
The-most-reason trip methodology - Trafikdage summary

Abstract

Historically it is observed that the number of stated trips in long-distance travel surveys is lower than the observed number. The author has therefore considered whether it is possible to use another procedure for the survey than the traditional. Especially a most-recent-trip procedure seems interesting. This has been used for a Danish survey conducted over one year in 2019-20. On top of the reported trips, we have added a number of simulated trips based on the survey's reported trip pattern. The simulation of extra trips results in a double up of the number of private trips and partly also for business trips.

The analyses are not finished for the moment; however, it will be finished soon.

Description of the paper

The paper includes at first a brief literature review describing different methods to collect long-distance travel survey data. It mentions that a former Danish survey from 2010-11 resulted in missing approximately 16% of the trips. Other surveys are missing more. Next it describes the alternative idea to a methodology, the most-recent-trip methodology. In this the respondents are asked for their trips one-by-one back in time instead of the number of all trips during for instance three months. The purpose is to get the respondents to think more thoroughly about their travel activity.

In the survey we only ask for the three latest trips to reduce the response burden on the respondents and avoid that they drop out (eventually by declaring that they had no more trips). We want to learn about at least two private trips. When the three latest trips are not including two private trips, we add a question about an extra private trip. This way, the questionnaire ends up with seven different sequences of private and business trips (see table one) of which respondents with three private trips represent the main part. We also ask the respondents how many private and business trips they have had during the most recent year, see table one.

Table 1 Sequences of private (P) and business (B) trips. Capital letters show reported trips, xb non-reported conducted trips.

Travel sequence		Real		Stated number of annual trips in the interview			Travel sequences
Number	In survey	Sequence	Share of Respondents	All Trips	Private	Business	Excluded from paper
1	P-P-P	P-P-P	78%	2.26	2.04	0.22	PP, P
2	P-P-B	P-P-B	4.0%	3.71	2.11	1.09	
3	P-B-P	P-B-P	3.9%	3.09	1.81	1.28	PB
4	B-P-P	B-P-P	4.2%	3.21	1.61	1.60	BP, B
5	B-B-P-P	B-B-xb-P-xb-P	4.6%	7.18	1.11	6.06	BBP, B
31	P-B-B-P	P-B-B-xb-P	1.8%	4.35	1.52	2.83	PBB
41	B-P-B-P	B-P-B-xb-P	1.5%	4.86	1.66	3.21	BPB
Number of respondents:			4,563	2.50	1.85	0.69	

The simulation is done by survival modelling which is explained in detail in the paper. For the simulation, it is needed to have two trips. It is the time between the two trips that is used to model. We therefore estimate a series of survival models of the different combinations of the private and business trips (PP, BB, PB, BP). Furthermore, it is taken into account how busy travellers the respondents are. The year is divided into 4 three-months periods. The busiest are those who have finished their trips already after 3 months, a little less busy are those who have finished their trips in 6 months etc. This results in 4x4 different groups for seven different travel groups. Some of the groups are merged because they are too small (most 3 months groups are too small) or because it is shown that the groups are not statistical different. Figure 1 shows the final groups with the number of respondents in each group (to the left) and the Log-rank test of equality over different strata for merged groups (to the right).

In table 2 is shown the result of the simulation, especially the share of private trips and business trips that are known from the survey and the share that is simulated. (There are some 'holes' in the number of business trips because I have not yet finished the simulation). For many groups half of the trips are a result of the survey and half are a result of simulation. It can be discussed if this double up makes the result too uncertain. For the moment, I don't know how to validate this. In the table is also listed the number of trips that are made by respondents who have had one or two trips during the most recent year and the rest of the trips earlier. These trips have to be added to the final number of annual trips.

Table 2 Overview of number of reported and simulated trips per respondent for each travel sequence. xb indicates non-reported conducted trip

Travel sequence	Real	Trip sequence finished prior to a year from the reference date (Group 2A)		Diary Simulate		Diary Simulated		Annual private trips		Annual Business trips	
		Private	Business	Private trips	Business trips	All trips	Simulated share	All trips	Simulated share	All trips	Simulated share
1	P-P-P	0,75	0,00	0,89	1,55	0,00	0,00	3.19	49%	0,00	0,00
2	P-P-B	0,59	0,01								
3	P-B-P	0,51	0,27	1,17	1,19			2.86	42%		
4	B-P-P	0,23	0,41	1,24	1,70			3.18	54%		
5	B-B-xb-P-xb-P	0,00	0,16	2,05	1,18	2.0		3.22	37%		
31	P-B-B-xb-P	0,31	0,09	1,85	1,13	2,0	2.14	3.29	34%	4.23	51%
41	B-P-B-xb-P	0,16	0,26	2,23	1,40	2,0	0,34	3.79	37%	2.86	21%

Another conclusion is that in future surveys we should ask for both two private trips and two business trips in case the respondents have business trips during the most recent year.

