

Appendix

Table A.1 Smartphone-based travel apps with passive location tracking (conducted in 2012-2022) with at least 50 participants

Publication	Project	Country	Year	Invitation	Sample type	Incentive	N invited	N registered (% for PS)	N sent GPS ^a (% of regist.)	Study duration	Open source	Cross-platform ^b	Mode prediction	User validation
Molloy et al., 2022	MOBIS, MotionTag	Switzerland	2019	Postal mail	PS + eligibility criteria	Min. 100 CHF	90090	5375 (5.9%)	4218 (4.6%)	8 weeks	No	Yes	Yes	Yes
Winkler et al., 2024	TimeUse+, MotionTag	Switzerland	2022	Postal mail	PS	50 CHF	63081	3733 (5.9%)	2742 (4.4%)	28 days	No	Yes	Yes	Yes
This paper	CBS ODIN	Netherlands	2022	Postal mail	PS	€10 giftcard €5 unconditional	2544	315 (12%)	292	1 or 7 days	Yes	Yes	No	Yes
McCool et al., 2021	CBS TABI	Netherlands	2018	Postal mail	PS	€10 or €20 conditional	1896	674 (35.4%)	541 (28.5%)	7 days	Yes	Yes	No	Yes
Geurs et al., 2015	Dutch Mobility Panel, mobidot	Netherlands	2013-2015	LISS panel	LISS panel	€15 per hour	800	655	600	3 times 2 weeks in 3 years	No	Yes	Yes	Yes
Storesund Hesjevoll et al., 2021	Sense.DAT, mobidot	Norway	2018	Follow-up respondents	NPS	Lottery	675	486	No distinction	4 weeks	No	Yes	No	Yes
Svaboe et al., 2021	TravelVu	Norway	2019	Postal mail	PS	Lottery	2000 (1 day) 22450 (7 days)	81 (4.1%) 1140 (5.1%)	No distinction	1 day 7 days	No	Yes	Yes	Yes
Allström et al., 2017	MEILI	Sweden	2015	Follow-up respondents	PS	No	11375	495 (4.3%)	293 (2.6%)	7 days	Yes	Android only	No	Yes
Gillis et al., 2023	GPSWAL, CONNECT	Belgium	2016-2017	Postal mail PS + crowd-sourcing	PS + NPS	unknown	7000 + volunteers	237	No distinction	7 days	No	Android only	Yes	Yes

Roddis et al., 2019	Future Mobility Sensing	Australia	2015	Crowd-sourcing	NPS	\$50 giftcard	Unknown	400	235	2 weeks	No	Yes	No	Yes
Greaves et al., 2015	Sydney Travel	Australia	2013	Crowd-sourcing	NPS	\$50 AUD	unknown	276	No distinction	7 days	No	Yes	No	No
Shankari et al., 2018	E-mission	USA	2016	Email, University population	PS	No	>60000	>150 (0.3%)	No distinction	unspecified	Yes	Yes	Yes	No
Lynch et al., 2019	rMove	USA	2018	Postal mail	PS	Giftcard	20500	655 (3.2%)	493 (2.4%)	7 days	No	Yes	No	Yes
Flake et al., 2017	rMove	USA	2016	Email, Follow-up respondents	PS	\$20 giftcard	2639	411 (27%)	No distinction	3 days	No	Yes	No	Yes
Hong et al., 2021	Future Mobility Survey	USA	2016-2017	Postal mail PS + convenience sample	PS + NPS	Unknown	Unknown	15097	No distinction	2 days	No	Yes	Yes	Yes
Nahmias-Biran et al., 2018	Future Mobility Survey	Israel	2016-2017	Interviewers	PS	Unknown	38500	11928 (31%)	No distinction	2 days	No	Yes	No	Yes
Cottrill et al., 2013; Zhao et al., 2015	Future Mobility Survey	Singapore	2012-2013	Follow-up respondents	NPS	SG\$30 (USD\$25)	10500	>1500 (~14%)	No distinction	2 weeks	No	Yes	Yes	Yes
Safi et al., 2015	ATLAS II	New Zealand	2014	Crowd-sourcing	NPS	Unknown	186	77	73	3 days	No	iPhone only	No	Yes
Patterson & Fitzsimmons, 2016	DataMobile	Canada	2014	Email, University population	PS	Lottery	47606	892 (1.9%)	No distinction	2 weeks	No	Yes	No	No
Yazdizadeh et al., 2019	MTL-Trajet	Canada	2016-2017	Online convenience sample	NPS	Lottery	unknown	11433	7773	7 days	Open data	Yes	No	Yes
Faghih Imani et al., 2020	City Logger	Canada	2017	Crowd-sourcing	NPS	Lottery	22804 emails + online campaign	2041	1550	5 days	No	Yes	Yes (android only)	Yes

Participant percentages are only calculated for probability samples. Studied are grouped together by project and country where possible.

^a participants sending location data, ^b Whether the app is offered for both android and iOS devices.

Table A.2.

Multinomial logistic regression results of app and web participation

<i>reference = no registration</i>	<i>App participation</i>			<i>Web participation</i>		
	<i>95% C.I.</i>			<i>95% C.I.</i>		
	<i>Odds Ratio</i>	<i>Lower</i>	<i>Upper</i>	<i>Odds Ratio</i>	<i>Lower</i>	<i>Upper</i>
Study duration in invitation (ref. 1 day)						
7 days	1.272	0.990	1.634	1.219	0.882	1.685
Moment web diary (ref. in invitation letter)						
In 1st reminder letter	1.126	0.828	1.531	0.693	0.480	1.002
In 2d reminder letter	1.063	0.779	1.451	0.435**	0.286	0.662
Sex (ref. Male)						
Female	1.058	0.820	1.365	1.123	0.803	1.571
Age: (ref. 16 – 24 years)						
25 – 44	0.819	0.543	1.237	0.841	0.443	1.597
45 – 65	0.665	0.434	1.016	0.981	0.518	1.857
65+	0.610	0.324	1.148	1.293	0.577	2.900
Born in NL (ref. no)						
Yes	1.693**	1.186	2.417	0.979	0.643	1.492
Income percentile (ref. 1 – 24)						
25 – 49	0.901	0.547	1.482	0.612*	0.338	1.110
50 – 74	1.483	0.923	2.382	1.470	0.860	2.514
75 - 100	2.004**	1.246	3.225	1.668	0.955	2.913
Working status (ref. employed)						
Self-employed	0.581*	0.349	0.967	1.01	0.529	1.928
Unemployed	0.932	0.488	1.781	1.27	0.567	2.849
Retired	0.924	0.523	1.633	1.858	0.990	3.485
Other or unknown	0.625	0.250	1.563	0.943	0.333	2.668
Household type (ref. 1 person)						
2	1.603*	1.089	2.358	1.840**	1.165	2.904
2+	1.251	0.833	1.877	1.373	0.800	2.358
1+ and other	1.148	0.646	2.039	0.611	0.229	1.633
Urbanicity (ref. moderate)						
low	0.924	0.639	1.337	0.779	0.498	1.219
high	0.879	0.625	1.237	0.584*	0.382	0.894
Driver's license (ref. no)						
Yes	1.226	0.832	1.804	1.038	0.626	1.721
Owning a car (ref. no)						
Yes	0.961	0.721	1.281	1.313	0.893	1.929
Intercept	0.057**	0.029	0.114	0.055**	0.023	0.132
N	2544					

N = sample size.

* p < .05, ** p < .01.

Table A.3

Multinomial logistic regression results of app and web registration with significant interaction effects.

<i>reference = no registration</i>	<i>App participation</i>			<i>Web participation</i>		
		<i>95% C.I.</i>			<i>95% C.I.</i>	
	<i>Odds ratio</i>	<i>Lower</i>	<i>Upper</i>	<i>Odds Ratio</i>	<i>Lower</i>	<i>Upper</i>
Study duration in invitation (ref. 1 day)						
7 days	0.798	0.583	1.092	1.179	0.809	1.719
Moment web diary (ref. in invitation letter)						
In 1st reminder letter	1.126	0.828	1.532	0.694	0.480	1.003
In 2d reminder letter	1.052	0.770	1.437	0.436**	0.287	0.664
Sex (ref. Male)						
Female	1.055	0.817	1.362	1.123	0.802	1.571
Age: (ref. 16 – 24 years)						
25 – 44	0.817	0.541	1.236	0.841	0.443	1.597
45 – 65	0.661	0.432	1.012	0.978	0.517	1.853
65+	0.603	0.319	1.138	1.295	0.578	2.905
Born in NL (ref. no)						
Yes	1.708**	1.196	2.440	0.981	0.644	1.496
Income percentile (ref. 1 – 24)						
25 – 49	0.888	0.539	1.464	0.614	0.339	1.113
50 – 74	1.483	0.922	2.384	1.470	0.860	2.513
75 - 100	1.985**	1.233	3.197	1.669	0.956	2.916
Working status (ref. employed)						
Self-employed	0.576*	0.346	0.960	1.008	0.528	1.924
Unemployed	0.940	0.491	1.799	1.259	0.561	2.826
Retired	0.928	0.523	1.646	1.852	0.987	3.476
Other or unknown	0.611	0.244	1.529	0.946	0.334	2.678
Household type (ref. 1 person)						
2	1.146	0.690	1.904	2.050*	1.036	4.057
2+	0.800	0.468	1.369	1.498	0.687	3.269
1+ and other	0.616	0.254	1.495	0.594	0.128	2.765
Household type (ref. 1 person) x						
Study duration (ref. 1 day)						
7 days x 2	2.014	0.952	4.260	0.828	0.342	2.006
7 days x 2+	2.435*	1.151	5.150	0.868	0.331	2.274
7 days x 1+ and other	3.244*	1.015	10.372	1.066	0.148	7.690
Urbanicity (ref. moderate)						
low	0.933	0.645	1.351	0.779	0.497	1.219
high	0.892	0.634	1.256	0.582*	0.380	0.891
Driver's license (ref. no)						
Yes	1.208	0.820	1.779	1.043	0.629	1.731
Owning a car (ref. no)						
Yes	0.962	0.721	1.283	1.311	0.892	1.927
Intercept	0.081**	0.039	0.167	0.051**	0.019	0.135
N	2544					

N = sample size

* p < .05, ** p < .01.

Interactions listed only if they were significant.