



UNIVERSITY OF TARTU

Measuring ethnic differences in transnational activity space with mobile phone data

Veronika Mooses

Siiri Silm, Tiit Tammaru, Erki Saluveer



MOBILE TARTU

Mobile Tartu
30 June 2020



Motivation of the study



UNIVERSITY OF TARTU

Sedentary views on social processes despite the increase of human spatial mobility (Sheller, Urry 2006, Sheller 2018).



- Ethnic segregation → studied mostly as a process with permanent settlement inside one country (Cachia, Jariego 2018).
- Temporary mobility types (visiting friends and family, tourism, commuting) → frequent exposure to different cultures and societies, different reasons.

Theoretical background



- Activity space segregation, mobility research, transnationalism.
- **What can ethnic differences in cross-border mobility indicate?**
 - frequent outbound travel helps to adapt to acculturation (Hung et al 2013)
 - frequent tourism trips: indication of economic wellbeing (Shin 2017)
 - strong social ties
 - transnational lifestyle can turn into permanent migration and may be followed by members of social networks (chain migration)

Aim

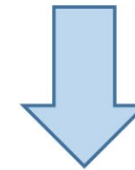
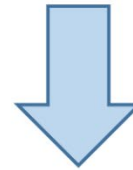
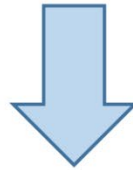
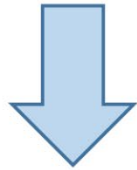
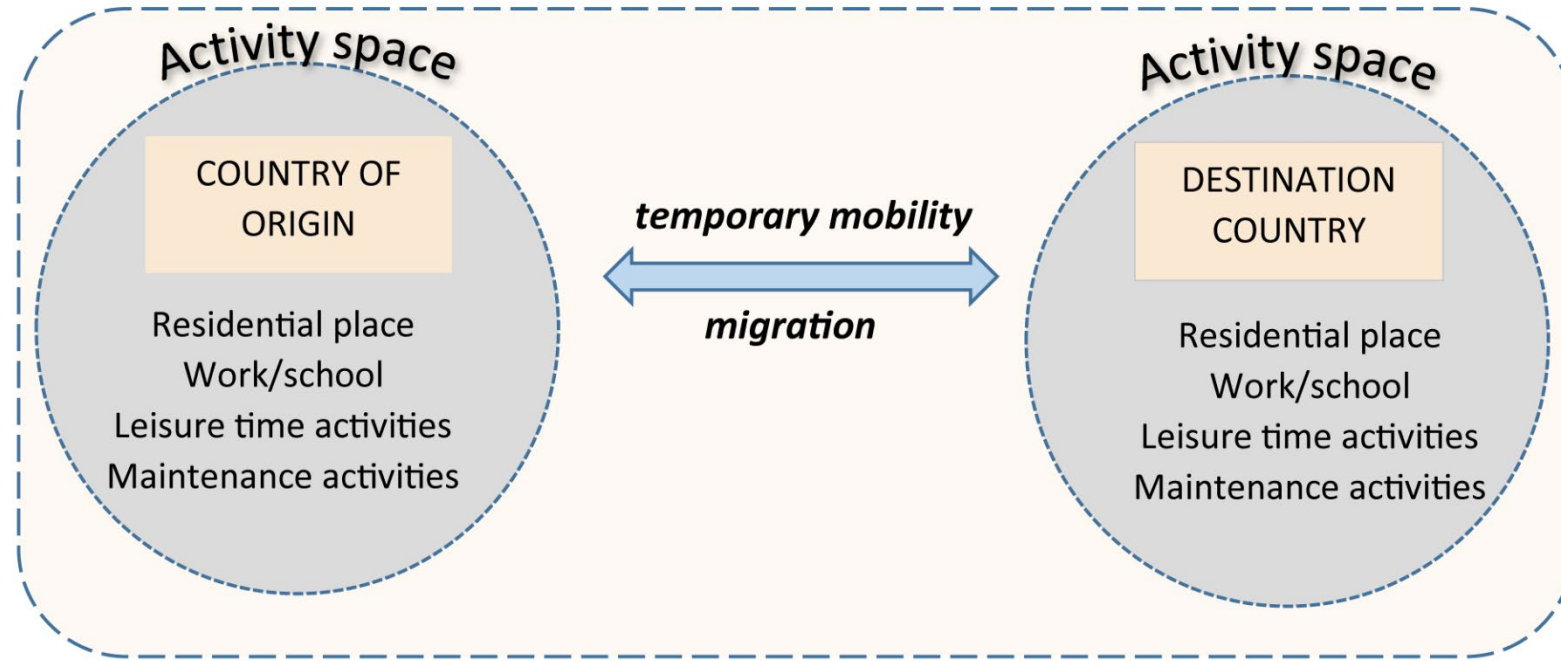


UNIVERSITY OF TARTU

To find whether there are any differences in cross-border mobility between members of ethnic majority and minority populations in Estonia.

- 1) What ethnic differences occur in travel intensity of cross-border spatial mobility?
- 2) What are the ethnic differences in belonging to different visitor groups (tourists, commuters, transnationals, long-term stayers)?

TRANSNATIONAL ACTIVITY SPACE



Tourist

Commuter

Transnational

Long-term
stayer

Frequency of visits

Time spent in country of origin

Time spent in destination country

Data

Passive mobile positioning data

- Roaming data, time and location of a call activity
- Generated trips and visits (Saluveer et al 2020)
- 2014-2016



Initial variables

- User ID, trip ID, stay ID, time
- Country (ISO-A2)
- Communication language
- Gender
- Age
- Residential area (Ahas et al 2010)

	pos_usr_id	trip_id	stay_id	iso_a2	first_time	last_time
16	33,216,302,130,201,018	38	86	LT	2016-06-15 19:16:58	2016-06-19 06:12:08
17	35,186,523,887,567,303	1,247	1,974	UA	2014-01-20 13:41:36	2014-01-24 14:41:23
18	35,186,523,887,567,303	1,248	1,975	SE	2014-03-09 10:49:34	2014-03-14 02:35:07
19	35,186,523,887,567,303	1,249	1,976	SE	2014-03-17 02:15:49	2014-03-18 01:45:54
20	35,186,523,887,567,303	1,250	1,977	NO	2014-04-23 08:35:14	2014-04-25 21:18:22
21	35,186,523,887,567,303	1,251	1,978	GB	2014-05-07 11:51:40	2014-05-09 04:08:36
22	35,186,523,887,567,303	1,251	1,979	US	2014-05-09 04:08:36	2014-05-14 01:33:13
23	35,186,523,887,567,303	1,251	1,980	NO	2014-05-14 01:33:13	2014-05-16 11:17:05
24	35,186,523,887,567,303	1,251	1,981	SE	2014-05-16 11:17:05	2014-05-17 00:46:06
25	35,186,523,887,567,303	1,252	1,982	NO	2014-05-19 18:32:52	2014-05-21 09:58:27
26	35,186,523,887,567,303	1,253	1,983	NO	2014-06-19 04:36:56	2014-07-15 19:47:05
27	35,186,523,887,567,303	1,253	1,984	RU	2014-07-15 19:47:05	2014-07-23 15:47:53

75,118 people in the study who had made at least one trip and had all social and residential characteristics

Methods



UNIVERSITY OF TARTU

Travel intensity

Negative binomial regression

- Average duration of trips
- Number of days spent abroad

Zero-truncated NB regression

- Number of trips
- Number of distinct countries

Visitor groups

Binary logistic regression

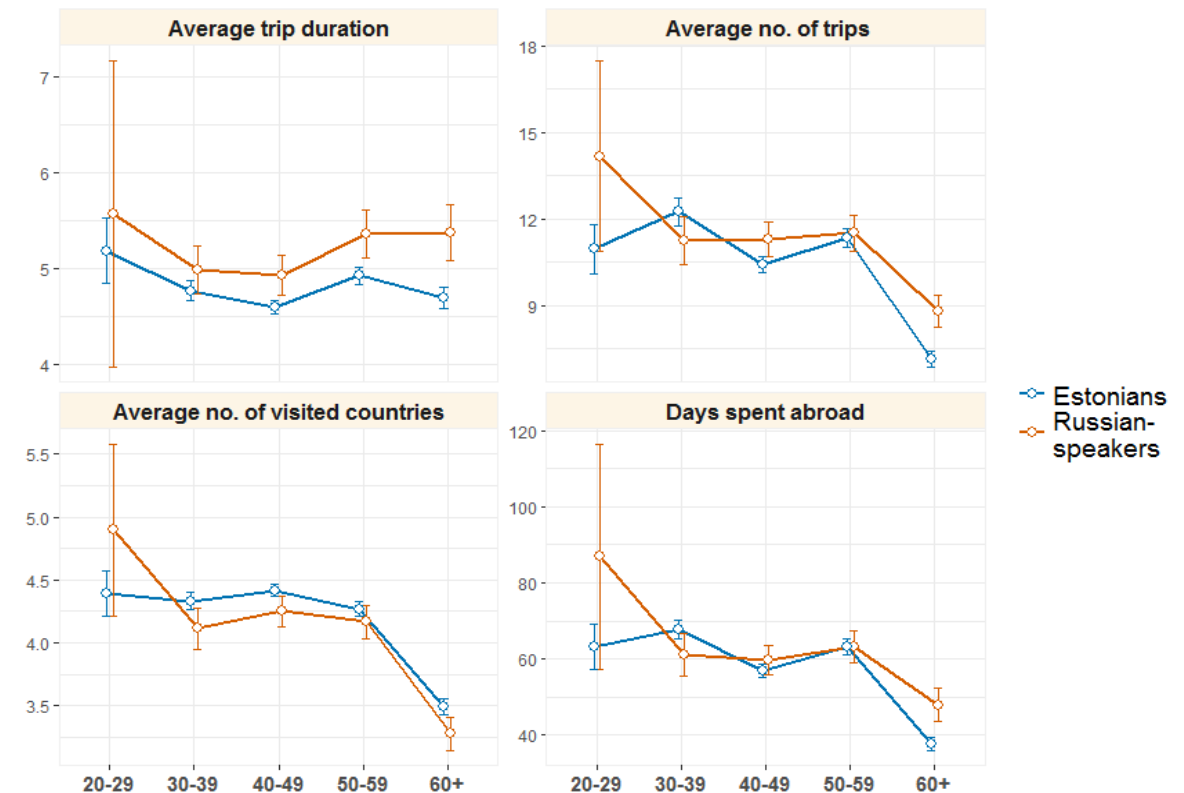
- Long-term stayer
- Transnational
- Commuter
- Tourist

Independent variables: language (EST, RUS), age group, gender, residential area (N-Est, S-Est, E-Est, C-Est, W-Est)

Results

Travel intensity is higher for the minority group (Russian speakers) when compared with the majority (Estonian speakers):

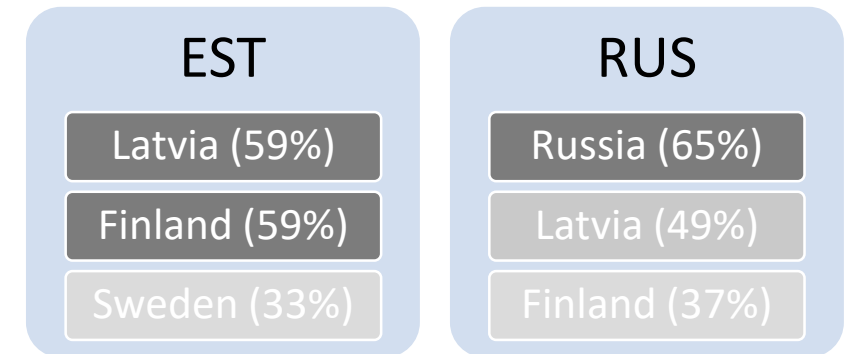
- 10% more trips
- 14% longer duration
- 17% more days abroad
- 4% fewer countries than Estonians



Results

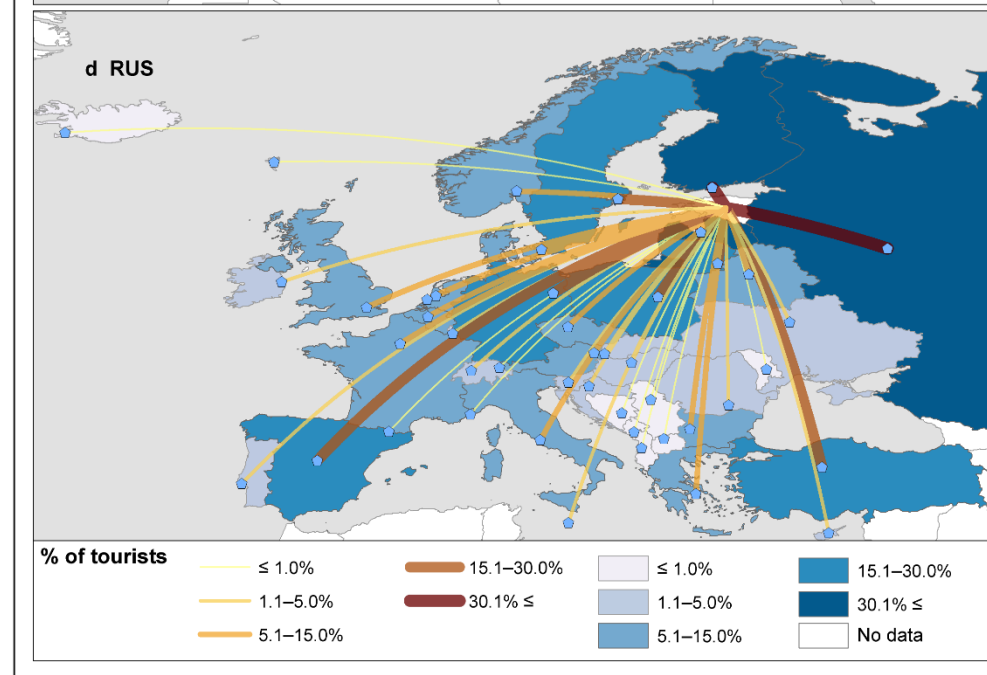
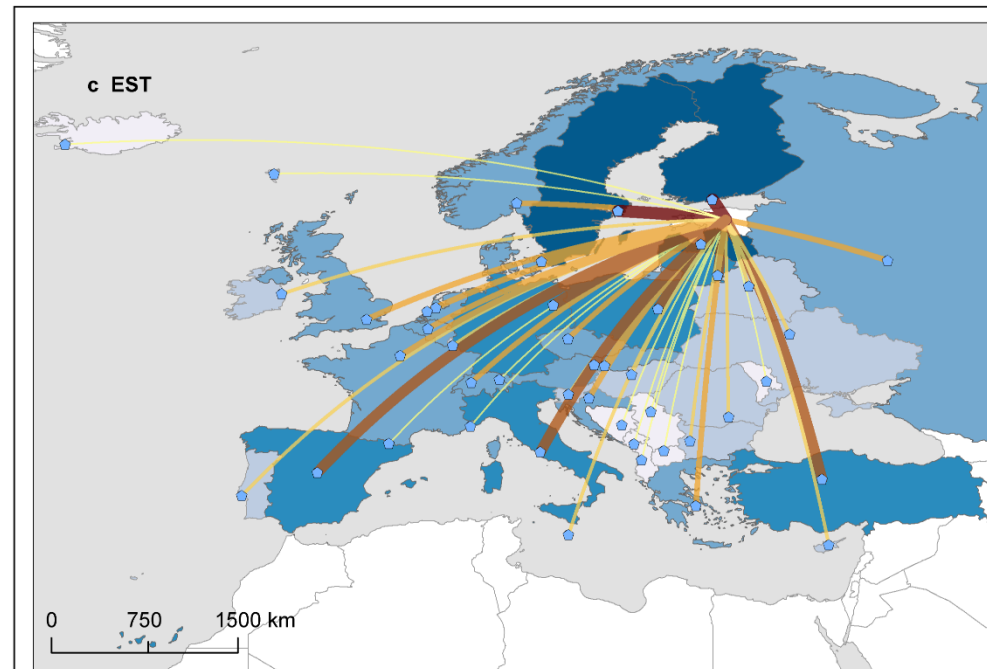
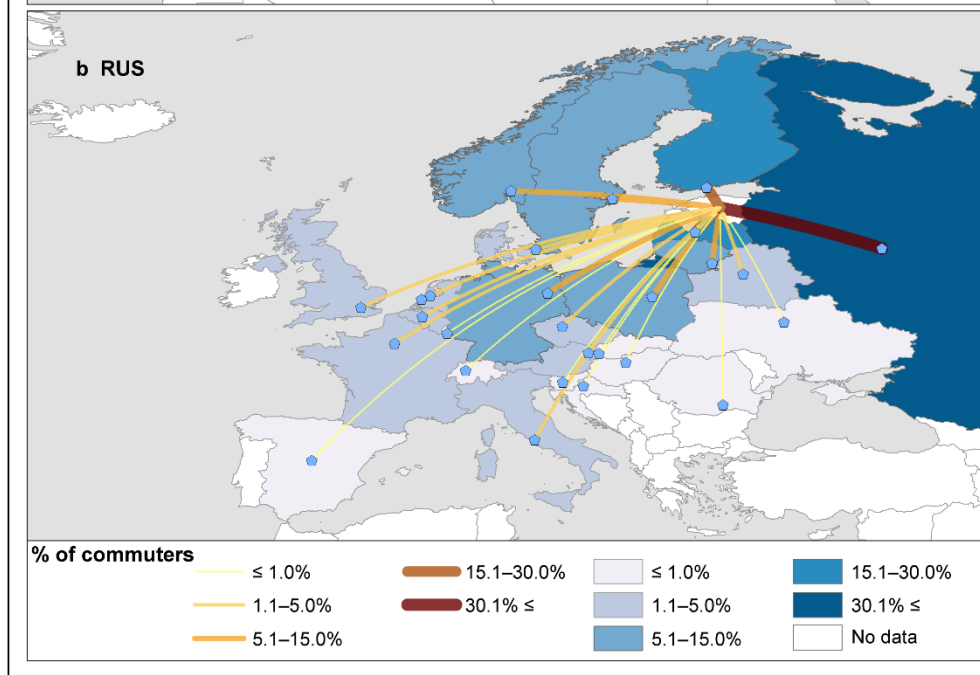
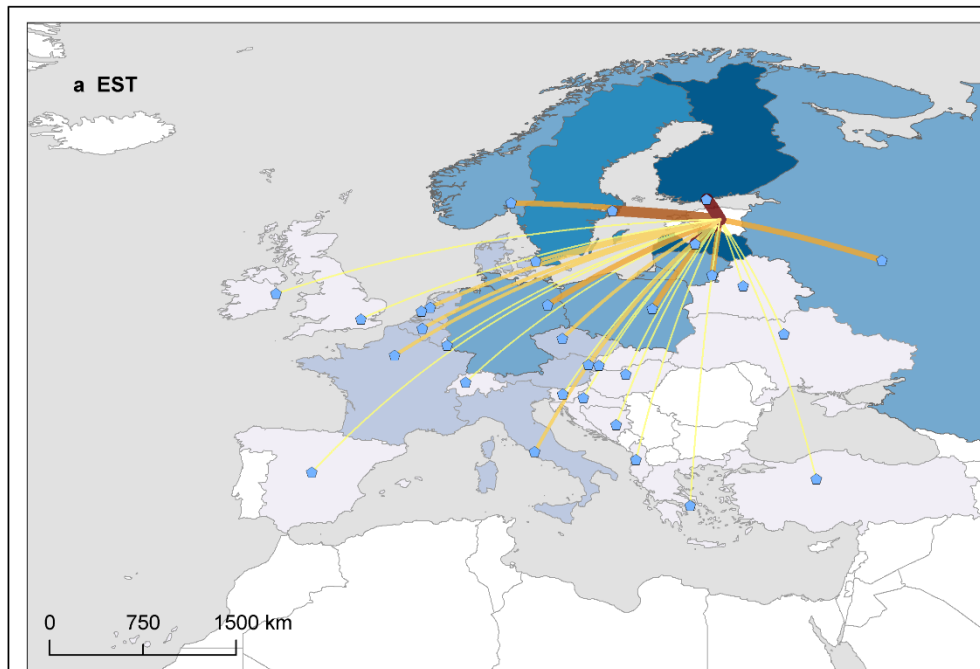
Russia is one of the most important destinations for Russian speakers in all age groups.

- Older Estonians visit predominantly Latvia, while younger people visit predominantly Finland.
- For Russian speakers the sequence of countries is the same for all age groups (Russia, Latvia, Finland)



Ethnic background plays a significant role in explaining the membership for tourist and commuter groups:

- Russian speakers: 20% increase in the odds of belonging to the commuters group than Estonians ($p < 0.05$).
- Russian speakers: 88% increase in the odds of being tourists compared to Estonians ($p < 0.05$).



Conclusions



UNIVERSITY OF TARTU

Travel intensity of minority group is higher despite the lower average income when compared with the majority (Statistics Estonia 2011).

Social networks can raise *mobility capital*.

- trips to country of ancestry allow budget travelling due to social networks (Delhey et al 2015).
- refresh social ties

Exit points from marginal position and circles of segregation

- job-related cross-border commuting might be an exit from a marginal position in the society (Telve 2016)
- buying cheaper goods (Latvia, Russia) can be an incentive for frequent travel (livelihood)



UNIVERSITY OF TARTU

Thank you for the attention!

veronika.mooses@ut.ee

#mobiletartu