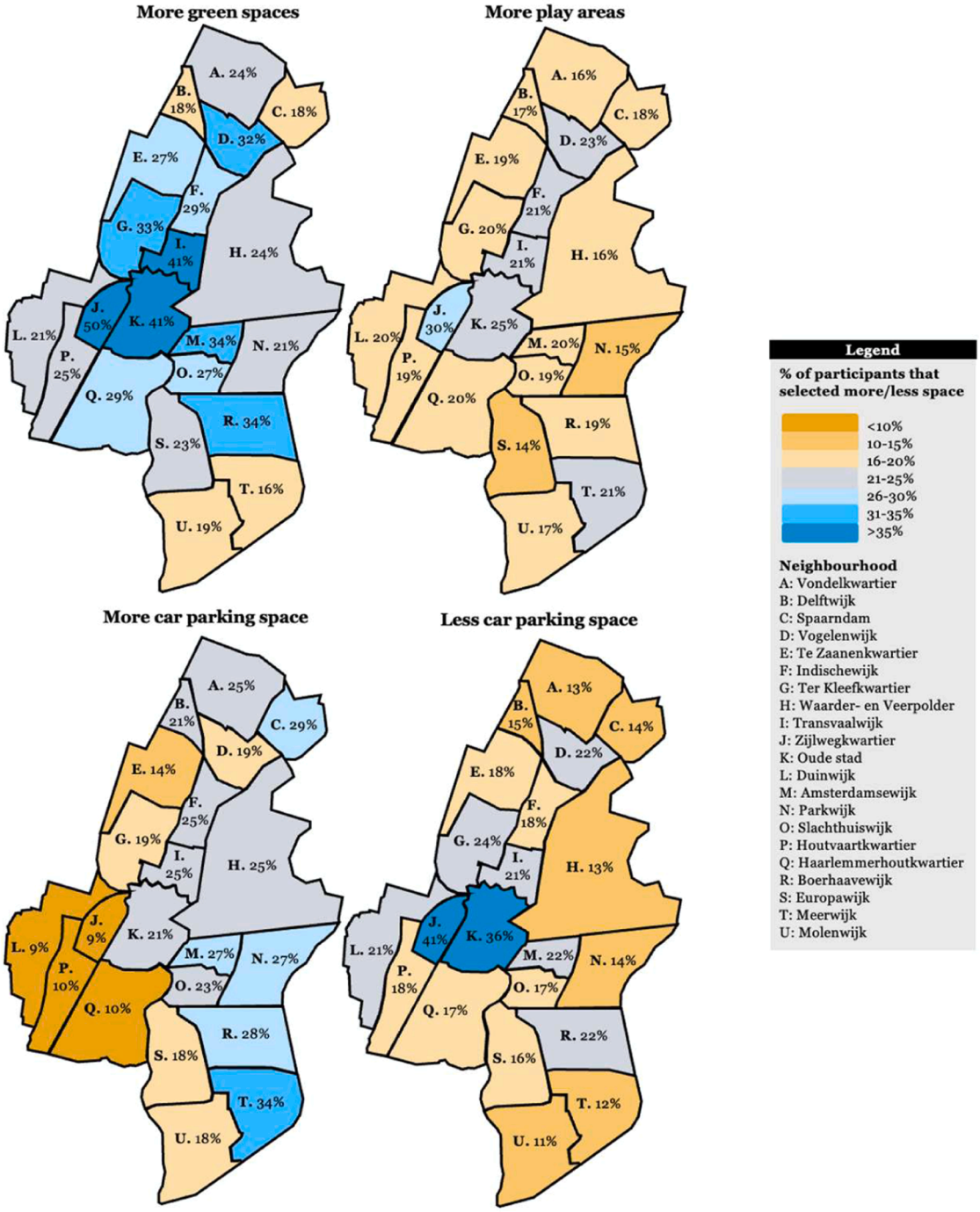

Fig. 6. Descriptive results of the slider PVE choice task.

council consider important: anticipating spatial challenges outlined in the environmental vision and mobility policy for the future by implementing parking regulation as an instrument?" (Gemeente Haarlem, 2024d). At the beginning of the council meeting, several opposition parties responded to the two discussion notes with a shared statement, which included the following reference to the PVE results: "the core message has been consistently clear across various measurements of public opinion, including the referendum and digital [PVE] consultation: citizens are unwilling to financially support initiatives that either do not address an actual problem or fail to provide an effective solution" (Gemeente Haarem, 2024f). Although this arguably is a somewhat one-sided interpretation of the PVE results, similar insights about the conditions under which there is (no) support for the municipality's original plans provided by the PVE (and the other 2 instruments, recall section 4.2.1) led the coalition parties to somewhat change their standpoint on the issue during this meeting. A media report about this meeting concluded that "the parking debate softened after consultation of city residents" (Verhagen, 2024), observing this became clear when one member of a coalition party mentioned the car will remain an essential means of transport for many residents.

But the new parking policy proposal (Gemeente Haarlem, 2025a) that was adopted by a majority vote in the council in May 2025 (Gemeente Haarlem, 2025c) remained unacceptable for some. It included several additional stimulating measures and a higher criterium for expanding paid parking zones (95% parking pressure instead of 85%), expanding it to seven neighborhoods instead of eleven.

Dissatisfied with this, several opposition parties submitted a motion of censure against the municipal executive, especially the two responsible aldermen. This motion was not adopted due to a lack of political support, but its motivation sheds some light on the PVE disadvantage of *method plurality* (Table 1), as it included the following statement: "the referendum results demonstrate an unequivocal majority of 81.61% voted against the proposal and the subsequent digital consultation similarly revealed a clear majority opposing the implementation of paid parking" (Gemeente Haarlem, 2025b). Although this might have been a politically motivated misinterpretation, it shows the PVE results were more susceptible to alternative interpretations than the referendum results.

Table 4
Count of reasons (n = 300) PVE participants provided for not voting in the referendum.

Theme	Category	Count
Practical	**No time / not in Haarlem / forgot / sick / not aware**	150
Irrelevant	**It was not about my neighborhood; we already have parking regulations** *"We already have paid parking, as far as I'm concerned, we can expand it"*	26
	No parking problem in my neighborhood	3
	I do not own a car *"I didn't feel addressed, I initially thought it was about parking space, and I don't have a car, so I don't need one."*	13
	My car is parked on private property *"I have a private garage and a private parking space and do almost everything by bike in Haarlem."*	6
Preference expression	**Lack of information or nuance** *"I think referendums are pointless. I'm happy to contribute my thoughts, but not as bluntly as 'for' or 'against'."* *"Because I thought it was too complex an issue for a referendum. I cannot adequately understand the consequences of a vote for or against."*	13
	Neutral (no clear opinion) *"I'm fairly neutral on the matter. Paying to park my car isn't nice, but I also know it's practically the only way to get people to change their behavior. There are also quite a few people here with a second car or a camper van. Those shouldn't be parked on the street."*	7
	Against a specific part of the proposal *"I think it's ridiculous that I have to pay if I have visitors. I don't get many visitors then."*	5
	In favor, under certain/different conditions *"I agreed ideologically to introduce this but felt that other parking matters had to be arranged first. So, too expensive too quickly for the poor."* *"I wanted parking permits in our neighborhood, but that wasn't an option. I'm in favor of multiple cars per household parking the second car at the edge of the neighborhood."*	8
Strategic	**To prevent the turnout quota (of 30%) to be met** *"Hoping that the turnout quota wouldn't be met. I'm a big supporter of regulation, but the 'counter-brigade' was very active."* *"Strategic. The feeling is that the municipality wants to restrict freedom, but it's completely absurd. People only think about their own safety. Get rid of all those tin cans in the street."*	26
Mandate	**No impact on decision-making** *"I don't believe the municipality would do anything with it"* *"It was an advisory referendum. The municipality can therefore ignore the result. I only vote for binding referendums."*	20
	Principally opposed to referendum *"I'm against referendums. I'll vote for a party in the municipal elections that shares my views. I accept the well-considered plans they're making, and I don't think it's right that pe, if they disagree, force a referendum. I fully agreed with the implementation of a stricter parking policy."*	19

4.3. Voter experience

4.3.1. Reasons for not voting in the referendum

Table 4 summarizes our content analysis of the reasons PVE participants who did not vote in the referendum provided for this. The aim of this content analysis was to compress many words of text into fewer content categories based on explicit rules of coding (Krippendorf, 2004). Aside from all kinds of *practical* obstacles (50% of the analyzed motivations), 16% thought the referendum was *irrelevant* for them because it was focused on paid parking and they did not own a car, parked on private property or already lived in a neighborhood with paid parking. Moreover, 11% mentioned *preference expression* limitations, stating that the referendum was not nuanced enough or they lacked information to make an informed decision. Furthermore, 9% stated that they did not vote for *strategic* reasons. These participants were frequently in favor of the proposal and tried to prevent the threshold from being met.

4.3.2. PVE voting experience

To evaluate voter experiences with the PVE, participants answered two survey questions about the accessibility (*online voter demands*) and fairness of the PVE (*design demands*). Fig. 7 shows that most participants (84%) did not find the PVE difficult to comprehend. Moreover, no variations were found between age categories and minimal variations were observed among participants with different educational backgrounds: 13% of practically educated participants found the study challenging to understand, compared to 7% of participants with intermediate and theoretical education. The results of the second question show 52% of participants perceived the study as fair and 24% expressed skepticism regarding the study's impartiality.

Table 5 provides more detailed insights into voter experiences in the PVE, summarizing a content analysis of the feedback PVE participants provided. It shows 29% of the analyzed motivations mentioned certain surveys questions were perceived as 'steering'. Most of these motivations explicitly referred to survey questions after the PVE choice task (not analyzed in the paper) in which the municipality asked input about two dilemmas: how to distribute the costs of parking and to what extent space for parking should be accommodated within the planned 10,000 new residential units. Only a small proportion (5%) of the analyzed motivations explicitly mentioned one (of the two) PVE choice tasks was experienced as steering. Furthermore, 6% questioned the objectives of the PVE and stated the referendum outcome must be respected. Finally, 7% mentioned issues related to the comprehensibility, accessibility or functionality of the PVE consultation.

5. Discussion & conclusion

In many cities, policymakers struggle with accurately understanding public support for transformative changes in public spaces, for instance moving away from private cars to other functionalities such as safe bike paths, greenery, housing and leisure. Many binary referenda have been organized about this issue across Europe, indicating there is low public support for transformative mobility policies (van Wee et al., 2023; Vonk Noordgraaf et al., 2014). However, there are indications that these results are distorted by how public support is measured (van Wee et al., 2023; Walker & te Brömmelstroet, 2025). Hence, this paper compared the (dis)advantages of three instruments for measuring public support: binary referendum voting, multi-option referendum voting and portfolio choice voting based on the PVE method. We argue that binary referendum voting is suitable for simple yes or no questions (e.g. should the city implement a ban on electric scooters?) but limited when applied for more complex policy issues. Following Wagenaar (2019) we also argue multi-option voting can potentially address the shortcomings of binary voting in the context of moderately complex policy issues (e.g. the implementation of residential parking permits in a certain city district). However, multi-option voting arguably still has limitations when applied for very complex issues (e.g. a transformative, city-wide policy

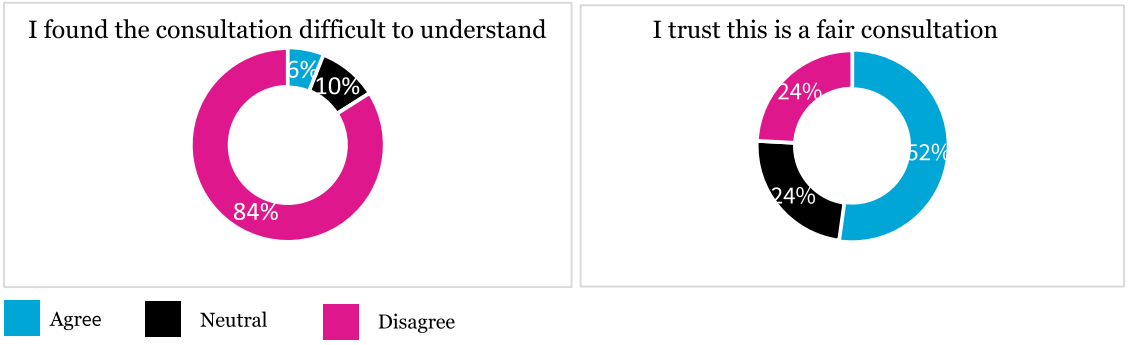

Fig. 7. Voter experience in the PVE.

package aimed at transformative change in public spaces), and we argue PVE could be a more suitable in such contexts. Subsequently, we investigated these arguments by comparing the (dis)advantages of a binary referendum and PVE in a case study in Haarlem. Here, both instruments were used to investigate public support about a complex policy proposal through which the city council wanted to address the rising parking pressure and ensure that the city remains livable in the future.

5.1. Key findings

5.1.1. To what extent do a binary referendum and PVE produce different results?

The referendum that was conducted in Haarlem yielded a clear result: 81.61% voted against the proposal. The PVE, on the other hand, produced less unequivocal but more detailed information about the priorities of (different groups of) citizens concerning the allocation of public space in the city. The 'points mode PVE' (Section 4.2.2.2) in which participants prioritized public values concerning the design of public street space in the city showed that on average, most citizens prioritize two public values: 'it is easy to walk and cycle to important places' and 'the city is green'. This indicates that the key objectives that the municipality wanted to realize through its transformative parking policy proposal (section 3) were broadly shared by its inhabitants. Furthermore, the cluster analysis of the 'points mode PVE' revealed four groups with varying priorities and different socio-demographic characteristics (e.g. education level, financial situation, car ownership and primary commuting modality) which policymakers of the municipality labelled as follows. The 'principled redesigners' (23%) did not prioritize car accessibility and parking, indicating strong support for transformative change towards alternative mobility and green spaces. The 'automobile prioritizers' (10%) strongly prioritized car accessibility and parking at the expense of recreational facilities, indicating no support for transformative change away from car-use. The 'pragmatic commuters' (27%) prioritized car accessibility and parking, but also valued bicycle accessibility and green spaces, indicating these citizens might support some changes in the design of public spaces under certain conditions. The 'moderate group' (40%) indicated they were satisfied with the status quo or supportive of slight changes in the design of public spaces, away from car use. Finally, the 'slider mode PVE' (Section 4.2.2.3) provided detailed insights into how citizens' priorities and concerns differed between neighborhoods, indicating support for transformative changes in public spaces was generally highest in the center and lower in neighborhoods farther away from the city center, although more detailed differences were observed between neighborhoods.

5.1.2. To what extent do the referendum and PVE results provide actionable insights to policymakers?

The referendum primarily provided actionable insights for opposition parties, who used the results to stress that most Haarlem residents are against the new parking policies. They could forcefully posit this because the referendum provided a clear-cut and seemingly unequivocal result. Hence, binary referendum voting can be a useful instrument if policymakers want to know if there is (no) majority support for a policy proposal. However, if a majority votes against a very complex policy proposal, as was the case in Haarlem, a binary referendum provides no actionable insights about how to proceed, and its simplicity arguably becomes a severe obstacle. Since the referendum reduced the issue to a binary vote "in favor" or "against" a complex policy package, it gave rise to questions about which part of the policy package people voted against (*preference limitation*). The underlying reasons for rejection remained unclear and politicians questioned to what extent the majority vote against the proposal was due to *conservative bias*, especially since the most stringent policy measure (paid parking) was foregrounded while stimulating measures received relatively little attention in the public discourse. Moreover, there was a lot of uncertainty about the consequences of this result (*uncertain outcome*), as a return of the status quo was expected by opposition parties and many citizens, but considered impossible by the aldermen due to commitments the municipal council had previously made in its environmental vision and mobility policy. All these shortcomings reinforced each other and contributed to polarization between politicians and residents (*conflictual tendency*).

The PVE resolved some of these shortcomings and, to a certain extent, contributed to consensus building between political parties by providing a more nuanced indication of the different degrees of support among different target groups (and their socio-demographic characteristics), the conditions under which there was more or less support for transformative changes in public spaces and by highlighting ethical dilemmas that were previously not on the radar of policymakers. Hence, the PVE provided actionable insights, especially for the coalition parties who wanted to move forward with a revised policy proposal. This suggests PVE can be a useful instrument if policymakers want to obtain a nuanced and representative understanding of the different opinions in society as an indication of the intensity of, and conditions under which there is public support for transformative change. However, the complexity of the PVE also limited to what extent policymakers could rely on its results. Conflicting views were observed about the need to frame the policy issue in the PVE and although something is to be said for both positions (section 5.2), this clearly illustrates the challenging *design demands* (Table 1) of conducting a PVE about a contested policy issue. Besides, the PVE did not provide a (seemingly) unequivocal outcome in the way the referendum did. Hence, it could be interpreted in different ways (*method plurality*, see Table 1). This likely explains why clear misinterpretations of the PVE results by some opposition parties were not repudiated during a council meeting.

Table 5
Content analysis of feedback (n = 300) PVE participants provided about the consultation.

Theme	Category	Count
Practical	**Comprehensibility / accessibility / functionality** *- "Takes quite a while, especially typing explanations. Distributing points is difficult but gives you a lot of insight."*	22
Mandate	**Referendum outcome must be respected** *"I get the impression that the desire to implement paid parking is clearly present despite the outcome of the advisory referendum. And that these are ways to create support and gain insight to implement paid parking anyway."*	18
	Referendum was wrong *- "I think it's scandalous that certain Fig.s in the municipality manage to spend half a million on a referendum about parking policy. This research should have taken place first, then you can draw up your plan as a municipality."*	5
	Difficult for residents to say something sensible / listen less to social resistance *- "I think it's difficult for residents to give up something they have. It is important that a municipality has a clear vision.*	8
	Good initiative / listen more to residents (and provide feedback about what is done with their input) *- "Good that residents are involved. Hopefully that translates into policy and efforts that benefit livability.*	25
Preference expression	**The choice task was steering** *- "The questioning clearly echoes the intention of the municipal executive to legitimize the rejected policy anyway ('if you want your children to be able to play, you have to get rid of your car')."* *- "There is a bug in the neighborhood-space distribution sliders OR it works unfairly: as if adequate parking space would consume all other space. This makes me suspect that this research was initiated with a biased agenda."*	16
	Certain survey questions were steering *- "The questions in part 4 are extremely leading. The first question in that part, for example, already assumes that parking must be paid for and only asks about the distribution."* *- "The question about financing parking spaces I found tendentious. Planting trees also costs money, creating play space, in short, everything around space costs money for construction and maintenance. Why then only ask about parking spaces? This leads me to not trust the research. Too bad!"*	70
	Insufficient space for own input / missing certain topics or questions *- "I partially miss an option to submit alternatives for the parking policy. I think it would be good if consideration is given to ensuring that, for example, only during certain periods only permit holders/paid parking is established. Since the pressure is not present during the day, there is no use in having to pay during the day."*	34
Trust	**Low trust in the decision-making process** *- "Haarlem likes to manipulate towards the desired outcome. The treaty with Amsterdam to bring even more people to Haarlem is undesirable and creates even less space."*	13
Substantive	**Remarks/views about the proposal** *- "Be ambitious! Don't work in the margins but come up with a comprehensive plan to organize public space as future-proof as possible. Also tell the honest story; everyone having a car at their door is not feasible. But come up with attractive alternatives. Why not a super garage under the HVV DSK football field?"*	69
	- Remarks/views about a specific neighborhood *"Please do not exclude the Ter Zaanen neighborhood when implementing new parking policy (as in the previous proposal) but include it, equal to other neighborhoods. Parking pressure will increase enormously due to the displacement of cars from other neighborhoods."*	14

5.1.3. To what extent can voters express their preferences through these instruments?

Underlying the abovementioned differences between the referendum and PVE results and its applicability for policymaking, an important consideration is to which extent these instruments allowed voters to express their preferences. A key issue of the binary referendum was the *overrepresentation* of dominant voices and interests (Table 1), as the voter turn-out was the lowest among residents under 35 years old, who do not own a car and who primarily use public transport to commute to work (section 4.2.2.1). Based on a qualitative analysis of the reasons PVE participants provided for not voting in the referendum, we observed three reasons for this: 16% of the analyzed motivations stated the referendum was *irrelevant* for them because of its focus on paid parking (although it was about the complete proposal), 11% stated that the referendum was not nuanced enough or that they lacked information to make an informed decision and 9% stated that they did not vote for *strategic* reasons. These people were in favor of the proposal and tried to prevent the turn-out threshold from being met.

In the PVE, certain socio-demographic groups were also underrepresented (e.g. residents under 35 years old, with lower education levels), but its representativeness could be ensured through post-stratified weighting. A key issue of the PVE, however, was that a relatively high proportion of participants (24%) did not trust this was a fair consultation. Our qualitative analysis of the feedback PVE participants provided revealed that 29% of the analyzed motivations perceived certain questions were 'steering'. Only a relatively small proportion of these motivations (5%) explicitly referred to one of the PVE choice tasks though. Other features of the online consultation (e.g. survey questions not included in this paper) were more frequently experienced as steering, which can be explained by the following limitations of this study.

5.2. Limitations & recommendations for further research

A limitation of this study is the sequence in which the binary referendum and PVE were conducted. The PVE took place after the public debate was already polarized, partly due to the referendum, although other factors probably also contributed to this (see van der Lee & Veeneman, 2025), such as a lack of clear communication about the original policy proposal. This prehistory undoubtedly influenced participants' experiences with the PVE, which is reflected in the criticism about the design of the PVE consultation. One media reporter clearly stated this, saying: "like an excrement-Midas, the parking file turns everything it touches into thick, controversial, and polarizing sludge. After a petition, countless debates in the council, a real lawsuit, and a referendum, this honor now falls to the digital consultation" (Engelbart, 2024e). Hence, a recommendation for further research is to conduct a PVE and referendum in reverse order, or simultaneously, and then compare the results. When doing this, it can be worthwhile to compare voter experiences with both instruments among the same individuals. After all, it is possible that certain groups (e.g., digitally illiterate individuals) were underrepresented in the PVE compared to the referendum, which might have influenced our finding that *online voting demands* were not a significant issue in the PVE.

Another limitation of this study is that the PVE had to be designed within a very short timeframe (April – June), whereas the PVE *design demands* are high compared to those of a referendum (Table 1). This undoubtedly contributed to criticism about how the policy issue was framed, 'out of balance' or 'steering'. To design a PVE which adequately represents a policy issue, several scholars argue stakeholders need to be included in the design process (Mouter et al., 2021d; Mouter et al., 2025). Research on the influence of stakeholder involvement in PVE design is still scarce, but researchers and policymakers typically have a strong coordinating role, the former defining the roles of external experts and the presentation of expertise and the latter setting the boundaries such as the choice of the policy question (van Beek et al., 2024). In a contested political arena, this inevitably leads to criticism,

for instance about how a policy issue is framed or about the legitimacy of the decision-making process (van Beek et al., 2024). Hence, it is common that some participants criticize a PVE for being too narrow or simplistic, while on the other hand, others criticise it for being too broad and complex (de Ruijter et al., 2025; de Vries et al., 2026). An elaborate collaborative design process including politicians, policymakers and citizens can increase the legitimacy of a PVE (Itten & Mouter, 2022; Mouter et al., 2021d; Mouter et al., 2025). For this reason, it was originally proposed to carry out such a process, using the thirteen neighbourhood conversations as input for the PVE design, whose results could subsequently be interpreted and discussed by the citizen's assembly. However, the municipality rejected this proposal stating there was no time for this. Hence, a recommendation for further research is to investigate to what extent collaboratively designing (and interpreting) a PVE about transformative policy proposals concerning the (re)allocation of public spaces can improve the legitimacy of participatory processes.

5.3. Policy recommendations

Based on our theoretical comparison of binary referenda, multi-option referenda and portfolio choice voting (based on the PVE method), we recommend policymakers to carefully consider which voting instrument is most suitable to measure public support for their policy proposals. Although our classification for selecting the appropriate instrument depending on the complexity of the policy issue is far from complete and deserves to be further developed, our comparison of the (dis)advantages of the abovementioned voting instruments can already be used to inform guidelines for participatory planning protocols and guidelines, such as the referendum regulations of municipalities. For instance, if a maintenance of the status quo is impossible due to previously established policy frameworks (which was the case in Haarlem), organizing a binary vote that disregards these frameworks can arguably be seen as a form of pseudo-participation, given that citizens tend to think they can simply vote 'against' change in a referendum, whereas in reality, they can only vote against a proposal and urge policymakers to make amendments. Besides, the criticism that citizens' choices are 'steered' in a certain direction need not be problematic if a participatory process focuses on a 'closed down' set of policy options if these have been established through previous and legitimately established policy framework (e.g. the environmental vision and mobility policy of the Gemeente Haarlem). However, the legitimacy of policies is increasingly challenged in contemporary 'mediatized' and 'energetic' societies (Hajer, 2009; 2011). Hence, policymakers need to become better at strategizing, communicating and collaborating with different stakeholders, including 'the public' (Benington, 2009) to navigate complex decision-making processes for transformative change (van der Lee & Veeneman, 2025). Our comparison can contribute to this, by helping policymakers select the appropriate voting instrument for a given policy issue, based on an overview of the various instruments and their (dis)advantages. In the absence of a framework for making such a decision, we often observe governments attempt to prevent or limit citizen engagement. For example, by trying to circumvent citizen requests for referenda, which happened in various cities including Haarlem, The Hague (Bormans, 2025), Zaanstad (van Midden, 2025) and Berlin (Gattringer, 2025). When this is unsuccessful, we observe adverse experiences sometimes lead governments to further restrict or abolish referendum regulations altogether, which happened in Haarlem (Engelbart, 2024f). These developments are concerning from a democratic standpoint. Besides, it can even create more resistance towards transformative change, as studies show that resistance arises when citizens feel that their input has not been considered in the decision-making process (Vonk Noordgraaf, 2014). Rather than reverting to technocratic and top-down planning processes, we therefore recommend policymakers to create more comprehensive participatory approaches for developing mobility policies (Mehdizah et al., 2024). In line with other recent studies (Mehdizadeh et al., 2024; Walker & Te Brömmelstroet, 2025), PVE results in Haarlem and beyond (Mouter et al., 2021e; de Vries & Mouter, 2026) namely suggest there is potential for more transformative mobility policies compared to today's policy landscape.

CRediT authorship contribution statement

M.O. de Vries: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **N. Mouter:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **C.M. Tuit:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **M. Te Brömmelstroet:** Writing – review & editing, Writing – original draft, Conceptualization. **B. van Wee:** Writing – review & editing, Writing – original draft.

Declaration of competing interest

The first three authors declare having stocks or certificates in the private company Populytics, a start-up of Delft University of Technology, which commercially applies Participatory Value Evaluations and other kinds of policy evaluations.

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Supplementary materials

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