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How do citizens prioritize the accessibility goals of the Dutch national government against other transport goals? Results of a Participatory Value Evaluation

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ABSTRACT

The goals of transportation planning have been broadened in the last decades. Scholars increasingly argue to include goals such as reducing social exclusion and providing a minimal level of accessibility to all in the appraisal of transport policies. We conducted a Participatory Value Evaluation (PVE) with 6,784 Dutch citizens to investigate how different segments of the Dutch population prioritize these goals against other goals of transportation planning. In the PVE, participants indicated for 14 accessibility and mobility goals whether they thought a goal should receive more attention or less attention, subject to a budget constraint. We find that respondents recommend the government to pay the most attention to goals related to providing a basic level of accessibility for everyone such as 'being able to access important facilities easily', 'being able to reach places affordably' and 'accessibility for people with disabilities'. Participants think that safeguarding these accessibility standards should be a core government task. They particularly prioritize improving accessibility to healthcare facilities such as hospitals and general practitioners. Participants think that the government should give relatively little attention to other goals such as 'reducing travel times', 'being able to access different jobs', 'more pleasant and comfortable travel' and 'improving connections to other countries'. Many participants do not think that achieving such goals should be a core task of the government. They believe that the responsibility for achieving these goals lies more with citizens themselves, or with the market.

1. Introduction

The key role of a transportation system is to provide people with the opportunity to engage in spatially dispersed activities of all kinds (Miller, 2018). The goals of transportation planning have been broadened in the last decades. Throughout most of the 20th century, transportation planning goals were almost entirely mobility-based, with a focus on reducing congestion, travel times and travel costs and improving traffic safety (Hananel and Berechman, 2016; Manaugh et al., 2015). These are all impacts that can be captured relatively easily in transport models and standard transport appraisal methods such as the Cost-Benefit Analysis (Mouter et al., 2021). On the basis of these criteria, roads were often expanded at the expense of public transportation (Martens, 2006). Due to

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lack of sufficient demand, bus lines were eliminated and levels of transit service reduced (Hananel and Berechman, 2016).

In the late 1970 s, several researchers began to address the needs of disadvantaged populations within the context of transportation theories such as the carless (Paaswell and Berechman, 1977) or the elderly (Wachs, 1979). Moreover, in the 1990s, prompted by concerns regarding climate change, transport scholars started to focus on sustainable transport planning (Banister and Button, 1993; Greene and Wegener, 1997) arguing for policies which reduce the need to travel and encourage a modal shift from car to other modes (Banister, 2008). Recent literature on transport justice further broadened the scope of transport planning. For instance, scholars argue for including the reduction of social exclusion (Delbosc and Currie, 2011; Lucas 2012), the affordability of transport (Hananel and Berechman, 2016), equitable distribution of transportation (Ryan et al., 2015, 2019; van Wee, 2011) and the spatial equality of transport investments (Mouter et al., 2017) in the appraisal of transport policies. Moreover, Martens (2017) proposes a sufficientarian approach to transport planning, according to which all individuals would be entitled to a minimum level of accessibility deemed adequate or sufficient (Ryan and Martens, 2023). Adopting the capabilities approach, a specific operationalization of sufficientarianism, Nahmias-Biran et al. (2017) and Nahmias-Biran & Shiftan (2019) consider that a good transport system should not create a barrier for persons to reach essential activities, but also provides a reasonable level of freedom to choose what they want "to do and be". Stanley and Stanley (2015) argue that the ability or capacity to be mobile is an intermediate capability that is needed for the achievement of many of the ten key capabilities established by Nussbaum (2011) such as bodily health and play. A good transport system should provide accessibility to 'valued opportunities' making sure that each person has the possibility to participate in valued activities (Vecchio and Martens, 2021). Vecchio and Martens (2021) assert that the capabilities approach suggests an accessibility sufficiency threshold that not merely prevents social exclusion, but one that actually guarantees a reasonable level of freedoms. Public policies should contribute to bringing people above this latter sufficiency threshold of accessibility, giving priority to interventions that enhance the accessibility-as-capability of people below the sufficiency threshold (Martens, 2017).

Several authors argue that standard appraisal methods such as the Cost-Benefit Analysis do not sufficiently appreciate the aspects discussed above as they are generally not included in the CBA, or are given relatively low importance because they are not quantified or monetized (Dean et al., 2019; Handy, 2008; Hickman and Dean, 2018; Metz, 2021; Nicolaisen et al., 2017). To inform policy makers about transport related capabilities, various studies conducted surveys to measure citizens' capabilities in a transport setting and how these capabilities are distributed across segments of the population (e.g. Azmoodeh, et al., 2023; Cao and Hickman, 2019; Hickman et al., 2017; Moleman and Kroesen, 2025; Pot et al., 2023; Ryan et al., 2019). For instance, Azmoodeh et al. (2023) and Cao and Hickman (2019) find that people with higher incomes generally have higher levels of capabilities compared to lower income groups. However, these studies do not inform policy makers about decisions to (not) invest in policies that improve certain capabilities. In addition, it is unclear how the outcomes of these studies should be included in the appraisal of transport policies (Stanley, 2023). The lack of a monetisation (or similar) method of capability improvements precludes comparisons with impacts on other criteria (Stanley, 2023). Nahmias-Biran and Shiftan (2019) suggest estimating a "value of capability gains" that should become part of the CBA, but they assert that further work is needed to make their proposed measure operational and test its effectiveness and potential contribution. Stanley (2023) finds it problematic that current accessibility-based assessment approaches are paternalistic in the sense that experts instead of citizens nominate minimum accessibility levels for particular activities. Both Azmoodeh et al. (2023), Ryan and Martens (2023) and Stanley (2023) emphasize that it is important to involve citizens in the prioritization of public resources that are allocated towards the improvement of capabilities, for instance through public consultations and deliberations.

The Participatory Value Evaluation (PVE) is a public consultation method that has been developed, amongst other things, to incorporate impacts that are difficult to translate into monetary units in the appraisal of government projects (Mouter et al., 2021). The essence of a PVE is that participants take place in the seat of a policymaker and experience the policy dilemma (Mouter et al., 2021). They see the policy options that a policymaker considers, the impacts of the policy options and the constraints that exist (e.g. a limited public budget). Subsequently, participants answer the question what they would advise if they were in the shoes of a policymaker. They are also asked to provide an argumentation for their advice.

Policy makers have used PVE in the Netherlands in the ex-ante assessment of transport projects and policies in the municipalities of Amsterdam, Gouda, Haarlem and Rotterdam (e.g. Mouter et al., 2021; Bahamonde-Birke et al., 2024) and rail projects such as a new high-speed rail between Amsterdam and the North of the Netherlands (Mouter et al., 2023) and various project proposals to improve the railway between Leiden and Dordrecht (Mouter et al., 2024). PVE has also been used in Austria to elicit citizens' preferences for transport policies which aim to reduce CO_2 emissions (Hössinger et al., 2022). Although PVE has been used for engaging citizens in the ex-ante assessment of concrete projects and policies, the method has not been used yet for involving citizens in prioritizing the overall transport and mobility goals of a government.

The Dutch Ministry of Transport and Water management (henceforth: the Ministry) decided to also deploy the PVE method for developing a national vision towards mobility and accessibility. The main goal of conducting a PVE was to better align the policies of the Ministry with needs, priorities and concerns of Dutch citizens. More specifically, citizens were asked in the PVE to indicate for 14 mobility and accessibility goals of the Ministry whether they thought a goal should receive more attention or less attention, subject to a budget constraint.

This PVE allows us to answer the following research question in this paper: how do (different segments of) the Dutch population prioritize 14 mobility and accessibility goals of the Ministry of Transport and Water Management? As the 14 goals that citizens prioritize in the PVE also contain various goals that relate to providing basic levels of accessibility, the PVE provides insights into how citizens trade-off various forms of basic levels of accessibility against other goals that the Ministry of Transport and Water management pursues. Generating such empirical insights lines up with the observation of Ryan and Martens (2023) that citizen engagement is needed for gaining knowledge about how citizens evaluate basic provision of accessibility. They assert that citizen input is important for the implementation of this concept as this currently can be conceived as a 'civil servant's product' with an apparent disconnect with

citizens' needs. The insights of the PVE can be used as input for determining the extent to which governments should allocate resources to improving basic accessibility instead of other goals. Apart from providing empirical insights the methodological contribution of this paper is that this is the first time that the PVE method has been used for involving citizens in prioritizing the overall transport and mobility goals of a government. The paper will report about the experiences of policy makers and citizens with deploying the PVE method for this purpose and aims to derive from this analysis the extent to which PVE is a useful method for this purpose or whether the method should only be used for the ex-ante assessment of concrete transport policies and projects.

2. Methodology

As the methodological goal of this paper is to investigate whether and how the PVE method can be used for involving citizens in prioritizing the overall transport and mobility goals of a government we provide an explanation of how the PVE was designed for this purpose in sections 2.1 and 2.2. In section 2.3 we describe the data collection and in section 2.4 the statistical analysis.

2.1. Aims of the Participatory Value Evaluation

Before starting the design process of the PVE we defined the aims that should be obtained with the PVE together with policy makers of the Ministry. A primary aim was to derive insights about the mobility and accessibility needs, priorities and concerns of citizens in order to better align policies with citizens' preferences. Policy makers also asserted that they did not only want to learn about the preferences of the 'average citizen' but also about the preferences of a variety of subsegments in the population (e.g. people who own a car and people who don't own a car, different age strata, people who live in different areas in the Netherlands and different densities). These insights would allow the Ministry to construct targeted policies to specific segments of the population.

Secondly, policy makers aspired that the perceived legitimacy of the PVE results should be high among key stakeholders such as Members of Parliament, interest groups and media. To increase the perceived legitimacy of the PVE several actions were taken. First of all, we decided to conduct the PVE both with a representative sample and through an open consultation. Conducting the PVE with a representative sample is important as stakeholders such as Members of Parliament otherwise might question the merits of a study in which segments of the population are overrepresented and underrepresented. However, a downside of a representative sample is that not everyone can participate which will be criticized by stakeholders who think that it is important that all citizens have the opportunity to express their preferences. Through conducting a PVE with both a representative sample and an open consultation and show the similarities and differences between these two samples the issues stated above are tackled.

To further improve the perceived legitimacy of the PVE we included stakeholders at several stages in the design process to ensure that they supported the design of the PVE. When stakeholders are not included in the design process there is a high risk that they will criticize the design of the PVE by arguing that policy options, impacts or other important considerations are not well embedded in the design. We organized three sessions with a diverse range of policy makers from the Ministry in which they commented on the design of a draft version of the PVE and a larger design session with 25 stakeholders. In addition, all people involved in this design session were asked to provide feedback on the 95 % version of the PVE. We also made a document with all the methodological choices underlying the PVE including how we handled stakeholders' feedback to improve the transparency and verifiability of the design process. A final effort that was made to improve the perceived legitimacy of the PVE was asking the Minister, the Undersecretary and various top level civil servants of the Ministry for feedback on the 95 % version of the PVE. They were asked to specifically verify the extent to which the setup of the PVE could result in relevant insights for them to improve the quality of their decisions. When a PVE produces useful insights which improve the quality of decisions this can increase the perceived legitimacy of the PVE as it allows politicians to communicate to citizens how the insights of the PVE improved their decisions which in turn improves satisfaction of the process among citizens and stakeholders. Moreover, policy makers aspired that through participating in the PVE citizens would learn about the policy goals and dilemmas of the Ministry because they experienced the dilemma themselves which could improve acceptance of policies and trust in government.

2.2. Establishing the content of the Participatory Value Evaluation

Prior to the design process of the PVE the Ministry developed three variants of accessibility goals: (1) Guaranteeing basic levels of accessibility. The government must ensure that destinations of vital importance are accessible, e.g. within a certain time, within a certain distance and at reasonable costs; (2) Maximizing accessibility. The government should maximize accessibility gains; (3) Reducing differences in accessibility. The government should aim at reducing undesirable differences in accessibility between areas.

The three variants of accessibility goals were taken as a starting point for the design of the content of the PVE. In the first step of the design process, we translated these variants into more specific goals that are recognizable to citizens as we deemed that goals like 'achieve a basic level of accessibility for everyone' and 'reduce differences in accessibility' too abstract to evaluate for citizens. We designed a draft version of the PVE that contained goals such as: 'making more bus stops accessible for people with disabilities' and 'more residents should be able to reach a school, a supermarket and a general practitioner within 15 min'.

In a so-called 'design session' policy makers of the Ministry commented on the draft version of the PVE. Their main comment was that the goals had different levels of abstraction. Some goals were formulated in general terms, while others already contained a concrete investment in a particular mode of transport. Based on this comment it was decided to formulate all goals at the same level of abstraction in the sense that none of the goals should contain a concrete solution. At the same time, however, policy makers indicated that there was a need to understand which solutions citizens preferred to achieve a certain goal. As a solution to this, we decided that

participants who advised the government to pay more attention to a goal would receive a ranking question in which they were asked which (type of) solution they think is best to achieve the goal.

During a second design session with policy makers and a third design session with 25 stakeholders from other organizations the discussions focused on the scope of the PVE consultation. Various policy makers and stakeholders were of the view that the accessibility goals were formulated too narrowly. On the one hand, a concern was that citizens who think that the Ministry should focus on mobility-related goals such as reducing travel times and improving reliability would not feel that they could properly express their preferences. On the other hand, policy makers were worried that citizens who think that the Ministry should focus on reducing travelling and encourage sustainable transport modes would not get enough opportunity to express their preferences. To do justice to both perspectives, we added four goals 'Ensure travel times are reduced', 'Ensuring that people arrive at their destinations at the expected time', 'making traveling more sustainable' and 'Ensure people travel less'. Based on feedback from high-level policy makers one goal was added: 'Improve safety of travelling'. The addition of these goals allows us to investigate how Dutch citizens trade-off accessibility related goals against other goals of the Ministry. During the stakeholder session also the constraint in the PVE was discussed. It was decided to rephrase the constraint from 'cost' to 'effort' as costs would not do justice to the constraints that the ministry faced. In fact, the limited supply of qualified personal was experienced by policy makers and stakeholders as an equally constraining factor than financial budget.

Table 1 presents the fourteen goals that were included in the PVE and the abbreviations of the goals that we use in the remainder of the paper. Through clicking on an information buttons, respondents could read additional information about what the government would do when they put more (or less) attention to a goal. Table 1 shows the texts that respondents could read when clicking on the information button about the actions the government could take when giving more attention to a goal. The full information that respondents could read when clicking on the information button is provided in the supplementary material.

The PVE consisted out of five parts. In Part 1, respondents saw a video which explained the purpose of the PVE. Part 2 started with an instruction video which explained the essence of the PVE choice task. The core of the choice task in the PVE is that respondents could indicate for 14 goals of the Ministry whether they thought a goal should receive less attention (through putting a slider to the left) or more attention (through putting a slider to the right). Fig. 1A shows an example of the start of the PVE choice task. The visual indicator in the top right of the screen shows the effort of the ministry. The budget constraint in this PVE was that participants received an 'effort budget' which allowed them to advice the ministry to give 'much more attention' to 25 % of the options. The main reason to provide participants with this budget is that a pretest showed that this enforced participants to make a trade-off. With a budget of 0 % some participants in the pilot were not motivated to make any choice and with a budget of 50 % the choice was deemed 'too easy'. The consequence of giving participants a budget of 25 % is that they saw that their advice costed too much effort when they advised to give 'much more attention' to four goals by switching the slider fully to the right. This also holds true when they advised to put 'more attention' to eight goals. Fig. 1B shows an example of a respondent who gave advice through switching some sliders. The order of the goals was randomized across respondents.

In Part 3, respondents were asked to provide an explanation for their choices in the PVE. In Part 4, respondents received follow-up questions for the goals for which they thought that the government should pay more attention to. In Part 5, respondents received questions about their socio-demographic characteristics.

An important criterion for avoiding hypothetical bias in a choice experiment is ensuring 'consequentiality' which means that respondents must feel that their choices might potentially have consequences in real life (e.g. Carson and Groves, 2007). We secured consequentiality by truthfully informing respondents that the results of the PVE would be shared with the minister and undersecretary.

2.3. Data collection

The participants for the representative panel were sampled from the online Dynata panel, with a view to be representative for the Dutch population. The data collection ran from May 15 to June 6, 2024. A total of 3,020 participants from the Dynata panel completed the PVE. The full list of questions can be found in the supplementary material. Apart from conducting the PVE with a representative panel the study was also opened up for the whole Dutch adult population. Citizens could participate between May 16 and June 30, 2024, and a total of 3,763 citizens participated in the open consultation.

Table 2 gives an overview of socio-demographic characteristics of the two samples. Because in the representative panel some strata were slightly under or overrepresented, the data were weighted in all analyses using post-stratification weights. Based on the characteristics of age (3 groups) and highest education level attained (3 groups), the participants could be divided into 9 different strata. The relative size of each of these strata was compared to that of the Dutch population in 2021 (Statistics Netherlands, 2022). The weight of each stratum was then calculated by dividing the proportion of the population by the proportion of the sample.

2.4. Statistical analysis

As stated above policy makers from the Ministry explicitly stated that they wanted to obtain information regarding preferences of different subgroups in the population as they were not only interested in the preferences of the 'average citizen'. Hence, we analysed the choices of the respondents using Latent Class Cluster Analyses (LCCA). LCCA is ideally suited to identify common patterns in the goals that were recommended by different groups (clusters) of people. The various goals were included as indicators of the latent classes. Based on maximum likelihood estimation, the model identifies clusters that are maximally homogeneous within the clusters (consisting of people who advised the Ministry to pay the same level of attention to the various goals) and maximally different between the clusters.

Table 1
Fourteen goals that were included in the pve, abbreviations, and government actions when respondents advice to pay more attention.

Original formulation of the goal in the PVE	Abbreviation	Explanation what it means when the slider is moved to the right
1) Ensuring that people can easily access important facilities (such as schools, a supermarket, the doctor, and a hospital) regardless of the means of transportation people own	People can easily access important facilities	If you move the slider to the right, then you recommend paying more attention to the accessibility of important facilities. This could mean that the Dutch government is committed to keeping and making important facilities accessible to everyone. For example, by investing in regional bus lines, (fast) bicycle paths, accessibility of important facilities by (shared) car or by expanding the railroad network so that more people can reach important facilities.
2) Ensuring that people can access different jobs that suit them, regardless of the means of transportation people own	People can access different jobs	If you move the slider to the right, then you recommend paying more attention to the accessibility of jobs. This could mean, for instance, that the Dutch government puts effort into increasing the accessibility of jobs by bicycle, (shared) car or public transport. For example, by additional (fast) cycle paths, or by investing in public transport or in making jobs more accessible by (shared) car. Or it means, for instance, good regulations for company cars and additional taxable benefit.
3) Ensuring that important products are available. For example, food in the supermarket, fuel, and medicine from abroad	Important products are available	If you move the slider to the right, you recommend paying more attention to the availability of key goods. This could mean the Dutch government encouraging more space on roads, rail, water, and air for transporting products such as food, fuel, and medicines, including from abroad. For example, by building extra (rail) roads or by reserving space for goods transport by air or water.
4) Ensuring that people with disabilities can access places they want to access	Accessibility for people with disabilities	If you move the slider to the right, you recommend paying more attention to making sure people with disabilities can reach places they want to reach. That could mean the Dutch government encouraging accessibility for people with disabilities, for instance by subsidising the adaptation of means of transport for people with disabilities. It could also invest in training staff to provide travel assistance.
5) Ensuring that it is affordable for people to access the places they want to access	People can access destinations affordably	If you move the slider to the right, then you recommend giving more attention to lower-income accessibility. This could mean, for instance, that the Dutch government stimulates transport affordability by providing subsidies to public transport companies to lower fares, or to support certain groups. It could also, for example, focus on encouraging alternative means of transport, such as cycling, walking, or carpooling, to lower the cost of travel.
6) Reduce differences in accessibility between areas	Reduce differences in accessibility between areas	If you move the slider to the right, then you recommend paying more attention to reducing differences in accessibility between areas. This could mean that the Dutch government stimulates reducing differences in accessibility between areas. For example, by encouraging more regional bus lines and express cycle paths that better connect less accessible areas. Or by building train stations and railways in regions that are currently less accessible. It could also mean investing the accessibility of places by (shared) car in areas where this accessibility is now poor.
7) Ensuring that people arrive at their destinations at the expected time	People arrive at their destinations at the expected time	If you move the slider to the right, then you recommend paying more attention to preventing delays. That could mean the Dutch government actively working to build tracks and roads so that more trains and cars can run, preventing delays. Or it could mean that the Dutch government encourages people to travel outside rush hours, so that there are fewer traffic jams during rush hours.
8) Improve connections with other countries	Improve connections with other countries	If you move the slider to the right, you recommend paying more attention to improving connections with foreign countries. This could mean, for instance, that the Dutch government encourages more flights, train trips, car trips or boats to go abroad. It could also mean, for example, making a train trip, car trip, plane trip or boat trip abroad faster.
9) Ensuring that people can travel more pleasantly and comfortably	More pleasant and comfortable travel	If you move the slider to the right, you recommend paying more attention to comfort for travellers. This could mean, for instance, that the Dutch government stimulates making travelling by public transport or car more comfortable, for instance by providing more or cleaner facilities such as toilets at (petrol) stations. Or it could mean improving social safety at

(*continued on next page*)

Table 1 (*continued*)

Original formulation of the goal in the PVE	Abbreviation	Explanation what it means when the slider is moved to the right
		petrol stations, train stations, footpaths, and cycle paths, for instance by having more NS employees on the platforms, or well-lit cycle paths.
10) Ensuring that travel times are reduced	Reduction of travel times	If you move the slider to the right, you recommend paying more attention to making travel times shorter. This could mean that the Dutch government stimulates the construction of more fast bicycle paths, more motorways or railway lines for high-speed trains. Or that the Dutch government encourages trains to stop less often between major stations so that train journeys are faster.
11) Ensuring that people have to travel less	People have to travel less	If you move the slider to the right, you recommend paying more attention to reducing travel movements. That could mean, for example, that the Dutch government actively works to encourage working from home or working close to home, so that fewer people have to travel to work. Or it could mean discouraging (long) trips, for instance by taxing flights extra.
12) Ensuring that people travel more sustainably	People travel more sustainably	If you move the slider to the right, it recommends paying more attention to making travel more sustainable. This could mean, for instance, that the Dutch government tries to ensure that the number of people travelling by sustainable means of transport such as public transport, cycling, electric cars or walking increases. This can be done, for example, by providing subsidies on electric cars, or increasing travel allowances for public transport.
13) Ensuring that transportation of goods in the Netherlands remains cheap, keeping prices of products low	Freight transport remains cheap	If you move the slider to the right, then you recommend paying more attention to keeping goods transport cheap, keeping prices low. This could mean making more room for transporting goods to ensure products can stay cheap.
14) Ensuring that traffic safety improves	Traffic safety improves	If you move the slider to the right, you are recommending that more attention should be paid to improving road safety. This could mean, for example, that the Dutch government stimulates the modification of roads to make them safer for cyclists, lowers speed limits or controls speeding more strictly. It could also mean that the Dutch government encourages cyclists to wear helmets more, or that people driving under the influence of alcohol are given an alcohol lock more quickly.

A benefit of LCCA is that covariates can be included in the model to assess their associations with class membership. Hence, the analysis can identify which segments of the population (e.g. in terms of age, financial status and mode use) are relatively frequently a member of a cluster. This makes it possible to determine which (combinations of) measures are relatively 'popular' among certain segments of respondents.

The goal of the LCCA is to find the most parsimonious model, i.e. the best fitting model which at the same time generates meaningful insights for policy makers. The Bayesian information criterion (BIC) is often used to select the best fitting model (Petersen et al, 2019; Qui and Malthouse, 2009). Based on the Bayesian information criterion (BIC) value, the optimal model consists of three clusters for the panel consultation (see Table 3A.Table 3B.). Because the difference in the BIC value between the three-cluster model and the four and five cluster model was small and the five cluster model provided additional policy relevant insights we decided to report the five cluster model for both the representative panel and the open consultation.

After establishing the number of latent classes, the covariates were added to the model. In this step only significant covariates were retained in the models, (at 5 % level of significance). To ease the interpretation of the model the logit coefficients have been transformed to probabilities (expressed as percentages) using the logit function (because the indicators are specified as nominal in the model). This probabilistic parametrization of the model is provided by the software used to estimate the models, by default (Latent Gold), see Vermunt & Magidson (2013, p.79).

3. Results

In section 3.1 we present descriptive statistics regarding how respondents prioritized the 14 goals of the Ministry. In section 3.2 we explore whether preferences differ among subgroups. In section 3.3 we present which solutions citizens preferred to achieve the goals that are prioritized by citizens and the goals that were prioritized differently by subgroups. In section 3.4 we discuss the key arguments mentioned by respondents to underpin their prioritization. For reasons of brevity, we do not provide a discussion of all arguments that were provided by respondents to underpin their prioritization for the 14 goals. Finally, in section 3.5 we report how respondents experienced expressing their preferences of the overall transport and mobility goals of the Ministry via a PVE and how policy makers evaluated deploying the PVE for this purpose.

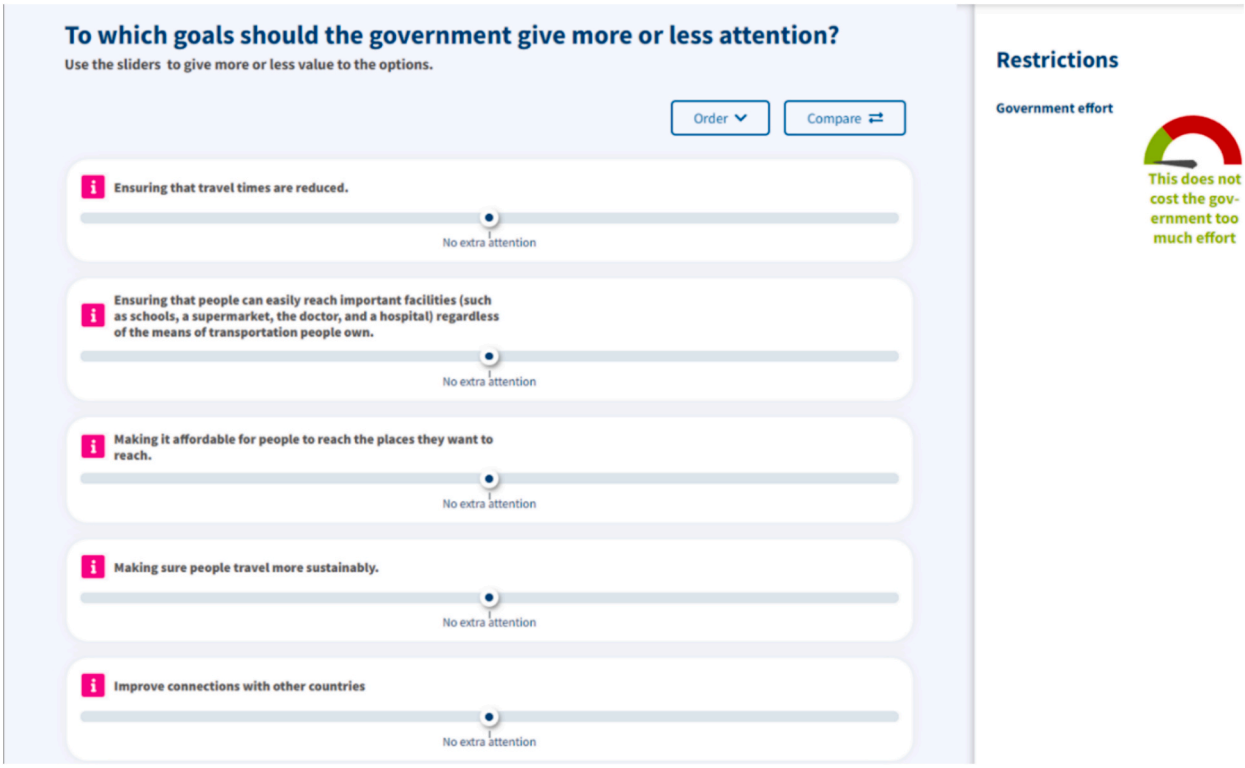

Fig. 1A. Example of the choice screen at the start of the choice task (the Figure shows only five goals, in the PVE 14 goals were shown).

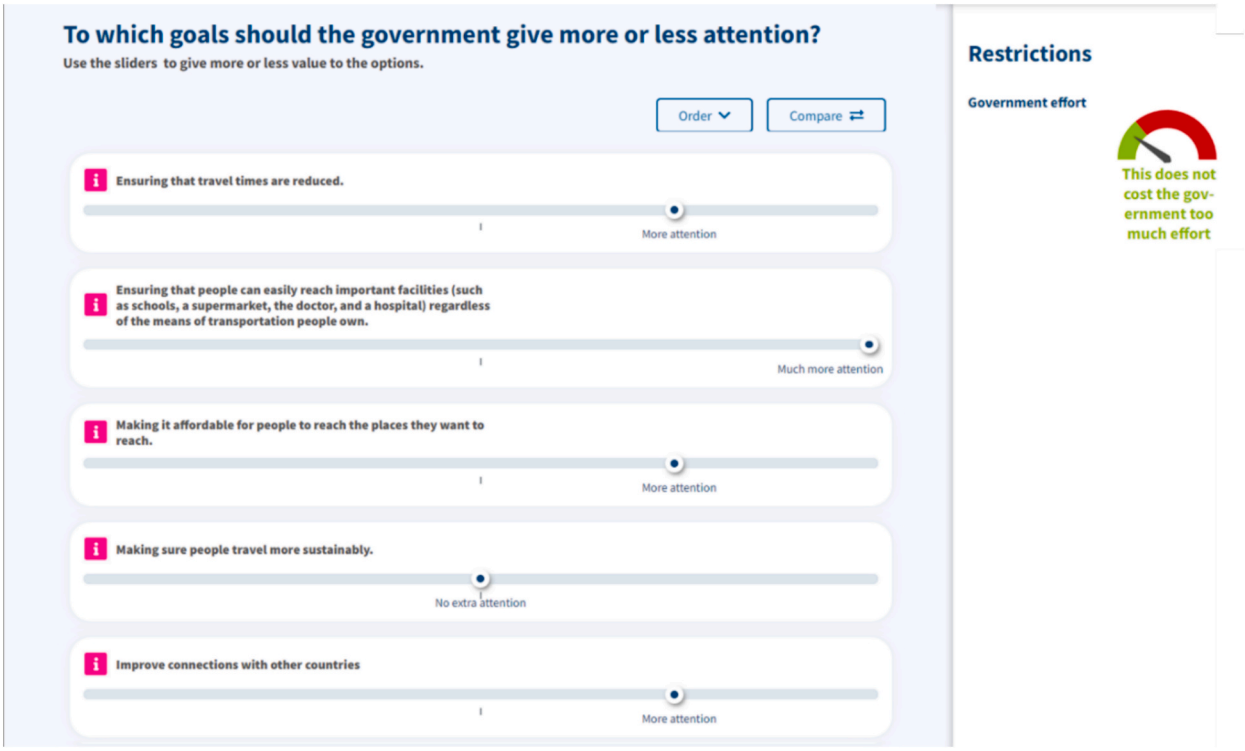

Fig. 1B. Example of the choice screen when a respondent advised to put more effort (the Figure shows only five goals, in the PVE 14 goals were shown).

Table 2
Socio-demographic characteristics of respondents.

	Panel consultation (3,020)	Open consultation (3,763)	Census	Chi-square test (two-sided)
Gender				
Male	47.6 %	68.0 %	49.5 %	Panel: 0.08
Female	51.8 %	32.0 %	50.5 %	
Age				
45 years or younger	39.0 %	32.7 %	44.2 %	Panel: 0.00
45–64 years	37.4 %	42.5 %	32.7 %	
65 years or older	23.6 %	24.7 %	23.1 %	
Education				
Low education	19.7 %	2.0 %	29.0 %	Panel: 0.00
Middle education	42.1 %	12.3 %	36.6 %	
High education	38.2 %	85.7 %	34.4 %	

Table 3A
Model fit results of LCCA models representative panel.

No. of classes	Npar	LL	BIC(LL)
3	270	−38089.85	**78273.22**
4	377	−37863.40	78649.98
5	484	−37595.33	78943.50
6	591	−37415.15	79412.78

Table 3B
Model fit results of LCCA models open consultation.

No. of classes	Npar	LL	BIC(LL)
4	260	−59518.49	**121172.67**
5	328	−59277.64	121249.53

3.1. Descriptive statistics

Firstly, Fig. 2 reports where the average respondent of the panel- and the open consultation placed the slider. The error bars show the 95 % confidence interval for the representative panel. We do not present a confidence interval for the open consultation because the aim of the open consultation was not to produce representative insights for the population.

Fig. 3 shows the percentage of the panel participants that gave much less attention, less attention, no extra attention, more attention and much more attention to the 14 goals.

Fig. 2 shows that the average panel consultation respondent recommends paying more attention to all 14 goals. At the same time, Fig. 3 shows that there are no goals that many participants believe require 'much more attention'. Fig. 2 shows that the average participant from the open consultation recommends giving more attention to all goals except one: cheap freight transport in the Netherlands, which gets less attention.

Goals that the average participant of the representative panel believe should receive relatively much extra attention are: 1) People can easily access important facilities; 2) People can access destinations affordably; 3) Accessibility for people with disabilities; 4) Important products are available. Particularly the first three goals are related to ensuring a basic level of accessibility. It can be concluded that the average Dutch citizen thinks that the government should pay substantially more attention to ensuring that all people can easily access important destinations (such as schools, a supermarket, the doctor, and a hospital) regardless the means of transportation they own, regardless their financial situation and regardless their disability. Participants in the open consultation, like panel participants, indicate that relatively much extra attention should be given to goals related to ensuring a basic level of accessibility.

Goals that according to the average respondent of the representative panel and the open consultation should only receive a little more attention are: 1) More pleasant and comfortable travel; 2) People arrive at their destinations at the expected time; 3) Reduction of travel times; 4) People can access different jobs.

Four goals receive relatively high attention from open consultation participants compared to panel participants: 1) People travel more sustainably; 2) Reduce differences in accessibility between areas; 3) People have to travel less; 4) Improve connections with other countries.

3.2. Results of latent class cluster analyses

Table 4 presents the results of the Latent Class Cluster Analysis (LCCA) of the representative panel. Table 4 shows for instance that respondents from Cluster 2 advice the government to pay substantially more attention to the goals 'People can easily access important

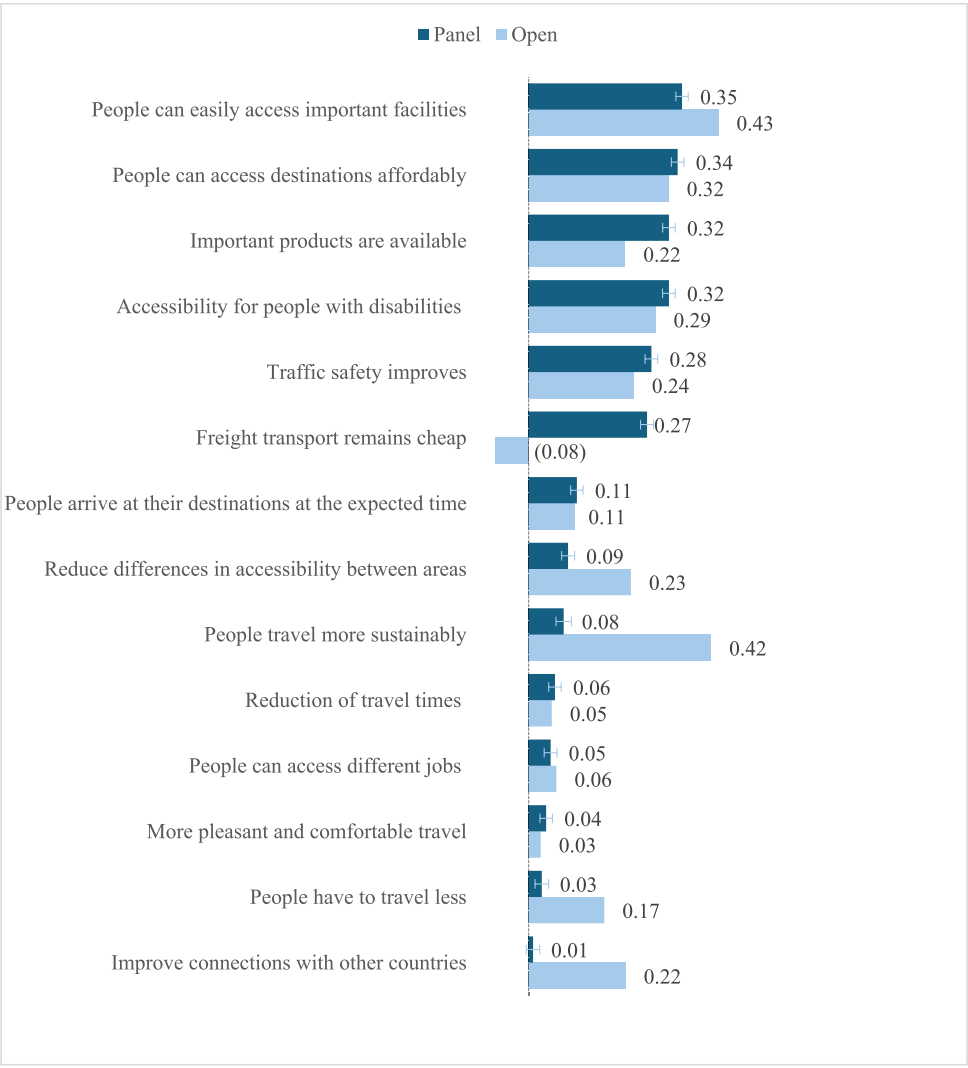

Fig. 2. Descriptive results; advice of the average participant.

facilities' (0.39), 'People can access destinations affordably' (0.46), 'Important products are available' (0.40), 'Freight transport remains cheap' (0.37), while they think that less attention should be paid to 'people travel more sustainably' (−0.15).

The preferences of Cluster 1 (52 % of the sample) are very similar to the preferences of the average participant. Members of Cluster 1 think that it is important that a number of aspects that relate to providing basic levels of accessibility are well taken care of for everyone. Important facilities should be easily accessible, and important products should be available. People with disabilities must be able to access places they want to access. And it must be affordable for people to access places they want to reach. It is notable that this large middle cluster puts more emphasis on giving more attention to transport sustainability than the average participant. Cluster 1 contains relatively many women and people older than 65 years. This cluster meets the national averages for education level. The financial position of people in this cluster is good, and most of them have one car. Relatively many have no car. People in this cluster most often drive by bicycle . Cluster 2 (19 % of the sample) is strongly committed to transportation affordability, accessibility of people with a disability, availability of goods and accessibility of important facilities. They also believe it is important to reduce travel times. They feel that government should put less focus on sustainability. Cluster 2 contains relatively many low educated people and people in this cluster most often travel by car . Cluster 3 (19 %) has no strong preferences about accessibility policies and thinks the government should give only a little more attention to all 14 goals. The financial position of these participants is relatively good. Relatively many Cluster 3 participants are male, and under 65 years old. This cluster meets the Dutch average for education level. Cluster 4 (8 %) has strong preferences. They place strong emphasis on affordability of transportation, availability of goods, accessibility of important destinations, accessibility for people with disabilities and traffic safety. In this regard, Cluster 4 is similar to Cluster 2. The main difference with Cluster 2 is that Cluster 4 gives various goals less attention. This cluster contains more women than men, more people between ages 45 and 64, and mostly low and middle educated people. Relatively many people in this cluster can make ends meet

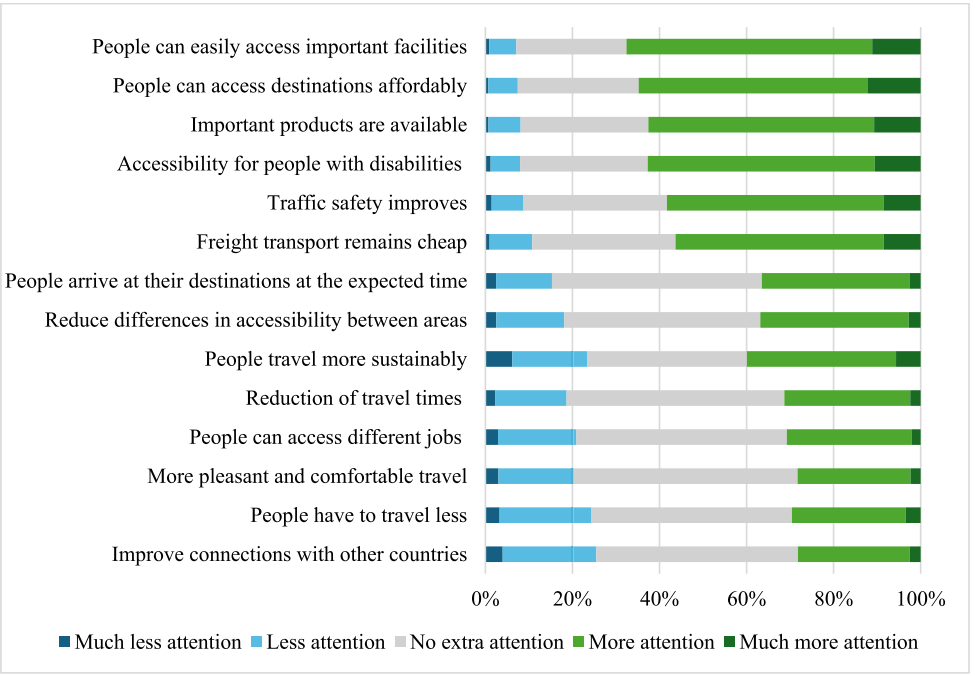

Fig. 3. Descriptive results; percentage panel participants that give certain advises.

exactly. Cluster 5 respondents (2 %) believe there should be less focus on all 14 goals that were part of this consultation. This cluster contains many males with a high education that have a financially good position.

Table 5 presents the results of the LCCA of the open consultation. Because not all questions regarding socio-demographic characteristics were mandatory, not all membership variables add up to 100%.

The preferences of participants from Cluster 1 (40 % of the participants) are very similar to the average participant from the representative panel. They think it is vital that important facilities should be easily accessible, and important products should be available. People with disabilities must be able to access places they want to access. And it must be affordable for people to be able to access places they want to access. Cluster 1 contains many people over 65. A relatively high proportion of participants use the car 4 times a week or more. They do not often experience accessibility problems. Participants from Cluster 2 (31 %) think it is important that people travel more sustainably. A sacrifice they are willing to make is that the prices of freight transport and thus prices of products become more expensive. They think it is important for the government to make a strong effort to improve connections to foreign countries. They think the government should put more effort into the accessibility of important facilities. Relatively many participants from Cluster 2 are highly educated and they do not often experience accessibility problems. Participants from Cluster 3 (12 %) believe that the government should pay much less attention to making transport more sustainable. Instead, according to them, more attention should be paid to ensuring that people arrive at the expected time, realizing shorter travel times, ensuring that prices of products remain low and that important facilities remain easily accessible. Relatively many participants are male and between the ages of 45 and 65. Relatively few participants are highly educated and relatively many participants live in rural areas. Almost all participants from Cluster 3 have a car and the vast majority have multiple cars. Participants from Cluster 3 experience accessibility problems relatively often. Participants from Cluster 4 (10 %) think that the government should pay much more attention to making transport more sustainable. They also think that much more attention should be paid to ensuring that people have to travel less. This cluster further believes that much attention should be paid to accessibility of facilities and accessibility of people with disabilities. Less attention should be given to ensuring that people arrive at the expected time, realizing shorter travel times, and ensuring that freight transport remains cheap. Relatively many participants from Cluster 4 are highly educated and between the ages of 45 and 65. They do not often experience accessibility problems. Relatively many do not own a car. Participants from Cluster 5 (8 %) think it is important that the government focuses on making transport more sustainable. One sacrifice they are willing to make is that the prices of freight transport become more expensive. They do not think the government should ensure that people have to travel less. Connections to foreign countries should be improved according to members of this cluster. Members of Cluster 5 think it is relatively important for people to be able to reach different jobs. They also place strong emphasis on accessibility for people with disabilities and affordability of transportation. Cluster 5 participants are relatively young, relatively often women and, compared to the other clusters, relatively often highly educated. Nearly 40 % of Cluster 5 members do not own a car and many live in cities.

Table 4
Results of the LCCA of the representative panel.

	Cluster 1 (52 %)	Cluster 2 (19 %)	Cluster 3 (19 %)	Cluster 4 (9 %)	Cluster 5 (2 %)
People can easily access important facilities	0.39	0.39	0.15	0.62	−0.40
People can access destinations affordably	0.35	0.46	0.15	0.57	−0.30
Important products are available	0.32	0.40	0.15	0.65	−0.30
Accessibility for people with disabilities	0.37	0.28	0.15	0.57	−0.34
Traffic safety improves	0.33	0.25	0.22	0.34	−0.25
Freight transport remains cheap	0.20	0.37	0.22	0.68	−0.29
People arrive at their destinations at the expected time	0.12	0.17	0.13	−0.10	−0.47
Reduce differences in accessibility between areas	0.16	0.07	0.06	−0.08	−0.50
People travel more sustainably	0.20	−0.15	0.14	−0.13	−0.27
Reduction of travel times	0.05	0.25	0.12	−0.23	−0.63
People can access different jobs	0.02	0.05	0.12	0.12	−0.45
More pleasant and comfortable travel	0.04	0.06	0.14	−0.11	−0.47
People have to travel less	0.06	0.03	0.08	−0.21	−0.18
Improve connections with other countries	0.04	−0.04	0.09	−0.11	−0.44
Gender					
Male	44 %	53 %	63 %	24 %	77 %
Female	55 %	47 %	37 %	76 %	23 %
Age					
44 years or younger	18 %	37 %	56 %	37 %	38 %
45–65 years	44 %	54 %	42 %	54 %	51 %
65 years or older	38 %	9 %	2 %	8 %	11 %
Education level					
Low education	26 %	46 %	28 %	39 %	25 %
Middle education	36 %	34 %	33 %	42 %	27 %
High education	37 %	20 %	38 %	19 %	48 %
Financial situation					
I am short of money	9 %	13 %	9 %	16 %	5 %
I make ends meet exactly	25 %	28 %	32 %	46 %	27 %
I have money left	66 %	59 %	60 %	38 %	68 %
Car ownership					
Multiple cars	15 %	36 %	20 %	19 %	19 %
One car	62 %	54 %	64 %	65 %	65 %
No car	23 %	10 %	16 %	16 %	16 %
Often used travel means (more than 4 times per week)					
Car	30 %	54 %	44 %	48 %	39 %
Bus, tram or metro	3 %	4 %	8 %	0 %	11 %
Train	3 %	9 %	8 %	5 %	13 %
Bicycle	44 %	31 %	31 %	34 %	30 %
Shared transport	0 %	1 %	2 %	0 %	3 %
Province where one lives					
Drenthe	2 %	8 %	2 %	4 %	5 %
Flevoland	3 %	4 %	6 %	6 %	3 %
Friesland	4 %	5 %	6 %	7 %	3 %
Gelderland	14 %	4 %	11 %	8 %	6 %
Groningen	4 %	4 %	6 %	4 %	9 %
Limburg	8 %	10 %	4 %	6 %	2 %
Noord-Brabant	13 %	9 %	15 %	18 %	17 %
Noord-Holland	17 %	11 %	17 %	11 %	19 %
Overijssel	7 %	6 %	5 %	7 %	16 %
Utrecht	7 %	5 %	12 %	8 %	6 %
Zeeland	3 %	3 %	2 %	3 %	5 %
Zuid-Holland	20 %	31 %	14 %	19 %	10 %

3.3. Results of ranking solutions

When respondents advised the government to pay more attention to the goal 'People can easily access important facilities' they were asked which facilities should be particularly accessible. Specifically, they were asked to rank eight facilities. Fig. 4 shows the percentage of participants who ranked a facility 1st through 8th. Fig. 4 shows that healthcare facilities such as hospitals and general practitioners are most often put in place 1 or 2 by participants. 64 % of participants put hospital or emergency room in place 1 or 2 and 69 % of participants put the general practitioner in place 1 or 2. Next, primary school (26 % put this in place 1 or 2) and the supermarket (22 % put this in place 1 or 2) are prioritized. High schools, higher education, sports venues and ATMs are put in place 1 or 2 by 3–10 % of participants.

When respondents advised the government to pay more attention to the goal 'accessibility for people with disabilities' they were asked which solutions should be prioritized. Fig. 5 shows that respondents prioritized solutions that make people with disabilities more mobile. 55 % of participants put subsidizing cabs for people with disabilities in place 1 or 2. 62 % of participants put call buses (demand-driven public transport) in place 1 or 2. Making modes more accessible to people with disabilities is prioritized less often. 49

Table 5
Results of the LCCA of the open consultation.

	Cluster 1 (40 %)	Cluster 2 (31 %)	Cluster 3 (12 %)	Cluster 4 (10 %)	Cluster 5 (8 %)
People can easily access important facilities	0.44	0.34	0.38	0.60	0.69
People can access destinations affordably	0.33	0.27	0.37	0.14	0.60
Important products are available	0.30	0.08	0.45	0.11	0.16
Accessibility for people with disabilities	0.34	0.23	0.03	0.46	0.47
Traffic safety improves	0.26	0.26	−0.02	0.50	0.14
Freight transport remains cheap	0.08	−0.20	0.33	−0.56	−0.44
People arrive at their destinations at the expected time	0.11	0.11	0.43	−0.20	−0.02
Reduce differences in accessibility between areas	0.25	0.19	0.21	0.19	0.45
People travel more sustainably	0.24	0.72	−0.40	0.88	0.77
Reduction of travel times	0.04	0.12	0.40	−0.39	−0.1
People can access different jobs	0.06	0.02	0.04	0.04	0.31
More pleasant and comfortable travel	0.01	0.07	0.09	−0.02	−0.14
People have to travel less	0.11	0.30	−0.12	0.67	−0.14
Improve connections with other countries	0.09	0.39	0.24	0.10	0.36
Gender					
Male	47 %	57 %	77 %	60 %	47 %
Female	29 %	25 %	7 %	24 %	29 %
Age					
44 years or younger	14 %	32 %	27 %	24 %	61 %
45–65 years	33 %	34 %	45 %	49 %	21 %
65 years or older	30 %	18 %	14 %	12 %	6 %
Education level					
Low education	3 %	0 %	2 %	1 %	0 %
Middle education	14 %	6 %	15 %	5 %	5 %
High education	59 %	78 %	68 %	79 %	82 %
Problems with accessibility					
Sometimes (a few times per year)	49 %	49 %	30 %	62 %	45 %
Regularly (a few times per month)	21 %	26 %	34 %	21 %	32 %
Often (a few times per week)	4 %	6 %	17 %	3 %	10 %
Very often (every day)	1 %	1 %	7 %	0 %	0 %
Car ownership					
Multiple cars	23 %	15 %	47 %	15 %	13 %
One car	45 %	50 %	36 %	49 %	40 %
No car	8 %	20 %	4 %	23 %	36 %
How often one travels by car					
(Almost) never	7 %	13 %	3 %	17 %	23 %
1 to 11 days per year	2 %	7 %	2 %	7 %	12 %
1 to 3 days per month	7 %	19 %	4 %	24 %	17 %
1 to 3 days per week	30 %	34 %	22 %	29 %	21 %
4 times per week or more	31 %	11 %	56 %	11 %	15 %
How often one travels by shared transport					
(Almost) never	70 %	66 %	80 %	62 %	67 %
1 to 11 days per year	3 %	11 %	2 %	14 %	13 %
1 to 3 days per month	1 %	4 %	2 %	8 %	7 %
1 to 3 days per week	1 %	2 %	1 %	2 %	2 %
4 times per week or more	0 %	0 %	0 %	0 %	0 %
Province where one lives					
Drenthe	1 %	1 %	2 %	1 %	2 %
Flevoland	6 %	2 %	6 %	2 %	2 %
Friesland	3 %	2 %	2 %	3 %	4 %
Gelderland	6 %	9 %	11 %	12 %	17 %
Groningen	2 %	3 %	3 %	3 %	3 %
Limburg	4 %	3 %	4 %	2 %	3 %
Noord-Brabant	5 %	8 %	10 %	9 %	8 %
Noord-Holland	12 %	20 %	15 %	16 %	14 %
Overijssel	5 %	4 %	3 %	5 %	2 %
Utrecht	7 %	10 %	9 %	13 %	8 %
Zeeland	3 %	1 %	1 %	0 %	1 %
Zuid-Holland	24 %	21 %	20 %	21 %	25 %

% of participants put making bus stops and stations more accessible in place 1 or 2, 22 % of participants put making information more understandable in place 1 or 2 and 12 % of participants put making bicycle parking facilities more accessible on place 1 or 2.

When respondents advised the government to pay more attention to sustainable transport, they were also asked which solutions should be prioritized. Fig. 6 shows that participants mainly think that it is important to take measures that make public transport attractive as an alternative to the car. For example, making public transport cheaper (70 %) and increasing the quality of public transport (57 %) are put in 1st or 2nd place by many participants. Making car use more sustainable through car sharing (27 %) or subsidizing electric driving (23 %) is also put in place 1 or 2 of their rankings by a substantial number of participants.

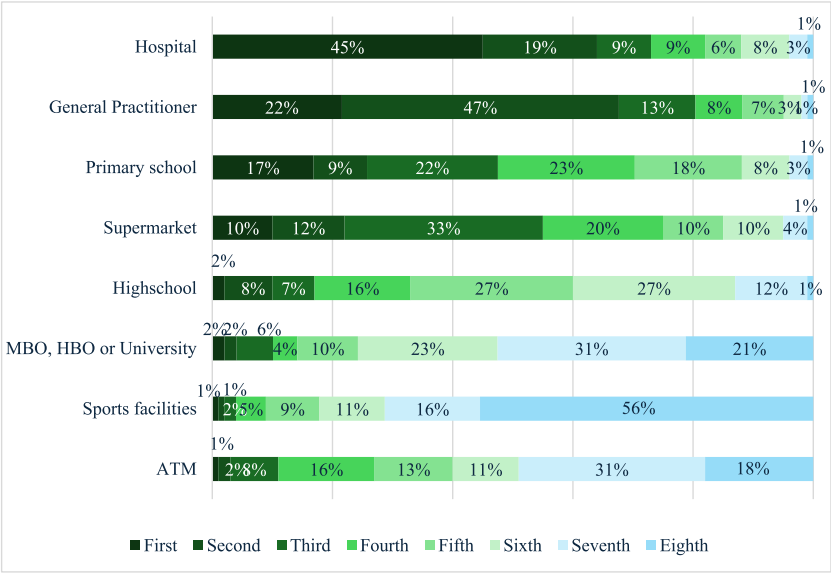

Fig. 4. Answers to the question: for which facilities should the government ensure that they are accessible for people? Please rank the following facilities from 1 to 8.

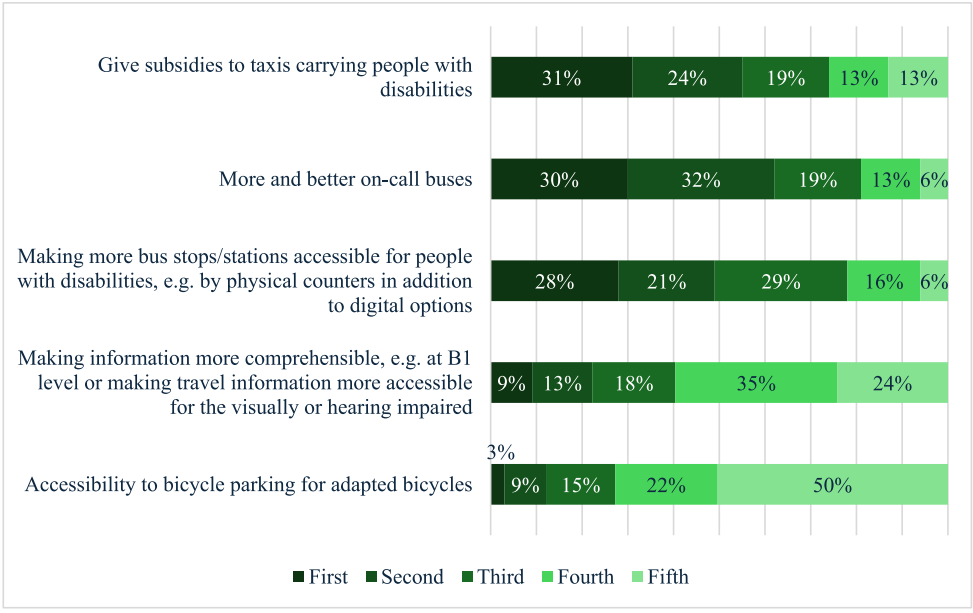

Fig. 5. Answers to the question: which measures should the government take to improve accessibility for people with disabilities? Please rank the following measures from 1 to 5.

3.4. Motivations providing explanation for the quantitative results

After providing an advice, respondents were asked to explain their choices. We randomly selected 4,200 written motivations (300 per goal) and analysed them to better understand the prioritizations of respondents. An insight derived from the first round of analysis concerned that for the goals that were prioritized by respondents ('people can easily access important facilities', 'people can access destinations affordably', 'accessibility for people with disabilities', 'important products are available') the most mentioned argument by respondents is that they are of the view that these goals relate to 'basic needs' of people. A share of these respondents then argues that it is a core task of the government to provide such 'basic needs' to all people. In contrast, some respondents mention for the goals they do not prioritize that citizens themselves or companies are responsible for the realization instead of the government. In the second round of analysis, we counted how many of the 300 written arguments which we analysed for each goal can be attributed to these

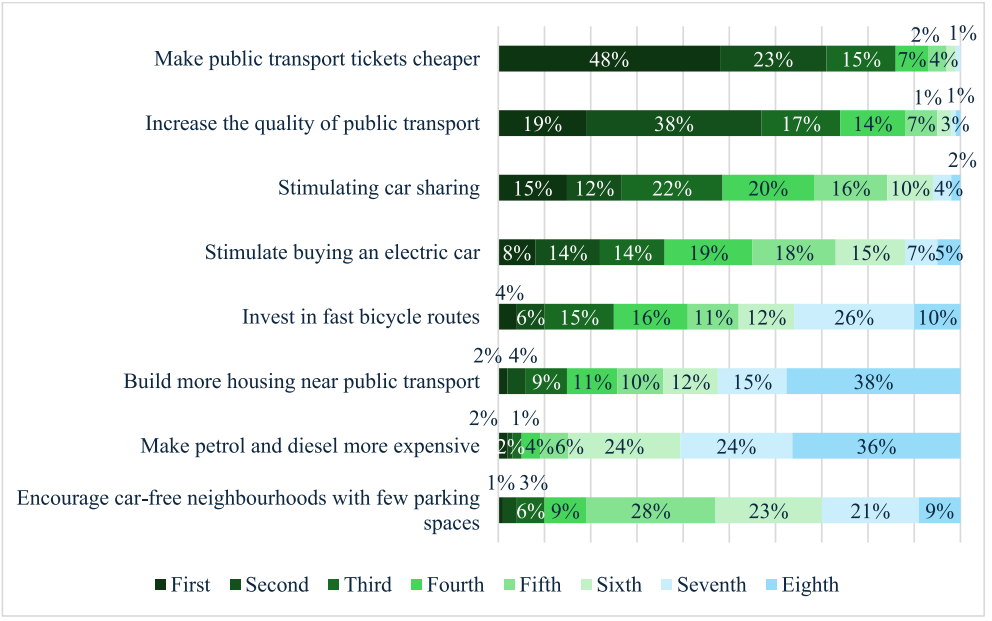

Fig. 6. Answers to the question: Which measures should the government take to ensure that the sustainability of transport improves? Please rank the following measures from 1 to 8.

categories. Table 6 shows the results and provides some illustrative quotes of respondents. For instance, Table 6 shows that 29 (10 %) of the motivations respondents wrote to underpin their advice regarding the goal 'people can easily access important facilities' can be attributed to the category 'this is a basic need'. For the four goals that are prioritized relatively many respondents consider them as 'basic needs'. In addition the number of respondents who mention that it is a government task is higher than the number of respondents who say that it is not a government task. Examples of goals that are not prioritized because they are not seen as a core task of the government by many respondents are 'people can access different jobs', 'people arrive at their destinations at the expected time' and 'reduction of travel times'.

For almost all goals, there is a group of participants who say they give less attention because they are satisfied with the current situation and for a majority of the goals there is a group of participants who motivate giving less attention with the argument that society has to be satisfied with less.

The motivations of participants also shed light on the popularity of investments in public transport displayed in Fig. 5. Participants see solutions which make the quality of public transport better or make it cheaper as a good investment for sustainability that can also benefit people with disabilities, enable people without cars to reach important facilities and improve affordability – if you make public transport cheaper. Hence, people's positive attitude towards investments in public transport can be explained by the fact that people also think that such investments can positively affect three important goals related to basic accessibility.

3.5. Experiences with the PVE of respondents and policy makers

Apart from providing empirical insights in how Dutch citizens prioritize fourteen goals of the Dutch Ministry of Transport a methodological aim of this study was to explore how citizens and policy makers experience PVE when it is applied for involving citizens in prioritizing goals of the government instead of prioritizing concrete policies. To assess how respondents experienced the PVE, we asked them to rate seven statements (see Fig. 7) and give a grade to the PVE. Members of the representative panel and participants in the open consultation gave on average a 7.6 and a 7.4 to the PVE respectively. 92 % of the participants thought that the PVE was about an important subject to give their opinion on and 84 % found the research trustworthy. Only 4 % found the consultation difficult to understand and 81 % (strongly) agreed that PVE should be used more often by the Dutch government. 46 % agreed that they learned about the choices that the government had to make about the subject, 52 % (strongly) agreed that their acceptance of the final decisions would increase if the government involved many citizens via a PVE, and 55 % said that their trust in government would increase when the government would conduct consultations like this more often.

The general evaluations of respondents are comparable to evaluations of respondents participating in a PVE for a concrete transport project such as the PVE for a new highspeed rail called 'the Lelylijn' (Mouter et al., 2023). Respondents participating in the PVE for the Lelylijn rated the PVE with a 7.6 (representative panel) and a 7.2 (open consultation). In this case 82 % (strongly) agreed that PVE should be used more often by the Dutch government. However, in the case of the Lelylijn 68 % (strongly) agreed that their acceptance of the final decisions would increase if the government involved many citizens via a PVE, and 70 % said that their trust in government would increase when the government would conduct consultations like this more often. This indicates that acceptance and trust are

Table 6
How many of the 300 written arguments analysed for each goal can be attributed to 'basic needs', 'government responsibility' and 'no government responsibility'?i, abbreviations, and government actions when respondents advice to pay more attention.

Goal in the PVE	Number of respondents that mention "this is a basic need"	Number of respondents that mention: "This is a government responsibility"	Number of respondents that mention: "This is not a government responsibility, but a responsibility of people/ companies"	Illustrative quotes
1) People can easily access important facilities	28	3	2	"This should be a human right" "The only real social question here that we really have to work on as a society." "There is a task for the government here."
2) People can access destinations affordably	9	4	2	"Then people will make more use of it and no one will be left out. This is public task." "This should be a fundamental right." "Affordable transport for everyone I think is super important, a basic need in a modern society."
3) Important products are available	29	4	2	"Food and medicine are among the basic necessities of life." "Health is a government task so they should regulate that well." "In my opinion, it is a government's job to ensure that basic necessities remain available. And affordable."
4) Accessibility for people with disabilities	20	2	1	"Very important, basic right" "There is a task for the government here, together with the transport companies." "It should not matter where you live what you earn or how mobile you are, you should be able to reach important places"
5) Traffic safety improves	3	8	11	"This is a government task that does need some extra attention." "People themselves have a responsibility to think and act about their safety, we are not little children who need to be taken by the hand." "No, in NL so much is already regulated that people can no longer look out for themselves. I am a great advocate of self-determination in this."
6) Freight transport remains cheap	3	0	11	"Freight transport is the lifeline for the economy" "The government does not necessarily need to invest in good freight transport companies can do that themselves" "This is commercial. The government should stay out of this."
7) People arrive at their destinations at the expected time	0	0	30	"This is not a task of the government. People themselves can make sure they arrive on time. If they cannot, then they should also find their own solutions to their inability to arrive on time." "This is a responsibility of people themselves. Travel more together, leave even earlier, agree more flexible working hours with the employer. Think there is plenty to come up with." "A little delay is not that much of a problem. People should just factor this in. people should factor in a little delay should be factored in from now on and is not a bad thing at all." "A matter of leaving on time, there is no government task here."
8) Reduce differences in	0	2	0	"Task for government. Good public transport for rural areas."

(*continued on next page*)

Table 6 (*continued*)

Goal in the PVE	Number of respondents that mention "this is a basic need"	Number of respondents that mention: "This is a government responsibility"	Number of respondents that mention: "This is not a government responsibility, but a responsibility of people/ companies"	Illustrative quotes
accessibility between areas				"There is a task for the government here, together with the transport companies."
9) People travel more sustainably	5	3	11	"The environment demands attention, our future on earth." "This is where the government will have to take a big chunk of responsibility, because then you will also have trains, planes, etc. participating in this." "That is not a government task. Leave the consideration of how one wants to travel to the people themselves!!!!"
10) Reduction of travel times	0	0	26	"Not a government job." "It's up to people themselves to look for work or whatever closer to home, not the government." "It's your own choice to live, work, recreate somewhere and what time you leave to be somewhere on time."
11) People can access different jobs	4	0	50	"There are jobs enough. People can work closer to home if they want. If they want something else then that is their own choice and the government does not have to take extra care of it." "That is up to people themselves. If you can't reach a job, you shouldn't apply for it." "In my opinion, it is not the government's job to provide perfect public transport in all remote places as well. If an employer chooses a hard-to-reach location then it is up to him to arrange transport" "No, people should accept jobs that are in their residential area and not travel hours for this. This costs society too much. Learn to be more satisfied with less."
12) More pleasant and comfortable travel	0	0	15	"People have to manage that themselves." "There is enough attention to this, and people also have their own responsibility in this." "Is more task of national railways and bus companies."
13) People have to travel less	0	1	27	"People are responsible for the choices they make" "We live in a free country, people should be free to travel" "People should feel free to travel if they want to. It's not a government's job to restrict people in that."
14) Improve connections with other countries	0	0	3	"If someone wants to go abroad, that is their own choice." "No task for government"

more influenced by conducting PVEs for concrete transport projects than for involving people via a PVE in the prioritization of policy goals.

To assess how policy makers evaluated the PVE we interviewed the two policy makers that were in charge of developing the national vision towards mobility and accessibility. The policy makers argued that the PVE provided insights about citizens' preferences that bureaucrats did not know for a long time and would not have had without conducting the PVE. According to the policy makers the results of the PVE provided firm ground under their feet to focus the policies of the Ministry on guaranteeing basic levels of accessibility for everyone to ensure that destinations of vital importance are accessible. And to particularly focus on providing basic levels of accessibility to health care facilities and education facilities. The interviewed policy makers experience that bringing in knowledge

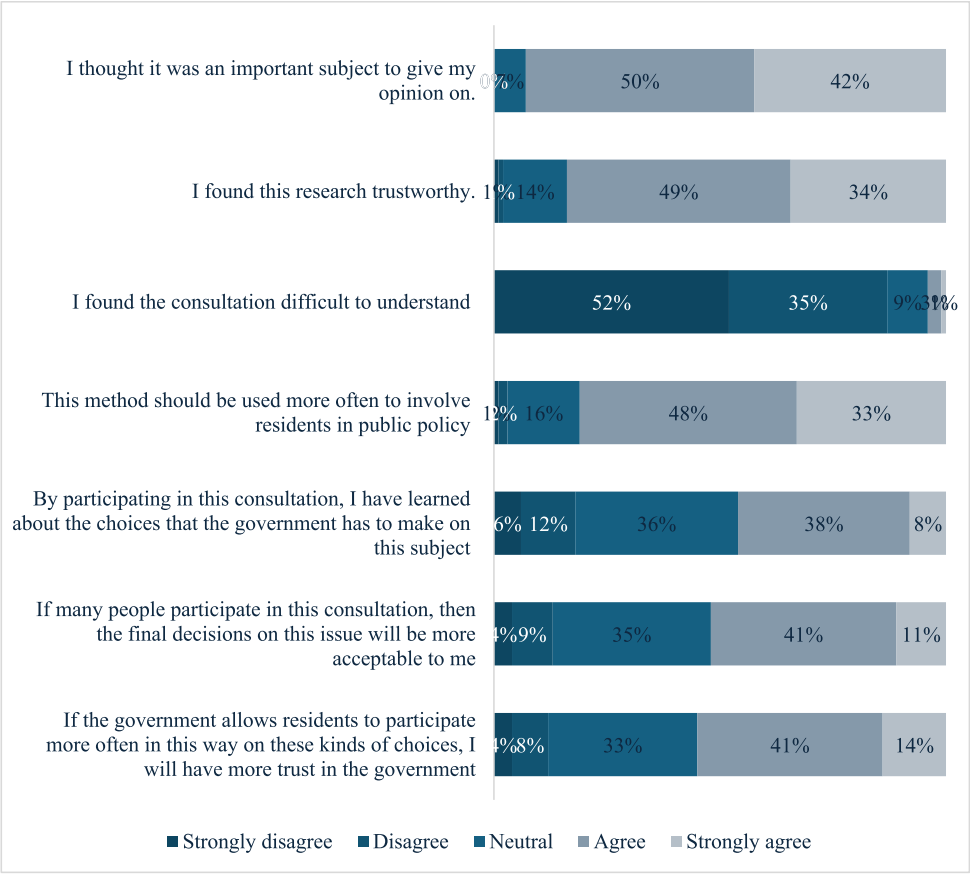

Fig. 7. Answers to seven statements about respondents' experiences of the PVE.

about what citizens prioritize and do not prioritize increases the focus in discussions about priorities with other policy makers from the Ministry of Transport, policy makers from other ministries and elected officials. According to the two policy makers the lack of such knowledge results in discussions in which everything is regarded as important which does not help with making clear choices.

Regarding the design processes of the PVE policy makers experienced that they struggled in the beginning with defining the right level of abstraction of the goals that should be part of the PVE. This struggle made them a bit nervous, but their trust gained during the design sessions in which they saw that together with their colleagues and other stakeholders they were able to reach consensus about the selection of goals to be included in the PVE. The most important success factor of the PVE according to the interviewed policy makers was the combination of methodological rigor with the aim to produce relevant insights for high level civil servants, the Minister and the Undersecretary. They experienced that these two elements were essential for ensuring that the outcomes of the PVE had impact on the vision of the Dutch government towards transport policies called 'accessibility up to standard' (Ministry of Transport and Water Management, 2025). In developing this vision the policy makers predominantly looked at the results from the representative panel as the experienced that this was the most valid information about citizens' priorities. However, they also valued the open consultation as this provided them with insights into 'mobilisation potential' of groups which could argue against or in favour of certain policies. Moreover, the policy makers valued that the open consultation allowed all citizens to express their preferences. Finally, the open consultation also triangulated that citizens prioritize goals that relate to basic level of accessibility for everyone. The policy makers asserted that when they developed 'accessibility up to standard' they primarily looked at the advices of the average respondent. However, in their statement they also highlighted the results of the LCCA as this gave them information about differences in preferences between subgroups. The policy makers found it particularly interesting that there was relatively strong consensus between the different subsegments about the priority that should be given to goals that relate to basic levels of accessibility for everyone. Secondly, they find it interesting that 'education' and 'financial situation' played an important role in preferences for particularly the goals that related to sustainability. Finally, they found it interesting that whether respondents live in a city or at the countryside did not play a role in the LCCA as this was not in line with their expectations and refuted a myth that there is a big divergences of preferences between people who live in cities and at the countryside.

4. Conclusions and discussion

In this Participatory Value Evaluation (PVE) respondents indicated for 14 goals of the Dutch Ministry of Transport and Water Management whether they thought a goal should receive more attention or less attention, subject to a budget constraint. Respondents were also asked to underpin their choices.

4.1. Main findings

The first finding is that the average respondent from the representative panel recommends the government to pay the most extra attention to goals that have to do with a basic level of accessibility for everyone such as 'being able to access important facilities easily', 'being able to reach places affordably' and 'accessibility for people with disabilities'. From the arguments given by participants for their choices, it appears that many participants consider a basic level of accessibility to be a basic need for people and they think that safeguarding this is a core government task. When participants were asked which facilities should be especially accessible, they particularly mentioned healthcare facilities such as hospitals and general practitioners. This finding aligns with the standpoint of Musgrave (1959) that the government should provide so-called 'merit goods'. These are goods for which it is beneficial that everyone in society has a minimum level of access, but which are under-consumed and under-produced if they are provided by the market because consumers do not sufficiently take into account long term benefits and positive externalities. Jacobsson et al. (2007) mention health care as an important example of a merit good.

Compared to the goals that relate to basic levels of accessibility participants think that the government should give relatively little attention to other goals such as 'reduction of travel times', 'being able to access different jobs', 'more pleasant and comfortable travel' and 'improving connections to other countries'. Many participants see such goals less as a core task of the government. According to these participants, the responsibility for achieving these goals lies more with citizens themselves, or with the market. To be clear, it is not necessarily true that Dutch people think that these goals are unimportant, but in the PVE participants had to set priorities, and these goals were given less priority by the average participant as they were not seen as a basic need which should be provided by the government.

Another finding of the PVE is that participants from the representative panel consultation and the open consultation prioritize most goals in the same way. An important exception are the two goals related to sustainability: 'people travel more sustainably' and 'ensuring that people have to travel less' that received higher priority in the open consultation and the goal 'ensuring that transportation of goods in the Netherlands remains cheap, keeping prices of products low' that received relatively low priority in the open consultation. In the representative panel, we see clusters of respondents with many highly educated citizens with a good financial situation who think that the goals related to sustainable transport are relatively important (Clusters 1 and 3 in Table 4), whereas we see that the sustainable transport goals are relatively unimportant in the clusters with little highly educated citizens and relatively many people who are short of money (Clusters 2 and 4). In turn, these clusters advice the government to pay much more attention to the goal: 'ensuring that transportation of goods in the Netherlands remains cheap, keeping prices of products low.' Highly educated citizens are overrepresented in the open consultation which explains that according to the average respondent in the open consultation the sustainability goals should receive more attention and the goal 'ensuring that transportation of goods in the Netherlands remains cheap, keeping prices of products low' should receive less attention. Also in the cluster analysis of the open consultation we see that the clusters with relatively many high educated citizens (Clusters 2, 4 and 5, Table 5) prioritize making transport more sustainable and 'ensuring that transportation of goods in the Netherlands remains cheap, keeping prices of products low' is deprioritized. Other studies in the literature also find that individuals with higher levels of education tend to be more environmentally aware and place a greater emphasis on sustainability (e.g. Poortinga et al., 2019). The literature suggests that individuals who have satisfied their basic material needs may shift their attention to more postmaterialist ones, such as environmental protection (Fransson and Garling, 1999; Knight, 2016). In sum, based on this study three categories of goals can be established that to a certain extent align with Maslow's (1943) hierarchy of needs theory. First, goals that relate to providing basic levels of accessibility are prioritized by all segments of participants (e.g. 'being able to access important facilities easily', 'being able to reach places affordably' and 'accessibility for people with disabilities' and 'ensure that important products are available'). Second, sustainability goals are particularly prioritized by high educated citizens that are financially well-off. This category of participants is willing to deprioritize the goal 'ensuring that transportation of goods in the Netherlands remains cheap, keeping prices of products low'. Third, goals that relate to 'hedonistic needs' are not prioritized by any of the clusters (e.g. 'ensuring that people can travel more pleasantly and comfortably' and 'ensuring that people can access different jobs that suit them'). Interestingly, the goal 'ensuring that people can access different jobs that suit them' is not prioritized by any of the segments in the cluster analyses of both the representative panel and the open consultation. Perhaps, this is caused by the fact that this goal is framed towards having access to *different* suitable jobs. Further research may investigate whether participants would give substantially more priority to this goal when it is framed towards having access to one particular job (e.g. 'being able to access a suitable job').

Another finding of this study is that participants clearly prioritized investments in improving the quality of public transport or making it cheaper when they were asked about which policies should be implemented to foster sustainable transport. Respondents do not only argue that they think that this is a good investment to make the transport system more sustainable, but in addition, they argued that such investments in public transport might also benefit people with disabilities, improving access to important facilities for people who do not own a car and improve affordability of transport – if the government makes public transport cheaper. Hence, people's positive attitude towards investments in public transport can be explained by the fact that people also think that such investments can positively affect three important goals related to basic accessibility. This finding might be one of the explanations for

why spending on public transit is particularly popular with voters (Brown et al., 2021; Manville and Cummins, 2015).

With regard to the methodological aim of this paper we can conclude that participants positively evaluated a PVE in which they prioritized goals of the government. Participants of the representative panel and participants in the open consultation gave on average a 7.6 and a 7.4 to the PVE respectively and 81 % of the participants (strongly) agreed that PVE should be used more often by the Dutch government. These evaluations are comparable to evaluations of respondents participating in a PVE for concrete transport projects. Policy makers also positively evaluated the PVE arguing that new insights were provided about which goals were (not) prioritized by citizens. These insights offered them ground under their feet to target the policies of the Ministry towards guaranteeing basic levels of accessibility for everyone to ensure that destinations of vital importance are accessible. Policy makers emphasized that important conditions for a successful PVE concerned a combination of methodological rigor and producing relevant insights for high level civil servants, the Minister and the Undersecretary.

4.2. Limitations

An important limitation of our study is that it is not sure how the results are affected by the way that the fourteen goals are formulated in the PVE. As discussed in section 2 we decided together with policy makers that all goals should have the same level of abstraction and should not already focus on a specific solution. Also, we aimed to formulate the goals as consistent as possible. Hence, we operationalized the goals through formulations such as 'ensuring that people can easily access important facilities (such as schools, a supermarket, the doctor, and a hospital) regardless of the means of transportation people own' and 'ensuring that people arrive at their destinations at the expected time' and 'ensuring that people can travel more pleasantly and comfortably'. For instance, it would be interesting to investigate whether the two goals in which the word 'important' is used will receive lower priority when this word is not used in the formulation of the goals: 'ensuring that people can easily access important facilities (such as schools, a supermarket, the doctor, and a hospital) regardless of the means of transportation people own' and 'ensuring that important products are available. For example, food in the supermarket, fuel, and medicine from abroad.' Moreover, in further research projects it would be interesting to investigate the extent to which priorities change when alternative operationalizations are used. For instance, it would be useful to investigate operationalizations such as proposed in Hananel & Berechman, (2016): 'maximum allowable travel time to various desired destinations for all residents in an area', 'maximum allowable travel distances to desired destinations, within a specified time frame, for all residents in area', 'maximum allowable travel expenses (including fares), in units of affordability (i.e., percent of disposable income), for all residents in an area'. Moreover, we did not make explicit in the operationalization of the accessibility goals whether the government aimed to improve perceived accessibility or calculated accessibility (Pot et al., 2021). It would be interesting to investigate in further research whether improvements on one of the two types of accessibility indicators affect preferences.

A second limitation is that it is not clear to which extent the results of this study can be generalized to other countries and to other points in time. For instance, the result that citizens do not prioritize reducing travel times might be caused by the fact that the Netherlands is a small country in which travel times are already quite short and additional time gains through infrastructure investments are marginal. And the fact that citizens prioritize 'people can access destinations affordably' might be the result of high inflation rates in the period of time in which the PVE was conducted. The generalizability of the results of this PVE to other contexts might be an interesting topic for further research. In such a research project we recommend to complement the online survey that was used in this study with offline interviews. This will make the study more inclusive for highly excluded citizens that do not tend to complete surveys.

Another limitation of our study concerns that only conclusions can be drawn on the extent to which (different segments of) citizens think that the Dutch Ministry of Transport should weigh different goals against each other. Because participants received a budget to spend on the 14 goals in the PVE, it cannot be claimed that participants think that additional taxes should be collected to pursue (a set of) transport goals. Such claims can only be made when a 'flexible budget PVE' would be conducted in which respondents have the opportunity to increase (or decrease) the public budget by recommending the government to levy a collective tax increase (reduction). Mouter et al. (2021) show that in this set-up the PVE is aligned with the Kaldor-Hicks efficiency framework. Moreover, our results cannot be used to evaluate (the estimated impacts of) specific transport policies and projects. Hence, we think that further research may investigate how citizens trade-off impacts such as 'improving access to important facilities easily', 'increasing affordability of transport for people who experience transport poverty' and 'improving accessibility for people with disabilities' against other impact of transport policies in the context of specific decisions on transport projects and policies. This would increase the applicability of the approach adopted in this paper.

4.3. Policy implications

The PVE informed the Dutch Ministry of Transport about how citizens' prioritize 14 accessibility and mobility goals. Based on the outcomes of the PVE the Dutch government wrote a statement called 'accessibility up to standard' in which they pledged that government policies should focus on guaranteeing basic levels of accessibility (Ministry of Transport and Water Management, 2025). The PVE helped the government to choose between three variants of accessibility goals and tailor their policies towards ensuring that destinations of vital importance are accessible for all, e.g. within a certain time, within a certain distance and at reasonable costs (Ministry of Transport and Water Management, 2025). In addition to the PVE, the Dutch government commissioned other studies to investigate perceived minimum accessibility levels for a range of destinations and to establish for the whole country whether communities had insufficient access to basic destinations such as a hospital, a general practitioner and schools (e.g. Hamersma and Roeleven, 2024). The set-up of these studies resembled the surveys discussed in the introduction that were conducted to measure how

capabilities are distributed across segments of the population (e.g. Azmoodeh, et al., 2023; Hickman et al., 2017). Civil servants also recognized that for informing accessibility policies it is important to combine a PVE with a survey which establishes where citizens have insufficient accessibility. The PVE showed that citizens prioritize guaranteeing basic levels of accessibility to certain destinations thereby providing legitimation to focus policies on guaranteeing basic levels of accessibility instead of predominantly allocating resources towards other goals such as reducing congestion and realizing travel time savings for commute trips. Subsequently, the survey provided insight in the communities that currently do not have basic levels of accessibility on which future policies should focus.

As said, this study has various limitations which can be alleviated in further research projects. But even when these limitations are alleviated still a remaining normative question concerns the extent to which policy makers should weigh the outcomes of a PVE in their strategic decisions. One argument against using the outcomes of a PVE is that it is a stated preference technique which suffers from all sorts of biases. For instance, the framing of the options can influence participants' choices and participants might be prone to express 'warmglow' instead of their actual preferences (Hausman, 2012). One consequence might be that the government invests in providing certain levels of accessibility that are not being used by citizens (Hickman et al., 2017). Following this line of reasoning, it is better to base policies on revealed preferences such as actual (travel) behaviour and choices that people make in the real estate market. This approach is currently adopted in appraisal methods such as the Cost-Benefit Analysis (CBA).

On the other hand, a limitation of basing policies merely on revealed preferences is that preferences towards public policies that cannot be captured by private behaviour are excluded from the appraisal process. A PVE instead allows citizens to express preferences and priorities beyond their consumer behaviour such as the right to accessibility for disabled people, preferences towards an equitable distribution of transportation and reduction in social exclusion. Hickman et al. (2017) notes that individuals' well-being is not only determined by the mobility that is consumed, but also to the options available or what people can do and be.

That 'revealed behaviour based appraisal' and a PVE can result in different policy choices can be illustrated with the following example of a society in which there are two groups of citizens. Group A can easily access destinations such as a hospital, a general practitioner and schools. This group is not willing to pay for better access to these destinations. However, they do have a willingness to pay for reducing their commuting time. Group B consists of people who have poor access to destinations such as a hospital and a general practitioner. One important reason being that many of them have disabilities. But because they have difficulty meeting ends meet their willingness to pay for better access to a hospital, a general practitioner and schools is zero. In addition, the government conducted a PVE and in the PVE both groups prioritized the allocation of scarce public resources towards providing basic levels of accessibility to such destinations. If the government uses actual behaviour and private willingness to pay as a standard for public policy it should invest in reducing commuting times. Instead, if the government uses PVE it should invest in providing basic levels of accessibility towards Group B. The fact that individuals may set different priorities as consumer and citizen is empirically shown in the study of Mouter et al. (2018). This study established that many individuals value reductions in travel time when they make route choices as a car driver, but the same individuals think that the government should not prioritize allocating public resources to policies which aim to provide travel time savings because in their view car drivers have a high own responsibility to reduce their own travel times. For instance, participants in the experiment of Mouter et al. (2018) think that drivers can try to avoid peak hours by starting their trip earlier or later, or relocate their residence or their job when they aspire to get rid of long travel times.

Answering the normative question concerning the extent to which policies should be based on appraisal methods which take actual behaviour as a point of departure and/or methods such as PVE which take people's stated preferences towards the allocation of public resources to (impacts of) public policies as point of departure is an interesting question for further research. Until this question is answered it might be wise for policy makers to consider both approaches and select policies that perform well in both cases.

Another insight from this study is that different segments of the population weigh the goal of making sure people travel more sustainably differently. At the same time, this study suggests that particular solutions such as making public transport cheaper and better are much less controversial as people connect them to goals such as being able to reach places affordably and accessibility for people with disabilities, and there is broader support for these solutions. A recommendation for policy makers is to explore whether the acceptability of sustainable transport policies can be improved through better connecting specific policies to goals related to basic levels of accessibility.

Finally, our results suggest that it is advantageous to deploy PVE for involving citizens in the prioritization of government goals. Policy makers asserted that the PVE provided useful actionable insights, and the vast majority of participants positively evaluated their participation in the PVE. 81 % of participants said that the government should use PVE more often.

CRediT authorship contribution statement

Niek Mouter: Writing – original draft, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization. **Jetske Mulder:** Writing – review & editing, Formal analysis, Data curation, Conceptualization. **Martijn de Vries:** Writing – review & editing, Methodology, Investigation, Conceptualization.

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Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing

interests: Niek Mouter, Jetske Mulder and Martijn de Vries work at Populytics which is a startup of Delft University of Technology which commercially applies the Participatory Value Evaluation..

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Appendix A. Supplementary data

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