What Drives People?
Analyzing Leisure-shopping Trip Decision Making

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ABSTRACT

Because of the strong increase in the number of leisure-shopping trips, a shift towards more sustainable leisure-shopping behaviour is desirable. This can be attained by having a better insight into people's reasoning in choosing a transport mode and shopping location for this type of activities. Thus, this paper highlights individuals' leisure-trip decision-making processes. The uniqueness of this study is the use of a large sample group, consisting of 221 respondents. A Computer-Based Causal Network Elicitation Technique is developed for this purpose, and participants' responses are analyzed by means of Frequent Itemset Analysis. It appears that the complexity of the mental representation of the decision problem is very stable over different socio-demographic groups. However, clear differences appear between these groups concerning the content of the mental representation. The most remarkable findings are the limited importance of cost and environmental aspects in the transport mode choice. This has important implications for policy and marketing efforts to encourage sustainable transport modes for leisure-shopping. It is recommended to focus advertising campaigns and policy measures on aspects that are most important in people's decision-making process: flexibility, travel time, accessibility, easiness for parking and some practical concerns.

INTRODUCTION

In the last decades there has been a prominent growth of the yearly number of person car kilometres in Belgium (*1*), the country where this research is set, resulting in the upsurge of its negative externalities such as car crashes, emissions, congestion, etc., as can be witnessed worldwide. The increasing importance of leisure activities, including leisure-shopping, contributes to this rise (*2*). Most leisure-shopping trips in Belgium are oriented towards city centres where the majority of stores are located, creating abundant traffic there and exposing many people to its negative influences (*3*). Furthermore, both driving and parked cars take up a lot of valuable space in this area that can be put to better use. Considering the importance of leisure activities, especially in developed countries, and their influences on the increased use of cars, this paper focuses on examining people's leisure-shopping travel behaviour in the city centre.

Therefore, a shift towards more sustainable leisure-shopping behaviour is required to obtain a more sustainable transportation system. Travel Demand Management (TDM) measures are commonly used for this purpose. These measures reduce travel demand, or redistribute this demand in space, in time or by transport mode to reduce its negative impacts (*4*). Accordingly, different transport mode characteristics are influenced to boost the competitive position of sustainable transport modalities compared to cars. TDM measures can be implemented more effectively if they are aimed at aspects that have a strong influence in people's decision-making. This means that travel choices should be studied at a disaggregate level, as the outcome of each individual's decision process (*5*). Results of such studies may give better behavioural insights that can be used as feedback for policy makers to develop high impact policy measures.

Thus, this study investigates people's decision making processes when carrying out leisure-shopping activities using the Causal Network Elicitation Technique (CNET). CNET is a qualitative research method to elicit individuals' constructs and beliefs when making travel decisions, and the links between them in a structured mental representation (MR) of the decision problem (*5*). Originally, CNET is developed as a semi-structured interview technique. Participants are asked to think aloud when resolving certain problem tasks, and listing all considerations that come to their mind. Based on the elicited variables, interviewers have to ask further questions until the underlying benefits that individuals want to gain are revealed.

In this study, the technique is transferred to a fully automated computer-based (CB) survey named CB-CNET. It works by showing participants some predefined variables and asking them to sort out all relevant aspects that appear in their thought processes. A CB survey offers multiple cost and methodological advantages over the original face-to-face technique. These will be discussed into more detail later in this paper.

All respondents live in the vicinity of the city centre of Hasselt, a city in Belgium with a typical European historical city centre. Participants' transport mode and shopping location decision for leisure-shopping activities are investigated into detail. Frequent itemset analysis

is applied to reveal frequently elicited variables in respondents' MR, and important associations between the different variables.

This paper is structured as follows. First, a general explanation about different types of decision-making is presented. Next, the concept of MR is elucidated. Then, the structure of the CB-CNET survey is briefly explained. Subsequently, frequent itemset analysis is clarified. Next, the results of the analyses are presented. Finally, the paper ends with a discussion and policy implications section.

DECISION-MAKING TYPES

In this section, a brief introduction about human decision-making is presented. This allows the reader to understand the different structures that are present in people's MR, and that are elicited by the CB-CNET.

One of the most influential theories that tries to explain people's decision-making process is rational choice theory. It assumes that people calculate the likely costs and benefits of any action before deciding what to do (*6*). The decision maker is faced with a set of alternative choice options, of which he is assumed to choose the alternative that yields the highest expected utility (*7*). Although the theory offers valuable insights, it is also often criticized because of its unrealistic assumptions (e.g. *10*). People are often not fully informed; they are not always completely self-interested (*9*; *10*); and some decisions are not only based on reason but also on emotions or intuition (*11*; *12*). Therefore, people's decision-making process can be seen as a process relying on a number of simplifying heuristics, rather than extensive algorithmic processing (*13*). Heuristics are efficient rules of thumb of the type if-then(-else) to get to a decision relatively easily. They are based on experiences and knowledge (*8*). Especially when decisions are repeated many times, like in daily travel, people do not go through the whole complex decision procedure each time. In this case, heuristic decisions are commonly used to reduce the mental effort that is required for weighing and judging the possible decision alternatives (*14*).

However, for new or occasional decisions, it is possible that people do not have ready-made solutions for all possible occurring contexts in the decision environment. In this case, a rational decision-making process can be activated. Research shows that, in case of a new or infrequently occurring decision problem, the decision maker activates a complex and deliberative cognitive process to make the best decision (*15*). In this decision process, different considerations are linked by means of causal relations (*14*). This way, a temporary MR of the decision problem is created in which the decision maker details relevant attributes of the different alternatives and judges their subjective values, attractiveness or suitability (*16*).

Besides rational and heuristic decision-making, there is habitual (or automated) behaviour, that develops as people repeat actions in stable circumstances. When initially performing an action, people consciously decide what to do and how to do it in order to achieve certain outcomes. As people repeat actions, the conscious decision-making process recedes, and the actions come to be triggered by the environment (*17*).

Of course, there is a large twilight zone between these extremes of fully conscious and deliberate decisions, and fully automated habitual responses. Leisure-shopping belongs to this twilight zone. For most people, leisure-shopping is not an activity that is executed daily, or even weekly. Furthermore, it is subject to an ever-changing context: an interest in a specific product, the weather, etc. Therefore, leisure-shopping related decisions will not be fully automated for most people. On the other hand, if leisure-shopping is executed occasionally, some aspects of leisure-shopping decision-making can become automated to some extent. That is why people's MR about leisure-shopping decisions may contain both elements of conscious deliberation and heuristics.

MENTAL REPRESENTATIONS

It is argued in literature (*5*; *16*) that people activate a MR when solving certain problem tasks, especially when facing complex decision problems and when a rational decision-making style is activated. A MR consists of various arisen contexts in the decision environment, the benefit requirements, instruments of the shopping trip's decision alternatives, and the causal relationships between these variables (*16*). Thus, four types of variables can be distinguished in the MR: decision, contextual, instrumental and benefit variables (*18*), and they are discussed respectively in the following paragraphs. Eliciting individuals' MRs can also help to understand the underlying reasoning behind decision choices using heuristic decision-making and habitual styles. By knowing the underlying benefits, contexts and instruments that people want to gain, high impact TDMs can be selected more effectively.

Decision variables represent the decision alternatives available to the decision maker. For each decision variable, there is a set of pre-defined choice alternatives (*19*), such as using car, bus or bicycle to go to the city centre.

The different choice alternatives have various characteristics, leading to different consequences. The particular characteristics of choice alternatives can be considerations in the decisions. Such considerations are called **instrumental variables** (*20*). Instrumental aspects can be observed and operated by the decision maker (*5*). Examples of instruments of different transport mode options are speed, travel time, etc.

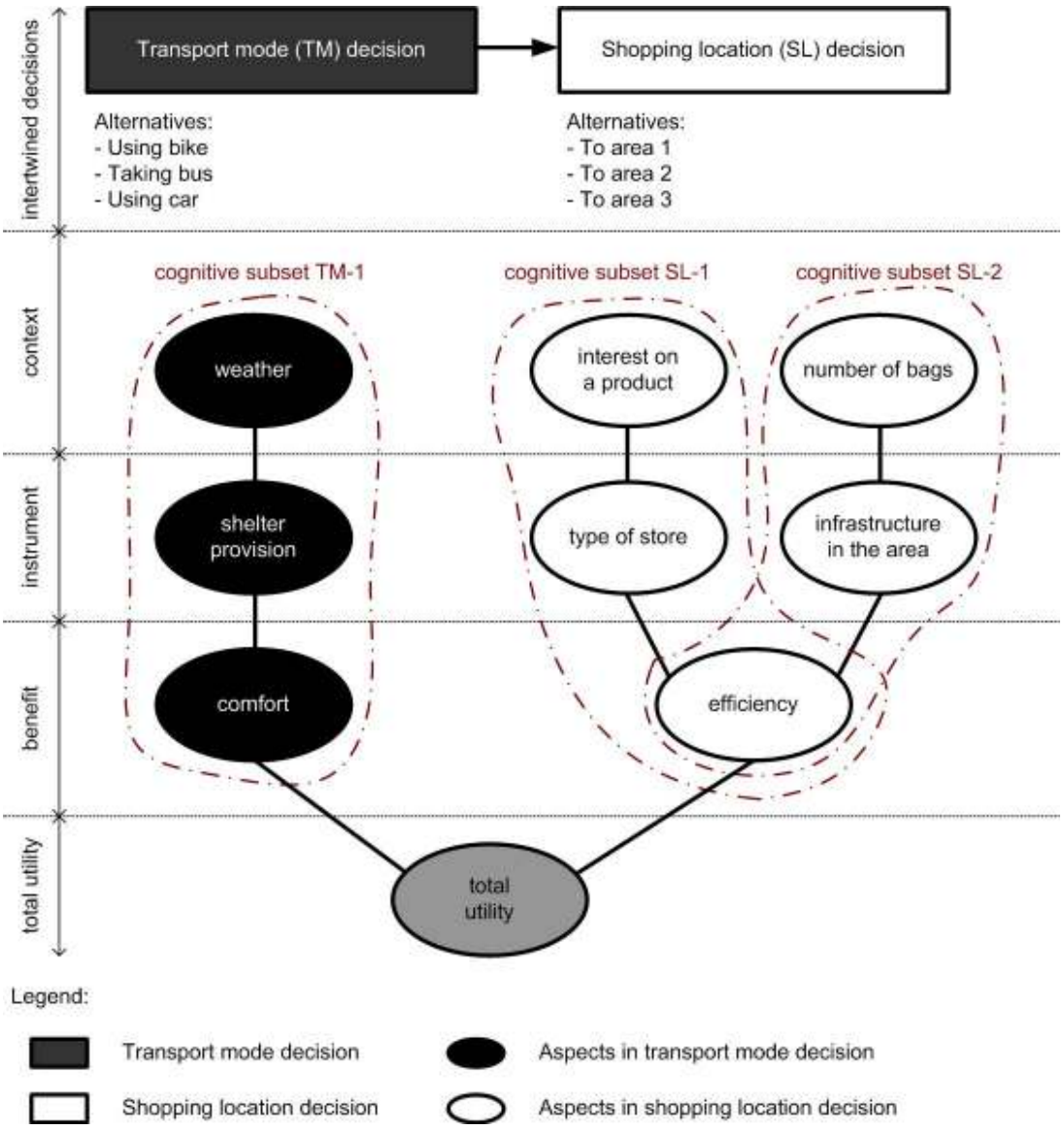

FIGURE 1 An example of the different variable types and their links in a MR (15).

Contextual variables refer to given circumstances, situations and constraints in the decision environment that influence the outcome of a decision, but that cannot be controlled by the decision maker (*15*; *19*). These can be natural forces (e.g. weather conditions), and different constraints, i.e. capability, coupling and authority constraints (*21*).

Benefit variables are directly related to utilities (*20*). They describe the impact of the state of the contextual and instrumental variables on the fundamental needs of the decision maker and his well-being (*16*). An example of a benefit variable is the desire to gain efficiency, physical comfort, etc.

The last elements in the MR are the **causal links** between contextual, instrumental and benefit variables to obtain a network representation of the decision problem. Hence, this

causal network represents the individual's beliefs about how different variables activate the consideration of other decision-related variables (*18*).

The smallest building block of a MR of a decision problem is called a "cognitive subset". A cognitive subset is a connected set of considerations, consisting of a context, a benefit and an instrument (*5*). However, it is also possible that a combination of a benefit and an instrument is always considered, irrespective of the circumstances, for instance in the habitual decision making style. Therefore, the second type of cognitive subset applicable in all circumstances is registered; i.e. (normally)-benefit-instrument (*15*).

An example of the different elements in a person's MR related to leisure-shopping trip decision-making is shown in the Figure 1.

METHODOLOGY: COMPUTER-BASED CNET SURVEY

Initially, CNET is developed as a semi-structured face-to-face interview technique. In the CNET interview protocol, the interviewer asks a series of questions, and checks the respondent's answers with a pre-defined list of variables. Later, the CNET card game method has been developed, which makes use of written cues instead of spontaneous recalling. Written cues give better results than spontaneously recalling because they reduce the chance that respondents forget to mention relevant aspects (*22*; *23*). Interested readers are referred to (*5*; *18*) for research using these techniques. For this study, it is decided to transfer the CNET card game technique to a computer-based survey. Compared to both other techniques, a computer-based survey offers important benefits; i.e. cutting the marginal costs and eliminating interviewer's biases (*24*). Moreover, the CB-CNET enables gathering the leisure-shopping MR data from a large sample group, which is practically infeasible using both other techniques.

The CB-CNET is divided into several parts. In the first part, respondents are asked for their personal information. Socio-demographic factors like age, gender, income, education, etc. are questioned. This information is used to investigate differences between different subgroups of the sample, and to check the representativeness of the sample.

In the second part, the leisure-shopping setting is explained. Respondents are asked to imagine that they want to buy something (a gift and/or something to wear) for an upcoming party of a friend. Next, they are asked to give their considerations related to their transport mode (TM) choice and their shopping location (SL) choice, i.e.: the shopping zone in Hasselt they will go to first. Concerning the SL choice, the city centre is subdivided into three zones: the main shopping street, the boutique area, and the gallery area. The TM decision assumes that all respondents have a uniform choice set consisting of bus, bicycle and car. This assumption is valid since an analysis of the data has shown that all-but-one respondents have a car in their household, more than 90% own a bicycle, and the Decree on Basic Mobility guarantees a bus stop within 750m to all inhabitants of residential areas (*25*).

In the third step, respondents are asked which of both decisions they will take first and which one last. Then, they are asked to indicate whether their decision-making for this decision

depends on certain circumstances, indicating heuristic or rational decision-making, or whether this choice can be made spontaneously, which indicates habitual decision-making. This is called the split-elicitation procedure: based on the respondent's answer, different elicitation paths are followed (*15*). Both paths are analogous for both decisions.

In case the respondent indicates that his decision depends on certain circumstances, the elicitation starts with the contextual variables. For each contextual variable, one or more benefit variables can be indicated, and for each context-benefit combination, one or more instrumental variables can be chosen. Respondents are asked to limit their responses to the most important contexts and benefits to keep the burden of the survey to an acceptable level. A shortened list is shown for the elicitation of the instrumental aspects, containing only relevant instruments that have been identified from literature, pilot tests (*5*; *18*) and common sense. To ensure that all respondents have the same interpretation of the variables, the definition of a variable is shown in the interface. As soon as the elicitation of these context-specific cognitive subsets is finished, the respondent has the opportunity to indicate not context-specific cognitive subsets. However, this is not mandatory.

On the other hand, if the respondent indicates that he can make the decision straightaway, the elicitation process reverses. Respondents are initially asked to elicit the (normally)-benefit-instrument subsets, and afterwards, a chance is given to indicate subsets of the type context-benefit-instrument. The elicitation procedure ends with an open-ended question to reveal additional and important considerations that are not presented in the lists. The results of this question will be used as input to improve the list of variables in future research.

Respondent requirements, i.e. living on the outskirts of Hasselt, possessing a driver's license, and a high willingness to cooperate in the research, limit the sample in this research. Therefore, the sample is gathered by means of the snowball sampling method. This method is mostly used in case of a rare sample characteristic (*26*). Because of the length of the survey (approximately two hours), the 221 respondents fill out the survey in small guided group sessions of up to 16 persons per session, reducing the risk of unreliable data.

The lists of variables are formulated based on an extensive literature review and pilot studies (*5*; *18*). The list of variables for the SL decision consists of 15 contextual, 15 benefit and 22 instrumental variables. The list of variables for the TM decision consists of 27 contextual, 15 benefit and 25 instrumental variables.

ANALYSIS

Frequent Itemset Analysis

The data gathering procedure results in an extensive dataset of 221 respondents, who have elicited 12701 cognitive subsets. This should be analyzed in an efficient way. Therefore, a suitable data mining technique, i.e. frequent itemset analysis, is required to identify not only the frequent aspects, but also the associations between them. Thus, this technique is suited to capture important cognitive subsets in participants' MRs.

A frequent itemset is a combination of items that frequently appears in the dataset (*5*). What itemsets are exactly considered to be "frequent" is usually determined by a threshold value, which is called the minimal support value (minsupp). If the support value of a certain combination of items is equal to or higher than the minsupp value, the itemset is considered as a frequent itemset. The support value is usually expressed as a percentage of the total number of transactions in the database that contains the combination of items (*27*). In this study, frequent itemset analysis is used as a tool to describe frequent patterns of cognitive subsets generated from the elicited data. For a more detailed explanation about frequent itemset analysis, the reader is referred to (*27*).

An adjusted form of the support value is used in this study because each cognitive subset is coded as one record in the database, and each respondent can only elicit each cognitive subset once. Hence, the database consists of multiple records for each respondent. This results in a very low expected support value for each cognitive subset, and the value itself becomes difficult to interpret. Therefore, the support value is adjusted so that it indicates the percentage of respondents who have indicated the particular subset. This value is called the compensated support value (csupp). An example will clarify this problem. Suppose the following database, consisting of two respondents each eliciting 5 cognitive subsets:

Respondent 1:
(normally)-efficiency-flexibility
(normally)-freedom-travel time
(normally)-freedom-accessibility
(normally)-convenience-flexibility
precipitation-physical comfort-shelter
Respondent 2:
(normally)-efficiency-flexibility
(normally)-freedom-flexibility
(normally)-cost-saving money
precipitation-physical comfort-shelter
time available-efficiency-travel time

The support value for the cognitive subset "(normally)-efficiency-flexibility" is 0,20 (i.e., 20% of the database contains this combination of items). However, since each respondent delivers multiple data entries, the value is difficult to interpret. The csupp value compensates for the number of data entries per person. Therefore, the csupp value for this cognitive subset is 1,00 (i.e., 100% of respondents in the database has elicited this cognitive subset).

One fixed minsupp value cannot be used for all analyses because the dataset has to be split into several sets based on socio-demographic characteristics and other measures, resulting in new datasets that may contain only a small number of records. Thus, one fixed minsupp value can be too low for some analyses or too high for others. Therefore the five most frequent itemsets in each analysis are used to discuss the results. Furthermore, the context-specific and the not context-specific frequent itemsets are analyzed separately. This is done because they are difficult to compare, since, purely from a probabilistic point of view, the chance that one particular set consisting of three elements is selected is smaller than the chance that one

particular set of two elements is selected. Preliminary analyses have shown that analyzing them together results in a list of frequent itemsets mainly consisting of the subsets of the "normally-value-instrument" type. So, if this split is not made, it is difficult to draw conclusions about the influence of contextual variables.

RESULTS

Complexity of Respondents' MR

The number of elicited variables in each participant's MR is calculated as a complexity measure. First, the MR complexity of different socio-demographic groups is investigated. For socio-demographic groups who elicit a more complex MR, each element or association has a relatively lower importance on average, because of the large number of aspects taken into account. Furthermore, the chance that each element or association present in the MR is higher for groups who elicit a more complex network. In case the analysis shows that certain socio-demographic groups have a more complex MR than others, it is checked if these groups are underrepresented or overrepresented in the sample. The results are presented in Table 1.

It can be concluded that the network complexity is quite constant among different socio-demographic groups. Respondents indicate on average about 44 different variables. The TM decision (27 variables) is significantly more complex than the SL decision (17 variables). There are large individual differences in the complexity of the MR; the simplest MR contains only 10 different variables, while the most complex one consists of 104 variables. However, despite these large individual differences, averages are very stable across the different socio-demographic groups. Only education level seems to have an influence on the MR complexity. Higher educated respondents indicate significantly less variables than lower educated ones for both decisions. This may happen because participants are explicitly asked to limit the elicitation to the most important variables for their decision. Higher educated respondents are probably more able to distinguish the importance of the variables, resulting in a lower number of elicited variables. Further research is needed to elucidate this issue.

TABLE 1 Complexity of Respondents' MR.

Subgroup of sample	*No. of respondents*	*Network complexity: Best estimate [95% confidence interval]*
Overall	221	44,199 [41,961; 46,437]
SL decision	221	16,742 [15,688; 17,796] *
TM decision	221	27,457 [25,970; 28,944] *
Gender		
Men	95	44,516 [41,087; 47,945]
Women	126	43,960 [40,994; 46,926]
Age		
19-29	54	43,426 [39,644; 47,208]
30-39	25	42,160 (35,630; 48,690)**
40-49	48	43,750 [38,361; 49,139]
50-59	56	44,589 [40,009; 49,169]
60+	38	46,632 [40,942; 52,322]
Education level		
Lower educated (secondary degree or lower)	83	49,458 [45,342; 53,574] *
Higher educated	138	41,036 [38,579; 43,493] *
Net household income category		
Low (max. €2000 / month)	65	48,077 [43,412; 52,742]
Medium (€2001 - €4000 / month)	93	42,000 [38,926; 45,074]
High (+ €4000 /month)	39	44,333 [37,294; 47,372]
I would rather not tell	24	42,000 (34,796; 49,204)**
Distance of residence to city centre (TM only)		
Close (< 4 km)	77	26,455 [24,168; 28,742]
Medium (5 - 7 km)	88	27,875 [25,246; 30,504]
Far (8 - 10 km)	56	28,179 [25,420; 30,938]
Annual mileage as car driver (TM only)		
Max. 5000 km/year	57	26,193 [23,721; 28,665]
5001 - 15000 km/year	108	28,944 [26,742; 31,146]
> 15000 km/year	54	25,056 [22,561; 27,551]
Leisure-shopping frequency		
Rarely if ever	14	41,214 (32,171; 50,257)**
A few times a year	84	42,048 [38,282; 45,814]
(nearly) monthly	56	43,375 [38,941; 47,809]
A few times a month	67	48,209 [44,434; 51,984]
Note: * There are significant differences between the different subgroups ** The confidence interval for a group with a small number of respondents (less than 30 respondents), making it difficult to draw statistically valid conclusions about the result.		

Frequent Itemsets Analysis

In this section, the general findings of the frequent itemset analysis are presented and analyzed for different groups; e.g. based on the split-elicitation procedure, gender, age groups, education levels, income levels and distance classes from the respondent's residence to the city centre. Unfortunately, due to space limitation of the paper, only the most important findings can be presented. The results of the other analyses and the definitions of the variables can be obtained from the authors on request.

SL decision

Table 2 shows the results of the frequent itemset analysis for the SL choice on the full database. The table shows that efficiency (saving time and effort) is a crucial aspect in the SL decision, both for the context-specific frequent itemsets and the not context-specific frequent itemsets. The most important instruments to gain efficiency are the presence of the respondent's favourite shop in the zone, the familiarity with the zone and the type of stores in the zone. Contextual aspects that have an influence on efficiency are having an interest in a specific product, and the available time to execute the leisure shopping activity. The presence of the person's favourite shop also strongly contributes to gain the benefit of fun. Furthermore, the product prices in the zone have a high importance in the SL choice.

TABLE 2 Frequent Itemsets SL Decision.

Context	*Benefit*	*Instrument*	*Csupp**
(normally)	efficiency	favourite shop	28,1%
(normally)	efficiency	familiarity	25,8%
(normally)	saving money	product price	19,5%
(normally)	efficiency	type of stores	19,5%
(normally)	fun	favourite shop	18,1%
specific product	efficiency	favourite shop	20,8%
specific product	efficiency	type of stores	18,1%
time available	efficiency	favourite shop	17,2%
specific product	efficiency	familiarity	16,7%
time available	efficiency	familiarity	16,3%
* csupp indicates the percentage of respondents who indicated the particular subset.			

TM decision

In Table 3, the results of the frequent itemset analysis for the TM choice on the full database are shown. Efficiency is of crucial importance in the TM decision. The benefit "freedom" is also very important in the not context-specific frequent itemsets. Both variables are often related to the instruments of flexibility and travel time, and easiness for parking also influences the benefit of efficiency. "Precipitation" appears to be an important contextual

aspect in the TM choice. This finding is in line with international literature (*28*). Furthermore, the contextual aspects time availability, baggage and parking space availability are very important in the TM decision.

A remarkable finding is that, even though financial criteria are very important in the SL choice, they are considered by few people in the TM decision. Another critical finding is that sustainability and the environment-friendliness of a TM are rarely considered by respondents.

TABLE 3 Frequent Itemsets TM Decision.

Context	*Benefit*	*Instrument*	*Csupp*
(normally)	freedom	flexibility	39,8%
(normally)	efficiency	flexibility	33,9%
(normally)	efficiency	travel time	33,9%
(normally)	efficiency	easiness parking	32,1%
(normally)	freedom	travel time	26,7%
precipitation	physical comfort	shelter	21,7%
time available	efficiency	travel time	16,3%
baggage	physical comfort	treatment bags	14,9%
parking availability	efficiency	easiness parking	12,7%
time available	efficiency	flexibility	12,2%

In Table 4, the frequent itemsets of the TM decision are shown for people with a TM habit and people without a TM habit. Subsets that are present in all categories are highlighted in the same greyscale. The most apparent difference between both groups is the finding that parking related aspects have a much higher importance to people without a TM habit. People with a TM habit attach a relatively higher importance to associations containing the contextual aspect “time availability”. Furthermore, they attach a stronger importance to the instrumental aspects of flexibility and travel time.

TABLE 4 Frequent Itemsets TM Decision for TM habit and no TM habit.

Context	*Benefit*	*Instrument*	*Csupp*
TM habit			
(normally)	freedom	flexibility	53,0%
(normally)	efficiency	flexibility	48,7%
(normally)	efficiency	travel time	43,5%
(normally)	freedom	travel time	39,1%
(normally)	freedom	accessibility	33,9%
time available	efficiency	flexibility	13,0%
time available	efficiency	travel time	12,2%
precipitation	physical comfort	shelter	10,4%
baggage	physical comfort	treatment bags	8,7%
time available	efficiency	accessibility	7,8%
No TM habit			
(normally)	efficiency	easiness parking	32,1%
(normally)	freedom	flexibility	25,5%
(normally)	freedom	easiness parking	24,5%
(normally)	efficiency	travel time	23,6%
(normally)	efficiency	accessibility	20,8%
precipitation	physical comfort	shelter	34,0%
baggage	physical comfort	treatment bags	21,7%
time available	efficiency	travel time	20,8%
parking availability	efficiency	easiness for parking	17,9%
parking availability	efficiency	accessibility	14,2%

In Table 5, the frequent itemsets of the TM decision are shown for people from different age categories. It appears that associations related to efficiency are most important to young people. These are somewhat less important to elderly. Elderly attach a high importance to associations with the contextual aspect “baggage” and the benefit of physical comfort. Furthermore, elderly are the only age group who strongly consider financial aspects of the TM choice. One final peculiar finding is that elderly strongly consider the environment-friendliness of the TM.

TABLE 5 Frequent Itemsets TM Decision for Different Age Groups.

Context	*Benefit*	*Instrument*	*Csupp*
Young (19-39)			
(normally)	efficiency	travel time	46,8%
(normally)	efficiency	flexibility	44,3%
(normally)	freedom	flexibility	40,5%
(normally)	efficiency	easiness for parking	35,4%
(normally)	efficiency	accessibility	34,2%
time available	efficiency	travel time	27,8%
precipitation	physical comfort	shelter	25,3%
baggage	physical comfort	treatment bags	20,3%
parking availability	efficiency	easiness parking	19,0%
parking availability	efficiency	travel time	16,5%
Middle-aged (40-59)			
(normally)	freedom	flexibility	43,3%
(normally)	efficiency	flexibility	31,7%
(normally)	efficiency	easiness for parking	31,7%
(normally)	freedom	accessibility	29,8%
(normally)	efficiency	travel time	28,8%
precipitation	physical comfort	shelter	20,2%
baggage	physical comfort	treatment bags	12,5%
time available	efficiency	flexibility	12,5%
time available	efficiency	travel time	12,5%
parking availability	efficiency	easiness parking	10,6%
Elderly (60 and older)			
(normally)	freedom	accessibility	31,6%
(normally)	freedom	flexibility	28,9%
(normally)	efficiency	easiness for parking	26,3%
(normally)	durability	environment-friendliness	26,3%
(normally)	saving money	cost	23,7%
precipitation	physical comfort	shelter	18,4%
time available	efficiency	TM preference	15,8%
baggage	physical comfort	treatment bags	10,5%
baggage	physical comfort	accessibility	10,5%
baggage	physical comfort	physical effort	10,5%

DISCUSSION AND POLICY IMPLICATIONS

The most important policy implication of the results of the SL decision analysis is that cities should make sure that their city centre is organized in an efficient way in order to make it attractive for leisure-shopping. In general, efficiency can be obtained by creating walking lines without detours, high density development and by grouping comparable stores together. To quicken the process of getting familiar with an area, policy makers should make sure to create a good legibility of their city centre (*29*). Since respondents attach great importance to the presence of their favorite shop, cities should try to attract some popular stores to anchor the MR. For instance, data shows that store chains are popular with many shoppers. Hence,

the presence of these stores is important to attract large shares of shoppers. An important secondary goal should be to create a sufficient mix of functions and a pleasant ambience.

For policies that try to influence the TM choice, the impact of the findings in this paper are quite far-reaching. These findings are clarified in the form of 5 statements.

Global warming is not so "hot" to average Joe. It appears that only few people consider the environment-friendliness of the TM when making a leisure-shopping TM decision. This is regrettable, since environmental concern is currently one of the "hot topics" for policy makers. However, from this study it seems that the man in the street does not really share this concern yet.

The ones caring most about the environment, are the ones who will not live to fully benefit from the results. Remarkably enough, the only socio-demographic group that strongly considers the environment-friendliness of the TM are the elderly. This is surprising, since the real benefits from a sustainable TM choice can only be experienced in the long term.

Cost measures might not be worth the money. The results indicate that cost aspects are considered by few respondents in their leisure-shopping TM decision. Therefore, it is possible that cost measures can only accomplish limited results. Furthermore, the socio-demographic groups that take it most into account, are elderly and people from low income households. Traditionally, these are not groups on which policy makers would want to focus cost measures, because they are already weaker and more vulnerable societal groups. However, it is also possible that cost considerations are not present in people's MR because transport costs are currently low. It is possible that sufficiently strong cost measures will have an impact, even though financial aspects are currently not a crucial consideration in people's MR.

Policy makers should try to improve the competitive position of sustainable transport modes by focusing on considerations that are really important in people's decision-making process, like flexibility, travel time, easiness for parking, accessibility, shelter provision and treatment of baggage. Improving the competitive position of sustainable modes can be achieved by means of pull and push measures. Pull measures are measures that stimulate the use of alternative transport modes by making them more attractive. So in other words, they are soft measures that try to encourage people to deliberately choose a more sustainable transport mode. Push measures on the other hand are measures that aim at discouraging car use by reducing its attractiveness. Hence, these are hard measures that try to force people to use a more sustainable transport mode (*30*).

Current sustainable transport campaigns are descriptive, rather than persuasive. A consequence of the finding that cost and environmental aspects are not strongly considered, is that advertisement campaigns to promote sustainable TMs should be reconsidered. At this moment, campaigns often aim at the fact that public transport and bicycle are cheap and environment-friendly. These are in fact two of the most important advantages of these sustainable TMs, so they are a good description of the TMs. But since it appears that respondents do not really consider them in their TM choice, they may not be able to obtain

significant results. Instead, advertising campaigns to alter leisure-shopping behaviour should focus more on the previously-mentioned considerations that are most important in people's decision-making process.

Parking a car in a city centre should be difficult to anyone, not only to poor drivers. One particularly useful category of TDM measures to encourage sustainable TMs are parking restricting measures. There are two main arguments for this. The first argument is that these measures simultaneously influence several of the most important mentioned characteristics. They reduce the car's flexibility, accessibility and easiness for parking, and they can lead to an increase in travel time. And second, it appears that variables related to parking are particularly important to respondents without a TM habit. Nearly 50% of respondents state that they do not have a TM habit for fun shopping trips, but that their choice depends on circumstances. Since it is much more difficult to influence the travel behaviour of someone with a TM habit than someone without a habit (*17*; *31*), this implies that parking restricting measures can have a significant impact on the modal shift of fun shopping trips.

A major downside of parking restricting measures is that the support for these measures is generally low, because entrepreneurs are convinced that parking restricting measures will have a negative influence on the attractiveness of the city centre. This way, they fear that they will loose customers to stores and shopping centres that are located at suburban areas that are easily accessible by car. However, this fear is often unjustified. Parking restricting measures can increase parking comfort, make the city centre more attractive and liveable and save a lot of valuable public space. This means that parking restricting measures, when they are implemented well-considered and enforced strictly, can increase the attractiveness of the city centre, instead of decreasing it (*32*). This is especially the case when the city centres offer a good mix of functions, because most suburban shopping locations are mono-functional. This stresses the importance of profiling the identity of the city centre. Research shows that parking restricting measures lead some people to change their TM and the time of their trip, but only very few will change their destination or cancel the trip (*33*). It is important to keep in mind that this is only the case for city centres that have sufficient regional attraction.

An interesting topic for future research is to repeat the CB-CNET in other cities. This will allow drawing conclusions about the generalizability of the results. It will be interesting to see whether respondents from other cities have similar considerations. It will also be interesting to see whether the average number of variables in the mental representation is stable over different socio-demographic groups in other cities as well. Another interesting topic for further research is the transferability of the method. It will be interesting to see whether the CNET protocol can also be used to investigate the decision making process of other decision problems. So far, it has only been used to investigate leisure shopping behaviour.

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