Optimal Regulation and Infrastructure for Ground, Air and Maritime Interfaces

RESULTS FROM SURVEY OF BEHAVIOURAL RESPONSE

DELIVERABLE D3.2

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EXECUTIVE SUMMARY

The ORIGAMI project is concerned with improvements in long-distance[1](LD) door-to-door passenger transport chains through both improved co-modality and inter-modality. The project addresses the potential for greater efficiency and reduced environmental impact of passenger transport by judicious encouragement of integration, co-operation and, where appropriate, competition in the provision of local transport with long distance connections. Thus the project encompasses physical characteristics of the network, characteristics of the modes and co-ordination among operators, as well as integration, and the cohesiveness of multi-modal networks.

The project also focuses upon users of the transport system, their demand for travel, their expectations and their reactions to the transport supply that will be on offer. The profile of users varies across European countries and regions and so will their actual and future travel behaviour. A number of factors, such as demographics and social groups, will influence this behaviour and these factors are to be taken into account when trying to assess the potential effectiveness of any intervention.

As such the aims of this deliverable were to:

- Provide data on the existing patterns of LD travel to supplement D3.1; and
- To understand the preferences of LD travellers to help determine their likely responses to policy initiatives being considered in the project.

In order to achieve these aims an online survey was designed as a tool to collect the data and information on current LD travel patterns and preferences of LD travellers. The survey was challenging, given the number of countries that data was collected from (9 in total), the size of the sample to be collected (close to 6,000 respondents) and the complexity of the data to be collected (a mixture of Revealed Preference (RP) and Stated Preference (SP) data). Despite the challenges involved the data was collected successfully with a rolling programme of surveys that began on 4th May 2012 in the UK and which finished on 2nd July in Poland. The profile of the respondents is outlined in Table E-1 and shows a broadly representative sample across the nine countries.

The second aim involved detailed analysis of both RP and SP data. A number of analyses were undertaken which examined the various aspects of making a journey such as, accessing the main mode of transport, the egress journey, the main journey itself and the impact of soft factor solutions (such an online planners) on overall journeys. These analyses were based around SP experiments but were also complimented by analyses of RP data in the form of trip rate tables and linear regression analysis.

Revealed Preference analysis

Trip rates

The RP analyses of trip rates focuses upon the respondentsôlong-distance trip making over the last 12 months and responses to a series of questions covering 3 distance categories (all one way): (1) >1000 kms; (2) between 500 kms and 1,000 kms; (3) and between 100 kms and 499 kms.

As was expected the vast majority of LD trip making (Table E-2) takes place within the lower distance band of 100-499 kms, with close to 80% of all LD trips made in the last 12 months. The remaining trips are split nearly equally between the remaining two distance bands with 12% of trips being made in the 500-1,000 km band and 9% in the >1,000 km band. The split across countries has some variation with Austria, France and the Netherlands showing a tendency to travel more frequently over shorter distances.

[1] Defined as all trips >100 kms

Table E-1 Country specific aggregate statistics (% of sample in each category)

Country	Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	UK	Overall
Gender										
Male	48.8	46.9	53.3	47.7	46.9	49.0	47.6	47.8	41.1	47.3
Female	51.2	53.1	46.7	52.3	53.1	51.0	52.4	52.2	58.9	52.7
Age										
18-24	12.4	14.6	15.9	13.9	17.9	13.8	20.6	13.4	15.9	14.8
25-34	15.6	15.1	18.4	13.6	25.0	17.5	21.1	15.9	17.9	17.4
35-44	25.7	19.0	18.0	17.8	19.0	18.4	14.1	19.2	17.1	19.2
45-54	12.9	17.0	13.5	18.9	14.0	17.1	17.4	18.2	15.6	15.9
55+	33.4	34.3	34.2	35.8	24.2	33.2	26.8	33.2	33.5	32.7
Occupation										
Full time	46.4	38.8	41.2	45.0	36.1	32.2	47.0	42.6	39.3	40.3
Part time	11.5	10.6	8.0	13.6	14.5	23.4	10.3	19.9	13.2	14.2
Self Employed	5.6	2.0	2.7	6.6	8.9	5.9	7.6	5.1	5.8	5.4
Student	9.4	11.8	12.0	12.6	16.3	11.9	15.3	11.4	9.7	11.8
Retired	23.7	22.8	25.4	20.1	11.3	12.9	15.6	16.6	21.3	19.4
FT home maker	2.0	6.8	5.3	1.3	7.6	5.4	3.8	4.5	5.8	4.9
Unemployed	5.1	9.2	6.7	4.9	8.7	13.8	9.1	4.3	6.3	7.2
HH Size										
Single	17.0	15.1	20.0	25.4	9.0	24.1	5.9	20.4	15.4	18.1
2 to 4	75.4	77.2	71.7	71.1	73.6	69.8	82.6	73.0	76.8	73.7
5+	7.6	7.7	8.2	3.6	17.4	6.1	11.5	6.7	7.8	8.1
HH Income										
1st Quartile	32.9	27.6	45.0	45.5	18.2	28.8	27.2	20.0	26.1	29.8
2nd Quartile	20.1	16.9	16.5	16.2	34.1	16.7	23.2	14.1	43.2	24.6
3rd Quartile	21.1	11.9	22.7	21.3	25.5	15.2	18.5	21.2	19.1	19.6
4th Quartile	25.9	43.5	15.8	17.0	22.2	39.3	31.1	44.7	11.6	26.0
Driving Lic.	94.7	85.7	90.7	90.6	86.0	85.5	79.7	86.6	83.9	87.8
Car Access										
No	9.0	12.5	10.0	16.2	12.1	18.0	9.8	14.1	18.8	14.0
Yes shared	17.3	16.0	11.0	16.5	19.2	17.3	31.8	19.2	15.1	16.4
Yes whenever	73.7	71.5	79.0	67.3	68.8	64.7	58.3	66.7	66.1	69.6
Ltd Mobility	0.3	1.3	1.0	2.3	2.1	2.3	0.8	0.3	4.0	1.8
n	**646**	**601**	**599**	**618**	**621**	**572**	**660**	**603**	**872**	**5,792**

Table E-2 Current long-distance trip making

Country	Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	UK	Overall
Number of Trips Made & % in ()										
60-299 miles/100-499 kms	10,426 (78)	11,653 (81)	10,046 (78)	11,019 (77)	12,707 (78)	9,385 (83)	13,421 (80)	10,249 (77)	13,418 (79)	102,322 (79)
300-600 miles/ 500-1,000 kms	1,735 (13)	1,422 (10)	1,609 (13)	1,998 (14)	1,884 (12)	1,041 (9)	2,052 (12)	1,689 (13)	1,968 (12)	15,396 (12)
>600 miles/1,000 kms	1,171 (9)	1,260 (9)	1,149 (9)	1,317 (9)	1,751 (11)	848 (8)	1,406 (8)	1,395 (10)	1,699 (10)	11,995 (9)
n	**646**	**601**	**599**	**618**	**621**	**572**	**660**	**603**	**872**	**5,792**
Mode split (%s)										
Trips 60-299 miles/100-499 kms										
Air	1	5	1	4	4	0	1	1	2	2
Train	17	16	13	18	9	16	9	28	13	15
Coach or bus	1	7	1	3	20	3	11	1	3	6
Car, van or motorcycle	81	70	79	73	64	78	76	70	76	74
Other	1	2	6	2	3	2	3	0	5	3
Trips 300-600 miles/500 – 1000kms										
Air	16	15	8	14	38	16	8	22	26	18
Train	15	10	20	21	9	8	17	20	14	15
Coach or bus	4	10	5	3	16	4	11	5	5	7
Car, van or motorcycle	64	57	66	59	34	65	63	50	49	56
Other	0	7	2	4	3	7	1	3	6	4
Trips over 600 miles/ 1000kms										
Air	55	32	24	39	50	41	23	44	55	41
Train	11	8	14	13	6	7	10	11	10	10
Coach or bus	3	13	4	2	6	7	15	8	4	7
Car, van or motorcycle	30	44	56	44	35	45	50	32	24	39
Other	1	4	2	1	3	3	2	4	7	3
Purpose Split (%)										
Trips 60-299 miles/100-499 kms										
Work/business/commuting	55	48	48	59	50	47	58	48	52	52
Study (education)	6	7	12	10	16	9	6	7	5	9
Recreation/leisure/holiday	32	34	32	26	27	34	27	36	37	32
Other	7	12	8	5	7	9	9	9	7	8
Trips 300-600 miles/500 – 1000kms										
Work/business/commuting	32	25	30	41	32	32	40	31	32	33
Study (education)	3	6	3	4	10	5	4	3	5	5
Recreation/leisure/holiday	59	56	62	50	51	58	47	61	59	55
Other	3	14	5	4	6	6	10	5	4	6
Trips over 600 miles/ 1000kms										
Work/business/commuting	21	22	27	28	25	19	37	25	24	26
Study (education)	2	7	6	5	13	5	4	3	6	6
Recreation/leisure/holiday	74	57	60	65	57	70	52	66	67	62
Other	3	13	6	3	5	7	8	6	3	6

The mode split for LD trips is as expected, with the car strong for all distance bands, but particularly so for the shorter band of 100-499 kms where on average three quarters of all trips are accounted for. Air accounts for only a fraction of trips in this band (2%) but is the dominant mode for trips > 1,000 kms (41%). Train has a significant presence for all three distance bands with around a 15% share for trips between 100 and 1,000 kms, falling to 10% for longer distance trips reflecting airôs strong market share. Coach or bus is fairly constant across all of the distance bands at around 7% whilst other (mainly ferry) is too at around 3%.

There is variation across countries which may reflect geography, topography and cultural differences. For example the UK has a consistently higher number of trips undertaken by ñother modesò reflecting the strong influence of ferries to engage in LD trips. Likewise train services are much more utilised in mainland Europe where integration between countries is the norm, in contrast to Ireland, which does not have the network to support this level of trip making, instead relying on LD coach services and air. Coach services are also particularly strong for Poland which may reflect the cost of competing transport modes and strong cultural norm to travel long distances by coach.

In terms of purpose split, work related and leisure trips dominate, with the former dominant (52%) for journeys between 100 and 499 kms and the latter for journeys >499 kms (>55%). LD work related trips appear to be much more prevalent within Austria, Germany and Poland (>55%) for trips between 100 and 499 kms, whilst education LD trips are prominent for Ireland perhaps reflecting a tendency for study outside of the country.

Table E-3 outlines the average trip rates per respondent with the focus again upon overall distance bands, trip purpose and mode. The overall picture demonstrates that the average respondent makes around 1 return journey a year over 499 kms (mainly holidays), with around 9 return journeys for trips between 100 and 499 kms (a combination of work and leisure). There is some variation between countries in this regard with Belgium, Germany, Ireland and Poland displaying a tendency to make higher than average trips, and with Austria, Switzerland and the UK fewer. A look at the trip rates and journey purpose confirms that leisure dominates trip making at distances greater than 499 kms (with average trips rates of 1.47 and 1.29 for distances between 500 kms and 1000 kms and 1000+ kms respectively); with study trips making a significant contribution between 0-499 km (with an average trip rate of 1.52) and work trips accounting for around 50% of trips between 100-499 kms.

There is some variation between countries, with both Germany and Poland noticeably making more work trips p.a. between 100 and 499 kms (10.55 and 11.89) compared with the overall average of 9.19 trips. Study trips within the same distance category show quite strong fluctuations with France, Germany, Ireland and the Netherlands recording average trips rates greater than the overall average of 1.52. This may reflect the size of these countries as in either very large (France and Germany) or small (Ireland and the Netherlands), which may result in students travelling long distances within their own country or to educational institutions outside their own country.

Regression results

Complementing the trip rate analysis are a series of linear regression models that attempt to explain what factors are important in influencing LD trips. The Ordinary Least Squares (OLS) regression estimations use the respondentôs LD trips in the past 12 months as the dependant variable with explanatory variables a mixture of key socio-economic variables recorded from respondents during the survey. The overall picture to emerge is one of LD travel being largely determined by occupation, car access, gender and whether you have children under the age of 16.

Table E-3 Average trip rates (per person per year)

Country	Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	UK	Overall
Average Trip Rate by Distance Band										
60-299 miles/100-499 kms	16.14	19.39	16.77	17.83	20.46	16.41	20.34	17.00	15.39	17.67
300-600 miles/500 – 1000kms	2.69	2.37	2.69	3.23	3.03	1.82	3.11	2.80	2.26	2.66
> 600 miles/ 1000kms	1.81	2.10	1.92	2.13	2.82	1.49	2.13	2.31	1.95	2.07
Average Trip Rates & Length by Purpose										
60-299 miles/100-499 kms										
Work	8.86	9.26	8.05	10.55	10.23	7.72	11.89	8.23	8.64	9.19
Study	0.98	1.39	2.04	1.77	3.36	1.54	1.15	1.12	0.71	1.52
Leisure	5.15	6.50	5..37	4.62	5.52	5.63	5.54	6.18	5.62	5.57
Other	1.15	2.24	1.31	0.89	1.36	1.53	1.75	1.47	1.02	1.39
300-600 miles/500 – 1000kms										
Work	0.87	0.59	0.79	1.34	0.98	0.57	1.25	0.86	0.72	0.88
Study	0.09	0.14	0.08	1.35	0.31	0.09	0.11	0.07	0.10	0.13
Leisure	1.58	1.32	1.67	1.62	1.56	1.05	1.45	1.72	1.34	1.47
Other	0.14	0.32	0.14	0.14	0.19	0.10	0.30	0.15	0.09	0.17
> 600 miles/ 1000kms										
Work	0.37	0.47	0.53	0.59	0.69	0.28	0.78	0.58	0.47	0.53
Study	0.04	0.16	0.12	.10	0.37	0.07	0.08	0.07	0.13	0.13
Leisure	1.35	1.19	1.15	1.38	1.61	1.03	1.10	1.53	1.30	1.29
Other	0.05	0.28	0.12	0.06	0.15	0.10	0.18	1.40	0.05	0.12
Average Trip Rates & Length by Mode										
60-299 miles/100-499 kms										
Air	0.16	1.04	0.23	0.74	0.79	0.05	0.13	0.09	0.32	0.39
Train	2.75	3.04	2.15	3.23	1.84	2.69	1.91	4.79	2.05	2.68
Coach	0.10	1.35	0.18	0.54	4.11	0.49	2.28	0.18	0.52	1.07
Car	13.02	13.64	13.23	12.94	13.20	12.78	15.50	11.87	11.69	13.05
Other	0.11	0.31	0.97	0.37	0.52	0.40	0.51	0.07	0.82	0.47
300-600 miles/500 – 1000kms										
Air	0.44	0.36	0.21	0.45	1.16	0.29	0.25	0.62	0.58	0.49
Train	0.41	0.24	0.52	0.69	0.26	0.14	0.53	0.55	0.31	0.41
Coach	0.10	0.24	0.12	0.08	0.50	0.07	0.33	0.15	0.11	0.19
Car	1.72	1.35	1.78	1.90	1.02	1.18	1.96	1.40	1.11	1.48
Other	0.01	1.75	0.06	0.11	0.09	0.14	0.04	0.08	0.14	0.09
> 600 miles/ 1000kms										
Air	1.00	0.66	0.45	0.84	1.42	0.61	0.50	1.02	1.07	0.85
Train	0.20	0.16	0.27	0.29	0.17	0.11	0.22	0.25	0.20	0.21
Coach	0.05	0.27	0.08	0.05	0.16	0.06	0.32	0.20	0.07	0.14
Car	0.55	0.91	1.07	0.93	1.00	0.66	1.06	0.75	0.47	0.81
Other	0.01	0.09	0.04	0.03	0.08	0.04	0.03	0.10	0.13	0.06

The explanatory variables in the general model are largely significant, display the correct signs and are largely plausible with a number of the following key findings. Occupation has as strong impact on overall trip making behaviour with those in full time much more inclined to make LD trips, whilst the unemployed, full time home makers and retired are not. This is particularly the case for work as one might expect. Gender also has a strong influence on overall trip making behaviour with men likely to make a significantly more trips than women. This probably reflects the role that men have traditionally assumed (e.g. the main ôbread winnerô) and the fact that there is still a predisposition for men to have a larger share of senior roles within companies that might lead to additional LD travel all things considered. Households with children aged less than 16 have, all things considered, a tendency to do more LD travel than households who do not. This may reflect family visits, family holidays and travel during the school holidays. No access to a car has a significant impact upon overall trip making, but especially so for journeys less than 500 kms, reflecting the strength of car for journeys of those types of distances. As trip lengths approach trip distances that are greater than 500 kms the influence of car is reduced, with rail and air coming to the fore; whilst for trip distances greater than 1,000 kms air is dominant. Coach trips are strongly linked to income with those on lower incomes more likely to travel by this mode. Car trips are strongly influenced by occupation, with those in full time employment making the bulk of the trips, especially for distances less than 500 kms. Journey purpose models are strongly correlated to occupation as might be expected with those in employment strongly influencing work related trips; those who are in education strongly influencing study trips; and those who are retired, home makers or unemployed strongly influencing other trips.

Stated Preference analysis

A number of SP experiments and analyses were undertaken which examined the various aspects of making a journey such as, accessing the main mode of transport, the egress journey, the main journey itself and the impact of soft factor solutions (such an online planners) on overall journeys.

Estimates of soft factor solution valuations

The latter experiment appeared at the end of the survey and respondents were requested to rank a set of ten improvements to their current journey. The improvements consisted of two cost reductions, two fare reductions and six soft factor improvements. The ranking exercise was intended to elicit the preference of respondents on particular improvements related to the quality of the journey relative to a set of reductions in travel time and travel cost. The soft-factors included in the ranking exercise were specific for the four possible modes of transport, i.e. rail, coach, air and car.

The values estimated from the soft factor solutions can be found in Table E-4 and have been estimated across all countries and all modes (with relevancy applying). The overall picture presented in Table E-4 is that respondents have displayed high Willingness To Pay (WTP) values for the LD solutions considered in the soft value SP ranging from 35 minutes (luggage drop off) to 1 hour and 38 minutes (public transport co-ordination). The question arises why the values are so high and whether they are too high. When the questionnaire was piloted, a number of follow up ódepthô interviews were carried out. These showed that LD solutions were consistency placed above reductions in both journey time and journey cost. When probed further it became apparent that respondents were highly risk averse when it came to LD travel, especially travel to new cities, and especially to foreign ones. Respondents valued certainty with respect to how they could make the egress part of their journey, how long it would take, how much would it cost and where the mode they would use would be located. For some people it was important to ascertain this information before their trip, whilst for others it was important that this information/process was easy to get once they arrived at their destination. Respondents also had similar, if not quite as highly valued (due to greater familiarity), concerns about the access part of their journey, especially if they were travelling to airports and needed to arrive with time to go through check-in and security arrangements.

Table E-4 General WTP values for LD solutions

Solution	Minutes	T-ratios
Luggage drop-off	34.83	5.04
Friendly staff	38.91	6.45
Self-service check-in	49.95	7.31
Information LPT ticket service	57.56	9.45
Emission reduction 40%	58.49	6.34
LPT and taxis next to station	71.77	11.37
Online Journey planner	71.66	15.29
Public Transport Coordination	97.55	14.07

The in-depth interviews therefore provide useful contextual information to set these high values against and highlight that high values for solutions such as public transport co-ordination and positioning of local public transport and taxi ranks next to destination stations/airports will be highly valued by LD travellers. Alternatively some of the solutions, principally the online journey planner, will provide actual time savings for people planning trips, as the alternative would be a trip to a travel agent or numerous phone calls to different operators who may or may not be in your own country and who may or may not speak your language. Under such circumstances a WTP of 72 minutes for an ôonline travel plannerômay not seem excessively high. A similarly argument may be made for ôself-service check-inôwhich is valued at around 50 minutes, which compares favourably with the amount of time saved at airport check-in desks. Interestingly, emission reductions are only significant at a high level and that this level was only offered for the car. This may suggest either that small improvements are not considered relevant by respondents or that respondents are more focused on direct benefits to their own journeys rather than society gains overall.

Estimates of the value of the main mode of travel

The remaining SP experiments were linked together by consideration of the most recent LD journey that the respondent had reported in the questionnaire. The first of these attempted to explain the choices for the main mode of transport, i.e. the first part of the choice experiment. The possible main modes of transport amongst which the respondent could choose here were: car, rail, high speed rail (HSR), plane, and coach. The trip presented to the respondent was characterised by a set of trip characteristics specific to each mode of transport. As such, respondents were requested in the first stated choice experiment to make trade-offs between the: (i) travel costs, (ii) travel time on the main mode of transport, (iii) interchange time, (iv) number of interchanges, and (v) the combined access and egress time. The analysis focussed on deriving the implicit values for changes in these specific trip characteristics. Of key interest was the extent to which respondents are willing to pay for reductions in the different components of travel time and to reduce the number of interchanges during the trip. To derive these implicit values, standard Multinomial Logit (MNL) models were estimated at the European and national level.[2] The models control for differences in mode choice and willingness to pay across business and non-business journey purposes as a result of variations in the mode specific trip characteristics.[3] The presented analysis contrasts the Value of Travel Time savings (VoT) across modes, countries, distance bands and journey purposes where possible.

Table E-5 shows, for the longer distance LD trips (trips >500 kms), the value of combined access and egress time, and interchange time is higher than the value of main travel (or in-vehicle) time. The fact that the VoT estimates for interchange time and access and egress time are higher than the VoT for the main modes of transport, can be explained by viewing these as intermediate stages of the journey

[2] Estimations were conducted in the BIOGEME software package (BIOGEME, 2003).

[3] The models jointly estimated the choices for the best and worst alternative in each choice task. It is common knowledge that there may be differences in response patterns across these two types of choices (best and worst). For this purpose, an additional scale parameter was estimated allowing for a difference in variance of the error term between the best and worst response format. Observations based on the worst response format always result in a higher variance.

which are less productive to business travellers and can result in stressful situations for both leisure and business trips, when travellers encounter a new environment and the possibility of missing a connection. Particularly, a longer access and egress time may also increase the probability of missing a flight or a high speed train. For longer distances respondents prefer not to have a complicated and long access to their main mode of transport. This is less the case for the shorter distance LD journeys (trips <501 kms) where the in-vehicle time has the highest value of time estimate. This can be explained by the importance of the car in this distance band, which is associated with no interchange time and low access and egress time. Overall, Table E-5 clearly shows that the VoT is increasing in distance, which reflects the discomfort of longer journeys and the larger opportunity cost of time spent travelling (Wardman et al. 2012). The largest differences across distance bands are observed for the combined access and egress time and the value of an interchange. The latter can also be explained by a preference for uncomplicated travel schedules in longer distance journeys.

Table E-5 European Value of Time estimates in euro per hour and per interchange

	Longer Distance			Shorter Distance		
	Non-Business	Business	All purposes	Non-Business	Business	All purposes
VoT across all modes	15.86	25.30	16.75	12.24	20.14	11.93
VoT for Combined Access and Egress Time	27.33	43.57	28.93	8.72	14.35	8.79
Value per interchange	9.52	15.18	10.08	3.85	6.33	3.96
VoT for Interchange Time	10.75	17.14	11.50	8.21	13.52	8.42
Number of observations	34,496			26,382		
Number of respondents	3,242			2,550		

Estimates of the value of access time

Table E-6 presents mode specific value of access time estimates for the longer distance bands. Here, there are mode specific business VoT estimates up to ú171 for drop-off and ú131 for the taxi. The choice shares revealed a high tendency for respondents to select the drop-off option. More specifically, a fair share of respondents always select the drop-off irrespective of the presented trade-offs. Some of this is picked up by the mode specific constant, but not all. Similar non-trading issues are present for the other modes of transport. It is therefore not surprising that the mode-specific VoT estimates in the longer distance business segment are of such large magnitude. These values are substantially lower in the non-business segment, where they are respectively ú60 and ú48. For the shorter distance band mode specific VoT estimates are not supported by the data. This is largely a result of the larger sample size for this segment, which automatically implies more trade-offs to learn about the underlying mode specific value of access estimates.

For the purpose of consistency, Table 3-10E-6 also reports the value of access time estimates for generic access modes. These values are comparable to the overall access and egress time for the longer distance band reported for the main mode SP. Surprisingly, the access time sensitivities in the shorter distance category are higher compared to the main mode SP and for non-business trips these estimates are even higher than in the longer distance case. This observation can be explained by the fact that for shorter distance trips the more expensive mode of access, i.e. taxi, has a higher share compared to the longer distance (24% vs 13% in the non-business segment) and so inflates the value of time upwards.

Overall, the results for the access stated choice experiment suggest that people generally have a specific access mode that they prefer to use. They seem to be stuck in these habits and refuse to make trade-offs between access time and the associated costs. This affects the analysis substantially, which forces ORIGAMI to recommend the use of European wide values of access time, which are more or less in line with the estimates obtained for combined access and egress time from stated choice experiment one. During the design of the survey, an attempted was made to circumvent the non-willingness to trade by adjusting the levels of travel time and travel costs for the presented

alternatives, but the scope for this was limited due to the need to keep the levels realistic. Hence, this only had a minor impact on actual behaviour in this part of the survey.

Table E-6 European wide value of access time estimates in € per hour

	Longer Distance		Shorter Distance	
	Business	Non-Business	Business	Non-Business
VoT LPT	50.03	20.08		
VoT Taxi	131.45	47.55		
VoT Drop	171.37	59.85		
VoT Drive	106.68	14.88		
VoT all modes	58.89	27.00	58.62	33.22
Number of observations	21,388		17,150	
Number of respondents	3,137		2,478	

Estimates of the value of egress time

Table E-7 shows the values of time with regards the egress mode. Overall, the table makes clear that business people have a higher value of egress time and that the shorter distance value of egress time is also lower. This can be explained by the fact that when arriving at a distant location (i.e. airport or station), people are generally more tired due to the long journey and may want to go to their destination as quick as possible. However, the derived estimates for business trips are associated with large standard errors. Hence, we recommend using the all-purpose specific VoT estimates reported in the Table E-7.

Compared to the values of egress time obtained from the stated choice experiment on access modes, a lower VoT is obtained here for the shorter distance. The value for the longer distance is very comparable across the two studies. An explanation for the lower VoT for egressing from stations compared to the airport is that people may prefer to take a stroll from the station, or enjoy the local public transport to enjoy the scenery of the city in which they arrive. This is clearly not an option for most airports.

Table E-7 European level estimates of the value of egress time in € per hour

	Longer Distance			Shorter Distance		
	Business	**Non-Business**	**All purposes**	**Business**	**Non-Business**	**All purposes**
VoT	154,19	23,72	31,95	23,35	18,46	19,26
Number of observations	12968			13072		
Number of respondents	3242			2550		

Overall, the results for the access/egress stated choice experiments suggest that people generally have a specific access and egress mode that they prefer to use. They seem to be stuck in these habits and refuse to make trade-offs between access time and the associated costs. The willingness to make these trade-offs is larger when selecting the best egress mode.

Illustrative forecasts

In the final section of this deliverable an attempt has been made to incorporate some of the VoT and WTP estimates into a forecasting model. In order to simplify the presentation, the forecasts are for the UK only and as such use the UK data collected as part of the online survey. A generalised costs

forecasting model has been derived using an excel spread sheet which is available on request. The model takes the parameter estimates from the main mode SP namely the values for travel time, travel cost, interchange time and access &egress, as well as the ASC for each mode of transport. These are internalised within the model but still require external inputs in the shape of cost elasticities (which can vary by distance and purpose) and base market share. The former have been derived from Dargay et al (2010) whilst the latter are taken from Table E-1. In addition the model also includes the WTP coefficients estimated as part of the soft solutions SP. It is possible for the user to switch these values on and off as required for each mode to allow the impact on demand of each soft variable to be assessed. In addition there is the facility to change the main mode SP inputs to see the impact on demand of an X% increase in costs or travel time.

The indicative forecasts have revealed that the internalised modelled variables related to hard factors such as travel time and travel cost, perform relatively well in predicting changes in market shares in the LD travel markets. The forecasts appear to be less plausible when soft improvements are included due to the high valuations placed upon them by respondents to the survey. Any forecasts taken forward should therefore be placed in the context of these high valuations and their impacts on the forecasts. An example forecast can be found in Table E-8 which illustrates a fall in market shares for car and air with the introduction of luggage drop offs for HSR, with air in particular affected, reflecting the high substitution between the two modes.

Table E-8 Market Shares – Introduction of Luggage Drop Off for HSR

	Business		Non Business	
Mode	**Base Market**	**Forecasted**	**Base Market**	**Forecasted**
Car	0.500	0.495	0.500	0.495
Rail	0.050	0.050	0.050	0.049
HSR	0.080	0.087	0.080	0.093
Air	0.370	0.368	0.370	0.362

1 INTRODUCTION

1.1 SCOPE AND PURPOSE OF DELIVERABLE

The ORIGAMI project is concerned with improvements in long distance[4](LD) door-to-door passenger transport chains through both improved co-modality and inter-modality. The project addresses the potential for greater efficiency and reduced environmental impact of passenger transport by judicious encouragement of integration, co-operation and, where appropriate, competition in the provision of local transport with long distance connections. Thus the project encompasses physical characteristics of the network, characteristics of the modes and co-ordination among operators, as well as integration, and the cohesiveness of multi-modal networks.

The project also focuses upon users of the transport system, their demand for travel, their expectations and their reactions to the transport supply that will be on offer. The profile of users varies across European countries and regions and so will their actual and future travel behaviour. A number of factors, such as demographics and social groups, will influence this behaviour and these factors are to be taken into account when trying to assess the potential effectiveness of any intervention.

As such the aims of this deliverable were to:

- Provide data on the existing patterns of LD travel to supplement D3.1; and
- To understand the preferences of LD travellers to help determine their likely responses to policy initiatives being considered in the project.

This deliverable describes an online survey that was designed as a tool to collect the data and information on current LD travel patterns and preferences of LD travellers. The survey was challenging, given the number of countries that data was collected from (nine in total). The deliverable also includes a detailed analysis of the results for each country focussing on insights from the revealed preference data and then the stated preference data. It also provides some illustrative forecasts for future LD travel when current preferences of LD travellers are taken into account along with the implementation of future scenarios/solutions identified by the project.

1.2 PREPARATION FOR SURVEY

The initial preparation of the survey involved consultation with all the partners to identify what the definition of LD travel was, which modes should be in included, which purposes and whether access and egress modes should be examined or just the main journey. This consultation occurred in March 2011 and resulted in LD travel being defined as travel that involved distances greater than 100 kms as originally defined in the ORIGAMI Description of Work (DoW). Agreement was also reached on the modes to offer in the Stated Preference (SP) section of the questionnaire, with car, rail, air and coach all to be offered. In addition all journey purposes were to be included and specific parts of the questionnaire should collect data on peopleôs access and egress when using public transport modes for the main leg of their journeys.

More in-depth consultation was required with partner Technische Universität Wien (TUW) who was tasked with identifying current travel behaviour as part of Deliverable 3.1. As such there was an opportunity for the survey to augment the data collection being undertaken by TUW from more established sources of travel data (e.g. Eurostat and DATELINE) by providing data for missing countries and particular types of journeys or modes of travel. This consultation was undertaken in September 2011 and resulted in some modifications to the questionnaire design. Additional consultation was held with TUW on the precise data requirements for the scenario modelling to be undertaken by them as part of Task 7.2, more specifically what level of disaggregation would be appropriate for the attributes that would be used in the modelling (especially for access and egress) and how the soft factor solutions should be valued to allow their inclusion in Task 7.2ôs model estimations.

[4] Defined as all trips >100 kms

A further general consultation took place with all partners to identify which of the policies and solutions were likely to be of most interest to the project and so which should be tested as part of the survey. To help facilitate this there was a review of transport initiatives as put forward by two project reports. The first was a report entitled ñFirst List of Casesò (June, 2011) which outlined specific cases of current best practise currently in use across Europe. The second report, ñDecision on Solutions to be Taken Forward to the SP Survey: MS2ò (July, 2011), provided specific solutions as arranged under the four following sections: (1) Pre-trip Integrated Information and Services; (2) First Mile; (3) Interchange; and (4) Last Mile. The review resulted in an internal note on, ñSolutions for Best Worst Scaling Experimentò (Shires, January, 2012) that outlined which solutions should be considered in the questionnaire, with agreement being reached at the partner meeting in Rome (January 2012).

Following agreement on policy and solutions, discussions also took place with the partners on the countries to be included as part of the survey and the different languages to be utilised. As the aim of the survey was to cover a wide range of countries, the process of choosing countries was largely language driven with English, French and German identified as the three languages that would be able to provide best coverage across Europe, giving access to the following countries:

(a) UK and Ireland ï English;

(b) Germany and Austria ï English and German;

(c) Belgium, France, Netherlands and Switzerland ï English, French and German.

In addition it was felt that a recent accession country should also be surveyed to help TUW gather more travel data for these types of countries. The obvious choice was Poland given that a Polish partner, Uniwersytet Gdanski (UG), was part of the research consortium and that Poland is the largest recent accession country.

Whilst the questionnaire design was being discussed a preferred online panel data supplier was chosen (Research Now). This reflected the decision made at the bid stage to use an online panel to distribute the survey due to cost considerations. Research Now were to provide us with access to their online panel, but the construction of the online survey was undertaken in-house by ITS. Discussions ensued with Research Now about the sampling quotas and it was agreed that the sample should be based around national representative profiles with regard to age and gender.

The programming of the online survey was carried out during November and December 2011 and into January 2012 by which time a pilot version was ready for cognitive testing on a number of subjects in February 2012. The cognitive testing assessed whether any aspect of the questionnaire could be subject to misunderstanding by the respondents and so needed to be changed. After two rounds of cognitive testing the questionnaire was deemed ready for piloting to identify any questions which appeared not to be working or any evidence of respondent fatigue, to confirm the sampling strategy and, via time taken to complete the questionnaire, to check for evidence of non-serious respondents.

Whilst the piloting was underway, the questionnaire was translated into the three non-English languages that had been identified earlier, namely German, French and Polish. The German and Polish translations were carried out by partner organisations, TUW and UG, whilst the French translation was done by a translation company in the UK.

The piloting took place during February and consisted of two separate rounds of 100 online respondents each. The process resulted in revisions to SP values and journey length sampling, and further instructions to Research Now with respect to sampling quotas and minimum response times.

1.3 CONTENT OF QUESTIONNAIRE

A paper version of the full questionnaire can be found in Appendix 1 of this report. This section presents a description of the survey and explains the reasoning behind the inclusion of specific questions and wording.

The first section of the questionnaire (screens 1 and 2) are personal in nature and relate to establishing a socio-economic picture of the respondent. The questions are general and record the following information with the main use to enable socio-economic profiles to be taken into account with the modelling:

- *Country of residence* (this was used to establish what currency (Euros, £s or Zolotys) was used, what distance was recorded and presented in (kms or miles) and what household income categories were offered to the respondent);
- *Gender* (used in the sampling quotas);
- *Year of birth* (used in the sampling quotas);
- *Occupation;*
- *Household size;*
- *Household income;*
- *Do you have a driving license;*
- *Do you have access to a car* (to inform whether car should an option in the stated preference experiments);
- *Can you walk unaided for at least 100 metres*.

The categorisation of occupations, household sizes, and incomes was agreed in consultation with partners. The income bands were devised in order to produce, as nearly as possible, equal numbers of people in each band, this was affected by a procedure based on published data on income distributions (see Appendix 2).

The next section (screens 3, 4 and 5) asked the respondents a series of questions related to long distance trip making, covering 3 distance categories (all one way): (1) >1000 kms; (2) Between 500 kms and 1,000 kms; (3) and between 100 kms and 499 kms. For each category the respondents were asked the following set of questions which were designed to obtain a picture of current LD trip making and so to provide an input directly into TUW modelling work. To help assist respondents a map of Europe was provided with a scale to help identify the distances referred to.

- *How often do you make trips that are between xxx kms and yyy kms* (as per the 3 distance categories).
- *For what percentage of these trips was the main mode of travel* (choice between air, train, coach/bus, car/van/motorcycle and some other means of transport)
- *For what percentage of them were made mainly for work/business/commuting, study/education, recreation/leisure/holiday and some other reason.*

The following section (screens 6, 7 and 8) related to the respondentôs most recent trip over 100 kms each way. This asked a series of questions that were designed to explore and record details of the trip, how they made it, how often they made it, trip purpose, whom they were travelling with and, if made by public transport, how they accessed the public transport mode and how they reached their final destination from the public transport mode. The questions were designed partly to help inform TUW about current long-distance travel behaviour and partly to inform the SP sections of the questionnaire that came later. The questions asked in this section are outlined below:

- *Where did your trip start and finish?*
- *How long did it take to get from XXX to YYY?*
- *What percentage of your time was spent – working/relaxing/just reading?*
- *How far do you think it was from XXX to YYY in kms/miles?*
- *How often do you travel from XXX to YYY?*
- *What was the main purpose of the trip?*
- *Were you travelling alone? If not then who with?* (The answer to this question was used to ósee dô the trip used in the SP questions later in the questionnaire).

- *What main means of transport did you use?*
- *If public transport what other means of transport did you use to access the public transport mode?*
- *Did you use any other mode of transport to get to your destination after arriving by public transport?*
- *Who did you expect to pay for the trip?*
- *Given you chose ZZZ mode to make the main part of the journey can you tell us why you did you not use any other means of transport for the main part of the journey?* (A matrix was displayed with all possible reasons for not using a mode set out as rows and all possible modes set out as columns). This question was designed to provide background information for the SP to help explain choices, e.g. if they never took the coach because of health problems that would help explain choices within the SP later on in the question. The same information could also be used as stand alone information to explain current choice behaviour. The pre-coded reasons for not travelling be certain modes were:
  - *That mode of travel didn't exist for the journey.*
  - *Medical reasons (e.g. travel sickness, heart condition, phobias etc) prevent me from using this current mode of travel.*
  - *I thought it would take too long.*
  - *I thought it would be too expensive.*
  - *I thought it would have been too complicated.*
  - *I thought it would have been too uncomfortable.*
  - *I thought it would have required too much physical effort.*
  - *Employer's travel policy does not allow use of that mode.*
  - *I didn't have enough information about it.*
  - *I was unhappy about the personal security risk associated with that mode.*
  - *I was unhappy about that mode's emissions.*
  - *I was unhappy about the lack of privacy associated with that mode.*
  - *I thought it would have been too unreliable.*
  - *I was unhappy about the lack of flexibility inherent in that mode.*
  - *Another reason (not listed above).*

The next section (screen 9) asked the respondent how long it would take to drive to their nearest airport and nearest railway station. The information obtained from this question was used as a cost driver in the áaccess SPô and in addition to estimate whether walk was a possible access option, i.e. was the drive time < 30 minutes. The specific phrasing of the questions was:

- *How long would it take to drive to your nearest airport?* and
- *How long would it take to drive to your nearest rail station?*

A further question asked: *When considering alternative transport modes for an unimportant journey of XXX kms, how much time would you allow for unexpected delays at some stage of the journey (e.g. unexpected congestion, accidents, incidents, cancelled or delayed services)?* This particular question was very important in relation to the following stated choice experiments as it allowed some estimation to be made of how much time respondents built into their journey schedules to ensure that they arrived at their destination on time. The length of the journey a given respondent was asked to think about in this question (and in subsequent parts of the questionnaire) was determined in order to obtain data for journeys of 150-499 kms and of 500-1,000 kms). Respondents were allocated randomly to one or other length category in the light of their reported trip making.

The first of the three stated choice experiments was then introduced; SP1 related to the main journey and was introduced with a detailed screen (screen 10) that asked the respondent to imagine the were making a particular journey (leisure/business) of XXX kms either alone or with X friends/colleagues and that they had the choice of XXX modes for the main stretch of the journey, returning in XXX days. In each case the journey offered in SP1 related to the latest journey that the respondent had made. So for example if they had just made a leisure journey they were offered a leisure journey in SP1. If they had made it with 3 friends then they were told they were making a journey with 3 friends in SP1. The rest of the journey attributes (journey length and duration of the trip) were allocated randomly. The choice of modes offered was dependent upon the length of journey with car, rail and coach offered for journeys less than 300 kms and car, rail and plane offered for journeys greater than 300 kms.

The introduction to SP1 continues to explain that *the next few screens describe the options available to you and we want you to choose between them. On each screen, please indicate your most preferred option and your least preferred option;* before then outlining definitions of the attributes that will be used to describe each of the options. This is a crucial part of SP1 since it defines how the respondent should interpret the options on offer and also ensures that the models have confidence in how people are responding to them. The attributes were outlined as follows in the questionnaire with bold used to either provide further information for respondents or to convey an instruction:

- ***One-way travel cost****: the one-way cost of the journey* ***(to cover everyone in your party of X people)*** *from leaving your house to reaching your final destination.* (This ensured that respondents were clear that the costs presented in SP1 was just the one way cost and that it covered everyone in the party not just themselves).
- ***Main mode travel time****: for car, this is the time spent in the car (assuming normal traffic conditions). For other modes it is the time on board the main mode (train, coach or plane) assuming it runs to schedule (but excluding any time spend waiting at* ***stations/airports****).* (This ensures that the respondent understand that main mode travel time is only time spent on that mode and does not include any time spent elsewhere during the journey such as changing trains or going through passport control).
- ***Interchange time****: the time spent waiting at* ***stations/airports*** *as a result of any required changes of train, plane or coach during the main stretch of your journey* (this ensures that interchange time is clearly defined and not mixed in with main mode of travel).
- ***Access and egress time***:
  - *Access time applies only to public transport journeys; it is the time spent getting from your home to the station or airport where you board your main mode.*
  - *Egress time is time spent getting to your final destination from the place where you park your car - or from the station/airport where you get off your main mode.*
  - *Please note we have not allowed any time for "****extras****", e.g. getting to and from platforms or gates, completing security or luggage-related procedures, or any rest stops during car journeys.* ***YOU SHOULD TAKE THIS INTO ACCOUNT.***
  - (Similarly this ensures that access and egress time are taken into account separately to main mode of travel time. It also defines ôextrasôseparately to ensure that neither are they taken into account).
- ***Number of interchanges:*** *the number of times that you have to change trains, planes or coaches during the main stretch of your journey (e.g. if you go by air and have to change planes once, the number of interchanges will be 1).* (This ensures that respondents do not consider interchange to occur as a result of access or egress).

The above definitions were carefully constructed to ensure that every possible time component of the LD journey was identified and explained to the respondent so that there was no ódouble countingôof time which may influence their choices during the SP experiment. Similarly clear definitions of one-way travel cost and the number of interchanges was also included to ensure that there was no ambiguity with regards to the cost of the journey or the number of interchanges.

Following the introduction to SP1 came the experiment itself. It presented each respondent with six screens (screens 11 to 16) similar to the one below (Figure 1-1). Each screen reminded the person

of the journey they were making and which had just been defined to them by the introduction to SP1. The respondent was then presented with a choice of main mode of travels and asked to choose which their most preferred option was and which their least preferred option was. Each option was described in terms of the same travel attributes that had been presented in the introduction to SP1 and if the respondent was unsure of how exactly these had been defined they were able to place their mouse over the text and a pop up box would appear containing the definition.

Figure 1-1 Presentation of first stated choice experiment

Remember that you are making a **leisure** journey of **200 kms** and you will be making this journey **with 3 friends, you will be returning 7 days later.**

	Main Mode of Travel		
Travel Attributes *(mouse over attribute for explanation)*	**Rail**	**Car**	**Coach**
One-way travel cost (to cover everyone in your party of 4 people)	£180	£30	£65
Main mode travel time	1 hrs 15 mins	3 hrs 15 mins	4 hrs 00 mins
Interchange time	0 hrs 00 mins	0 hrs 00 mins	0 hrs 37 mins
Combined access & egress time (extras **not** included)	40 mins	5 mins	35 mins
Number of interchanges required	0	0	1
Most preferred option	☐	☐	☐
Least preferred option	☐	☐	☐

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The cost and times presented in SP1 were defined by formulae that were ôseededô using a combination of journey length and other factors such as the number of interchanges. These can be found in Appendix 3.

After completing SP1 the respondent was asked a direct question (screen 17) about ôextrasô to ensure that when modelling their journey choice the full set of journey components was understood:

*"When considering alternative transport modes for a journey of XXX kms, how much time would **you** allow for "extras" (getting to and from platforms or gates, completing security and luggage/passport-related procedures and, for car journeys, any necessary rest stops) - **note that this extra time is above the access and egress time*"***

An additional question was also asked with regards to access journeys. This was an important question as it enabled the questionnaire to decide what access modes would be possible for the respondent. The respondent was asked to assume that they were making the same journey type as for SP1 (e.g. same distance and with the same people) however two additional constraints were also introduced: (1) That they would be making the main leg of the journey by a public transport mode; (2) That they had to be at the train station or airport by 8am on a weekday. The specification of the public

transport mode that the respondent would use was a pre-curser to the access SP which would use the same mode for the main leg. The imposition of an 8am arrival at the station/airport was designed to make sure that the respondent was only able to choose from realistic access modes. That is to say that if no time had been specified then the respondent may have thought that a larger number of access modes were available to them than was the case, e.g. someone could drop me off when that ósomeoneômight have to go to work or take children to school at 8am:

- *Thinking again about the **leisure** journey of XXX **kms with X friends** returning 7 days later .....If you were going to make the journey by **train** and had to be at the station by 8am on a week day, which of the following modes could you use to get to the station ?*
  - *Walk*
  - *Local public transport*
  - *Taxi*
  - *Someon could drop me off*
  - *Drive and park.*

This question led onto the next section which was the access mode stated choice experiment (SP2). This SP focuses upon the journey to a rail station or airport and specifies the arrival time at the station or airport (screen 18). The respondent it told to assume that they are making the same main leg journey as before in terms of length and the number of people in the party. They are told that the next few screens (4) will offer them different options for the journey to the departure station and that they will be asked to give their preferences for each set of options. Each attribute is described by a number of travel attributes which are defined in detail to remove any ambiguities and which are outlined below:

- ***Access cost:** the cost of the journey to the departure rail station/airport and any parking costs **to cover everyone in your party of X people.*** (This highlights that the costs are for the respondentôs entire party not just the respondent).
- ***Access time:** the time required to travel from your home to the departures rail station/airport (assuming no delays).*
- ***Minimum additional time:** the minimum time needed to complete any security or other procedures and to get to the departure platform in time for the scheduled departure (if you are getting to the rail station/airport by local public transport, this additional time allows for the actual timetables). It does **not** include any extra safety margin you might want to add*. (This was a very important defination since it was felt that many respondents would include this in the access time, whereas for the models it was important that it was not. Particularly important was the additional time to be allowed for scheduled delays. A number of forms of words were tired since it was an important concept that needed to be explained without the use of too much technical words)

.

Following on from the introduction of SP2 comes the SP2 experiment which presented each respondent with four screens (screens 19 to 22) similar to the one below (Figure 1-2). Each screen reminded the person of the main leg journey they were making and which had just been defined to them by the introduction to SP1. The respondent was then presented with a choice of access modes and asked to choose which where their most preferred option and which was their least preferred option. Note that when only two transport modes were presented (because that is all the respondent had indicated were realistic choices) then the respondent was just asked to select which was their most preferred mode. Similarly if the respondents had indicated they were only able to use one mode to access the station/airport then they were not offered the access SP. For those who were offered the access mode, each option was described in terms of the same travel attributes that had been presented in the introduction to SP2 and if the respondent was unsure of how exactly these had been defined they were able to place their mouse over the text and a pop up box would appear containing the definition.

Figure 1-2 Presentation of second stated choice experiment

Remember that you are making a **leisure** journey of **200 kms by train** and you will be making this journey **with 3 friends, you will be returning 7 days later.**

	Mode of Access Travel				
Travel Attributes *(mouse over attribute for explanation)*	**Taxi to station**	**Local public transport to station**			
Access time	30 mins	50 mins			
Access cost (to cover everyone in your party of 4 people)	£45	£16.10			
Minimum additional time	10 mins	45 mins			
Most preferred option for getting to the rail station	☐	☐			

The next section of the questionnaire goes straight into the Egress Stated Choice experiment (SP3). As with the previous SPs there is an introductory screen (screen 23) which asks the respondent to think about how they would get to their final destination after arriving at the rail station/airport. Again this is a continuation of the same journey they were offered in SP1. As before the respondent is told they will be faced with a number of travel options and the attributes of each option is defined as below:

- ***Egress cost****: the cost of the journey to your final destination from the arrival rail station to cover everyone in your party of X people.*
- ***Egress time:*** *the time required to travel to your final destination from the arrival rail station (assuming no delays).*
- ***Minimum additional time:*** *the minimum time needed to get from the arrival platform and to complete any arrival procedures (if you are going on to your final destination by local public transport, this additional time allows for the actual timetables). It does* ***not*** *include any extra safety margin you might want to add.*

The attributes are the same as for the access SP but this time only two options are every offered: (1) taxi and (2) local public transport. The following four screens (24 to 27) offer the respondent four different travel choices scenarios as outlined in Figure 1-3. For each scenario the respondent is asked to choose their preferred option.

Figure 1-3 Presentation of the third stated choice experiment

Remember that you are making a **leisure** journey of **200 kms by train** and you will be making this journey **with 3 friends, you will be returning 7 days later.**

	Mode of Access Travel	
Travel Attributes *(mouse over attribute for explanation)*	**Taxi from station**	**Local public transport from station**
Egress time	20 mins	20 mins
Egress cost (to cover everyone in your party of 4 people)	£14.65	£5.95
Minimum additional time	5 mins	15 mins
Most preferred option for getting from the rail station to your destination	☐	☐

Next page

After the egress stated choice experiment came a ranking exercise. This exercise specifies the same length of the journey, the journey purpose and travelling companions as was used in the first stated choice experiment. The mode of travel is randomly assigned subject to the length of the journey (e.g. coach, car or rail for journeys less than 300 kms and car, rail or plane for journeys greater than 300 kms). If the main leg of the journey is being made by public transport then the respondent is told that access and egress will also be made by public transport.

After establishing the journey the respondent is asked to assume that a series of journey characteristics hold. These relate to a set of improvements in the ranking SP that the respondent will have rank. Each mode has a different set of improvements and so different sets of journey characteristics. The full set of journey characteristics is shown in Appendix 4 but an example set relating to coach travel is shown in Figure 1-4. The corresponding set of improvements to be ranked is shown in Figure 1-5 (note that the order in which they were presented was randomised). The improvements are based upon the initial solutions suggested in the MS2 report of July, 2011 and are mixed in with fare and journey time reductions which will be used to obtain valuations during the modelling stage. The ranking exercise allowed respondents to use their mouse pick up and move each improvement to the desired position rather than having to assign a specific ranking to each static attribute.

Figure 1-4 Presentation of coach journey characteristics used prior to ranking exercise

- **Main mode (coach) travel time** is X hrs XX mins and the **travel cost for the entire party** is £XX
- You have to purchase all your coach and other public transport tickets separately.
- There is no online journey planner to help plan your journeys in advance.
- Public transport services to and from the coach stations at either end of the journey are not co-ordinated with the departure and arrival of coach services.
- There is no information and ticketing service at the destination coach station for public transport modes serving it.
- Staff provide poor customer service at the coach stations and on board the coach.
- The public transport interchanges and taxi ranks at the destination coach station are located a 10 minute walk away from the coach station.

Figure 1-5 Presentation of improvements to be ranked for a coach journey

Staff at the coach stations and on board the coaches provide an excellent level of customer service.
Public transport interchanges and taxi ranks are re-sited next to the destination coach station.
There is a £X reduction in the coach travel cost per person.
You can purchase a coach ticket which includes local public transport to and from the coach stations at either end of your journey.
There is a XX minute reduction in coach travel time.
Public transport services to and from the coach stations at either end of the journey are co-ordinated with the departure and arrival of coach services.
Introduction of an online journey planner that allows you to plan every stage of your journey in advance and purchase tickets for each phase at the same time.
There is a £X reduction in the coach travel cost per person.
Introduction of information and ticketing services at the coach station for all forms of public transport that serve it.
There is a XX minute reduction in the coach travel time.

After completing the ranking exercise, the respondent was asked a series of debriefing questions (which take the form of statements) to ascertain how respondents dealt with complexity and how realistic their answers were. Respondents were asked to indicate the extent (on a scale from 1 to 5) to which they agree with each of six statements:

- *I do not like wasting time – I always seem to be in a hurry*
- *I always look for value for money spent*
- *When I finish a complex task, I feel a sense of relief that it is over*
- *When I finish a complex task, I feel a sense of satisfaction*
- *The answers I have given in thsi questionnaire would give someone a good picture of my preferences when making long distance journeys*
- *The choices I made in the hypothetical questions reflected what I would do in the real world.*

The responses to these questions will allow the modelling to take into account how realistic an exercise respondents found the questionnaire, how closely it reflected their real life choices and for segmentation purposes how some key attitudinal factors can influence real life travel behaviour.

The next section provides some overall context for the survey itself with regard to general descriptive statistics about the overall sample obtained and the representativeness of that sample.

1.4 CONTENT OF SURVEY

The launch dates for all of the surveys is outlined below in Table 1-1, with the first surveys launching on 4th May, these were the UK and Irelands surveys which had been piloted in English earlier. Only one language (English) was offered for this sample and it took 2 weeks to achieve a national representative sample of around 650 respondents. The exception to this was the UK which obtained a sample of around 900 due to that countryøs survey being used to pilot the overall survey and test the initial roll out of the main survey leading to additional respondents than had been targeted originally.

Table 1-1 Launch and closure dates for online surveys

Country:	Survey Open:	Survey Closed:
United Kingdom	4th May 2012	18th May 2012
Ireland	4th May 2012	17th May 2012
Austria	18th May 2012	31st May 2012
Germany	18th May 2012	31st May 2012
France	25th May 2012	15th June 2012
Belgium	25th May 2012	15th June 2012
Netherlands	25th May 2012	18th June 2012
Switzerland	25th May 2012	15th June 2012
Poland	11th June 2012	2nd July 2012

Whilst the UK and Ireland surveys were live the task of translating the questionnaire into different languages commenced. German was the next language to be translated and subsequently the Austrian and German surveys went live on 18th May with respondents able to answer either in German or English. Following this launch the questionnaire was translated into French, enabling it to be launched into four countries ï France, Belgium, Switzerland and the Netherlands ï with respondents from these countries being offered the chance to respond in French, German or English. The final language to be translated was Polish. This was launched on 11th June 2012, with respondents offered the opportunity to respond in Polish, English or German. The Polish survey is currently on-going with a likely closure date of 30th June 2012.

Table 1-2 below outlines some aggregate statistics from the responses obtained for all nine countries. The online panel provider (Research Now) was tasked with obtaining a balanced national representative sample for each country based upon age and gender. On the whole this was achieved with the sample being well balanced from a gender perspective for all countries, apart from France, which has slightly more females than males in the sample. There is a good distribution of age groups across all countries, although Poland does tend towards the younger age categories in comparison to the remaining countries. Similarly, there is a good spread of occupations, with the overall picture giving a sample that has around 60% in employment, 12% studying, 7% unemployed and 25% either retired or full time home makers.

Household size shows some strong variations across countries, for example, the Polish sample only has 6% of households that are single, compared to 25% in Germany. In contrast the same two countries represent the extremes with regards to household size of 5+ with the German sample only containing 3.6% compared with Polandøs 11.5%.

The distribution of household income shows similarly strong variations across the countries which may reflect both household size and how income is distributed within each country. France, Germany and the UK have stronger representation in the 1st and 2nd quartiles, whereas Belgium, the Netherlands, Poland and Switzerland are better represented in the 3rd and 4th quartiles.

Overall close to 88% of the sample have a driving license, with Austria, France and Germany particularly high a 90%+, whereas Poland and the UK have the fewest (79.7% and 83.9%

respectively). These figures seem to correlate with the level of car access amongst the group, with on average 14% having no access to car whatsoever.

Table 1-3 outlines the nature of the respondents with regards to their general perspective on life and more importantly how realistic they felt their responses to the questionnaire had been and whether the SP choices offered reflected the real world. These were asked at the end of the questionnaire and are increasingly being used by researchers, particularly modellers to understand whether ambiguity in the design of the questionnaires has any impact upon the answers given.

With regards to the respondentsô general perspective on life there were four specific questions asked that related to each of the following statements:

1. *Don't like wasting time*

2. *Always look for value for money*

3. *Finish a complex task – feel relief*

4. *Finish a complex task – feel satisfaction.*

With regards to ówasting timeôthere was a consensus of respondents who were largely ambivalent towards this with 34% feeling neutral about wasting time, 30% who were relaxed when it came to wasting time and 35% who disliked wasting time. Overall this suggests that we cannot conclude too much from the answers to this statement given the roughly third splits. The respondents appeared to be much more concerned with always looking for value for money 70% of the sample are strongly pre-disposed to obtaining value for money and 15% are not. So any innovations in long distance travel that can result in better value for money will be highly valued.

Similarly, a strong majority of respondents do not appear to enjoy complex tasks, with 65% feeling a sense of relief when they are completed. Despite this, finishing a complex task does leave a large majority of respondents with a sense of satisfaction (75%). Relief and satisfaction are not mutually exclusive events and taken together can suggest that any innovation which reduces complexity will be welcomed.

The respondentsôwere also asked two questions with regards to the realism of questions asked and the responses given:

1. *Answers given – a good picture*

2. *SP choices reflect real world.*

Just over 60% of respondents agreed that the answers they had given were a good reflection of their actual circumstances, with 24% indifferent. This brings a level of reassurance that the sample has provided answers that can be trusted, especially if it is assumed that the 24% of the sample who are indifferent are so largely because the questions asked have not enabled them to fully explain their specific travel characteristics. An even stronger response was obtained from the sample with regards to how realistic the SP questions reflected the real world, with 75% affirming that they had been realistic and 14% ambivalent. Again this augurs well for the modelling estimations, with people able to engage realistically in the series of choices that has been offered to them

There was not much difference between country responses although a number of countries stood out. For example, the German respondents were very relaxed about wasting time with 22% stating they were happy to do so. With regards to always looking for value for money, the UK came out most strongly, with nearly 58% stating this was very important to them compared to 32% for the Dutch respondents. The Dutch also stood out in relation to finishing a complex task with only 16% of them feeling relief when it was completed. Not surprisingly they also felt the least satisfied when completing a task, with only around 31% agreeing compared to an overall average of 45%.

Table 1-2 Country specific aggregate statistics (% of sample in each category)

Country	Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	UK	Overall
Gender										
Male	48.8	46.9	53.3	47.7	46.9	49.0	47.6	47.8	41.1	47.3
Female	51.2	53.1	46.7	52.3	53.1	51.0	52.4	52.2	58.9	52.7
Age										
18-24	12.4	14.6	15.9	13.9	17.9	13.8	20.6	13.4	15.9	14.8
25-34	15.6	15.1	18.4	13.6	25.0	17.5	21.1	15.9	17.9	17.4
35-44	25.7	19.0	18.0	17.8	19.0	18.4	14.1	19.2	17.1	19.2
45-54	12.9	17.0	13.5	18.9	14.0	17.1	17.4	18.2	15.6	15.9
55+	33.4	34.3	34.2	35.8	24.2	33.2	26.8	33.2	33.5	32.7
Occupation										
Full time	46.4	38.8	41.2	45.0	36.1	32.2	47.0	42.6	39.3	40.3
Part time	11.5	10.6	8.0	13.6	14.5	23.4	10.3	19.9	13.2	14.2
Self Employed	5.6	2.0	2.7	6.6	8.9	5.9	7.6	5.1	5.8	5.4
Student	9.4	11.8	12.0	12.6	16.3	11.9	15.3	11.4	9.7	11.8
Retired	23.7	22.8	25.4	20.1	11.3	12.9	15.6	16.6	21.3	19.4
FT home maker	2.0	6.8	5.3	1.3	7.6	5.4	3.8	4.5	5.8	4.9
Unemployed	5.1	9.2	6.7	4.9	8.7	13.8	9.1	4.3	6.3	7.2
HH Size										
Single	17.0	15.1	20.0	25.4	9.0	24.1	5.9	20.4	15.4	18.1
2 to 4	75.4	77.2	71.7	71.1	73.6	69.8	82.6	73.0	76.8	73.7
5+	7.6	7.7	8.2	3.6	17.4	6.1	11.5	6.7	7.8	8.1
HH Income										
1st Quartile	32.9	27.6	45.0	45.5	18.2	28.8	27.2	20.0	26.1	29.8
2nd Quartile	20.1	16.9	16.5	16.2	34.1	16.7	23.2	14.1	43.2	24.6
3rd Quartile	21.1	11.9	22.7	21.3	25.5	15.2	18.5	21.2	19.1	19.6
4th Quartile	25.9	43.5	15.8	17.0	22.2	39.3	31.1	44.7	11.6	26.0
Driving Lic.	94.7	85.7	90.7	90.6	86.0	85.5	79.7	86.6	83.9	87.8
Car Access										
No	9.0	12.5	10.0	16.2	12.1	18.0	9.8	14.1	18.8	14.0
Yes shared	17.3	16.0	11.0	16.5	19.2	17.3	31.8	19.2	15.1	16.4
Yes whenever	73.7	71.5	79.0	67.3	68.8	64.7	58.3	66.7	66.1	69.6
Ltd Mobility	0.3	1.3	1.0	2.3	2.1	2.3	0.8	0.3	4.0	1.8
n	**646**	**601**	**599**	**618**	**621**	**572**	**660**	**603**	**872**	**5,792**

Table 1-3 Reflection of real life questions (% in each category)

Country	Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	UK	Overall
Don't like wasting time										
1-Totally Disagree	17.9	12.0	10.7	21.8	9.8	16.7	7.5	14.3	7.2	13.4
2	17.4	17.9	18.8	17.0	13.2	19.0	12.6	18.6	14.1	16.8
3	35.0	33.4	33.8	32.0	37.0	31.5	31.3	33.6	35.2	34.0
4	19.5	19.2	17.3	18.0	19.4	20.9	25.2	19.6	24.7	20.1
5-Totally Agree	10.2	17.5	19.4	11.2	20.6	11.9	23.3	13.8	18.8	15.6
Always look for value for money										
1-Totally Disagree	10.9	3.9	5.0	9.8	5.9	10.2	4.3	6.6	4.1	6.9
2	9.1	6.9	10.3	6.9	4.7	12.0	5.5	9.4	3.1	7.5
3	14.6	21.5	20.7	13.4	11.5	15.5	13.8	19.9	11.4	15.8
4	20.3	30.6	29.5	22.5	21.8	30.1	28.3	24.7	23.6	25.2
5-Totally Agree	45.0	37.1	34.5	47.4	56.1	32.2	48.1	39.4	57.8	44.6
Finish a complex task – feel relief										
1-Totally Disagree	8.1	5.2	4.1	9.1	5.9	6.9	4.2	4.1	3.7	5.8
2	11.3	8.4	8.0	7.4	9.4	13.4	3.5	7.0	9.6	9.3
3	18.1	16.9	18.3	18.5	25.0	32.8	11.7	20.9	22.3	21.5
4	26.2	32.5	30.9	25.2	23.1	30.8	22.2	28.8	27.2	28.0
5-Totally Agree	36.3	36.9	38.6	39.8	36.6	16.1	58.3	39.1	37.3	35.4
Finish a complex task – feel satisfaction										
1-Totally Disagree	8.5	4.1	4.1	7.3	5.5	5.9	4.6	3.4	3.4	5.2
2	8.5	5.1	4.7	8.1	5.0	6.6	2.1	4.5	1.4	5.3
3	18.1	12.5	13.6	17.1	8.1	19.1	7.6	13.9	10.8	14.0
4	26.4	29.3	32.9	29.5	25.7	37.6	21.3	31.1	30.7	30.3
5-Totally Agree	38.6	49.0	44.7	38.1	55.8	30.8	64.5	47.1	53.6	45.2
Answers given – give a good picture										
1-Totally Disagree	8.3	3.4	3.8	6.1	5.6	5.9	4.4	4.8	3.8	5.2
2	16.3	5.5	3.8	12.9	3.9	8.5	2.8	7.6	2.7	7.4
3	36.0	24.9	21.5	37.9	12.1	22.0	15.3	29.2	14.3	24.2
4	23.6	32.4	35.3	24.7	30.1	39.1	30.9	31.0	34.1	31.3
5-Totally Agree	15.8	33.8	35.6	18.4	48.3	24.5	46.6	27.3	45.1	31.9
SP choices reflect real world										
1-Totally Disagree	8.5	4.3	2.9	7.1	4.8	6.5	3.8	4.3	4.3	5.3
2	7.9	3.7	3.4	5.6	4.0	5.4	1.9	4.8	2.7	4.6
3	17.5	13.1	12.6	19.7	13.0	16.2	8.3	13.1	9.7	14.1
4	23.4	28.6	28.7	26.6	23.6	35.4	30.7	28.9	30.4	28.2
5-Totally Agree	42.7	50.3	52.3	41.1	54.6	36.5	55.3	48.9	53.0	47.8
n	**646**	**601**	**599**	**618**	**621**	**572**	**660**	**603**	**872**	**5,132**

2 RESULTS FROM SURVEY

2.1 RECENT LD TRIP MAKING

2.1.1 Last 12 Months

This section focuses upon the respondentsô long distance trip making over the last 12 months and relate to screens 3, 4 and 5 which asked the respondents a series of questions related to long distance trip making, covering 3 distance categories (all one way): (1) >1000 kms; (2) Between 500 kms and 1,000 kms; (3) and between 100 kms and 499 kms. For each category the respondents were asked the following set of questions which were designed to obtain a picture of current LD trip making and so to provide an input directly into the modelling work in WP7. To help assist respondents a map of Europe was provided with a scale to help identify the distances referred to.

- *How often do you make trips that are between xxx kms and yyy kms.*
- *For what percentage of these trips was the main mode of travel (choice between air, train, coach/bus, car/van/motorcycle and some other means of transport)*
- *What percentage of them were made mainly for work/business/commuting, study/education, recreation/leisure/holiday and some other reason.*

As was expected the vast majority of LD trip making (Table 2-1) takes place within the lower distance band of 100-499 kms, with close to 80% of all LD trips made in the last 12 months. The remaining trips are split nearly equally between the remaining two distance bands with 12% of trips being made in the 500-1,000 km band and 9% in the >1,000 km band. The split across countries has some variation with Austria, France and the Netherlands showing a tendency to travel more frequently over shorter distances.

The mode split for LD trips is as expected, with the car strong for all distance bands but particularly so for the shorter band of 100-499 kms where on average three quarters of all trips are accounted for. Air accounts for only a fraction of trips in this band (2%) but is the dominant mode for trips > 1,000 kms (41%). Train has a significant presence for all three distance bands with around a 15% share for trips between 100 and 1,000 kms, falling to 10% for longer distance trips reflecting airôs strong market share. Coach or bus is fairly constant across all of the distance bands at around 7% whilst other (mainly ferry) is too at around 3%.

There is variation across countries which may reflect geography, topography and cultural differences. For example the UK has a consistently higher number of trips undertaken by other reflecting the strong influence of ferries to engage in LD trips. Likewise train services are much more utilised in mainland Europe where integration between countries is the norm rather than Ireland which does not have the network to support this level of trip making, instead relying on LD coach services and air. Coach services are also particularly strong for Poland which may reflect the cost of competing transport modes and strong cultural norm to travel long distances by coach.

In terms of purpose split, work related and leisure trips dominate, with the former dominant (52%) for journeys between 100 and 499 kms and the former for journeys >499 kms (>55%). LD work related trips appear to be much more prevalent within Austria, Germany and Poland (>55%) for trips between 100 and 499 kms, whilst education LD trips are prominent for Ireland perhaps reflecting a tendency for study outside of the country.

Table 2-2 outlines the average trip rates per respondent with the focus again upon overall distance bands, trip purpose and mode. The overall picture demonstrates that the average respondent make around 1 return journeys a year over 499 kms (mainly holidays), with around 9 return journeys for trips between 100 and 499 kms (a combination of work and leisure). There is some variation between countries in this regard with Belgium, Germany, Ireland and Poland displaying a tendency to make higher than average trips, with Austria, Switzerland and the UK fewer. A look at the trip rates and journey purpose confirms that leisure dominates trip making at distances greater than 499 kms (with average trips rates of 1.47 and 1.29); with study trips making a significant contribution between 0 & 499 km (with an average trip rates of 1.52) & work trips account for around 50% of trips between 100-499 kms.

There is some variation between countries, with both Germany and Poland noticeably making more work trips p.a. between 100 and 499 kms (10.55 and 11.89) compared with the overall average of 9.19 trips. Study trips within the same distance category show quite strong fluctuations with France, Germany, Ireland and the Netherlands recording average trips rates greater than the overall average of 1.52. This may reflect the size of these countries as in very large (France and Germany) or small (Ireland and the Netherlands); which may result in students travelling long distances within their own country or to educational institutions outside of their own country.

With regards to the transport mode chosen, car dominates trip making between 100 and 499 kms, overall accounting for 74% of the average number of trips made. Air accounts for the largest number of trips over 1,000 kms (41%) but is closely followed by car (39%). Train is well represented in the first distance category (15.2%) and second distance category (15.4%) but falls away in the third (10.1%) perhaps reflecting a loss of competitiveness to air in terms of journey time.

It is worth considering how representative this sample is compared with other surveys that have been carried out, for example National Travel Surveys (NTS) by individual countries which were reported in Deliverable 3.1 (Lemmerer et al, 2012). In this document the French, German and UK NTS are reported and whilst the distance categories are not always a like for like comparison, an attempt is made in Table 2-3. The table shows relatively strong comparability for all three countries over the shortest distance band (100-499 kms) which may reflect the regularity of certain journeys and peoplesô ability to recall trips made over shorter distances. Comparability falls somewhat for the longer journeys, especially for the reported air trips from the ORIGAMI French respondents with apparent over reporting by a significant margin compared to the NTS data and vice versa for rail. Overall however the ORIGAMI sample performs well in comparison to the NTS data.

Table 2-1 Current long-distance trip making

Country	Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	UK	Overall
Number of Trips Made & % in ()										
60-299 miles/100-499 kms	10,426 (78)	11,653 (81)	10,046 (78)	11,019 (77)	12,707 (78)	9,385 (83)	13,421 (80)	10,249 (77)	13,418 (79)	102,322 (79)
300-600 miles/ 500-1,000 kms	1,735 (13)	1,422 (10)	1,609 (13)	1,998 (14)	1,884 (12)	1,041 (9)	2,052 (12)	1,689 (13)	1,968 (12)	15,396 (12)
>600 miles/1,000 kms	1,171 (9)	1,260 (9)	1,149 (9)	1,317 (9)	1,751 (11)	848 (8)	1,406 (8)	1,395 (10)	1,699 (10)	11,995 (9)
n	**646**	**601**	**599**	**618**	**621**	**572**	**660**	**603**	**872**	**5,792**
Mode split (%s)										
Trips 60-299 miles/100-499 kms										
Air	1	5	1	4	4	0	1	1	2	2
Train	17	16	13	18	9	16	9	28	13	15
Coach or bus	1	7	1	3	20	3	11	1	3	6
Car, van or motorcycle	81	70	79	73	64	78	76	70	76	74
Other	1	2	6	2	3	2	3	0	5	3
Trips 300-600 miles/500 – 1000kms										
Air	16	15	8	14	38	16	8	22	26	18
Train	15	10	20	21	9	8	17	20	14	15
Coach or bus	4	10	5	3	16	4	11	5	5	7
Car, van or motorcycle	64	57	66	59	34	65	63	50	49	56
Other	0	7	2	4	3	7	1	3	6	4
Trips over 600 miles/ 1000kms										
Air	55	32	24	39	50	41	23	44	55	41
Train	11	8	14	13	6	7	10	11	10	10
Coach or bus	3	13	4	2	6	7	15	8	4	7
Car, van or motorcycle	30	44	56	44	35	45	50	32	24	39
Other	1	4	2	1	3	3	2	4	7	3
Purpose Split (%)										
Trips 60-299 miles/100-499 kms										
Work/business/commuting	55	48	48	59	50	47	58	48	52	52
Study (education)	6	7	12	10	16	9	6	7	5	9
Recreation/leisure/holiday	32	34	32	26	27	34	27	36	37	32
Other	7	12	8	5	7	9	9	9	7	8
Trips 300-600 miles/500 – 1000kms										
Work/business/commuting	32	25	30	41	32	32	40	31	32	33
Study (education)	3	6	3	4	10	5	4	3	5	5
Recreation/leisure/holiday	59	56	62	50	51	58	47	61	59	55
Other	3	14	5	4	6	6	10	5	4	6
Trips over 600 miles/ 1000kms										
Work/business/commuting	21	22	27	28	25	19	37	25	24	26
Study (education)	2	7	6	5	13	5	4	3	6	6
Recreation/leisure/holiday	74	57	60	65	57	70	52	66	67	62
Other	3	13	6	3	5	7	8	6	3	6

Table 2-2 Average trip rates (per person per year)

Country	Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	UK	Overall
Average Trip Rate by Distance Band										
60-299 miles/100-499 kms	16.14	19.39	16.77	17.83	20.46	16.41	20.34	17.00	15.39	17.67
300-600 miles/500 – 1000kms	2.69	2.37	2.69	3.23	3.03	1.82	3.11	2.80	2.26	2.66
> 600 miles/ 1000kms	1.81	2.10	1.92	2.13	2.82	1.49	2.13	2.31	1.95	2.07
Average Trip Rates & Length by Purpose										
60-299 miles/100-499 kms										
Work	8.86	9.26	8.05	10.55	10.23	7.72	11.89	8.23	8.64	9.19
Study	0.98	1.39	2.04	1.77	3.36	1.54	1.15	1.12	0.71	1.52
Leisure	5.15	6.50	5..37	4.62	5.52	5.63	5.54	6.18	5.62	5.57
Other	1.15	2.24	1.31	0.89	1.36	1.53	1.75	1.47	1.02	1.39
300-600 miles/500 – 1000kms										
Work	0.87	0.59	0.79	1.34	0.98	0.57	1.25	0.86	0.72	0.88
Study	0.09	0.14	0.08	1.35	0.31	0.09	0.11	0.07	0.10	0.13
Leisure	1.58	1.32	1.67	1.62	1.56	1.05	1.45	1.72	1.34	1.47
Other	0.14	0.32	0.14	0.14	0.19	0.10	0.30	0.15	0.09	0.17
> 600 miles/ 1000kms										
Work	0.37	0.47	0.53	0.59	0.69	0.28	0.78	0.58	0.47	0.53
Study	0.04	0.16	0.12	.10	0.37	0.07	0.08	0.07	0.13	0.13
Leisure	1.35	1.19	1.15	1.38	1.61	1.03	1.10	1.53	1.30	1.29
Other	0.05	0.28	0.12	0.06	0.15	0.10	0.18	1.40	0.05	0.12
Average Trip Rates & Length by Mode										
60-299 miles/100-499 kms										
Air	0.16	1.04	0.23	0.74	0.79	0.05	0.13	0.09	0.32	0.39
Train	2.75	3.04	2.15	3.23	1.84	2.69	1.91	4.79	2.05	2.68
Coach	0.10	1.35	0.18	0.54	4.11	0.49	2.28	0.18	0.52	1.07
Car	13.02	13.64	13.23	12.94	13.20	12.78	15.50	11.87	11.69	13.05
Other	0.11	0.31	0.97	0.37	0.52	0.40	0.51	0.07	0.82	0.47
300-600 miles/500 – 1000kms										
Air	0.44	0.36	0.21	0.45	1.16	0.29	0.25	0.62	0.58	0.49
Train	0.41	0.24	0.52	0.69	0.26	0.14	0.53	0.55	0.31	0.41
Coach	0.10	0.24	0.12	0.08	0.50	0.07	0.33	0.15	0.11	0.19
Car	1.72	1.35	1.78	1.90	1.02	1.18	1.96	1.40	1.11	1.48
Other	0.01	1.75	0.06	0.11	0.09	0.14	0.04	0.08	0.14	0.09
> 600 miles/ 1000kms										
Air	1.00	0.66	0.45	0.84	1.42	0.61	0.50	1.02	1.07	0.85
Train	0.20	0.16	0.27	0.29	0.17	0.11	0.22	0.25	0.20	0.21
Coach	0.05	0.27	0.08	0.05	0.16	0.06	0.32	0.20	0.07	0.14
Car	0.55	0.91	1.07	0.93	1.00	0.66	1.06	0.75	0.47	0.81
Other	0.01	0.09	0.04	0.03	0.08	0.04	0.03	0.10	0.13	0.06

Table 2-3 Comparison of modal split by distance

Distance Categories	France		Germany		UK	
	NTS	ORIGAMI	NTS	ORIGAMI	NTS	ORIGAMI
100-499 kms						
Car/van	85.5	85.9	72.0	74.3	82.0	77.1
Coach/Bus	1.8	0.8	3.0	2.4	5.0	3.3
Train	11.1	12.6	22.0	22.4	12.0	16.8
Air	0.2	0.0	0.5	0.2	0.0	2.5
Other	0.0	0.8	2.5	0.7	1.0	0.4
500-1,000 kms						
Car/van	74.4	74.5	57.0	75.6		
Bus	2.7	1.4	6.0	0.8		
Train	21.3	20.6	26.0	18.7		
Air	0.4	3.5	10.0	4.1		
Other	0.0	0.0	2.0	0.8		
>1,000 kms						
Car/van	68.2	65.8	31.0	44.4		
Bus	2.8	5.3	8.0	0.0		
Train	23.1	7.9	7.0	5.6		
Air	4.6	21.1	49.0	50.0		
Other	0.0	0.0	6.0	0.0		

2.1.2 Most Recent LD Journey

This section focuses upon the respondentsômost recent long distance trip over 100 kms and relates to screens 6, 7 and 8. These asked a series of questions that were designed to explore and record details of the trip, how it was made, how often it was made, the trip purpose, who was the respondent travelling with and, if made by public transport, how was the public transport mode accessed and how was the final destination reached from the public transport mode. The questions were designed partly to help inform TUW about current long distance travel behaviour and partly to inform the SP sections of the questionnaire that came later. The key questions with regards to this section are outlined below:

- *Where did your trip start (XXX) and finish (YYY)?*
- *How long did it take to get from XXX to YYY?*
- *How far do you think it was from XXX to YYY in kms/miles?*
- *How often do you travel from XXX to YYY?*
- *What was the main purpose of the trip?*
- *What main means of transport did you use?*

A more detailed analysis of trip rates and trip distances is provided by Table 2-4 with trip lengths presented for five levels rather than three. As expected the distribution of trips is heavily focused around the shorter distances, particularly the 100 to 400 kms category, with 76%of all trips made. Within this distance category around 83% of people make less than 12 trips per year. The respondents from Ireland make the most frequent amount of trips at this distance, with around 8.4% stating they made such trips 52+ times a year. As the trip length category increases so the number of people making trips reduces, with around 0.7% of all trips being made at trip lengths of 8,000+ kms.

With regard to the journey purpose (Table 2-5) and the distribution of trips, leisure trips dominate all distance bands, particularly for trips over 1,600 kms. This is at complete odds with the purpose split reported for LD journeys undertaken in the last 12 months (Table 2-1) and may suggest that when asked to recall their most recent LD journey that respondents found it easier to focus upon a holiday/leisure trip. Work related and other trips still have a significant presence throughout, particularly for trips between 100 and 800 kms. There is variation between each country particularly at

the longer distances but this is largely down to smaller sample sizes generating large percentage differences. A similar picture emerges with regards modes of travel (Table 2-6) as has been reported earlier, with car dominating trip making for journeys between 100 and 800 kms (accounting for between 60 to 80% of trips) and rail playing an important part too (accounting for between 17 to 20%). Air begins to demonstrate a presence at journey lengths of over 800 kms, accounting for around 50% initially before going to dominate at around 90% for journeys greater than 1,600 kms. Once again there is variation between each country particularly at the longer distances, again the result of smaller sample sizes generating large percentage differences.

Table 2-4 Recent long-distance trip distributions[5] and frequency

Country	Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	UK	Overall
Percentage Distribution of Trip lengths										
60-250 miles/100-400 kms	78.2	81.2	68.3	72.0	85.9	87.2	79.5	73.5	66.6	76.4
251-500 miles/401-800 kms	14.4	7.1	24.3	20.9	5.0	4.9	14.0	15.6	18.7	14.2
501-1,000 miles/801-1,600 kms	4.5	6.9	6.6	3.1	4.0	3.9	4.3	6.2	6.8	5.2
1,001-5,000 miles/1,601-8,000 kms	2.6	4.2	0.7	3.6	4.1	3.0	1.8	3.4	6.5	3.5
5,001+ miles/8,001+ kms	0.3	0.5	0.2	0.5	1.0	1.0	0.3	1.2	1.4	0.7
N	**625**	**576**	**580**	**589**	**581**	**533**	**649**	**582**	**857**	**5,572**
Percentage Distribution of Annual Trip Frequencies										
60-250 miles/100-400 kms										
52+ trips	4.1	4.1	4.5	3.8	8.4	5.8	5.0	5.4	2.5	4.8
12 to 51 trips	13.1	8.1	15.4	9.4	13.0	14.2	16.1	11.4	7.4	11.9
2 to 11 trips	40.3	35.9	41.2	40.3	44.9	36.1	38.2	31.1	39.9	38.7
0 to 2 trips	42.5	51.9	38.9	46.5	33.7	43.9	40.7	52.1	50.3	44.5
N	**489**	**468**	**396**	**424**	**499**	**465**	**516**	**428**	**571**	**4,256**
251-500 miles/401-800 kms										
52+ trips	1.1	0.0	0.7	1.6	0	0.0	3.3	0.0	0.6	1.0
12 to 51 trips	4.4	4.9	6.4	4.1	10.3	3.8	8.8	2.2	3.8	5.1
2 to 11 trips	30	34.1	41.1	31.7	27.6	42.3	36.3	24.2	36.9	34.2
0 to 2 trips	64.4	61.0	51.8	62.6	62.1	53.8	51.6	73.6	58.8	59.7
N	**90**	**41**	**141**	**123**	**29**	**26**	**91**	**91**	**160**	**792**
501-1,000 miles/801-1,600 kms										
52+ trips	3.6	0.0	0.0	0	4.3	4.8	0.0	0.0	0.0	1.0
12 to 51 trips	0.0	2.5	0.0	0	0	9.5	3.6	2.8	1.7	2.1
2 to 11 trips	10.7	20.0	13.2	11.1	30.4	0.0	39.3	19.4	10.3	16.9
0 to 2 trips	85.7	77.5	86.8	88.9	65.2	85.7	57.1	77.8	87.9	80.0
N	**28**	**40**	**38**	**18**	**23**	**21**	**28**	**36**	**58**	**290**
52+ trips	0.0	0.0	0.0	0	0.0	0.0	8.3	0.0	0.0	0.5
12 to 51 trips	0.0	0.0	0.0	0	4.2	0.0	0.0	0.0	0.0	0.5
2 to 11 trips	6.2	8.3	50.0	9.5	33.3	6.2	16.7	10.0	28.6	18.7
0 to 2 trips	93.8	91.7	50..0	90.5	62.5	93.8	73.0	90.0	71.4	80.3
N	**16**	**24**	**4**	**21**	**24**	**16**	**12**	**20**	**56**	**193**
5,001+ miles/8,001+ kms										
52+ trips	0.0	33.3	0.0	0.0	0.0	0.0	50.0	0.0	0.0	4.9
12 to 51 trips	0.0	0.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0	2.4
2 to 11 trips	0.0	0.0	0.0	0.0	33.3	0.0	0.0	28.6	0.0	9.8
0 to 2 trips	100.0	66.7	100.0	100.0	50.0	100.0	50.0	71.4	100.0	82.9
N	**2**	**3**	**1**	**3**	**6**	**5**	**2**	**7**	**12**	**41**

[5] Distances based upon respondentsôestimates.

Table 2-5 Recent long-distance trips - journey purpose

Country	Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	UK	Overall
Percentage Distribution of Trips by Journey Purpose										
60-250 miles/100-400 kms										
Work/business/commuting	16.2	9.6	10.9	14.9	17.0	13.1	18.2	11.7	8.8	13.4
Study (education)	3.3	2.1	3.3	3.3	5.4	2.8	2.1	3.5	2.5	3.1
Recreation/leisure/holiday	64.4	77.6	69.2	63.4	59.5	57.4	49.8	69.4	74.4	64.9
Other	16.2	10.7	16.7	18.4	18.0	26.7	29.8	15.4	14.4	18.5
N	**489**	**468**	**396**	**424**	**499**	**465**	**516**	**428**	**571**	**4,256**
251-500 miles/401-800 kms										
Work/business/commuting	20.0	4.9	9.9	13.8	10.3	0.0	8.8	11.0	8.1	10.7
Study (education)	3.3	0.0	1.4	5.7	6.9	0.0	2.2	2.2	3.1	2.9
Recreation/leisure/holiday	67.8	82.9	80.9	61.8	69.0	92.3	65.9	81.3	78.1	74.2
Other	8.9	12.2	7.8	18.7	13.8	7.7	23.1	5.5	10.6	12.1
N	**90**	**41**	**141**	**123**	**29**	**26**	**91**	**91**	**160**	**792**
501-1,000 miles/801-1,600 kms										
Work/business/commuting	14.3	2.5	5.3	11.1	4.3	4.8	25.0	13.9	3.4	8.6
Study (education)	3.6	2.5	0.0	0.0	8.7	0.0	3.6	2.8	5.2	3.1
Recreation/leisure/holiday	75.0	90.0	84.2	77.8	78.3	90.5	50.0	69.4	87.9	79.3
Other	7.1	5.0	10.5	11.1	8.7	4.8	21.4	13.9	3.4	9.0
N	**28**	**40**	**38**	**18**	**23**	**21**	**28**	**36**	**58**	**290**
1,001-5,000 miles/1,601-8,000 kms										
Work/business/commuting	0.0	8.3	0.0	9.5	20.8	0.0	25.0	0	1.8	6.7
Study (education)	6.2	0.0	0.0	0.0	0.0	0.0	0.0	15.0	0.0	2.1
Recreation/leisure/holiday	87.5	91.7	100.0	90.5	75.0	93.8	66.7	80.0	94.6	87.6
Other	6.2	0.0	0.0	0.0	4.2	6.2	8.3	5.0	3.6	3.6
N	**16**	**24**	**4**	**21**	**24**	**16**	**12**	**20**	**56**	**193**
5,001+ miles/8,001+ kms										
Work/business/commuting	0.0	33.3	0.0	0.0	0.0	0.0	50.0	14.3	16.7	12.2
Study (education)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recreation/leisure/holiday	100.0	66.7	100.0	100.0	83.3	100.0	50.0	57.1	83.3	80.5
Other	0.0	0.0	0.0	0.0	16.7	0.0	0.0	28.6	0.0	7.3
N	**2**	**3**	**1**	**3**	**6**	**5**	**2**	**7**	**12**	**41**

Table 2-6 Recent long-distance trips – mode of travel

Country	Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	UK	Overall
Percentage Distribution of Trips by Mode										
60-250 miles/100-400 kms										
Car, van, motorcycle (driver)	81.4	84.2	85.9	74.3	76.6	76.6	75.0	72.9	77.1	78.1
Train	16.8	12.6	12.6	22.4	10.0	21.3	13.6	23.8	16.8	16.5
Long-distance coach	1.2	2.1	0.8	2.4	7.8	0.9	10.7	2.3	3.3	3.7
Plane	0.4	0.9	0.0	0.2	4.6	0.9	0.6	0.5	2.5	1.2
Other	0.2	1	0.8	0.7	1.0	0.4	0.2	0.5	0.4	0.5
N	**489**	**468**	**396**	**424**	**499**	**465**	**516**	**428**	**571**	**4,256**
251-500 miles/401-800 kms										
Car, van, motorcycle (driver)	64.4	92.7	74.5	75.6	37.9	69.2	68.1	39.6	50.6	63.4
Train	24.4	0.0	20.6	18.7	10.3	11.5	24.2	29.7	21.2	20.6
Long-distance coach	4.4	4.9	1.4	0.8	3.4	0.0	5.5	6.6	9.4	4.5
Plane	6.7	2.4	3.5	4.1	44.8	19.2	2.2	24.2	18.1	11.1
Other	0	0.0	0.0	0.8	3.4	0.0	0.0	0.0	0.6	0.4
N	**90**	**41**	**141**	**123**	**29**	**26**	**91**	**91**	**160**	**792**
501-1,000 miles/801-1,600 kms										
Car, van, motorcycle (driver)	35.7	62.5	65.8	44.4	26.1	52.4	39.3	36.1	13.8	40.3
Train	10.7	0.0	7.9	5.6	4.3	4.8	10.7	8.3	1.7	5.5
Long-distance coach	3.6	7.5	5.3	0.0	0.0	0.0	25.0	0.0	3.4	5.2
Plane	50.0	30.0	21.1	50.0	65.2	38.1	25.0	55.6	79.3	47.9
Other	0.0	0.0	0.0	0.0	4.3	4.8	0.0	0.0	1.7	1.0
N	**28**	**40**	**38**	**18**	**23**	**21**	**28**	**36**	**58**	**290**
1,001-5,000 miles/1,601-8,000 kms										
Car, van, motorcycle (driver)	6.2	12.5	50.0	9.5	4.2	12.5	25.0	0.0	1.8	7.8
Train	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	3.6	1.6
Long-distance coach	0.0	4.2	0.0	0.0	4.2	12.5	8.3	0.0	0.0	2.6
Plane	93.8	83.3	50.0	90.5	87.5	75.0	66.7	100.00	92.9	87.6
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	1.8	0.5
N	**16**	**24**	**4**	**21**	**24**	**16**	**12**	**20**	**56**	**193**
5,001+ miles/8,001+ kms										
Car, van, motorcycle (driver)	0.0	0.0	0.0	0.0	16.7	0.0	50.0	0.0	8.3	7.3
Train	0.0	0.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0	2.4
Long-distance coach	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Plane	100.0	100.0	100.0	100.0	66.7	100.0	50.0	100.0	91.7	90.2
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N	**2**	**3**	**1**	**3**	**76**	**5**	**2**	**7**	**12**	**41**

2.2 STATED CHOICE EXPERIMENTS (DESCRIPTIVE)

This part of the report provides an initial descriptive analysis of responses to the stated choice experiments concerning the main mode choice, the access mode to the airport/station and the egress mode from the airport / station. It discusses the responses to the three stated choice experiments and provides a comparison of responses across countries. The tables present response shares for the overall population within each country and are split up by distance bands LD (longer distance band >500 kms) and (SD) (shorter distance band <501 kms), and business and non-business journeys.

Error! Reference source not found.2-7 provides an overview of the number of respondents per country participating in the three alternative stated choice experiments and the ranking of soft-factors. Except for the UK and the Netherlands, more people take part in the long distance part of the survey, but the sample sizes at the national level are sufficiently large to estimate basic national models. Business trips represent approximately 10-20% of the total number of trips within each country. Given the limited sample size of this group, we will not estimate specific models for business trips, but investigate whether business travellers should be treated differently in terms of their time and cost sensitivities, or their tendency to select a particular mode of transport.

Table 2-7 Overview of respondents by country, distance band and travel purpose

	LD Kms		SD Kms		Total		
Country	Business	Non-Business	Business	Non-Business	LD	SD	Overall
AT	66	327	39	215	393	254	647
BE	38	280	22	261	318	283	601
FR	41	302	27	229	343	256	599
DE	50	307	39	225	357	264	621
NL	33	247	41	252	280	293	573
IR	61	323	39	198	384	237	621
PL	73	332	38	210	405	248	653
CH	45	317	25	217	362	242	604
UK	39	361	33	440	400	473	873
Total	446	2796	303	2247	3242	2550	5792

2.2.1 First Stated Choice Experiment: Main Mode Choice

The alternatives available to each respondent in the first stated choice experiment depended on the distance (SD or LD) of the trip and the self-reported availability of a car to the individual. If a car was not available, the individual could only make a decision between taking the train or the plane in the long distance part of the survey, and the train or coach in the short distance.[6] With only two alternatives available, the respondent was only requested to select the best alternative. In all other cases the best and worst alternative in the choice task were identified.

Table 2-8 provides an overview of the choice shares for each main mode of transport based on the responses based on the best alternative within each choice task. The table highlights that, except for Ireland and Poland, business travellers are more likely to take the plane on LD journeys. LD non-business (i.e. mainly leisure) trips are predominantly made by car. Also the high-speed rail (HSR) is better represented in the business trips segment. Besides the differences between the business and non-business trips, there are differences in travel patterns across countries which are worth looking at. Most notably, Ireland and Poland reveal a higher share of respectively air and train travel in both the

[6] In each choice card presented to the respondent one alternative presented a train journey, which could either be by standard rail or high speed rail.

business and non-business segment for the LD trips perhaps reflecting the presence and strength of Ryanair and Wizzair in these respective countries.

In the SD, the car is the most selected mode of transport for both business and non-business purpose trips, but business travellers tend to make a train journey more often. The latter is represented by a higher share for both the standard and high speed rail alternatives for the SD band. Again, differences in preferred modes of transport exist across countries, reflected for example by the importance of trains in Switzerland compared to the other countries and the importance of coach for Poland which also records the lowest car shares. A more detailed analysis of the decisions for the main mode of transport is presented in Section 3.3.

Table 2-8 Choice shares (in %) for the 'best' modes in the different distances and purposes

	LD Kms								SD Kms							
	Business				Non-business				Business				Non-business			
	Car	Rail	HSR	Air	Car	Rail	HSR	Air	Car	Rail	HSR	Coach	Car	Rail	HSR	Coach
AT	16	9	17	58	36	9	10	45	50	26	17	6	70	15	7	9
BE	22	11	14	54	47	11	10	32	56	24	13	7	64	18	9	9
FR	24	13	17	46	55	10	10	25	49	27	15	9	65	18	8	8
DE	26	7	13	55	38	13	11	37	50	28	18	5	60	19	8	12
NL	15	14	15	57	43	9	9	39	45	28	12	15	62	16	6	16
IR	20	7	12	61	22	8	9	60	44	29	18	9	55	21	9	14
PL	25	28	31	16	33	26	27	14	32	34	15	19	40	27	13	20
CH	16	9	16	59	27	16	16	41	33	43	18	6	48	28	14	10
UK	21	11	13	55	32	14	15	39	43	27	19	11	58	20	8	14
Total	21	13	17	49	37	13	13	37	45	30	16	10	58	20	9	12

Table 2-9 Choice shares (in %) for the 'worst' modes in the different distances and purposes

	LD Kms								SD Kms							
	Business				Non-Business				Business				Non-Business			
	Car	Rail	HSR	Air	Car	Rail	HSR	Air	Car	Rail	HSR	Coach	Car	Rail	HSR	Coach
AT	59	18	13	10	34	20	23	23	16	9	6	68	4	25	17	54
BE	48	18	17	18	20	20	22	39	10	8	6	75	3	15	10	71
FR	47	15	15	24	17	17	21	44	17	13	9	61	3	19	13	65
DE	55	12	12	21	29	19	21	31	9	13	9	69	7	25	15	52
NL	63	7	10	21	27	20	23	30	7	17	11	65	5	27	19	49
IR	64	10	9	16	50	16	18	15	19	7	7	67	6	16	12	66
PL	35	7	5	53	23	9	8	60	30	19	6	46	19	17	13	51
CH	69	10	9	13	43	14	15	28	15	9	9	68	12	16	10	63
UK	52	8	12	28	33	15	18	34	16	13	7	64	5	19	13	62
Total	54	12	11	24	31	17	19	34	16	12	8	65	7	20	14	60

Error! Reference source not found.2-9 which shows the choice shares in terms of ñworstò modes confirms the patterns revealed in the above table. For long business journeys the car is not a popular mode of transport, although the Polish data reveal that taking the plane is less popular in the business segment but also amongst non-business travellers. Irish people donôt tend to take the car for very LD

trips, which can be explained by the fact that the island is not big enough to cover these trips by car. In the SD band, the bus/coach is consistently considered to be the worst mode of transport across countries with choice shares ranging up to 75% in Belgium. Remarkable is that in most countries rail is also highly unpopular for SD non-business trips, although less unpopular amongst business travellers. The general message that arises for these SD non-business journeys is that people prefer to take the car.[7]

2.2.2 Second Stated Choice Experiment: Access Mode to Airport / Station

The second choice experiment presented to the respondents considered the access mode selected to get to the main airport or station. Airport access was considered for LD journeys and station access for SD journey trips. In the former case, four possible access alternatives were considered being respectively local public transport (LPT), taxi, drop-off and drive & park. In the latter case, the same alternatives were presented in addition to walking to the station. Availability of each of these alternatives depended on individual circumstances elicited during the survey. Respondents were presented with 4 choice tasks each in this stated choice experiment.

Error! Reference source not found. 2-10 reports the distribution of the most preferred mode of access to the airport (LD) and station (SD) and splits this by journey type. Local public transport and being dropped-off by a relative are the most popular modes of access to the airport, where non-business travellers tend to prefer being dropped-off over business travellers. Remarkable is that the Polish business travellers rarely select the drop-off option. Amongst business-travellers taxi and driving are selected more often than for non-business trips. This might be a result of the fact that the costs of these access mode are covered by someone else than the traveller.

The SD trips also reveal a low share of people driving to the station themselves and parking. This is particularly the case for non-business trips. Again, drop-off is the most important mode of access, though people tend to use less local public transport to get to the station than to the airport. In the SD taxi is also an import mode of transport to get to the station.

Table 2-10 Choice shares (in %) for the best mode of access to the airport and railway station

	LD								SD									
	Business				Non-Business				Business					Non-Business				
	LPT	Taxi	Drop	Drive	LPT	Taxi	Drop	Drive	LPT	Taxi	Drop	Drive	Walk	LPT	Taxi	Drop	Drive	Walk
AT	15	25	35	25	19	13	55	13	19	20	37	18	7	18	21	39	16	7
BE	16	35	29	20	16	16	61	7	19	19	32	18	11	16	19	37	10	19
FR	24	27	34	16	26	11	49	14	14	29	31	13	13	18	21	41	6	15
DE	32	10	41	18	32	12	46	10	16	25	41	10	8	26	18	36	9	11
NL	27	20	29	25	28	12	50	10	23	23	23	4	28	16	23	38	7	17
IR	26	11	28	35	38	10	39	13	17	22	27	21	13	19	23	34	13	10
PL	47	26	15	12	40	17	36	7	30	41	12	13	4	34	38	22	3	3
CH	37	14	36	13	38	13	41	8	14	31	8	7	40	18	27	29	5	22
UK	19	25	25	31	27	16	45	13	16	15	38	15	14	13	26	35	6	21
Total	28	21	30	21	30	13	47	10	19	25	28	13	15	19	24	35	8	15

In contrast, Table 2-11 shows for LD journeys approximately 60% of the non-business respondents indicate that taxi is the worst option for them to get to the airport. This shares drops to 35% for station access, which is most likely due to the shorter access times and thereby lower costs. It stands out from **Error! Reference source not found.**1 that only a limited share of respondents indicates that the drop-off, drive & park and walk options are the worst alternative. Walking to the station has an overall

[7] The representation of the choice shares does not take into account that the car alternative was available to 81% of respondents overall. We do take this availability into account in the eventual analysis.

share of 7% of the worst responses for SD business trips, which is comparable to driving and parking. Apart from that response patterns are fairly consistent across countries. The picture that emerges for the worst access mode is that both local public transport and taxi are considered the worst access option, but the balance between the two varies between business and non-business trips and the distance bands.

Table 2-11 Choice shares (in %) for the worst mode of access to the airport and railway station

	LD								SD									
	Business				Non-Business				Business					Non-Business				
	LPT	Taxi	Drop	Drive	LPT	Taxi	Drop	Drive	LPT	Taxi	Drop	Drive	Walk	LPT	Taxi	Drop	Drive	Walk
AT	58	30	2	11	37	50	1	12	59	27	0	2	12	48	37	1	6	8
BE	64	28	2	6	45	51	2	2	73	20	0	5	2	57	35	1	3	4
FR	43	51	0	6	30	62	0	8	44	49	0	2	5	44	44	1	6	5
DE	33	53	3	11	26	63	1	10	44	36	0	5	15	44	39	0	7	9
NL	53	41	2	3	34	57	2	8	45	42	0	4	9	47	35	1	10	7
IR	39	54	2	4	31	59	1	9	44	49	0	6	1	44	42	2	7	6
PL	23	63	6	8	26	58	1	15	52	21	3	13	12	45	30	4	14	7
CH	40	58	0	2	29	62	1	8	43	46	0	7	4	59	27	0	6	8
UK	53	34	2	10	35	55	1	9	57	30	0	13	0	57	31	0	8	4
Total	44	47	2	7	33	57	1	9	50	36	0	6	7	50	35	1	7	6

Overall, the choice shares for the stated choice experiment regarding the mode of access to respectively the airport and stations shows that people prefer to be dropped-off by relatives and consider local public transport and taxi as an alternative, but the latter are not the preferred modes of transport as revealed by their high share of worst responses.

2.2.3 Third Stated Choice Experiment: Egress mode

In the third stated choice experiment respondents were questioned about their most preferred mode of transport to leave the airport or station. Again, respondents were asked to indicate their best and worst ranking if more than two alternatives were available to the respondent. For airports the available egress modes were respectively local public transport and taxi. Hence, respondents in this part were only asked about the best choice option. As in the second stated choice experiment, egress from the station had walking as an additional mode of transport if respondents were able to walk unaided for over 100m. Respondents were presented with 4 choice tasks each in this part of the survey.

Table 2-12 shows that local public transport and taxi are about equally important egress modes when arriving at the destination. For LD trips, non-business travellers select local public transport more often, which is particularly the case for the Irish and UK residents with LPT[8] shares of approximately 75%. Business travellers select the taxi more often to leave the airport, although the shares for business and non-business trips are roughly equivalent in Ireland and Poland.

For short distances, both local public transport and taxi have a market share of about 40%, implying that a substantial share of the respondents prefers to walk to the final destination from the station. Walking is particularly popular amongst the Dutch and Swiss business travellers with a market share over 25%. Remarkable is that taxi is not by definition more popular for business trips than for non-business trips.

This is further confirmed by **Error! Reference source not found.**2-13, where taxi is overall considered to be a worse alternative by business travellers compared to non-business travellers. Remarkable is that the share of walking as the worst alternative amongst business travellers varies

[8] Note that these do not include package holiday trips where bus transfers are included.

substantially across countries. These comparisons should be treated with care given the limited number of business trips within each country and distance band. Indeed, the non-business trips show a more consistent pattern across countries. For non-business, the French stand out with taxi being very unpopular and walking the least unpopular. For business Belgium, Holland and the UK have significantly less people who find walking the worst egress mode from the railway station.

Table 2-12 Choice shares (in %) for best egress mode to the airport and railway station

	LD				SD					
	Business		Non-Business		Business			Non-Business		
	LPT	Taxi	LPT	Taxi	LPT	Taxi	Walk	LPT	Taxi	Walk
AT	38	62	57	43	46	42	12	36	50	15
BE	41	59	52	48	55	30	16	41	40	19
FR	48	52	67	33	44	44	12	47	35	18
DE	54	46	66	34	45	46	10	42	47	12
NL	51	49	64	36	43	30	27	41	38	21
IR	74	26	76	24	42	46	12	35	55	10
PL	60	40	60	40	46	45	9	40	49	11
CH	52	48	60	40	40	29	31	45	37	18
UK	46	54	74	26	39	43	17	34	47	20
Total	53	47	64	36	44	40	16	39	44	17

Table 2-13 Choice shares (in %) for the worst egress mode from the railway station

	SD					
	Business			Non-Business		
	LPT	Taxi	Walk	LPT	Taxi	Walk
AT	25	58	17	33	50	17
BE	44	56	0	37	49	14
FR	18	43	39	19	69	11
DE	40	35	25	31	46	23
NL	16	76	7	30	56	14
IR	16	56	28	36	43	22
PL	21	46	32	42	47	11
CH	29	60	12	36	44	20
UK	31	67	3	34	48	18
Total	25	58	17	33	50	17

Overall, the third stated choice experiment reveals that local public transport and taxi are the most widely used egress modes from the airport. This is different from the results obtained for the access part of the stated choice experiment, because in this case there was no other mode made available to the respondents than local public transport, taxi and walking. Being picked up by a local relative was not considered an option here, which is considered to be realistic for the majority of business and non-business journeys. Local public transport is most popular egress mode from the station with taxi being the most unpopular egress mode here, which is likely to be related to the associated costs of the latter mode. Nevertheless, walking takes up a significant share as an egress mode from the station. This also supports the choice patterns in the access mode stated choice experiment where local public transport and taxi were frequently considered as the worst access modes. This is still the case in the

egress part of the survey, but here respondents simply have no other alternative than to use these modes of transport.

2.2.4 Fourth Stated Choice Experiment: Ranking of Soft-Factors

At the end of the survey, respondents were requested to rank a set of ten improvements to their current journey. The improvements consisted of two cost reductions, two fare reductions and 6 soft factor improvements. The ranking exercise was intended to elicit the preference of respondents on particular improvements related to the quality of the journey relative to a set of reductions in travel time and travel cost. The soft-factors included in the ranking exercise were specific for the four possible modes of transport, i.e. rail, coach, air and car. More specifically, seven different versions of the ranking exercise were provided, two for each non-car mode of transport and one for the car alternative. **Error! Reference source not found.**4 describes the 21 different soft-factors and in which version of the survey they are included, including the total number of observations per version. It becomes directly apparent that the V1 versions for rail, coach and air are equivalent across the modes of transport and that the online journey planner is included in all versions except car. The two travel time reductions and two travel cost reductions were in the order of 5%-30% of the total journey, but cost and travel time reduction 1 is not necessarily larger or smaller than cost and travel time reduction 2.

The soft-factors are provided in a random order to the respondents; hence a priori one would expect a 10% chance for each soft-factor to occur at each rank if none of the respondents change the presented ranking. For the travel cost and travel time reduction we indeed observe a pattern of approximately 10% (Table 2-15), but that is to be expected due to the varying underlying numbers. The inclusion of LPT tickets seems to be preferred over just providing information and ticketing services on LPT. The same holds for Coordination of the schedules between the main modes of transport and the connecting access and egress modes. This is viewed as more important than offering friendly staff and locating these connections next to the station. Online journey planners stand out in revealing a 16% share at the highest rank, which illustrates that travel planners can be an important element in improving the quality of the journey. Passport control and level access seem to be less important soft-factors, while the emission reduction soft-factors reveal a clearer pattern. The 10% emission reduction is the least preferred and the 20% reduction only slightly more, but most observations are in the ranks 6-10. The 40% emission reduction seems to be more important with 14% of observations in the first rank.

The majority of respondents who received the emission factor reductions were car users who appear to have been not only ambivalent towards emission reductions but also to the other soft improvements they were offered namely, free in car Wi-Fi and better rest facilities. Drivers may not see the value of in car Wi-Fi if they are not able to interact with it whilst driving, whilst current rest facilities may be seen as adequate and so not highly valued.

These initial rankings are translated into willingness to pay (WTP) values in section 3.2. These offer more transparency with regards to soft factors preferences, namely the magnitude of preferences between the soft factors.

Table 2-14 Overview of the soft-factors and number of observations per version of the ranking exercise

Soft-factor	V1_rail	V2_rail	V1_coach	V2_coach	V1_air	V2_air	Car
Travel Time reduction 1	x	x	x	x	x	x	x
Travel Time reduction 2	x	x	x	x	x	x	x
Ticket LPT included	x		x		x		
Information LPT ticket service	x		x		x		
Coordination	x		x		x		
Friendly staff	x		x		x		
LPT and taxis next to station	x		x		x		
Online Journey planner	x	x	x	x	x	x	
Luggage drop-off		x				x	
Additional car park space		x		x		x	
Passport control		x				x	
Level Access		x		x			
Self-service check-in		x				x	
Accident reduction 20%				x			x
Emission reduction 10%							x
Emission reduction 20%				x		x	x
Emission reduction 40%							x
Wi-Fi				x			x
Better rest facilities							x
Travel Cost reduction 1	x	x	x	x	x	x	x
Travel Cost reduction 2	x	x	x	x	x	x	x
Observations	1206	1174	664	698	534	565	951

Table 2-15 Overview of rankings (in %) of each soft-factor

Soft-factor	Rank 1 (Best)	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	Rank 9	Rank 10 (Worst)	Number of Times presented
Travel Time reduction 1	11	12	11	10	9	9	10	10	9	10	5792
Travel Time reduction 2	10	12	10	10	10	9	10	9	9	9	5792
Ticket LPT included	12	12	12	11	11	12	9	8	7	7	2404
Information LPT ticket service	8	8	11	12	12	10	9	10	11	9	2404
Coordination	10	12	14	10	11	10	8	8	8	8	2404
Friendly staff	8	8	9	9	11	12	10	11	9	12	2404
LPT and taxis next to station	9	9	9	12	12	12	9	9	9	9	2404
Online Journey planner	16	10	10	10	9	9	10	9	9	8	4841
Luggage drop-off	11	9	11	9	9	11	9	10	11	9	1739
Additional car park space	9	9	9	9	10	10	11	11	11	12	2437
Passport control	7	8	10	9	12	12	11	10	11	12	1739
Level Access	9	8	8	9	9	11	10	11	11	13	1872
Self-service check-in	8	11	10	11	11	11	10	11	8	8	1739
Accident reduction 20%	11	9	10	10	11	9	10	10	10	9	1649
Emission reduction 10%	4	6	9	8	8	10	14	15	14	13	951
Emission reduction 20%	7	7	8	7	10	12	13	12	12	12	2214
Emission reduction 40%	14	11	8	11	14	11	9	11	6	6	951
Wi-Fi	8	8	11	11	9	9	9	9	10	17	1649
Better rest facilities	6	7	8	9	12	11	10	10	13	13	951
Travel Cost reduction 1	9	11	9	9	9	9	10	11	12	11	5792
Travel Cost reduction 2	10	10	10	11	9	9	11	10	11	9	5792

3 MODELLING RESULTS

3.1 TRIP MAKING BEHAVIOUR

3.1.1 Introduction

In this section a series of regression models are reported that relate reported trip making for the three categories of trips length used in the RP survey sections with collected personal characteristics. The models reported are at the aggregate European wide level and disaggregated according to trip length, mode and journey purpose.

Table 3-2 outlines a number of Ordinary Least Squares (OLS) linear regression models for overall LD trips split by distance band. The dependent variables in each case are variants of the most recent long distance trips made in the last 12 months as reported in the survey whilst the independent variables are taken from the personal characteristics of respondents.

Before examining the regressions in detail, Table 3-1 (country specific tables can be found in Appendix 7) adds some context to the overall picture by outlining the reasons stated by respondents for rejecting alternative modes than the one they took for their most recent journey. A number of key messages can be detected, for example, surfaced based public transport tends to be seen as too expensive, too complicated, lacking flexibility, too slow, uncomfortable and not as reliable as a car. While air is generally not an option, where it is an option it compares more favourably with car, although both have reasons for rejection that are highlighted more strongly than others, for example air (when an option) is viewed (relatively speaking) as being expensive, whilst car (when an option) is sometimes seen as taking too long.

Table 3-1 Reasons for rejecting specified modes (all countries, irrespective of current mode and purpose)

	% giving each reason for rejecting this mode				
Reason Given	Car Driver	Car Passenger	Train	Coach	Plane
Too expensive	13	10	27	14	17
Too long	15	12	25	24	9
Too unreliable	5	6	13	10	4
Too much effort	11	5	10	11	5
Too complicated	12	10	23	17	12
Emissions too high	8	5	5	7	6
Employers policy	3	4	4	4	3
Level of flexibility	6	7	26	18	11
Lack of privacy	4	5	13	13	6
Concern over personal security	6	5	6	6	3
Levels of comfort	10	10	15	19	6
Medical reasons	4	3	4	5	3
Lack of information	5	5	9	10	5
No option	23	24	26	35	52
Other	10	8	9	8	7

The reasoning behind the rejection of modes seems to reflect well held research opinions on the respective performances of the transport modes in question. The next table takes the opposite viewpoint and attempt to explain what factors are important in influencing LD trips. Table 3.2 reports OLS regression estimations that use the respondentôs recent LD trips in the past 12 months as the dependant variable plus variants (three distance bands). Explanatory variables are a mixture of key socio economic variables and are listed in the first column. Initial models were run with all the independent variables using a stepwise procedure in SPSS (a statistic software package) that was used to identify an initial list of relevant explanatory variables. These were then refined applying economic and behavioural logic to derive better explanatory models.

Interpretation of the models is related to the base case considered. Taking model 1 as an example, the constant reflects that on average the base case person makes 33 LD trips per annum, were the base case person is defined by the categories not presented in the mode which in this case are:

- Occupation - Full time employment.
- Access to car ï Sometime or always.
- Gender ï Male
- Children <16 in household - None

A series of dummy explanatory variables are then used to ascertain how the base figure of 33 LD trips per annum would alter if the base person in question were to change. So for example, if the base case person changed gender then the number of LD trips made per annum would fall by 8.2 to 24.8 LD trips per annum. If the person was retired as well then the number of trips would fall by an additional 17.6 trips to a total of 7.6. In this way it is possible to see the impact of different socio-economic independent variables on LD trip making.

The overall picture to emerge from Table 3-2 is that LD travel is largely determined by occupation, car access, gender and whether you have children. The models have largely low adjusted R^2 suggesting poor explanatory power but this is to be expected when considering long distance trip making which has numerous factors influencing it that cannot always be accounted for.

Table 3-2 Long-distance trips by trip length

	Dependent Variables – LD Total Trips in Last 12 Months			
Independent Variables	*Model 1: LD Total Trips*	*Model 2: LD Total Trips 60-299 miles /100-499 kms*	*Model 3: LD Total Trips 300-600 miles /500-1,000 kms*	*Model 4: LD Total Trips 600+ miles /1,000+ kms*
Constant	33.0 (23.7)	27.1 (21.4)	3.4 (21.6)	2.4 (20.0)
Occ_part time	-9.7 (4.5)	-8.1 (4.1)	-0.8 (3.4)	-0.9 (4.2)
Occ_self employed	-1.3 (0.4)	-2.2 (0.8)	0.5 (1.4)	0.4 (1.3)
Occ_student	-3.4 (1.5)	-2.6 (1.3)	-0.4 (1.5)	-0.5 (2.3)
Occ_retired	-17.6 (8.9)	-15.6 (8.6)	-1.1 (5.1)	-0.9 (4.8)
Occ_full time home maker	-8.8 (3.6)	-7.5 (2.4)	-0.7 (1.7)	-0.8 (2.5)
Occ_unemployed	-15.9 (5.7)	-13.1 (5.2)	-1.6 (5.2)	-1.3 (4.9)
No Access to Car	-8.0 (3.8)	-7.2 (3.8)		
Female	-8.2 (5.6)	-7.2 (5.4)	-0.8 (4.9)	
Child in HH <16	5.6 (3.4)	4.3 (2.9)	0.8 (4.4)	0.5 (3.2)
Adj R2	0.032	0.029	0.019	0.011
N	5,791	5,791	5,791	5,791

Note: Model coefficients are reported in the table with t statistics alongside in brackets.
Occ - Occupation

The explanatory variables in model 1 are largely significant and display the correct signs. For example, a person in full time employment (the base case) would be expected to be making the most trips vis a vis other occupational status. In particular it should be expected that the retired and the

unemployed would make considerably less trips, which is reflected throughout the models quite strongly and suggests a sensible and plausible set of relationships. Insignificant results were estimated for occupations related to study and the self-employed, which reflects the small samples for both of these groups. No access to a car reduced the base trips by 8 trips (around 24%) reflecting the strong influence of car on LD trips, both as the primary mode and as a feeder mode. A similar affect was recorded if gender changed from male to female, possibly reflecting the role of women as home makers and the gender disequilibrium in terms of work place achievement. Conversely, the presence of children aged < 16 years in a household leads to an increase in trips, possibly reflecting trips to visit family and friends, family holidays and day trips out during school holidays.

Models 2 to 4 decompose model 1 according to the three distance bands already widely used in Section 2 of this report. The shorter of these distance bands (100 to 499 kms) largely reflects model 1 and accounts for the majority of the trips reported in model 1 with a constant of 27.1. The explanatory variables all have the correct signs and, with the exception of study and self-employed, the variables are significant as well. This also has the best explanatory statistics of the sub-models with an adjusted R^2 of 0.028, perhaps suggested that respondents were better at recalling shorter LD trips compared to longer LD trips. Models 3 and 4 reflect the much lower trip making at longer LD categories (with constants of 3.4 and 2.4), as was outlined in the tables of Section 2.
The rest of this section now goes onto report different sets of models (varying by mode, purpose etc.) that can be found in Appendix 5.

3.1.2 Long Distance Trips by Mode

Table A5-1 in Appendix 5 breaks down model 1 by mode. As is expected car accounts for the majority of the data with its base model accounting for just over 18 of total LD trips made by car. Next is rail, followed by air and then coach. Adjusted R^2 is low for all the models but the majority of coefficient signs are correct. Some additional variables can be found in this set of models, even though occupation still dominates. Holding a driving license leads to an extra 6 car trips per year compared to being a passenger. For coach trips model 7 illustrates that the lower the income the more trips will be made, again a plausible result. For the air model it would appear that those aged 55+ have a tendency to fly less than those aged 18 to 34, with the other two age categories being insignificant. Students make less trips than the base case for all modes apart from train where there is a substantial and significant increase which may reflect discounted rail travel in some countries.

3.1.3 Long Distance Trips by Journey Purpose

Table A5-2 in Appendix 5 outlines journey purpose models, namely, work, leisure, study and other trip purposes, for all LD trips. Occupation explains the majority of trip making for work, study and other trips, along with access to a car, gender and whether there are children aged less than 16 in the household. The signs for each explanatory variable appear to be correct, even though the level of significance varies across model. The study model is dominated by whether the respondent is currently a student, whilst the other trip model is strongly influenced by respondents who are full time home maker and to a lesser extent the retired and unemployed, all of whom are more likely to make shopping trips, child related trips, job interview trips and health related trips etc. The leisure model stands out from the other journey purpose model as occupancy does not have a significant effect, rather access to a car, gender and income appear to impact on leisure trips. The effect of income is plausible suggested that the lower the respondentôs income then the less likely they are to make leisure trips. In other words they would rather spend their income in other areas.

3.1.4 Long Distance Journey Purpose Models Split by Distance Categories

Table A5-3 in Appendix 5 reports the same journey purpose models but split the results by the three distance categories that have been used in Section 2: (1) 100 to 500 kms; (2) 500 to 1,000 kms; and (3) > 1,00 kms. Trips across all journey purposes reduce as distances increase and this is particularly marked for work and study trips, reflecting a stronger leisure presence (holidays) at the higher distance categories. Occupation is a strong explanatory variable throughout, along with income for leisure trip (as discussed earlier), along with age for the longer work trips (suggesting that senior executives make longer distance business trips). Other trips appear to be strongly influenced by three

occupation types, retired, full time house maker and the unemployed, which seems plausible given the type of trips made by these groups.

3.1.5 Long Distance Journey Mode Models Split by Distance

Table A5-4 in Appendix 5 outlines a series of mode specific models for air, train, coach, car and other, disaggregated across three distance bands. An examination of the constants illustrates that car dominates journeys for trips between 100 and 500 kms, with car showing a strong presence before air comes to the fore for trips greater than 1,000 kms. Trips rates for air between 100 and 500 kms are low and are influenced by income and whether there are children less than 16 years of age in the household; suggesting that the lower the incomes the less likely people will consider air as a means of transport for this distances given the higher cost of flying at these distances and that families may consider flying to make a long journey easier on young children. As the distances travelled increases occupational status becomes more important, It is likely that this is picking up the impact of work related business trips, with particularly significant negative effects for those who are retired, home makers or unemployed.

Train trips have a significant presence across the three distance bands, particularly so for trips that are longer than 500 kms. The occupation groups who make the most rail journeys are the employed and students, suggesting that work related trips (commuting and business) and student related trips (to school or to universities) are strong drivers. For rail journeys of more than 500 kms, age and having children under 16 in the household starts to impact; with older age groups not travelling as much as younger age groups and families travelling more. Coach trips appear to be heavily influenced by incomes with those on the lowest incomes making more trips than the highest income quartile, reflecting the lower costs of coach travel. Families also appear to have a higher propensity to travel by coach, again the lower cost of coach is likely to have a strong appeal here. Car trips are largely explained by occupational status, with those in full time employment making a considerable number of work related trips at the lowest distance category, mirrored by the lower propensity of the unemployed, retired, home makers and students to make such trips. Other mode trips start to have significance when trip lengths of over 500 kms are considered. The ôotherô category is thought to largely consist of ferry/cruise trips and the very low adjusted R^2 of all three models suggests very poor explanatory variables.

3.1.6 Summary and Key Messages

The regression models provide useful estimation tools for measuring the influence of certain key socio-economic variables on LD travel behaviour. A number of key messages come through that are outlined below namely:

i. Occupation has as strong impact on overall trip making behaviour with those in full time much more inclined to make LD trips, whilst the unemployed, full time home makers and retired are not. This is particularly the case for work as one might expect.

ii. Gender also has a strong influence on overall trip making behaviour with men likely to make a significant number of additional trips vis a vis women. This probably reflects the role that men have traditionally assumed (e.g. the main ôbread winnerô) and the fact that there is still a predisposition for men to have a larger share of senior roles within companies that might lead to additional LD travel all things considered.

iii. Households with children aged less than 16 have, all things considered a tendency to do more LD travel than households who do not. This may reflect family visits, family holidays and travel during the school holidays.

iv. No access to a car has a signficant impact upon overall trip making, but especially so for journeys less than 500 kms, reflecting the strength of car for journeys of those type of distances.

v. As trip lengths approach trip distances that are greater than 500 kms the influence of car is reduced, with rail and air coming to the fore; whilst for trip distances greater than 1,000 kms air is dominant.

vi. Coach trips are strongly linked to income with those on lower incomes more likely to travel by this mode.

vii. Car trips are strongly influenced by occupation, with those in full time employment making the bulk of the trips, especially for distances less than 500 kms.

viii. Journey purpose models are strongly correlated to occupation as might be expected with those in employment strongly influencing work related trips; those who are in education strongly influencing study trips; and those who are retired, home makers or unemployed strongly influencing other trips.

3.2 VALUATION OF "SOFT" IMPROVEMENTS

Section 1 of this report has already outlined the SP experiment within the LD questionnaire that attempted to obtain willingness to pay (WTP) values for a number of ósoftô solutions that were suggested in the MS2 report (July, 2011) and improvements on the current status quo. The improvements were presented with a ranking SP alongside a range of cost and journey time reductions to enable the WTP values to be extracted during the modelling. The full set of improvements is presented in Appendix 4 whilst an example set can be found in Figure 1-5 in Section 1.

The models were estimated using an exploded logit specification, also known as the ranked ordered logit model (Beggs, Cardell and Hausman, 1981). The model is equivalent to a product of independent multinomial logit models, which starts off by estimating the probability that the alternative ranked first is the best of all available soft-factors (including the cost and time reductions). Then the same probability is estimated for the second best alternative by using all available soft-factors except the one ranked best. This process is repeated to obtain the probability of observing the selected ranking by the respondent. During the optimisation the joint probability of observing the rankings across respondents is optimised assuming the preference parameters are constant across the different rankings.

During the estimation stage it became apparent that a bug in the online questionnaire had affected the recording of the cost reductions offered to those respondents who were taking either the French of German language based questionnaire versions. This meant that whilst cost reductions had been offered to respondents it was impossible to ascertain what these cost reductions were, rendering the ranking of them redundant, leaving only the journey time reductions as useful reference points to respondentsôvaluations. A decision was therefore made to estimate a set of WTP values that were related to generalised time rather than generalised cost; thus allowing the inclusion of respondents who had taken either the French or German language based questionnaires. Before arriving at these values a number of tests were undertaken in an attempt to obtain the best possible model fits and these briefly outlined now:

1) Consistency of ranking is important to ensure that respondents are not ranking smaller reductions in time and cost above larger ones. Such behaviour is neither rational nor utility maximising and will impact on the WTP values that are estimated. Such behaviour may be the result of people not engaging fully with the SP exercises; for example, they donôt understand it, they are not bothered, they are tired, they engage with it only partially (only rank the most important solutions) or make genuine mistakes when ranking the data.
2) Partial engagement has already been touched upon with regards consistency of ranking but is an issue in its own right. This occurs when respondents only engage partially with the rankings exercise because they are only concerned with ranking the top X changes, for example five rather than all ten. This might occur because they are only interested in a certain number of the solutions and are ambivalent to the remaining 5 or because they tire during the exercise and lose focus.

3) Complete disengagement is considered to be more extreme than partial engagement and occurs when respondents did not take the opportunity to change the rank of any of the soft factors provided to them. Given that 10 soft-factors were provided, the probability that the ranking is consistent with the respondentsô personal ranking is extremely low.

Despite some of the tests demonstrating slight improvements in the models, none of the improvements were deemed significant enough to warrant implementing them for the main models, especially as they would result in a substantial reduction in sample size. The final set of WTP values are reported in Table 3-3 with values reported as generalised time values which has the added benefit of improving the transferability of the WTP values across countries not involved in the study.

The values in Table 3-3 have been estimated across all countries and all modes (with relevancy applying). Only the values that were significant are reported. A set of mode specific values are outlined in Table 3-6 and are discussed in this section after the general model values have been considered. The overall picture presented in Table 3-3 is that respondents have displayed high WTP values for the LD solutions considered in the soft value SP ranging from 35 minutes (luggage drop off) to 1 hour and 38 minutes (public transport co-ordination).

Why are the values so high and are they too high? When the questionnaire was piloted a number of follow up ódepthô interviews were carried out. These showed that LD solutions were consistency placed above reductions in both journey time and journey cost. When probed further it became apparent that respondents were highly risk averse when it came to LD travel, especially travel to new cities, especially foreign. Respondents valued certainty with respect to how they could make the egress part of their journey, how long it would take, how much would it be and where the mode they would use would be located. For some people it was important for them to ascertain this information before their trip, whilst for others it was important that this information/process was easy to do once they arrived at their destination. Respondents also had similar, if not quite as highly valued (due to greater familiarity), concerns about the access part of their journey, especially if they were travelling to airports and needed to arrive with time to go through check in and security arrangements.

Table 3-3 General WTP values for LD solutions

Solution	Minutes	T-ratios
Luggage drop-off	34.83	5.04
Friendly staff	38.91	6.45
Self-service check-in	49.95	7.31
Information LPT ticket service	57.56	9.45
Emission reduction 40%	58.49	6.34
LPT and taxis next to station	71.77	11.37
Online Journey planner	71.66	15.29
Public Transport Coordination	97.55	14.07

The depth interviews therefore provide useful contextual information to set these high values against and highlight that high values for solutions such as public transport co-ordination and siting local public transport and taxi ranks next to destination stations/airports will be highly valued by LD travellers. Alternatively some of the solutions, principally the online journey planner, will provide actual time savings for people planning trips as the alternative would be a trip to a travel agent or numerous phone calls to different operators who may or may not be in your own country and who may or may not speak your language. Under such circumstances a WTP of 72 minutes for an ónline travel plannerô may not seem excessively high. A similarly argument may be made for óself-service check inô which is valued at around 50 minutes, which compares favourably with the amount of time saved at airport check in desks. Interestingly, emission reductions are only significant at a high level and that this level was only offered for the car. This may suggest either, that small improvements are not considered relevant by respondents or that respondents are more focused on direct benefits to their own journeys rather than society gains overall.

So in reference to the two questions posed in the previous paragraph, the values are high partly because the characteristics of the journeys being undertaken tend to inflate values, namely:

1) Long distance trips ï over several hundred kms and several hours ;
2) The level of unfamiliarity ï particularly for the egress part of the journey and particularly when travelling to different countries.
3) Journey purpose ï leisure travellers are more likely to want a ósstress freeô holiday, whereas business travellers wish to arrive at their destinations on time.

These three factors suggest that respondents will place a high value on solutions that reduce the barriers to interoperability between modes (e.g. co-ordinated public transport) and that save actual time or that make tasks either physically or mentally easier (e.g. luggage drop off).

Are these values too high, is a legitimate question. Values from SP studies tend to be inflated and are usually scaled down using RP data. No such data exists to allow that process to take place. If these estimates are high then how much higher is difficult to say. There are no comparable values either for the solutions in Table 3-3 or the journeys they relate to. A study on soft bus factors for the Department for Transport (2009) however illustrates some ball park figures for urban bus transport (Table 3-4). The figures are per typical urban bus journey which in the UK is around 6 miles long and takes around 30 minutes.

Table 3-4 WTP of urban bus soft factors

Soft Bus Attribute	Value in Mins (t stats)	Soft Bus Attribute	Value in Mins (t stats)
Audio Announcements	1.22 (2.2)	New Interchange Facilities	1.27 (2.6)
CCTV at Bus Stops	2.91 (5.2)	On-Screen Displays	1.29 (2.7)
CCTV on Buses	2.54 (4.8)	RTPI	1.69 (5.3)
Climate Control	1.24 (2.5)	Simplified Ticketing	1.43 (3.7)
New Bus Shelters	1.08 (2.6)	Trained Drivers	2.63 (6.6)
New Bus with Low Floor	1.78 (6.9)		

Source: DfT, 2009

Whilst it is difficult to make direct comparisons with the figures in Table 3-3, it is clear that whilst the figures in 3-4 are much lower (e.g. trained drivers ï 2.63 mins vs 39 minutes - for friendly staff) contextually there is a major difference between the two sets of values as set out below that help explain the different magnitude of the values.

i. Distance ï Urban bus (low) vs LD travel (high)
ii. Time ï Urban bus (low) vs LD travel (high)
iii. Cost ï Urban bus (low) vs LD travel (high)
iv. Frequency ï Urban bus (low) vs LD travel (high)
v. Familiarity ï Urban bus (low) vs LD travel (high)

Indeed a close look at the relativities would indicate that the value of friendly drivers with respect to a 30 minute urban bus trip is around 9% of the total journey time. The average journey length reported in the ORIGAMI LD study was 521 miles, ranging from 275 miles to 714 miles, suggesting a 6 hour journey by rail, a 10 hour journey by car, a 12 hour journey by coach and a 2 hour journey by air. Taking the 6 hour rail journey as an example the 39 minute WTP value of friendly staff would be around 11% of the total journey time. This may suggest that the values presented in table 3-3 are on the high side but not unreasonably so, especially for the upper end of LD journeys. A further example, this time real life, to look at is the cost of transfers between airports and hotels when taking a ópackage

holidaysô An article[9] in a UK paper (Daily Telegraph) illustrates an example where by independent travellers could save around £200 if they booked the flight and transfers (by taxi) themselves and a further £90 if the used the bus for part of the transfers. This would suggest that people place high premiums on seamless and risk averse egress travel when making a LD trip to go on holiday.

Further evidence on the how reasonable the values are can be garnered from the value of travel time (VTT) that was estimated in the same model as the soft factors. The overall value of time for all modes, all countries and all journey purposes was estimated at £22.42 or around ú27. This compares well with values taken from a recent European meta-analysis estimation tool (Wardman, 2012 - see Appendix 6), lending further credence to the soft factor values presented in Table 3-3.

How the soft factor valuations change by mode are outlined in Table 3-6 but before discussing these it is worth looking at the model results for the public transport only estimation which is outlined in Table 3-5. The values are slightly higher than for the general model and reflect that the solutions offered more valued by public transport users than car users who are not using public transport modes. As a result some solutions are significant here, namely a 20% reduction in accidents and free Wi-Fi. Insignificant solutions included the self-scanning of passports, level access onto public transport and a 20% reduction in emission levels. The lack of significance for passports may reflect security concerns from respondents, or that not all LD involve international travel. Level access maybe seen as insignificant because it is already available on many types of public transport and may not be considered an innovative solution.

Table 3-5 Public Transport WTP values for LD solutions

LD Solutions	Minutes	st. error	t-stat
Accident reduction 20%	31.74	10.65	2.98
Luggage drop-off	37.17	7.08	5.25
Friendly staff	40.21	6.15	6.54
Self-service check-in	52.72	7.04	7.49
Wi-Fi	56.44	10.74	5.26
Information LPT ticket service	59.22	6.30	9.39
LPT and taxis next to station	73.70	6.67	11.04
Online Journey planner	76.26	5.30	14.40
Public transport Coordination	99.95	7.68	13.02
Ticket LPT included	111.08	8.21	13.52
Passport control			Ns
Level Access			Ns
Additional car park space			Ns
Emission reduction 20%			Is

Ns ï Not significant. Is ï Incorrect sign.

Table 3-6 presents the values estimated for each individual mode and there is some variation across modes. Self-service check in is much more highly valued for air travel than rail reflecting the much higher wait times associated with airport check in compared to rail, were check in is rare for example Eurostar. Online journey planners appear to be much more highly valued by rail users than coach and air users perhaps reflecting more complex journeys than the other two modes and this is reflected in the relative values accorded to co-ordination of services.

The presence of local public transport and taxis next to stations/airports receives the most consistent set of WTP of all the attributes, ranging from 42 to 65 minutes. Having a local public transport ticket included in the main mode ticket is valued extremely highly by air travellers yet having the presence of

[9] http://www.telegraph.co.uk/travel/travel-advice/9594608/Travel-advice-the-cost-of-package-holidays.html

information and ticketing counters at the airport is not, suggesting a paradox of some sorts or that air travellers are offsetting this with the fact that they can have an integrated ticket.

The results for car suggest that car users did either not engage with the ranking exercise or dismissed the improvements on offer as either not important (e.g. emission reductions) or not feasible (Wi-Fi). The result was a set of WTP values that were either insignificant (e.g. an emission reduction of 40%) or the wrong sign (e.g. better rest facilities).

Table 3-6 Public Transport WTP values for LD solutions (values in minutes)

LD Solutions	Rail	Coach	Air	Car
Ticket LPT included	111.84	47.86	159.58	Na
Coordination	104.47	47.41	85.22	Na
Online Journey planner	91.32	33.51	50.97	Na
LPT and taxis next to station	64.66	42.37	51.93	Na
Information LPT ticket service	42.60	42.26	7.64	Na
Luggage drop-off	42.58	Na	Ns	Na
Self-service check-in	31.95	Na	143.02	Na
Passport control	28.79	Na	Ns	Na
Friendly staff	27.11	32.79	Ns	Na
Additional car park space	15.57	11.61	Ns	Na
Wi-Fi	Na	28.69	Na	Is
Level Access	Ns	25.05	Na	Na
Accident reduction 20%	Na	22.12	Na	Ns
Emission reduction 10%	Na	Na	Ns	Is
Emission reduction 20%	Na	Ns	Ns	Is
Emission reduction 40%	Na	Na	Na	Ns
Better rest facilities	Na	Na	Na	Is

Na ï Not applicable to that mode. Ns ï Not significant. Is ï Incorrect sign.

A number of key messages are provided by the soft improvement SP and are outlined below:

i. Respondents place a high value on soft improvements. A result of the key characteristics of LD journeys, namely the length of the journey, the unfamiliarity of the journey and the journey purpose.
ii. There are very real practical time and cost savings from the soft improvements that carry a high value, e.g. time savings when checking in at airports or when using online planners.
iii. Other improvements are valued because of the assurance they bring to the LD traveller, especially when arriving in an unfamiliar place, particularly a foreign country, i.e. integrated LPT and main mode tickets.
iv. WTP values tend to be lowest for coach, reflecting income and cost differences between coach and other modes.
v. Car users either did not engage with the rankin exercise or dismissed the improvements on offer as not important or realistic.

3.3 STATED CHOICE FOR MAIN MODE

3.3.1 Main Mode of Transport

This section presents the model results explaining the choices for the main mode of transport, i.e. the first part of the choice experiment. The possible main modes of transport amongst which the respondent could choose here were: car, rail, high speed rail (HSR), plane, and coach. The trip

presented to the respondent was characterised by a set of trip characteristics specific to each mode of transport (see figure 1-1 in section 1.3). As such, respondents were requested in the first stated choice experiment to make trade-offs between the: (i) travel costs, (ii) travel time on the main mode of transport, (iii) interchange time, (iv) number of interchanges, and (v) the combined access and egress time. The analysis focussed on deriving the implicit values for changes in these specific trip characteristics. Of key interest was the extent to which respondents are willing to pay for reductions in the different components of travel time and to reduce the number of interchanges during the trip. To derive these implicit values, standard Multinomial Logit (MNL) models were estimated at the European and national level.[10] The models control for differences in mode choice and willingness to pay across business and non-business journey purposes as a result of variations in the mode specific trip characteristics.[11] The presented analysis contrasts the Value of Travel Time savings (VoT) across modes, countries, distance bands and journey purposes where possible.

3.3.2 European VOT estimates

This section starts with a discussion of the overall European VoT estimates for business and non-business trips per distance band as reported in Table 3-7. In this specification a separate cost coefficient is estimated for business and non-business trips reflecting potential differences in cost sensitivity across both types of travel purposes and distance bands. Sensitivity checks revealed that business travellers are mainly less cost sensitive rather than more time sensitive compared to non-business travellers. The reduced cost-sensitivity for business travellers results in a higher VoT estimate for business trips. In terms of mode choice, this is reflected by business travellers taking the plane, HSR and rail more often compared to leisure trips. Leisure trips are primarily undertaken by car and such car trips generally take longer, but are cheaper per person when the car is shared with other passengers. This specification does not control for differences in the VoT across modes of transport.[12]

For the longer distance band, the value of Combined Access and Egress Time and interchange time is higher than the value of main travel (or in-vehicle) time. Note that if interchange time is included, one also automatically has to make an interchange, which result in the higher VoT estimate relative to main travel time sensitivity. The fact that the VoT estimates for interchange time and access and egress time are higher than the VoT for the main modes of transport, can be explained by viewing these as intermediate stages of the journey which are less productive to business travellers and they can result in stressful situations for both leisure and business trips when travellers encounter a new environment and the possibility of missing a connection. Particularly, a longer access and egress time may also increase the probability of missing a flight or a high speed train. For longer distances respondents prefer not to have a complicated and long access to their main mode of transport. This is less the case for shorter distance journeys where the in-vehicle time has the highest value of time estimate. This is can be explained by the importance of the car in this distance band, which is associated with no interchange time and low access and egress time. In the latter specification, the VoT estimates are more comparable. Overall, Table 3-7 clearly shows that the VoT is increasing in distance, which reflects the discomfort of longer journeys and the larger opportunity cost of time spent travelling (Wardman et al. 2012). The largest differences across distance bands are observed for the Combined Access and Egress Time and the value of an interchange. The latter can also be explained by a preference for uncomplicated travel schedules in longer distance journeys.

[10] Estimations were conducted in the BIOGEME software package (BIOGEME, 2003).

[11] The models jointly estimated the choices for the best and worst alternative in each choice task. It is common knowledge that there may be differences in response patterns across these two types of choices (best and worst). For this purpose, an additional scale parameter was estimated allowing for a difference in variance of the error term between the best and worst response format. Observations based on the worst response format always result in a higher variance.

[12] Mode specific VoT estimates could only be estimated at the overall European level without controlling for distance bands. The obtained VoT estimates were not classified as reliable, since not all modes of transport are available in both distance bands and the different levels of the experimental design used in both distance bands compromises merging the datasets. For example, in the long distance case, relatively large reductions in travel time are presented at relatively low cost, which reduces the VoT compared to the short-distance band. Consequently, the modes of transport primarily taken for longer distance journeys and by business travellers, like the plane and HSR, have a substantially lower VoT estimate than when travelling by car and coach. Accordingly, we only present VoT estimates by distance band. Note that a separate model is estimated for each distance band.

Error! Reference source not found.3-7 also presents a set of VoT estimates valid for all purposes. These values are reported to be consistent with the specifications used at the national level presented later in this section. The all-purpose VoT estimates are comparable to the non-business VoT estimates due to the relatively small number of business trips included in the sample. Separate models are presented at the national level for the longer and shorter-distance part of the survey. The above sensitivity test revealed that a disaggregation to this level is necessary due to the differences in mode choice behaviour also reflected by the table describing the choice shares in Section 2.2.1. Unfortunately, by disaggregating the data to the national level, mode specific VoT estimates cannot be estimated with sufficient accuracy within each distance band. Moreover, due to the high tendency to select the car in the shorter distance sample, we are also unable to estimate a specific business and non-business value of time measure for the shorter distance band.[13] Hence, for both the longer and shorter distance the different components of the VoT are estimated, but not mode specific, and only for the longer distance a specific VoT estimate for business trips is obtained. It should be noted that these models do control for differences in journey purpose in the alternative specific constant for each main mode of transport. The forecasts presented in Section 4 do take into account these alternative specific constants, i.e. the prior tendency of people to select a particular mode of transport.

Table 3-7 European Value of Time estimates in euro per hour and per interchange

	Longer Distance			Shorter Distance		
	Non-Business	Business	All purposes	Non-Business	Business	All purposes
VoT across all modes	15,86	25,30	16,75	12,24	20,14	11,93
VoT for Combined Access and Egress Time	27,33	43,57	28,93	8,72	14,35	8,79
Value per interchange	9,52	15,18	10,08	3,85	6,33	3,96
VoT for Interchange Time	10,75	17,14	11,50	8,21	13,52	8,42
Number of observations	34496			26382		
Number of respondents	3242			2550		

3.3.3 National Level Models

Table 3-8 presents the national VoT estimates for the longer distance band and reports where possible business and non-business specific VoT estimates. For Austria and the Netherlands a business specific cost sensitivity coefficient could not be estimated. Therefore only a single VoT measure is reported revealing that the in-vehicle VoT estimate is comparable between both countries, but that Austria has a much lower VoT for Combined Access and Egress time compared to the longer distance estimate from Table 3-7. This can be explained by the relatively low importance of the car alternative in Austria, but above average of the plane alternative in the longer distance case, which lowers the value of Combined Access and Egress Time. With respect to the other countries, the VoT estimates vary substantially across countries but are in line with the meta-analysis results by Wardman et al. (2012) (see Appendix 6).

Switzerland has the highest value of main travel time across countries. Broadly, two groups can be identified. Austria, Ireland, and Poland have a business value of time ranging between ú15 and ú20 per hour. The second group, comprising Belgium, Germany, France and the UK, have a business value of time ranging between ú25 and ú35 per hour. In the first group, all countries except Poland reveal a low share of car trips, but relatively high representation of HSR and air journeys in the business segment. Due to the inclusion of mode specific constants in the model predicting the high market shares for these modes a lower VoT is obtained. Except for Austria, the VoT for Combined Access and Egress Time is higher than for the main in-vehicle VoT estimate. This confirms the previous statement about access and egress parts of the journey being unproductive parts of the journey. Particularly, Belgium and Swiss respondents had a tendency to select alternatives with the

[13] In the cases where we were able to estimate a significant business VoT for the short distance, it was not significantly different from the non-business VoT estimate.

lowest access and egress time, while for Poland this effect was less pronounced. Less variation is observed for the value of interchange time across countries, but particularly the Irish seem to dislike additional interchanges. An explanation for the latter can be given by the fact that longer distance journey trips are primarily undertaken by plane by the Irish. Apparently making stop-overs at airports is treated as more negative than changing at train stations.

Table 3-8 Value of travel time, access/egress time, interchange time and interchange estimates at the national level for the longer distance

Business VoT estimates:	AT*	NL*	BE	CH	DE	FR	IR	PL	UK
VoT Main Travel Time			31,25	54,36	24,94	29,41	16,65	16,76	32,43
VoT Combined Access and Egress Time			85,87	68,37	48,51	51,11	29,40	19,04	53,76
VoT Interchange Time			22,37	14,26	23,11	23,73	18,40	-	23,12
Value of an Interchange			25,89	-	16,98	17,05	31,10	19,74	-
(Non-Business) VoT estimates:									
VoT Main Travel Time	17,05	15,40	11,53	24,65	15,90	13,49	10,32	16,06	20,03
VoT Combined Access and Egress Time	13,57	22,97	31,69	31,01	30,92	23,44	18,22	18,24	33,21
VoT Interchange Time	13,39	16,72	8,26	6,47	14,73	10,88	11,41	-	14,28
Value of an Interchange	16,37	18,94	9,56	-	10,82	7,82	19,28	18,92	-
Number of observations	4502	2168	3468	3934	3924	3896	4218	4302	4084
Number of respondents	393	280	318	362	357	343	384	405	400

* No purpose specific VoT estimate supported by the data
- Implies no accurate value supported by the data

The non-business VoT estimates presented in Table 3-8 reveal generally the same pattern as the business VoT estimates. The latter is a consequence of the fact that business travellers are less cost sensitive and not more or less time sensitive. However, since the degree of cost sensitivity varies across countries the differences in the VoT across countries vary slightly. First and as expected, the value of non-business trips is lower than the value of business trips. Since a joint model for business and non-business was estimated for Austria and the Netherlands, these two countries have relatively high VoT estimates and these don't differ from the above business values. For Poland, the cost sensitivity between business and non-business travellers is nearly the same resulting in comparable VoT estimates. Indeed, the choice shares are comparable across the purposes although business travellers tend to use the plane more often than non-business travellers who prefer taking the car. Switzerland still has the highest VoT estimate, but the estimated Value of Interchange time for Switzerland is the lowest. Still out-of-vehicle value of time estimates are consistently higher than the main in-vehicle travel time.

Results for the shorter distance models are presented in Table 3-9. Despite the fact that a joint estimate is provided for business and non-business trips, the obtained VoT estimates are lower than the longer distance VoT estimates for non-business trips. This confirms the common knowledge that the value of time is increasing in distance. Also the general pattern that reductions in access and egress time are valued higher than main travel time is supported for all countries where estimates are available. Except for Poland the values of time are generally in the same order of magnitude across countries. Moreover, these values are comparable to the range predicted by the meta-analysis of Wardman et al. (2012) for this distance band. For the longer distance our non-business estimates are somewhat on the low side, but this is explained by the fact that Wardman et al. (2012) predict very high values for longer distance business trips by air.

Table 3-9 National Value of Time and Value of Interchanges estimates for the shorter distance models in € per hour

	AT	BE	CH	DE	FR	IR	NL	PL	UK
VoT Main Travel Time	12,35	12,31	16,67	6,76	10,70	11,72	15,09	4,81	14,04
VoT Combined Access and Egress Time	-	-	-	17,59	14,16	-	-	7,47	-
VoT Interchange Time	13,06	11,68	12,04	11,40	4,96	10,43	8,77	3,78	5,97
Number of Interchanges	-	-	11,03	-	-	-	11,26	3,35	-
Number of observations	2856	3054	2593	2850	2845	2544	2236	2598	4806
Number of respondents	254	283	242	264	256	237	293	248	473

- Implies no accurate value supported by the data.

3.3.4 Summary and Key Messages

i. VoT estimates for business trips are higher than non-distance trips due to business travellers having a lower cost sensitivity.

ii. For the longer distance, the value of Combined Access and Egress Time and interchange time is higher than the value of main travel (or in-vehicle) time. In the shorter distance in- and out-of-vehicle time VoT estimates are more comparable. A likely explanation is the fact that access movements and interchanges increase the risk of missing important longer distance flights or train connections.

iii. Longer distance VoT estimates are higher than shorter distance VoT estimates, which is consistent with the existing literature and reflects the discomfort of longer journeys and the larger opportunity cost of time spent travelling.

iv. At the national level, broadly, two groups can be identified for longer distance business values of time. Austria, Ireland, Netherlands and Poland have a business value of time ranging between ú15 and ú20 per hour. The second group, comprising Belgium, Germany, France and the UK, have a business value of time ranging between ú25 and ú35 per hour. The high representation of HSR and plane trips in the business segment can explain these differences across countries.

v. The business value of Combined Access and Egress Time vary to a large extent across countries. These parts of the journey are considered to be highly improductive.

vi. The patterns for non-business VoT estimates in the longer distance are comparable since business travellers only vary in terms of cost sensitivity.

vii. In the shorter distance, only a VoT measure for all purposes could be retrieved. The obtained values reveal again that the value of Combined Access and Egress Time and interchange time is higher than the value of main travel (or in-vehicle) time.

viii. Except for Poland, which has lower VoT estimates, the values of time are generally in the same order of magnitude across countries. Moreover, these values are comparable to the range predicted by the meta-analysis of Wardman et al. (2012) for this distance band.

3.4 STATED CHOICE FOR ACCESS AND EGRESS

3.4.1 Choice of Access Mode to the Airport and Station

In the second stated choice experiment respondents were presented with the same journey characteristics as in the first stated choice experiment. That is, the journey distance and group size were equivalent in both choice experiments. For the longer distance journeys, it was now assumed that the journey would be made by plane, while shorter distance journeys would be made by train (not specified to be rail or high-speed rail). Here, the respondents were requested to make a decision for their most preferred (and worst) mode of transport to access the airport or the station. The access options to get to the airport were respectively: (i) local public transport (LPT), (ii) taxi, (iii) drop-off, and (iv) drive and park. In the shorter distance survey respondents could also access the station on foot (i.e. walking). As in the first stated choice experiment, each access mode was characterised by a set of journey characteristics, being travel cost, travel time, and additional time (e.g. security procedures and possible delays). The trade-offs made between the access modes and these journey characteristics are used in the analysis to derive the VoT estimates of interest.[14] Each respondent was presented with four different choice tasks in this part of the analysis and requested to identify the best and worst alternative.

The type of model used to explain the responses to the second stated choice experiment is the standard multinomial logit (MNL) model. The model combines the responses for the best and worst option in the choice set, but controls for potential differences in the scale across the two response formats. Similar to the first stated choice experiment, a higher error variance is consistently found across countries for the worst response format. The presented analysis contrasts the Value of travel Time savings (VoT) in a consistent fashion with the first stated choice experiment. That is, the model results are first described at the European level and then split further into results by distance bands and business and non-business trips. As far as supported by the data, similar results are also reported at the national level.

3.4.2 European Estimates of the Value of Access Time

Table 3-10 presents mode specific value of access time estimates for the longer distance bands. Here, there are mode specific business VoT estimates up to ú171 for drop-off and ú131 for the taxi. The choice shares in Section 2.3 revealed a high tendency for respondents to select the drop-off option. More specifically, a fair share of respondents always select the drop-off irrespective of the presented trade-offs. Some of this is picked up by the mode specific constant, but not all. Similar non-trading issues are present for the other modes of transport. It is therefore not surprising that the mode-specific VoT estimates in the longer distance business segment are of such large magnitude. These values are substantially lower in the non-business segment, where they are respectively ú60 and ú48. For the shorter distance band mode specific VoT estimates are not supported by the data.[15] This is largely a result of the larger sample size for this segment, which automatically implies more trade-offs to learn about the underlying mode specific value of access estimates.

For the purpose of consistency, Table 3-103-10 also reports the value of access time estimates for generic access modes. These values are comparable to the overall access and egress time for the longer distance band reported for SP1. Indeed, a priori there is no reason to suspect that time sensitivities for access and egress modes differ. Surprisingly, the access time sensitivities in the shorter distance are much higher compared to SP1 and for non-business trips these estimates are even higher than in the longer distance case. This observation can be explained by the fact that for

[14] Unfortunately, a bug in the survey software prevented the registration of the actual levels of additional time presented to the respondents. Only the base levels of the design were recorded. Since these are constant per access mode, they operate like constants in the analysis. Hence, a VoT for additional time could not be estimated in for this part of the survey.

[15] Similar to the first stated choice experiment, merging the short and long distance bands is hampered by differences in attribute levels. In particular obtaining a VoT estimate for access time for walking, which is only present in the short distance, is not considered to be feasible due to the zero cost associated with that alternative. Hence, no walk specific cost-coefficient can be retrieved. We've estimated mode specific time sensitivities, not cost sensitivities (not possible for walk, since cost =0). Since the cost sensitivities captures both the short and long data this is likely to underestimate the cost-sensitivity for the short distance modes and thereby also overestimate the value of time.

shorter distance trips the more expensive mode of access, i.e. taxi, has a higher share compared to the longer distance (24% vs 13% in the non-business segment).

Table 3-10 European wide value of access time estimates in € per hour

	Long		Short	
	Business	Non-Business	Business	Non-Business
VoT LPT	50,03	20,08		
VoT Taxi	131,45	47,55		
VoT Drop	171,37	59,85		
VoT Drive	106,68	14,88		
VoT all modes	58,89	27,00	58,62	33,22
Number of observations	21388		17150	
Number of respondents	3137		2478	

3.4.3 National Estimates of the Value of Access Time

At the national level, it is only possible to estimate an overall measure of the value of access time (see footnote 9). Therefore the final two columns of Table 3-103-11 show the European value of access time for the two distance bands to be contrasted against the national value of access time estimates. Again, these values are highly comparable with each other and match roughly with the combined access and egress time obtained from SP1 for the longer distance. For the shorter distance there is an overestimate, which can be explained by the fact that at the national level the data would support a sufficiently accurate estimate of the value of combined access and egress time only for three out of the nine countries.

The data would not support national level specific estimates for business and non-business trips. Neither does it support specific VoT estimates for the shorter distance bands in all countries. No significant estimates could be obtained for Switzerland, Germany, France and the Netherlands in the shorter distance band. The primary cause for the lack of support of national models is the fact that many respondents can be classified as non-traders for stated choice experiment two. Overall, out of the 5792 respondents only 1,545 (28%) vary in their selection of the best access mode. In fact, 34% always pick the drop-off option as the best available option. Similarly, only 1,515 respondents vary in their selection of the worst access mode. Roughly 26% of the respondents always select local public transport as being the worst mode of access and 31% taxi. By making a limited number of trade-offs over only four choice tasks, most identification is obtained through the alternative specific constants in the model specification. With overall only 30% of the respondents willing to select alternative modes of access, automatically there are also only a limited number of respondents at the national level from which information regarding their trade-offs and therefore their value of access time can be obtained. Specifically, for the non-traders only a lower or upper bound on the VoT is retrieved. Removing these non-traders from the analysis is, however, not an option because this would amplify the VoT estimated considerably.[16] This is a direct consequence of the drop-off option being the most preferred and cheapest option available to most respondents.

Due to the limited willingness to trade between modes of access, the VoT estimates reported in**Error! Reference source not found.** 3-11 are associated with large standard errors and no significant differences in the VoT within a specific country could be retrieved whilst comparing the longer and shorter distance bands. Within the longer distance band, only the Irish and Polish estimate result in significantly lower VoT estimates compared to the other countries. Given the high uncertainties

[16] Removing the non-traders increased the value of time to over ú100 per hour for most countries, which was considered to be a significant overestimate also in context of the results obtained for combined access and egress time in the first stated choice experiment.

associated with these national level results, the European level estimates from Table 3-103-10 should be used.

Table 3-11 Value of access time estimated at the national level in € per hour

	AT	BE	CH	DE	FR	IR	NL	PL	UK	European
VoT Long all purposes	51,75	45,76	35,65	8,50	44,49	6,17	25,51	12,58	28,37	31,59
VoT Short all purposes	9,04	33,20	-	-	-	17,52	-	3,55	32,94	38,68
Number of observations Long	2808	2228	2300	2468	2392	2152	1904	2672	2464	21388
Number of respondents Long	393	318	362	357	343	318	280	405	361	3137
Number of observations Short	1807	2000	1653	1774	1852	1485	2051	1574	2898	17150
Number of respondents Short	254	283	242	264	256	214	293	248	424	2478

Overall, the results for stated choice experiment two suggest that people generally have a specific access mode that they prefer to use. They seem to be stuck in these habits and refuse to make trade-offs between access time and the associated costs. This affects the analysis substantially, which forces us to recommend the use of European wide values of access time, which are more or less in line with the estimates obtained for combined access and egress time from stated choice experiment one. During the design of the survey, it was attempted to circumvent the non-willingness to trade by adjusting the levels of travel time and travel costs for the presented alternatives, but the scope for this was limited due to the need to keep the levels realistic. Hence, this only had a minor impact on actual behaviour in this part of the survey.

3.4.4 Choice of Egress Mode from the Airport and Station

In the third stated choice experiment respondents were presented with the same journey characteristics as in the first and second stated choice experiment. That is, the journey distance and group size were equivalent in all three choice experiments. For the longer distance journeys, it was still assumed that the journey would be made by plane, while shorter distance journeys would be made by train (not specified to be rail or high-speed rail). Instead of the possible access modes, the respondents were requested to make a decision for their most preferred (and worst) mode of egress from their destination airport or station. The egress options to leave the airport were respectively: (i) local public transport (LPT), and (ii) taxi. In the shorter distance respondents could also leave the station on foot (i.e. walking). Again, each egress mode was characterised by a set of journey characteristics, being travel cost, travel time, and additional time (e.g. security procedures and possible delays). The trade-offs made between the egress modes and these journey characteristics are used in the analysis to derive the VoT estimates of interest.[17] Each respondent was presented with four different choice tasks in this part of the analysis and requested to identify the best and worst alternative. Since only two alternatives were available for longer distance trips only the best option out of LPT and taxi was requested.

The type of model used to explain the responses to the third stated choice experiment is the standard multinomial logit (MNL) model. The model combines the responses for the best and worst option in the choice set, but controls for potential differences in the scale across the two response formats. Consistent with previous results, a higher error variance is consistently found across countries for the worst response format. The presented analysis contrasts the Value of travel Time savings (VoT) in a consistent fashion with the previous stated choice experiments. That is, the model results at the European level are described first and then split further into results by distance bands and business and non-business trips. As far as supported by the data, similar results are also reported at the national level.

[17] Unfortunately, a bug in the survey software prevented the registration of the actual levels of additional time presented to the respondents. Only the base levels of the design were recorded. Since these are constant per egress mode, they operate like constants in the analysis. Hence, a VoT for additional time could not be estimated in for this part of the survey.

3.4.5 European Estimates of the Value of Egress Time

Similar to the stated choice experiment regarding the access mode, non-trading is an issue in the stated choice experiment regarding egress mode, but to a lesser extent. In total 57% of the respondents are treated as non-traders out of the 5,792 respondents. For the longer distance, this implies that 43% out of the 3,242 respondents always select the local public transport option, while 18% continuously picks the taxi. For the non-traders in the shorter distance segment, taxi is both the most popular and worst mode of transport. 23% out of 2,550 respondents always select the taxi to leave the station and 19% consistently picks the LPT option. The importance of the taxi attribute in the shorter distance can be explained by the fact that taxi is relatively cheaper compared to LPT than in the longer distance option. On average in the shorter distance, taxi is about 14 minutes faster than LPT and approximately ú4 more expensive. In contrast, for the longer distance trips the taxi is approximately 52 minutes faster, but would be about ú30 more expensive. The latter would imply a value of time of around ú100, while the shorter distance would do with approximately ú20.

Still a substantial number of respondents are willing to make trade-offs between the alternative egress modes. As presented in Table 3-12, this results in some high VoT estimates for business travellers in the longer distance segment. Since they are less cost sensitive, they are willing to take the taxi for these longer distance egress journeys. Indeed, the value is well above the ú100 back of the envelope number described in the preceding paragraph. Overall, the table makes clear that business people have a higher value of egress time and that the shorter distance value of egress time is also lower. This can be explained by the fact that when arriving at a distant location (i.e. airport or station), people are generally more tired due to the long journey and may want to go to their destination as quick as possible. However, the derived estimates for business trips are associated with large standard errors. Hence, the non-purpose specific VoT estimates reported in the Table 3-12 should be used.

Compared to the values of egress time obtained from the stated choice experiment on access modes, a lower VoT is obtained here for the shorter distance. The value for the longer distance is very comparable across the two studies. An explanation for the lower VoT for egressing from stations compared to the airport is that people may prefer to take a stroll from the station, or enjoy the local public transport to enjoy the scenery of the city in which they arrive. This is clearly not an option for most airports.

Table 3-12 European level estimates of the value of egress time in € per hour

	Long			Short		
	Business	**Non-Business**	**All purposes**	**Business**	**Non-Business**	**All purposes**
VoT	154,19	23,72	31,95	23,35	18,46	19,26
Number of observations	12968			13072		
Number of respondents	3242			2550		

3.4.6 National Estimates of the Value of Egress Time

The national values of egress time in Table 3-13 do not show a surprising pattern. The values are in line with the values obtained at the European level, with some countries being above and some below the European wide estimates. In general, longer distance value of egress time estimates are larger than the shorter distance values for which an explanation is provided above. The lower value of time obtained for Poland can be explained by the fact that taxis and public transport are cheaper, both in the real world as in the experimental design, hence they also reveal a lower value of egress time. The Netherlands also shows low values of time in both the shorter and longer distance. The former can be explained by the importance of walking and local public transport as egress modes. Both in the shorter and longer distance most Dutch people prefer the use of LPT or walking, and taxi is selected above average as the worst egress mode in the shorter distance part of the survey. Values of egress time are comparable with Ireland and in the UK and lower compared to most other European

countries.[18] For the longer distance the high-representation of LPT can be brought up as an explanation, which was cheaper than taking the taxi. The standard errors with the national level estimates are of such magnitude that significant differences in the value of time in the longer distance band are only found between the Irish, Dutch, Polish and English value of egress time and the higher values reported for Austria and Switzerland. The two latter countries indeed have an above average share of taxi trips in the longer distance band. Similar for the shorter distance band, only for Poland a significant lower estimate of the value of egress time is estimated and the Irish and English value of egress time are significantly lower than those in Switzerland and Germany. These differences are attributed to the characteristics of egress behaviour in Poland, Ireland and the UK.

Table 3-13 National value of egress time estimates per distance band

	AT	BE	CH	DE	FR	IR	NL	PL	UK	European
Long	38.84	26.87	47.81	27.59	27.45	20.01	17.61	12.79	22.82	31,95
Short	18.81	19.25	31.62	29.86	18.05	12.15	17.39	7.32	14.21	19,26
Number of observations Long	1572	1272	1448	1428	1372	1536	1120	1620	1600	12968
Number of respondents Long	393	318	362	357	343	384	280	405	400	3242
Number of observations Short	1256	1448	1364	1304	1296	1140	1584	1168	2512	13072
Number of respondents Short	254	283	242	264	256	237	293	248	473	2550

Overall, the European wide estimates of the value of egress time seem to be a good representation of the value of egress time in most countries. Only for Poland a serious downward adjustment seems required. In general, people tend to take local transport as the main egress mode, but are willing to shift to taxis if the relative costs are not too high. This is particularly the case for the shorter distance band where taxis have a high market share in our sample.

3.4.7 Summary and Key Messages

Overall, the results for the second stated choice experiment suggest that people generally have a specific access and egress mode that they prefer to use. They seem to be stuck in these habits and refuse to make trade-offs between access time and the associated costs. The willingness to make these trade-offs is larger when selecting the best egress mode.

i. In the longer distance the value of access time is comparable to the value of Combined Access and Egress Time estimated in the stated choice experiment concerning the main mode of transport. This holds for both the business and non-business segment.

ii. Shorter distance value of access time estimates are comparable to the longer distance value of access time estimates and are thereby higher than the estimates obtained in the first stated choice experiment. This can be explained by the fact that in the first stated choice experiment only for three out of nine countries a reliable estimate for Combined Access and Egress Time could be obtained.

iii. National level estimates in the shorter distance can only be obtained for a small number of countries. This is a direct consequence of non-trading behaviour by respondents, also present in the longer distance part of the survey

iv. This results in high standard errors and prevents accurate comparison of the VoT estimates in the longer and shorter distance bands. Within the longer distance band, only

[18] Part of this difference is caused by the fact that in order to stimulate trading, we changed the range of attribute levels during the different stages of the survey, i.e. after conducting the study in Ireland and the UK. This allowed for a wider representation of behaviour in the European countries.

the Irish and Polish estimate results in significantly lower VoT estimates compared to the other countries.

v. Given the high uncertainties associated with national level results, we recommend the use of the European estimates presented in Table 3-11.

vi. Non-trading is also present with respect to the choice of egress mode, but not as severe as for the access mode decisions.

vii. For shorter distance egress decisions many respondents are willing to take the taxi, because it is still relatively cheap compared to local public transport in our experimental setting.

viii. Overall, business travellers have a higher value of egress time, which is also increasing in distance. This in line with patterns observed in the first stated choice experiment.

ix. Given the large standard errors associated with the business specific VoT estimates, we recommend using the VoT estimates not specifically related to a trip purpose.

x. Again, the European level estimates of the value of egress time are recommended for use, only a downward adjustment for Poland is recommended, as lower values are estimated for this country.

Generally, people tend to take local public transport as the primary mode of egress, but are willing to shift to taxis if the relative costs are not too high. This appears to be the case for shorter distance trips.

4 INDICATIVE FORECASTS

4.1 APPROACH USED

In this section an attempt has been made to incorporate some of the VoT and WTP estimates into a forecasting model. In order to simplify the presentation, the forecasts are for the UK only and as such use the UK data collected as part of the online survey. A generalised costs forecasting model has been derived using an excel spread sheet which is available on request. The model takes the parameter estimates from the main mode SP (outlined in section 3.3) namely the values for travel time, travel cost, interchange time and access & egress, as well as the ASC (alternative specific constant) for each mode of transport. These are internalised within the model but still require external inputs in the shape of cost elasticities (which can vary by distance and purpose) and base market share. The former have been derived from Dargay et al (2010) whilst the latter are taken from Table 2.1 of this report. Note that because of a lack of HSR in the UK, the base market shares are based upon the overall figures for the total 9 countries; with an arbitrary allocation between the two distance categories in scope (500 kms to 1,000 kms & 1,000 kms +).

In addition the model also includes the WTP coefficients as reported in Table 3-3. It is possible for the user to switch these values on and off as required for each mode to allow the impact on demand of each soft variable to be assessed. In addition there is the facility to change the main mode SP inputs to see the impact on demand of an X% increase in costs or travel time.

4.2 FORECASTS FOR BASE SCENARIOS

The base scenario is driven by the estimation results from the main mode SP which is internal plus external inputs for cost elasticities and market shares. The external inputs are outlined in Tables 4-1 and 4-2 and illustrate that a range of cost elasticities and market shares have been used to set up the base scenarios for the UK.

Table 4-1 Base elasticities

Purpose	Elasticities
Business	-0.40
Non-Business	-0.80

Table 4-2 Base market shares

Distance	Air	Train	HSR	Car
500 + kms	0.37	0.05	0.08	0.50

The generalised cost model has been set up so that when calibrated it tries to return the same, or as closet base market shares as possible. In Tables 4-3 to Table 4-8 below an attempt has been made to illustrate some scenario forecasts ranging from changes in journey times to the introduction of some of the soft factor measures discussed in section 3.2. First adjustments are made to journey times, costs and access/egress (Tables 4-3 to 4-5), before the introduction of several soft factors (Tables 4-6 to 4-8).

It can be seen from Table 4-3 to 4-5 that changes in the internalised variables gives plausible forecasts, so for example, a reduction in HSR travel time results in an increase market share for HSR at the expense of car, rail and particularly air for non-business travellers. For business travellers the gain in market share is not as large (reflecting lower elasticities) and is more at the expense of car than either rail or air.

Tables 4-4 and 4-5 similarly show credible forecasts with a 10% increase in car cost leading to market share loss for car at the expense of market share gains for all the PT modes. Similarly a 10%

reduction in access and egress costs for all PT modes results in car reducing its market share by 0.7%, again at the expense of the PT modes.

Table 4-3 Market shares – 10% reduction in HSR travel time

	Business		Non Business	
Mode	**Base Market**	**Forecasted**	**Base Market**	**Forecasted**
Car	0.500	0.497	0.500	0.498
Rail	0.050	0.050	0.050	0.049
HSR	0.080	0.084	0.080	0.087
Air	0.370	0.369	0.370	0.366

Table 4-4 Market shares – 10% increase in car cost

	Business		Non Business	
Mode	**Base Market**	**Forecasted**	**Base Market**	**Forecasted**
Car	0.500	0.456	0.500	0.442
Rail	0.050	0.056	0.050	0.055
HSR	0.080	0.088	0.080	0.088
Air	0.370	0.399	0.370	0.415

Table 4-5 Market shares – 10% reduction in access/egress for all PT modes

	Business		Non Business	
Mode	**Base Market**	**Forecasted**	**Base Market**	**Forecasted**
Car	0.500	0.494	0.500	0.493
Rail	0.050	0.050	0.050	0.049
HSR	0.080	0.080	0.080	0.078
Air	0.370	0.376	0.370	0.379

Tables 4-6 to 4-8 outline the forecasts from the introduction of some of the soft improvements outlined in Table 3-3. The first table (4-6) forecasts the impact of introducing co-ordination services (access and egress) to compliment the main rail line service. The major shift in market share occurs from car and air, with car losing 1% and 1.3% respectively for non-business and business journeys; whilst air loses 1.2% and 0.9% respectively. These are substantial shifts and reflect the high value placed on soft improvements in general and particularly by business travellers who may value the greater certainty of connections more than non-business travellers.

Table 4-6 Market shares – introduction of co-ordination of rail services

	Business		Non Business	
Mode	**Base Market**	**Forecasted**	**Base Market**	**Forecasted**
Car	0.500	0.487	0.50	0.490
Rail	0.050	0.072	0.050	0.073
HSR	0.080	0.080	0.080	0.079
Air	0.370	0.361	0.370	0.358

Market shares fall similarly fall for car and air (although not as great a magnitude) with the introduction of luggage drop offs for HSR (Table 4-7), with air in particular affected, reflecting the high substitution between the two modes. Again the shifts in market shares are quite large in relative terms but larger shifts can be seen in Table 4-8 with the introduction of an online planner for air and the access/egress

options it links into. Here market share for car is forecast to fall by 5.6%, HSR to fall by 1.5% and rail by 0.7%.. These substantial shifts are due to the high value placed upon certain soft solutions and should only be applied with care with the possibility of a ceiling being applied to the impacts on market share. Further work would be required however to specify what this ceiling might be.

Table 4-7 Market shares – introduction of luggage drop off for HSR

	Business		Non Business	
Mode	**Base Market**	**Forecasted**	**Base Market**	**Forecasted**
Car	0.500	0.495	0.500	0.495
Rail	0.050	0.050	0.050	0.049
HSR	0.080	0.087	0.080	0.093
Air	0.370	0.368	0.370	0.362

Table 4-8 Market shares – introduction of online planner for air

	Business		Non Business	
Mode	**Base Market**	**Forecasted**	**Base Market**	**Forecasted**
Car	0.500	0.460	0.500	0.444
Rail	0.050	0.045	0.050	0.043
HSR	0.080	0.076	0.080	0.065
Air	0.370	0.419	0.370	0.448

4.3 CONCLUSIONS

The indicative forecasts have revealed that the internalised modelled variables related to hard factors such as travel time and travel cost, perform relatively well in predicting changes in market shares in the LD travel markets. The forecasts appear to be less plausible when soft improvements are included due to the high valuations placed upon them by respondents to the survey and care should be taken when applying them, with ideally a ceiling applied to their impacts.

5 CONCLUSIONS

The key aims of this deliverable were to:

- Provide data on the existing patterns of LD travel to supplement D3.1; and
- To understand the preferences of LD travellers to help determine their likely responses to policy initiatives being considered in the project.

In order to achieve the first aim an online survey was designed as a tool to collect the data and information on current LD travel patterns and preferences of LD travellers. The survey was challenging, given the number of countries that data was collected from (nine in total), the size of the sample to be collected (close to 6,000 respondents) and the complexity of the data to be collected (a mixture of RP and SP data). Despite the challenges involved the data was collected successfully with a rolling programme of surveys that began on 4th May 2012 in the UK and which finished on 2nd July in Poland.

The second aim involved detailed analysis of both RP and SP data. A number of analyses were undertaken which examined the various aspects of making a journey such as, accessing the main mode of transport, the egress journey, the main journey itself and the impact of soft factor solutions (such an online planners) on overall journeys. These analyses were based around SP experiments but were also complimented by analyses of RP data in the form of trip rate tables and linear regression analysis. The key conclusions from each of these analyses are now presented.

Revealed Preference results

RP analyses take the form of a series of key trip rate calculations and linear regression models, both of which help to highlight key influences on trip making behaviour. Trip rates found in the survey tell a consistent story with around 80% of all trip making taking place in the distance band between 100 and 499 kms. The majority (74%) of these trips are made by car/van/motorcycle, whilst train and coach account for around 15% and 7% (shares that they largely continue to hold at longer distance categories). Airôs dominance (41%) starts to emerge when trip distance grows larger than 1,000 kms, reflecting its stronger performance at this level. In terms of purpose split, work related and leisure trips dominate across all the trip distance categories, with leisure in particular dominating at distances greater than 500 kms.

There is variation across countries which may reflect geography, topography and cultural differences. For example, the UK has a consistently higher number of trips undertaken by ótherômodes reflecting the strong influence of ferries to engage in LD trips. Likewise train services are much more utilised in mainland Europe where integration between countries is the norm in contrast to Ireland where coach and air services are much more heavily utilised.

An exercise was undertaken to look at the comparability of the trip rates from the survey with national travel survey data for France, Germany and the UK. The results from the survey compared well (Table 2-3) over the short distance band (100-499 kms), with more mixed results as trip distance increased, for example, ORIGAMI French respondents appear to over report air trips and under report rail trips compared with the French NTS survey.

The regression models estimated provide useful estimation tools for measuring the influence of certain key socio-economic variables on LD travel behaviour. A number of key messages come through, namely that occupation has as strong impact on overall trip making behaviour with those in full time much more inclined to make LD trips, whilst the unemployed, full time home makers and retired are less inclined to make LD trips, e.g. trips would be reduced by around 16, 9 and 18 trips per year.

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Gender also has a strong influence on overall trip making behaviour with men likely to make significantly more trips than women, around 8 additional trips per year. This probably reflects the role that men have traditionally assumed (e.g. the main ôbread winnerô) and the fact that there is still a predisposition for men to have a larger share of senior roles within companies that might lead to additional LD travel all things considered.

Households with children aged less than 16, all things considered, exhibit a tendency to do more LD travel than households who do not, around 6 extra trips per year. This may reflect family visits, family holidays and travel during the school holidays.

No access to a car has a significant impact upon overall trip making, but especially so for journeys less than 500 kms (e.g. reducing trips by around 7 per year), reflecting the strength of car for journeys of those type of distances. As trip lengths approach trip distances that are greater than 500 kms the influence of car is reduced, with rail and air coming to the fore; whilst for trip distances greater than 1,000 kms air is dominant.

Coach trips are strongly linked to income with those on lower incomes more likely to travel by this mode, whilst car trips are strongly influenced by occupation, with those in full time employment making the bulk of the trips, especially for distances less than 500 kms.

Journey purpose models are strongly correlated to occupation as might be expected with those in employment strongly influencing work related trips; those who are in education strongly influencing study trips; and those who are retired, home makers or unemployed strongly influencing other trips.

In summary, the RP analysis produces a set of plausible results in line with NTS data and prior intuition.

Stated Preference Results

The next set of results refers to the SP data collected. Respondents were presented with four SP experiments within the questionnaire. Three of these related to different legs of a recent LD trip, namely the access leg, the main haul leg and the egress leg, whilst the 4th was concerned with solutions to LD travel barriers and their value and usefulness to LD travellers (e.g. online travel planners).

Ranking exercise

The valuation of solutions is outlined in Tables 3-3, 3-5 and 3-6. The experiment asked respondents to rank a number of solutions along with reductions in costs and journey times. A number of key messages can be distilled and are presented below.

i. Respondents place a high value on ôsoft improvementsô ranging from 35 minutes for ôluggage drop offô to 1 hour and 38 minutes for ôpublic transport co-ordinationô. These high values are a result of the key characteristics of LD journeys, namely the length of the journey, the unfamilarity of the journey and the journey purpose.
ii. There are very real practical time and cost savings from the soft improvements that carry a high value, e.g. time savings when checking in at airports or when using online planners (compared to obtaining information from travel agents etc).
iii. Other improvements are valued because of the assurance they bring to the LD traveller, especially when arriving in an unfamiliar place, particularly a foreign country, i.e. integrated LPT and main mode tickets.
iv. WTP values tend to be lowest for coach, reflecting income and cost differences between coach and other modes.
v. Car users appear to have dismissed the improvements on offer as not important.

Main mode SP results

The SP experiment related to the main mode of the LD trip, namely the mode which was most used during the trip. Respondents were asked to choose between different transport possibilities (e.g. car, air, rail and coach) that were differentiated by a number of key variables, namely journey time, journey cost, combined access/egress time, number of interchanges and the time spent interchanging. The analysis focused on deriving the implicit values for changes in these specific trip characteristics and are presented in Tables 3-7 and 3-8. Again a number of key messages can be derived which are presented below:

i. VoT estimates for business trips are higher than non-business trips due to business travellers having a lower cost sensitivity (i.e. the cost is usually paid for by an employer).

ii. For the longer distance band, the value of Combined Access and Egress Time and interchange time is higher than the value of main travel (or in-vehicle) time. In the shorter-distance in- and out-of-vehicle time VoT estimates are lower. A likely explanation is the fact that access movements and interchanges increase the risk of missing important long-distance flights or train connections.

iii. Longer-distance VoT estimates are higher than shorter-distance VoT estimates, which is consistent with the existing literature and reflects the discomfort of longer journeys and the larger opportunity cost of time spent travelling.

iv. At the national level, broadly, two groups can be identified for long-distance business values of time. Austria, Ireland, Netherlands and Poland have a business value of time ranging between ú15 and ú20 per hour. The second group, comprising Belgium, Germany, France and the UK, have a business value of time ranging between ú25 and ú35 per hour. The high representation of HSR and plane trips in the business segment can explain these differences across countries.

v. The business value of Combined Access and Egress Time vary to a large extent across countries. These parts of the journey are considered to be highly unproductive.

vi. In the shorter distance band, only a VoT measure for all purposes could be retrieved. The obtained values reveal again that the value of Combined Access and Egress Time and interchange time is higher than the value of main travel (or in-vehicle) time.

vii. Except for Poland, which has lower VoT estimates, the values of time are generally in the same order of magnitude across countries. Moreover, these values are comparable to the range predicted by the meta-analysis of Wardman et al. (2012) for the longer distance band (>500 kms).

Access and Egress SP results

Respondents were then asked to participate in two further SP experiments that presented choices of access and egress modes, differentiated by similar characteristics, namely access/egress time and cost. Values for the estimated access characteristics are presented in Tables 3-10 and 3-11, whilst values for egress time characteristics are presented in Table 3-12. The key messages from both these experiments are outlined below:

i. In the longer-distance band the value of access time is comparable to the value of Combined Access and Egress Time estimated in the stated choice experiment concerning the main mode of transport. This holds for both the business and non-business segment.

ii. National level estimates in the shorter-distance band can only be obtained for a small number of countries. This is a direct consequence of non-trading behaviour by respondents, also present in the longer-distance part of the survey.

iii. This results in high standard errors and prevents accurate comparison of the VoT estimates in the long- and short-distance bands. Within the long-distance band, only the Irish and Polish estimate results in significantly lower VoT estimates compared to the other countries.

iv. Given the high uncertainties associated with national level results, we recommend the use of the European estimates presented in Table 3-11.

v. Non-trading is also present with respect to the choice of egress mode, but not as severe as for the access mode decisions.

vi. For shorter-distance egress decisions many respondents are willing to take the taxi, because it is still relatively cheap compared to local public transport in our experimental setting.

vii. Overall, business travellers have a higher value of egress time, which is also increasing in distance. This in line with patterns observed in the first stated choice experiment.

viii. Given the large standard errrors associated with the business specific VoT estimates, we recommend using the VoT estimates not specifically related to a trip purpose.

ix. Again, the European level estimates of the value of egress time are recommended for use, only a downward adjustment for Poland is recommended, as lower values are estimated for this country.

x. Generally, people tend to take local public transport as the primary mode of egress, but are willing to shift to taxis if the relative costs are not too high. This appears to be the case for short distance trips.

Forecasts

In general the SP values estimated in the main mode SP perform as expected with a set of VoTs that correspond to established values. The access and egress perform less well and suffer from non-trading and the domination of certain modes, e.g. taxi. The values obtained for soft solutions clearly demonstrate that such solutions are highly valued by respondents. There is a question mark as to whether these values are overly high however and how they would impact upon forecasts. This leads onto Section 4, where an attempt has been made to bring the results of the SP experiments together within a generalised cost forecasting model. The forecasts incorporates some of the soft solution valuations plus the parameter estimates from the main mode SP, namely, the values of travel time, travel cost, interchange time and access/egress time plus the ASC of each mode of transport.

The results of the forecasts are outlined in Tables 4-1 to 4-8 and demonstrate that the indicative forecasts reveal that the internalised modelled variables related to hard factors such as travel time and travel cost, appear to perform relatively well in predicting changes in market shares in the LD travel markets. The forecasts appear to be slightly less plausible when soft improvements are included due to the high valuations placed upon them by respondents to the survey. As a result any forecasts taken forward should therefore be placed in the context of these high valuations and their impacts on the forecasts. Similar studies (DfT, 2009) have placed ceilings on combination of soft factors with regard buses and if additional work were possible this would be an avenue worth exploring.

Finally the results of our survey provided the modelling work in WP7 with trip rates for the surveyed countries (useful in calibration and validation of models such as LUNA), relative values of time between mode, country and in-vehicle time versus access and egress. The rankings and valuations of soft factors provided the modelling work with a context for setting the transport package changes in costs/times where certain solutions were included.

The results will also be of interest to operators and policy makers who may use the values and rankings of certain solutions or solution types to inform policy and to account for the added value of these solutions from the user perspective.

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APPENDIX 1 THE QUESTIONNAIRE

Red text relates to the coding of results ï it was not seen by respondents
Variables Not ñVisibleòin the Survey

1. subsid: unique Research Now id of each user
2. subdate : date of submission
3. start_time : start time of survey
4. start_page1 ï start_page28 : start time of each individual page
5. sp_block: integer between 1-10 signifying the block of PS values given to user
6. q52_distance: distance of journey used throughout all SPs
7. q52_purpose: purpose of journey used throughout all SPs
8. q59_mode: 1 = long/air journey, 2 = short/rail journey
9. q69_mode: shows which version (1 or 2) and mode the user has been shown for SP3
10. The many columns after the ðinal_comments_txtôcolumn are all the SP values presented to the user, hopefully they are self-explanatory.

Home page

In which language would you like to take the survey?

- ☐ English
- ☐ German [lang]
- ☐ French
- ☐ Polish

Page 01

Thank you for helping us with this survey.

Please be assured that all information you provide will be entirely confidential and not traceable back to you.

The information you provide will be used to help planners, policy makers and service providers to understand the needs and preferences of long distance travellers.

Most questions simply require you to click a box.

Some questions ask about money. In what currency would you like to give your answers?

☐ Euros ☐ Pound sterling [currency]

The next few questions are about you, your answers will help us understand how needs and preferences vary across different types of people.

In what country do you live?

[▼] [country]

What is your gender?

☐ Male ☐ Female [gender]

What is your year of birth? (*yyyy*) [yob]

What is your occupation? (*tick all that apply*)

- ☐ Full time employee [occ_fte]
- ☐ Part time employee [occ_pte]
- ☐ Self-employed [occ_se]
- ☐ Student [occ_stu]
- ☐ Retired [occ_stu]
- ☐ Full time home maker [occ_fthm]
- ☐ Unemployed [occ_unemp]

How many people, including yourself, are there in your household?

- ☐ One (I live alone)
- ☐ Two
- ☐ Three [q8]
- ☐ Four
- ☐ Five
- ☐ Six or more

How many of these are aged less than 16 years of age?

[q8a] 0

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Page 02

Do you know your household income better after tax, or before tax?

- ☐ Before tax [q9]
- ☐ After tax

Which of these is the **closest** to your approximate household **(after tax or before tax)** income?

- ☐ £10,000 a year (£850 a month)
- ☐ £30,000 a year (£2,500 a month) [q10]
- ☐ £50,000 a year (£4,200 a month)
- ☐ £70,000 a year (£5,800 a month)

Do you have a driving licence?

☐ Yes ☐ No [q11]

Do you have access to a car?

☐ No

☐ Yes, but shared with other drivers [q12]

☐ Yes, whenever I want it

Can you walk unaided for at least 100 yards?

☐ Yes [q13]

☐ No

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Page 03

How often do you make trips which are more than 600 miles each way?
(*The map on the right provides a useful scale to help you estimate a 600 miles distance*)

☐ At least once a week

☐ Less than once a week but at least once a month

☐ Less than once a month but at least six times a year [q14a]

☐ Less than six times a year but more than twice a year

☐ Once or twice a year

☐ Less than once a year

☐ Never

...and for what percentage of these trips was the main mode of travel:
(total percentages must add up to 100)

- air ____ % [q15_air]
- train ____ % [q15_train]
- coach or bus ____ % [q15_coach]
- car, van or motorcycle ____ % [q15_car]
- some other means of transport ____ % [q15_other]

...and what percentage of them were made mainly for:
(total percentages must add up to 100)

- Work/business/commuting ____ % [q16_work]
- Study (education) ____ % [q16_study]
- Recreation/leisure/holiday ____ % [q16_leisure]
- some other reason ____ % [q16_other]

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Page 04

How often do you make trips which are between 300 miles and 599 miles each way?
(*The map on the right provides a useful scale to help you estimate a 300 - 599 miles distance*)

- ☐ At least once a week
- ☐ Less than once a week but at least once a month
- ☐ Less than once a month but at least six times a year [q17a]
- ☐ Less than six times a year but more than twice a year
- ☐ Once or twice a year
- ☐ Less than once a year
- ☐ Never

...and for what percentage of these trips was the main mode of travel:
(total percentages must add up to 100)

- air [ ] % [q18_air]
- train [ ] % [q18_train]
- coach or bus [ ] % [q18_coach]
- car, van or motorcycle [ ] % [q18_car]
- by some other means of transport [ ] % [q18_other]

...and what percentage of them were made mainly for:
(total percentages must add up to 100)

- Work/business/commuting [ ] % [q19_work]
- Study (education) [ ] % [q19_study]
- Recreation/leisure/holiday [ ] % [q19_leisure]
- some other reason [ ] % [q19_other]

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Page 05

How often do you make trips which are between 60 miles and 299 miles each way?
(*The map on the right provides a useful scale to help you estimate a 60 - 299 miles distance*)

- ☐ Four to seven days a week
- ☐ One to three days a week
- ☐ Less than once a week but at least once a month [q20a]
- ☐ Less than once a month but at least six times a year
- ☐ Less than six times a year but more than twice a year
- ☐ Once or twice a year
- ☐ Less than once a year
- ☐ Never

...and for what percentage of these trips was the main mode of travel:
(total percentages must add up to 100)

- air [ ] % [q21_air]
- train [ ] % [q21_train]
- coach or bus [ ] % [q21_coach]
- car, van or motorcycle [ ] % [q21_car]
- by some other means of transport [ ] % [q21_other]

...and what percentage of them were made mainly for:
(total percentages must add up to 100)

- Work/business/commuting [ ] % [q22_work]
- Study (education) [ ] % [q22_study]
- Recreation/leisure/holiday [ ] % [q22_leisure]
- some other reason [ ] % [q22_other]

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Page 06

The next few questions relate to your **most recent trip of over 100 miles each way.**

Where did your trip start? [ ] [q24] And where did it finish? [ ] [q24b]

How long did it take to get from X to Y? [ ] [q24_hrs] hrs [ ] [q24_mins] mins

What percentage of this time was spent:
(total percentages must add up to 100)

- Working [ ] % [q24_working]
- Relaxing/reading/eating [ ] % [q24_relaxing]
- Just travelling [ ] % [q24_travelling]

How far do you think it is from X to Y? [ ] ...miles [q25]

How often do you travel from X to Y?

- ☐ At least once a week
- ☐ Less than once a week but at least once a month [q26]
- ☐ Less than once a month but at least twice a year
- ☐ Less than twice a year

What was the main purpose of the trip?

- ☐ Work/business/commuting
- ☐ Study (education) [q27]
- ☐ Recreation/leisure/holiday

☐ Some other reason

Were you travelling alone?

☐ Yes

☐ No, I was with one other person [q28]

☐ No, I was with two or more other people

How many members of your travel party were friends?

0 [num_friends]

How many members of your travel party were family members?

0 [num_family]

How many members of your travel party were colleagues? 0 [num_colleagues]

What main means of transport did you use?
(if more than one, indicate the one used for the longest distance)

☐ Car, van or motorcycle (as driver)

☐ Car, van or motorcycle (as passenger) [q29]

☐ Train

☐ Long-distance coach or bus

☐ Plane

☐ Other (e.g. ship)

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Page 07

What other means of transport did you use to **access** the train?
(*tick all that apply*)

☐ Car, van or motorcycle (as driver) [q30_car_driver]

☐ Car, van or motorcycle (as passenger) [q30_car_passenger]

☐ Taxi [q30_taxi]

☐ Local train [q30_train]

☐ Local bus, tram or underground train [q30_bus]

☐ Walk or cycle [q30_walk]

☐ Other (including ferry) [q30_other]

Did you use any other mode of transport **to get to your destination** after the train?
(*tick all that apply*)

☐ Taxi [q31_taxi]

☐ Local train [q31_train]

☐ Local bus, tram or underground train [q31_bus]

- ☐ Walk [q31_walk]
- ☐ Hire car [q31_hirecar]
- ☐ Picked up by family/friends/colleagues/company [q31_pickedup]
- ☐ Other [q31_other]

Who did you expect to pay the travel costs?
(*tick all that apply*)

- ☐ Myself [q36_myself]
- ☐ My travelling companion(s) [q36_companion]
- ☐ My employer/business/client [q36_employer]
- ☐ The tax man (trip cost reclaimable against tax) [q36_taxman]
- ☐ Other [q36_other]

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Page 08

You have already told us that you made your journey from **X** to **Y** by train. Please look at the table below and please tell us why you didn't make the same journey by the other forms of transport listed. (*Please tick all the reasons that apply for each mode*)

	Long-distance coach or bus [q38_mode]	**Plane [q41_mode]**	**Car, van or motorcycle (as driver) [q44_mode]**	**Car, van or motorcycle (as passenger) [q47_mode]**
That mode of travel didn't exist for that journey	☐ [q38_no_option]	☐ [q41_no_option]	☐ [q44_no_option]	☐ [q47_no_option]
I thought it would take too long	☐ [q38_long]	☐	☐	☐
I thought it would have been too unreliable	☐ [q38_unreliable]	☐	☐	☐
I thought it would have been too uncomfortable	☐ [q38_uncomfortable]	☐	☐	☐
I was unhappy about the lack of privacy associated with that mode	☐ [q38_privacy]	☐	☐	☐

I thought it would be too expensive	[q38_expensive]			
Employer's travel policy does not allow use of that mode	[q38_emp_policy]			
I was unhappy about that mode's emissions	[q38_emissions]			
I didn't have enough information about it	[q38_information]			
I thought it would have required too much physical effort	[q38_effort]			
I was unhappy about the personal security risk associated with that mode	[q38_personal_security]			
I was unhappy about the lack of flexibility inherent in that mode	[q38_flexibility]			
I thought it would have been too complicated	[q38_complicated]			
Medical reasons (e.g. travel sickness, heart condition, phobias etc) prevent me from using this mode of travel	[q38_medical]			

Another reason (not listed above)	☐ [q38_other]	☐	☐	☐

NOTE: in the above matrix there can be a 5th column, this would be [q50_mode], [q50_no_option] etc etc..

[q39] – other reason for not using q38_mode
[q42] – other reason for not using q41_mode
[q45] – other reason for not using q44_mode
[q48] – other reason for not using q48_mode
[q51] – other reason for not using q51_mode

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Page 09

How long would it take to drive to your nearest airport?

[ ] [q50_hrs] hrs [ ] [q50_mins] mins

How long would it take to drive to your nearest rail station?

[ ] [q51_hrs] hrs [ ] [q51_hrs] mins

Which of the following modes could you, if necessary, use to access your nearest **airport?**
(*Tick all that apply*)

☐ Walk [access_mode_chosen_walk]
☐ Local public transport [access_mode_chosen_pt]
☐ Taxi [access_mode_chosen_taxi]
☐ Someone could drop me off [access_mode_chosen_dropoff]
☐ Drive and park [access_mode_chosen_drive]

When considering alternative transport modes for an important journey of 400 miles, **how much time would you allow for unexpected delays at some stage of the journey** (e.g. unexpected congestion, accidents, incidents, cancelled or delayed services)?

- for a journey mainly by car.... [ ] minutes [sp2_time_delays_car]
- for a journey mainly by train .. [ ] minutes [sp2_time_delays_train]
- for a journey mainly by plane.. [ ] minutes [sp2_time_delays_plane]
- for a journey mainly by coach.. [ ] minutes [sp2_time_delays_coach]

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Page 10

Thank you for your answers so far.

We would now like you to imagine that you have to make a **study** journey of **200 miles with 1 family (member or members), 1 (friend or friends) and 1 (colleague or colleagues)** , and that you have the choice of **car, rail, coach or plane** for the main stretch of the journey. You will be returning on the same day.
The next few screens describe the options available to you and we want you to choose between them. On each screen, please indicate your most preferred option and your least preferred option (*there is no right or wrong answer!).*
Each option is defined in terms of the following attributes:
(*Reminders will be available*)
Travel cost: the total cost of the journey **(to cover everyone in your party of 4 people)** from leaving your house to reaching your final destination.
Main mode travel time: For car, this is the time spent in the car (assuming normal traffic conditions). For other modes it is the time on board the main mode (train, coach or plane) assuming it runs to schedule (but excluding any time spent waiting at **stations/airports**)
Interchange time: the time spent waiting at **stations/airports** as a result of any required changes of train, plane or coach during the main stretch of your journey.
Access and egress time:

- Access time applies only to public transport journeys; it is the time spent getting from your home to the station or airport where you board your main mode.
- Egress time is time spent getting to your final destination from the place where you park your car - or from the station/airport where you get off your main mode.
- Please note we have not allowed any time for "**extras**", e.g. getting to and from platforms or gates, completing security or luggage-related procedures, or any rest stops during car journeys. **YOU SHOULD TAKE THIS INTO ACCOUNT.**

Number of interchanges: the number of times that you have to change trains, planes or coaches during the main stretch of your journey (e.g. if you go by air and have to change planes once, the number of interchanges will be 1 not 3).

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Page 11

Remember that you are making a **study** journey of **200 miles** and you will be making this journey **with 1 family member, 1 friend and 1 colleague**, you will be returning **on the same day or** you will be returning **three days** later.

	Main Mode of Travel		
Travel Attributes *(mouse over attribute for explanation)*	**High Speed Rail**	**Car**	**Coach**
Travel cost (to cover everyone in your party of 4 people)	£530	£30	£0
Main mode travel time	1 hrs 00 mins	3 hrs 45 mins	0 mins
Interchange time	15 mins	0 mins	0 mins
Combined access & egress time (extras **not** included)	50 mins	10 mins	0 mins
Number of interchanges required	1	0	
Most preferred option [q53_game1_most_pref]	☐	☐	☐

Least preferred option [q53_game1_least_pref]	☐	☐	☐

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Pages 12-16: Games 3-6 [q53_game2_most_pref], [q53_game2_ least _pref]
[q53_game3_most_pref], [q53_game3_ least _pref]
[q53_game4_most_pref], [q53_game4_ least _pref]
[q53_game5_most_pref], [q53_game5_ least _pref]
[q53_game6_most_pref], [q53_game6_ least _pref]

Page 16a

When considering alternative transport modes for a journey of 450 miles, how much time would **you** allow for "extras" (getting to and from platforms or gates, completing security and luggage-related procedures and, for car journeys, any necessary rest stops?

when travelling by car.... ____ minutes [sp2_time_extras_car]

when travelling by train .. ____ minutes [sp2_time_extras_train]

when travelling by plane.. ____ minutes [sp2_time_extras_plane]

when travelling by coach.. ____ minutes [sp2_time_extras_coach]

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Page 17

We would now like you to imagine that you are making the journey by (**air or rail)** and to think about how you would get to the departure (airport or rail station) for an 8am(flight or train).
The next few screens, will offer you different options for the journey to the departure (airport or rail station) . Each time we would like you to give your preferences.

Each travel option is described by a number of travel attributes as defined below. (*Reminders will be available*)
Access cost: the cost of the journey to the departure (airport or rail station) **to cover everyone in your party of 4 people**.
Access time: the time required to travel from your home to the departure airport (assuming no delays)
Minimum additional time: the minimum time needed to complete any security or other procedures and to get to the departure gate in time for the scheduled departure (if you are getting to the airport by local public transport, this additional time allows for the actual timetables). It does **not** include any extra safety margin you might want to add.

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Page 18

Remember that you are making a **study** journey of **450 miles by air** and you will be making this journey **with 1 family member, 1 friend and 1 colleague**, you will be returning **three days** later.

1	**Drive &**	**Taxi to airport**	**Local public**	**Dropped off at**	**Walk to station**

	park	or station	transport to airport or station	airport or station	
Access time	35 mins	25 mins	55 mins	25 mins	
Access cost (to cover everyone in your party of 4 people)	£65	£25	£25	£5	
Minimum additional time	45 mins	45 mins	1 hrs 15 mins	45 mins	
Most preferred option for getting to the airport [q60_game1_access_most_pref]	☐	☐	☐	☐	
Least preferred option for getting to the airport [q60_game1_access_least_pref]	☐	☐	☐	☐	

Pages 19-21 were games 2-4: **[q60_game2_access_most_pref], [q60_game2_access_least_pref] [q60_game3_access_most_pref], [q60_game3_access_least_pref] [q60_game4_access_most_pref], [q60_game4_access_least_pref]**

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We would now like you to think about how you would get to your final destination from the arrival airport.

Each travel option is described by a number of travel attributes as defined below. (*Reminders will be available*)
Egress cost: the cost of the journey to your final destination from the arrival (**airport or rail station) to cover everyone in your party of 4 people.**
Egress time: the time required to travel to your final destination from the arrival airport (assuming no delays)
Minimum additional time: the minimum time needed to get from the arrival gate and to complete any arrival procedures (if you are going on to your final destination by local public transport, this additional time allows for the actual timetables). It does **not** include any extra safety margin you might want to add.

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Page 23

Remember that you are making a **study** journey of **450 miles by air** and you will be making this journey **with 1 family member, 1 friend and 1 colleague**, you will be returning **three days** later.

1	Local public transport	Taxi from airport	Walk from station

	from airport or station	or station	
Egress time	60 mins	35 mins	
Egress cost (to cover everyone in your party of 4 people)	£60	£50	
Minimum additional time	30 mins	20 mins	
Most preferred option for getting from the airport to your destination [q60_game1_egress_most_pref]	☐	☐	

[q60_game1_egress_least_pref] (only appears here if 3 modes are offered)

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Pages 24-26 were games 2-4**[q60_game2_egress_most_pref], [q60_game2_ egress _least_pref]**
[q60_game3_ egress _most_pref], [q60_game3_ egress _least_pref]
[q60_game4_ egress _most_pref], [q60_game4_ egress _least_pref]

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We would now like you to imagine that you have to make a **work** journey of **450 miles** by **rail** travelling alone and that access to and from the train stations at either end of your journey are made either by public transport or taxi. Please assume that the following journey characteristics hold.

- **Main mode (rail) travel time** is 6 hrs 45 mins **[sp3_travel_time]** and the **travel cost** is £175 **[sp3_travel_cost]**.
- You have to purchase all your train and other public transport tickets separately.
- There is no online journey planner to help plan your journeys in advance.
- Public transport services to and from the train stations at either end of the journey are not co-ordinated with the departure and arrival of train services.
- There is no information and ticketing services at the departure train station for public transport modes serving it.
- Staff provide poor customer service at train stations and on board trains.
- The public transport interchanges and taxi ranks at the destination train station are located a 10 minute walk away from the train station.

We would now like you to look at the options below and rank a number of improvements that could be applied to this journey. Please rank them in order of preference by clicking and then dragging them into position - **the higher the position in the list the more desirable the change**.

- **[sp3_rank1]** - There is a 10% **[sp3_time_red1]** reduction in **(rail)** travel time.
- **[sp3_rank2]** - You can purchase a **(rail)** ticket which includes local public transport to and from the **(rail stations)** at either end of your journey.
- **[sp3_rank3]** - There is a 10% **[sp3_cost_red1]** reduction **in (rail)** travel cost.
- **[sp3_rank4]** - Introduction of information and ticketing services at the **(rail station)** for all forms of public transport that serve it.
- **[sp3_rank5]** - Public transport services to and from the **(rail stations)** at either end of the journey are co-ordinated with the departure and arrival in **(rail)** services.
- **[sp3_rank6]** - Staff at the **(rail stations)** and on board the in **(trains)** provide an excellent level of customer service.
- **[sp3_rank7]** - There is a 20% **[sp3_time_red2]** reduction in **(rail)** travel time.

- **[sp3_rank8]** - Public transport interchanges and taxi ranks are re-sited next to the destination **(rail station)**.
- **[sp3_rank9]** - Introduction of an online journey planner that allows you to plan every stage of your journey in advance and purchase tickets for each phase at the same time.
- **[sp3_rank10]** - There is a 30% **[sp3_cost_red2]** reduction in **(rail)** travel cost.

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And finally, please indicate the extent to which you agree with each of the following statements . (*1 = totally disagree, 5 = totally agree*)

I do not like wasting time - I always seem to be in a hurry

- [q76_1]

I always look for value for money spent - [q76_2]

When I finish a complex task, I feel a sense of relief that it is over

- [q76_3]

When I finish a complex task, I feel a sense of satisfaction

- [q76_4]

The answers I have given in this questionnaire would give someone a good picture of my preferences when making long distance journeys

- [q76_5]

The choices I made in the hypothetical questions reflected what I would do in the real world

- [q76_6]

Thank you very much for your help. It is greatly appreciated.

Do you want to add anything that you think will help us understand how you choose your method of travel for long-distance trips please?

☐ Yes ☐ No

Add further comments here...

[final_comments_txt]

Submit

APPENDIX 2 DERIVATION OF INCOME BANDS USED IN THE QUESTIONNAIRE

Percentile	UK	Netherlands	Austria	Germany	Belgium	France	Poland	Poland	Swiss
	Euros	Euro	Euro	Euro	Euro	Euro	Euro	Zlots	Euro
30	12,780	16,497	16,655	14,635	15,191	15,787	3,326		23,744
40	14,925	18,364	18,498	16,745	17,223	17,887	3,842		27,084
50	17,106	20,292	20,618	18,797	19,464	20,046	4,405		30,682
60	19,715	22,874	22,874	21,141	21,815	22,398	5,008		34,563
70	23,834	25,313	25,654	24,051	24,479	25,402	5,764		38,917
80	27,265	28,893	29,388	28,030	27,878	29,717	6,844		45,948
90	34,707	35,494	36,737	34,756	33,340	37,949	8,579		56,061
Calculated:									
35	13,853	17,431	17,577	15,690	16,207	16,837	3,584		25,414
50	17,106	20,292	20,618	18,797	19,464	20,046	4,405		30,682
65	21,775	24,094	24,264	22,596	23,147	23,900	5,386		36,740
80	27,265	28,893	29,388	28,030	27,878	29,717	6,844		45,948
95	38,428	38,795	40,412	38,119	36,071	42,065	9,447		61,118
Times 1.5									
35	20,779	26,146	26,365	23,535	24,311	25,256	5,376		38,121
50	25,659	30,438	30,927	28,196	29,196	30,069	6,608		46,023
65	32,662	36,140	36,396	33,894	34,721	35,850	8,079		55,110
80	40,898	43,340	44,082	42,045	41,817	44,576	10,266		68,922
95	57,642	58,192	60,617	57,179	54,107	63,098	14,170		91,676
Rounded:								(x rate of 4.34)	
Pre Tax:	20,000	25,000	25,000	25,000	25,000	25,000	5,000	22,000	40,000
	25,000	30,000	30,000	30,000	30,000	30,000	7,000	30,000	45,000
	35,000	35,000	35,000	35,000	35,000	35,000	8,000	35,000	55,000
	40,000	45,000	45,000	40,000	40,000	45,000	10,000	43,000	70,000
	60,000	60,000	60,000	55,000	55,000	65,000	15,000	65,000	90,000
Post Tax- Ac	16,387	16,189	20,844	22,145	16,206	22,839		15,396	37,399
	19,787	19,091	24,756	25,927	18,956	26,566		20,970	41,711
	26,587	21,993	28,667	29,622	21,672	30,066		24,454	50,053
	29,987	27,793	36,504	33,233	24,172	37,060		30,028	62,221
	42,258	36,142	48,031	43,234	31,672	51,066		45,358	77,733
Rounded:									
Post-tax	16,400	16,200	20,800	22,100	16,200	22,800		15,400	37,400
	19,800	19,100	24,800	26,000	19,000	26,600		21,000	41,800
	26,600	22,000	28,700	29,600	21,700	30,000		24,500	50,053
	30,000	27,800	36,500	33,200	24,200	37,000		30,000	62,221
	42,300	36,100	48,000	43,200	31,700	51,000		45,500	77,700

Income Distribution	http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/dataset?p_product_code=ILC_DI01
Income Tax Calculators	http://europa.eu/youreurope/citizens/work/abroad/taxes/germany/employed_en.htm
UK Income Tax Calculator	http://www.thetaxcalculator.net/
French Income Tax Calculator	http://calculatenetsalary.com/calculate-net-salary-in-france.html
Dutch Income Tax Calculator	http://calculatenetsalary.com/calculate-net-salary-in-thenetherlands.html
Swiss Income Tax Calculator	http://www.estv2.admin.ch/d/dienstleistungen/steuerrechner/steuerrechner.htm
Polish Income Tax Calculator	http://www.calculla.com/en/poland_earnings_brutto_netto

APPENDIX 3 SEEDING FORMULAS

Note on distance: all distances are miles, if user was working in km the background calculations were done in miles and then converted.

Base travel time (SP1 & SP3)

- **Car:** 20 + 1.17 * dist
- **Coach:** (25 + 1.25 * dist) + (no. of interchanges * random interchange time)
- **Rail:** (15 + 0.57 * dist) + (no. of interchanges * random interchange time)
- **HSR:** (11 + 0.35 * dist) + (no. of interchanges * random interchange time)
- **Plane:** (24 + 0.12 * dist) + (no. of interchanges * random interchange time)

Base travel cost (SP1)

Polish

- **Car:** (5.0 + 0.2 * dist) * 0.85
- **Coach:** party size * (5.0 + 0.15 * dist) * 0.40
- **Rail:** party size * (10 + 0.2 * dist) * 0.40
- **HSR:** party size * (20 + 0.3 * dist) * 0.40
- **Plane:** party size * (100 + 0.1 * dist)

Non-Polish

- **Car:** (5.0 + 0.2 * dist)
- **Coach:** party size * (5.0 + 0.15 * dist)
- **Rail:** party size * (10 + 0.2 * dist)
- **HSR:** party size * (20 + 0.3 * dist)
- **Plane:** party size * (100 + 0.1 * dist)

Base travel cost (SP3)

Polish

- **Car:** (5.0 + 0.2 * dist) * 0.85
- **Coach:** 1 * (5.0 + 0.15 * dist) * 0.40
- **Rail:** 1 * (10 + 0.2 * dist) * 0.40
- **HSR:** 1 * (20 + 0.3 * dist) * 0.40
- **Plane:** 1 * (100 + 0.1 * dist)

Non-Polish

- **Car:** (5.0 + 0.2 * dist)
- **Coach:** 1 * (5.0 + 0.15 * dist)
- **Rail:** 1 * (10 + 0.2 * dist)

- **HSR:** 1 * (20 + 0.3 * dist)
- **Plane:** 1 * (100 + 0.1 * dist)

Combined access and egress time

- **Car:** 5 + 0.01 * dist
- **Coach:** 5 + time to get to nearest station (mins)
- **Rail:** 5 + time to get to nearest station (mins)
- **HSR:** 10 + time to get to nearest station (mins)
- **Plane:** 10 + time to get to nearest airport (mins)

Interchange time

- **Car:** none
- **Coach:** no. interchanges * random time from 5 to 90 mins
- **Rail:** no. interchanges * random time from 5 to 60 mins
- **HSR** no. interchanges * random time from 5 to 60 mins
- **Plane:** no. interchanges * random time from 40 to 180 mins

SP2 Access

X = time to get to nearest airport/station (mins)
Y = X^1.3
Z = Rd^0.75
Rd = duration of trip in days

Air journey

- LPT
    - Time: X + 30
    - Cost (Poland): party size * 2.5 + (0.1 * X) * 0.40
    - Cost (not Poland): party size * 2.5 + (0.1 * X)
    - Add. Time: 80
- Taxi
    - Time: X
    - Cost (Poland): (1.5 + 0.4 * Y) * 0.40
    - Cost (not Poland): (1.5 + 0.4 * Y)
    - Add. Time: 45
- Dropped off
    - Time: X

- Cost (Poland): (0.2 * X) * 0.85
- Cost (not Poland): 0.2 * X
- Add. Time: 45

- Drive
  - Time: X + 10
  - Cost (Poland): (0.2 * X) + (Z*10) * 0.85
  - Cost (not Poland): (0.2 * X) + (Z*10)
  - Add. Time: 45

- Walk
  - Time: X * 4
  - Cost (Poland): 0
  - Cost (not Poland): 0
  - Add. Time: 45

Rail journey

- LPT
  - Time: X + 30
  - Cost (Poland): party size * 0.5 + (0.1 * X) * 0.40
  - Cost (not Poland): party size * 0.5 + (0.1 * X)
  - Add. Time: 45
- Taxi
  - Time: X
  - Cost (Poland): (1.5 + 0.4 * Y) * 0.40
  - Cost (not Poland): (1.5 + 0.4 * Y)
  - Add. Time: 10
- Dropped off
  - Time: X
  - Cost (Poland): (0.2 * X) * 0.85
  - Cost (not Poland): 0.2 * X
  - Add. Time: 10
- Drive

- Time: X + 10
- Cost (Poland): (0.12 * X) + (Z * 7.5) * 0.85
- Cost (not Poland): (0.12 * X) + (Z * 7.5)
- Add. Time: 10

- Walk
  - Time: X * 4
  - Cost (Poland): 0
  - Cost (not Poland): 0
  - Add. Time: 10

SP2 Egress
Note: If journey distance was greater than 500 miles, it is capped at 500 for the purposes of SP2 egress.

Air journey
- LPT
  - Time: 35 + (0.2 * dist)
  - Cost (Poland): party size * 2.5 + (0.1 * dist) * 0.40
  - Cost (not Poland): party size * 2.5 + (0.1 * X)
  - Add. Time: 30
- Taxi
  - Time: 15 + (0.1 * dist)
  - Cost (Poland): (12 + 0.1 * dist) * 0.40
  - Cost (not Poland): (12 + 0.1 * dist)
  - Add. Time: 20

Rail journey
- LPT
  - Time: 30 + (0.01 * dist)
  - Cost (Poland): party size * 1.5 + (0.005 * dist) * 0.40
  - Cost (not Poland): party size * 1.5 + (0.005 * dist)
  - Add. Time: 15
- Taxi

- Time: 15 + (0.01 * dist)
- Cost (Poland): (10 + 0.01 * dist) * 0.40
- Cost (not Poland): 10 + 0.01 * dist
- Add. Time: 5

- Walk
  - Time: 10 + 0.01 * dist
  - Cost (Poland): 0
  - Cost (not Poland): 0
  - Add. Time: 5

APPENDIX 4 CONTENT OF THE RANKING EXERCISE

Note that each list includes two reductions in travel time and two reductions in travel cost. Each one was randomly chosen to be "5%" , "10%", "15%", "20%", "25%" or "30%" (subject to the two cost reductions should be different from each other and the time reductions should be different from each other).

Rail (list 1):

- There is a % reduction in rail travel time
- You can purchase a rail ticket which includes local public transport to and from the rail stations at either end of your journey
- There is a % reduction in the rail travel cost per person
- Introduction of information and ticketing services at the rail station for all forms of public transport that serve it
- Public transport services to and from the rail stations at either end of the journey are co-ordinated with the departure and arrival of rail services
- Staff at the rail stations and on board the trains provide an excellent level of customer service
- There is a % reduction in rail travel time
- Public transport interchanges and taxi ranks are re-sited next to the destination rail station
- Introduction of an online journey planner that allows you to plan every stage of your journey in advance and purchase tickets for each phase at the same time
- There is a % reduction in the rail travel cost per person

Rail (list 2):

- There is a % reduction in rail travel time
- Introduction of a service that allows you to drop off your luggage at the departure station and have it delivered to your final destination the same day you arrive
- There is a % reduction in the rail travel cost per person.
- Introduction of additional car parking at the train station means you can always find a place to park
- Introduction of automated passport/border controls for international rail travellers
- Level access is provided throughout rail stations and on board the trains
- There is a % reduction in rail travel time
- Introduction of self-service check in and luggage drops for international rail travellers
- Introduction of an online journey planner that allows you to plan every stage of your journey in advance
- There is a % reduction in the rail travel cost per person

Coach (list 1):

- There is a % reduction in coach travel time
- You can purchase a coach ticket which includes local public transport to and from the coach stations at either end of your journey
- There is a % reduction in the coach travel cost per person
- Introduction of information and ticketing services at the coach station for all forms of public transport that serve it
- Public transport services to and from the coach stations at either end of the journey are co-ordinated with the departure and arrival of coach services
- Staff at the coach stations and on board the coaches provide an excellent level of customer service
- There is a % reduction in the coach travel time
- Public transport interchanges and taxi ranks are re-sited next to the destination coach station
- Introduction of an online journey planner that allows you to plan every stage of your journey in advance and purchase tickets for each phase at the same time
- There is a % reduction in the coach travel cost per person

Coach (list 2):

- There is a % reduction in coach travel time
- Installation of safety equipment reduces the chance of a serious accident by 20%
- Level access is provided throughout coach stations and on board the coaches
- There is a % reduction in the coach travel cost per person
- Introduction of free high quality Wi-Fi throughout the journey
- Introduction of additional car parking at the coach station means you can always find a place to park
- There is a % reduction in the coach travel time
- Introduction of more efficient engines that reduces CO2 emissions by 20%
- Introduction of an online journey planner that allows you to plan every stage of your journey in advance
- There is a % reduction in the coach travel cost per person

Car list:

- There is a % reduction in car travel time
- Your car is equipped, at no cost to yourself, with 'smart' technology that can detect other vehicles and so reduces the chance of a serious accident by 20%
- There is a % reduction in car travel cost
- Your car is equipped, at no cost to yourself, with a more efficient engine which reduces CO2 emissions by 40%
- Introduction of higher quality service and rest facilities along your route
- There is a % reduction in car travel time
- Your car is equipped, at no cost to yourself, with a more efficient engine which reduces CO2 emissions by 10%
- Your car is equipped, at no cost to yourself, with high quality Wi-Fi which works throughout the journey
- There is a % reduction in car travel cost
- Your car has a more efficient engine which reduces CO2 emissions by 20%

Air (list 1):

- There is a % reduction in plane travel time
- You can purchase an air ticket which includes local public transport to and from the airports at either end of your journey
- There is a % reduction in the plane travel cost per person
- Introduction of information and ticketing services at the airport for all forms of public transport that serve it
- Public transport services to and from the airport) at either end of the journey are co-ordinated with the departure and arrival of plane services
- Staff at the airports and on board the planes provide an excellent level of customer service
- There is a % reduction in the plane travel time
- Public transport interchanges and taxi ranks are re-sited next to the destination airport
- Introduction of an online journey planner that allows you to plan every stage of your journey in advance and purchase tickets for each phase at the same time
- There is a % reduction in the plane travel cost per person

Air (list 2):

- There is a % reduction in plane travel time
- Introduction of a service that allows you to check in and drop off your luggage at the rail station you use to travel to the airport from
- There is a % reduction in the plane travel cost per person
- Introduction of additional car parking at the airport means you can always find a place to park
- Introduction of automated passport/border controls for international air travellers
- There is a % reduction in the plane travel time
- Introduction of more efficient aircraft engines that reduces CO2 emissions by 20%
- Introduction of an online journey planner that allows you to plan every stage of your journey in advance
- There is a % reduction in the plane travel cost per person

APPENDIX 5 REGRESSION MODELS

Table A5-1 Long Distance Trips by Mode

Dependent Variable	*Model 5: LD Total Air Trips*	*Model 6: LD Total Train Trips*	*Model 7: LD Total Coach Trips*	*Model 8: LD Total Car Trips*	*Model 9: LD Other Trips*
Constant	2.02 (6.70)	3.92 (1.47)	0.72 (2.71)	19.41 (8.34)	0.97 (5.08)
Occ_pte	-0.87 (2.80)	-1.72 (2.53)		-6.69 (3.80)	-0.68 (1.78)
Occ_se	-0.29 (0.65)	-0.98 (0.98)		0.18 (0.07)	-0.67 (1.20)
Occ_stu	-0.99 (2.30)	4.01 (5.64)		-7.63 (4.13)	0.10 (1.24)
Occ_ret	-0.90 (2.53)	-2.64 (4.28)		-12.90 (8.00)	-0.83 (2.40)
Occ_fthm	-1.19 (2.39)	-2.49 (2.31)		-4.97 (1.76)	-0.40 (0.66)
Occ_unemp	-1.41 (3.56)	-2.81 (3.18)		-9.31 (4.10)	-0.68 (1.38)
NoCar				-7.45 (3.72)	
License				5.95 (2.88)	
Female	-0.38 (1.80)			-7.21 (6.02)	
Child16	0.62 (2.50)		1.00 (2.72)	2.83 (2.11)	
HH2					
HH3-4					
HH5+					
Age18-24	0.86 (1.85)				
Age25-34	1.21 (3.29)				
Age35-44	-0.15 (0.41)				
Age45-54	0.09 (0.25)				
Inc1stQuart			1.14 (2.66)		
Inc2ndQuart			0.66 (1.45)		
Inc3rdQuart			0.20 (0.40)		
Adj R2	0.10	0.012	0.002	0.035	0.001
N	5,791	5,791	5,791	5,791	5,791

Table A5-2 Long Distance Trips by Journey Purpose

Dependent Variable	*Model 10: LD Total Work Trips*	*Model 11: LD Total Leisure Trips*	*Model 12: LD Total Study Trips*	*Model 13: LD Total Other Trips*
Constant	18.58 (22.20)	9.79 (26.51)	4.50 (3.02)	1.45 (7.38)
Occ_pte	-9.72 (5.84)		-0.90 (1.59)	0.09 (0.22)
Occ_se	-0.28 (0.12)		-0.78 (0.94)	0.12 (0.21)
Occ_stu	-13.40 (7.71)		9.05 (15.15)	-0.05 (0.13)
Occ_ret	-17.33 (11.52)		-0.68 (1.29)	0.28 (0.81)
Occ_fthm	-14.40 (5.45)		1.21 (1.34)	2.38 (3.84)
Occ_unemp	-13.61 (6.30)		-1.01 (1.35)	0.51 (1.67)
NoCar		-2.89 (4.83)	-1.15 (2.05)	
License				
Female		-1.07 (2.65)		
Child16			1.44 (3.28)	
WalkUnaid			-3.82 (2.62)	
Inc1stQuart		-1.84 (3.46)		
Inc2ndQuart		-0.38 (0.67)		
Inc3rdQuart		-0.21 (0.34)		
Adj R2	0.032	0.008	0.045	0.002
N	5,791	5,791	5,791	5,791

Table A5-3 Long Distance Journey Purpose Models Split by Distance Categories

	Work Trips			Study Trips			Leisure Trips			Other Trips		
Dependent Variable	100/ 500kms	500/ 1,000kms	>1,000kms	100/ 500kms	500/ 1,000kms	>1,000kms	100/ 500kms	500/ 1,000kms	>1,000kms	100/ 500kms	500/ 1,000kms	>1,000kms
Constant	16.17 (20.86)	1.69 (14.24)	0.96 (11.89)	4.27 (3.13)	0.03 (1.01)	0.03 (0.61)	6.85 (20.61)	1.29 (15.01)	1.51 (23.41)	1.19 (7.07)	0.10 (3.28)	0.12 (5.12)
Occ_pte	-8.25 (5.35)	-0.70 (3.73)	-0.48 (3.78)	-0.74 (1.41)	-0.06 (1.28)	-0.08 (1.34)	-1.19 (2.18)		-0.16 (1.54)	0.10 (0.30)	0.02 (0.41)	-0.04 (0.94)
Occ_se	-1.18 (0.52)	0.54 (2.01)	0.37 (2.05)	-0.79 (1.03)	-0.03 (0.04)	-0.06 (0.64)	-0.43 (0.54)		0.13 (0.83)	0.14 (0.29)	0.02 (0.28)	-0.03 (0.52)
Occ_stu	-11.75 (7.29)	-0.87 (4.51)	-0.53 (4.06)	7.82 (14.28)	0.51 (10.38)	0.24 (2.93)	-0.92 (1.60)		-0.31 (2.74)	0.02 (0.07)	-0.04 (0.76)	-0.04 (0.84)
Occ_ret	-15.22 (10.92)	-1.17 (6.82)	-0.76 (6.53)	-0.95 (2.01)	-0.02 (0.41)	-0.03 (0.45)	-0.91 (1.85)		-0.12 (1.23)	0.29 (0.95)	0.05 (1.16)	-0.03 (0.78)
Occ_fthm	-12.45 (5.09)	-0.95 (3.19)	-0.66 (3.23)	1.29 (1.55)	0.10 (1.38)	0.07 (0.73)	-0.55 (0.64)		-0.34 (1.99)	1.74 (3.26)	0.33 (4.10)	0.29 (3.99)
Occ_unemp	-11.69 (5.84)	-1.11 (4.66)	-0.67 (4.11)	-1.16 (1.70)	-0.04 (0.68)	-0.09 (1.26)	-2.75 (3.82)		-0.65 (4.66)	0.55 (1.25)	0.13 (1.96)	0.15 (2.60)
NoCar							-2.15 (3.97)				0.12 (2.47)	
License								0.31 (3.68)				
Female		-0.77 (6.06)	-0.30 (3.47)									
Child16		0.43 (3.06)	0.22 (2.32)		0.17 (4.64)	0.21 (4.42)					0.09 (2.41)	
HH2												
HH3-4												
HH5+												
Walkunaid				-3.41 (2.52)								
Age18-24						0.23 (2.65)						
Age25-34						0.07 (0.99)						
Age35-44						-0.09 (1.31)						
Age45-44						-0.02 (0.30)						
Inc1stQuart							-1.00 (2.09)	-0.34 (4.61)	-0.24 (2.61)			
Inc2ndQuart							-0.14 (0.28)	-0.08 (1.07)	-0.14 (1.42)			
Inc3rdQuart							-0.31 (0.57)	0.01 (0.13)	0.02 (0.15)			
Adj R2	0.028	0.026	0.020	0.040	0.023	0.015	0.007	0.006	0.006	0.006	0.005	0.004
N	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791

Table A5-4 Long Distance Journey Mode Models Split by Distance

	Air Trips			Train Trips			Coach Trips			Car Trips			Other Trips		
Dependent Variable	100/ 500kms	500/ 1,000kms	+1,000kms	100/ 500kms	500/ 1,000kms	>1,000kms	100/ 500kms	500/ 1,000kms	>1,000kms	100/ 500kms	500/ 1,000kms	>1,000kms	100/ 500kms	500/ 1,000kms	>1,000kms
Constant	0.38 (3.08)	0.70 (16.38)	1.16 (23.73)	3.16 (9.79)	0.55 (7.96)	0.42 (6.95)	0.42 (6.95)	0.10 (2.82)	0.31 (6.40)	17.05 (7.79)	1.16 (6.00)	0.41 (3.31)	0.75 (4.61)	0.15 (4.53)	0.11 (2.70)
Occ_pte		-0.20 (2.76)	-0.28 (3.43)	-1.41 (2.20)	-0.13 (1.78)	-0.17 (2.96)				-5.85 (3.53)	-0.54 (3.14)		-0.58 (1.80)	-0.07 (1.09)	
Occ_se		-0.08 (0.77)	0.07 (0.62)	-0.94 (1.00)	0.04 (0.41)	-0.04 (0.54)				-0.81 (0.34)	0.50 (2.00)		-0.56 (1.18)	-0.08 (0.83)	
Occ_stu		-0.06 (0.74)	-0.13 (1.53)	3.89 (5.81)	-0.02 (0.20)	0.03 (0.50)				-7.02 (4.04)	-0.37 (2.03)		0.23 (0.67)	-0.08 (1.20)	
Occ_ret		-0.42 (6.42)	-0.34 (4.69)	-2.29 (3.95)	-0.22 (2.65)	-0.09 (1.63)				-12.01 (7.93)	-0.48 (3.01)		-0.68 (2.33)	-0.12 (2.06)	
Occ_fthm		-0.24 (2.03)	-0.55 (4.27)	-2.03 (1.99)	-0.29 (2.57)	-0.26 (2.82)				-4.70 (1.77)	-0.17 (0.61)		-0.38 (0.74)	-0.02 (0.20)	
Occ_unemp		-0.39 (4.15)	-0.60 (5.64)	2.38 (2.85)	-0.27 (2.94)	-0.21 (2.85)				-8.29 (3.88)	-0.77 (3.48)		-0.62 (1.47)	-0.06 (0.75)	
NoCar					0.18 (2.67)					-6.53 (3.46)					
License						-0.23 (4.03)			-0.19 (3.72)	5.31 (2.73)	0.78 (4.54)	0.46 (3.44)			-0.09 (2.40)
Female		-0.10 (1.93)			-0.16 (3.27)					-6.62 (5.88)	-0.43 (3.67)				
Child16	0.59 (3.47)				0.30 (5.16)	0.18 (4.20)	0.85 (2.61)	0.12 (2.50)		2.11 (1.67)	0.43 (3.24)				
HH2															
HH3-4															
HH5+															
Age18-24					0.03 (0.27)										
Age25-34					0.02 (0.27)										
Age35-44					-0.27 (3.23)										
Age45-44					-0.21 (2.49)										
Inc1stQuart	-0.42 (2.09)		-0.44 (6.26)				0.99 (2.59)	0.15 (2.57)							
Inc2ndQuart	-0.12 (0.58)		-0.09 (1.25)				0.62 (1.53)	0.06 (1.01)							
Inc3rdQuart	-0.28 (1.22)		-0.06 (0.78)				0.21 (0.47)	0.06 (0.86)							
Adj R2	0.002	0.009	0.019	0.012	0.012	0.008	0.002	0.001	0.002	0.032	0.016	0.002	0.001	0.000	0.003
N	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791	5,791

APPENDIX 6 VOT META ANALYSIS

Calculated from Wardman (2012)

		Euro/hour values								
CAR										
Country		Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	United Kingdom
Commuter	100	11.2	10.8	10.2	10.3	11.5	11.5	4.4	14.9	9.5
	300	13.1	12.6	11.8	12.0	13.5	13.4	5.1	17.4	11.1
	750	14.8	14.4	13.5	13.6	15.3	15.2	5.8	19.8	12.6
	1000	15.5	14.9	14.0	14.2	15.9	15.9	6.1	20.6	13.2
Business	100	37.1	35.7	33.1	33.6	38.5	38.3	12.3	52.1	30.7
	300	43.3	41.6	38.6	39.2	44.9	44.7	14.3	60.8	35.8
	750	49.2	47.3	43.9	44.5	51.0	50.8	16.3	69.1	40.7
	1000	51.2	49.3	45.7	46.3	53.1	52.9	17.0	72.0	42.4
Others	100	9.6	9.3	8.7	8.8	9.9	9.9	3.8	12.9	8.2
	300	11.2	10.9	10.2	10.3	11.6	11.5	4.4	15.0	9.6
	750	12.8	12.4	11.6	11.7	13.2	13.1	5.0	17.0	10.9
	1000	13.3	12.9	12.1	12.2	13.7	13.7	5.2	17.7	11.3

BUS/COACH										
	Country	Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	United Kingdom
Commuter	100	6.8	6.6	6.2	6.3	7.0	7.0	2.8	8.9	5.8
	300	8.4	8.1	7.6	7.7	8.6	8.6	3.4	11.0	7.2
	750	9.9	9.6	9.1	9.2	10.2	10.2	4.1	13.1	8.5
	1000	10.5	10.2	9.6	9.7	10.8	10.8	4.3	13.8	9.0
Business	100	22.6	21.7	20.2	20.5	23.4	23.3	7.9	31.2	18.8
	300	27.8	26.7	24.9	25.2	28.7	28.6	9.7	38.4	23.2
	750	33.0	31.8	29.6	30.0	34.1	34.0	11.5	45.6	27.5
	1000	34.8	33.5	31.2	31.6	36.0	35.9	12.1	48.1	29.1
Others	100	5.9	5.7	5.3	5.4	6.0	6.0	2.4	7.7	5.0
	300	7.2	7.0	6.6	6.6	7.4	7.4	3.0	9.5	6.2
	750	8.6	8.3	7.8	7.9	8.8	8.8	3.5	11.2	7.4
	1000	9.0	8.8	8.2	8.3	9.3	9.3	3.7	11.9	7.8
TRAIN										
	Country	Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	United Kingdom
	100	8.7	8.4	7.9	8.0	9.0	8.9	3.6	11.4	7.5
	300	10.7	10.4	9.8	9.9	11.0	11.0	4.4	14.1	9.2
	750	12.7	12.3	11.6	11.7	13.1	13.0	5.2	16.7	10.9
	1000	13.4	13.0	12.2	12.4	13.8	13.8	5.5	17.6	11.5
	100	36.9	35.5	33.1	33.5	38.2	38.0	12.9	51.0	30.8
	300	45.4	43.7	40.6	41.2	47.0	46.8	15.8	62.7	37.9

	750	53.9	51.9	48.3	49.0	55.8	55.5	18.8	74.5	45.0
	1000	56.9	54.8	51.0	51.7	58.9	58.6	19.8	78.7	47.5
	100	7.5	7.3	6.8	6.9	7.7	7.7	3.1	9.8	6.4
	300	9.2	8.9	8.4	8.5	9.5	9.5	3.8	12.1	7.9
	750	11.0	10.6	10.0	10.1	11.3	11.2	4.5	14.4	9.4
	1000	11.6	11.2	10.5	10.7	11.9	11.9	4.8	15.2	9.9
AIR										
	Country	Austria	Belgium	France	Germany	Ireland	Netherlands	Poland	Switzerland	United Kingdom
Business	300	81.0	78.0	72.6	73.6	83.9	83.5	28.3	112.0	67.6
	750	96.3	92.7	86.2	87.5	99.6	99.2	33.6	133.1	80.3
	1000	101.6	97.8	91.0	92.3	105.2	104.7	35.4	140.5	84.8
Others	300	21.0	20.4	19.2	19.4	21.7	21.6	8.7	27.6	18.1
	750	25.0	24.2	22.8	23.0	25.7	25.6	10.3	32.8	21.5
	1000	26.4	25.6	24.0	24.3	27.2	27.1	10.9	34.6	22.6

APPENDIX 7 REASONS FOR REJECTING SPECIFIC MODES

Table A7-1 Austria

	% giving each reason for rejecting this mode				
Reason Given	Car Driver	Car Passenger	Train	Coach	Plane
Too expensive	8%	5%	26%	32%	23%
Too long	10%	7%	40%	58%	5%
Too unreliable	3%	4%	17%	23%	1%
Too much effort	14%	5%	10%	35%	2%
Too complicated	7%	5%	36%	47%	13%
Emissions too high	10%	6%	2%	14%	8%
Employers policy	4%	2%	4%	10%	3%
Level of flexibility	2%	4%	43%	62%	11%
Lack of privacy	2%	3%	21%	48%	5%
Concern over personal security	6%	4%	5%	12%	2%
Levels of comfort	9%	7%	23%	62%	3%
Medical reasons	2%	2%	4%	12%	3%
Lack of information	2%	2%	12%	34%	4%
No option	20%	16%	18%	76%	52%
Other	6%	6%	5%	12%	4%

Table A7-2 Belgium

	% giving each reason for rejecting this mode				
Reason Given	Car Driver	Car Passenger	Train	Coach	Plane
Too expensive	9%	6%	30%	12%	13%
Too long	11%	9%	31%	23%	4%
Too unreliable	6%	4%	13%	11%	2%
Too much effort	10%	4%	12%	9%	1%
Too complicated	12%	9%	33%	18%	8%
Emissions too high	7%	4%	14%	7%	3%
Employers policy	3%	4%	7%	6%	2%
Level of flexibility	3%	5%	33%	16%	6%
Lack of privacy	3%	4%	17%	15%	3%
Concern over personal security	6%	4%	13%	8%	2%
Levels of comfort	6%	5%	20%	17%	1%
Medical reasons	3%	3%	6%	6%	2%
Lack of information	5%	4%	18%	12%	3%
No option	11%	11%	18%	41%	67%
Other	12%	8%	11%	7%	6%

Table A7-3 Switzerland

	% giving each reason for rejecting this mode				
Reason Given	Car Driver	Car Passenger	Train	Coach	Plane
Too expensive	12%	6%	39%	12%	18%
Too long	19%	12%	38%	23%	6%
Too unreliable	5%	7%	14%	11%	3%
Too much effort	15%	6%	13%	10%	2%
Too complicated	14%	12%	36%	19%	11%
Emissions too high	15%	9%	6%	10%	9%
Employers policy	5%	4%	5%	6%	3%
Level of flexibility	4%	4%	38%	20%	10%
Lack of privacy	3%	6%	23%	16%	4%
Concern over personal security	10%	10%	8%	9%	3%
Levels of comfort	13%	10%	24%	22%	3%
Medical reasons	3%	4%	4%	5%	2%
Lack of information	3%	5%	14%	16%	3%
No option	16%	19%	15%	41%	61%
Other	12%	7%	9%	6%	2%

Table A7-4 Germany

	% giving each reason for rejecting this mode				
Reason Given	Car Driver	Car Passenger	Train	Coach	Plane
Too expensive	12%	4%	40%	11%	22%
Too long	8%	6%	33%	23%	4%
Too unreliable	4%	5%	31%	7%	2%
Too much effort	16%	4%	14%	15%	3%
Too complicated	7%	5%	29%	15%	10%
Emissions too high	10%	5%	4%	5%	10%
Employers policy	1%	2%	3%	3%	3%
Level of flexibility	3%	4%	45%	21%	14%
Lack of privacy	4%	6%	22%	17%	6%
Concern over personal security	6%	5%	5%	6%	3%
Levels of comfort	11%	8%	24%	23%	6%
Medical reasons	4%	3%	5%	5%	3%
Lack of information	4%	3%	10%	12%	4%
No option	21%	20%	16%	41%	57%
Other	9%	5%	6%	4%	3%

Table A7-5 France

	% giving each reason for rejecting this mode				
Reason Given	Car Driver	Car Passenger	Train	Coach	Plane
Too expensive	12%	5%	32%	12%	21%
Too long	16%	11%	25%	19%	4%
Too unreliable	3%	4%	10%	8%	3%
Too much effort	11%	5%	8%	5%	2%
Too complicated	9%	9%	28%	16%	12%
Emissions too high	6%	4%	9%	5%	4%
Employers policy	3%	4%	6%	5%	3%
Level of flexibility	2%	3%	30%	13%	8%
Lack of privacy	1%	4%	13%	11%	3%
Concern over personal security	8%	6%	7%	6%	2%
Levels of comfort	10%	9%	13%	15%	2%
Medical reasons	4%	2%	5%	4%	1%
Lack of information	1%	4%	10%	9%	5%
No option	7%	12%	19%	43%	56%
Other	13%	10%	13%	8%	8%

Table A7-6 Ireland

	% giving each reason for rejecting this mode				
Reason Given	Car Driver	Car Passenger	Train	Coach	Plane
Too expensive	11%	5%	22%	14%	16%
Too long	13%	10%	16%	38%	4%
Too unreliable	4%	6%	9%	18%	2%
Too much effort	12%	7%	9%	17%	4%
Too complicated	7%	5%	17%	20%	9%
Emissions too high	5%	4%	4%	8%	4%
Employers policy	4%	3%	4%	6%	3%
Level of flexibility	4%	5%	19%	25%	9%
Lack of privacy	3%	4%	9%	18%	3%
Concern over personal security	6%	3%	4%	6%	3%
Levels of comfort	8%	7%	6%	31%	3%
Medical reasons	2%	4%	2%	9%	2%
Lack of information	3%	5%	9%	10%	5%
No option	25%	23%	38%	21%	63%
Other	12%	6%	7%	10%	5%

Table A7-7 Netherlands

	% giving each reason for rejecting this mode				
Reason Given	Car Driver	Car Passenger	Train	Coach	Plane
Too expensive	11%	6%	25%	12%	11%
Too long	7%	6%	31%	23%	4%
Too unreliable	4%	4%	13%	9%	2%
Too much effort	6%	3%	11%	8%	3%
Too complicated	6%	5%	25%	17%	7%
Emissions too high	4%	3%	8%	9%	3%
Employers policy	4%	4%	6%	5%	3%
Level of flexibility	4%	2%	25%	17%	5%
Lack of privacy	1%	3%	14%	11%	3%
Concern over personal security	3%	3%	6%	5%	2%
Levels of comfort	5%	6%	17%	20%	3%
Medical reasons	4%	5%	5%	6%	2%
Lack of information	4%	3%	7%	9%	3%
No option	19%	22%	24%	41%	69%
Other	19%	13%	8%	9%	6%

Table A7-8 Poland

	% giving each reason for rejecting this mode				
Reason Given	Car Driver	Car Passenger	Train	Coach	Plane
Too expensive	15%	18%	15%	21%	16%
Too long	9%	12%	41%	42%	3%
Too unreliable	8%	9%	20%	20%	5%
Too much effort	14%	9%	19%	19%	2%
Too complicated	8%	10%	23%	22%	7%
Emissions too high	8%	10%	9%	21%	2%
Employers policy	9%	5%	9%	12%	5%
Level of flexibility	8%	9%	36%	35%	7%
Lack of privacy	4%	7%	28%	30%	4%
Concern over personal security	10%	10%	16%	17%	5%
Levels of comfort	14%	12%	35%	42%	2%
Medical reasons	7%	7%	9%	15%	5%
Lack of information	4%	8%	16%	21%	8%
No option	17%	12%	21%	14%	65%
Other	6%	8%	9%	7%	5%

Table A7-9 UK

	% giving each reason for rejecting this mode				
Reason Given	Car Driver	Car Passenger	Train	Coach	Plane
Too expensive	9%	7%	40%	14%	17%
Too long	16%	11%	24%	39%	3%
Too unreliable	3%	2%	15%	13%	1%
Too much effort	10%	4%	13%	13%	3%
Too complicated	9%	7%	22%	20%	6%
Emissions too high	3%	3%	2%	6%	3%
Employers policy	2%	1%	4%	4%	2%
Level of flexibility	2%	2%	21%	21%	5%
Lack of privacy	1%	1%	9%	13%	1%
Concern over personal security	2%	1%	4%	5%	1%
Levels of comfort	8%	7%	9%	28%	1%
Medical reasons	3%	2%	5%	9%	2%
Lack of information	2%	1%	7%	10%	2%
No option	25%	24%	23%	22%	63%
Other	11%	9%	14%	10%	10%