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Europæernes rejsevaner belyst igennem Ferie- og Forretningsrejseundersøgelserne

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Abstrakt

Der er i dag kun en begrænset viden om fjernrejser. Enkelte undersøgelser viser, at fjernrejserne har en substantiel miljømæssig belastning og at rejseaktiviteten vokser hurtigt. Behovet for bedre viden og forståelse af rejseaktiviteten er derfor stor. Mangel på data er en væsentlig grund til de få analyser der findes af fjernrejser. Eurostat indsamler imidlertid hvert år data fra en survey, som alle medlemslande er forpligtede til at gennemføre efter nogle fælles overordnede retningslinier. I Danmark kaldes undersøgelsen Ferie og forretningsrejseundersøgelsen. En Europæisk fællesbetegnelse er snarest Tourism Demand Survey. Selv om undersøgelserne ikke fuldt ud lever op til de krav, man stiller til en transport survey fra en transport tilgang (specielt er der ingen information om rejseafstande), at kvaliteten af under-søgelserne i de enkelte lande er ret blandet, og at data kun foreligger som indikator tabeller, finder forfatterne materialet anvendeligt til at belyse Europæernes rejseaktivitet, ikke mindst fordi det dækker 30 lande over en 15 års tidsserie for en væsentlig del af landene.

Paperet præsenterer først en oversigt over rejsefrekvensen i de enkelte lande og en sammenstilling af, hvor stor en del af de enkelte landes befolkning, der foretager private udlands og indenlands rejser med overnatning af forskellig varighed. Derefter gennemføres en analyse af udviklingen i rejsefrekvenser på private udlandsrejser med mindst 4 overnatninger. Analyserne viser, at de 30 lande kan inddeles i 3 grupper, 1) de gamle mellem- og nordeuropæiske medlemslande med den højeste rejsefrekvens på private udlandsrejser og den største andel af befolkningen, der er rejseaktiv, 2) 5 Middelhavslande med en meget lav rejsefrekvens på private udlandsrejser, men med en væsentlig større andel der holder ferie m,v, indenlands samt 3) de nye medlemslande, der har en lavere rejsefrekvens end førstnævnte gruppe, men væsentlig højere end middelhavslandene.

Analysen af udviklingen i rejseaktivitet viser en samlet indkomstelasticitet på 1,8 for alle land under ét, og væsentlig over 1 for de 3 grupper hver for sig. Et muligt mætningspunkt i udviklingen diskuteres. Dette foreslås at ligge ved at ca. 90% af befolkningen rejser udenlands årligt og har ca 2 rejser i gennemsnit. Men hertil kommer de kortere rejser, typisk weekendrejser, som ikke er analyseret i detaljer i dette paper.

Introduction

Long distance travel is one of the fastest increasing travel activities with a very high impact on the climate (Alonso et al., 2014; Christensen, 2016; Aamaas et al., 2013). Nevertheless, the demand is scarcely

documented from a transport perspective, nationally as well as internationally and policies to reduce the increase in demand are seldom addressed. This is in sharp contrast to the substantial public and private investments in infrastructure and transport modes for long distance travel by air and rail.

Two European wide research projects have been carried out, MEST (Methods for European Surveys and Travel Behaviour) from 1996-99 (Axhausen et al., 2003) and Kite from 2007-09 ("Kite - A Knowledge Base for Intermodal Passenger Travel in Europe," 2009). The main concern of both has been to develop data collection methodology and as a part of Kite to assess collected data, e.g. (Kuhnimhof et al., 2009) Some summarizing conclusions on the travel demand was drawn based on Dateline data from 2001 (Gomes and Santos, 2004; Kuhnimhof and Armoogum, 2007).

At the national level several countries are collecting long distance travel survey data as part of their National Travel Surveys. Most of the results from these surveys are only documented in national reports, see e.g. for Norway (Vågane et al., 2011). Two exceptions are the British survey which is comprehensively analysed and well documented in journals, e.g. (Dargay and Clark, 2012) and the Swedish survey which (Frändberg and Vilhelmson, 2011) use to compare the development in long distance travel from 1995 to 2006 with the development in daily travel. A Danish long distance travel survey from 2010-11 is documented in a Ph.D. thesis (Christensen and Knudsen, 2015; Knudsen, 2015). Few others use own data collections, e.g. (Böhler et al., 2006) or a small cross sectional micro dataset covering Europe (Eugenio-Martin and Campos-Soria, 2013). With regard to tourism research more data with comparisons between countries are available. They are mainly based on macro variables such as number of arrivals to and/or departures from a country, national expenditures on tourism activities or receipts from inbound tourists. For an overview, see (Peng et al., 2015).

Compared to these surveys of tourism demand collected mandatory by Eurostat from all EU member states since mid-1990'ies represents a rich source of information even though it is not the ideal survey transport researchers have suggested (Axhausen et al., 2003).

Purpose of the paper

The main purpose of this paper is to present an overview of the European's travel activity based on the tourism demand surveys Eurostat has collected and documented. The collected surveys include all journeys with overnight stay. In the paper, focus is on private international holiday travel with four or more overnight stays. The reason for choosing these journeys is that they have the highest quality and they have been collected for the longest period. The paper consist of four parts:

1. A short presentation of the database collected by Eurostat
2. An overview of the private long distance travel activity of Europeans and an introduction of groups of countries with different travel patterns.
3. An analysis of the development in the number of international holiday journeys.
4. A discussion of the differences in the travel activities between the countries and a possible future development.

The aim is to present the development in the European's holiday travel activity with focus on both the effect of differences in economy and other attributes of the countries and of other explaining differences. Through comparison between the countries some more overarching differences in the travel activity and the development is discussed.

Tourism Demand Survey data

The continually collected survey on the European's demand for holiday travel have been improved and expanded over the years and represents today 30 countries (28 member states plus Norway and Switzerland). The included journeys are defined as journeys with overnight stay(s) out of local spatial area. Data is delivered each year to Eurostat as tables with indicators of the travel activities. The first countries delivered data in 1995. Since 2002-03 most of the 30 countries conducted a survey, see

Table 1.

Table 1 Key information about the 30 surveys

Country	ISO	4+ night's stay Collected period	Sample House-holds	Indivi-duals	Responses House-holds	Indivi-duals	Age groups	Data collection method
Austria	AT	1998-2015		43.392		14.000	15+	CATI
Belgium	BE	1997-2015	14.996		2.000		15+	WEB+Postal from 2013 Postal before
Bulgaria	BG	2008-2015		21.059		20.056	15+	Household survey (method?)
Switzerland	CH	2008-2015		Unknown			15+	
Cyprus	CY	2002-2015		34.097		23.098	15+	CATI
Czech Republic	CZ	2003-2015		47.497		34.889	15+	CAPI 73%, CATI 27% at repeated interviews
Germany	DE	1997-2015	55.000	23.000		10.021	15+	CATI
Denmark	DK	1997-2015		9.600		6.000	15+	WEB, CATI
Estonia	EE	2003-2015		10.286		6.032	15-74	CATI 2014, CAPI+CATI before
Greece	EL	1997-2015			8.771	20.173	15+	Face-to-face
Spain	ES	1998-2015	16.576			63.980	15+	CAPI before travelling, CATI collect info about journeys after 3 months
Finland	FI	1997-2015		28.300		15.475	15-74 84 from 2012	CATI
France	FR	1997-2015		240.000		175.000	15+	Postal, together with 5 other surveys
Croatia	HR	2004, 2007-2015		189.037		10.000	15+	CATI
Hungary	HU	2004-2015	60.000	Home survey 25.250	39.395 Border-survey	23.509	15+	Face-to face home survey + CAPI border survey
Ireland	IE	1999-2015	55.200	150.696	25.013	68.285	15+	Postal. Supplemented with a border survey for grossing up
Italy	IT	1997-2015		93.397	16.104	39.948	15+	CATI 1997-13, CAPI from 2014
Lithuania	LT	2004-2015	90.532		62.087		15+	Face-to-face
Luxembourg	LU	1997-2015				6.000	15+	CATI
Latvia	LV	2003-2015	11.765		11.408		15+	CAPI+CATI from 2011, Border survey earlier
Malta	MT	2007-2015	3.200	9.600 residents +9.066 pass		7.168 residents +7.141 pass	15+	Border survey before 2011 + Face-to-face from 2013
Netherlands	NL	1998-2015		8.790		6.327	15+	CAWI
Norway	NO	1999-2011		No information			16-79	
Poland	PL	2003-2015	0,06% of HH in 2012+13 0,8% of HH in 2014		18.000 of HH in 2012+13 75.000 of H in 2014		15+	2014: Face-to-face, Information about journeys by PAPI after CATI before 2014
Portugal	PT	1997-2015			7.168	19.148	15+	CAPI before travelling, Journeys collected by CATI after 3 month
Romania	RO	2004-2015		139.912	34.912	122.576	15+	Face-to-face
Sweden	SE	1998-1999, 2006-2011, 2014-2015		No information			15-74	
Slovenia	SI	2003-2015		31.350		8.451	15+	CATI
Slovakia	SK	2003-2014	7.586	17.412		8.205	15+	Face-to-face or CAPI, CATI
United Kingdom	UK	1997-2013	100.000 residents	14.991 for border	No info		15+	Border survey + CAPI as part of Omnibus

Source: http://ec.europa.eu/eurostat/cache/metadata/en/tour_dem_esms.htm

Earlier the survey only included questions about private journeys. The reported data was presented in four groups of journeys with 1-3 overnight stay(s) and with 4 and more overnight stays each divided into domestic and international destinations. The data collection was extended from 2012 to include journeys

with professional purpose too. Some countries have only included data for 1-3 overnight stay(s) for a shorter period than for journeys with 4+ overnight stays (or they miss intermediate years). Same day tourism abroad is added from 2015. Additionally is asked if the respondents have participated in private short duration and/or long duration private journeys during the last year.

The number of trips is broken down on main modes, duration, type of accommodation and destination country. Data on expenditures at travelling and on how journeys are ordered is furthermore included. The weakness of the Tourism Demand Surveys compared with the National Travel Surveys is that destinations are only reported as countries, and distance is not included in the surveys

Unfortunately, data is only available as simple tables at Eurostat's homepage (http://ec.europa.eu/eurostat/web/tourism/data/main-tables). Eurostat has collected micro data since 2012 but these are not available for research due to confidentiality.

Data quality

The surveys are all collected as household surveys and some are supplemented with a border survey. Sampling method and data collection methodology differ substantially between the countries. Some of the countries only interview one person in a household (randomly chosen), others make a full household survey. The length of the period covered by an interview (most often 3 month) is influencing the memory recall. The sampling frame is also affecting the representativity.

The number of respondents is differing substantially between the countries with a maximum is France and Romania which collect more than 100,000 interviews every year and minimum is Belgium with 2,000 household interviews and Denmark, Estonia, Luxembourg, and the Netherland with around 6,000 individual interviews. In general, a high number of interviews and a high response rate results in more precise results. However, for countries with only a small share of residents performing a journey during the data collection period the precision is lower.

The general rule for the Tourism demand survey is that it should be conducted for a representative sample of inhabitants from 15 years and up. However, four countries have only included a smaller age group, typically 15-74 years old. The number of trips per respondent is calculated by grossing up the number of trips to inhabitants in the interviewed age group, but divided by the full population at 15 years and up. By missing journeys from especially the age group 75-79 years old is generating a bias, which is difficult to compensate for. When Finland in 2012 increased the upper age limit from 74 to 84 years old it was assessed that, the result was a 1-3% increase in the number of trips for the respondents as a whole.

In general, it is very difficult to assess the data quality when only indicator tables are available and the database includes 30 countries using very different data collection methodologies.

Methodology in the paper

This paper only concerns private journeys, business travel being excluded because they have only been reported since 2012. Furthermore, the analyses are reduced to private journeys abroad with 4 or more overnight's stay. The reason for this choice is that these are mainly holiday journeys whereas shorter trips and domestic journeys include many visits to friends and relatives and visits to vacation homes (at least in some of the countries). Such journeys are probably only little affected by fluctuation in national economy (indicated in an unpublished Danish analysis). Furthermore, domestic visits to friends and relatives are more influenced by differences in data collection methods and the used questionnaires (can be observed by detailed study of the Eurostat database and documented for Denmark in (Knudsen, 2015).

A descriptive analysis is presented of the share of the population who has been travelling during the year. Both the share of the population who has been travelling at journeys with 4+ nights abroad and with only 1-3 nights are presented. This is compared with the share who has only been travelling domestic.

Table 2 Percentage of the respondents who are travelling annually at different durations and type of destination in 2012-14. Furthermore, number of journeys per respondent and per respondent who travelled. Finally a comparison between the share of respondents travelling before and after 2012

2012-14		Percentage of respondents travelling					Outbound 4+ nights		Difference in share 2012-14 compared to 1997-11	
		Outbound		Domestic only			Journeys per		4+ nights	
Country	ISO	4+ nights	1-3 nights only	4+ nights	1-3 nights only	All journeys	Inha-bitant	travel-ler	Outbound	Domestic only
New member states										
Romania	RO	1	0	9	13	24	0.05	3.89		
Bulgaria	BG	2	1	12	7	22	0.05	2.57	0.68	0.89
Croatia	HR	12	9	21	7	49	0.32	2.75	0.97	0.92
Poland	PL	12	3	23	13	51	0.20	1.67	1.13	0.99
Hungary	HU	15	3	19	14	52	0.25	1.66	1.05	0.75
Latvia	LV	19	7	6	17	49	0.38	1.97	1.56	0.64
Lithuania	LT	21	9	5	21	55	0.38	1.82	0.99	0.74
Slovakia	SK	27	3	14	11	55	0.41	1.51	0.88	0.88
Estonia	EE	29	13	10	12	65	0.45	1.53	1.35	1.13
Malta	MT	30	4	7	11	51	0.58	1.97	0.88	1.03
Cyprus	CY	31	7	8	17	63	1.10	3.55		
Czech Republic	CZ	34	6	26	12	77	0.47	1.39	1.15	0.98
Slovenia	SI	43	6	8	5	63	0.67	1.55	0.94	0.75
Mediterranean countries										
Greece	EL	4	1	25	6	36	0.05	1.17	0.91	0.71
Portugal	PT	7	2	18	11	38	0.08	1.19	1.03	0.92
Italy	IT	8	4	25	6	43	0.15	1.81	0.63	0.77
Spain	ES	9	2	29	13	53	0.15	1.61	1.09	0.77
France	FR	21	3	42	6	72	0.33	1.59	1.07	0.98
Middle and Northern European countries										
United Kingdom	UK	36	4	21	4	66	0.73	2.01	0.99	0.98
Finland	FI	38	19	29	3	89	0.79	2.08	1.26	1.04
Sweden	SE	40	10	24	2	77	0.80	1.99	1.02	0.71
Ireland	IE	44	8	9	11	72	1.05	2.37	1.00	0.52
Belgium	BE	46	5	3	2	56	0.70	1.54	1.10	0.58
Germany	DE	48	5	16	8	77	0.83	1.73	0.99	0.73
Austria	AT	50	7	9	10	76	0.83	1.66	1.13	0.77
Netherlands	NL	55	4	17	6	83	0.93	1.69	1.03	1.10
Denmark	DK	55	5	19	3	81	1.00	1.83	1.06	1.30
Norway	NO	64	7	12	1	85	1.02	1.62	1.22	0.61
Switzerland	CH	65	8	9	2	83	1.12	1.73	1.03	0.86
Luxembourg	LU	71	10	0	0	82	1.95	2.73	1.09	1.26

The analyses of the private international journeys with 4+ nights are investigated more deeply by regression analyses. First, a multivariate linear regression analysis is developed to assess the most important factors influencing the number of journeys. Secondly, a panel regression model is estimated to assess the development in travel activity, especially when the income increases. As independent explaining factors are for both analyses used data from Eurostat's database. The analyses are therefore dependent on available data and the presentation of this, including years, at which data collection was left out, missing values, and mistakes from the delivering national statistics. In general, Eurostat is not updating old statistic even when the countries deliver updates on elderly data.

A more detailed description of the methodology is included in the actual subsections.

Descriptive analyses of travel activity

Travel activity measured as number of holiday journeys with 4+ nights abroad per inhabitant is varying substantially between the countries, from 0.05 trips for Romania, Bulgaria, and Greece to 1.95 for Luxembourg (see

Table 2). The travel frequency is normally the only indicator, which is used to characterize the daily travel activity. For long distance travel the picture is however more multi-faceted. The travel activity is obtained by two factors, the share of the population travelling and the number of journeys per person travelling, see

Table 2. Even for Luxembourg, only 71% have been travelling for holidays abroad with 4+ overnight stays during the last year and only 82% have been travelling at all.

Groups of countries

Together the two travel indicators, frequency and participation in travelling can be used to group the countries. The group with the lowest travel frequency and the lowest share who have participated in travelling is the Mediterranean countries. In the middle is found the new member states and in the top end the Middle and Northern European countries.

None of the Mediterranean countries have a travel frequency or a share who have been travelling abroad at level with any of the rest of the old member states. They are furthermore at level with the lowest third of the new member states when considering both the travel frequency and the share travelling abroad. The average travel frequency is for the whole reporting period 0.15 for the Mediterranean countries compared to 0.34 for the new member states and 0.95 for the Middle and Northern European countries. However, opposite to the new member states inhabitants in the Mediterranean countries are more often participating in domestic travelling, especially with four or more overnight stays. In France nearly half of the population is only travelling at domestic weekend or holiday trips.

The distinction between the new member states and the Middle ant Northern European countries is even clearer. None of the new member states have a travel frequency at level with any of the Middle and Northern European countries.

An explanation for a lower level of journeys in most of the new member states is a low income level, see Figure 1. However, only considering the income, the travel activity is in fact higher than what should be expected. On the other hand the number of trips abroad from the Mediterranean countries is lower than the income level indicates. Other and more differentiated explanations than simply income is needed.

Figure 1 illustrates the complex picture of development in travel activity for each country as the logged value of annual private journeys abroad with 4+ nights per inhabitant at 15+ year old as function of the income per inhabitant in the actual country. Both variables are logged. The curves are time series of which the slope represents the income elasticity.

For the curves the year 2008 is shown with a bigger mark than the marks for the rest of the years. Furthermore, the latest year (2014 for most of the countries, 2015 not included) is shown by a black mark (white for Estonia, Ireland, and Switzerland) so that it is possible to see the direction of the development. The new member states are marked with red curves, the old member states with pink curves for the Mediterranean countries, grey for the Middle European countries and green for the Nordic countries.

Share of people travelling

The share of interviewed who are travelling is divided into those who have been travelling abroad and those who have only been travelling domestic. Those who have travelled internationally are subdivided into those who have been travelling for 4+ nights and those who only been travelling for 1-3 nights. Similar with those who have only been travelling domestic.
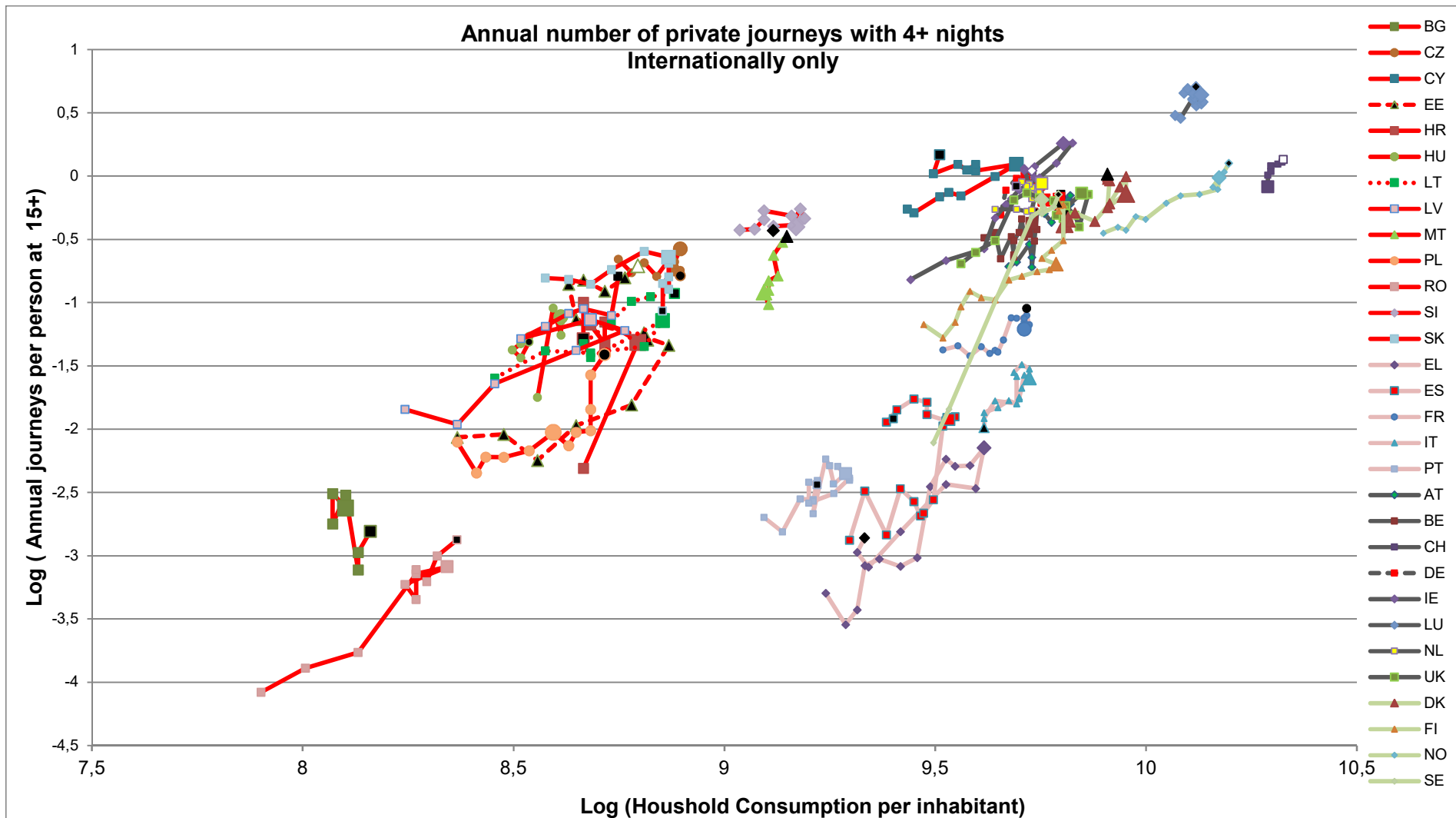
Figure 1 The annual number of private international journeys per person with 4+ nights as function of household income (Bothe variables are logged)
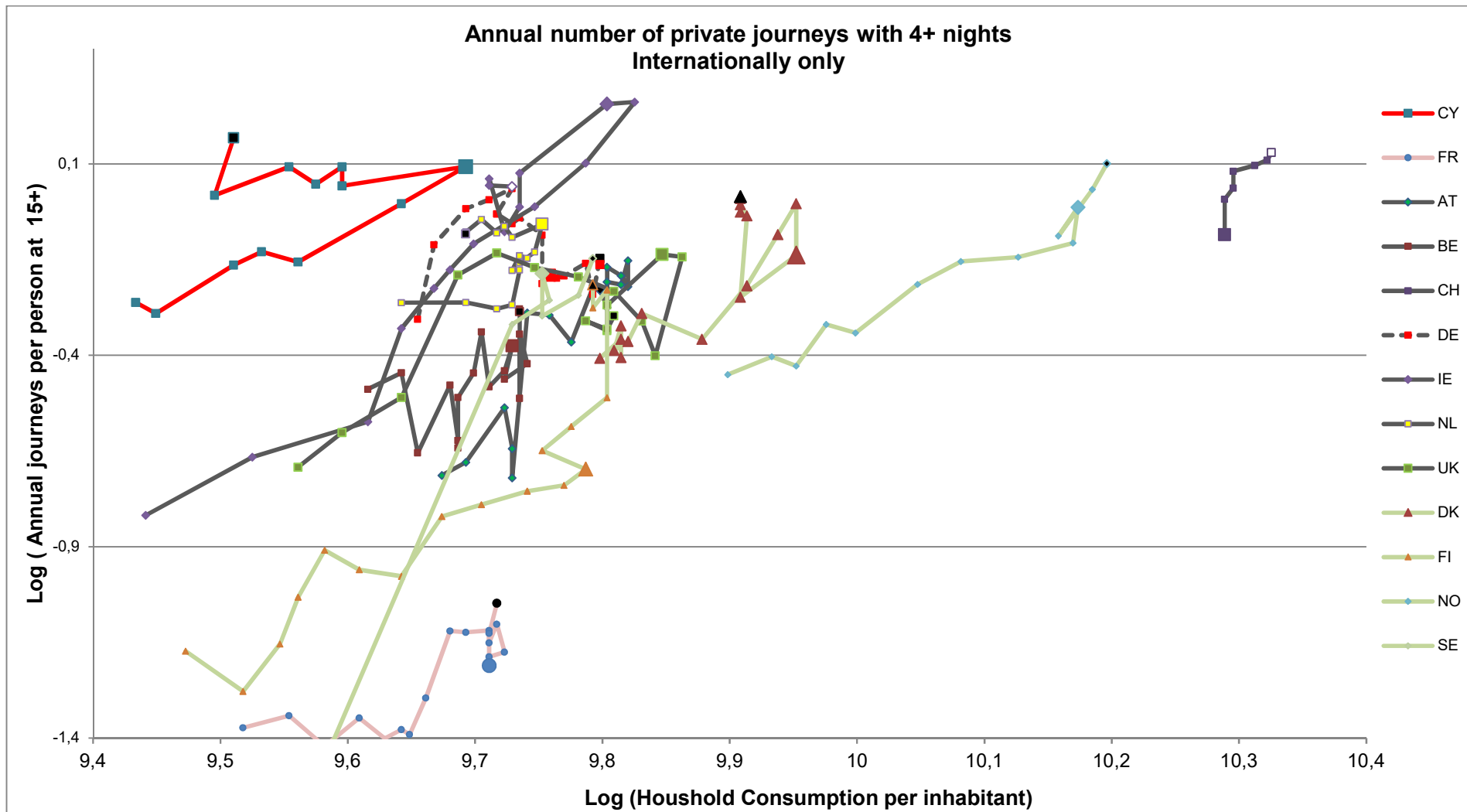
Figure 2 A selective enlargement of Figure 1

For most of the countries, the share who have only travelling abroad for a weekend / few days (1-3 nights) is very low and is only adding a few percent to the share having travelled abroad for 4+ nights. Exceptions are Luxembourg and Sweden at 10% and Finland and Estonia from which 19% / 13% have only been travelling abroad for a few days.

For the new member states a little less than for the Mediterranean countries are travelling domestic only. At the lowest end is found Bulgaria and Romania and the small island Malta with 18-21% only travelling domestic followed by the 3 Baltic countries and Cyprus (22-26%). Except for Bulgaria for all these countries the highest share of the respondents are only travelling for 1-3 nights. For the rest of the countries the highest share is travelling for 4+ nights.

For the Middle and Northern European countries, the share that has only been travelling domestic is up to 21%, with Luxemburg and Belgium in the very low end and Germany, the Netherlands and United Kingdom in the top end with 16-21% when only considering journeys with 4+ nights and 19-25% when including the short duration trips.

The last columns in

Table 2 shows a rough picture of the change in participation in travelling with an increasing share travelling internationally and a decreasing share travelling domestic only. Again, there is some variation from the general picture.

Number of journeys per traveller
The very different share of people travelling abroad is resulting in less variation in number of journeys at outbound journeys with 4+ nights when calculating this per person who is travelling, see again

Table 2. Except for Greece and Portugal with 1.17 and 1.19 journeys per traveller, respectively the difference is small between the Mediterranean countries and most of both new and old member states. The typical level is between 1.5 and 2 journeys per travelling person.

The number of journeys per traveller is over two for Luxembourg (2.73), Ireland (2.37), Cyprus (3.55), and partly United Kingdom (2.01) and Finland (2.08). Furthermore it is over two for Romania (3.89), Bulgaria (2.57) and Croatia (2.75) of which especially the two former have very few respondents travelling at all.

Number of private international journeys with 4+ overnight stays
In this section, the number of private international journeys per person per year is studied more in detail. At first it is investigated which factors are influencing the number of trips most. This is done by a generalised linear regression model. Afterwards is estimated the income elasticity by a panel procedure.

The estimations are made on all countries for the full period and for the three subgroups of countries for the period, the surveys have been conducted. For both analysis is investigated if the period from before the crises (2000-2007) is different from the period from the crises and on (2008-2015). Due to the shorter period data are collected for the new member states only the period before the crisis could nt be investigated separately. For the 5 Mediterranean countries the number of observation is so low that it has not been possible to subdivide the period.

Independent variables for the analyses are found as indicator tables at Eurostat's homepage (http://ec.europa.eu/eurostat/data/browse-statistics-by-theme). The reason for the choice of variables is described in the next subsection. The results are shown in TABLE 3.

Factors influencing the level of journeys per person
The linear regression model for all 30 countries together for the whole period has the lowest squared R value confirming that the countries are quite different. 13 of the included 18 variables are significant, most of them highly significant.

As income measure is chosen Household consumption expenditure per inhabitant (deflated to 2010 and calculated in Euro) because some early studies indicated that this gave a little more significant results than GDP. The income is not significant for the Middle and Northern European countries. For the other country

groups it is highly significant. Even though, the coefficient looks small the influence on the number of journeys is quite high.

TABLE 3 Estimation results for groups of countries. The first half shows the estimated parameters for the level of journeys per capita. The second part shows the estimated short run elasticities and with bold the long run income elasticity. For both estimations is at the bottom shown some statistics from the estimation.

Estimated parameters for number of journeys	All countries		Middle and Northern Europe		New member states, excl. Cyprus and Malta		Mediterranean countries
	2000-2015	2000-2015	2000-2007	2008-2015	2003-2015	2008-2015	2000-2015
HH Consumption	0.000012***				0.000063***	0.000062***	0.000029***
Age Less Than 15 Share	0.041***	0.074***		0.092***			0.059***
Age 15_24 share		0.032**		0.068**			
Age 65_74 share				0.044**	-0.029**	-0.034**	
Edu Lev 0_2 share	-.0033**	-.010***		-.021***	0.0082**		0.0019***
Edu 3 Share of 35_44	-.0064**	-0.024***		.023***		0.0028**	
Edu 3 Share of 55_64	0.0079**	0.035***		0.013**	0.0040*		
Employment Rate 25_64	0.0086***	-0.020***	0.027***		0.015***		
UnEmployment Rate 20_64					0.017***		
Part Time job share		0.0099***					0.0064***
Share of income in Q4	-.035***						
Emigration Share	0.13***			0.16*			0.069***
Immigration Share	0.17***	0.16***	0.18***		0.060*		
Foreigners Share	0.011***	0.025***	0.025***	0.031***		0.0019*	-0.0076**
Flights Pr Sq km	-.0062**				0.084***	0.11***	0.079***
Area in 1000 sq km	-.00027***		0.00047**		-0.00080***	-.00079***	
Density	0.00048***		0.00054**	-0.00099***	0.0021***		0.00072***
Average High Temperature		-0.024**	0.028*	-.076***	-0.0052*		0.029***
Observations	464	192	96	96	143	88	80
Used observations	306	128	76	86	124	83	62
R2	0.910	0.924	0.925	0.936	0.921	0.955	0.964
F Value	226.25	106.74	120.57	108.93	119.00	267.07	204.13
Significance level	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
Mean number of journeys	0.588	0.949	0.865	0.969	0.333	0.325	0.155

Estimated short run elasticities	All countries	Middle and Northern Europe		New member states, excl. Cyprus and Malta		Mediterranean countries
	2000-2015	2000-2007	2008-2015	2004-2015	2008-2015	2001-2015
HHConsump	0.602***	0.89**	1,03**	0.72**	0.66*	1.148**
Trip number pc -1	0.660***	0.251*	0.358**	0.644***	0.538***	0.587***
Age 15_24 share		-1.91***	0.82**			
Age 65_74 share			0.31*			
Edu Lev 0_2 share		0.20*				
Edu 3 Share of 35_44		0.34**	-0.68***			
Edu 3 Share of 55_64			0.79***			
Employment Rate 25_64						
UnEmployment Rate 20_64						
Part Time job share			0.68***			
Emigration Share						
Immigration Share	0.05***					
Flights Pr 1000 Sq km			0.35***			
Long run income elasticity	**1,77**	**1,19**	**1,60**	**2,02**	**1,43**	**2,78**
Number of crossings	30	11	12	11	11	5
Time series length	16	8	8	12	8	13
R2	0.986	0.974	0.968	0.971	0.976	0.950
F Value	4.51	5.21	4.66	2.34	2.41	5.16
Significance level	<.0001	<.0001	<.0001	0.0154	0.0153	0.0013

Significance level: *** p<0.0001, ** p<0.01, * p<0.05

It is known that the adult age groups are the most travel active groups. It is chosen to include 3 marginal age groups in the estimation to investigate if they are influencing the travel activity too. Families with children are travelling less than singles and couples for daily activities. However, in Middle and Northern Europe, especially after the crisis, and for the Mediterranean countries the number of journeys by the adults is increasing with a higher share of children and young people. For the Middle and Northern European countries, the travel frequency is higher if the share of young people in the education ages at 15-24 is high. In (Demunter, 2012) it has been shown that the age group over 65 was the only age group which had an increasing number of journeys after the crisis. The estimation shows that a higher share of elderly results in more journeys after the crisis in Middle and Northern Europe. However, in the new member states a high share of elderly results in less travel activity.

The educational level of the population is normally influencing the travel activity. The groups with a low educational level (Education level 0-2) are resulting in less travel activity in Middle and Northern Europe. The opposite is however the case for both the new member states and the Mediterranean countries. The share of people with a tertiary education would normally result in a higher travel frequency. This is also the case when the share of the 55-64 years olds is high. But for the data as a whole and in the first period for Middle and Northern Europe the travel frequency is lower with a high share of tertiary educated in the age group 35-44.

Employment and unemployment could also be expected to influence the travel activity. Again, the results are surprising. The unemployment rate is only significant for the new member states for which the travel frequency increases with a higher unemployment rate. A high employment rate results in a lower travel activity for Middle and Northern Europe, but as expected in a higher activity in the period before the crisis and in the new member states. If the share of people working in part time is high, the travel activity is increasing in Middle and Northern Europe and in the Mediterranean countries.

In advance, it was expected that countries with many immigrant workers would have a higher travel frequency because the guests are travelling home for holidays. This is investigated with two variables; the one being the number of immigrants in the actual year, the other is the share of the population with a foreign citizenship, which is the accumulated result of immigration. Both are significant and the coefficient is positive in most of the estimations. However, in the Mediterranean countries it is negative for the immigration share. Emigration might have a similar effect. If citizens are travelling out for work, their families might visit them or they might travel home for holidays. However, this is difficult to include in the investigation due to many missing values for emigration so that accumulated values is difficult to collect. Furthermore, those who have emigrated are not participating in the surveys so that their journeys home is not registered in the 'donor country'. The regression model confirms a higher travel frequency with a higher share of emigration in the actual year. But not for the new member states from which most emigrants are leaving.

In accordance with the expectation, inhabitants in big countries are travelling less internationally than people in small countries and people from more densely populated countries travel more. And finally people in warm countries are travelling less. However, again there is exceptions. What is a bit surprising is that the temperature is not significant for all countries. It was in this group the clearest result of the effect of differences between the countries was expected.

Finally, the number of flight connections to a country compared with its size is also influencing the travel activity positively. However, only for the new member states and the Mediterranean countries. For the overall estimation the coefficient is negative.

Estimation of the income elasticity
Due to the short time series, it is not possible to estimate elasticities for each country. Again data is pooled for the country groups and the periods before and after the ceises. All variables are logged which means that the resulting coefficients are the elasticities for the included significant variables. A lagged journey variable is included in the model, which makes it possible to calculate both a short run and a long run elasticity for each of the included variables. Unobserved differences between countries are represented by

both Fixed Effects (FE) and Random Effects (RE) specifications. The FE model controls for all time-invariant differences between the countries through country-specific intercepts, so the effects of individual time invariant variables, such as the area, cannot be analysed. The RE model does not have this limitation. A FE and a RE lagged panel model are tested. The FE model is accepted in favour of the RE model. For this reason area, density and temperature for the countries is not included in the estimations. TABLE 3 shows again the estimation results. The models for the new member states and for the Mediterranean countries are only accepted at a low significance level. The only explaining variables, which are found significant are the income and the lagged journey variables. For the overall estimation for all countries, the share of immigration is accepted too but with a low short run elasticity (0.05). The two estimations for the Middle and Nordic countries include more variables. The elasticity for the share of tertiary educated of the age group at 35-44 is negative for the period after the crisis, which confirms the results from above. The same is the case for the share of inhabitants in the age group 15-24 for the period before the crisis. After the crisis, the elasticity is positive. The number of flight connection furthermore has a positive elasticity after the crisis, the short run elasticity is 0.35, the long run elasticity is 0,55.

The long run income elasticities are shown in TABLE 3. For the Middle and Nordic countries, it has increased from 1.2 before the crisis to 1.6 after. For the new member states it has decreased from 2.0 to 1.43. Over all the long run income elasticity is estimated to 1.8. For the Mediterranean countries the long run income elasticity is very high, 2.8.

Discussion

The interest of this paper is first of all to understand the development in travel activity and to identify tendencies to ongoing increase in long distance travelling or if there is signs for a future saturation.

The resulting income elasticities are generally high, over one which indicates that travelling abroad in both new and old member states is a luxury good. Income elasticities around 1.5-2 for international travel is in good accordance with a Danish study based on micro data, a paper in (Knudsen, 2015). A meta study of papers based on tourism data (Peng et al., 2015) indicates even higher income elasticities for international travel, especially for Europe.

In the following the results are discussed for the three main country groups.

The new member states

Today, a higher share of the inhabitants in the new member states than for other countries is only travelling at short domestic trips with 1-3 nights stay. The share only having a domestic holiday with 4+ nights is at the same low level as for the Middle European countries. It seems as if a group of inhabitants in the new member states cannot afford to travel at holiday but are compensating by short visits to relatives and friends. A similar pattern can be observed for Danish low income groups (Christensen, 2014; Christensen and Knudsen, 2015).

For this reason a parameter for income inequity, the share of income mass belonging to the highest quartile of the population, is tested in the models. The variable is however only significant for the overall group for which more income inequity as expected results in a lower travel frequency. On the other hand, the income level is more important for the level of the travel frequency for these countries than for the two other groups.

The elderly at 65-74 years are probably having a low income and a high share of elderly results in a low travel frequency. A high employment and higher shares of inhabitants with a tertiary education both results in a higher travel frequency. This is probably due to higher incomes and better options for holiday travel abroad.

A high unemployment rate and a high level of people with only a primary school education is leading to more travel activity which is surprising. Perhaps this travel activity is not for holiday but for work in foreign countries. Emigration as such is not having an effect on the travel frequency, which is probably due to the low income character of the jobs the emigrants get. They are not inviting family members on holiday.

Interesting is that a better connections in air traffic is resulting in a higher travel activity, especially in the period after 2007. In habitants in the bigger and the warmer countries are travelling less abroad, expensive holidays abroad is possibly less attracting when there is attractive options at home.

For the new member states the international travel activity is very high considering the income level. A main question is therefore how long the actual increase will go on. The results of the panel estimations shows a decreasing price elasticity from a long run level at 2.0 for the whole period to 1.4 for the period after 2007. Figure 1 is also indicating that the countries at the highest income level have a lower income elasticity than the rest.

For the former Eastern European countries the increase in travel activity is most likely to happen as an increase in the share travelling abroad. However, the travel activity might change character when income increases. Less emigrant workers will reduce some of the travel activity for those travelling. This can be observed today for Czech Republic and Slovakia and partly for Estonia. These countries have a relatively high income level and very few journeys to traditional emigrant work countries like Germany. The main change with an expanding economy will possibly be more journeys to traditional holiday destinations in Europe, but with a lower over all travel frequency than the actual because the emigration work will disappear.

The Middle and Norther European countries

The analyses indicate that the increase in international travel activity probably will go on in many of the Middle and Northern countries. The price elasticity has increased from before the crisis to after. This might however be due to a slowdown in travel frequency with reduced income due to the crisis and a speed up again afterwards. An income elasticity at 1.2 might be closer to the future development than an elasticity at 1.6.

The number of holiday journeys per traveller might increase with many high income immigrants. A positive elasticity for young people at 15-25 and for the elderly at 65-74 will also keep the travel activity up. On the other and, a negative effect on the travel activity from a high employment rate and a high share of high educated inhabitants in the young age groups could be an indication of less time to long holidays. But perhaps these are replaced by more short duration trips?

The Mediterranean countries

Inhabitants in the Mediterranean countries are actually travelling very little abroad. The share of the population traveling abroad is much lower than for the other country groups. Instead a third to a half of the population is only travelling domestic and most at holidays with 4+ nights. Overall the share travelling is at level with the new member states.

The income elasticity for journeys abroad with 4+ nights is very high. In the last period with economic crisis especially the Greeks and Italians have cut back their travel activity abroad which probably is an important reason for the high elasticity.

The three Mediterranean countries: Spain, France, and Italy are the top 3 holiday destinations for the Europeans in the mentioned order according to the tourism demand database. It is therefore not surprising that the residents' own country is the favoured destination for the residents too. It is a bit surprising that it cannot be shown that the lower temperatures in other countries is a part of the explanation.

France as the country with the highest income level is a bit different from the rest with a higher share travelling abroad but also an even higher share having domestic holidays. The share of the French population that is travelling for all destinations all together is at level with the Western European countries around the same income level.

Spain has a very high level of immigrants. However, immigrants in the Mediterranean countries is generating a negative effect on the travel frequency. The immigrants are probably to a less degree labour force active and more often pensioners and therefore not travelling home so often.

Conclusion

The overall picture is that the Middle and Norther Europeans are travelling most abroad. Except for two countries, the residents in the new member states are travelling in the middle and residents from the Mediterranean countries least. When considering the income level the travel activity in the new member states is very high.

The presentation of the share of the population travelling at long distance private journey shows however, that an income elasticity only including the number of journeys per inhabitant is not offering a correct picture of the development. It is needed to consider both the share that is travelling at long distance travel and the travel frequency of those travelling.

The analyses show that the long distance travel activity in Europe will go on increasing far into the future. The estimated income elasticities at 1.8 for the overall database and well over one for all subgroups indicates an ongoing increase in long distance travel.

For the former Eastern European countries, the share of the population travelling abroad will increase. But the number of trips per traveller might decrease when income increases and the need for migration jobs is reduced. A low development in travel activity in Czech Republic and Slovakia with higher incomes and more journeys per inhabitant than for the rest indicates that other kind of consumption might be prioritised in a period when income increases.

For the Middle and Northern European countries, travel activity will increase too at least for some years. Today 80-90% of the inhabitants in the wealthiest European countries travel abroad. This share is probably the maximum realistic also in a far future because it includes both old and sick people who are not travelling much. Today these 80-90% make up to 2 annual journeys with 4 or more nights' stay each.

The low increase in travel frequency for Luxembourg and the already very high income level indicates that Luxembourg represents a level of travelling which could be the maximum. For the rest of the Middle and Northern European countries this might also be a possible saturation level. However, for both the former Eastern European and the Mediterranean countries the development against this level will be very slow and probably never reached for the Mediterranean countries

Finally, it should be emphasized that further investigations are needed to better understand the relation between the share travelling and the number of journeys per traveller. Considering the long time series of surveys for especially the old member states access to micro data would have been really attractive to use to be able to identify the effect of both macro economy, micro economy and on individual differences in education and family structure. Only this way it would be possible to draw conclusions on the long run development in travel activity.

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