A qualitative case study examining individuals' perceptions of mode choice and the possibility to reduce car mileage for everyday leisure trips

Emma Strömblad [a,b,*], Lena Winslott Hiselius [a,b], Lena Smidfelt Rosqvist [c], Helena Svensson [a,b]

[a] Lund University, Department of Technology and Society, Box 118, SE-221 00 Lund, Sweden
[b] K2 – The Swedish Knowledge Centre for Public Transport, Bruksgatan 8, SE-222 36 Lund, Sweden
[c] Trivector Traffic, Vävaregatan 21, SE-222 36 Lund, Sweden

ARTICLE INFO

ABSTRACT

In the transition to more sustainable travel behaviour, there is a need to reduce car mileage for all sorts of trips including everyday leisure trips for social and recreational purposes. In this case study, qualitative interviews were conducted to improve and deepen the understanding of transport mode choice for such trips. The analyses of factors affecting mode choice for everyday leisure purposes and how individuals reason about reducing car mileage for leisure trips reveal that factors matter to different extent depending on types of persons and trips. The interviewees' descriptions of how reducing car mileage would be more or less possible resulted in the identification of four typologies, based on the two dimensions *willingness to change* and *perception of feasibility*. A segmentation based on these four typologies demonstrates that all kinds of measures are needed and helps identify policy measures that are relevant for and accepted by different groups of people. For example, the results imply that for the group with high willingness to change and low perception of feasibility a combination of soft and infrastructure 'pull' measures is appropriate, whereas the group with low willingness to change and high perception of feasibility needs a combination of both 'pull' and 'push' measures.

1. Introduction

The transport sector is a major contributor to climate change, responsible for almost a quarter of global energy-related carbon dioxide emissions (IEA, 2017). In Sweden, the share of emissions from domestic transport is even higher, primarily since electricity is less dependent on fossil fuels (Naturvårdsverket, 2021). Also, the share of emissions from transport is increasing globally (European Environment Agency [EEA], 2015; IPCC, 2022). To counteract this development, policy measures that support more energy-efficient and sustainable travel behaviour is needed. It is argued that technical solutions are not enough to reach climate goals (Gössling et al., 2018; Åkerman, 2011), but that transport behaviour also needs to change by switching to less polluting modes and/or reducing car mileage (Brand et al., 2019; Kamb et al., 2021; Hiselius and Rosqvist, 2016; IPCC, 2022). To design efficient policy measures to achieve such changes, it is necessary to understand how transport mode choice is made at the individual level.

In reaching for a more sustainable transport system all trip purposes need to be addressed, including leisure trips. According to travel surveys conducted in Sweden, UK and USA before the COVID-19 outbreak, leisure trips constitute about 30 percent of the total number of kilometres travelled by car per person and day and thus account for a substantial share of greenhouse gas emission from transport (McGuckin and Fucci, 2018; Trafikanalys, 2020; Department for Transport, 2021). However, less is known about the car reducing potential for everyday leisure trips for social and recreational purposes than for work related trips (Ettema and Schwanen, 2012). In the literature, such nonmandatory social and recreational activities are sometimes referred to as discretionary, and separated from nonmandatory maintenance activities such as shopping and service trips (Loa et al., 2021). This type of trips has previously been proven harder to affect than trips associated with basic needs or compulsion (Holden and Linnerud, 2015; Holden and Linnerud, 2011). Also, everyday leisure trips are not a uniform group of trips, but rather a complex mix of many different trip purposes, all with their specific conditions and needs.

Thus, there is potential to contribute to the transition to more sustainable travel behaviour by reducing car mileage for everyday leisure purposes, but to find efficient policy measures we need to know more

---

about the characteristics of such trips. A wide variety of policy measures are available to reduce car use and to increase the use of sustainable transport modes, ranging from 'hard' or 'push' measures such as physical alterations in infrastructure and land use, fiscal policies and changes in legislation to 'soft' or 'pull' measures such as information campaigns, offering incentives and nudging (Michie et al., 2011; Rye and Hrelja, 2020; Santos et al., 2010; Marshall and Banister, 2000; Bamberg et al., 2011; Olsson et al., 2021; Verplanken and Roy, 2016). To be successful however, segmentation of both trip purposes and types of travellers is needed (Haustein and Hunecke, 2013; Anable, 2005).

Based on the identified knowledge gap regarding leisure trips, the aim of this study is to improve and deepen the understanding of transport mode choice for everyday leisure trips based on a qualitative interview study. To fulfil this aim we first study what factors affect mode choice for trips to everyday leisure activities, and then how individuals reason about reducing car mileage for such trips. The analysis is partly inspired by concepts in behaviour theories used to explain and predict mode choice. The results are further used as inspiration for a discussion about how a variety of policy measures is needed to reduce car mileage for leisure trips, since different policy measures are relevant for different groups. Based on the qualitative study design employed, the discussion focuses on the interpretation of how similarities and differences between groups affect the choice of policy measures without quantifying their potential to reduce car mileage for the different groups. Although the main focus of the study is on transport mode choice, choice of activities and destinations are also touched upon since all these choices are interrelated (Chowdhury et al., 2020). The interview study is conducted among residents in the city of Gävle in Sweden. Gävle is chosen as a representative of an average sized Swedish city and, given the large share of car mileage carried out for leisure trips globally, the results may be argued as being of relevance also for other countries.

The article consists of six main sections. Section 2 contains background and describes factors affecting mode choice, behaviour theories and strategies for reducing car mileage. Section 3 presents the design of the study, features the interviewees, describes the interview procedure and explains the qualitative method used to analyse the data. Section 4 presents results for six types of factors affecting mode choice for everyday leisure trips and factors influencing the reduction of car mileage for such trips separately. Section 5 discusses the findings of the study, and finally the main conclusions are presented in Section 6.

2. Background

2.1. Factors affecting mode choice

Travel mode choice has been studied extensively over the past decades, focusing on both objective and subjective factors affecting the choice (Scheiner and Holz-Rau, 2007; van Acker et al., 2011). A common approach has been to use discrete choice models to predict mode choice. Such models are based on random utility theory, used in particular in engineering and economics, which assume that the transport mode with the highest utility in a specific situation will be chosen (Ben-Akiva et al., 1985; De Vos et al., 2016). Factors such as socioeconomics, transport mode access, land use and trip characteristics are taken into account (Cervero, 2002; Jeong et al., 2022). While some such analyses ignore important subjective factors, such as cognitive processes and underlying psychological complexities (Hoffmann et al., 2020), there are also hybrid choice models that are capable of incorporating psychological factors when analysing mode chocie (Mehdizadeh et al., 2019; Kim et al., 2017). Studies from the field of social psychology have shown that attitudes, lifestyle, norms and habits do affect mode choice (Gardner and Abraham, 2008; van Acker et al., 2010; van Wee et al., 2013; Devika et al., 2020). Further, in a recent review of reviews, Javaid et al. (2020) found that both individual, social and infrastructure level factors affect urban mode choice. Another conclusion from this study was that infrastructure factors, such as the built environment and the

transport system, explain large differences in mode choice and is a prerequisite for a transition to low-carbon mobility, which can then be leveraged by individual and social factors.

The trip purpose has been identified as affecting mode choice (Lanzini and Khan, 2017; Ramos et al., 2020; Al-Salih and Esztergár-Kiss, 2021). In a literature review based on bibliometric and content analysis, Wu et al. (2020) studied publications about travel mode choice from 2000 to 2018, and showed that the most common subjects of such studies were commuting and school trips. However, studies focusing exclusively on mode choice for leisure trips were limited in numbers and not among the most cited papers. Still, mode choice for leisure trips in general, or for specific leisure trip purposes such as family visits, and for specific groups, for example older people, have attracted attention in previous studies.

With respect to socioeconomic factors, studies have shown that household size increases car use and decreases cycling for social trips (Sharmeen and Timmermans, 2014), and that living with a partner and having a child under six years decreases the likelihood of using public transport for family visits (Rubin et al., 2014) and increases the distance travelled by car for social trips (Strömblad et al., 2022). However, the number of children in the household does not have a clear relationship with mode choice for family visits/social trips (Rubin et al., 2014, Sharmeen and Timmermans, 2014). Further, men are more likely than women to use a car for social and recreational trips, but the differences are small (van den Berg et al., 2011; Limtanakool et al., 2006; Strömblad et al., 2022) and gender mainly seem to affect mode choice for leisure trips indirectly (van Acker et al., 2011). Older people are more likely to travel by car and bicycle than by public transport for leisure trips (Schwanen et al., 2001; Sharmeen and Timmermans, 2014). Individuals with a high level of education are more likely to drive a car for social trips whereas students are less likely to travel by car, which may both be considered as a proxy for income (Sharmeen and Timmermans, 2014). Also, higher household income per se is associated with an increase in passenger mileage by car for leisure trips (Strömblad et al., 2022).

Next, previous research has shown that having access to a car increases car use and decreases the use of public transport, cycling and walking for leisure trips, and even more so if there is more than one car in the household (Sharmeen and Timmermans, 2014; Rubin et al., 2014; van Acker et al., 2011). Further, those who commute by car are more likely to use the car also for social trips (Sharmeen and Timmermans, 2014; Rubin et al., 2014). However, when studying mode choice, it is important to bear in mind that it is not a question of an individual choosing one single transport mode for all trip purposes. In fact, as demonstrated by Heinen and Chatterjee (2015), the majority of the adult population is multimodal over their weekly travel. Also, Ryan (2020), in a study on mode choice for everyday travel among older people, found that more than a quarter of the respondents had the option to use and also used all modes (walking, cycling, public transport and car) for everyday travel.

The built environment affects mode choice for leisure trips in that high densities, good accessibility and shorter distances in high-urbanized areas is associated with a decrease in car use and an increase in using public transport, cycling and walking. Shorter distances mainly increase cycling and walking, whereas for trips between high-urbanized areas public transport use increases (Rubin et al., 2014; van Acker et al., 2011, Sharmeen and Timmermans, 2014). Further, van Acker et al. (2011) looked into different leisure trip purposes and concluded that the built environment especially seems to affect choosing to drive a car for leisure trips, to travel by public transport for family visits and to cycle/walk for active leisure activities and shopping for fun.

Studies have shown that subjective factors are important when explaining mode choice for leisure trips (Ohnmacht et al., 2009). For example, van Acker et al. (2011) found that subjective variables, such as lifestyles, residential attitudes and travel attitudes, explained an additional amount of variance in mode choice for several types of leisure trips (active leisure activities, family visits and fun shopping) compared

to models with only objective variables. Also, social influence can affect people to use the same transport mode as other members of ones social network (Kim et al., 2018; Pike and Lubell, 2016). For example, the social network effect increases the probability to cycle for shopping and recreational trip purposes, but not for trips to work and school (Goetzke and Rave, 2010).

Further, transport mode-specific attitudes are affected by the purpose of the trip. In a qualitative investigation of car user and non-car user attitudes, Hoffmann et al. (2020) exemplified this with how a train journey for leisure was seen as relaxing, whereas commuting trips by train were evaluated negatively. Also, both car users and non-car users expressed variability in perceptions of cost, safety, being the driver, comfort, speed and flexibility for different transport modes depending on the context.

2.2. Behaviour theories

A number of psychological theories have been used to explain and predict mode choice, of which the Theory of Planned Behaviour (TPB) (Ajzen, 1991) is one of the most influential ones. It suggests that the intention to perform a behaviour is formed by an individual's attitude towards the behaviour, subjective norm (perceived expectations from significant others) and perceived behavioural control. However, many studies conclude that transport mode choice is not only a reasoned decision, as proposed by the TPB, but also based on habit and past behaviour (Havlíčková and Zámecník, 2020; Lanzini and Khan, 2017; Gardner and Abraham, 2008; Verplanken and Whitmarsh, 2021; Bamberg et al., 2003; Forward, 2019; Sharmeen and Timmermans, 2014). In a systematic review of what cognitive mechanisms predict travel mode choice, Hoffmann et al. (2017) concluded that the strongest correlates of transport mode choice (defined as car use and non-car use) were intentions, perceived behavioural control and attitudes, and that for car use habit was also a strong predictor. In another study, Ramos et al. (2020) concluded that driving habits was an important predictor for all trip purposes, including leisure trips.

One model of behaviour that does take automatic cognitive processes such as habit into account is the Capability, Opportunity, Motivation – Behaviour (COM-B) model. It was introduced by Michie et al. (2011) as a system of behaviour, where capability, opportunity and motivation interact to create a behaviour. While the model has primarily been used to analyse public health measures (Compernolle et al., 2020), there are also examples from the transport sector (Krusche et al., 2022; Michail et al., 2021; Arnott et al., 2014). For example, in a doctoral thesis Liu (2017) used a conceptual model based on the COM-B model to show that both capability, opportunity and motivational factors affect public transport mode choice in Taiwan.

Compared to the TPB, the COM-B model thus extends beyond motivational factors to include capability and opportunity factors. In the COM-B system, capability pertains to an individual's physical and psychological ability to perform an activity, while opportunity is defined as all the factors outside the individual that make a behaviour possible or facilitate it (Michie et al., 2011). It includes physical and social opportunity, and thus both objective and subjective factors. There are many behaviour theories, often including similar but differently named factors. One such theory relevant in this context is the Needs, Opportunities, Abilities (NOA) model. Just like the COM-B model, the NOA model takes more than motivational factors into account. It states that the motivation for behaviour stems from needs and opportunities, whereas the feasibility of behaviour stems from opportunities and abilities (Vlek, 2000; van Wee et al., 2013). Further, the capability concept has since long been used in for example time geography, where Hägerstrand (1970) identified that coupling, authority and capability constraints affect travel behaviour, and in the capability approach, where Sen (1995) defined capabilities as the 'doings' and 'beings' that people can choose to achieve.

There are also more process-oriented models that describe behaviour change, for example the Transtheoretical Model of Change (TTM). The TTM assumes that behaviour change is a dynamic process in which an individual advance through a sequence of five stages, from having no intention to take action (precontemplation) through stages of intention to take action (contemplation and preparation) to stages of action and maintenance (Prochaska and DiClemente, 1982). The model is well established in health research, but has also gained considerable attention in travel behaviour research (Olsson et al., 2018; Friman et al., 2017; Forward, 2019; Bamberg, 2007; Gatersleben and Appleton, 2007; Friman et al., 2019; Olsson et al., 2021).

2.3. Characteristics of leisure trips

A challenge when analysing leisure trips is the lack of a common single definition, which makes it difficult to compare studies (Mokhtarian et al., 2006). Sometimes holiday trips are included, while other studies focus on leisure trips with an everyday character. Weekend trips lies somewhere in between and therefore it is often unclear to which category they belong. Further, there seems to be a general tendency towards not including grocery shopping and service trips although sometimes such trips are included, and also shopping for fun may be seen as belonging to either category. Another concern is that it is difficult for individuals who answer travel surveys to know the exact definition of the trip purposes they can choose from, in part because there often is more than one purpose of a trip (Axhausen, 2008). In addition to performing a recreational activity another purpose can be to meet family and friends, which may in fact be the main purpose of the trip rather than the recreational activity itself.

Some attributes of everyday leisure trips affect mode choice differently compared to for example commuting and school trips, one of them being the joint character. Leisure trips are often either jointly performed with other individuals, or in other ways depend on the participation of others (Ettema and Schwanen, 2012; Dugundji et al., 2008; Ohnmacht et al., 2009; Hills et al., 2000). In terms of time geography, this causes coupling constraints deciding when, where and for how long and individual has to join others (Neutens et al., 2011). This means choices of activities, destinations and transport modes depend on more than one person, all of them with their own preferences and needs. Travelling with young children, elderly family members or pets places demands on the trip, for example on the need to carry luggage and adjust to weather conditions. Again, travel survey data often lack information about the joint character of trips, since they only cover the trips of a single individual and cannot correctly capture how social relations affect mode choice (Axhausen, 2008). Also, for trips to visit family and friends, the choice of destination is fixed depending on their residential location. Such trips account for a substantial share of all leisure trips, for example shown in a study by Tilahun and Levinson (2017) who reported that nearly a third of scheduled meetings outside a person's work location took place at a residence. Another interesting result from the same study is that the distance to such meetings increased when meeting a close contact. Overall, trips to visit someone or to perform joint activities tend to be longer than the average (van den Berg et al., 2011).

Another characteristic that distinguishes leisure trips from trips to work, school and shopping is that these trips, in some respects, are less repetitive and that destinations often are less familiar, distant and/or inaccessible with public transport (Anable, 2002; Schlich et al., 2004). Apart from visiting family and friends, this for example also includes trips to outdoor forested areas, outings to the sea and excursions to discover new places. Leisure trips are driven by both extrinsic and intrinsic motivation, of which the latter includes factors such as curiosity, variety-seeking and a need to escape (Ory and Mokhtarian, 2005), and thus affect destination choice for leisure travel (Stauffacher et al., 2005). Further, leisure trips are often seen as less fixed not only in space, but also in time. This is true for some leisure trip purposes but not for all, for example illustrated by Hoffmann et al. (2020), who studied the ambivalence of mode choice and showed that not all leisure trips were

Table 1
Background information of the interviewees.

Participant	Gender	Age group	Children in family	Residence	Car access
P01	Female	18–24	Siblings	Gävle	Gets a ride
P02	Male	25–44	No children	Other urban	1 car
P03	Female	18–24	Siblings	Gävle	1 car
P04	Female	25–44	No children	Gävle	Shares a car
P05	Female	25–44	7–18 years	Gävle	2 cars
P06	Female	45–64	Grandchildren	Rural	1 car
P07	Female	18–24	No children	Gävle	Gets a ride
P08	Female	45–64	No children	Other urban	Not now
P09	Male	18–24	Siblings	Gävle	1 car
P10	Male	45–64	No children	Gävle	1 car
P11	Male	25–44	No children	Gävle	1 car
P12	Male	45–64	No children	Gävle	1 car
P13	Male	25–44	0–6 and 7–18 years	Gävle	Not now
P14	Male	45–64	7–18 years	Rural	2 cars
P15	Male	45–64	Grandchildren	Gävle	2 cars
P16	Male	25–44	0–6 and 7–18 years	Other urban	2 cars
P17	Female	45–64	7–18 years	Other urban	2 cars

time insensitive. On the contrary, trips to attend a gym class, eat at a restaurant with a reserved table or go to the cinema all have a set start time.

Leisure trips are to a larger extent than trips to work, school and shopping driven by pleasure, and are therefore harder to give up (Holden and Linnerud, 2015; Holden and Linnerud, 2011). Due to intrinsic motivation governing leisure trips and the way such trips express identity, personal values, status and lifestyle, behavioural changes related to leisure trips are more difficult to address (Anable, 2002; Mokhtarian et al., 2015). Focusing exclusively on extrinsic motivation can result in an underestimation of the demand for travel, including leisure trips, and the resistance to policies aiming for a reduction of passenger mileage (Mokhtarian et al., 2015). There is also a risk that measures to reduce commuter trips create rebound effects due to increased time for leisure trips, since the general desire rather is to travel more for leisure purposes (Holden and Linnerud, 2015). The COVID-19 pandemic has provided us with examples of this tendency (Arnfalk and Winslott Hiselius, 2022). For example, in the early days of easing restrictions after the first wave in Australia, nonwork trips were more than returning to normal, in terms of household plans for the next week (Beck and Hensher, 2020).

3. Method

3.1. Design of the study

A qualitative study design was used to gain a deeper understanding of people's reasoning about transport mode choice for everyday leisure trips for social and recreational purposes. The scope was limited to leisure trips without a sleepover, thus excluding longer weekend and holiday trips. The definition of leisure trips used in this study included, but was not limited to, visiting family and friends, going to restaurants and cafés, entertainment and culture, outdoor activities, exercise/training/sports, other hobbies or club activities, shopping for fun and participating in or accompanying children in their leisure activities.

The interview study was conducted among residents of Gävle, a medium-sized town which represents an average city in Sweden. For example, Gävle has a population similar to the average for Sweden in terms of gender and age distribution (Statistics Sweden, 2021b), level of

educational attainment (Statistics Sweden, 2021a) and car ownership per thousand inhabitants (Statistics Sweden, 2021c). Public transport services include both long-distance and regional trains, regional buses and a city bus network, and the county's supply is close to the average for Sweden (Rhudin et al., 2018). Further, transport mode choice for social and recreational trips is also similar to the average for Sweden, with private car being the dominant transport mode accounting for about 80 percent of the passenger mileage travelled by foot, bicycle, public transport and private car (Trafikanalys, 2017).

3.2. Participants and interview procedure

The participants of the study were all residents of Gävle municipality aged 18 years and above. They were recruited through a random sample from an address register of the whole population and contacted by phone with the help of a recruitment firm. Since our goal was to cover as many aspects as possible, screening questions were asked to ensure capturing individuals with different characteristics, see Table 1. This means the final sample was not fully randomized and neither was the non-response. The participants were offered a gift card of SEK 400. In total, 17 interviews were conducted before thematic saturation was reached, which means the final interviews did not add any new aspects within the researched area (Kvale and Brinkmann, 2009; DeJonckheere and Vaughn, 2019). More information about the interviewees and their households, including access to various transport modes, is presented in Appendix A (Tables A1 and A2).

The interviews followed a semi-structured interview guide with open-ended questions. The interviewees were able to talk freely around everyday leisure trips. Some time into the interviews, however, the definition of everyday leisure trips in Section 3.1 was presented to ensure that the interviewees included the type of leisure trips this study focuses on. Particularly interesting statements were explored through optional follow-up questions to the interviewees. The interview covered two parts, the first one focusing on factors stated to affect mode choice for leisure trips, and the second one on how the interviewees reason about their possibility to reduce car mileage for leisure trips. To get as many nuances as possible, the discussion in the second part of the interviews was held on three levels: 1) own considerations of changing travel behaviour for everyday leisure trips, 2) self-reports of adaptability when it comes to reducing car mileage for leisure activities, and 3) effects on leisure trips and leisure activities of not having access to a car. This way of structuring the interviews enabled an understanding of how the factors affecting mode choice can translate into an intention to reduce car mileage for leisure trips, possibly followed by an actual change of behaviour.

The interviews lasted for about 45–60 min and were conducted in November 2020. Due to COVID-19, the interviews took place online. To ensure focus on normal times, we asked the interviewees to describe their travel behaviour prior to the pandemic. The video meetings were recorded to enable transcribing the interviews in detail afterwards. Before the interviews, all interviewees consented to participating in the research study, to the interviews being recorded and to storing data according to GDPR (General Data Protection Regulation).

3.3. Structure of analyses

3.3.1. Factors affecting mode choice

Based on verbatim transcription of the interviews, an inductive qualitative thematic analysis was performed as described by Braun and Clarke (2006). All transcripts were read and re-read, and initial codes were generated based on ideas and concepts found in the text without following a pre-existing coding frame, and thus a data-driven approach was used. The next step was to focus on the broader level of the material by organising the different codes into main themes and subthemes of factors affecting mode choice for everyday leisure trips. The coding and sorting were reviewed several times in an iterative process until a final

Table 2
Main themes and description of factors that affect a behaviour.

Main themes	Description
Capability	An individual's physical and psychological capability to engage in the behaviour
Opportunity	Physical opportunity offered by the environment to engage in the behaviour
Attitude	An individual's positive and negative attitudes towards the behaviour
Subjective norm	An individual's perception of how significant others view or perform the behaviour
Perceived behavioural control	An individual's perceived ability to perform the behaviour
Habit	An individual's regular behaviour that tends to occur almost without thinking

satisfactory match was achieved.

The naming and description of the main themes used are inspired by concepts in the COM-B and TPB models, see Table 2. The first two themes, capability and opportunity, are derived from the COM-B model, whereas the third concept of the COM-B model, motivation, is replaced with three themes derived from the TPB model: attitude, social norm and perceived behavioural control. Also, we have added habit, since it is often used in addition to the TPB model, as described in Section 2.2.

After the main themes were defined, subthemes of factors affecting mode choice for everyday leisure trips were sorted. There are however many possible ways of sorting the subthemes into these main themes. For instance, while opportunity is described as a combination of physical and social opportunity in the COM-B model, we have chosen to sort subthemes that relate to social opportunity as subjective norm, arguing that these two concepts have similar meanings. In Chapter 4, the identified subthemes of factors are presented using the structure described in Table 2.

3.3.2. Reasoning about reducing car mileage

The analysis of how individuals reason about reducing car mileage for everyday leisure trips builds on information from the first and the second part of the interviews. While the transcripts were read and analysed iteratively two dimensions emerged. The interviewees described a reduction of car mileage for everyday leisure trips to be more or less possible to implement, depending on both individual characteristics and on characteristics of trips. The dimensions defined based on this finding, and further used in the analysis, were *willingness to change* describing the individual's mental approach to change expressed by the interviewees in terms of "would like to/could imagine", and *perception of feasibility* describing the more practical ability to travel less by car expressed by the interviewees in terms of "would be able to/could work". Using these dimensions, characteristics of both individuals and trips are sorted into four typologies, see Fig. 1. Characteristics of the same individual can be found in more than one group, since the *willingness to change* and *perception of feasibility* can differ depending on the type of leisure trip carried out. The characteristics of the four typologies

are presented in Chapter 4.

4. Results

4.1. Factors affecting mode choice

The final codification of the factors affecting mode choice for everyday leisure trips includes 20 subthemes. The structure of the results is presented in Table 3.

4.1.1. Capability

Three subthemes summarise the capability factors affecting mode choice mentioned by the interviewees: physical capacity, access to transport modes and time constraints. Not being able to walk or cycle more than short distances, or other *physical capacity* constraints, can also hinder travelling by bus or train. *"I can only walk extremely short distances nowadays, […] to the dustbin to throw the rubbish away and then back again."* (participant 8, female, 60 years old). Also, it depends on in what company the trip is made. The interviewees express how travelling with small children or older relatives may make walking, cycling or travelling by public transport difficult or sometimes impossible. This is highly

Table 3
Main themes and subthemes of factors affecting mode choice for everyday leisure trips.

Main themes	Subthemes
Capability	Physical capacity
	Access to transport modes
	Time constraints
Opportunity	Accessibility
	Distance
Attitude	Flexibility
	Time saving
	Convenience
	Money saving
	Health benefits
	Environmental benefits
Subjective norm	Injunctive norms
	Descriptive norms
Perceived behavioural control	Ease of use
	Weather conditions
	Luggage
	Perceived safety
Habit	Multimodality
	Primary transport mode
	Past behaviour

Perception of feasibility

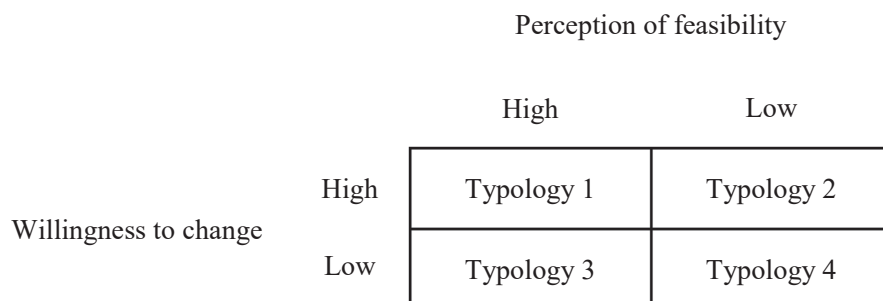|		High	Low
Willingness to change	High	Typology 1	Typology 2
	Low	Typology 3	Typology 4

Fig. 1. Four typologies that differ in terms of *willingness to change* and *perception of feasibility*.

relevant for leisure trips since people state that they often travel with others on such trips.

The individual's *access to transport modes* in terms of for example holding a driver's license and having a bicycle that has not been stolen also affect mode choice. Travelling with friends who own a car makes travelling by car a possible option. For certain leisure trips, for example going to restaurants or visiting friends, the interviewees express how drinking alcohol sometimes affect mode choice because then driving a car is not an option according to Swedish legislation. *"If I want to have a beer, I cycle."* (participant 14, male, 46 years old).

Another capability factor affecting mode choice is *time constraints*. Some, both parents of young children and others, mention that it is only doable to keep up with certain leisure activities if it is possible to go there by car, since the alternatives are too time consuming when travelling to that destination.

4.1.2. Opportunity

Two subthemes emerged in the interviews regarding opportunity factors affecting mode choice for leisure trips: accessibility and distance. Lack of *accessibility* is mainly perceived as a problem when travelling by bicycle or public transport, and especially for those living in rural settings. However, public transport accessibility also affects mode choice for those who live close to a bus stop or train station, mostly due to lack of accessibility at the destination but also because there is no service at the time of the desired trip. In the first case, visiting family or friends, going to outdoor forested areas and travelling to summer cottages are affected leisure trip purposes stated by the interviewees. *"It is not possible to visit them [mum and dad] by public transport, because they live out in the woods."* (participant 5, female, 39 years old).

Next, *distance* is a factor that affects how far people state that they are willing to travel with different transport modes. Short distances are more easily covered by active transport modes, while longer distances make the car, bus and train more attractive options. Some choose to travel by bus in one direction and by foot in the other, since walking in both directions feels too far. *"In that case, it will usually be a walk one way and then a bus back."* (participant 4, female, 33 years old). Many perceive that travelling to leisure activities within the city increases the chances of achieving reasonable walking or cycling distance, and that going out of town on excursions or to visit family and friends is synonymous with longer distances that require other modes of transport. *"They also live outside the city, so we take the car there."* (participant 17, female, 46 years old). There were also mentions of having chosen to live, or considering moving, close to the activities one wants to perform, to increase the possibility of travelling by active transport modes. *"We have an idea that we will move to [another district], where you can get out into nature without having to take the car to get there in a convenient way, and then we will cycle more."* (participant 11, male, 26 years old).

4.1.3. Attitude

The results show that the interviewees perceive *flexibility* to be an important attitudinal factor when choosing transport mode for leisure trips, and that the car is often seen as the most flexible transport mode of all. It provides the opportunity to travel at any time, to bring who and what you want and to change the itinerary as desired." *Then you do not have to go from A to B, but you may decide to visit someone, go and buy something or go and have coffee."* (participant 6, female, 48 years old). The bicycle is seen as a transport mode that can offer flexibility too, sometimes more so than the car since it is easier to park, but it cannot cover the distances that many want to travel when going on excursions. On the contrary, public transport is seen as less flexible due to timetables, set routes and transfer time. Many find it a burden having to plan the trip when travelling with public transport. However, for people who themselves are flexible about how to travel, public transport alternatives can be flexible enough, especially if activities do not have a specific start time. *"If one can be a little flexible with time."* (participant 16, male, 38 years old). The degree of flexibility varies with different leisure trip

purposes, and even though some activities have a set time many others do not.

Travelling, especially by car, is also very clearly associated by the interviewees to giving freedom. *"It [the car] gives us the freedom to go there and meet our family and our friends."* (participant 17, female, 46 years old). However, the sense of freedom is often more about being able to do whatever one wants whenever one wants than about being able to go to a certain place at a certain time. *"That I can go exactly when I want exactly where I want."* (participant 7, female, 20 years old). Also, driving a car or travelling by bicycle can also in itself give a feeling of freedom. *"I feel a huge freedom [when I get to drive a car]. It is difficult to find that feeling elsewhere in life, actually."* (participant 11, male, 26 years old). *"And it is some sense of freedom to cycle."* (participant 6, female, 48 years old).

Another subtheme that emerged in the analysis was *time saving*. For a trip to be time saving seems highly important even for leisure trips, where one, at least for some types of leisure trips, might have expected people to have more time than for commuter trips. Car, train and bicycle are the transport modes that are most referred to as time saving, whereas bus and walking are not. The bicycle is considered time saving compared to travelling by bus, at least for trips within the city. *"The bus takes all of the crooked roads and stops at each bus stop, so it is usually faster for me to cycle."* (participant 12, male, 55 years old). For longer trips, travelling by train is perceived as time saving compared to the car, also because it is possible to activate yourself during the trip.

There are also notable differences between different transport modes regarding *convenience*. Convenience is highly associated with travelling by car, but also with active transport modes and public transport. The car is often referred to as comfortable, while the train is denoted as relaxing. However, public transport is also negatively associated with discomfort and stress when travelling on a crowded bus, especially for those who have a greater need for privacy. *"When there are a lot of people and you have to sit next to each other… I get stressed by it."* (participant 6, female, 48 years old).

Another subtheme was *money saving*, not in terms of actual costs but of how people perceive the cost for travelling with different transport modes. The car is often seen as expensive, but so is public transport. However, travelling by car is perceived to be, if not money saving, at least more priceworthy compared to travelling by bus or train. This difference is even bigger when many people are travelling together in the car, which is often the case for leisure trips. *"It gets expensive for an entire family."* (participant 17, female, 46 years old). Also, if already having access to a car, the cost for a single public transport ticket seems high compared to driving, since such comparisons often do not include the full cost of owning and driving a car.

One factor that is sometimes stated as affecting mode choice is *health benefits*. For example, there were mentions of appreciating the health benefits of travelling by active modes." *I try to walk as much as I can, so that I get exercise as well."* (participant 13, male, 40 years old). Also, people enjoy getting some fresh air when travelling by foot or bicycle. Many see it as a way to get some everyday exercise, however often mentioned in relation to commuter trips rather than leisure trips. When travelling longer distances, cycling on a sporty bicycle is motivating for some. *"I like [the feeling of] cycling a bit professionally."* (participant 2, male, 25 years old).

There are significant differences in how attitudes to *environmental benefits* affect mode choice for leisure trips. Some are already travelling shorter distances or choosing other transport modes than the private car due to environmental concern. *"Then I believe that it can be responsible to travel by bus or train instead of taking the car everywhere."* (participant 4, female, 33 years old). Others are aware of the environmental impact from travelling, feel a responsibility and consider changing their travel behaviour. *"Now I have started to look for an electric cargo bike, so that I can bring him [the grandson] with me."* (participant 15, male, 64 years old). A third group are also aware of the problem, but express that they are not influenced by such extrinsic motivation when choosing how to travel. Finally, several of the interviewees do not mention environment

or climate change at all.

4.1.4. Subjective norm

Injunctive and descriptive norms also affect mode choice for everyday leisure trips. *Injunctive norms* refer to the perceived approval or disapproval from significant others to travel in certain ways, both when travelling alone and when travelling with others. Leisure trips are often of joint character, in which case all must agree on which transport mode to use. The interviewees express how perceived pressure from family and friends often makes them choose to travel by car. "*They [the friends] are the ones who do not want to travel by bus, and I respect that.*" (participant 7, female, 20 years old). Another example is that of peer pressure from friends, not wanting to come across as stingy and therefore offering to drive them by car. "*I also feel that they [the friends] should not say [that I] am stingy.*" (participant 2, male, 25 years old). However, perceived pressure can also make people travel in more sustainable ways, e.g., if teenage children find it important to travel sustainably to mitigate climate change. "*They [the adolescents] think about the environment a lot, so we try to take the train and public transport more.*" (participant 17, female, 46 years old). Further, pressure can also be perceived from fellow travellers, e.g., believing that they find you a burden if you need some time to enter the bus or if you bring luggage onto the bus. "*If it is full [the bus], it is not great fun to be the one who gets on with two [shopping] bags.*" (participant 4, female, 33 years old).

Also, *descriptive norms*, in terms of beliefs about how other people actually behave, matter. For example, some believe that family and friends never travel by bus, which confirms that they are doing the right thing by not doing so either. Others perceive that other people travel much more by car than they do, and therefore do not feel moral obligation to travel less by car. "*I think I drive so little anyway, in comparison with others.*" (participant 13, male, 40 years old).

4.1.5. Perceived behavioural control

This group of factors, perceived behavioural control, includes ease of use, weather conditions, luggage and perceived safety. During the interviews, commonly used words to describe *ease of use* were for a trip to be simple, smooth and without hassle. All transport modes, but mainly the car, were described positively, whereas the bus was often described in negative terms too. However, travelling by car was sometimes also perceived to be a hassle due to parking issues, especially when doing leisure activities in city centres."*And then you do not have to think about parking, parking fees and all that.*" (participant 3, female, 23 years old). For the bus, ease of use was negatively affected by transfers and perceived as more difficult to use when travelling with young children. "*And then the buses run in such a way that you have to change many times to travel a short distance, so it is almost faster to walk there.*" (participant 15, male, 64 years old.).

Weather conditions affect mode choice for everyday leisure trips. Many travel more by foot and bicycle during summertime and on days with nice weather, while bad weather and dark and cold winter days makes people use active transport modes less and travel more by car. Some do not want to travel by bus when the weather is bad, but others may switch to the bus on such days if they normally travel by active modes or because they do not like to drive the car when road conditions are poor. For leisure trips, bicycling can sometimes be part of the activity on a nice summer day. However, doing things outdoors also means it can be reassuring to know that you can get into a warm car afterwards, e.g., after going ice skating in the winter. "*It is often quite cold then, so you do not want to cycle [far] to [skate].*" (participant 12, male, 55 years old).

On leisure trips, it is common to bring *luggage*, since people need to bring sports gear such as hockey equipment, skis and mountain bikes for their activities. For a summer day excursion to the sea, one may want to bring lunch, sunbeds and bath toys. Also, when going on excursions many want to feel free to do spontaneous shopping and be able to bring their bargains home. Interestingly, it does not take much luggage before it is perceived as too much to carry on the bus or bicycle. "*[The choice of*

transport mode also depends on] whether I am transporting things in larger quantities than a backpack.*" (participant 11, male, 26 years old).

Finally, *perceived safety* affect mode choice for leisure trips. The interviewees mentioned that it does not always feel safe to travel by bus or bicycle with young children. Also, travelling by bus can be perceived as unsafe because the people around you are strangers."*If the bus is packed, I feel anxious.*" (participant 9, male, 18 years old).

4.1.6. Habit

The last group of factors affecting mode choice for everyday leisure trips, habit, is separated into three subthemes: multimodality, primary transport mode and past behaviour. *Multimodality* refers to regularly using several different transport modes for everyday leisure trips, however not necessarily during the very same trip. Interviewees who are multimodal express a high degree of reflection about choosing the transport mode that best suits a particular trip with its specific purpose and other conditions."*If it is close, you walk and cycle, but otherwise it is the car, or sometimes bus and train but it is usually the car, that I use [for longer distances].*" (participant 17, female, 46 years old)."*If I do not travel [by car] with someone but travel alone, then I travel by bus, or bicycle or preferably, preferably, preferably I walk.*" (participant 7, female, 20 years old).

On the contrary, those who have a *primary transport mode* seem to reflect less on which transport mode to use for a specific trip, and instead rely more on habitual choices, especially if car is the primary transport mode."*It is mainly the car. And second will probably be the car as well.*" (participant 14, male, 46 years old).

Past behaviour refers to habit of having used a transport mode on previous occasions. Interviewees who have used many modes in the past express how they choose from a wide range of transport modes on new leisure trips. For example, habit of using public transport in the past seems to create a sense of confidence to choose this mode also when travelling to new destinations, which is quite common when going on leisure time excursions. On the contrary, those who have no or little experience of travelling with a certain transport mode rarely consider that mode for new trips. Also, negative experiences of using a transport mode in the past can hinder such use, which is for example expressed in relation to bus trips.

4.2. Reasoning about reducing car mileage

Many of the interviewees stated that they had not considered making any changes with regard to how they travel for everyday leisure purposes. And in fact, many mentions were about increasing the overall number of leisure trips rather than changing travel behaviour for such trips. However, there were also mentions of having considered changes that translate into a reduction of car mileage, and the interviewees further discussed possible future changes. As described in Section 3.3.2, two dimensions of reasoning emerged from the analysis of the interviews. These form the base for four typologies that differ in terms of *willingness to change* and *perception of feasibility*, as illustrated in Fig. 1. Based on the qualitative design of the study, and the fact that the typologies is not a sorting of individuals but of characteristics into different groups, there are no means of quantifying the size of the different groups in this study.

4.2.1. Typology 1 (high willingness to change, high perception of feasibility)

The first typology is characterised by being willing to change in terms of reducing car mileage for leisure trips, and by perceiving such a change to be feasible. This group, who has contemplated about change and sometimes also prepared for it, express high motivation to change. Further, this first group has higher intention to voluntarily reduce car use than the other three groups. However, for such a change to happen, the group still needs some kind push to increase the motivation to actually pursue with change.

In the first group, although the car is often talked about in positive words, there is also a fair amount of negative attitudes to the car. These

include environmental concern, cost and the car being troublesome to use. Regarding environmental concern, it is both a question of own concerns but also that important others express that they want to travel more sustainably. Also, this group expresses many positive attitudes to other transport modes.

Within the first typology, strategies for how to change are discussed rather than what hinders change. Changes that are perceived to be feasible include travelling shorter distances or to destinations that are accessible with public transport, switching to the same type of or a completely new activity to be able to perform it nearby, travelling longer distances with electric bicycles and using different add-ons to bicycles to be able to travel with luggage or small children. The proposed changes are perceived to be easier to implement when travelling alone.

This first group is characterised by on average being younger, including many students, with lower incomes and more often living in apartments. Physical capacity constraints are uncommon, while time constraints do occur but without being completely decisive for whether it is possible to carry out activities or not. Having a driver's licence is not as common in this group, still many both have a license and access to one or two cars at home. Also, even those who do not have a licence often have access to travelling by car at least from time to time. Finally, this group is characterised by being multimodal and flexible, already used to using many different transport modes for everyday leisure trips.

4.2.2. Typology 2 (high willingness to change, low perception of feasibility)

The second typology is characterised by being willing to change leisure trip behaviour, but not perceiving such a change to be very feasible. Although this group has contemplated about change, the desire to implement it is dampened by hinders and therefore preparation for change is less common. Such hinders need therefore be overcome to increase the intention to reduce car mileage for leisure trips in this group.

In this second group, negative attitudes to different transport modes rarely concern the car but are commonly expressed about travelling by public transport. Whereas the first typology considers the car to be costly, the second typology often mentions the cost as something that hinders travelling by public transport. Specifically, it is considered costly to travel many together, for example to go by train with the whole family. Even more salient are negative attitudes to the bus. Such attitudes are a common argument for not perceiving it to be feasible to travel by bus and include it being a burden having to follow a timetable and being bothered by travelling with strangers on the bus. Another factor that speaks in favour of the car are subjective norms, in terms of that important others prefer to travel by car.

For the second typology, lack of accessibility or perceived shortcomings in ease of use are also common arguments not to choose public transport. In this case, the willingness to reduce car mileage is expressed by mentions of sometimes wanting to move closer to leisure activities to be able to travel more with active transport modes. Further, practical matters also affect the perception of feasibility, e.g., carrying luggage or being troubled by cold or bad weather. Luggage can be a hindrance both when travelling by active modes but also on public transport trips. Compared to the first typology, this group does not have as many ideas about how to overcome such practical issues.

In terms of socioeconomic factors, capability and habit, this group is fairly similar to the first typology. The second group, however, although characterised by having habit of using many different transport modes, is characterised by being less multimodal in daily life than the first typology.

4.2.3. Typology 3 (low willingness to change, high perception of feasibility)

The third typology is characterised by not being willing to change, even though changing behaviour for some types of leisure trips is perceived to be feasible. The importance of the car is highlighted by this group, and personal needs in general seems to be more important than collective needs. Further, this group is often governed by thoughts about

what others think and do. For a decrease in car use to happen, major changes in external conditions are needed. For example, there were several mentions of what it takes to change behaviour, e.g., "a doubling of fuel prices" or "travelling by bus being as fast as travelling by car". Incomes are high in this group, and therefore also high increases in fuel prices are needed before it affects the possibility to travel by car.

This third group is characterised by having very positive attitudes to the car. The car is important because of the flexibility and freedom it offers, but also because people love to drive or find it cool to travel by car. Further, just like the second typology, this group expresses negative attitudes to travelling by public transport, which is often associated with hassle. Distinctive for the third typology is that having the right to drive the car or not having reason to travel by bus is confirmed by descriptive norms in the way others behave, in the first case e.g., "my children also drive a car everywhere they go" or "others travel more by car than I do" and in the second case e.g., "my friends don't travel by bus either" or "others do not travel by bus".

Another distinctive characteristic of this third typology is that there are few mentions of perceived behavioural control as being a hinder to change. In some cases, the group expresses that it would be feasible to change, but what is most striking is that overall there are few mentions of perceived behavioural control, neither in positive nor in negative terms.

Finally, in terms of socioeconomic factors, transport mode access and habit, the third typology is somewhat older, has higher incomes and is characterised by being car-oriented. All in this group have access to one or two cars, and car is the primary transport mode. Many are not used to travelling by public transport, but still express that they can travel by bus if they have to. Also, many have a bus stop nearby, thus accessibility close to home is not the issue for this group.

4.2.4. Typology 4 (low willingness to change, low perception of feasibility)

The fourth typology is characterised by not being willing to change, and not believing such a change would be feasible either. There are two reasons for ending up in this group, either facing capability and opportunity constraints that are in fact difficult to overcome, or being very car-oriented and therefore not finding it feasible to reduce car use for leisure trips. In the first case the only possible alternative the group sees to travelling by car is to cancel activities, but since some activities are found too important to give up continuing to travel by car is found to be the only option.

For this group, there is not a clear pattern regarding neither attitudes nor subjective norm. However, the car-oriented segment expresses very positive attitudes to car use, e.g., that thinking about not being able to drive a car causes a sense of panic. This segment does not seem to be affected by other people's approval or disapproval of their transport mode choice. When faced with the idea of no longer being able to have their own car, the alternative is rather to hire a car or get a ride from someone else than to switch to other transport modes.

The constrained segment of this group does not perceive that reducing car use for leisure trips would be possible. They face physical constraints to different degrees, which means they cannot travel by foot, bicycle and/or public transport. For some, the only option is to travel with taxi service for the disabled. Another type of constraint that is perceived to be coercive in this group is that of not having enough time to travel in other ways than by car, e.g., if working full time and being a single father of two young children. There are also those who live in a rural area where distances are long both to travel by bicycle and to get to the closest bus stop or train station. Finally, having to cancel activities if not being able to travel by car also concerns some specific leisure trip purposes, such as visiting friends in rural areas or going on longer day excursions to places that are not available by public transport.

The first segment of this fourth and final group is characterised by being somewhat older and having physical capacity constraints or being parents and having time constraints. Also, living in rural settings is a factor that makes some people end up in this segment. Both segments are

characterised by having car as the primary transport mode, and the second segment by not having the habit of travelling by public transport neither today nor from past behaviour. In both segments, it is also uncommon to have a monthly ticket or an app for public transport.

5. Discussion

The aim of this study was to improve and deepen the understanding of transport mode choice for everyday leisure trips at the individual level, if people are willing to change behaviour to reduce car mileage for leisure trips and if they perceive such changes to be feasible. The results serve as inspiration for discussing policy measures that can contribute to such changes, related to our division into four typologies. Although the size of the different groups and the car mileage each group produces are not known, and thus neither the potential to reduce car mileage for the four groups, understanding how these groups differ in terms of *willingness to change* and *perception of feasibility* makes it clear that a variety of policy measures is needed to reach different groups of people. This knowledge can also to a certain extent help identify appropriate policy measures, either focusing on one of the typologies or in a mix to reach several groups. The first typology (high *willingness to change*, high *perception of feasibility*) is the group that expresses the highest intention to voluntarily reduce car use for everyday leisure trips. They are, if not completely ready, at least getting ready for changing behaviour. Nudging is a type of soft measure that could add the extra motivation needed to push this group to actually pursue with the changes they have contemplated about. One example of this is that, when assessing a cycling campaign with different nudging conditions, Olsson et al. (2021) showed how the stage of motivation to reduce car use was strengthened among the participants, which in turn led to a switch from car to bicycle. Already being multimodal means changes could either focus on increasing the frequency of using sustainable transport modes for a specific trip purpose, e.g., to choose the bicycle even on days with worse weather, or to expand such use to more types of trips, e.g., to choose the bus not only when going to the gym but also for social visits.

However, for the second typology (high *willingness to change*, low *perception of feasibility*) another type of policy measures seems to be needed. Even though this group has contemplated about change, preparations are less often made due to perceived hinders. Therefore, nudging is not a sufficient measure, but the perceived obstacles must first be removed. Some practical issues can be solved through information about solutions to the perceived problems, e.g., presenting alternatives such as home delivery and cargo bikes. Others may need a combination of improvements in the transport system and information to travellers, e.g., making more room for luggage in public transport to make it easier for travellers. Also, campaigns to change attitudes seems relevant, since some feel that they are a burden carrying relatively little luggage.

In contrast to the second group, the third typology (low *willingness to change*, high *perception of feasibility*) expresses that they are less willing to change behaviour, even though they perceive reducing car mileage for leisure trips to be feasible. However, even though they will not change voluntarily, they can see ways to do it if they must. This group is limited by attitudes rather than actual circumstances, and therefore evoking intrinsic or extrinsic motivation is needed. Both push and pull policy measures could evoke extrinsic motivation, e.g., push measures such as new regulations or sharply increased costs for driving a car or pull measures such as greatly improving the alternatives, e.g., when travelling by public transport, or highlighting their benefits, e.g., that the bicycle is flexible too. One way to induce intrinsic motivation and counteract subjective and descriptive norms would be through normative messages showing how people they relate to or admire travel in sustainable ways. Since driving a car has very positive connotations to this group, another important message would be to emphasize that travelling less by car not necessarily means you have to give up the car completely but could instead mean increasing multimodality and

perhaps start using a car sharing service. This is in line with findings by Heinen and Chatterjee (2015) who studied intrapersonal (within individuals) variability in mode choice, and concluded that transport policy could benefit from a change in perspective from encouraging people to switch from one main transport mode to another to instead change their relative use of different transport modes. Since driving a car is often a habitual behaviour for this group, and they have less habit of travelling with other modes, campaigns to try alternative transport modes for free could also be a way to show that such alternatives, e.g., travelling with an electric bike or cargo bike, are feasible. For example, Forward (2019) illustrated how providing a group of regular car users with a free travel pass for public transport resulted in more positive attitudes towards travelling by bus, and that half of the participants still travelled by public transport three months after the trial.

The fourth and final typology (low *willingness to change*, low *perception of feasibility*) is limited by constraints that are in fact difficult to change on an individual level. In some cases, improved cycling infrastructure or increased public transport services to address lack of accessibility may be a solution. Also, it is possible to promote digital solutions to meet certain activity needs, but in many cases there is no good alternative to travelling by car. In this case, promoting electric cars could be an alternative. Also, to catch this group when life conditions change, e.g., when moving or when the children are grown up, could be a window-of-opportunity for changing everyday leisure travel behaviour. This has been illustrated in previous studies, for example in a field experiment by Verplanken and Roy (2016) who used the habit discontinuity approach to show that interventions are more effective when implemented in moments of change.

In addition to an understanding of which types of policy measures that best suit different groups, it is also important to understand how circumstances differ between trip purposes. The results show that leisure trip purposes can be perceived as more or less mandatory, and the degree to which such trips are fixed in time and space varies. The interviewees have expressed that it would be easier to travel less by car when doing shorter leisure trips, trips to city centres, when the weather is good, when they are travelling alone and when they do not carry much luggage. Thus, these are types of trips for which there is a greater chance for success with (soft) policy measures. However, such trips only account for a limited share of the total passenger mileage for everyday leisure trip purposes and thus other types of leisure trips must also be addressed. If including longer trips to less central destinations, accessibility with public transport needs to be improved. This may be difficult for some trips to family and friends, outdoor forested areas and summer cottages, but possible for popular destinations. For excursions to new destinations, it may instead be a question of information about existing alternatives. If also addressing trips made together with others, even though replacing such car trips does not give the same gain as when replacing a solo drive with another mode, further policy measures is needed to compensate for the fact that not everyone in the company can cycle or that travelling by public transport is an expensive alternative. In this case, working on reduced fees in public transport when travelling many together may be an option. Finally, including the many leisure trips when luggage is needed means a need to offer ways to handle this luggage smoothly. People seem to find it a burden already with small amounts of luggage. This could be addressed by promoting cargo bikes, home delivery services and attitudes to bringing luggage on collective transport modes.

One limitation of the study is that the interviews were conducted during the COVID-19 outbreak, and that the perceptions of the interviewees may thus have been affected by the special circumstances that the pandemic brought about. However, to decrease this influence we explicitly asked the interviewees to think about how they used to travel before the pandemic, but also took advantage of the fact that they had recent experience of changing travel behaviour and thus could expand this knowledge into a reasoning about how to make everyday leisure trips in the future. For future research, an important contribution

Table A1
Information about the socio-demographic background of the interviewees.

Participant	Gender	Age group	Household type	Children in family	Residence	Occupation
P01	Female	18–24	Cohabitation	Siblings	Gävle	Student
P02	Male	25–44	Cohabitation	No children	Other urban	Student
P03	Female	18–24	Cohabitation	Siblings	Gävle	Student
P04	Female	25–44	Single household	No children	Gävle	Employee
P05	Female	25–44	Cohabitation	7–18 years	Gävle	Employee
P06	Female	45–64	Cohabitation	Grandchildren	Rural	Employee
P07	Female	18–24	Single household	No children	Gävle	Student
P08	Female	45–64	Single household	No children	Other urban	Pensioner
P09	Male	18–24	Cohabitation	Siblings	Gävle	Student
P10	Male	45–64	Single household	No children	Gävle	Pensioner
P11	Male	25–44	Cohabitation	No children	Gävle	Employee
P12	Male	45–64	Cohabitation	No children	Gävle	Employee
P13	Male	25–44	Single household	0–6 and 7–18 years	Gävle	Employee
P14	Male	45–64	Cohabitation	7–18 years	Rural	Employee
P15	Male	45–64	Cohabitation	Grandchildren	Gävle	Employee
P16	Male	25–44	Cohabitation	0–6 and 7–18 years	Other urban	Employee
P17	Female	45–64	Cohabitation	7–18 years	Other urban	Employee

would be to confirm our division into four typologies, understand the size of the typologies identified in this study and estimate the passenger mileage each group produces for the different types of leisure trips as this would give further understanding of the efforts needed to achieve change.

6. Conclusions

To reach climate targets all trips, including everyday leisure trips, need to be addressed. This study shows that to bring about significant changes, a variety of policy measures that are effective for and accepted by different groups must be used since the different extent to which people are willing to change and find changes to be feasible affect their response to such measures. The four typologies presented in this paper is one way of segmenting people and structuring our knowledge to give an idea of appropriate policy measures for each group. In terms of *willingness to change*, what the first two typologies, both scoring high in this dimension, have in common is a positive attitude to public transport, being affected by subjective norms towards less car use, being multimodal and having a habit of using different transport modes, including public transport. This likely makes them susceptible to 'soft' or 'pull' policy measures. For typology 1, which perceives the feasibility to change to be high due to having shorter distances, good public transport access and being flexible themselves, nudging may be enough to reduce car use, whereas for typology 2, with lower perceived feasibility, both information and increased convenience through improvements in infrastructure for active modes, higher comfort in public transport services and vehicles that can carry more luggage is needed. Further, for typology 3 and 4, which scores low in *willingness to change,* combining 'pull' and 'push' measures seems suitable. This includes 'pull' measures such as improved accessibility, shorter distances to destinations, campaigns to try alternative transport modes and working with norms to make less car use seem normal and possible, combined with 'push' measures such as pricing and regulation. However, since the low perceived feasibility of typology 4 to a high extent depends on a lack of capabilities that is difficult to overcome with policy measures, this group should in addition be targeted at times when life conditions change, because then capability constraints may decrease.

Our results have raised questions about how to define everyday leisure trips, for example to what degree such trips are in fact non-mandatory, and to what extent (if at all) they are less fixed in time and space than other trip purposes, including commuter trips. Problematizing the way we think of leisure travel can give us a better understanding of which policy measures are suitable for different types of leisure trips, and for which there is also acceptance among different groups of people. This study has shown that some leisure purposes may

Table A2
Information about the interviewees' access to various transport modes.

Participant	Driver's licence	Car access	Bicycle access	Monthly ticket	Distance bus stop
P01	No	Gets a ride	Sometimes	Sometimes	200–399 m
P02	Yes	1 car	Sometimes	No	200–399 m
P03	No	1 car	Always	Sometimes	200–399 m
P04	Yes	Shares a car	No	No	400–499 m
P05	Yes	2 cars	More than one	No	400–999 m
P06	Yes	1 car	Sometimes	No	200–399 m
P07	No	Gets a ride	Always	No	400–999 m
P08	Yes	Not now	No	No	200–399 m
P09	No	1 car	Always	Always	200–399 m
P10	Yes	1 car	Always	No	200–399 m
P11	Yes	1 car	Always	No	200–399 m
P12	Yes	1 car	More than one	No	200–399 m
P13	Yes	Not now	Always	Sometimes	200–399 m
P14	Yes	2 cars	Always	No	≥1000 m
P15	Yes	2 cars	More than one	Now known	200–399 m
P16	Yes	2 cars	Always	No	≥1000 m
P17	Yes	2 cars	Always	No	400–999 m

be seen as mandatory in the sense that they are important for people's wellbeing, and therefore acceptance for altering such trips is low. However, while highly valued trips to family and friends are often fixed in space, affecting the less fixed choice of destinations for the equally highly appreciated trips to outdoor forested areas by marketing areas at a shorter distance or with better accessibility could be a viable option.

CRediT authorship contribution statement

Emma Strömblad: Conceptualization, Methodology, Formal analysis, Investigation, Writing – original draft, Writing – review & editing. **Lena Winslott Hiselius:** Conceptualization, Methodology, Funding acquisition, Writing – review & editing. **Lena Smidfelt Rosqvist:** Conceptualization, Methodology, Funding acquisition, Writing – review & editing. **Helena Svensson:** Conceptualization, Methodology, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence

the work reported in this paper.

Acknowledgements

Appendix A

References

Ajzen, I., 1991. The theory of planned behavior. Organ. Behav. Hum. Decis. Process. 50, 179–211. https://doi.org/10.1016/0749-5978(91)90020-T.

Åkerman, J., 2011. Transport systems meeting long-term climate targets: A backcasting approach. KTH Royal Institute of Technology.

Al-Salih, W.Q., Esztergár-Kiss, D., 2021. Linking mode choice with travel behavior by using logit model based on utility function. Sustainability 13, 4332. https://doi.org/10.3390/su13084332.

Anable, J., 2002. Picnics, pets, and pleasant places: The distinguishing characteristics of leisure travel demand. Social Change Sustainable Transport 181–190.

Anable, J., 2005. 'Complacent Car Addicts' or 'Aspiring Environmentalists'? Identifying travel behaviour segments using attitude theory. Transp. Policy 12, 65–78. https://doi.org/10.1016/j.tranpol.2004.11.004.

P. Arnfalk L. Winslott Hiselius 2022. Digital tillgänglighet - så påverkas vårt resande [Digital accessibility – how our travel is affected]. Lund: K2 – The Swedish Knowledge Centre for Public Transport.

Arnott, B., Rehackova, L., Errington, L., Sniehotta, F., Roberts, J., Araújo-Soares, V., 2014. Efficacy of behavioural interventions for transport behaviour change: Systematic review, meta-analysis and intervention coding. Int. J. Behav. Nutr. Phys. Activity 11, 133. https://doi.org/10.1186/s12966-014-0133-9.

Axhausen, K.W., 2008. Social networks, mobility biographies, and travel: survey challenges. Environ. Plann. B: Plann. Des. 35, 981–996. https://doi.org/10.1068/b3316t.

Bamberg, S., Ajzen, I., Schmidt, P., 2003. Choice of travel mode in the theory of planned behavior: the roles of past behavior, habit, and reasoned action. Basic Appl. Soc. Psychol. 25, 175–187. https://doi.org/10.1207/S15324834BASP2503_01.

Bamberg, S., Fujii, S., Friman, M., Gärling, T., 2011. Behaviour theory and soft transport policy measures. Transp. Policy 18, 228–235. https://doi.org/10.1016/j.tranpol.2010.08.006.

Bamberg, S., 2007. Is a stage model a useful approach to explain car drivers' willingness to use public transportation? J. Appl. Soc. Psychol. 37, 1757–1783. https://doi.org/10.1111/j.1559-1816.2007.00236.x.

Beck, M.J., Hensher, D.A., 2020. Insights into the impact of COVID-19 on household travel and activities in Australia – The early days of easing restrictions. Transp. Policy 99, 95–119. https://doi.org/10.1016/j.tranpol.2020.08.004.

Ben-Akiva, M.E., Lerman, S.R., Lerman, S.R., 1985. Discrete choice analysis: theory and application to travel demand. MIT Press.

Brand, C., Anable, J., Morton, C., 2019. Lifestyle, efficiency and limits: modelling transport energy and emissions using a socio-technical approach. Energ. Effi. 12, 187–207. https://doi.org/10.1007/s12053-018-9678-9.

Braun, V., Clarke, V., 2006. Using thematic analysis in psychology. Qual. Res. Psychol. 3, 77–101. https://doi.org/10.1191/1478088706qp063oa.

Cervero, R., 2002. Built environments and mode choice: toward a normative framework. Transp. Res. Part D 7, 265–284. https://doi.org/10.1016/S1361-9209(01)00024-4.

Chowdhury, S., La Paix, L., Geurs, K., 2020. Inter-and intrapersonal variation in destination choice. Eur J Transport Infrastruct Res 20, 194–213. https://doi.org/10.18757/ejtir.2020.20.4.3951.

Compernolle, S., De Cocker, K., Cardon, G., De Bourdeaudhuij, I., Van Dyck, D., 2020. Older adults' perceptions of sedentary behavior: a systematic review and thematic synthesis of qualitative studies. Gerontologist 60, e572–e582. https://doi.org/10.1093/geront/gnz127.

de Vos, J., Mokhtarian, P.L., Schwanen, T., van Acker, V., Witlox, F., 2016. Travel mode choice and travel satisfaction: bridging the gap between decision utility and experienced utility. Transportation 43, 771–796. https://doi.org/10.1007/s11116-015-9619-9.

DeJonckheere, M., Vaughn, L.M., 2019. Semistructured interviewing in primary care research: A balance of relationship and rigour. Family Med. Commun. Health 7 (2), e000057.

Department for Transport, 2021. Average number of trips, miles and time spent travelling by trip purpose: England.

Devika, R., Harikrishna, M., Anjaneyulu, M.V.L.R., 2020. Influence of psychological factors in mode choice decision making: A structural equation modeling approach. Transp. Res. Procedia 48, 2821–2830. https://doi.org/10.1016/j.trpro.2020.08.236.

Dugundji, E., Páez, A., Arentze, T., 2008. Social networks, choices, mobility, and travel. Environ. Plann. B Plann. Des. 35 (6), 956–960.

Ettema, D., Schwanen, T., 2012. A relational approach to analysing leisure travel. J. Transp. Geogr. 24, 173–181. https://doi.org/10.1016/j.jtrangeo.2012.01.023.

European environment agency [eea],, 2015. The European environment – state and outlook 2015. Cross-country comparisons, Copenhagen, Denmark.

Forward, S.E., 2019. Views on public transport and how personal experiences can contribute to a more positive attitude and behavioural change. Social Sci. 8 https://doi.org/10.3390/socsci8020047.

Friman, M., Huck, J., Olsson, L.E., 2017. Transtheoretical model of change during travel behavior interventions: an integrative review. Int. J. Environ. Res. Public Health 14, 581. https://doi.org/10.3390/ijerph14060581.

Friman, M., Maier, R., Olsson, L.E., 2019. Applying a motivational stage-based approach in order to study a temporary free public transport intervention. Transp. Policy 81, 173–183. https://doi.org/10.1016/j.tranpol.2019.06.012.

Gardner, B., Abraham, C., 2008. Psychological correlates of car use: A meta-analysis. Transp. Res. Part F: Traffic Psychol. Behav. 11, 300–311. https://doi.org/10.1016/j.trf.2008.01.004.

Gatersleben, B., Appleton, K.M., 2007. Contemplating cycling to work: Attitudes and perceptions in different stages of change. Transp. Res. Part A 41, 302–312. https://doi.org/10.1016/j.tra.2006.09.002.

Goetzke, F., Rave, T., 2010. Bicycle use in germany: explaining differences between municipalities with social network effects. Urban Studies 48, 427–437. https://doi.org/10.1177/0042098009360681.

Gössling, S., Cohen, S., Higham, J., Peeters, P., Eijgelaar, E., 2018. Desirable transport futures. Transp. Res. Part D 61, 301–309. https://doi.org/10.1016/j.trd.2018.01.008.

Hägerstrand, T., 1970. What about people in Regional Science? Papers of the Regional Science Association 24, 6–21. https://doi.org/10.1007/BF01936872.

Haustein, S., Hunecke, M., 2013. Identifying target groups for environmentally sustainable transport: assessment of different segmentation approaches. Curr. Opin. Environ. Sustain. 5, 197–204. https://doi.org/10.1016/j.cosust.2013.04.009.

Havlíčková, D., Zámecník, P., 2020. Considering habit in research on travel mode choice: A literature review with a two-level methodology. Trans. Transp. Sci. 11, 18–32. https://doi.org/10.5507/TOTS.2020.004.

Heinen, E., Chatterjee, K., 2015. The same mode again? An exploration of mode choice variability in Great Britain using the National Travel Survey. Transp. Res. Part A 78, 266–282. https://doi.org/10.1016/j.tra.2015.05.015.

Hills, P., Argyle, M., Reeves, R., 2000. Individual differences in leisure satisfactions: An investigation of four theories of leisure motivation. Personality Individ. Differ. 28, 763–779. https://doi.org/10.1016/S0191-8869(99)00137-3.

Hiselius, L.W., Rosqvist, L.S., 2016. Mobility Management campaigns as part of the transition towards changing social norms on sustainable travel behavior. J. Cleaner Prod. 123, 34–41.

Hoffmann, C., Abraham, C., White, M.P., Ball, S., Skippon, S.M., 2017. What cognitive mechanisms predict travel mode choice? A systematic review with meta-analysis. Transp. Rev. 37, 631–652. https://doi.org/10.1080/01441647.2017.1285819.

Hoffmann, C., Abraham, C., White, M.P., Skippon, S.M., 2020. Ambivalent about travel mode choice? A qualitative investigation of car user and non-car user attitudes. Transp. Res. Part A 141, 323–338. https://doi.org/10.1016/j.tra.2020.09.012.

Holden, E., Linnerud, K., 2011. Troublesome leisure travel: The contradictions of three sustainable transport policies. Urban Studies 48, 3087–3106. https://doi.org/10.1177/0042098010396234.

Holden, E., Linnerud, K., 2015. Troublesome leisure travel: Counterproductive sustainable transport policies. In: Hickman, R., Givoni, M., Bonilla, D., Banister, D. (Eds.), Handbook on Transport and Development. Edward Elgar Publishing, pp. 587–598.

IEA, 2017. Tracking Clean Energy Progress 2017. OECD/IEA, Paris, France.

IPCC 2022. Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. *In:* P.R. Shukla, J. S., R. Slade, A. AL Khourdajie, R. Van Diemen, D. Mccollum, M. Pathak, S. Some, P. Vyas, R. FRADERA, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley (ed.). Cambridge University Press, Cambridge, UK and New York, USA.

Javaid, A., Creutzig, F., Bamberg, S., 2020. Determinants of low-carbon transport mode adoption: systematic review of reviews. Environ. Res. Lett. 15 (10), 103002.

Jeong, J., Lee, J., Gim, T.-H., 2022. Travel mode choice as a representation of travel utility: A multilevel approach reflecting the hierarchical structure of trip, individual, and neighborhood characteristics. Papers Region. Sci. 101 (3), 745–765.

Kamb, A., Lundberg, E., Larsson, J., Nilsson, J., 2021. Potentials for reducing climate impact from tourism transport behavior. J. Sustain. Tourism 29, 1365–1382. https://doi.org/10.1080/09669582.2020.1855436.

Kim, J., Rasouli, S., Timmermans, H.J.P., 2017. The effects of activity-travel context and individual attitudes on car-sharing decisions under travel time uncertainty: A hybrid choice modeling approach. Transp. Res. Part D 56, 189–202.

Kim, J., Rasouli, S., Timmermans, H.J.P., 2018. Social networks, social influence and activity-travel behaviour: a review of models and empirical evidence. Transport Rev. 38, 499–523. https://doi.org/10.1080/01441647.2017.1351500.

Krusche, A., Wilde, L., Ghio, D., Morrissey, C., Froom, A., Chick, D., 2022. Developing public transport messaging to provide crowding information during COVID-19: Application of the COM-B model and behaviour change wheel. Transp. Res. Interdisciplinary Perspect. 13, 100564.

Kvale, S., Brinkmann, S., 2009. InterViews: learning the craft of qualitative research interviewing. Sage Publications.

Lanzini, P., Khan, S.A., 2017. Shedding light on the psychological and behavioral determinants of travel mode choice: A meta-analysis. Transp. Res. Part F 48, 13–27. https://doi.org/10.1016/j.trf.2017.04.020.

Limtanakool, N., Dijst, M., Schwanen, T., 2006. The influence of socioeconomic characteristics, land use and travel time considerations on mode choice for medium-and longer-distance trips. J. Transp. Geogr. 14, 327–341. https://doi.org/10.1016/j.jtrangeo.2005.06.004.

Liu, C.P., 2017. Understanding the factors influencing public transport mode choice in Taiwan. University College London (University of London). Electronic Thesis or Dissertation.

Loa, P., Hossain, S., Mashrur, S.M., Liu, Y., Wang, K., Ong, F., Habib, K.N., 2021. Exploring the impacts of the COVID-19 pandemic on modality profiles for non-mandatory trips in the Greater Toronto Area. Transp. Policy 110, 71–85. https://doi.org/10.1016/j.tranpol.2021.05.028.

Marshall, S., Banister, D., 2000. Travel reduction strategies: intentions and outcomes. Transp. Res. Part A 34, 321–338. https://doi.org/10.1016/S0965-8564(99)00034-8.

Mcguckin, N., Fucci, A. 2018. Summary of Travel Trends: 2017 National Household Travel Survey. U.S. Department of Transportation, Federal Highway Administration.

Mehdizadeh, M., Zavareh, M.F., Nordfjaern, T., 2019. Mono- and multimodal green transport use on university trips during winter and summer: Hybrid choice models on the norm-activation theory. Transp. Res. Part A 130, 317–332.

Michail, N., Ozbil, A., Parnell, R., Wilkie, S., 2021. Children's experiences of their journey to school: Integrating behaviour change frameworks to inform the role of the built environment in active school travel promotion. Int. J. Environ. Res. Public Health 18 (9), 4992.

Michie, S., van Stralen, M.M., West, R., 2011. The behaviour change wheel: A new method for characterising and designing behaviour change interventions. Implement. Sci. 6 https://doi.org/10.1186/1748-5908-6-42.

Mokhtarian, P.L., Salomon, I., Handy, S.L., 2006. The impacts of ICT on leisure activities and travel: a conceptual exploration. Transportation 33, 263–289. https://doi.org/10.1007/s11116-005-2305-6.

Mokhtarian, P.L., Salomon, I., Singer, M.E., 2015. What moves us? An interdisciplinary exploration of reasons for traveling. Transp. Rev. 35, 250–274. https://doi.org/10.1080/01441647.2015.1013076.

Naturvårdsverket, 2021. Fördjupad analys av den svenska klimatomställningen 2021 [In-depth analysis of the Swedish climate transition 2021]. Stockholm, Sweden.

Neutens, T., Schwanen, T., Witlox, F., 2011. The prism of everyday life: towards a new research agenda for time geography. Transp. Rev. 31, 25–47. https://doi.org/10.1080/01441647.2010.484153.

Ohnmacht, T., Götz, K., Schad, H., 2009. Leisure mobility styles in Swiss conurbations: construction and empirical analysis. Transportation 36, 243–265. https://doi.org/10.1007/s11116-009-9198-8.

Olsson, L.E., Huck, J., Friman, M., 2018. Intention for car use reduction: applying a stage-based model. Int. J. Environ. Res. Public Health 15, 216. https://doi.org/10.3390/ijerph15020216.

Olsson, L.E., Friman, M., Kawabata, Y., Fujii, S., 2021. Integrating planned behavior and stage-of-change into a cycling campaign. Sustainability 13, 10116. https://doi.org/10.3390/su131810116.

Ory, D.T., Mokhtarian, P.L., 2005. When is getting there half the fun? Modeling the liking for travel. Transp. Res. Part A 39, 97–123. https://doi.org/10.1016/j.tra.2004.09.006.

Pike, S., Lubell, M., 2016. Geography and social networks in transportation mode choice. J. Transp. Geogr. 57, 184–193. https://doi.org/10.1016/j.jtrangeo.2016.10.009.

Prochaska, J.O., Diclemente, C.C., 1982. Transtheoretical therapy: Toward a more integrative model of change. Psychotherapy: Theory Res. Pract. 19, 276–288. https://doi.org/10.1037/h0088437.

Ramos, É.M.S., Bergstad, C.J., Nässén, J., 2020. Understanding daily car use: Driving habits, motives, attitudes, and norms across trip purposes. Transp. Res. Part F 68, 306–315. https://doi.org/10.1016/j.trf.2019.11.013.

Rhudin, S., Legerius, B., Ringqvist, S. 2018. Öppna jämförelser - Kollektivtrafik 2017 [Open comparisons - Public transport 2017]. Stockholm: Sveriges Kommuner och Landsting (SKL).

Rubin, O., Mulder, C.H., Bertolini, L., 2014. The determinants of mode choice for family visits – evidence from Dutch panel data. J. Transp. Geogr. 38, 137–147. https://doi.org/10.1016/j.jtrangeo.2014.06.004.

Ryan, J., 2020. Examining the process of modal choice for everyday travel among older people. Int. J. Environ. Res. Public Health 17. https://doi.org/10.3390/ijerph17030691.

Rye, T., Hrelja, R., 2020. Policies for reducing car traffic and their problematisation. Lessons from the mobility strategies of British, Dutch, German and Swedish Cities. Sustainability (Switzerland) 12 (19), 8170.

Santos, G., Behrendt, H., Teytelboym, A., 2010. Part II: Policy instruments for sustainable road transport. Res. Transp. Econ. 28, 46–91. https://doi.org/10.1016/j.retrec.2010.03.002.

Scheiner, J., Holz-Rau, C., 2007. Travel mode choice: Affected by objective or subjective determinants? Transportation 34, 487–511. https://doi.org/10.1007/s11116-007-9112-1.

Schlich, R., Schönfelder, S., Hanson, S., Axhausen, K.W., 2004. Structures of leisure travel: temporal and spatial variability. Transp. Rev. 24, 219–237. https://doi.org/10.1080/0144164032000138742.

Schwanen, T., Dijst, M., Dieleman, F.M., 2001. Leisure trips of senior citizens: Determinants of modal choice. Tijdschrift voor Economische en Sociale Geografie 92, 347–360. https://doi.org/10.1111/1467-9663.00161.

Sen, A. (Ed.), 1995. Inequality Reexamined. Oxford University PressOxford.

Sharmeen, F., Timmermans, H., 2014. Walking down the habitual lane: analyzing path dependence effects of mode choice for social trips. J. Transp. Geogr. 39, 222–227. https://doi.org/10.1016/j.jtrangeo.2014.07.012.

Statistics Sweden, 2021b. Population in Sweden 31 December 2020 Municipal Comparative Figures [Online]. Available: statistics-by-subject-area/population/population-composition/population-statistics [Accessed 2021-05-14].

Statistics Sweden, 2020c. Vehicles in Counties and Municipalities at the Turn of Year 2020/2021 [Online]. Available: https://www.scb.se/en/finding- statistics/statistics-by-subject-area/transport-and-communications/road-traffic/registered-vehicles [Accessed 2021-05-14].

Statistics Sweden, 2021a. Population by Level of Education, Municipality and Sex, 2020 [Online]. Available: https://www.scb.se/en/finding-statistics/ statistics-by-subject-area/education-and-research/education-of-the-population/educational-attainment-of-the-population [Accessed 2021-05-14].

Stauffacher, M., Schlich, R., Axhausen, K., Scholz, R., 2005. The diversity of travel behaviour: motives and social interactions in leisure time activities. https://doi.org/10.3929/ethz-a-005230691.

Strömblad, E., Winslott Hiselius, L., Smidfelt Rosqvist, L., Svensson, H., 2022. Characteristics of Everyday Leisure Trips by Car in Sweden – Implications for Sustainability Measures. Promet – Traffic & Transportation, [In press]. 34 (4), 657–672.

Tilahun, N., Levinson, D., 2017. Contacts and meetings: Location, duration and distance traveled. Travel Behav. Soc. 6, 64–74. https://doi.org/10.1016/j.tbs.2016.06.002.

Trafikanalys 2017. RVU Sverige 2011-2016 - Den nationella resvaneundersökningen [RVU Sweden 2011-2016 - The Swedish national travel survey].

Trafikanalys, 2020. Resvanor i Sverige 2019 [Swedish travel habits 2019]. Trafikanalys.

van Acker, V., van Wee, B., Witlox, F., 2010. When transport geography meets social psychology: Toward a conceptual model of travel behaviour. Transport Reviews 30, 219–240. https://doi.org/10.1080/01441640902943453.

van Acker, V., Mokhtarian, P.L., Witlox, F., 2011. Going soft: On how subjective variables explain modal choices for leisure travel. Eur. J. Transp. Infrastr. Res. 11, 115–146.

van den Berg, P., Arentze, T., Timmermans, H., 2011. Estimating social travel demand of senior citizens in the Netherlands. J. Transp. Geogr. 19, 323–331. https://doi.org/10.1016/j.jtrangeo.2010.03.018.

van Wee, B., Annema, J.A., Banister, D., 2013. The transport system and transport policy: an introduction. Edward Elgar Publishing.

Verplanken, B., Roy, D., 2016. Empowering interventions to promote sustainable lifestyles: Testing the habit discontinuity hypothesis in a field experiment. J. Environ. Psychol. 45, 127–134. https://doi.org/10.1016/j.jenvp.2015.11.008.

Verplanken, B., Whitmarsh, L., 2021. Habit and climate change. Curr. Opin. Behav. Sci. 42, 42–46. https://doi.org/10.1016/j.cobeha.2021.02.020.

Vlek, C., 2000. Essential psychology for environmental policy making. Int. J. Psychol. 35, 153–167. https://doi.org/10.1080/002075900399457.

Wu, L., Wang, W., Jing, P., Chen, Y., Zhan, F., Shi, Y., Li, T., 2020. Travel mode choice and their impacts on environment—a literature review based on bibliometric and content analysis, 2000–2018. J. Cleaner Prod. 249, 119391.