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Do attitudes to employer transport plans impact their effectiveness? 
*The Belgian case*

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**Abstract:** This paper aims at analysing the impact the attitudes to Employer Transport Plans (ETP) have on their effectiveness. To achieve this aim, a survey among mobility managers of companies located in Belgium is performed and data of a large scale survey about mobility behaviours are used. The results show that employees and employers are mainly favourable to ETP and that parking management is a sensitive issue among the employees. The commuting of the employees of companies having achieved to reduce the importance of car parks for the employees tend to be less dependant on the car. It also comes out that support for the management to communication on ETP is important. Finally, the paper shows that the commuting of employees of companies located in the urban fringe is more based on the car than the other, even though the presence of alternatives as capable than in city centre.

**Keywords:** commuting, Employer Transport Plan (ETP), commuting efficiency, Belgium

1. **Introduction**

An important number of companies have nowadays implemented an Employer Transport Plan (ETP). This growing attention of the employers for the commuting of their workers is the result of several factors. The steadily increase of the car traffic has caused both accessibility and parking problems for companies. Thus, ETPs have been implemented to tackle the issues and reduce the single-occupancy vehicle use. In addition, governments have approached companies to cooperate as mediating institution (Dehart-Davis and Guensler, 2005) in order to reinforce the likelihood of achieving their public transport policies. Regulations were passed that oblige (e.g. the Clean Air Act in Southern California in 1988) or encourage (e.g. the White Paper, A new Deal for Transport: Better for everyone in the United Kingdom in 1998) the implementation of ETP. Incentives were introduced such as tax exemptions or financial grants (Enoch and Potter, 2003). Finally, the environmental concerns also persuaded many employers of the necessity to rationalise the use of the car. Various motivations can thus drive companies in implementing ETP (Van Malderen et al., 2010). Roby (2010) shows that ETPs deliver business objectives and that they become organizationally embedded over time.

Several methodologies have been used for estimating the effectiveness of ETP. Rye (2002), Dickinson et al. (2003), Hendricks and Georgi (2007) and Cairns et al. (2010) studied ETP with case studies A sample of companies with successful ETP was selected and the ETP

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changes were confronted with the evolution of the modal splits. Modarres (1993), Nozick et al. (1998), Van Malderen et al. (2009) and Vanoutrive et al. (2010) use quantitative techniques (discriminant analysis, Data Envelopment Analysis (DEA), logistic regression, and multi-level regression respectively) on longitudinal data of surveys in order to identify effective mobility measures. Both approaches have recognised the potential of ETP to induce modal shifts. They also emphasize on the necessary adequacy of the ETP to the specificities of the company (e.g. to its location or type of workforce).

However, the literature neglects the study of the attitudes to ETP. The attitude is a learned predisposition to respond consistently in a favorable or unfavorable manner with respect to a given object (Fishbein and Ajzen, 1975). As in an ETP framework, the expected responses are modal shifts, the evaluation of attitudes is important in order to understand the effects of such a plan. Hence, this paper aims at studying the attitudes to ETP in the companies located in Belgium and at assessing their impact on the effectiveness of the mobility plan. To achieve these objectives, this paper analyses the ETP of companies located in Belgium. A survey among mobility managers is performed and data of a large scale survey about mobility behaviours are used.

This paper starts with the presentation of the methodologies (Section 2). Clustering methods are used in order to classify the companies on the basis of their attitudes to ETP. Next, an indicator of commuting efficiency is developed. Section 3 is devoted to the presentation of the results. Finally, Section 4 outlines the conclusions in the form of policy recommendations.

2. Methodology

The methodology of the paper is firstly made up of classifications of companies. The aim is to group the companies whether homogenous attitudes to ETP exist among them. They are classified on the basis of: a) the attitude of the employees to ETP, employees who are expected to respond to the mobility measures and, as a result, change their commuting behaviours; and b) the attitudes of the employers to ETP, employers who fall to decide the implementation of the mobility measures. Note that the attitudes to ETP are evaluated for the company. Thus, the classifications are not performed on the basis of the individual preferences of each employee (or employer). They are performed on an aggregated basis of their preferences as a unit evaluated by the mobility manager interviewed during the survey. In the case of the employees, this gives an indication of how employees on their whole accept the plan. The same is true for the employers.

In a second stage, an indicator of commuting efficiency is developed thanks to a methodology inspired by Nozick et al. (1998), which is based on Data Envelopment Analysis (DEA). Non parametric tests are performed in order to test if the companies with a more positive attitude to ETP have a higher commuting efficiency. In that case, the attitude impacts the effectiveness of the ETP.

2.1. Data

Two data sets have been used in this paper. The first consists of data of the Home-To-Work Travels (HTWT) diagnosis which is conducted every 3 years by the “FPS Mobility and Transport”. The 2 first ones (2005 and 2008) are available and 3,269 and 3,733 companies have respectively filled in the form. This Belgian mobility diagnosis is essentially focused on the mobility measures taken by companies and the commuting behaviour of worker (see

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6 At reading easiness purpose, the HTWT diagnosis will be named Belgian mobility diagnosis in this paper.
Vanoutrive et al. (2010) for more information on the diagnosis). This diagnosis was used in order to calculate commuting efficiency ratings. The second data set consist on data collected thanks to a survey among mobility managers.

2.1.1. Survey among mobility manager
To collect the data on attitudes to ETP, 60 mobility managers of companies located in Belgium were interviewed in 2010. The choice to survey mobility managers was motivated by their “intermediary” function between the employees and the employers. This makes them more likely to answer on questions about attitudes of both groups. They were selected by a “judgement sampling” among the companies of the Belgian mobility diagnosis reporting the nomination of a mobility manager. Judgement sampling is appropriated to collect opinions of experts in a research field (Giannelloni and Vernette, 2001). The selection criteria of the mobility manager to interview were the economic sector, and the location of the workplace.

Questions about the acceptance of the mobility measures by both employees and employers were asked thanks to a Likert scale. A 5-points ranking scale was used: rank 1 represents a very high unacceptance while rank 5 a very high acceptance. Rank 3 is a neutral point. The choice of 5 response categories was motivated by its quickness and easiness to be used by the respondents (Preston and Colman, 2000). However, the propensity of companies located in Belgium to implement a set of similar measures (Van Malderen et al., 2009) and the multiplicity of possible measures have lead to gather them beforehand. This classification of mobility measures was based on both an exploratory factor analysis of mobility measures of the Belgian mobility diagnosis (Vanoutrive et al., 2010), and a classification made by Rye (1999). Ten categories were defined (Table 1). Interviewees were asked to reply whether or not measures of the categories have been implemented in their ETP.

| Financial incentives to the use of alternative modes of transport | Encouragement to use alternatives mode of transport |
| Dissemination of information about alternative modes of transport | Guarantee for the return journey of carpoolers |
| Offering facilities to encourage cycling | Organization of mobility days |
| Provision of bicycles/repairs facilities | Parking management |
| Organization of carpooling/creation of a carpooling database | Collaboration with other companies/the public transport |

Table 1 - Categories of mobility measures

2.2. Attitudes to ETP
In order to evaluate the attitudes to ETP of both the employees and the employers, the data of the survey among mobility managers were used. The companies of the sample were clustered on the basis of the acceptancy of the mobility measures. The clusters defined are expected to be homogenous. In that case, the mobility measures are accepted in a similar way within the companies of the cluster. This defined an attitude to the overall ETP.

2.2.1. Classifying the companies
The use of a Likert scale provides ordinal data. These data require the use of an appropriated clustering algorithm and appropriated distance metrics. The ROCK algorithm developed by Guha et al. (2000) was used here. This choice was motivated by the fact that Guha et al. (2000) show that it outperforms traditional algorithms for categorical data. It is based on the concept of links between data points, which stemmed from the notion of neighbours. Two points are considered as neighbours if their similarity, $\text{sim}(p_i, p_j)$, exceeds a user-defined threshold level, $\theta$:
\[ \text{sim}(p_i, p_j) \geq \theta \] (1)

The number of links between a pair of points is the number of common neighbours for the points. Points belonging to a single cluster share, logically, a large number of links. In other words, links are the number of distinct paths of length 2 between points \( p_i \) and \( p_j \) such that every pair of consecutive points on the path is neighbours. The ROCK algorithm maximises the sum of links for data pairs belonging to a single cluster and, at the same time, minimizes the sum of links for data points pairs in different clusters (Guha et al., 2000).

The similarity between pairs of points can be a metric or a non-metric similarity function. The Jaccard coefficient was used here because it measures the similarity between observations on the basis of binary attributes, to which categorical data are easily converted. In addition, the coefficient takes values between 0 and 1, which makes easier and more interpretable the definition of a similarity threshold.

The threshold level, \( \theta \), and the desired number of clusters, \( k \), are user-defined parameters. However, the algorithm can end with unclassified observations and/or more clusters than asked. This is due to dissimilar observations which do not have enough links to be clustered considering the defined parameters. As the (dis)similarity is function of \( \theta \), a too restrictive level of \( \theta \) could thus be counterproductive. As a consequence, an empirical iterative procedure was used here to define the parameters \( \theta \) and \( k \): the highest values which minimise the number of unclassified observations were selected.

### 2.3. Commuting efficiency

The commuting efficiency is defined as the minimization within a company of the use of transportation resources for commuting to and from work, considering the background conditions at the workplace (Nozick et al., 1998). It implies a minimization of the car use in favour of alternative modes of transport promoted by the ETP. Data Envelopment Analysis (DEA) and data of the Belgian mobility diagnosis about the companies surveyed were used.

DEA is a linear programming method that calculates the relative efficiency of \( j \) decision making-units (DMUs) to produce one (or multiple) output(s), \( y_{ij} \), with one (or several) input(s), \( x_{ij} \). Two different approaches exist: (a) the input oriented DEA method, which defines the efficiency as the success of the DMU \( j \) to minimize \( i \) inputs given \( r \) outputs, and (b) the output oriented DEA approach, which defines the efficiency as the success of the DMU \( j \) in maximising \( r \) outputs given \( i \) inputs (Farrell, 1957).

According to the above definition of commuting efficiency, one output, \( y_{ij} \), was considered (i.e. the use of transportation resources). A company has to minimise this output to be considered as efficient in commuting. As minimising the use of transportation resources is equivalent to maximising the number of passengers-per-vehicle (ppv), the output oriented DEA method is appropriated. This output was calculated thanks to data on the modal splits of the 2008 Belgian mobility diagnosis.

In the same way, the inputs, \( x_{ij} \), represent the background conditions at a workplace that favour (or disfavour) the use of alternative modes of transport to solo-driving. Three inputs were considered: the on-site parking scarcity\(^7\), the accessibility by rail and the rating of

\(^7\) The on-site parking scarcity is calculated as the number of employees per on-site car parks.

4
households’ satisfaction with cycling facilities. This choice was motivated by the high correlation of these variables with the use of the 3 most popular modes of transport to commute in Belgium (i.e. the car, the train, and the bicycle). Indeed, each of these inputs is the main determinant of the use of the mode of transport related to it (Kingham et al., 2001; Hole, 2004; O’Fallon et al., 2004; Van Exel and Rietveld, 2009; Verhetsel et al., 2010; Vandenbulcke et al., 2011).

2.4. Non-parametric statistics
In order to identify the impact of the attitudes to ETP, inter-groups comparisons between the clusters defined by the classifications (see 2.1) were performed. However, the classification of the 60 companies of the survey leads to the definition of small groups. Non-parametric statistics were used here because of their appropriateness for tests with small samples (Siegel and Castellan, 1988). Pairwise comparisons of the groups were made by means of Wilcoxon test. Kruskall-Wallis tests and Median test were used to perform comparisons between more than 2 groups. At the same time, Pearson Chi-Square tests were performed in order to test a potential effect of the location of a company (by type of urban area as defined by Luyten and Van Hecke (2007)) on their attitudes to ETP. However, Fisher exact tests were preferred when the frequencies are lower than 5. In fact, the Pearson Chi-Square test is unsatisfactory in such cases (Yates et al., 1999).

3. Results

3.1. Attitudes to ETP
3.1.1. Attitude of the employees
The sample of the survey among mobility managers was first clustered on the basis of the attitude of the employees to ETP (Table 2). The ROCK clustering leads to the definition of 3 clusters of companies: (a) those where the employees are very favourable to ETP, but very unfavourable to the measures concerning parking management (12 companies); (b) those where they are fairly favourable to ETP, but fairly unfavourable to the measures concerning parking management (11); and (c) those where their attitude to ETP is heterogeneous (34). This last cluster results from the gathering of dissimilar observations which were not clustered by the algorithm. The mobility debate is probably limited there: the employees put more the emphasis on the direct tangible value they can receive (which varies depending on the company) than on mobility improvements. As a consequence, no homogeneous attitudes to mobility measures were found within these companies (or within a sub-group of them). No cluster of negative attitude to ETP was identified.

<table>
<thead>
<tr>
<th>Attitude of the employees to ETP</th>
<th>N</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Very favourable, but very unfavourable to parking management</td>
<td>12</td>
<td>0.20</td>
</tr>
<tr>
<td>b) Fairly favourable, but fairly unfavourable to parking management</td>
<td>11</td>
<td>0.18</td>
</tr>
<tr>
<td>c) Heterogeneous</td>
<td>34</td>
<td>0.57</td>
</tr>
<tr>
<td>d) Missing data</td>
<td>3</td>
<td>0.05</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>60</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 2 - Classification of companies on the basis of the attitudes of the employees to ETP
Interestingly, identical hierarchies of preferences are observed within the clusters. Thus, financial incentives and improvements of the cycling facilities are, in every group, the measures that employees prefer the most. This shows the robustness of previous results (Van Malderen et al., 2010) and the consistency of the attitude of the employees to these measures, regardless of the one to the overall ETP. One can conclude that these measures could be a first step for companies starting (or developing) their ETP. In contrast, parking management measures are considered unfavourably in all clusters. Nevertheless, it is paradoxically observed that the stronger the support to ETP, the weaker the attitude to parking management. This suggests that in a workforce satisfaction view, it would probably appear less difficult to implement mobility management measures at a previous stage of acceptance.

Pearson Chi-Square tests were then performed in order to find out the potential relationship between the defined clusters and the type of urban area where the company is located. In the same way, a Kruskal-Wallis test was used to test whether the running time span of the ETP influences the attitude of the employees to it. Results reject both hypotheses. Consequently, one can assume that communication on ETP and mobility could be decisive.

3.1.2. Attitude of the employers

A second clustering was performed for classifying the sample on the basis of the attitude of the employers to ETP (Table 3). The same methodology was used. Four clusters of companies have been identified: a) those where the employers are very favourable to ETP (11 companies); b) those where they are fairly favourable to ETP, and very favourable to the least costly measures (9); c) those where they are fairly favourable to ETP (14); and d) those where their attitude is heterogeneous (23). In the same way as the previous classification, this last group results from the gathering of dissimilar observations which were not clustered. No homogenous attitudes to mobility measures were found within these companies (or within a sub-group of them). The employers are probably more passive there: mobility is perceived more as a contextual issue than a final objective. No cluster of negative attitude to ETP was identified.

<table>
<thead>
<tr>
<th>Attitude of the employers to ETP</th>
<th>N</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Very favourable</td>
<td>11</td>
<td>0.18</td>
</tr>
<tr>
<td>b) Fairly favourable, and very favourable to the least costly measures</td>
<td>9</td>
<td>0.15</td>
</tr>
<tr>
<td>c) Fairly favourable</td>
<td>14</td>
<td>0.23</td>
</tr>
<tr>
<td>d) Heterogeneous</td>
<td>23</td>
<td>0.38</td>
</tr>
<tr>
<td>e) Missing data</td>
<td>3</td>
<td>0.05</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>1</td>
</tr>
</tbody>
</table>

Table 3 - Classification of the companies on the basis of the attitudes of the employers to ETP

Identical hierarchies of preferences are observed within the clusters. The least costly measures (e.g. the dissemination of information about alternative modes of transport) are the one the employers prefer the most. This result is consistent with those of Rye (1999) and Dickinson et al. (2003). No cluster can be associated with a systematic rejection of a particular mobility measure. This indicates that, regardless of the specific situation of a company, the only gap that has to be filled in between the employees and employers pass on the parking management measures. In fact, the employers of the clusters favourable to ETP (clusters a, b and c) are not

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11 The survey has shown that the parking management is a sensitive issue within employees in Belgium (Van Malderen et al., 2010).

12 The similarity level, θ, used is 0.5 and 3 clusters were asked to minimize the number of not classified observations. Consequently, conditions are less restrictive.
reluctant to implement such measures\. This is probably due to the cost savings and/or space reuse which are associated to a reduction of car parks requirements (Winters and Hendricks, 2003; Roby, 2010). In that case, one can assume that positive attitudes to ETP could be associated to a deeper organisational embedding of the plan.

Similarly to the observation about the attitudes of the employees, no relationship between those of the employers and both the running time span of the ETP and the type of urban area of the company was detected. This shows at new the uniqueness of each company and the importance of internal factors of it. Thus, employers have to be convinced and communication about the operational benefits ETPs provide, as suggested by Winters and Hendricks (2003) and Roby (2010), would probably be helpful to achieve this objective.

### 3.2. Commuting efficiency

#### 3.2.1. Efficiency ratings

The DEA model estimates commuting (relative) efficiency ratings for 56 companies of the sample. A value of 1 is attributed to the most efficient companies: no improvement of their performance is possible without an increase in inputs. In contrast, the ratings of the other companies quantify their relative inefficiency. For instance, one company has a DEA rating of 3.77; this means that an increase of 277\% of its number of ppv (from 3.55 to 9.89 ppv) is necessary to consider it as as efficient as the most one of the sample. In other words, regarding the background conditions, potential for a reduction in single-occupancy vehicle use exists there. However, a higher efficiency does not imply systematically a higher vehicle occupancy rate. In fact, they reflect the disparity of resources in inputs (Nozick et al., 1998).

Thus, another company is considered as efficient, although it has a number of ppv of only 1.15. Its simultaneous poor rail accessibility and weak satisfaction with cycling facilities do not allow a better performance within the sample.

The results show a huge range of values of the DEA ratings. The least efficient company has a rating of 13.83. In the same way, the median value of the efficiency ratings is 5.53. This outlines the important variances in the commuting behaviours within the sample, despite the implementation of an ETP within all the companies surveyed.

#### 3.2.2. Commuting efficiency and attitudes to ETP

The DEA ratings suggest differences of effectiveness of the ETPs. Inter-groups comparisons between the clusters of attitudes to ETP were performed in order to test whether they can explain these differences (Table 4). Kruskall-Wallis tests were firstly performed. They compared the DEA ratings between, in a first stage, the companies of the 3 clusters of attitude of the employees to ETP and, in a second stage, those of the 4 clusters of attitude of the employers. No statistical significant differences were found. However, a Median test does not confirm this observation: a significant difference is found between the median values of the clusters of attitudes of the employees to ETP. They suggest that the observations of the cluster of companies where the employees are fairly favourable to ETP (but fairly unfavourable to parking management) are drawn from another population than the one of the companies of the other clusters.

<table>
<thead>
<tr>
<th>Values</th>
<th>N(^a)</th>
<th>Kruskall-Wallis test</th>
<th>Median test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean score</td>
<td>p-value(^b)</td>
</tr>
</tbody>
</table>

\(^{13}\) The acception of parking management measure is heterogeneous in cluster d. Nonetheless, the means (2.73), the median (3) and the first quartile (1) are the lowest of all the clusters.

\(^{14}\) Four companies have missing data.
The clusters were then compared pairwise by means of Wilcoxon tests. The results (Table 6) moderate the above evidences. In fact, it appears that the aforementioned companies are different (at a significance level of 12%) only from those where the employees are very favourable to ETP, but strongly unfavourable to parking management. Their employees commute more efficiently. The same is true for the companies where the attitude of the employees is heterogeneous. These results outline the importance of the parking management. One can assume that those companies have achieved to reduce the importance of car parks for their employees, making them thus more likely to successfully implement such measures. This would confirm the results of Hole (2004) and Nozick et al. (1998), which show that measures making parking on-site less attractive are important to lead to modal shifts. On the contrary, strong unfavourable attitude to parking management measures probably denotes a social context of important attachments to the car. This precludes such measures.

The companies where the employers are fairly favourable to ETP, and very favourable to the least costly measures, tend to have lower efficiency ratings than those where they are “just” fairly favourable to ETP. The least costly measures focus essentially on communicating on the alternatives to the single-occupancy vehicle use (e.g. the diffusion of information about public transport or the creation of a carpool database). One can assume that a more important support of the management for such measures leads to a better use of the lines of communication, to which the entire ETP benefits. In the same way, it is observed that this same cluster of companies where the employers are fairly favourable to ETP has lower DEA commuting ratings than the ones with heterogeneous attitude.

<table>
<thead>
<tr>
<th>Values</th>
<th>Prob ≤*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes of the employees to ETP</td>
<td></td>
</tr>
<tr>
<td>a) Heterogeneous</td>
<td>0.10*</td>
</tr>
<tr>
<td>Very favourable, but strongly unfavourable to parking management</td>
<td></td>
</tr>
<tr>
<td>b) Heterogeneous</td>
<td>0.24</td>
</tr>
<tr>
<td>Fairly favourable, but fairly unfavourable to parking management</td>
<td></td>
</tr>
<tr>
<td>c) Fairly favourable, but fairly unfavourable to parking management</td>
<td></td>
</tr>
<tr>
<td>Very favourable, but strongly unfavourable to parking management</td>
<td></td>
</tr>
</tbody>
</table>

Table 4 - Attitudes to ETP: results of inter-groups comparisons (Kruskall-Wallis and median tests)

a All 60 companies of the sample have not be taken into account because of missing data for both the clustering and the calculation of the DEA ratings.
b One-tailed.
* Significant at the 90% level.
<table>
<thead>
<tr>
<th>Attitude of the employers to ETP</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Heterogeneous</td>
<td>0.41</td>
</tr>
<tr>
<td>Very favourable</td>
<td></td>
</tr>
<tr>
<td>b) Fairly favourable</td>
<td>0.10*</td>
</tr>
<tr>
<td>Heterogeneous</td>
<td></td>
</tr>
<tr>
<td>c) Very favourable</td>
<td>0.42</td>
</tr>
<tr>
<td>Fairly favourable, and very favourable to the least costly measures</td>
<td></td>
</tr>
<tr>
<td>d) Fairly favourable</td>
<td>0.15</td>
</tr>
<tr>
<td>Very favourable</td>
<td></td>
</tr>
<tr>
<td>e) Fairly favourable, and very favourable to the least costly measures</td>
<td>0.35</td>
</tr>
<tr>
<td>Heterogeneous</td>
<td></td>
</tr>
<tr>
<td>f) Fairly favourable, and very favourable to the least costly measures</td>
<td>0.10*</td>
</tr>
<tr>
<td>Fairly favourable</td>
<td></td>
</tr>
</tbody>
</table>

Table 5 - Attitudes to ETP: results of the pairwise comparisons (Wilcoxon tests)

* One-tailed.
* Significant at the 90% level.

3.2.3. Additional results

Similarly to the analysis of the clusters of attitudes to ETP, Pearson Chi-Square test were performed in order to test whether the type of urban area (Luyten and Van Hecke, 2007) of a company influences its commuting efficiency. No such evidence was found among the data of the sample. However, the calculation of the DEA ratings for the workplaces of the 2005\textsuperscript{15} mobility diagnosis clearly shows that companies located in the urban fringe (or the agglomeration) tend to have a lower commuting efficiency. In other words, the single-occupancy vehicle use is more widespread there despite the existence of alternatives as capable as in city centres. This result is consistent with those of Verhetsel et al. (2010).

Figure 1 – Commuting efficiency ratings of the companies located in Brussels and its close vicinity

\textsuperscript{15} The accessibility by rail was calculated only for the 7460 workplaces of the 2005 mobility diagnosis.
4. Conclusions

This paper has analysed the ETP of companies located in Belgium and studied the impact that the attitudes of both the employees and employers to ETP have on their effectiveness. To achieve this objective, a survey among 60 mobility managers of companies located in Belgium has been performed in order to collect data on the acceptance of mobility measures. A clustering method has been applied in order to evaluate the attitude to the overall ETP.

The results show that both employers and employees are mainly favourable to ETP, and confirm the literature: regardless the attitude to ETP, the employees prefer the mobility measures which bring to them a tangible value while employers favour the least costly one. The results also show that the parking management is a sensitive issue among the employees, and that the more positive the attitude to ETP is, the more sensitive the employees are to parking management. This suggests that in a workforce satisfaction view, it would probably appear less difficult to implement mobility management measures at a previous stage of acceptance of the plan. This paper also shows that the attitude to ETP is pre-eminently influenced by organizational factors, which are unique to each company. Organisational culture and social dialogues probably both play an important role to improve the attitude to the plan.

At the same time, a commuting efficiency rating has been developed for each company. It shows that regarding the background condition at the workplace (i.e. the on-site car parks scarcity, the rail and cycling facilities), employees of companies located in the urban fringe commute inefficiently compared to those of the other ones. Consequently, a potential exist there for a more important use of alternative modes of transport. It would be thus helpful to convince these companies to implement an ETP or to continue their existing one. A special attention has to be brought there to the improvement of the perception the employees have of the alternative modes of transport facilities.

Inter-groups and pairwise comparisons have then been performed in order to test whether the attitude to ETP impact the commuting efficiency of the companies. The results confirm the importance of parking policy in the successfulness of ETP. Companies having achieved to reduce their importance for the workforce have less car users. In the same way, employees of companies with a more important support of the management for the communication on the alternatives to the single-occupancy vehicle use commute greener. Actions have thus to be taken by companies in order to improve the acceptance of parking management measures and employers have to be aware of the importance of communication on the achievement of an ETP.

Acknowledgements

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