Retirement age and international outbound tourism[1]

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Abstract

Both income and time are required for tourism activities. While the role of income in tourism demand is well documented, less attention has been devoted to the role of time. In theory, households who are retired face less time constraints than working-age households for leisure activities, travel included. A few empirical studies confirm that retired households are more likely to travel, without making a difference between domestic and international travel. In this paper, I analyze empirically the influence of the retirement age on international outbound tourism demand. Using data between 2007 and 2018 covering 38 departure countries and 178 destination countries, I find that there are less international departures from countries where the effective retirement age is high, empirical evidence that available time plays a role in international tourism. If the retirement age decreases by 1 year, my estimates imply that international travel out of OECD countries to any country in the world would increase by 1.1%, on average.

Keywords: international tourism demand, retirement age, leisure

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1 INTRODUCTION

International travel increases with income and with leisure time but declines with age towards the end of the life-cycle. Retirement decreases income but increases leisure time, and could thus either increase or decrease international tourism. This paper investigates the impact of retirement on international travel, using data on international departures between 2007 and 2018.. I find that the time effect dominates the income effect: ceteris paribus, international departures out of OECD countries are larger in countries with low effective retirement age.

Glover and Prideaux (2009) and many others have provided marketing analyses to tackle the potential benefits of the senior travel market, destined to increase with population aging. Much however remains to be learned on the impact of demographic changes on international tourism (Hung and Lu, 2016). A few studies document the link between pension systems and leisure, without making a difference between international travel, domestic travel or other leisure activities. Two studies find that persons who are retired are more likely to travel, for people who either live in Spain (Alegre and Pou, 2004) or in China (Deng et al, 2023). As there is no difference between domestic and international travels, it is not possible to say from these studies if being retired increases the likelihood of international travel or not[3].

The paper provides an empirical analysis using a gravity model and data covering 38 departure countries and 178 destination countries. Because of data availability on effective retirement age, departure countries include only OECD countries. Next to retirement age, the analysis includes standard factors influencing international tourism demand, including income and relative prices. The study also includes population aging variables, because they are closely related to retirement and they also influence international travel (Li et al, 2020; Davoine, 2023). Overall, I find that international departures decrease with the effective retirement age. On average, international departures decrease by 1.1% when the retirement age is postponed by 1 year.

Findings from the paper have implications for tourism business managers and policy makers: marketing efforts to attract international travelers are more interesting in countries with low retirement age, ceteris paribus.

The paper continues with key facts on pension systems. A brief theoretical analysis follows, in section 3. The empirical approach is presented in section 4 and the empirical analysis in section 5. Concluding remarks are provided in section 7.

2 KEY FACTS

This section presents key facts on pension systems.

Absent pension systems, old households with a declining health and thus unable to continue working have been relying on material support from their offsprings. Family support may however not protect all old members of society and may put a large burden on younger family members, especially for low-income groups. Modern states have thus gradually put in place pension systems to complement

[3] Assuming that income plays no role, Bernini and Cracolici (2015) find that retired households living in Italy are more likely to travel domestically and also more likely to travel abroad.

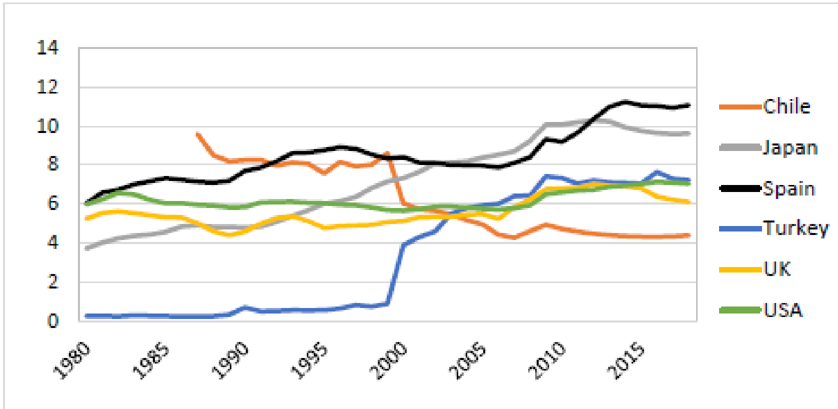
the income of retired households. While many countries have done it, some low-income developing countries are still in the process of putting in place systems which cover all of the population, which can be challenging when informal work is prevalent.

There are many ways to secure income in old age and thus many differences between pension systems. Key differences stem from the goals attached to social security in general, and pensions in particular. In some countries, the goal of pension systems is to protect from poverty in all age. In other countries, the goal is income replacement, allowing to maintain living conditions after retirement by making sure that pension payments are not much below salaries earned before retirement. Financial contributions made out of salaries and pension payments after retirement tend thus to be low when the goal is to protect against poverty, and to be high when the goal is income replacement. Furthermore, pension payments in systems aiming at protecting against poverty may be tested against income: households with high income after retirement, coming from their own savings or other sources, may not receive any pension payments from the state.

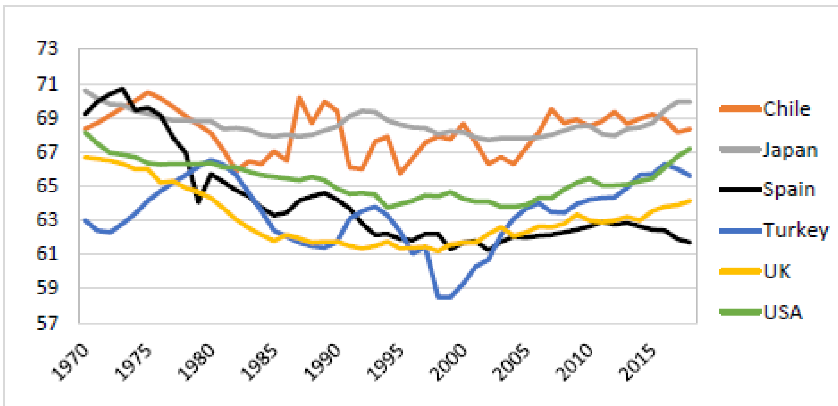
One key parameter of pension systems is the age at which pension payments can be claimed from the state. There is often a reference age, called the *statutory retirement age*, which corresponds to the age at which pension payments can be first claimed under average circumstances. In some countries, payments can be claimed earlier by persons who started working early in life, offering conditional early-retirement schemes. Some systems also allow persons who stopped working to claim pension payments before the statutory retirement age, but for a lower amount. Conversely, persons who work past the statutory retirement age and thus postpone the collection of pension payments may be rewarded with higher amounts. These (dis)incentives are related to policy objectives on the labor market (e.g. Gruber and Wise, 2005). There can thus be significant differences between the statutory retirement age and the effective age at which individuals retire. For instance, the statutory retirement age for men was 65 years in Austria in 2010, but their average effective retirement age was 60 years. By contrast, the statutory retirement age for men was 65 years in Canada and their effective retirement age 66 years in 2016 (OECD data). As will be discussed below, the *effective retirement age* information will be more interesting for the study made in this paper than the statutory retirement age.

As the fraction of retired households tend to rise, population aging generates public finance challenges, especially for large, public, pay-as-you-go Bismarckian pension systems. Pension reforms are thus needed (e.g. Martinez and Soto, 2021). Although unpopular, reforms are implemented. Pension systems thus slowly evolve over time.

Using OECD data, figure 1 illustrates key differences in pension systems across countries and how they change over time, for a selection of countries Part (a) provides the sum of aggregate public and private mandatory pension payments, as percentage of the GDP, between 1980 and 2018. This information is a good measure of the average minimum pension payment that persons will receive after retirement. As can be seen, there are strong differences across countries, with an upward trend for most, but not all, countries. Part (b) of the figure provides the effective retirement age between 1970 and 2018, averaged over men and women, showing differing trends across countries.



(a) Aggregate pension expenditures (% GDP, public + mand. private)

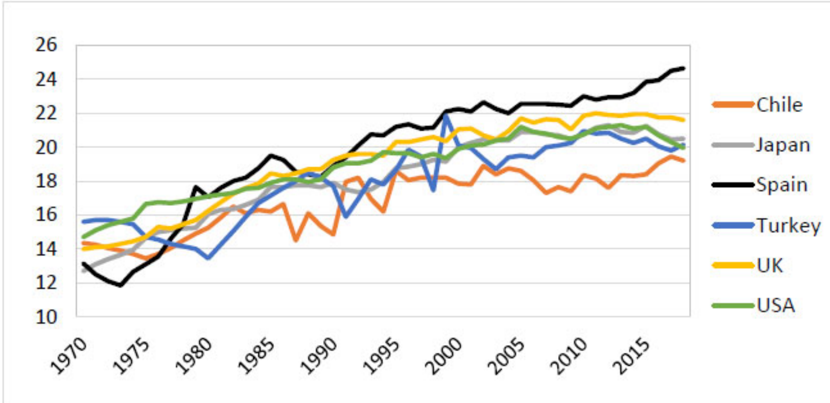


(b) Effective retirement age (average men+women)

Figure 1. Key characteristics of pension systems in selected OECD countries

3 THEORETICAL ANALYSIS

Most countries with a developed public pension system have had to reform it to secure its financing as the population aging is reformed. A standard reform is the increase of the statutory retirement age, which typically leads households to effectively postpone retirement. Figure 1 shows for instance that the effective retirement age increased over the past 20 years in all selected countries, but not all. In Spain, the long-run downward trends has continued. Even when the effective retirement age does increase, it takes place at a smaller rate than life expectancy. As a result, the average number of years spent in retirement tends to increase over time, as illustrated by figure 2. Differences across countries are also notable in this figure.



(a) Average numbers of years in retirement (average men+women)

Figure2. Years spent in retirement in selected OECD countries

This slow but steady increase of the number of years spent in retirement means that households have more time for leisure activities at the end of the life-cycle. As time is an important requirement for domestic and international tourism (Papatheodorou, 2001; Alegre et al, 2009), more years in retirement could mean more international outbound tourism. However, income drops with retirement, which could have the opposite impact. The key question is thus the following: which of the time and the income effects dominates. The next section will provide a first empirical answer.

4 EMPIRICAL APPROACH

An overview of the approach is provided first, followed by the detailed econometric model and then by the data.

4.1 Approach

Retirement can influence tourism through at least two channels, time and income. Both channels will be included in the analysis. The effect of retirement can become greater when life expectancy increases, a key driver of population aging. As control variables thus, population aging variables will also be included.

Given the slow pace of population aging, data will be sought to cover as long a time span as possible. Differences across countries will further help to measures the econometric impacts of population aging and pension systems on international tourism. The resulting dataset will have a panel structure.

The data can be analyzed with several econometric methods. Panel data methods, such as fixed effect or random effects estimation, exploit the panel structure of the data for more accurate results than ordinary least squares regressions. The choice between fixed effect or random effect estimation will be made with an econometric test, whose result depends on data. To further exploit the data structure and gain additional accuracy, I use a gravity model, which originates from the trade literature. As an import, outbound international tourism represents indeed a part of international trade. A number of empirical studies of international tourism thus use methods from the international trade literature, which emphasizes the reliability benefits of gravity models (Anderson, 2011). The gravity model I use is consistent with recent applications to tourism (e.g. Vietze, 2012; Balli et al, 2016; Khalid et al, 2020; Okafor et al, 2022).

4.2 Econometric model and variables

The dependent variable will be international travels between two countries, tourist expenditures being considered as alternative dependent variable in sensitivity analyses.

The main explanatory variable is the retirement age. The higher the retirement age, the less the leisure time, seen from a life-cycle perspective, and thus the less time available for travel. We thus expect that international travel will be smaller if the effective retirement age is high.

Closely related variables capture the effect of population aging. The first such variable is the old-age dependency ratio, defined as the ratio of the population aged 65 or above over the population aged between 15 and 64. It captures the impact of the first driver of population aging, life expectancy variations. It is a standard measure of the fraction of the population in retirement age. The larger life expectancy indeed, the larger that ratio. The second variable is the young-age dependency ratio, defined as the fraction of the population aged between 0 and 14 over the population aged between 15 and 64. It captures the impact of the second driver of population aging, fertility declines. It is a measure of the average family size in the country. The lower fertility, the lower that ratio.

Beyond retirement and population aging, other factors can influence international travel. To capture these influences, I use standard control variables from empirical analyses of international tourism demand. According to the literature review by Song and Li (2008), household income, tourism prices and exchange rates are three factors which are consistently found to influence the demand for international tourism products, a conclusion drawn again in the more recent review by Song et al (2019). The review by Lim (1999) adds transportation costs, which are difficult to measure and often proxied by the travel distance (Lim, 2006). I also use the average temperature at destination of travel to capture the possible impact of long-run climate variations (as done for instance by Hamilton et al, 2005). Finally, I use economic growth as another control variable, as catch-up growth is another important long-run phenomenon which may influence international travel. I will thus use household income, tourism prices, exchange rates and travel distance, temperature as destination and growth rate as control variables. Relative prices and nominal exchange rates will be considered jointly, combining them in real exchange rates.

The resulting regression model is

$$\begin{aligned} A_{ijt} = c + \alpha\, ERET_{jt} + \beta\, OADR_{it} + \gamma\, YADR_{jt} + \\ \rho_1\, GDP_{it} + \rho_2\, RP_{ijt} + \rho_3\, D_{ij} + \rho_4\, TE_{jt} + \rho_5\, g_{it} + \varepsilon_{ijt} \end{aligned} \tag{1}$$

where A_{ijt} is the per capita number of international arrivals from departure country i to destination country j at time t, while the main explanatory variables are the effective retirement age $ERET_{it}$, the old-age dependency ratio $OADR_{it}$ and the young-age dependency ratio $YADR_{it}$, all in the departure country. Control variables are the per capita gross domestic product GDP_{it}, which serves as proxy for household income, relative tourism prices RP_{ijt}, proxied by the real exchange rate, the travel distance D_{ij}, a proxy for transportation costs, the average temperature at destination TE_{jt} and the yearly growth rate (of per capita gross domestic product) in the departure country g_{it}, while ε_{ijt} is an error term.

Without transformation of the variables model (1) is linear. When variables are taken in a logarithm format, (1) is a log-linear model, which provides a gravity model and will be used for the baseline estimation. In this case, coefficients in (1) correspond to elasticities. All variables will thus be considered in their log formats.

4.3 Data

Data availability defines the geographical scope and time horizon of the empirical study. A key piece of information is the actual, effective age of retirement. In many countries, individuals retire at a different age than the statutory retirement age, which defines the age for receiving full public pension payments. Often, households decide to retire before that age, either taking lower benefits or using early-retirement pathways to secure the full benefits. Retiring later also happens, even if it is less frequent. Yet, what matters for travelling in old-age is whether one is actually retired or not, not if one has the theoretical possibility of being in retirement. As data on effective retirement ages is only available for OECD (or affiliated) countries, the baseline scope of the study are OECD (or affiliated) countries for the origin of the international travel, but any country around the world for the destination of the travel. I end up with a dataset covering 38 departure countries, listed in the appendix, and 172 destination countries.

Because international travel was much affected by the COVID19 pandemic, a short-run phenomenon, and the purpose of my analysis is the impact of long-run demographic factors, I only include data until 2018. The data I use on international travel being available from year 2007, the resulting panel dataset covers the years 2007 to 2018.

The main data sources for the empirical analysis are the OECD, the United Nations and the Penn World Table version 10.0 (Feenstra et al, 2015), all publicly available. Descriptive statistics for the key variables of interest, at the aggregate level or per capita, are provided in table 1. Details on data sources are provided in the continuation.

Table 1. Descriptive statistics for the main variables of interest.

Variable	Bilateral	Mean	Std Dev	Min	Max
International travels	X	117,588	771,652	0.1	33,505,900
Per capita international travels	X	0.007	0.03	0.0	0.9
Tourist expenditures	X	137.2	767.5	0	26,992.1
Per capita tourist expenditures	X	7.8	43.9	0	1,715.5
Effective retirement age		63.7	3.2	57.0	73.8
Old-age dependency ratio (%)		23.9	6.7	8.8	48.1
Young-age dependency ratio (%)		26.6	6.3	17.5	49.5
GDP in country of departure		1,572,717	3,282,596	14,318	2,03 E7
Per capita GDP in country of departure		41,256	16,494	11,653	111,502

Notes: for bilateral variables, the value is attached to a couple (country of departure, country of arrival). Aggregate tourist expenditures and GDP data are provided in millions USD. Per capita figures refer to the population size in the country of departure. Values are provided for countries in the regression baseline scope.

International travels: the number of international travels is given by the number of international arrivals from all travelers from one county into another country. It is provided by Euromonitor, who consolidates data from the UN World Tourism Organization (UNWTO). Data comes as a bilateral matrix for each year. International arrivals follow the UNWTO classification and cover all transportation means for all non-resident visitors, excluding same-day visitors. Inbound travels by foreign temporary and permanent workers, in particular, are not counted. As the initial legs of travels are counted but not the return legs, the bilateral matrices are not symmetric.

Tourist expenditures: the total tourist expenditures from all travelers from one country into another country come from Euromonitor, who again consolidates data from the UNWTO. Data comes as a bilateral matrix for every year. Tourist expenditures are valued at the retail selling price paid by the consumer, including sales and excise taxes (except for the US and Canada).

Old-age dependency ratio, young-age dependency ratio: the old-age dependency ratio (number of people aged 65 or more over number of people aged 15 to 64) and the young-age dependency ratio (number of people aged 0 to 14 over number of people aged 15 to 64) all come from the World Population Prospects 2022, published by the population division of the United Nations.

Effective retirement age: the effective retirement age and the average number of years in retirement, averaged over men and women, are publicly available from the OECD (Pensions at a Glance publications).

Population size: the number of residents living in each country of the world for every year is taken from the Penn World Table version 10.0.

Gross domestic product: the expenditure-side real gross domestic product at current purchasing-power-parity (PPP) exchange rates for every country and for every year is taken from the Penn World Table version 10.0.

Relative prices: relative prices between two countries, or the relative cost of living between the two countries, is measured by the purchasing-power-parity (PPP) conversion factor between the two countries divided by the nominal exchange rate. That measure is also known as the real exchange rate. It is taken from the Penn World Table version 10.0, for every year.

Distance: the bilateral distance between two countries is taken as the geodesic distance (combining latitudes and longitudes with the great circle formula) from the most populated city of one country to the most populated city of the other country. The symmetric bilateral distance matrix is taken from CEPII's databases (Mayer and Zignago, 2011).

Average temperature: the average yearly temperature comes from the Climate Change Knowledge Portal, maintained by the World Bank.

5 EMPIRICAL RESULTS

The goal is an estimation of the gravity model defined by equation (1), presented in section 4.2. Given the panel nature of the data, I use a panel estimation technique, choosing between a fixed-effect estimation and a random-effect estimation with the outcome of a Hausman specification test. The resulting p-value associated to the chi-squared statistic from the Hausman test is smaller than 0.005), which suggests the use of a fixed-effect estimation.

The result of the estimation is presented in table 2. Estimated coefficients show that the retirement age and the demographic structure have an impact on international outbound travels and tourist expenditures, all in a statistically significant way.

First of all, the negative coefficients for the effective retirement age show that there are less international outbound departures and associated tourist expenditures in countries where people retire late, on average. Estimated coefficients imply that international outbound departures will decrease on average by 6.9% if the effective retirement age is 10% larger than the sample average. With a sample average of 63.7 years (see table 1), this means than households who retire on average 1 year later will travel abroad less by 1.1% and the corresponding expenditures will by smaller by 1.5%.

Second, the positive coefficient on the old-age dependency ratio (OADR) shows that population aging overall has a positive impact on international outbound travel, consistent with findings in Davoine (2023). According to the estimated coefficient, international outbound departures will increase 13% on average if the fraction of the population which is old is 10% higher (measured by the OADR, the ratio of the number of 65 years old and above over the number of 15 to 64 years old). Estimates also show that both forces that lead to population aging, a fertility decline and an increase in life expectancy, have an impact on international travel. The coefficient on the young-age dependency ratio (YADR) shows that international outbound departures will increase by 4.5% on average if the fraction of children in the population declines by 10% (measured by the YADR, the ratio of the number of individuals aged 0 to 14 over the number of 15 to 64 years old).

Expected signs for other coefficients are found. Per capita GDP, as in other empirical studies, lead to more international outbound departures. Higher prices in the destination, relative to the departure country, reduce international travels to the destination, as expected[4].

Other control variables also matter in the estimation. There are less international departures in fast-growing countries, which can be explained by the fact that households in those countries are too busy working and thus lack time for travel. Table 2 also shows that there are more departures towards countries with a higher average temperature. As departure countries belong to the OECD, they tend to be colder on average than other countries in the world. This may explain why travelers seek higher temperatures.

Because distances do not vary with time, the fixed effect estimation ignores this data and does not provide an estimate for the distance coefficient (ρ_3 in the regression model 1).

[4] The relative price coefficient for the tourism expenditures should be ignored, because of a circularity (endogeneity) question: it is natural that expenditures in the destination country are larger if prices in that country are higher than average. Dedicated econometric methods (such as instrumental variables) are required if the target of the analysis is the impact of relative prices on tourism expenditures, which is not the case here.

Table 2. Impact on international travels and tourist expenditures .

	International travels	Tourist expenditures
Effective retirement age (departure country)	-0.689*** (-5.08)	-0.923*** (-6.23)
Old-age dependency ratio (OADR) (departure country)	1.276*** (45.04)	1.168*** (37.97)
Young-age dependency ratio (YADR) (departure country)	-0.454*** (-11.39)	-0.311*** (-7.15)
GDP/capita (departure country)	0.813*** (39.71)	0.814*** (36.41)
GDP/capita growth (departure country)	-0.016*** (-7.96)	-0.023*** (-10.50)
Average temperature (destination country)	0.102*** (5.34)	0.159*** (7.51)
Relative prices	-0.066*** (-6.47)	0.062*** (5.55)
Constant	-9.704*** (-17.42)	-8.879*** (-14.56)
Model	Gravity	Gravity
Panel	Yes	Yes
Regression	Fixed-effects	Fixed-effects
Years	2007-2018	2007-2018
N	65,006	65,006
Departure countries	38	38
Destination countries	172	172
R^2	0.147	0.123

Notes*:* asterisks indicate significance at the ***1%, **5%, and *10% levels; *t* statistics in parentheses; *N* represents the number of departure-destination country pairs over the time span*; international travels* is expressed in per capita terms for the country of departure; all variables are expressed in logarithm.

6 CONCLUDING REMARKS

The empirical analysis presented in this paper has shown that retirement influences international travel. There are less international departures from OECD countries where the retirement age is high, ceteris paribus, to any country in the world. On average, departures increase by 1.1% if the effective retirement age is lower by 1 year.

Findings have implications for tourism policy makers and operators. Marketing efforts to attract international visitors may be more successful when performed in countries with a low effective retirement age.

APPENDIX

List of departure countries in the baseline regression, with key demographic and retirement data in 2018

Country	YADR	OADR	Effective retirement age
Australia	28.65	23.90	64.80
Austria	21.60	28.06	62.15
Belgium	26.33	29.22	61.05
Canada	24.10	25.70	64.75
Chile	27.67	17.19	68.35
Colombia	32.95	11.45	n/a
Costa Rica	31.31	13.90	n/a
Czech Republic	24.26	29.99	62.25
Denmark	25.83	30.59	63.80
Estonia	25.59	30.77	65.60
Finland	25.79	34.68	63.85
France	28.83	32.84	60.80
Germany	20.81	33.09	63.80
Greece	22.41	33.76	60.85
Hungary	21.93	28.87	61.70
Iceland	28.72	21.18	67.00
Ireland	31.76	21.35	64.85
Israel	46.95	19.12	67.70
Italy	20.72	35.58	62.40
Japan	20.80	49.10	69.95
Latvia	24.36	32.56	65.20
Lithuania	22.84	30.60	63.65
Luxembourg	23.15	20.64	60.90
Mexico	39.61	11.59	68.90
Netherlands	24.49	29.14	63.85
New Zealand	29.93	23.00	68.10
Norway	27.02	26.18	65.10
Poland	22.51	25.55	61.70
Portugal	21.32	33.66	66.95
Slovakia	22.88	23.04	60.50
Slovenia	23.05	29.29	61.60
South Korea	17.53	19.86	72.30
Spain	22.57	29.30	61.70
Sweden	28.38	31.86	65.90
Switzerland	22.50	27.55	65.70
Turkey	35.17	11.14	65.60
United Kingdom	28.08	28.73	64.15
United States	28.79	23.44	67.20

Data sources: see section 4.3

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