

significance
quantitative research

Accent

COWI

Author(s)

Sund ≈ Bælt
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Passenger survey

Recruitment results

Date
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Version
Final version

Introduction

This presentation provides an overall documentation of the survey covering relevant passenger transport.

The survey was carried out by Significance, COWI and Accent on behalf of Sund & Bælt and Øresundsbro Konsortiet in collaboration with Vejdirektoratet.

Data from the survey is intended to be used to develop a new transport model covering the current, future and potential fixed links in Denmark. Find out more information about Fixed Links Transport Model (FLITMO) [here](#).

The survey consisted of questions related to trips made, transport modes used and personal characteristics. Respondents were asked to participate in a set of experiment to determine their travel preferences.

Modes and routes of travel

- Transport modes:



*Air passenger survey results are presented in another (separate) document

- Fixed links

1. Storebælt bridge
2. Øresund bridge

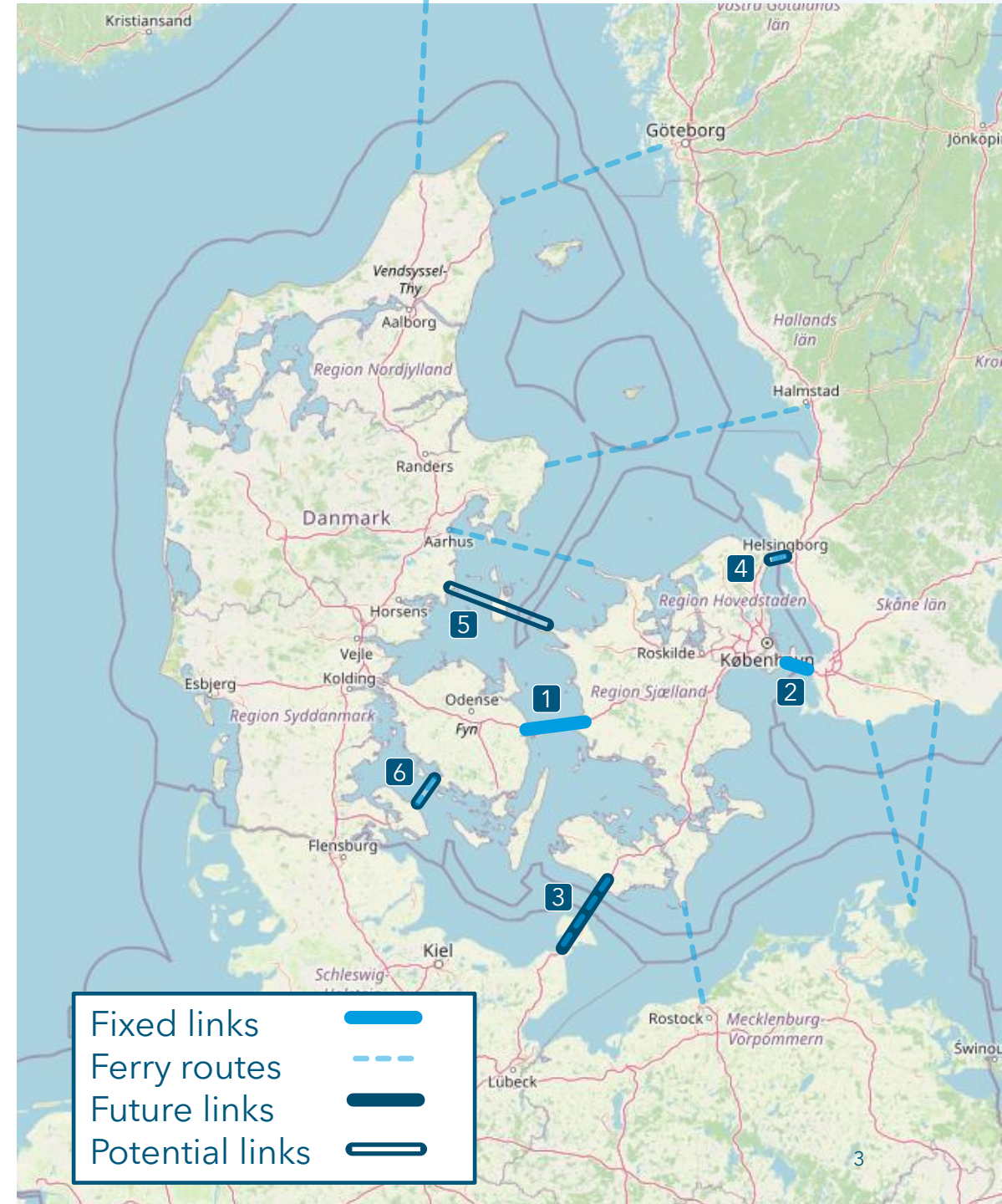
- Future links

3. Fehmern connection

- Potential fixed links

3. Helsingborg-Helsingør connection
4. Kattegat connection
5. Als-Fyn connection

- Relevant ferry lines



Information categories



Recruitment: where and how were respondents recruited for the study?



Response: what was the response rate of the survey?



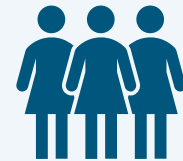
Trip and travel characteristics: what kind of trips were made?



Personal characteristic: what did our sample look like?

Terminology

SP	Stated preference	Respondents are shown multiple choice task experiments, where they need to choose between options. For each task they state their preferred choice. These experiments are used to learn about people's travel preferences. (see example in Appendix)
RP	Revealed preference	Respondents are asked to describe their trips in detail, so that their preferred route/mode is revealed. It also aids to estimate the number of people traveling along important connections/links.
OD	Origin-destination	The combination of the origin location and destination location of an one-way trip.
	Screenlines	Imaginary geographical border to count traffic from either side to the other. Important screenlines for this study are: <ul style="list-style-type: none">■ Denmark ↔ Scandinavia■ Denmark ↔ Germany■ West-Denmark ↔ East-Denmark.



Recruitment

- The recruitment consisted of three phases:
 - Pilot (testing): June 10th - June 20th
 - Summer wave: July 24th - August 31st
 - Autumn wave: September 12th - November 1st
- Recruitment was performed in three major categories:
 - Intercept at location (postcard handouts, see example in [Appendix](#))
 - Internet panels (Denmark, Sweden, Germany)
 - Regular internet panels
 - Dedicated internet panels for routes where observations were difficult to obtain
 - E-mails (Storebælt/Øresund, see example in [Appendix](#))
- Expected survey duration: 15-20 minutes
- Survey was provided in 6 languages





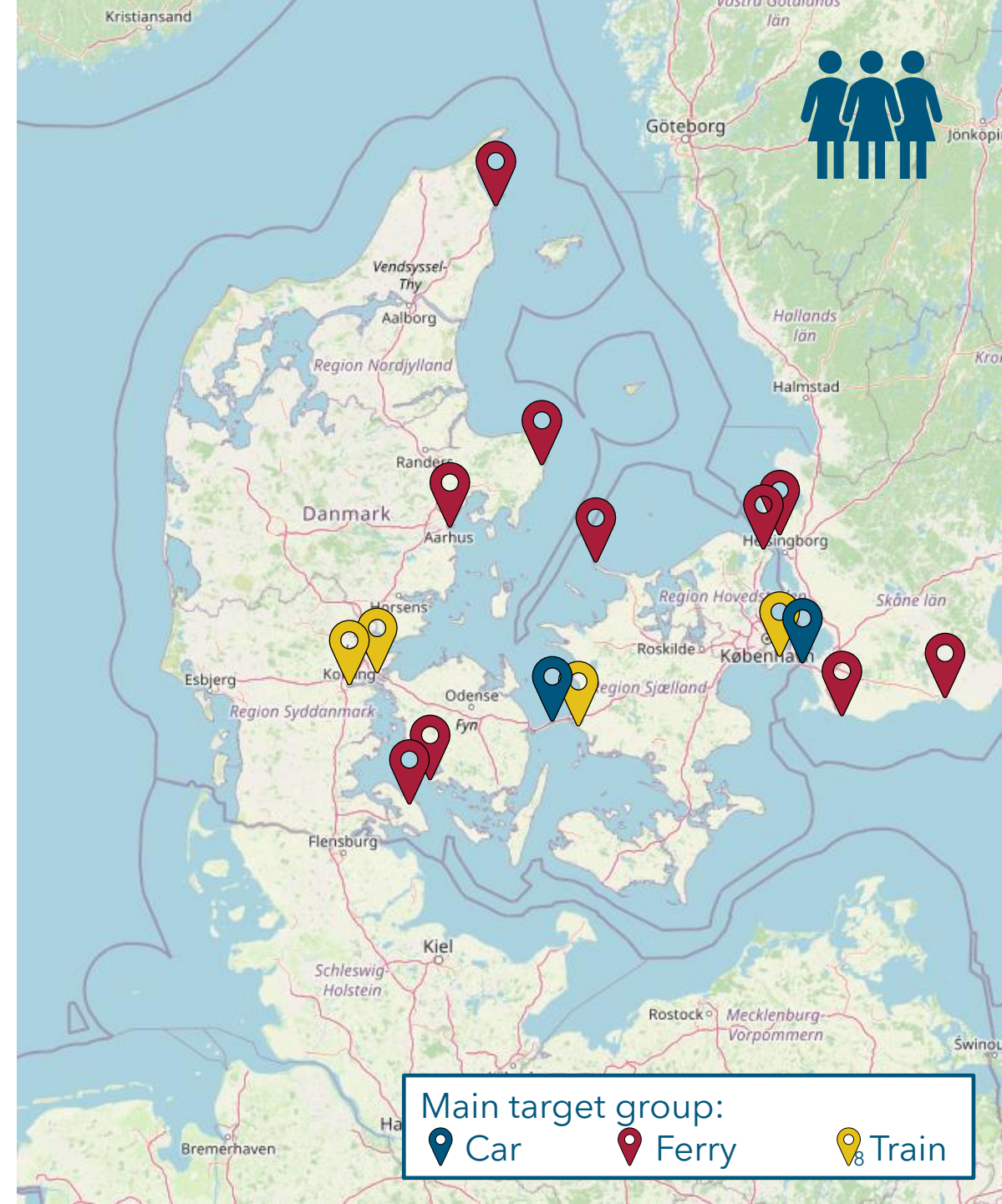
Type of recruitment and purpose of data collection

Targeted population	Type of recruitment	Purpose
Random population	Internet panel data for Denmark, North Germany and South Sweden	Gather insight on the long-distance travel behaviour (frequency, travel purpose). Collect more detailed RP and SP data for people recently crossing the screenlines
Population crossing screenlines	Intercept - postcards data collection on fixed links and ferries	Collect RP data of the trip, personal characteristics and perform SP experiments
	Intercept data - E-mail data collection (Øresund/Storebælt clients)	Efficient way to collect similar data as for the postcards (on bridges both e-mail and postcard data has been collected)
	Dedicated panel data (meaning pre-selection has been made to select travellers crossing the screenlines)	For routes where postcard data collection was not feasible or insufficient additional respondent have been recruited - similar data has been collected as for postcards

Intercept locations

Number of postcards handed out:

Location	Summer wave	Autumn wave
Øresund bridge	1,433	3,050
Storebælt bridge	4,780	5,970
Helsingborg	1,383	1,520
Helsingør	4,023	3,319
Ystad	1,108	1,681
Bøjden	1,294	1,914
Fynshav	1,266	
Trelleborg	827	2,478
Odden	1,333	3,780
Aarhus	2,496	2,168
Grenå	106	
Frederikshavn	523	
Copenhagen Airport (CPH)	4,519	6,259
Fredericia	1,273	1,976
Kolding	745	1,177
Total	27,109	35,292



Main target group:
📍 Car 📍 Ferry 📍 Train









Response statistics

- Key metrics on how many respondents were recruited
 - RP responses
 - SP experiments completed
 - Survey progress patterns
- Survey duration patterns
- Responses per day



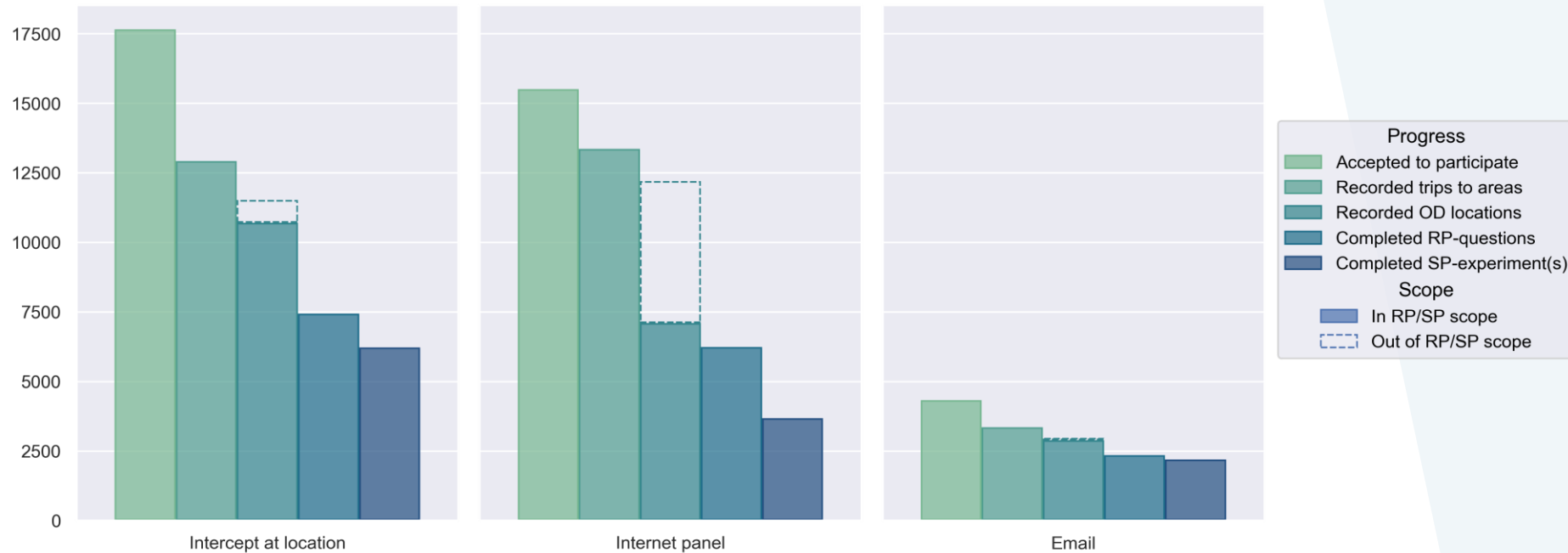
Key metrics

Type	Metric				   + other modes
RP	Intercept (postcards)	1,074	3,615	2,677	7,443
	Panel (regular)	1,799	1,089	555	3,486
	Panel (dedicated)	914	1,571	227	2,746
	E-mails	2,017	287	3	2,350
	Total	5,804	6,562	3,462	16,025
	<i>Study targets</i>	<i>2,000</i>	<i>6,000</i>	<i>1,750</i>	<i>9,750</i>
SP	Intercept (postcards)	923	3,169	2,060	6,220
	Panel (regular)	847	617	302	1,778
	Panel (dedicated)	567	1,154	170	1,906
	E-mails	1,909	247	3	2,197
	Total	4,246	5,187	2,535	12,101
	<i>Study targets</i>	<i>1,500</i>	<i>1,900</i>	<i>475</i>	<i>3,825</i>

**Study targets were set without the inclusion of the regular panel*



Survey progression per recruitment type



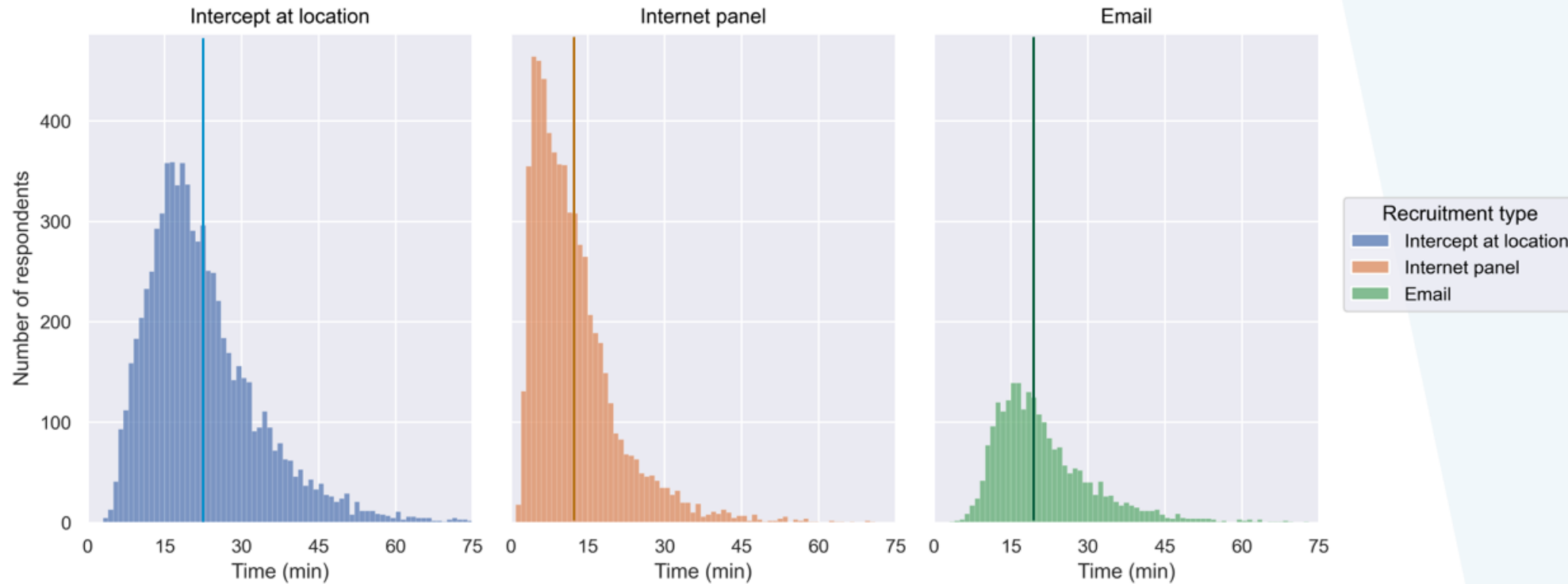
Recorded trips to areas: respondents indicated to which regions in northern Europe they travelled.
Recorded OD locations: respondents provided detailed origin and destination information.



A substantial group of respondents does not complete the survey after accepting the terms, but this is not an uncommon observation in surveys. Internet panel respondents more often report a trip that is out of scope for RP and SP questions in the survey. This is also in line with expectations.



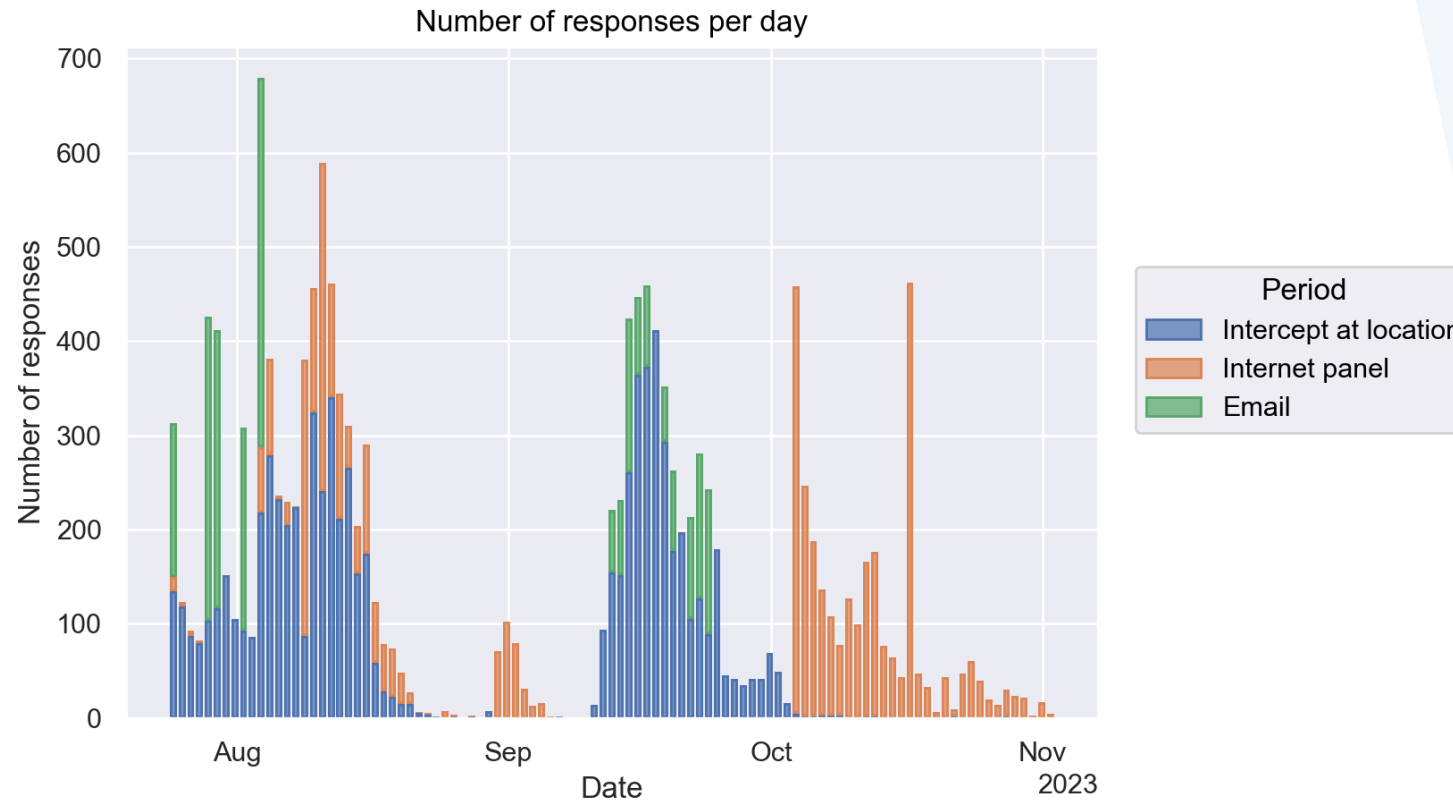
Survey duration distribution per recruitment type



Average survey duration (line) for intercept and email respondents were longer than the anticipated 15 min. However, intermediate breaks/pausing during the survey is not registered and might bias results. Internet panel survey duration significantly lower due to out of scope trips for RP and SP.



Day responses per recruitment type



Response rates follow survey deployment for recruitment types, indicating people generally quickly responded to the invitation to participate in the survey. Distribution shows good separation between the respondents recruited in the summer and in the autumn period.



Conclusions based on response statistics

- Very large set of observations collected, with over 16,000 respondents providing trip data
- All targets for the SP & RP data collection were met.
- The number of respondents for the SP data collection was much higher than targeted.
- Substantial part of respondent failed to fully complete the survey, but not uncommon in survey's of this magnitude/complexity. A first substantial drop out take place directly after starting the survey.
- Average survey duration surpassed expectation of 15 minutes.
- Respondents typically responded quickly to survey invitation.



Trip & travel characteristics

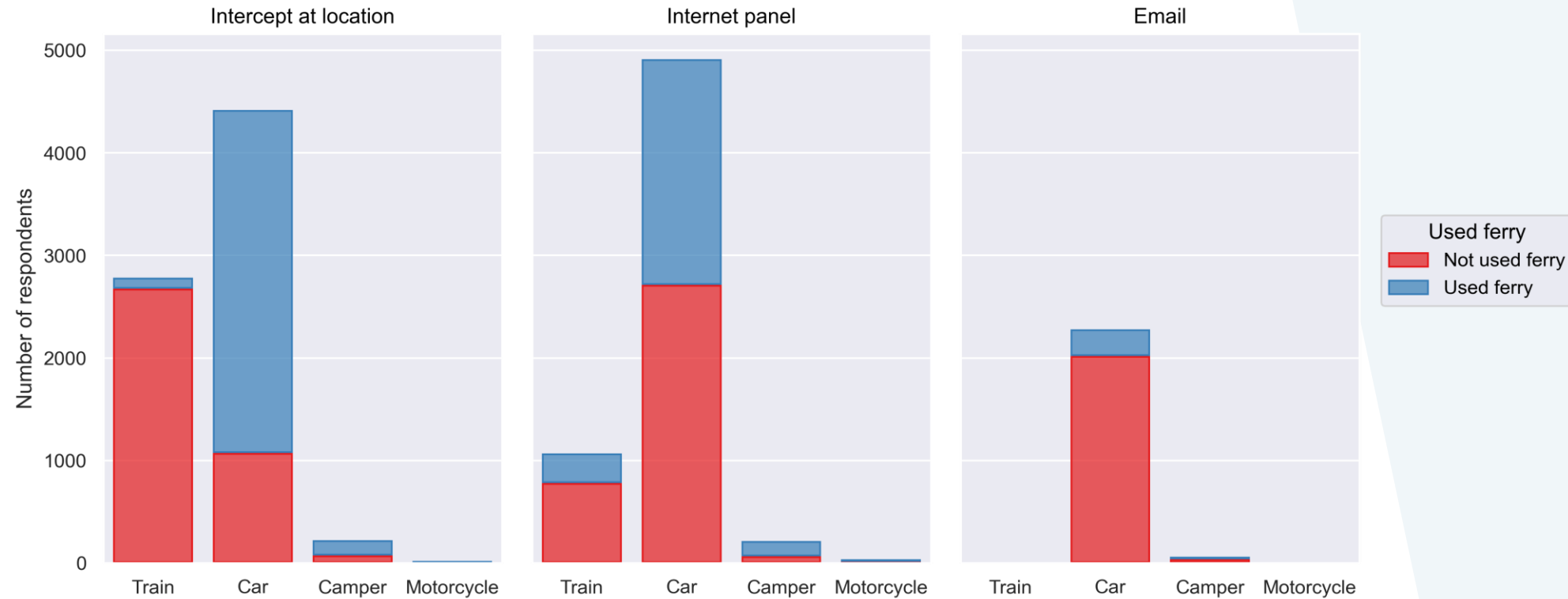
- Modes of transport
- Origin locations
- Destination locations
- Travel time and distance distribution
- Travel day distribution



Results in this section are based on data of all completed RP/SP survey responses



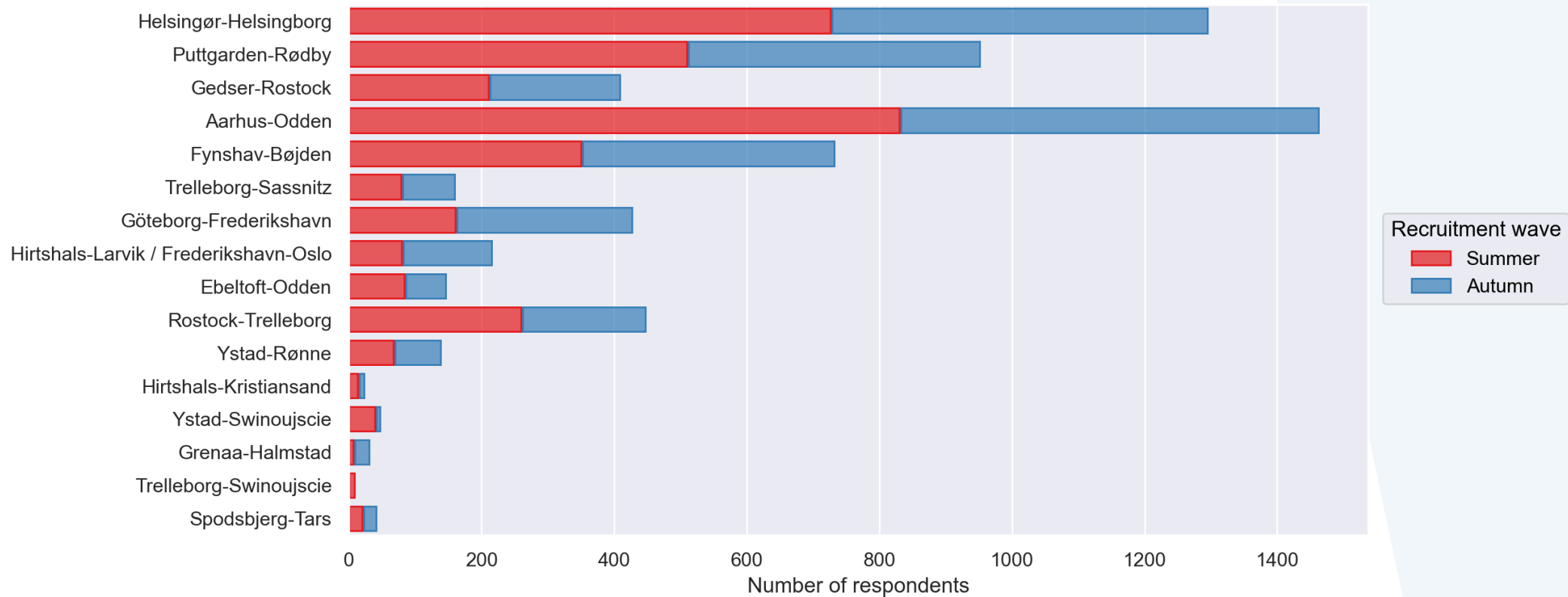
Modes of transport per recruitment type



Good distribution of transport modes and ferry usage. Results for intercept at location correspond with the recruitment locations picked (focus on ferry lines and train stations)



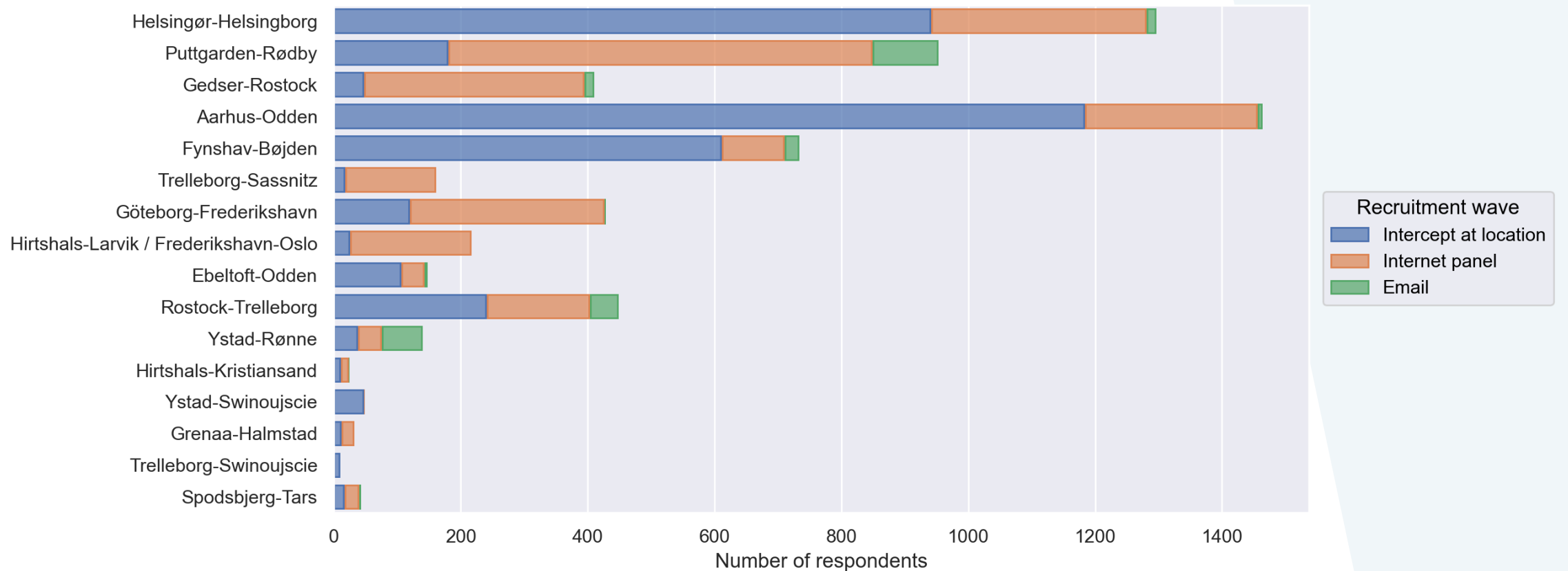
Use of ferry lines per recruitment wave



 Large selection of ferry lines collected in the data. Main lines of interest are well covered (see top five).



Use of ferry lines per recruitment type



Recruitment at ferry lines where intercept postcard recruitment was unavailable or insufficient, has been well-resolved by dedicated internet panel.

Origin location zones

Region Copenhagen

S	765	343	199
A	567	468	190

Outside Europe

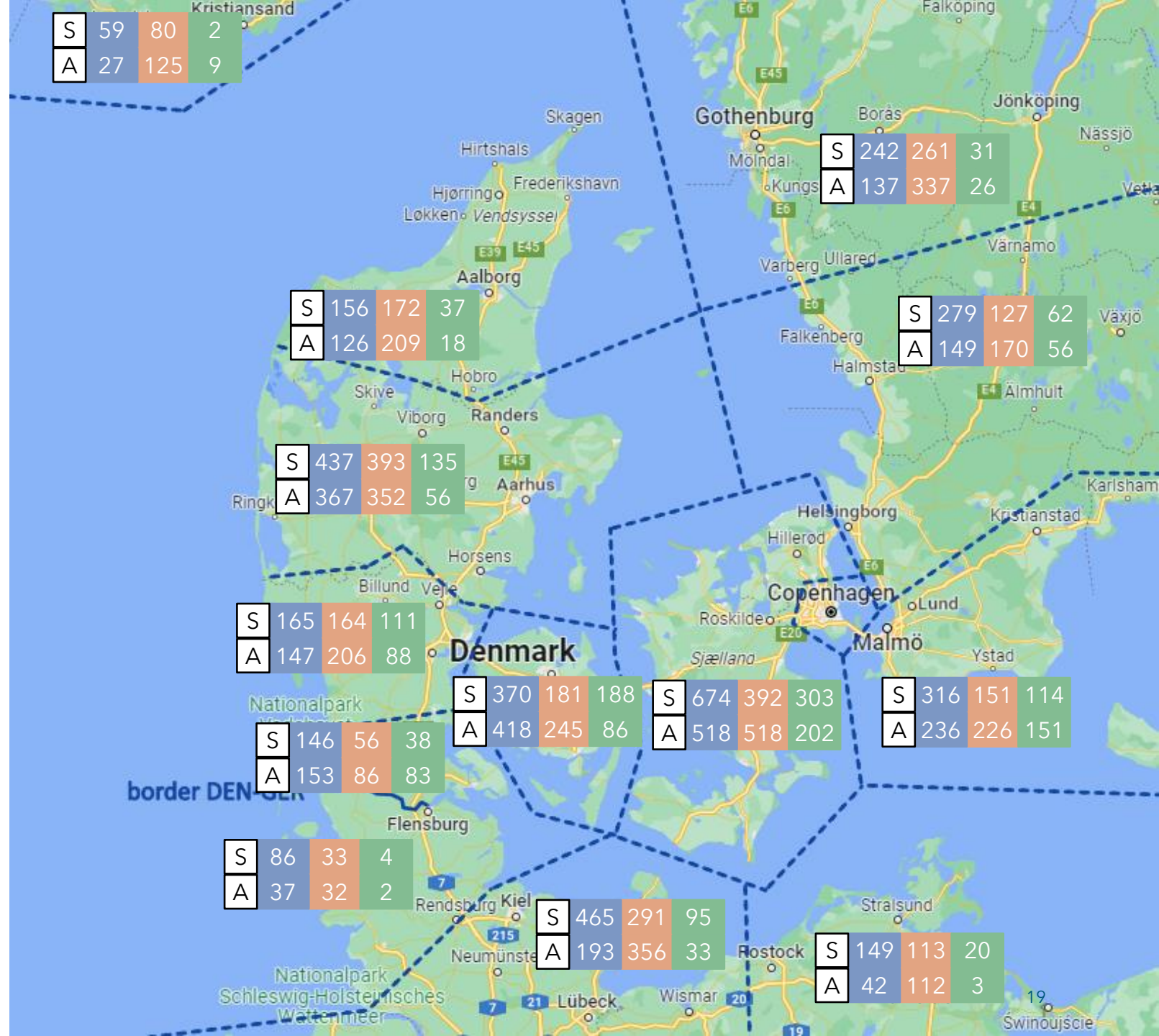
S	2	6	0
A	15	27	1

Legend

- S Summer wave
- A Autumn wave

Recruitment wave		
■	Intercept at location	
■	Internet panel	
■	Email	

 Results show a very good spatial distribution of respondents



Destination location zones

Region Copenhagen

S	865	457	271
A	691	626	236


Outside Europe

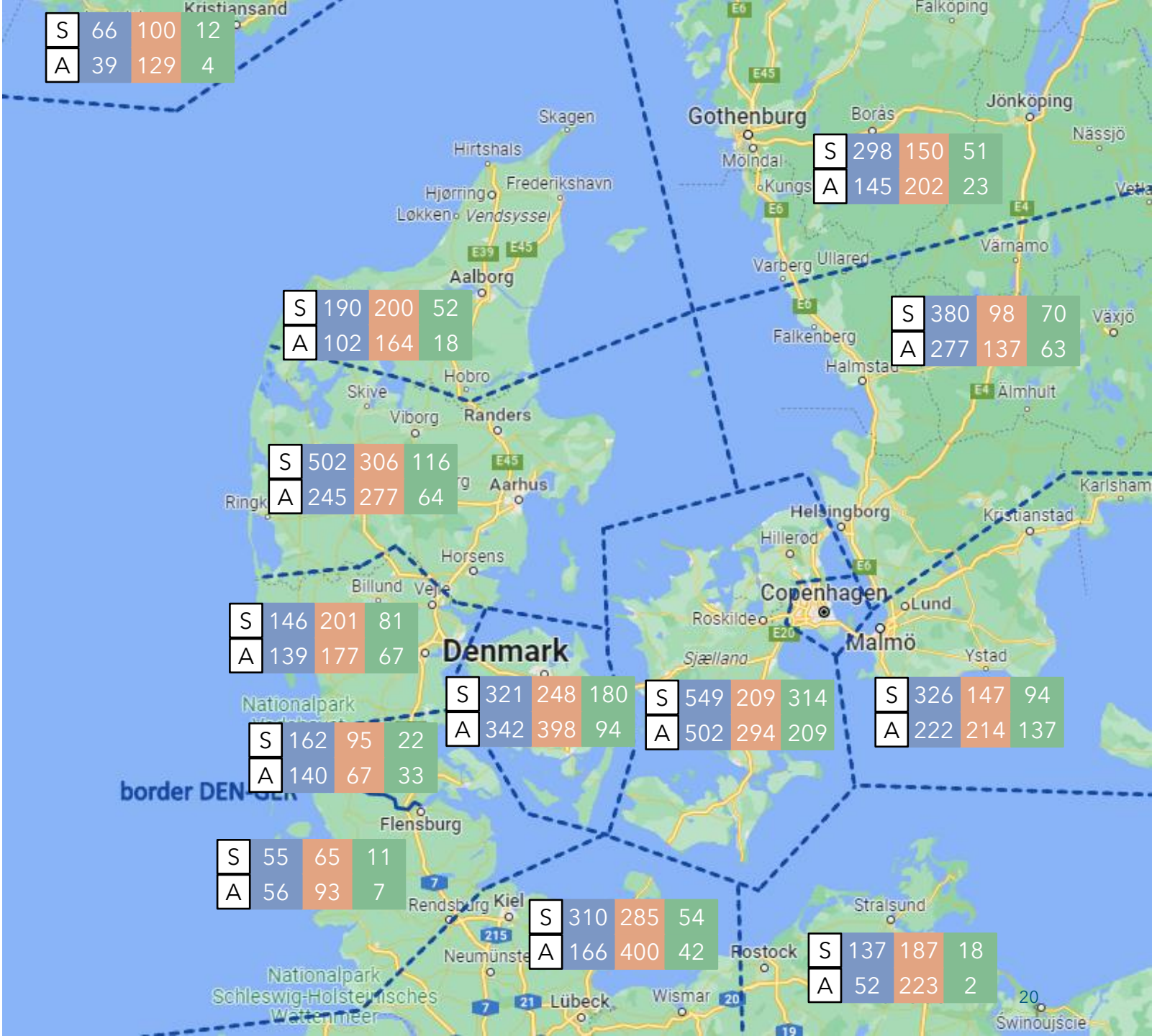
S	4	15	0
A	14	68	5

Legend

- S Summer wave
- A Autumn wave

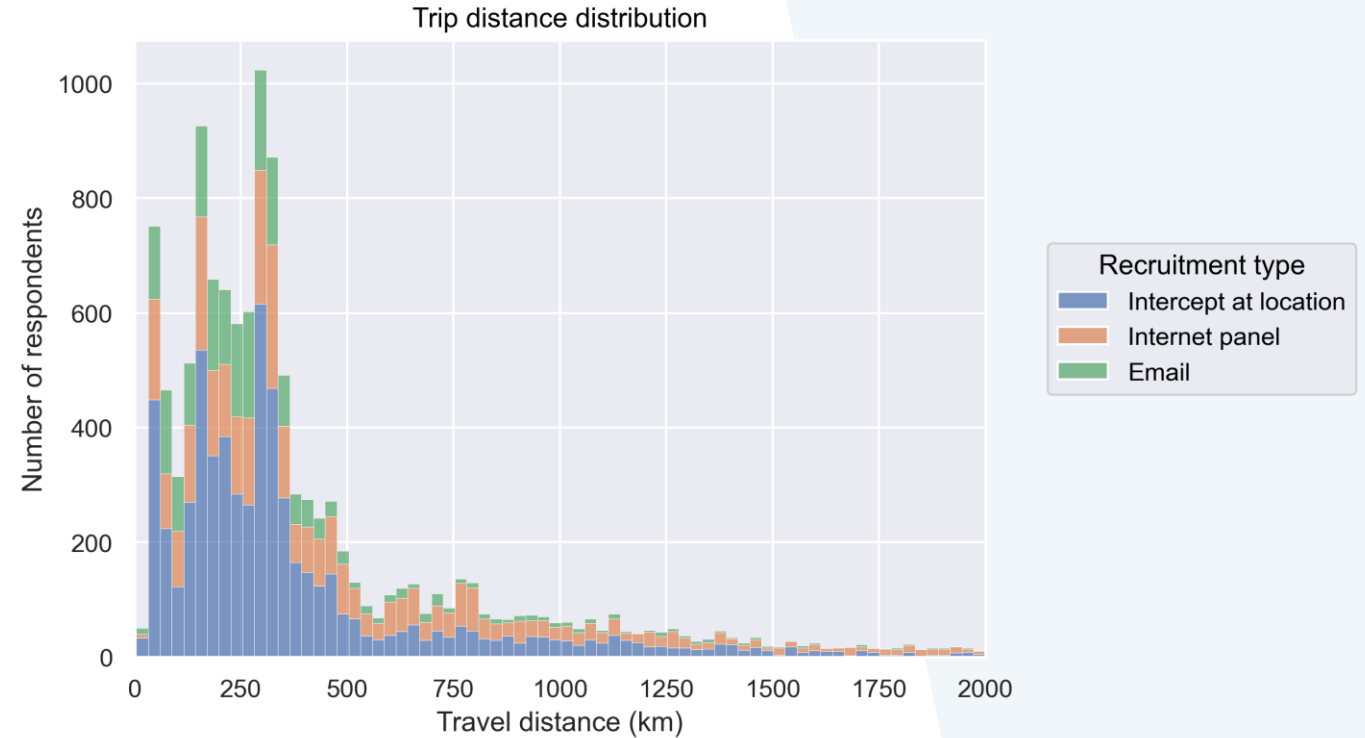
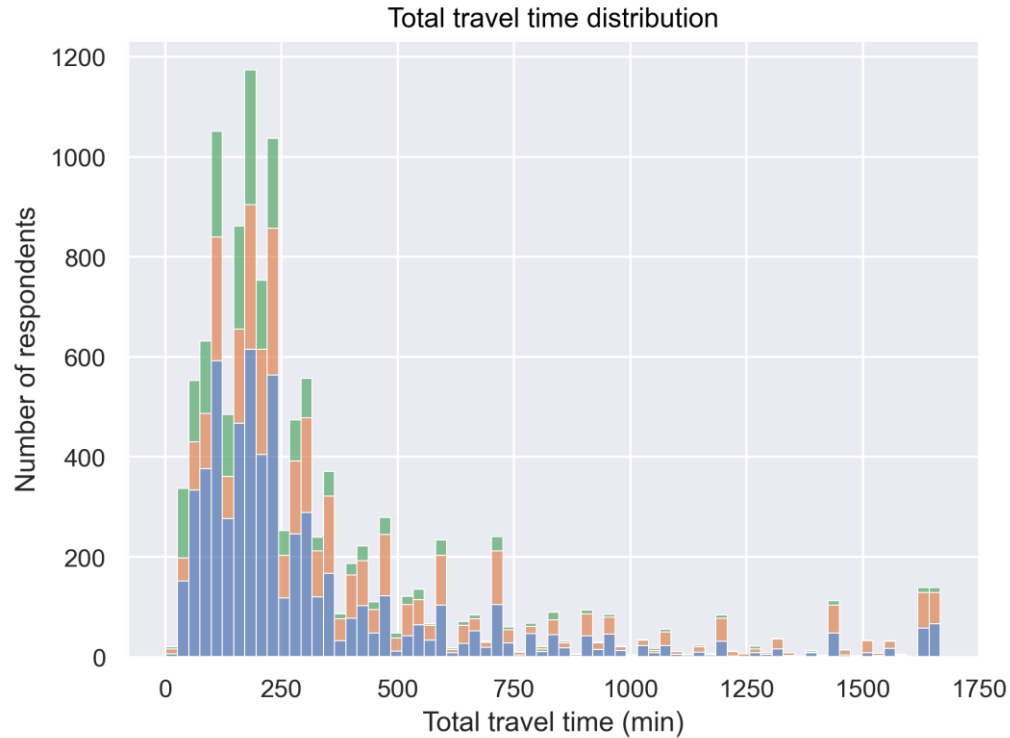
Recruitment wave		
■	Intercept at location	
■	Internet panel	
■	Email	

 Results show a very good spatial distribution of respondents





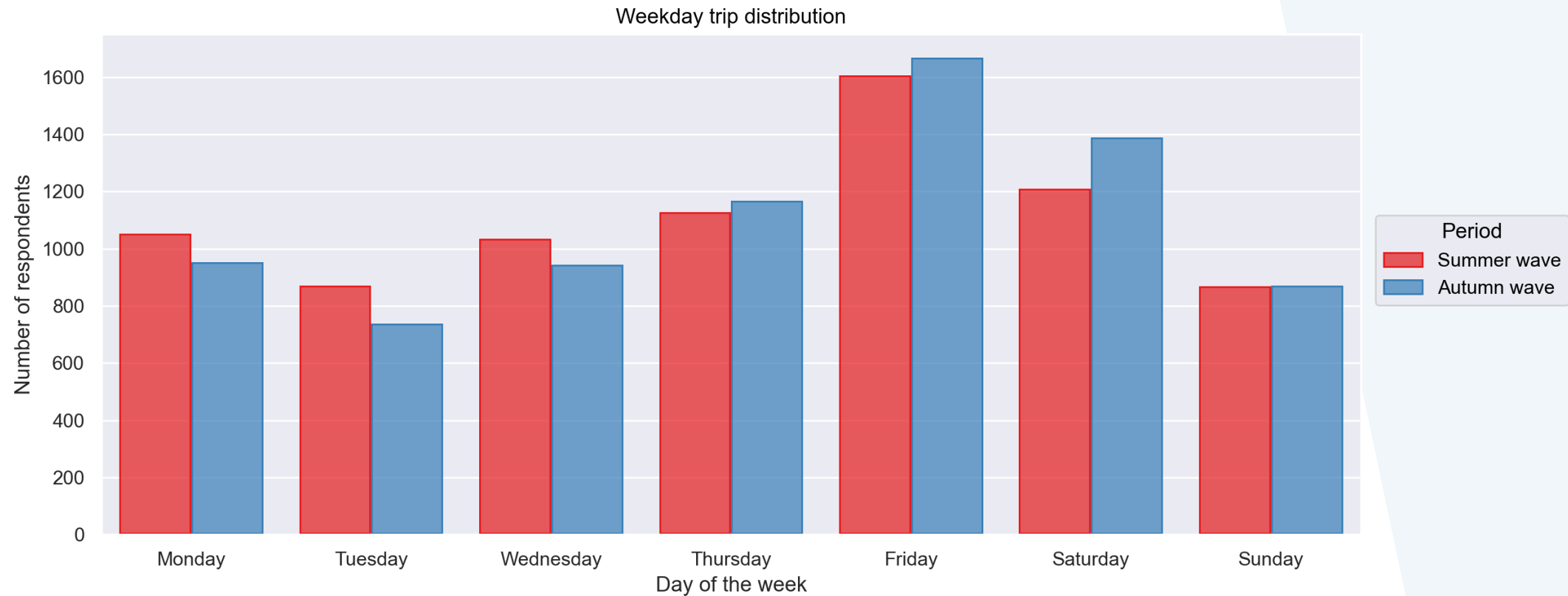
Travel time and distance distributions



Travel time and distance distribution confirm good variation of trip lengths. Email respondents have significantly shorter trips, which is expected as they are registered Storebælt/Øresund users

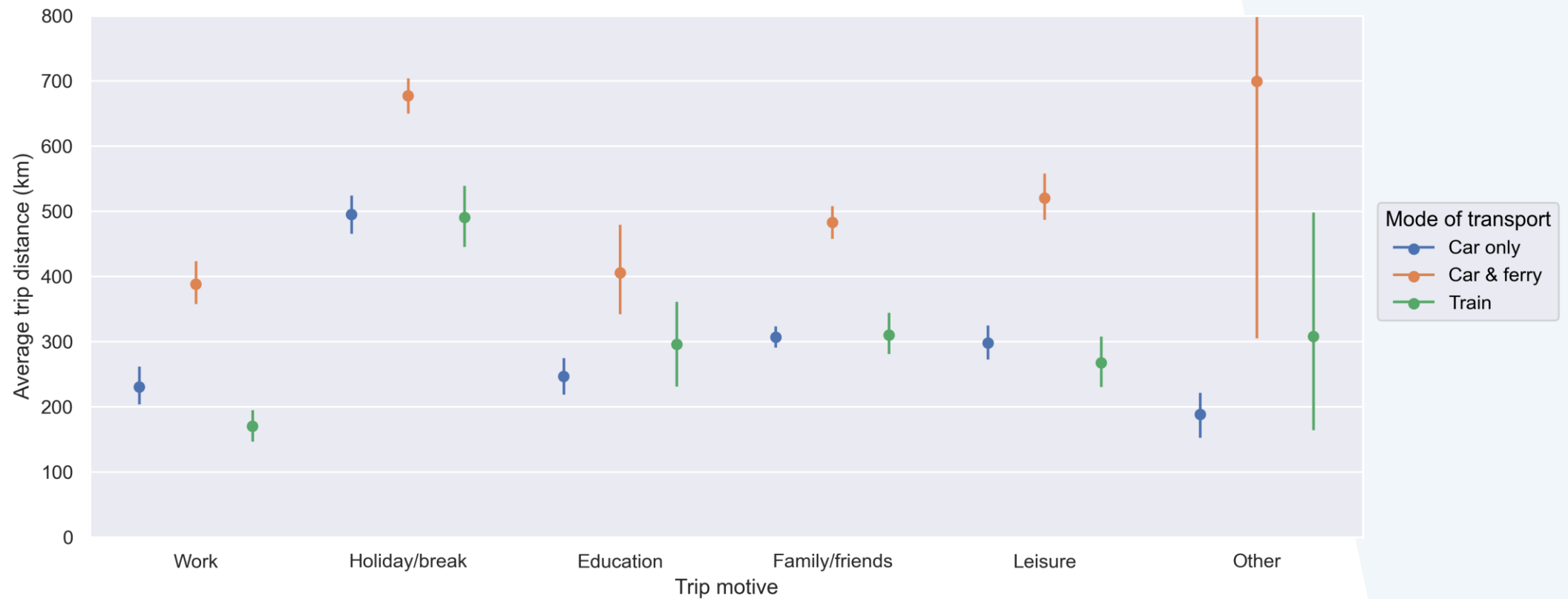


Day of travel distribution



Day of travel in data is well-distributed in the data, with most popular travel days being Thursday, Friday and Saturday in our sample.

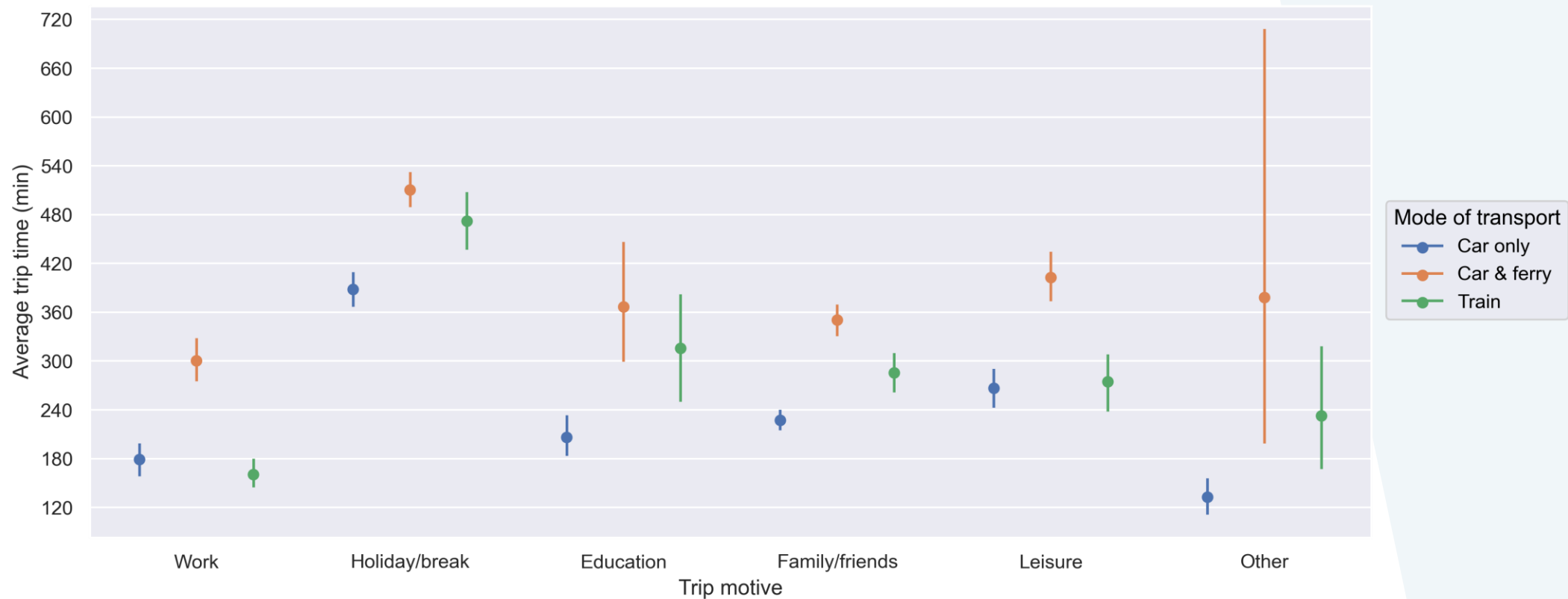
Average trip distance by motive and mode (of people crossing a screenline)



 Error bars display the 95% confidence interval. Ferry trips are generally longer trips.



Average total trip time by motive and mode



Error bars display the 95% confidence interval. Similar patterns as with the average distance are observed (which is to be expected)



Conclusions trip and travel characteristics

- Very good distribution of trip and travel characteristics in terms of:
 - Travel modes used
 - Spatial distribution (origin - destination of trips)
 - Travel time and distance
 - Travel day
 - Observations in the summer and autumn wave
- Good number observations of most common competing ferry lines



Respondent characteristics

- Demographic descriptives
 - Gender
 - Age
 - Income levels
 - Employment
- Trip purpose
 - Activity at the origin location
 - Activity at the destination location



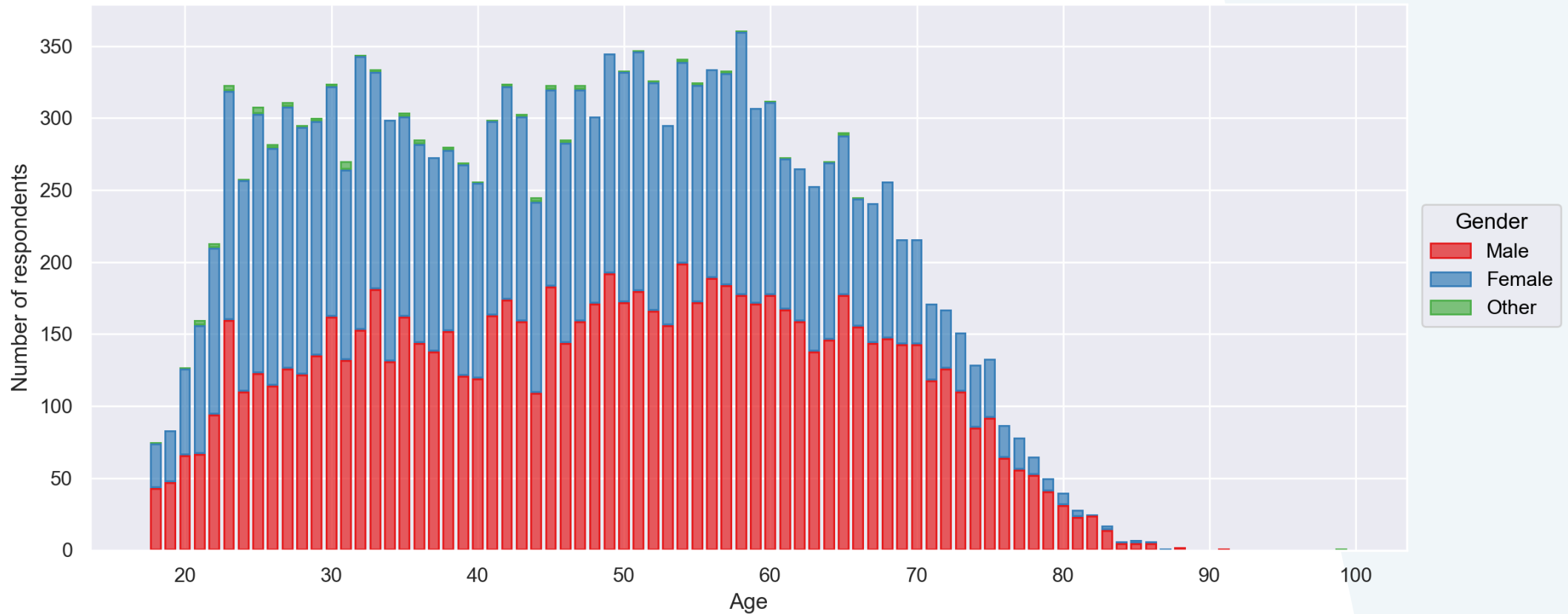
Gender distribution



We observe slightly more male than female respondents in the collected data, but no issues in terms of data quality for model application.



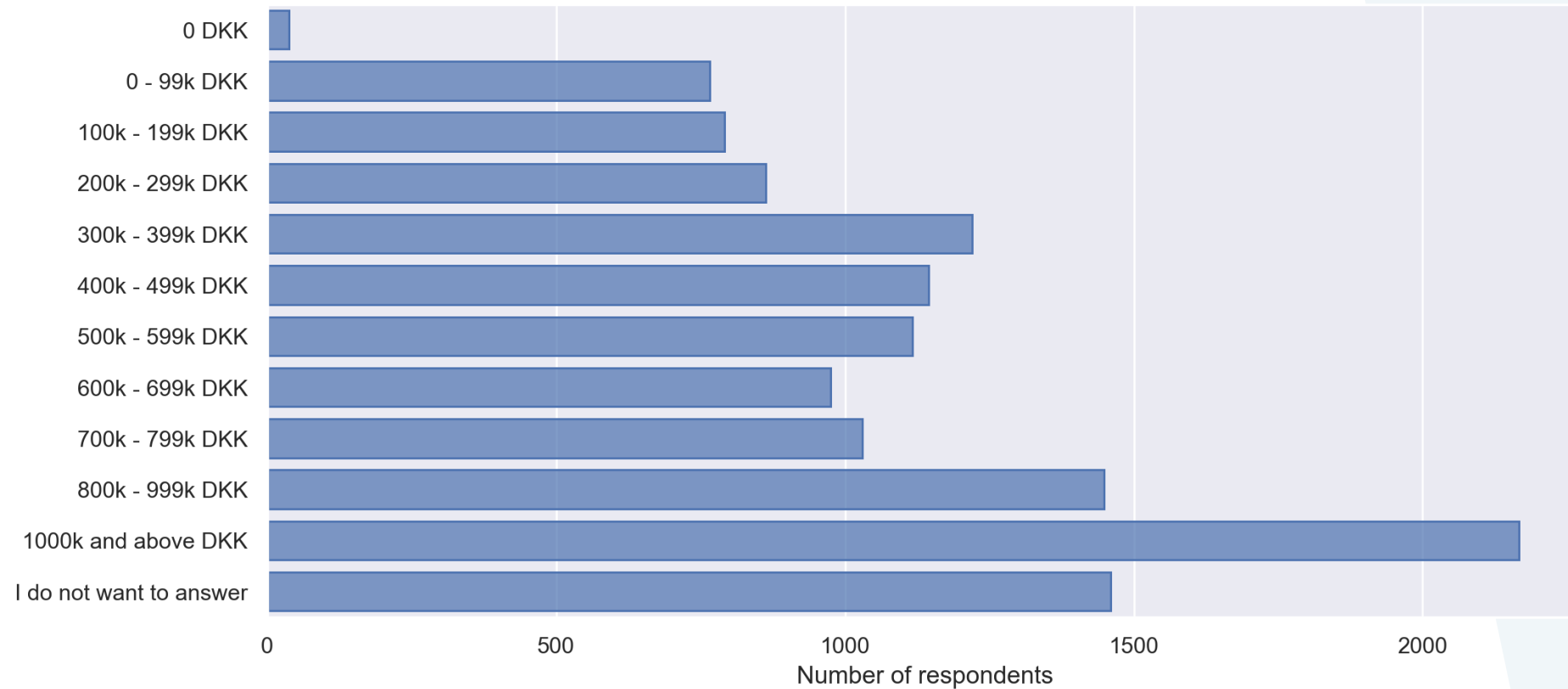
Age distribution split by gender



The age of respondents is very well-distributed in our sample, also when considering the age distribution per gender. Above the age of 75 male respondents are overrepresented.



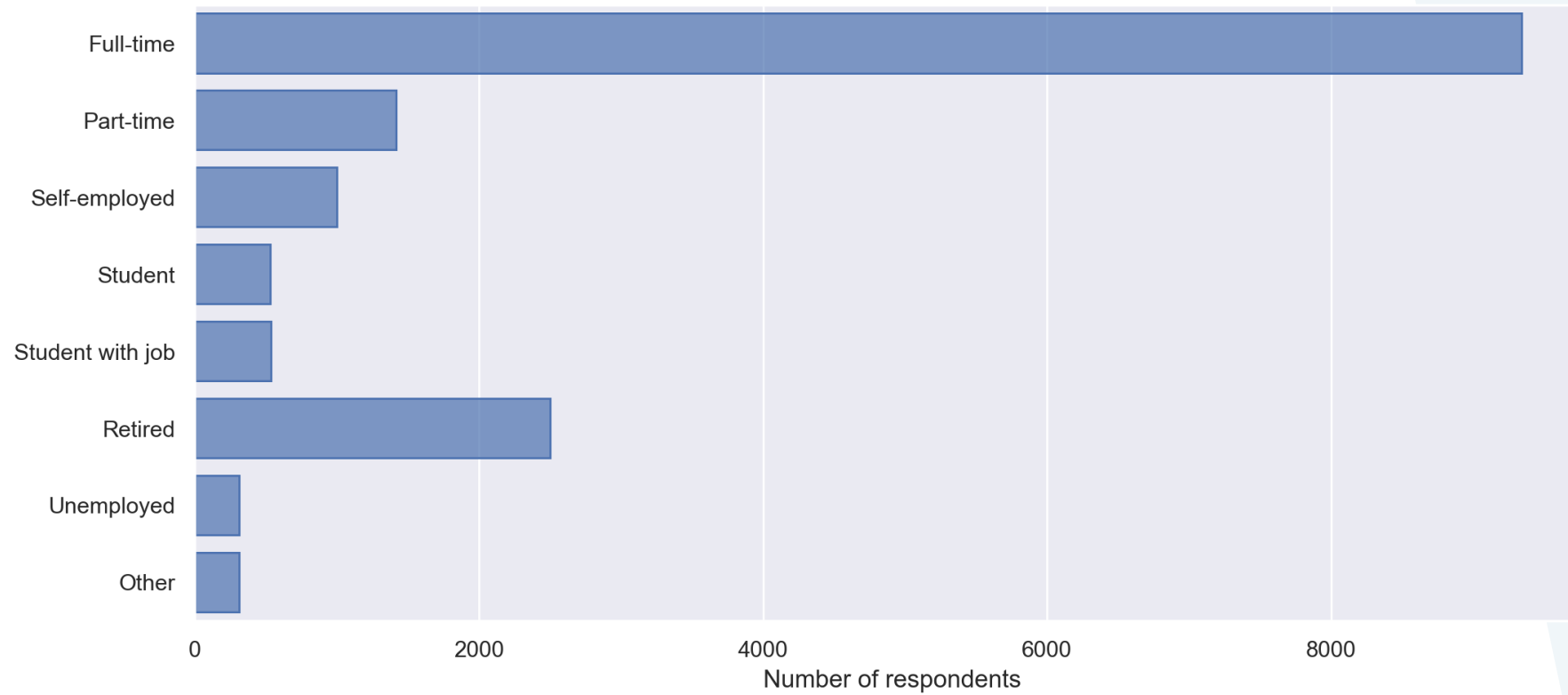
Household income level distribution



Good distribution of household income levels. Household income levels from other countries are converted to DKK, but not corrected for social-economic situation per country. 11% of respondents did not want to answer this question.



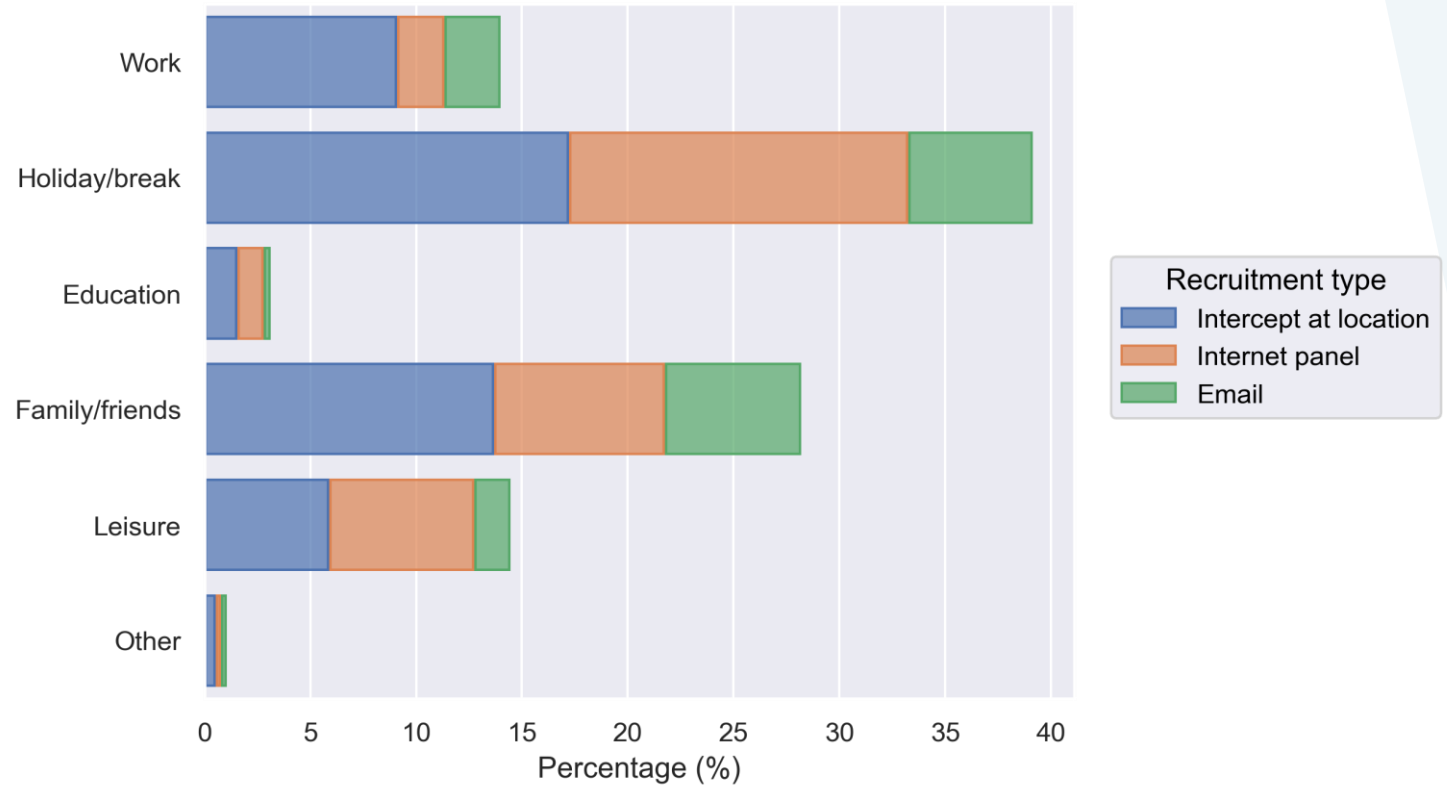
Employment distribution



Employment distribution is in line with expectation, with reasonable numbers of observations for smaller-sized categories



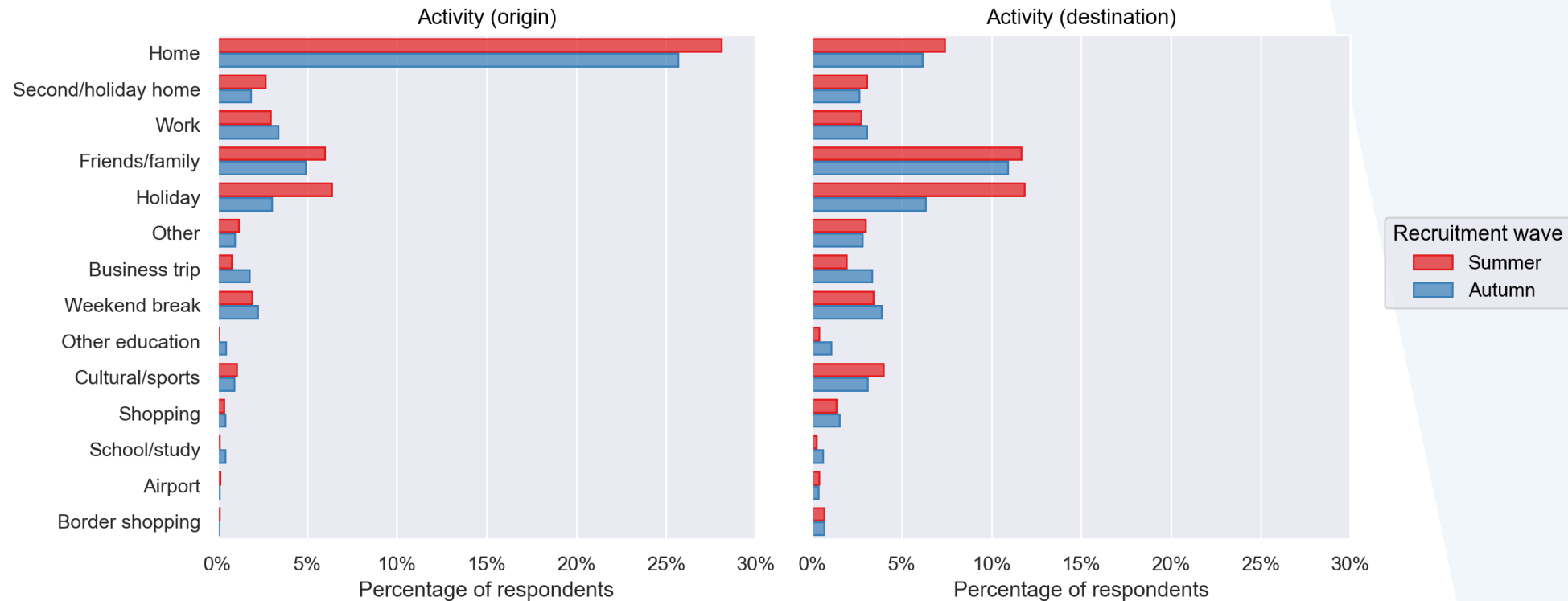
Trip motive distribution by recruitment type



 Most people recruited for the study were traveling for a holiday/break or visiting family/friends



Purpose by origin and destination location



Activities as the origin and destination location show the recruitment was successful in attracting respondents with various trip purposes. Being home is the predominant origin activity.



Conclusions of respondent characteristics

- Good distribution in the data of most important demographic categories
 - Gender
 - Age
 - Household income (only 11% of respondents did not provide an income level)
- Distribution of employment and motive are lopsided, but is no reason for concern

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Example of an SP choice task

Du er ved valg nr. 2 ud af 7
Hvilken valgmulighed foretrækker du, A eller B?

Biltur A	Biltur B
Samlet rejsetid: 6 timer 30 min	Samlet rejsetid: 4 timer 45 min
Rejseudgifter (ekskl. vejafgift): 180,00 kr.	Rejseudgifter (ekskl. vejafgift): 400,00 kr.
Vejafgift: 203,00 kr.	Vejafgift: 243,00 kr.

Valgmulighed A

Valgmulighed B

← →

53%



Postcard invites



Fortæl om din rejse og vind spændende præmier

Vi har brug for din hjælp til at indsamle data for personrejser. I anonymiseret form vil din besvarelse indgå i arbejdet med at sikre et godt grundlag for nye infrastrukturprojekter og planlægge fremtidens infrastruktur og mobilitet.

Spørgsmålene tager udgangspunkt i din aktuelle rejse, og du besvarer spørgeskemaet ved at scanne QR-koden her på siden eller ved at gå ind på: <https://acsvy.com/sb23>. Det tager ca. 15 minutter.



Besvarer du spørgeskemaet, har du mulighed for at vinde spændende præmier som f.eks:

- En gratis tur-retur over Storebæltsbroen eller Øresundsbron
- En guidet rundvisning på Sprogø, Peberholm eller ved Femern Bælt-byggepladsen
- En iPad.

Vi håber, du har lyst til at hjælpe.

Tell us about your trip and win exciting prizes

We need your help in collecting data on passenger trips. In anonymised form, your answers will be included in the work to ensure a good basis for new infrastructure projects and plan future infrastructure and mobility.

Answer the questions based on your current trip by scanning the QR code on this page or by going to <https://acsvy.com/sb23>. It will take about 15 minutes.



By answering the questionnaire, you have the chance to win exciting prizes such as:

- A Free return trip on the Great Belt Bridge or the Øresund Bridge
- A Guided tour on Sprogø, Peberholm or at the Femern Belt construction site
- An iPad.

We hope that you take the time to complete the questionnaire.

Erzählen Sie uns von Ihrer Reise und gewinnen Sie tolle Preise

Wir benötigen Ihre Hilfe bei der Erhebung von Daten über Personalfahrten. Ihre Antworten werden in anonymisierter Form in die Arbeit zur Schaffung einer guten Grundlage für neue Infrastrukturprojekte und zur Planung zukünftiger Infrastruktur und Mobilität einfließen.

Zur Beantwortung der Fragen zu Ihrer aktuellen Reise scannen Sie bitte den QR-Code auf dieser Seite oder besuchen Sie die Website <https://acsvy.com/sb23>. Die Befragung dauert etwa 15 Minuten.



Durch das Ausfüllen des Fragebogens haben Sie die Chance, spannende Preise zu gewinnen, wie z. B.:

- eine kostenlose Hin- und Rückfahrt über den Großen Beltbrücke oder die Øresundbrücke
- eine Führung auf Sprogø, Peberholm oder auf der Baustelle am Femern Belt
- ein iPad.

Wir würden uns freuen, wenn Sie sich die Zeit nehmen würden, den Fragebogen auszufüllen.

Berätta om din resa och vinn spännande priser

Vi behöver din hjälp med att samla in data om personresor. Dina svar kommer att anonymiseras och tas med i det material som läggs till grund för nya infrastrukturprojekt och planer för framtidens infrastruktur och mobilitet.

Svara på frågorna om din pågående resa genom att skanna QR-koden på den här sidan eller genom att gå till <https://acsvy.com/sb23>. Det tar ungefär 15 minuter.



Genom att svara på frågorna får du chansen att vinna spännande priser, som:

- En kostnadsfri returresa på Stora Bältbron eller Øresundsbron
- En guddad tur på Sprogø, Peberholm eller vid byggetplatsen för Femern Bælt-förbindelsen
- En iPad.

Vi hoppas att du vill ta dig tid att fylla i frågeformuläret.



Email invites

From: TB survey <2023@accent-mr.com>
Sent: Thursday, June 23, 2023 4:42 PM
To: Tom Fomby <Tom.Fomby@accent-mr.com>

Subject: Fortæl om din rejse og vind spændende præmier

Kære [REDACTED]

Vi har brug for din hjælp til indsamling af data for personrejser. I anonymiseret form vil din besvarelse indgå i arbejdet med at sikre et godt grundlag for nye infrastrukturprojekter og planlægning af fremtidens infrastruktur og mobilitet.

Spørgsmålene tager udgangspunkt i din seneste rejse over Storebæltsbroen d. 09/06/2023 , og du besvarer spørgeskemaet ved at klikke på linket nederst i mailen. Det tager 20 min.

Besvarer du spørgeskemaet, har du mulighed for at vinde spændende præmier som fx:

- Gratis tur-retur over Storebæltsbroen eller Øresundsbron
- Guidet rundvisning på Sprogø, Peberholm eller ved Femern Bælt byggepladsen
- iPad.

Vi håber, du har lyst til at hjælpe.

[Start undersøgelse](#)

Hvis du ikke kan se eller klikke på knappen ovenfor, skal du kopiere og indsætte dette link i din browser:
copy and paste

<https://secure2.accent-mr.com/F9/3605D.aspx?urn=ES3605DUMMY&dy=t>