

Charles University in Prague

Faculty of Social Sciences
Institute of Economic Studies



BACHELOR THESIS

**Economics of tourism and travel:
comparison on Czech and German
outbound tourism**

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Prague, July 29, 2013

Eva Němečková

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Abstract

The aim of this thesis is to compare tourism flows in two countries, Germany and the Czech Republic. Although there are many articles about tourism demand, almost all of them deal with the case study of just one country and do not engage in intra-country comparison. The first part of the Bachelor thesis introduces the general terms with definitions and statistical classification of tourism demand. The main part of the thesis is dedicated to the econometric research that discovers tourism demand of Germany and the Czech Republic and searches for macroeconomic determinants which may influence the number of outbound holiday trips. The last part summarizes the results that, due to the different living standards in Germany and in the Czech Republic, are interesting and demonstrate that the behaviour of German and Czech tourist varies considerably.

JEL Classification

A12, C23, L83

Keywords

tourism demand, outbound tourism, Germany,
The Czech Republic

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Abstrakt

Cílem této práce je srovnat turistické tendence ve dvou zemích, v Německu a v České republice. Ačkoliv existuje spousta článků o poptávce po cestovním ruchu, téměř všechny z nich pracují s případovou studií jednoho státu a nezabývají se srovnáním dvou zemí. První část bakalářské práce představuje obecné termíny s definicemi a statistickou klasifikací poptávky po cestovním ruchu. Hlavní část práce se věnuje ekonometrickému výzkumu, který charakterizuje poptávku po cestovním ruchu Německa a České republiky a hledá makroekonomické determinanty, které by mohly ovlivňovat počet cest na dovolenou do zahraničí. Poslední část shrnuje výsledky, které jsou díky rozdílné životní úrovni v Německu a v České republice zajímavé a názorně ukazují, že chování německého a českého turistů se značně liší.

Klasifikace

A12, C23, L83

Klíčová slova

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Acronyms

AIDS	Almost Ideal Demand System
ARDL	Autoregressive Distributed Lag Model
BLUE	Best Linear Unbiased Estimator
CGE	Computable General Equilibrium Model
CI	Cointegration
CPI	Consumer Price Index
DRV	Deutscher ReiseVerband
ECM	Error Correction Model
ESA	European System of Accounts
EU	European Union
FE	Fixed Effects
GDP	Gross domestic product
GLS	Generalized Least Squares
I – O	Input – output model
IRTS	International Recommendations for Tourism Statistics
LM	Langrange Multiplier
LSDV	Least Squares Dummy Variable
MRD	Ministry of Regional Development
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
RE	Random Effects

REER	Real Effective Exchange Rate
RP	Relative Price
SICTA	Standart International Classification of Tourism Activities
TSA	Tourism Satellite Account
TSA: RMF	Tourism Satellite Account (TSA): Recommended Methodological Framework
TVP	Time Varying Parameter
UNWTO	United Nations World Tourism Organisation
VAR	Vector Autoregression
WTO	World Tourism Organization

Bachelor Thesis Proposal

Author: Eva Němečková

Supervisor: PhDr. Wadim Strielkowski, Ph.D

Proposed topic:

Economics of tourism and travel: comparison on Czech and German outbound tourism

Goals of the thesis:

The objective of this thesis is to perform economic analysis of Czech and German outbound tourism between years 2003 and 2012 with the use of accessible statistical data.

The research in thesis will be conducted on the basis of German travel association DRV (Deutscher ReiseVerband) data, Czech Statistical Office and Eurostat data. The data used in this Bachelor thesis will include, for instance, the numbers of trips, average expenditures on trips, gross domestic product and unemployment rate of the Czech Republic and Germany.

Using regression analysis my research will help to discover what influences the number of trips and which factors are the key determinants for outbound tourism in both countries.

The Bachelor thesis should be organized along the following guidelines:

1. Introduction
2. Literature review: economic effects of outbound tourism
3. Data and methodology
4. Empirical model and its estimations
5. Conclusions and discussions

The Bachelor thesis should include the comprehensive list of references, as well as the Appendices with statistical data, tables and figures.

Literature used for the Bachelor Thesis Proposal:

Journals and monographs:

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1 Introduction

"The world is a book and those who do not travel read only one page."

– St. Augustine

There exist various general definitions of tourism. One of the first definitions was coined by Hunziker and Krapf (1942). According to Vanhove (2005, p. 2), Hunziker and Krapf's definition describes tourism as: *"being a sum of relations and phenomena resulting from travel and stay of non-residents, in so far a stay does not lead to permanent residence and is not connected with any permanent or temporary earning activity"*. However, this definition was not accurate. For example, it says that a business trip does not classify as tourism because it is an earning activity. Nowadays, one can find many definitions that are clearly set out and contain all of the activities which are included in tourism. It appears to be very important to have an accurate definition because it is what can be used for tourism statistics. According to the United Nations and the World Tourism Organization (1994, p. 5), tourism *"comprises the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes"*, and furthermore, *"refers to all activities of visitors, including both "tourists (over-night visitors)" and "same-day visitors"*. Based on this definition, one can deduce several purposes of visits, not only holidays and business trips, but also visits to our family and friends or study visits, shopping trips and visits for reasons such as concerts, sports activities, festivals, etc.

As Song, Witt and Li (2009, p. 13) comment: *"since the ending of World War II"*, tourism industry has been substantially increasing and therefore tourism became *"one of the largest and fastest growing economic sectors in the world"* (Dwyer and Spurr, 2010, p. 1). Since that time, tourists have also discovered lots of new destinations and have started travelling due to a number of different reasons. Nowadays, tourism forms a fundamental part of our everyday live and additionally, plays an important role in economy, export industry and employment. Therefore, it also represents a very interesting topic worth investigating (using, among all, economic methods), which is why it has been chosen for this Bachelor thesis.

Tourism activity is associated with many sectors such as accommodation, transportation or telecommunications (Dwyer and Spurr, 2010). Tourism Satellite Account (TSA) can help us to measure what role tourism plays in these industries and their activities. TSA was created thanks to organizations like the United Nations, the OECD, the UNWTO and Eurostat (Lejsek, 2009, p. 1). They set a united division and definitions of tourism and thence established a common language for tourism statistics.

This Bachelor thesis is focused mainly on outbound tourism demand. The data of this form of tourism can be found on the official web pages of countries' statistical offices, in case of this thesis the Czech and German Statistical Office. Moreover, data of Eurostat, the OECD and Deutsche ReiseVerband (German Travel Association) are used to compare Czech and German outbound tourism.

TSA contains figures such as numbers of trips or expenditures on them. However, these figures have to be somehow evaluated, and therefore, some economic models are often used. The most common models for estimation of the economic impact of tourism are input-output (I-O) models and computable general equilibrium (CGE) models (Dwyer and Spurr, 2010).

However, the value added of this Bachelor thesis is in comparison the popularity of tourism in Germany and in the Czech Republic, discovering the outbound tourism demand for both countries and thence in comparing tourist behaviour between the two countries in question. For the model of outbound tourism demand, various econometric techniques with diverse types of data are used. To mention some of the most popular techniques, autoregressive distributed lag model (ARDL), almost ideal demand system (AIDS), error correction model (ECM) or time varying parameter model (TVP) can be given as examples (Li and Song, 2007). Nonetheless, as this thesis disposes of panel data, it is decided among three econometric techniques: fixed effects model (FE), random effects model (RE) and pooled ordinary least squares (OLS) regression model. In addition, the thesis also aims at establishing which destinations the Czechs and the Germans visit most often.

The thesis is set around a very timely and novel topic, since very few sources deal with tourism economics in the Czech Republic. This work will fill in many gaps in tourism research using economic methods and an economic approach.

2 Tourism and Importance of Tourism

2.1 Definition of Tourism

It is not so easy to define term “tourism” as many people might think. The efforts to define what tourism might be broadened in the 1940s when tourism gained wide popularity (Inkson and Minnaert, 2012, p. 15). It took about fifty years to devise such an accurate definition which could be used for the purpose of tourism statistics (inspired by the United Nations and the World Tourism Organization, 1994).

One of the first definitions was used by two research pioneers in the field of tourism, Hunziker and Krapf (1942), who, according to Vanhove (2005, p. 2), considered tourism to be *“a sum of relations and phenomena resulting from travel and stay of non-residents, in so far a stay does not lead to permanent residence and is not connected with any permanent or temporary earning activity”*. However, according to their definition, tourism cannot be associated with any earning activity which would mean that if a non-resident travels and stays in a place where she or he is not going to live in for reasons connected with her or his job she or he is paid for, then this trip would not be included in the definition tourism which is not true in reality. Secondly, they do not write anything about purposes of visits, and therefore, someone could object that *“for example a stay in a hospital”* (Vanhove, 2005, p. 2) is a part of tourism.

Burkart and Medlik (1974) introduced an important aspect in the definition of tourism. According to Vanhove (2005, p. 2) who reported on their findings, tourism has the following characteristics:

- “1. Tourism is an amalgam of phenomena and relationships rather than a single one*
- 2. These phenomena and relationships arise from a movement of people to, and stay in, various destinations; there is a dynamic element (the journey) and a static element (the stay)*
- 3. The journey and stay are to and in destinations outside the normal place of residence and work, so that tourism gives rise to activities which are distinct from those of the resident and working populations of the places through which tourists travel and of their destinations*

4. *The movement to the destinations is of a temporary, short-term character*

5. *Destinations are visited for purposes not connected to paid for – that is, not to take up employment“.*

This definition of tourism is much more complex than the one used by Hunziker and Krapf (1942) and was employed while refining the definition by other pioneers or institutions. According to Vanhove (2005, p. 2), the British Tourism Society formed its definition on the basis of Burkart and Medlik (1974) in 1979 and set it out as follows: *“tourism is deemed to include any activity concerned with the temporary short-term movement of people to destinations outside the places where they normally live and work, and their activities during the stay at these destinations“.* This definition is much clearer and is quite close to those ones used for the purposes of tourism statistics.

A report called *“Recommendations on Tourism Statistics“*, an account which was released by the United Nations and the World Tourism Organization (WTO)¹ after the International Conference on Travel and Tourism Statistics in Ottawa in 1991, accepted both the recommendations of the report of the World Tourism Organization on tourism statistics and Standard International Classification of Tourism Activities (SICTA). According to this report by the United Nations and the World Tourism Organization (1994, p. 5), tourism *“comprises the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes“*, and furthermore, *“refers to all activities of visitors, including both tourists (over-night visitors) and same-day visitors“.*

There are also three “forms of tourism” defined in the report:

a) *“Domestic tourism, involving residents of the given country travelling only within this country;*

b) *Inbound tourism, involving non-residents travelling in the given country;*

¹ The World Tourism Organization (WTO) was adopted on September 27, 1970. Stated by the UNWTO (2010), in 2003 the WTO became a specialized body of the United Nations. Then we talk about the United Nations World Tourism Organization (UNWTO).

c) *Outbound tourism, involving residents travelling in another country*".

This thesis focuses on outbound tourism, which means that it attempts to establish which foreign destinations people (in case of this thesis, the Czechs and the Germans) choose to travel to and stay at for a period of time shorter than one year for purposes such as holidays, business, study, shopping, sport activities, concerts, festivals, visiting friends and relatives, etc. The title of this thesis also bears the term „travel“. But what is the actual difference between tourism and travel? According to Eurostat (2012a, p. 18), travel refers to “*activity of travellers*²” while tourism refers to “*activity of visitors*³“. Due to the fact that visitors are “*a subset of travellers*“, tourism is, “*a subset of travel*“. The typical example of a traveller (but not of a visitor) is a person who commutes to work or does driving at work or for work.

In most cases, tourism is viewed from the demand side perspective, i.e. from the perspective of visitors' choices depending on their income, preferences and tourism prices (Song, Witt and Li, 2009). Several studies on that view of tourism, including Halicioglu (2010), Park, Seo and Yu (2009), Hobson and Tse (2010) or Keating and Kriz (2008), exist. The thesis also deals with the demand side of tourism. The supply side of tourism takes into account “*available accommodation capacity (establishments, rooms and bed places) and its occupancy (number of visitor arrivals and overnight stays)*” (Eurostat, 2012b, p. 109), “*food and beverage serving activities, passenger transportation and travel agencies and other reservation activities*” (Eurostat, 2012a, p. 23). To measure the supply, it is necessary to know consumer types and their motivation as it can help to understand what consumers actually require. In other words, tourism is mainly demand driven and supply should adapt to this demand (Johnson and Thomas, 1993). That notion applies to tourism statistics as well. It is supposed that demand statistics are so precisely made that supply statistics can be created according to demand classifications (Eurostat, 1998).

² As stated by Eurostat (2012a, p. 18), a traveller is “*someone who moves between different geographic locations, for any purpose and any duration.*”

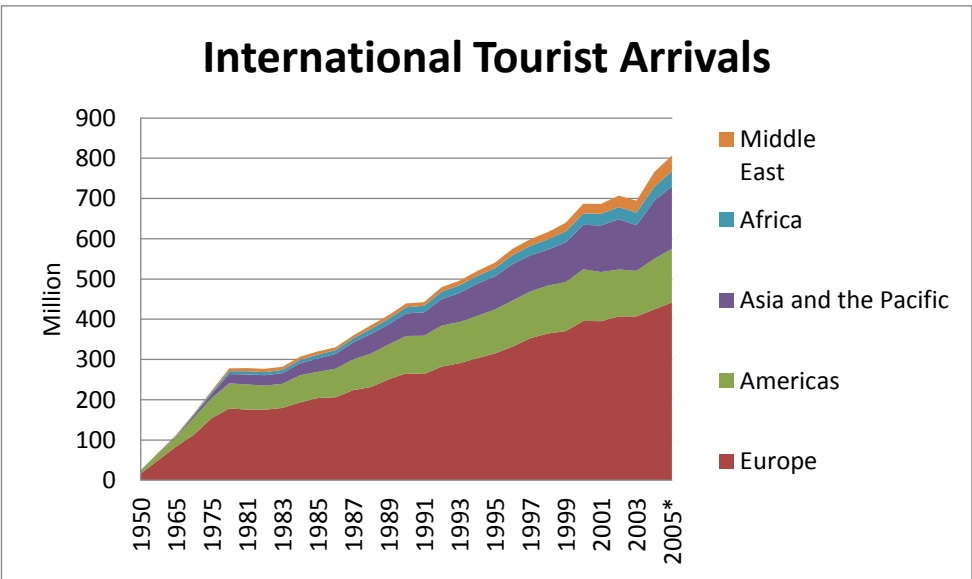
³ A visitor is “*a traveller taking a trip to a main destination outside his/her usual environment, for less than a year, for any main purpose (business, leisure or other personal purpose) other than to be employed by a resident entity in the country or place visited. These trips taken by visitors qualify as tourism trips.*” (Eurostat, 2012a, p.18)

2.2 Tourism Growth and Popularity

According to the UNWTO websites, over the past six decades, tourism has substantially evolved and diversified, and therefore, has become one of the largest and fastest-growing sectors of the economy in the world. Furthermore, a lot of new destinations were found and tourists could have chosen from a great deal of new tourist activities (Johnson and Thomas, 1993). Tourism has started playing an important role in economy, export industry and employment (OECD, 2012).

On the graph 2.1 one can see that the number of international tourist arrivals grew up from 25.3 million in 1950 to 687 million in 2000 (UNWTO, 2006). Additionally, according to the average annual growth rate of 6.5 %, the number of international tourist arrivals was estimated to reach 806.8 million in 2005. The graph 2.1 also shows that international tourist arrivals were growing slower in Europe than in other continents depicted in the graph. The average annual growth rate of Europe (6.5 %) between years 1950 and 2000 was ever smaller than the average annual growth rate of the world (6.8 %) between these years. Regarding international tourism receipts, according to the UNWTO, Europe was the second greatest tourist receiver after the Americas. In 2000, Europe collected 251.7 billion euro on tourism and with the Americas comprised a joint market share of over 76 %.

Figure 2.1: International Tourist Arrivals 2000 – 2005*



Source: UNWTO (2006)

By looking at the numbers in the table 2.1, we can see that concerning outbound tourism, Europe is the most successful generating region. Table 2.1 shows that the number of international tourist arrivals from Europe has been continuously increasing.

Table 2.1: The numbers of international tourist arrivals (million), 1990 - 2004

Outbound Tourism by Generating Region							
	1990	1995	2000	2001	2002	2003	2004
World	441.0	538.1	680.6	680.4	700.4	689.7	763.2
From:							
Europe	252.5	307.2	389.5	390.4	401.6	406.7	431.3
Asia and the Pacific	59.8	88.8	118.3	120.6	130.8	120.6	151.2
Americas	99.3	108	130.7	125.5	121.2	115.4	127.7
Middle East	8.5	10.4	15.2	16.3	18.3	17.9	22
Africa	9.9	13	16.5	16.5	17.6	17.6	18.2
Origin not specified	11.1	10.8	10.5	11.2	10.9	11.5	12.8

Source: UNWTO (2005)

According to the UNWTO (2012), the number of international tourist arrivals from Europe still increases (although the trend has slowed down recently). In 2005, it was 449.2 million, in 2009 476.8 million, in 2010 492.9 million and in 2011 516.6 million, which implies that Europe constitutes even more than a half of international tourist arrivals from the rest of the world (983 million).

Considering international tourism expenditure, according to the UNWTO (2012), Germany recorded the highest level of expenditure on outbound tourism, 78.1 billion US\$ in 2010 and 84.3 billion US\$ in 2011, which is almost 5 billion US\$ more than the United States with its 79.1 billion US\$.

3 Tourism Data

3.1 Methodology of Tourism Satellite Account

In order to compare tourism in particular countries, some unified rules and a system gathering statistics had to be set up. Furthermore, it was necessary to define terms used for statistics purposes so that countries would understand them in the same way, and therefore, the statistics would be comparable with each other (Eurostat, 2011; United Nations, 2010a). This subchapter explains terms and divisions employed in Tourism Satellite Account (TSA)⁴. These terms are also connected with outbound tourism and tourism demand and with this thesis as well.

TSA contains ten tables but most of the countries did not create all of the tables and a full system of tourism statistics so that they would satisfy the System of National Accounts (Eurostat, 2009a). One of the most elaborate tourism statistics can be found in the Czech Republic where nine complete tables were created. In 2009, the ninth table was completed (Lejsek, 2009). This table informs about the position of tourism in national economy in terms of investments. With such a system, that can be called “full-fledged system” (Eurostat, 2009b), it is possible to find the equilibrium between supply and demand of tourism product, and moreover, to show relation between supply and demand in the context of macroeconomic analysis.

Most of the documents and manuals on TSA, such as the *“Tourism Satellite Account: Recommended Methodological Framework (TSA: RMF)”*, the *“European Implementation Manual on Tourism Satellite Account”* or the *“European system of accounts ESA 1995”*, are divided into three main parts: tourism units or basic concepts, the supply perspective of tourism and the demand perspective of tourism. For the objectives of this thesis, it is enough to focus on basic concepts and the demand perspective of tourism.

⁴ Thanks to TSA, the united statistical approach on the basis of the System of National Accounts originated what enabled to compare tourism with other industries and, additionally, to compare the economic contribution of tourism among individual countries owing to unified concepts, classifications and definitions (Eurostat, 2010; Dwyer and Spurr, 2010)

Some basic units of tourism have already been mentioned in the section 1.1 of this thesis - it has been explained what tourism is and that it can be divided into domestic, inbound and outbound tourism, and furthermore, what the difference might be between tourism and travel. It has also been shown that „travel” is a broader term than „tourism“. Moreover, it has been clarified that a traveller is a participant of travel while a visitor is a participant of tourism. However, there exist lots of other divisions and terms with definitions which have not been explained yet. Most of the terms in this thesis will be described in accordance with *”TSA: RMF 2008”*.

The division of tourism into inbound, outbound and domestic is not the only one. We can also classify tourism as internal, national and international. According to the United Nations (1994), internal tourism includes domestic and inbound tourism, national tourism consists of domestic and outbound tourism and international tourism comprises inbound and outbound tourism. For the purposes of the thesis, only national and international tourism will be adopted.

We can also connect visitors with the terms mentioned above. According to the United Nations (2010b), visitors can be classified into either international or domestic. Understanding previous definitions correctly, it is also easy to understand who international and domestic visitors are. The United Nations (2010b, p. 11 and 12) explains them in the following way:

- *“An international traveller qualifies as an international visitor with respect to the country of reference if: (a) he/she is on a tourism trip (see IRTS 2008, para. 2.8) and (b) he/she is a non-resident travelling in the country of reference or a resident travelling outside of it (see IRTS 2008, para. 2.42)”*.
- *“From the perspective of the country of reference, a domestic traveller qualifies as a domestic visitor if: (a) he/she is on a tourism trip and (b) he/she is a resident travelling in the country of reference (see IRTS 2008, para. 2.49)”*.

Focusing on duration of trip, according to the United Nations (2010b, p. 10), we can identify two types of a visitor:

- a) *“tourist (or overnight visitor), if his/her trip includes an overnight stay”*
- b) *“excursionist (or same-day visitor) otherwise”*.

In most cases, excursionists are domestic visitors, but indeed they can also be international visitors, mainly in cases when it is easy to cross the border to another country, for example in the Schengen area.

In tourism statistics, the number of overnight stays also appears as the measure of duration of the trip. This is considered as an important variable. According to both Eurostat (1998, p. 8) and the United Nations (1994, p. 12), the intervals depicted in table 3.1 are suggested as major ones:

Table 3.1: The division of tourism according to the number of overnight stays

Major groups
1. Same-day visitors
2. Tourists from 1 to 3 nights
3. Tourists from 4 to 7 nights
4. Tourists from 8 to 28 nights
5. Tourists from 29 to 91 nights
6. Tourists from 92 to 365 nights

Source: United Nations (1994)

For the purposes of this thesis, we will ignore first two categories since the empirical part focuses on the outbound holiday trips longer than four overnight stays.

The other division of trips is based on the main purpose of the trip. According to the United Nations (2010a, p. 24), the main purposes of a trip means: “*the purpose in the absence of which the trip would not have taken place*“. The information about the main purpose of a trip can be utilized for measuring the main segments of tourism demand for planning, marketing and promotion purposes (United Nations, 1994). According to the United Nations (2010a, p. 24), these categories of the main purposes of a trip are distinguished:

- “1. *Personal*
 - 1.1. *Holidays, leisure and recreation*
 - 1.2. *Visiting friends and relatives*

1.3. Education and training

1.4. Health and medical care

1.5. Religion/pilgrimages

1.6. Shopping

1.7. Transit

1.8. Other

2. Business and professional“.

As already mentioned above, this thesis deals with outbound holiday trips, therefore, both business “trips” and “professional” trips are not included in the research.

Of course, tourism statistics comprises lots of other divisions, such as those according to the means of transport chosen for journey, the type of accommodation or types of “tourism product”. However, these classifications are beyond the scope of this thesis, therefore, we will not focus on them.

The last definition necessary to mention is tourism expenditure. It belongs to one of the most important information in tourism statistics. According to the United Nations (2010a, p. 31), tourism expenditure is defined as *“the amount paid for the acquisition of consumption goods and services as well as valuables, for own use or to give away, for and during tourism trips. It includes expenditures by visitors themselves as well as expenses that are paid for or reimbursed by others”*. Expenditure on outbound tourism assesses how many resident visitors who travel abroad spend there on services which were provided by non-residents (Eurostat, 2011).

3.2 Czech and German Tourism Satellite Account

3.2.1 Czech Tourism Satellite Account

The tourism statistics of the Czech Republic is highly developed and easily available on the website of the Czech Statistical Office (www.czso.cz). The assignment to compile TSA is given in the State Tourism Policy Concept by the Ministry of Regional Development (MRD) which makes tourism policy. However, the Czech Statistical Office is responsible for the compilation of TSA. The Czech Republic also cooperates with organizations such as the UNWTO, the OECD or Eurostat (Eurostat, 2009b).

Looking at the Czech TSA, one can find out that it was first in 1998 that the Czech government assigned the task to create the satellite account to tourism (Lejsek, 2009). Nonetheless, it was not possible to create it due to the missing data. Therefore, between years 2002 and 2004, a feasibility study was performed (Eurostat, 2009). This study implemented the working methods and the base of methodology for creation the Czech TSA in 2003 (Eurostat, 2009b). The first form of national methodology was released at the end of 2004 (Lejsek, 2009). Nevertheless, it was shown that it lacked the credible basis and in the existing underlying data there were such year-on-year differences that it was impossible to explain them. Therefore, several innovations were introduced since 2005, thanks to a higher quality of data basis and inspiration by countries' experience (Eurostat, 2009b). In 2006, new results were introduced on the basis of the renewed methodology and in 2008, new data were also published. In February 2009, the ninth table out of ten was completed, and therefore, we can talk about so-called „full-fledged system” where it is possible to find the equilibrium between supply and demand of tourism product and, moreover, to show relation between supply and demand in the context of macroeconomic analysis. The TSA of the Czech Republic is considered as the comparable account with the accounts of other countries (Lejsek, 2009).

All of the results of TSA are collected annually, however, quarterly data are also provided. There are not any forecasts for future time periods (Eurostat, 2009b). The websites of the Czech Statistical Office offer two forms of tables about domestic and outbound tourism of the Czech Republic. The first form called “*Archive 2003-2010*” lists available data for years from 2003 to 2010. The second form called “*Domestic*

and outbound tourism in the Czech Republic” contains new data for years 2011 and 2012. Earlier data than those from 2003 are not accessible because, as mentioned before, those data were not based on credible sources. All of the data are published only nationally, not regionally. Moreover, direct influence of tourism only is explored there. Indirect effects are not measured and free-time activities neither (Eurostat, 2009b).

For the methodology of the Czech TSA mainly these documents are utilized: *“Tourism Satellite Account: Recommended Methodological Framework”*, *“European Implementation Manual on Tourism Satellite Account”* and the *“European System of Accounts (ESA)”* (Lejsek, 2009). A specific classification for tourism-specific products and industries was created for the Czech Republic. This classification is closely related to the *“TSA: RMF”* (Eurostat, 2009b). For the purpose of this thesis, Table 3 is going to be employed. The table that is related to outbound tourism consumption is divided with regard to categories of visitors and products. The figures gained from surveys are classified on the basis of types of trips (short trips, long trips and business trips) and expenditure as well. The data collected are arranged according to a gender, main purpose, type of accommodation, mode of transport, organization and the length of the trip. These six categories of division are called “aggregations” (Eurostat, 2009b). The data provided are processed for the population older than 15.

To summarize the TSA of the Czech Republic, it is enough to notice that the Czech Republic has a “full-fledged system” which is comparable at the international level, and moreover, all the information is accessible on the Internet websites of the Czech Statistical Office.

3.2.2 German Tourism Satellite Account

Tourism statistics in Germany is not as well arranged and easily accessible as the statistics in the Czech Republic. According to Eurostat (2009b), the responsibility for the creation of TSA lies on the GWS (Gesellschaft für Wirtschaftliche Strukturforchung); more information can be found on its website: www.gws-os.de. Some of the sources can be found on the websites of the Federal Statistical Office of Germany www.destatis.de. However, the figures provided there are quite restricted as the tables about tourism are prepared only for years 2009, 2010 and 2011. Studies with empirical results are also available for downloading, however, unfortunately,

they focus only on inbound tourism. Therefore, for the purposes of this thesis, the statistics of a different organization was selected. German Travel Association, called Deutscher ReiseVerband (DVB) in German, has made comprehensive statistics about outbound tourism since 2004.

The starting point of the TSA in Germany was later than in the Czech Republic. It was not until 2002 that the German pilot TSA study was published. The study tested whether the statistics were feasible according to the national data sources and, additionally, created a pilot TSA (Eurostat, 2009b). The preparation of pilot lasted one year and the Federal Statistical Office assisted until the pilot was implemented. The German Ministry for Economics authorized it and the European Commission helped to finance it. The pilot was completed for year 2000 and was called *“Introduction of a Tourism Satellite System in Germany”* (Eurostat, 2009b). It dealt mainly with the tables of monetary TSA. This pilot was later used while preparing the second study authorized in 2005.

The Methodology of the German TSA can be found in the publication by Gerd Ahler released in 2003. Here one can learn about the methodology, concepts and definitions, and above all, the procedure of screening and compilation is described and the *“TSA-RMF”* tables are analysed. Furthermore, it states the application results and both direct and indirect economic impact of tourism (Eurostat, 2009b).

According to the publication by Gerd Ahler mentioned above, the following tables were considered in creating the TSA of Germany: TSA - Tables 1, 2, 4 (*“Inbound Tourism Consumption by products and category of visitors”*, *“Domestic tourism consumption by products and category of visitors”*, *“Internal tourism consumption by products and type of tourism”*) associated with tourism demand, TSA-Tables 5, 6 (*“Production Accounts of tourism industries and other industries”*, *“Domestic supply and internal tourism consumption by products”*) associated with tourism supply and TSA-Table 7 with information about employment in tourism (Eurostat, 2009b, p. 223). Other tables are not taken into account because of the lack of information. Unfortunately, these statistics are not very helpful for the purposes of this thesis because they include only data not connected with the outbound tourism. Therefore, mainly the statistics of DRV will be used while comparing Czech and German outbound tourism.

3.2.3 Comparison of Czech and German Outbound Tourism Statistics

If one compares the TSA of the Czech Republic and Germany, it can be concluded that the Czech Republic has prepared much more precise statistics that are also available for public on the websites of the Czech Statistical Office www.cszo.cz.

Looking back at the origins of TSA, it becomes apparent that the Czech Republic started to recognize the necessity to make tourism statistics four years earlier than Germany. Moreover, during the time of preparation of the TSA, the Czech Republic achieved better results, maybe due to improving and renewing the methodology of tourism statistics and publishing its renewed and corrected forms.

Focusing on the number of TSA Tables for each country, the Czech Republic with its nine tables out of ten provides a better description of tourism. As Germany misses TSA Table 3, it is not possible to deduce anything about outbound tourism from Germany. As a result, for the objectives of this thesis, the publications by German Travel Association, Deutscher ReiseVerband (DRV), have been chosen.

4 Theory to Outbound Tourism Demand

The rest of this Bachelor thesis is dedicated to the empirical part which describes actualities that might characterize the outbound tourism from Germany and from the Czech Republic. With the use of available data, the econometric research about German and Czech outbound tourism demand will be employed. The aim is to discover the main differences between the behaviour of German and Czech tourism customers. The research focuses only on holiday trips, which means that business and professional trips are ignored.

The empirical part comprises three main parts. This chapter is the introduction to the outbound tourism demand. Firstly, it is going to elaborate on the tables and the graphics to demonstrate how many people travel abroad from the total number of German and Czech tourists and also from the total population each year and how the numbers changed during the observed time, especially how the financial crisis in 2007/2008 influenced the number of tourists. Secondly, the literature review dealing with the econometrics of outbound tourism demand is going to be introduced.

The second chapter of the empirical part, called “Model preparation“, presents the methodology necessary for creation of Czech and German outbound tourism demand, and moreover, it specifies the variables that are utilized in the model and it creates the model of Czech and German outbound tourism demand in its full form.

The last chapter of the research is the evaluation of the results achieved from the stated models. These results will show which of the explored macroeconomic determinants, i.e. the real price of the target destination, the real effective exchange rate, the level of employment and the gross domestic product in both countries, influence the number of outbound holiday trips by the Germans and by the Czechs. It will be also verified whether some important “one-off” events had a positive or a negative impact on the numbers of outbound holiday visits. The outcome of the performed research will enable us to compare the behaviour of German and Czech outbound tourism customers.

4.1 The Importance of Outbound Tourism

As mentioned in the first chapter of this thesis, tourism can be divided into three categories: domestic, inbound and outbound. The table 4.1 depicts the share of the tourists participating in outbound tourism to the total number of tourists in the Czech Republic and in Germany between years 2003 and 2011.

Table 4.1: The share of tourists participating in outbound tourism

Year	Number of tourists (4 or more overnight stays)		Participating in outbound tourism	
	Czech Republic	Germany	Czech Republic	Germany
2003	4 281 504	46 083 000	2 138 158	32 210 000
2004	4 668 378	44 828 000	2 362 940	30 912 000
2005	4 842 954	57 955 228	2 451 302	39 793 943
2006	4 515 035	57 110 828	2 354 279	39 749 356
2007	4 767 847	44 993 362	2 486 104	29 858 969
2008	4 573 947	44 714 533	2 401 654	28 671 102
2009	4 826 585	46 597 527	2 186 924	28 047 454
2010	5 519 196	46 369 410	2 650 394	31 010 368
2011	5 234 794	47 635 092	3 167 567	32 403 831

Source: Eurostat

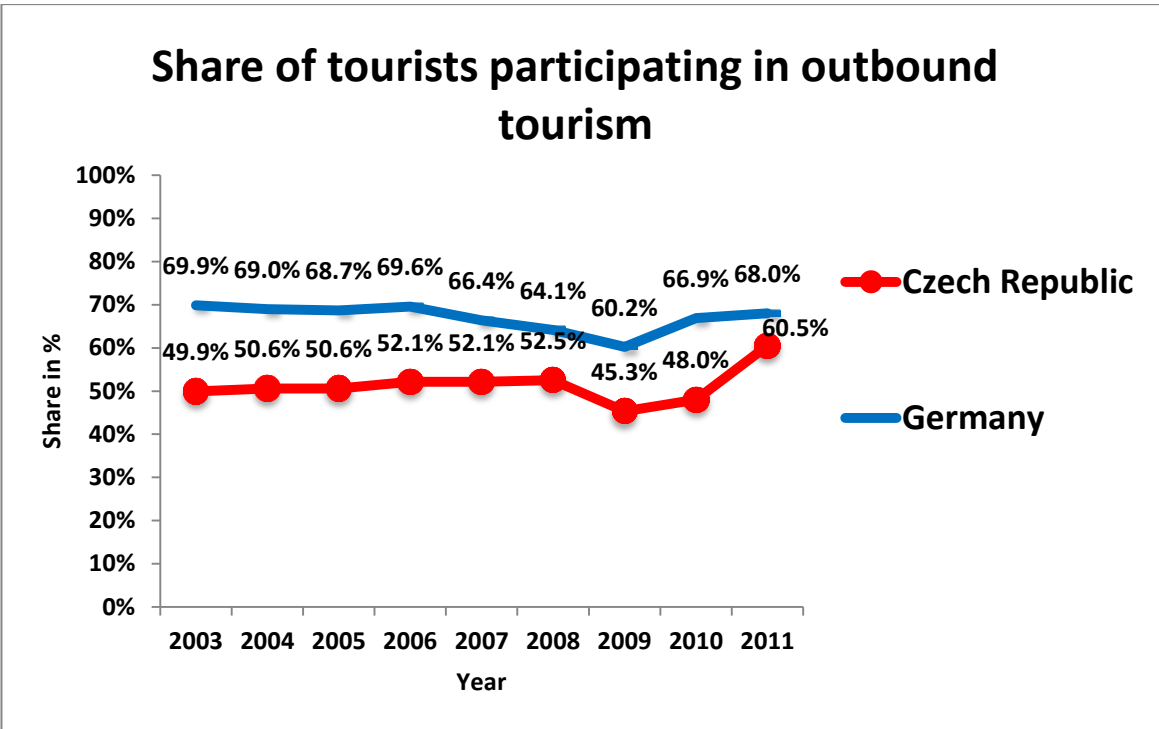
Looking at the total number of tourists, it can be found out that financial crisis might have influenced the numbers of tourists. In Germany the number declined from 57.110.362 to 44.993.362 in 2007 and in the Czech Republic from 4.767.847 to 4.573.947 one year later, in 2008. While the average annual growth rate between years 2003 and 2011 was 1.215 % in Germany and 2.77 % in the Czech Republic, in Germany there was a long-term decline between 2006 and 2008, of 1.457 % in 2006, of 21.2 % in 2007 and of 0.62 % in 2008, then the number started growing but it remained growing only one year (in 2009 growth by 4.21 %) because in 2010, it slightly declined (by 0.49 %), but the number grew by 2.72 % in 2011. In case of the Czech Republic, the fluctuations are not as substantial as in Germany, the number decreased by 6.77 % in 2006, then it grew up by 5.56 % in 2007 and declined by 4.07 % in 2008. The greatest boom can be seen there in 2010 when the number jumped by 14.35 %, but after that, in 2011, there was a reduction by 5.15 %.

To sum up the main results of the numbers mentioned above, the average growth rate of the number of tourists is by 1.55 % greater in the Czech Republic. There are much larger fluctuations in Germany than in the Czech Republic. According to these results, it may be assumed that the Czech clientele is more stable than the German

one. This can be also checked up with the evaluation of Czech and German outbound tourism demand for holiday trips.

The graph 4.1 shows the share of tourists participating in outbound tourism (outbound tourism only or both domestic and outbound tourism) between the observed years (2003 – 2011). It can be seen that the share is greater in Germany than in the Czech Republic. It is about 70 % while in the Czech Republic it is only about 50 %. By graph formation it is also discovered that in Germany the share of tourists participating in outbound tourism started declining earlier than in the Czech Republic. In 2010, in both states the numbers began growing, in Germany back to the numbers that could be observed before and in the Czech Republic even higher, up to 60.5 % although the record in previous years reached 52.1 % at maximum. However, it can be concluded that in all the years Germany had a greater share of people participating in outbound tourism than the Czech Republic, probably due to a higher living standard in Germany.

Figure 4.1: Share of tourists participating in outbound tourism

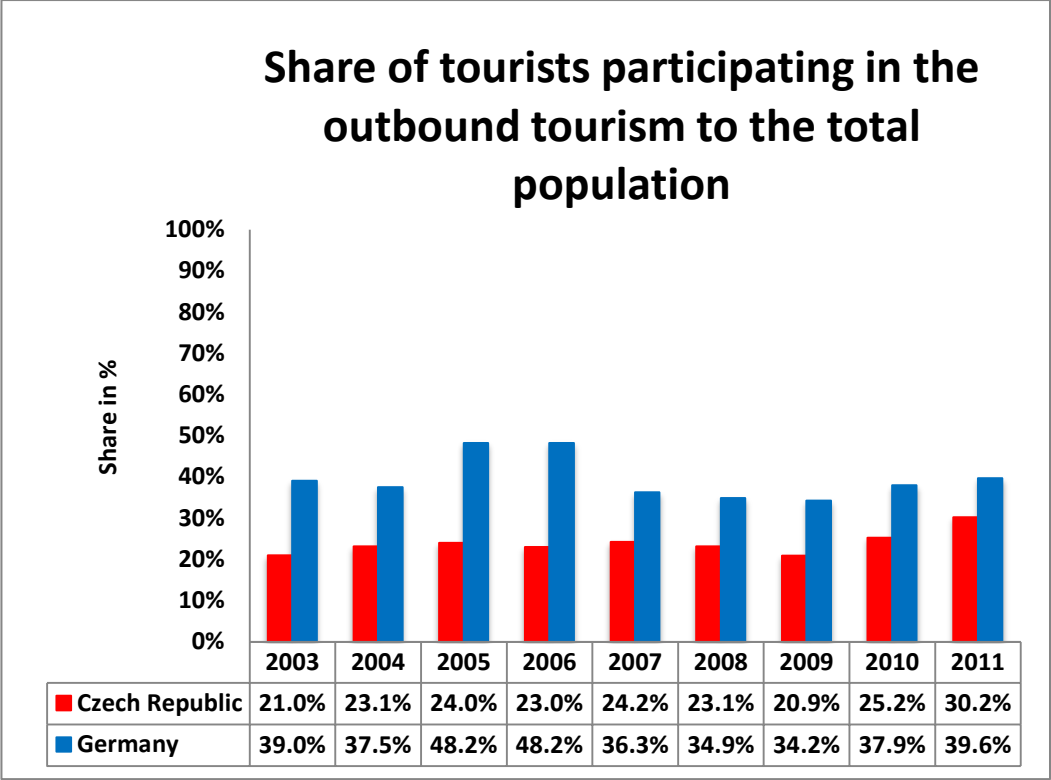


Source: Eurostat

The graph 4.2 depicts the share of tourists participating in the outbound tourism to the total population of the country. It is very clearly seen that much greater shares of tourists spend more than 4 nights abroad in Germany than in the Czech Republic. The largest difference was in 2006, by 25.2 % of the total population. Since 2007, the differences continuously decreased and created about 12 % of the total population. In

2011, the difference between the shares of tourists of the outbound tourism to the population amounted to 9.4 % only. In this year, 30.2 % Czechs afforded to travel abroad for the time same or longer than four overnight stays.

Figure 4.2: Share of tourists participating in the outbound tourism to the total population



Source: Eurostat

4.2 Literature Review

In author’s opinion, tourism is a topic worth investigating among researchers because various papers and studies which deal with this topic exist. As it is written in subchapter 1.1, tourism is mainly demand driven and supply should adopt to demand. It might be a reason why so many papers and studies are focused on tourism demand. The second reason could be the fact that, as it was mentioned in subchapter 1.2, with growing demand for tourism, the interest to discover the tourism demand increased. According to Li and Song (2007), still twenty years before publishing their study *“Tourism demand modelling and forecasting – A review on recent research”*, a very few journals only comprised tourism demand related topics, but by 2007, more than 70 journals with tourism researches had been released.

The studies aiming at tourism demand modelling make use of various econometric techniques. Li and Song (2007) created a well arranged table where these techniques are summarized. They mention e.g. autoregressive distributed lag model (ARDL), almost ideal demand system (AIDS), cointegration (CI), error correction model (ECM), time varying parameter model (TVP) or vector autoregression (VAR). Based on the topic of this Bachelor thesis, the articles by Noor et al. (2008), Muñoz (2005), Liu, Romilly and Song (2000), Park, Seo and Yu (2008), Mello, Pack and Sinclair (1999), Halicioglu (2008), Arsad and Johor (2010), Katafono and Gounder (2004) are of interest.

As far as types of data are concerned, according to Li, Witt and Song (2009), three types of data can be used for tourism demand modelling: time series, cross-sectional and panel data. There also exist three most commonly used frequencies of data collection practiced in studies. These are data collected annually, quarterly and monthly. According to Li, Witt and Song (2009), most studies dispose of annual data, only a quarter of studies use quarterly data (more in recent studies) and the rest of studies employ monthly data.

As this Bachelor thesis is based on annually collected panel data, it ignores the above mentioned econometric techniques and focuses on the right decision to choose one of these three techniques employed in panel data regression models: fixed effects model, random effects model and ordinary least squares (OLS) pooled regression model.

The use of panel data is quite popular in recent studies because it enables us to include more destinations into the model and thence gain more observations and more degrees of freedom and, thanks to these facts, collinearity is reduced and it achieves a greater efficiency of econometric estimates in the model (Li, Song and Li, 2009). Moreover, as panel data contain information both about time-series and cross-section random variables, the problem of omitted variables can be reduced (Pindyck and Rubinfeld, 1998; Hsiao, 2003). The popularity of the application of panel data analysis in studies dealing with tourism demand modelling can be proved by articles by Göçer and Görmüş (2010), Ramos and Rodrigues (2010), Garín Muñoz (2004), Jintranun et al. (2011), Allen and Yap (2009) or Olayinka Idowu (2007).

5 Model Preparation

5.1 Methodology

As already mentioned above, this Bachelor thesis deals with panel data (or longitudinal data; Wooldridge, 2009) that, according to Pindyck and Rubinfeld (1998), can be described as a set including individuals, e.g. households or firms, or in case of this thesis, particular target destinations, over a period of observed time. As a result, it is possible to have several observations on all the observed individuals. In case of panel data set, it is important to survey the same individuals, households, firms, etc. (Wooldridge, 2009). According to Gujarati (2004), models with panel data are more and more employed by researchers in various social science fields.

There exist two most common models with panel data. The first one is called fixed effects (FE) model where dummy variables are added in order to enable the intercepts to change between the units, but not over time, which means that the intercepts are „time invariant” (Pindyck and Rubinfeld, 1998; Li, Song and Li, 2009; Gujarati, 2004). The second one, called random effects (RE) model (or unobserved effects model; Wooldridge, 2009), also enables to have the changing intercepts, but the variation is determined randomly (Li, Song and Witt, 2009). To ascertain which model to use, three tests are employed, “F (Wald) test for fixed effects”, “Breusch-Pagan Lagrange Multiplier (LM) test for random effects” and if these two tests do not show which model to use, “Hausman test for comparing fixed and random effects” is employed to decide between FE and RE (Park, 2010). The null hypothesis of Hausman test says that there is no correlation between fixed or random effect and other independent variables (Park, 2010). The same information can be also expressed with this equation: $Cov(x_{itj}, a_i) = 0$ (Wooldridge, 2009, p. 493). In case the null hypothesis is rejected, RE model does not satisfy Gauss-Markov theorem while FE model remains BLUE (Best Linear Unbiased Estimate), and therefore, is a preferable one. Otherwise, the RE model is chosen as it is asymptotically more efficient (Park, 2011; Wooldridge, 2009).

However, if we do not reject null hypothesis for both F test and Breusch-Pagan LM test, we conclude to use the pooled ordinary least squares (OLS) what proves the fact that the used data set is poolable⁵ (Park, 2010). To confirm the poolability, a special version of Chow test can be used (Park, 2011). To ensure the right method, we follow the guidelines in table 5.1. Nonetheless, according to Wooldridge (2009), a few researchers try to apply all of these methods and then they decide which method to use based on the comparison of significance in the coefficients. But in this thesis, this fact is ignored and it is decided according to the table below.

Table 5.1: Selection options

Fixed effect (F test or Wald test)	Random effect (Breusch-Pagan LM test)	Final model
H ₀ is not rejected	H ₀ is not rejected	Pooled OLS
H ₀ is rejected	H ₀ is not rejected	Fixed effect model
H ₀ is not rejected	H ₀ is rejected	Random effect model
H ₀ is rejected	H ₀ is rejected	Fixed and random effect model (decide based on the result of Hausman test)

Source: Park (2010)

According to Li, Song and Witt (2009), all the above mentioned models have both advantages and disadvantages. The pooled OLS model is easy to estimate, but the assumptions are often restrictive in the real world. The FE model is able to capture units’ differences that cannot be observed, but on the other hand, due to the included dummy variables, there are fewer degrees of freedom and it leads to less efficient estimates compared with the estimates of the RE model. As far as RE model is concerned, it has the advantage of more efficient estimates, but the assumption of no correlation between unobserved affects and independent variables might not be fulfilled and thence the RE model would have meaningless (inconsistent) estimates. In order to distinguish the FE and RE models, they are going to be briefly summarized. The fixed effects model with one explanatory variable is written in the form:

$$y_{it} = \beta_1x_{it} + a_i + u_{it} \text{ where } t=1, 2, \dots, T.$$

⁵ According to Wooldridge (2009, p. 445), “if a random sample is drawn at each time period, pooling the resulting random samples gives us an independently pooled cross sections”.

The variable a_i called “unobserved effect”, “fixed effect” or “unobserved heterogeneity” covers “*unobserved, time-constant factors that affect y_{it}* ” (Wooldridge, 2009, p. 456). The unobserved effect is constant (or fixed) over time. The variable u_{it} signs the error, usually called „idiosyncratic or time-varying error” (Wooldridge, 2009, p. 456) since it contains the unobserved effects changing over time and influencing y_{it} . The unobserved effect and the idiosyncratic error can be expressed both in one error, usually called „composite error”, in the form:

$$\vartheta_{it} = a_i + u_{it} \text{ where } t=1, 2, \dots T.$$

There are three methods how to estimate the fixed effects model: just a pooled OLS where it is necessary to be aware of no correlation between ϑ_{it} and x_{it} , the first-difference estimation and the fixed effects estimation. In last two estimation methods, the correlation between x_{it} and a_i is allowed because the model is reduced by the unobserved effect a_i .

The random effects model looks like the fixed effects model, but there is a difference that a_i is uncorrelated with x_{itj} (all explanatory variables at all periods). This assumption can be rewritten as $Cov(x_{itj}, a_i) = 0$, where $t = 1, 2, \dots, T$ and $j = 1, 2, \dots, k$. Simply, the assumptions of random effects include all the fixed effects assumptions plus the requirement of $Cov(x_{itj}, a_i) = 0$. Moreover, under the assumptions of random effects, the composite error term is “*serially correlated across time*” (Wooldridge, 2009, p. 490). This can be also expressed in the following formula:

$$Corr(\vartheta_{it}, \vartheta_{is}) = \sigma_a^2 / (\sigma_a^2 + \sigma_u^2)$$

where $t \neq s$, $\sigma_a^2 = Var(a_i)$ and $\sigma_u^2 = Var(u_{ti})$.

The generalized least squares (GLS) will be used to solve the problem of serial correlation and to estimate the random effects model. It is assumed that a balanced panel ⁶ is available, even though it is possible to extend the method to unbalanced panel either. The GLS transformation is solved through matrix algebra. The final transformed model which includes

$$\lambda = 1 - [\sigma_a^2 / (\sigma_a^2 + T\sigma_u^2)]^{1/2}, 0 < \lambda < 1, \text{ is}$$

⁶ All the data are available, that means each cross-section unit includes the observations of all years.

$$y_{it} - \lambda \bar{y}_i = \beta_0(1 - \lambda) + \beta_1(x_{it1} - \lambda \bar{x}_{i1}) + \dots + \beta_k(x_{itk} - \lambda \bar{x}_{ik}) + (\vartheta_{it} - \lambda \bar{\vartheta}_i)$$

where the overbar stands for time averages and T denotes the number of time periods. This equation includes “quasi-demeaned data”⁷ (Wooldridge, 2009, p. 490) on all the variables.

5.2 Data and Variables

This Bachelor thesis chooses the most occurred variables suggested by the articles about tourism demand. This part of the chapter describes all selected variables in detail.

The research of this thesis is based mainly on the data received from the Czech Statistical Office (ČSÚ), German Travel Association DRV (Deutscher ReiseVerband) and the official websites by Eurostat. In the further established model a tourism demand variable is chosen as the dependent variable and macroeconomic determinants that might influence the tourism demand are selected as explanatory variables.

As it was mentioned in the subchapter 4.2, the empirical part of the thesis disposes of panel data which are accessible for the Czech Republic and Germany. According to the data prepared by the Czech Statistical Office, it is possible to ascertain the most visited countries by the Czechs. There are both the number of holiday trips and the number of overnight stays available. Summing the numbers, five most visited countries were opted for the purposes of this thesis. It was discovered that the Czechs, taking into account the number of outbound holiday trips, travel most often to Croatia, Spain, Italy, Greece and Slovakia. It can be noticed that four out of five most visited destinations are holiday destinations, thence it is assumed that the Czechs search more for “sunny destinations” than “sight-seeing destinations” only. The same manner of finding the five most visited countries is processed in case of Germany, but, indeed, different data sources are utilized. The association DRV publishes every year since 2004 documents called “*Fakten und Zahlen zum deutschen Reisemarkt*” (Facts and Figures of the German Travel Market) where

⁷ According to Wooldridge (2009, p. 844), “quasi- demeaned data“ include the original data collected for all the observed time periods reduced by a fraction of time averages.

tourism statistics are summarized. Therefore, we are able to gain the numbers of visits to the most visited destinations. For the purposes of this thesis, Spain, Italy, Turkey, Austria and France are adopted as the research countries. Unlike the Czechs, it can be remarked that the Germans look for both “sunny destinations” and “sightseeing destinations” represented neighbouring countries of Germany. Furthermore, it can be also observed that four out of five most visited countries are the countries of the European Monetary Union, therefore, it may be assumed that for the Germans it is more comfortable to travel to countries paying with euro.

After finding five most visited countries, two panel data sets could be created, one for the Czech Republic and one for Germany. The aim of this thesis is to set up the panel data sets of the same structure for the observed countries so that the results for the Czech and German outbound tourism could be comparable. Data needed for the empirical part of this thesis are accessible for years 2003 – 2012 and all of them are used to make a sample as large as possible. The data of such a structure that is used for this thesis are collected annually, which is the reason why this thesis deals with annual data.

5.2.1 Dependent Variable

Tourism demand can be measured in several proxies. The most often used ones are the number of visits, the number of nights spent in the destinations and expenditure on visits (Li, Song and Witt, 2009). However, the number of visits is the most popular variable practiced in studies about tourism demand. As a result, it was also selected for the model of the thesis. The second reason is that, unfortunately, neither expenditure on visits nor the nights spent in the destinations by the Czechs and the Germans in the observed countries are accessible in the full form of data needed for the research of this thesis (for years 2003 – 2012). Only holiday trips are taken into account because they are more interesting to research. It means that in the empirical work of this thesis, business trips, same-day trips and short trips are neglected.

5.2.2 Independent Variables

In tourism demand studies various explanatory variables are applied. For the final model of this thesis, the factors that seem to influence the Czech and German outbound tourism demand are selected. They are summarized and described in detail

in table 5.2(a) and 5.2(b). All of the assumed determinants of the outbound tourism are macroeconomic factors. The further model will show if these variables really have the impact on outbound tourism demand from the Czech Republic and Germany to the selected destinations. Besides, the expected signs of coefficients can also be found in the table. The model will also prove if the expectations are correct or if there appears a specific behaviour of Czech or German tourists.

Table 5.2 (a): Independent variables

Variable	Variable description	Expected sign
Gross domestic product (GDP)	GDP is chosen as a proxy for income which is with price key independent variable in the model (Lim, 1997; Sookmark, 2011). GDP is taken as a normal good since with increasing income people tend to travel more (Göçer and Görmüş, 2010). This thesis uses the form of GDP per capita (in euro), published by Eurostat, which is recalculated into the total GDP according to the current population.	+
Employment Rate	The level of employment might have the great impact on the number of trips. It is expected that as employment rate increases, outbound tourism demand to the chosen destinations rises. The data used are from Eurostat websites. Employment rate is calculated by the division of the number of employed persons at the age of 20 – 64 and the total population at the same age group. The level of employment is expressed in %.	+
Real price of the tourism destination	<p>This variable expresses the real price of the target destination compared with price of the sending country (the Czech Republic or Germany). According to Li, Song and Witt (2009), it is quite difficult to obtain such a measure. It can be also seen in tourism demand literature that various calculations are tried. For this thesis, the calculation used by Liu, Romilly and Song (2010) is chosen. They expressed the real price of the destination based on following formula:</p> $RP = \frac{CPI(dest.)/EX(dest.)}{Deflator(home)/EX(home)}, \text{ where CPI is the consumer price index and EX is the exchange rate to the stated currency. In this thesis, there are used harmonized indexes of consumer prices by Eurostat, exchange rates to Euro by European Central Bank and deflator is counted with data by the World Bank and counted as}$ $deflator = \frac{household\ final\ consumption\ expenditure\ (current\ prices)}{household\ final\ consumption\ expenditure\ (constant\ prices)}.$ <p>The expected sign is minus since as the price of the destination rises, tourists rather spend holiday in the country of their origin.</p>	-

Table 5.2 (b): Independent variables

Variable	Variable description	Expected sign
Real effective exchange rate (REER)	The changes in real effective exchange rates can significantly influence the tourists’ decision. If the price of domestic currency increases, the relative price of foreign currency decreases, thence people tend to travel more abroad. Here, REER index (2005=100) by the World Bank is chosen. This variable is more often used in opposite direction, but, unfortunately, the World Bank does not offer REER indices for all of the observed destinations.	+

Source: Own preparation

In the studies dealing with outbound tourism demand, “one-off” events are included as dummy variables in the model. The studies by Asemota and Bala (2012), Moyo and Ziramba (2013) or Bashagi and Muchapondwa (2009) can be given as examples. The specific events in the target destinations can have a large impact on tourists’ decisions. In this thesis, dummy variables are not included in the original model, but it is going to be checked later if they influence the number of outbound holiday trips or not. Gulf War in Turkey in 2003 (as in the study by Göçer and Görmüş, 2010), Greek debt crisis for years 2010 and 2011 when the situation in Greece could have the negative impact on the number of visits and the bank crisis in Spain in 2012 were chosen as the “one-off” events. It is also going to be checked whether the accession of the Czech Republic to the European Union had the positive impact on the number of trips.

5.3 Model Specification

The data sets incorporate observed data for the destination countries by the Czechs and the Germans from 2003 to 2012. The data sets follow the same structure for both countries so that they could be comparable. For the Czech Republic, Croatia, Spain, Italy, Greece and Slovakia are chosen as the target destinations and for Germany, Spain, Italy, Turkey, Austria and France are considered. Both data sets include information about all the observed years, thence it can be talked about two strongly balanced panel data sets.

There exist two possible options how to deal with panel data. Either all the possible estimations, pooled OLS, FE and RE, are performed, and then the estimation with the best results is chosen as the right one, or it can be tested econometrically which estimation to use. In our panel data analysis, the second option is going to be realized. The procedure lies in two steps plus one more in case the previous two do not prove the particular estimation method. These steps have already been introduced in subchapter 5.1.

The log-log models for Germany and the Czech Republic to be estimated are in the form:

$$\log(DEtrips_{it}) = \beta_0 + \beta_1 \log(DEGDP_{it}) + \beta_2 \log(DERPdestinations_{it}) + \beta_3 \log(DEREER_{it}) + \beta_4 DEEmpRate_{it} + a_i + u_{it}$$

$$\log(CZtrips_{it}) = \beta_0 + \beta_1 \log(CZGDP_{it}) + \beta_2 \log(CZRPdestinations_{it}) + \beta_3 \log(CZREER_{it}) + \beta_4 CZEmpRate_{it} + a_i + u_{it}$$

The log-log form of the model is created as it expresses variables as percentage and it allows us to compare the final results. The only variable that is not in log form is employment rate. This is because employment rate is already expressed as percentage and when the log form is used, the results have to be recalculated. Wooldridge (2009, p. 191) suggests that the variables of a percentage or a proportion such as the participation rate or the unemployment rate can be either in their original form or in log form. Here, the original form was selected so that it should be easier to interpret the results.

As far as subscripts and variables in the model are concerned, $i = 1, 2, \dots, 5$ stands for i th destination, $t = 2003, 2004, \dots, 2012$ for t th year, $DEtrips_{it}$ and $CZtrips_{it}$ for the numbers of holiday trips from Germany and the Czech Republic into the i th destination in t th year, $DEGDP_{it}$ and $CZGDP_{it}$ denote gross domestic products (GDP) for Germany and the Czech Republic in t th year (as Germany and the Czech Republic are sending countries, the information for i th destination does not differ), $DERPdestinations_{it}$ and $CZRPdestinations_{it}$ sign the relative prices of i th target destinations by the Germans and the Czechs in t th years (formula in table 5.2(a)), $DEREER_{it}$ and $CZREER_{it}$ represent real effective exchange rates of Germany

and the Czech Republic in t th year (as Germany and the Czech Republic are sending countries, the information for i th destination does not differ) and $DEEmpRate_{it}$ with $CZEmpRate_{it}$ are employment rates of Germany and the Czech Republic in t th year (as Germany and the Czech Republic are sending countries, the information for i th destination does not differ). The composite error ϑ_{it} includes the unobserved effect a_i and the idiosyncratic error ($\vartheta_{it} = a_i + u_{it}$). The difference between a_i and u_{it} lies in the fact that a_i denotes a cross-section error component while u_{it} stands for the combination of both cross- section and time-series error component (Gujarati, 2004). The component errors a_i and u_{it} are both independently and identically distributed; it can be also written as $a_i \sim iid(0, \sigma_a^2)$ and $u_{it} \sim iid(0, \sigma_u^2)$ (Li, Song and Witt, 2010). If it is decided between FE and RE without any tests, the likely correlation between the unobserved effect and explanatory variables should be recognized. In case of correlation, FE estimation might be suitable, otherwise, RE estimation should be preferred to FE. However, here Wald test, Breusch-Pagan Lagrange Multiplier (LM) test and Hausman test decide which of the estimation methods is appropriate. This Bachelor Thesis supposes that it is enough to run the test analysis procedure for one country as the structure of data is the same and the information is obtained from the same statistical sources. Therefore, the test procedure will evaluate which model to use for the estimation of the effects on German and Czech outbound tourism demand for holiday trips. Moreover, performing the same estimation method for both countries ensures the possibility to compare the results, which is the aim of this thesis.

Concerning Germany, the least squares dummy variable (LSDV) model on that Wald test for fixed effects can be employed looks as:

$$\begin{aligned} \log(DEtrips_{it}) = & \alpha_0 + \alpha_1 D_{Spain} + \alpha_2 D_{Turkey} + \alpha_3 D_{Austria} + \alpha_4 D_{France} \\ & + \beta_1 \log(DEGDP_{it}) + \beta_2 \log(DERPdestinations_{it}) \\ & + \beta_3 \log(DEREER_{it}) + \beta_4 DEEmpRate_{it} + u_{it} \end{aligned}$$

Dummy variables representing the target destination of the Germans are comprised in the model, except for Italy. Dummy on Italy is not included in order to avoid “dummy variable trap” (Gujarati, 2004, p. 642) causing the perfect multicollinearity. The null hypothesis states that all dummy parameters apart from α_0 equal zero:

$$H_0: \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = 0.$$

The alternative hypothesis says that at least one dummy parameter is not zero:

$$H_1: H_0 \text{ does not hold.}$$

If H_0 is rejected, it can be concluded that the fixed effects estimation is preferred to the pooled OLS since the result of rejection H_0 means that in the model either a significant fixed effect or a greater goodness-of-fit appears while performing fixed effects (Park, 2011). By running the OLS regression on the LSDV model of Germany and employing Wald test after that, it is concluded that we reject H_0 at 5 % significance level.

The procedure continues. Breusch-Pagan Lagrange Multiplier LM test showing the existence of random effects gives us these hypotheses:

$$H_0: \sigma_a^2 = 0 \text{ (Corr}(\vartheta_{it}, \vartheta_{is}) = 0)$$

$$H_1: \sigma_a^2 \neq 0 \text{ (Li, Song and Witt, 2010).}$$

If H_0 is rejected, it says that the random effects estimation is preferred to the pooled OLS. By performing LM test for random effects on the tourism demand model of Germany in its original form, it is discovered that the random effect estimation is better than the pooled OLS. As both null hypotheses, of Wald test and of Breusch-Pagan LM test, have been rejected at 5 % significance level which showed that both, the fixed effects estimation and the random effects estimation, could be appropriate to model tourism demand for Germany, we follow the procedure depicted in table 5.1. According to this procedure, we need to check the results of Hausman test in order to choose the correct model.

The main idea of Hausman test is searching for some correlation, if any, between unobserved effects a_i and explanatory variables included in the model. If the random effects are correlated with any independent variable, the random effects model does not satisfy Gaus-Markov assumptions and the fixed effect model is preferred. Otherwise, the random effects model is used as it is asymptotically more efficient. The initial hypotheses of Hausman test are:

$$H_0: Cov(a_i, x_{it}) = 0$$

$$H_1: Cov(a_i, x_{it}) \neq 0.$$

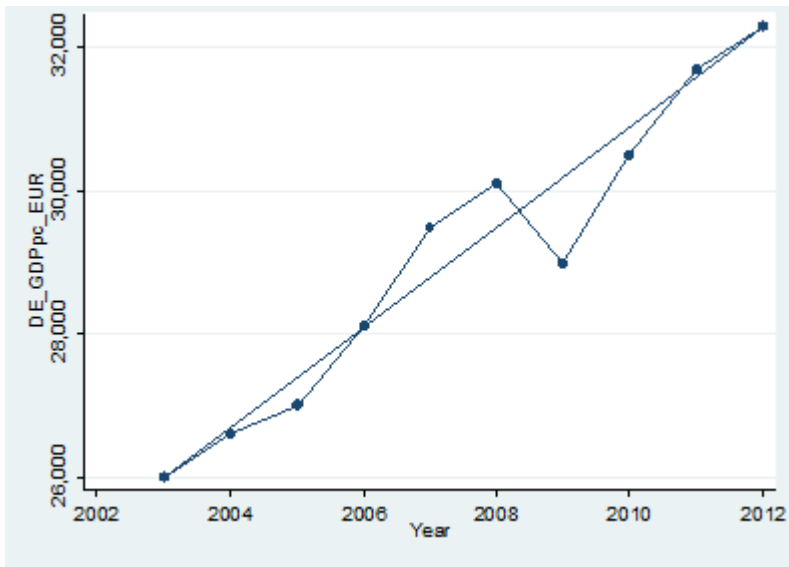
Performing Hausman test on the original model of German outbound tourism demand, it is concluded that the random effects estimation is appropriate.

6 Empirical Results

This chapter shows which of the used macroeconomic determinants, the real price of the target destination, the real effective exchange rate, the employment rate and the gross domestic product, has the significant impact on the number of outbound visits by Czech and German tourists. For the comparison of German and Czech outbound tourism demand, it is predicted that the same econometric technique will be employed as the data of both countries are of the same structure.

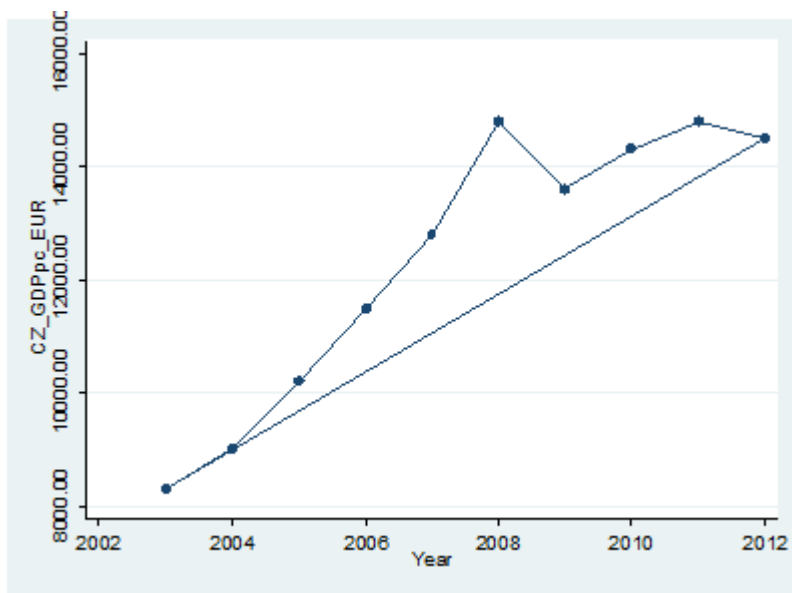
Before evaluating the results, it is necessary to notice important information. It is assumed that the results will differ a lot because Germany is a country with a higher living standard than the Czech Republic. Graphs 6.1(a) and 6.1(b) show GDP per capita in both countries and graphs 6.2(a) and 6.2(b) depict a comparison between employment rates in Germany and in the Czech Republic. However, this fact might lead to interesting results.

Figure 6.1 (a): GDP per capita in euro in Germany



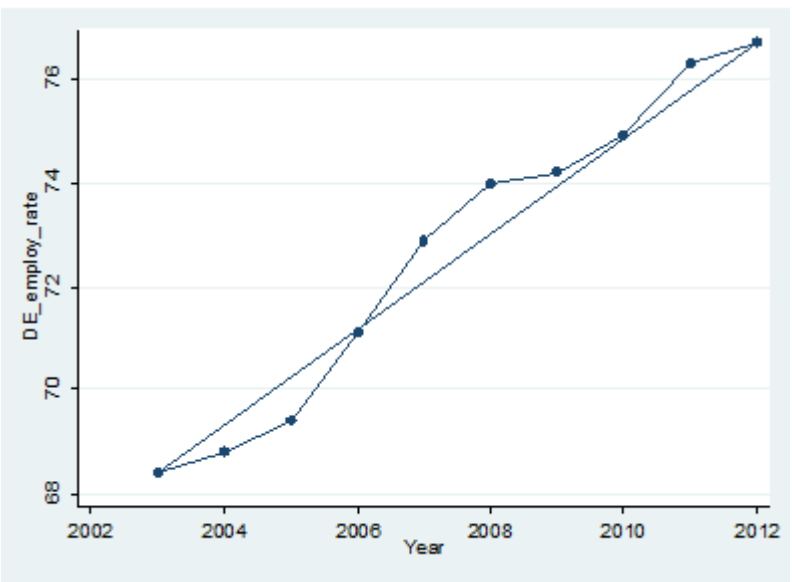
Source: Eurostat

Figure 6.1 (b): GDP per capita in euro in the Czech Republic



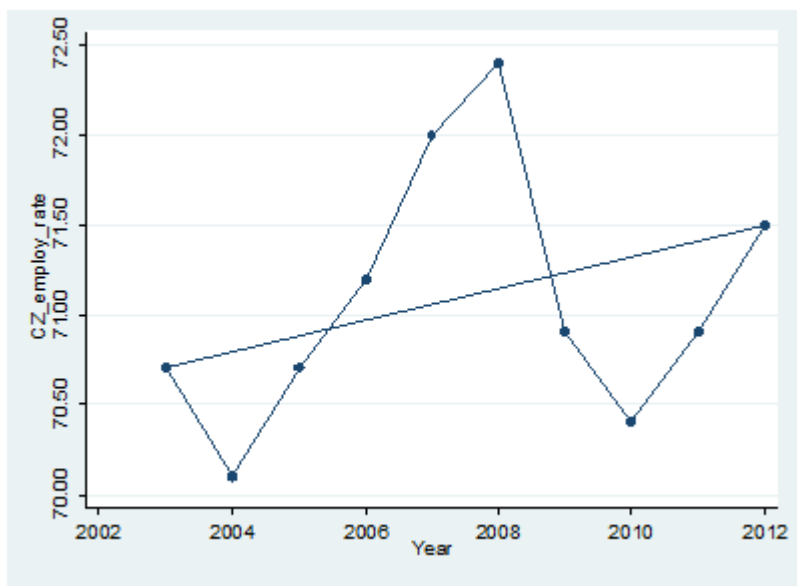
Source: Eurostat

Figure 6.2 (a): Employment rate in % in Germany



Source: Eurostat

Figure 6.2 (b): Employment rate in % in the Czech Republic



Source: Eurostat

6.1 Germany

As the employed test proved, the random effects generalized least squares (GLS) regression is the appropriate method for estimating the already mentioned model:

$$\log(DEtrips_{it}) = \beta_0 + \beta_1 \log(DEGDP_{it}) + \beta_2 \log(DERPdestinations_{it}) + \beta_3 \log(DEREER_{it}) + \beta_4 DEEmpRate_{it} + a_i + u_{it}.$$

The summary of the used data in the model can be seen in the table 6.1.

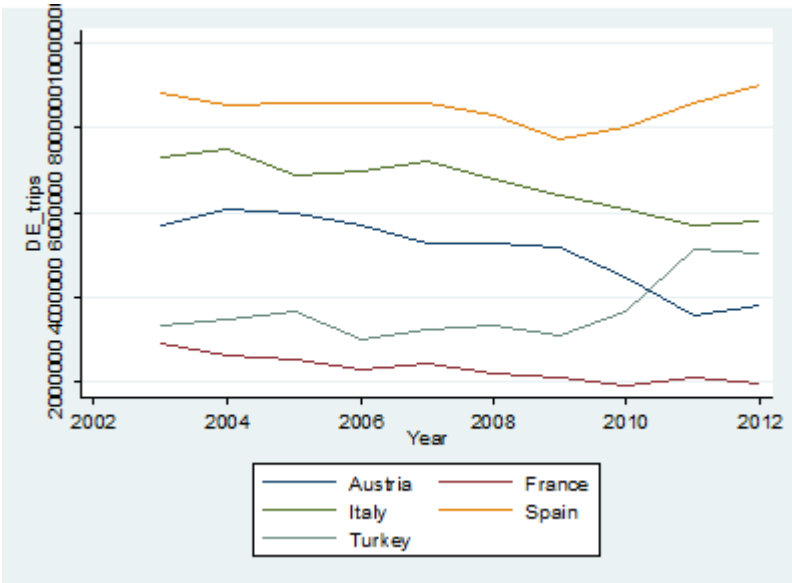
Table 6.1: Summary statistics for Germany

Variable	Mean	Standard Deviation	Minimum	Maximum
log(DEtrips)	15.3676	.4850769	14.45736	16.01373
log(DEGDP)	28.49993	.0675725	28.39461	28.60311
log(DERPdestination)	4.785185	.353854	4.56981	5.908058
log(DEREER)	4.597652	.0284447	4.532599	4.62791
DEEmprate	72.67	2.943706	68.4	76.7

Source: Own calculation

It is also worth looking at the graph 6.3 representing the number of outbound holiday trips from Germany to the Germans' favourite destinations. It can be seen that Spain is definitely the most visited country by the Germans in all the observed years 2003 – 2012. The number of outbound holiday trips is so high because the Germans visit not only the mainland of Spain, but also the islands belonging to Spain, especially the Canary Islands and the Balearic Islands. According to Deutscher Reiseverband (2010), in 2010, 3.3 million Germans spent their holiday on the Balearic Islands and 2.3 million on the Canary Islands. It means that 70 % of all of the outbound holiday trips by the Germans in 2010 were covered by trips to these islands, which also shows a high living standard in Germany. It would also be good to remark that the number of outbound holiday trips by the Germans to Turkey started rapidly increasing after the year 2009. The reasons for that might be both rising popularity of Turkey and lower prices there.

Figure 6.3: Number of outbound holiday trips by the Germans



Source: Eurostat

Running the random effects GLS regression, the coefficients from table 6.2 are gained.

It shows that it achieved two significant coefficients. The coefficient on the relative price of the target destination was proved to be highly significant and the coefficient on the level of employment is significant at the 1 % level of significance. However, the signs of the significant coefficients are quite surprising.

Table 6.2: Random effects GLS regression for Germany

log(DEtrips)	Coefficient	Standart Error	z	P> z
log(DEGDP)	1.46278	1.152772	1.27	0.204
log(DERPdestination)	.6250096	.1112657	5.62	0.000*
log(DEREER)	.0062054	.7157157	0.01	0.993
DEEmprate	-.068761	.0251016	-2.74	0.006*
Constant	-24.34398	32.80099	-0.74	0.458
sigma_u	.57325176			
sigma_e	.10056171			
rho	.97014539 (fraction of variance due to u_i)			

Note: *Significant at the 1 % level of significance

Source: Own calculation

The sign on the relative price of the destination was predicted according to the expectation that the outbound holiday trip is an ordinary good⁸, but it was proved that the outbound holiday trip is viewed by the Germans as a Giffen good⁹. The coefficient on the relative price of the destination indicates that 1 % increase in the relative price of the target destination results in 0.625 % increase in the number of outbound holiday trips. This only proves the very high living standard in Germany which can also be seen in comparison between German and Czech GDP per capita in graphs 6.1(a) and 6.2(b) or in the fact that the Germans prefer the Canary and Balearic Islands to the Spanish mainland, although the first two destinations are more expensive.

⁸ The higher price, the less demanded.

⁹ The higher price, the more demanded.

The coefficient on the employment rate is negative and denotes that 1 % increase in employment rate causes 0.069 % decrease in the number of outbound holiday trips by the Germans. This result was not expected, however, it seems to be interesting, and there exist several explanations for such a result. Firstly, the freshly employed individuals might not be entitled to take any holiday. Secondly, they are afraid of losing the job as it could be problematic to find another. And lastly, at the time when they were unemployed, they were not able to cover their mandatory expenses, therefore, the first salaries from their new jobs are used to pay off these expenses.

Looking at the results in table 6.2, it is also good to remark that it makes sense that the coefficient on the real effective exchange rate was proved to be highly insignificant since four out of five target countries use euro as their national currency, therefore, in this case the variable is quite meaningless. As far as GDP is concerned, it can be seen that the sign of its coefficient is positive, which was expected. Nonetheless, according to the results, GDP does not have a significant impact on the number of outbound holiday trips made by the Germans.

Concerning the goodness-of-fit of the random effects model, the sign ρ from table 6.2 which represents “*the ratio of individual specific error variance to the composite (entire) error variance*” (Park, 2011) can be considered as a measure. The value of 0.97 means that the individual specific error is able to explain 97 % of the composite error ϑ_{it} . θ for our model shows the value of 0.94.

It was also checked by including dummy variables in the model for “one-off” events if Gulf War in Turkey and the bank crisis in Spain had the impact on the number of outbound holiday trips but none of these events was proved to be significant enough.

6.2 The Czech Republic

Assuming, that the outbound tourism demand of the Czech Republic can be estimated based on the same method as that of Germany, we can employ the random effects GLS on:

$$\log(CZtrips_{it}) = \beta_0 + \beta_1 \log(CZGDP_{it}) + \beta_2 \log(CZRPdestinations_{it}) + \beta_3 \log(CZREER_{it}) + \beta_4 CZEmpRate_{it} + a_i + u_{it}.$$

The variables that appear in the model above have the characteristics summarized in table 6.3. As in the case of Germany, we dispose of a strongly balanced panel data set. Nonetheless, some differences can be observed in the numbers. An important remark for our research might be the fact that the Czechs choose cheaper destinations compared with their country of origin than the Germans. Besides, the mean shows that there is a lower employment rate in the Czech Republic than in Germany.

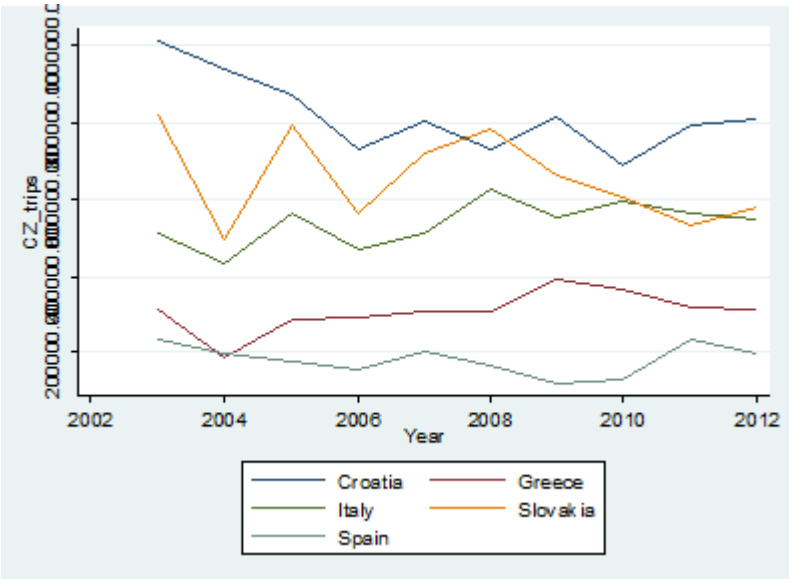
Table 6.3: Summary statistics for the Czech Republic

Variable	Mean	Standard Deviation	Minimum	Maximum
log(CZtrips)	12.97641	.5854548	11.67895	13.82815
log(CZGDP)	25.55653	.2176626	25.16223	25.768
log(CZRPdestination)	2.139138	1.288255	1.116566	4.904895
log(CZREER)	4.71002	.1120826	4.537961	4.833102
CZEmprate	71.08	.6818348	70.1	72.4

Source: Own calculation

The graph 6.4 shows the number of outbound holiday trips by the Czechs to the five most visited countries by them, i.e. Croatia, Italy, Spain, Greece and Slovakia. Unlike the Germans, the Czechs travel most to Croatia. It also agrees with the above mentioned fact that the Czechs choose cheaper destinations as the places for spending their outbound holiday than the Germans. Slovakia represents the second most visited country by the Czech tourists, but the demand for holidays in Slovakia began rapidly decreasing after 2008. The reason for that might be euro adoption in Slovakia in 2009, therefore, travelling to Slovakia became more expensive and the Czechs started searching for a substitute country. Italy might be considered as the substitute country as in the graph one can see the rapid increase of outbound holiday trips to Italy between 2009 and 2010.

Figure 6.4: Number of outbound holiday trips by the Czechs



Source: Eurostat

Table 6.4: Random effects GLS regression for the Czech Republic

log(CZtrips)	Coefficient	Standart Error	z	P> z
log(CZGDP)	.9311274	.6648658	-1.40	0.161
log(CZdestination)	.0448761	.0341057	1.32	0.188
log(CZREER)	1.674734	1.251931	1.34	0.181
CZEmprate	.0569986	.0455682	-1.25	0.211
Constant	24.73731	10.42476	-2.37	0.018
sigma_u	.46944315			
sigma_e	.17198225			
rho	.88166701 (fraction of variance due to u_i)			

Source: Own calculation

Performing the random effects GLS regression, the coefficients from table 6.4 are gained. Looking at the results, it is discovered that none of the coefficients on the explanatory variables proved to be significant. There was an attempt to solve it by omitting individual variables from the model but every time worse results than these

in table 6.4 were achieved. Therefore, the problem was tried to be solved by employing the fixed effects estimation on the same model, but it was not efficient enough to get some significant coefficients on the used explanatory variables. On the contrary, the p-values were higher. The last step was adding dummy variables for “one-off” events, i.e. Greek debt crisis, Spanish bank crisis and the Czech accession to the European Union. Unfortunately, these variables did not help to improve the model and were proved to be meaningless.

According to the results in table 6.4, the Czech clients do not react even to the change in GDP, and even in the recession. The employment rate does not show an important relationship to the number of outbound holiday trips made by the Czechs and the price of the destination with the real effective exchange rate is not significant either. The Czech clients are not hindered by any “one-off” events, as Greek debt crisis, Spanish bank crisis and the Czech accession to the European Union.

From the point of willingness to travel abroad, the Czech clientele can be characterized as stable and the number of outbound holiday trips by the Czechs is not affected by the current level of economic recession. It can also be verified by not much exact method of media analysis. Actually, Czech tourists are willing either to reduce the standard of services which they use or to shorten the number of days spent at the holiday destination.

It can be deduced that the Czech clients do not have either to reduce their demands on the visit abroad or shorten the number of days spent on holiday, but the savings are created in the different way, e.g. the client cuts down on her or his own consumption.

It is possible that the above mentioned facts could be proved by using expenses on outbound holiday trips as the dependent variable in the model. Unfortunately, this parameter is not available in any information portfolio. We are only able to obtain the total expenditures by the Czechs and the Germans on the outbound holiday trips on the Eurostat website, but unfortunately, we cannot monitor the expenditures to particular destinations.

6.3 German and Czech Outbound Tourism Demand

Based on the previous findings, it appears to be useful to conduct a thorough evaluation of differences and similarities between German and Czech outbound tourism.

- Economic efficiency

According to the long-term comparison, one can deduce that the Czech GDP per capita constitutes only about 45 % of the German GDP per capita. This actuality has also its share in the willingness of the clients of German travel agencies to take advantage of high-quality and longer recreation in more attractive destinations and including air transportation. On the contrary, Czech clients prefer to save and to go to closer destinations that allows travelling by own means of transportation (e.g. own vehicle).

- “Historical” factor

The tourist from the Western Germany has developed inherently without any interruptions since the end of WWII, while the Czech clientele was very restricted in terms of the selection of countries, categories, and transportation until 1989. Nowadays, with regard to the countries' choice, Czech tourists try to get to the level of European clientele, but of course take into account the economic opportunities of the Czech Republic.

- Transportation

Considering German extensive international airports with their geographically optimal layout, it is clear that German tourist uses airplane as the main means of transport. The competition of a large number of air offers increases the availability of this form of transportation in Germany. Czech tourists, unlike German ones, are limited in the selection of air offers of travel agencies, as far as 72 % of these offers are flights from Václav Havel Airport in Prague. The fact that in the Czech Republic travelling by air is much more expensive than travelling by other means of transport is also the reason why the Czechs do not often take advantage of the flights from the Czech Republic and prefer the offers of German travel agencies and thence fly from one of the German international airports. It appears that German tourists are willing

to pay more for more comfortable journey. Comparing transportation costs the above mentioned fact would be undoubtedly proved. As a result, final costs of German outbound holidays are the same as the costs of the Czech Republic but the Germans can enjoy for the same price much higher quality. Unfortunately, the data on transportation costs are not available therefore it is not possible to prove this mentioned fact econometrically.

- Travelling with travel agencies

Due to a considerably larger market of Germany, the Germans can choose from greater and more diversified offers, regarding price ranges, target destinations, services and categories of accommodation. German travel agencies do not sell the offers of Czech travel agencies.

Czech tourism market is more restricted and more expensive, but it offers alternative modes of transportation to the chosen destinations (e.g. bus, car). Czech travel agencies do often sell the offers of German travel agencies and at the time of economic recession, there are more and more travel agencies that provide transportation to German airports free of charge. However, some Czech clients realize that these travel agencies profit from margins. Therefore, they decide to buy direct offers of German travel agencies and to travel at their own expense with these agencies.

- Clientele's age structure

Stabilized and developed tourism market of Germany focuses also on specific features of young clientele that requires different service and entertainment during holiday stays abroad. The offer respects the unwillingness of young tourists to spend holiday with their own parents. In the Czech Republic this fact is neglected.

Most of the above mentioned factors have been deduced from the author's previous findings. However, they are difficult to measure and are related to psychological aspects. The research of these aspects would require an independent questionnaire survey with a sufficiently relevant sample of respondents. Nonetheless, this task is beyond the scope of this Bachelor thesis and might be used as the topic of further research related on Czech and German outbound tourism flows.

7 Conclusion

This Bachelor thesis is dedicated to the economics of tourism and travel with a focus on travelling abroad. The aim of the thesis is to establish the comparison of the outbound tourism demand in two countries, Germany and the Czech Republic. As these countries have different living standards, although both are members of the European Union, the results also vary and it is the reason why this research was worth investigating.

The first section of the thesis is concentrated on the general overview of the international tourism. It reveals the origins of the “tourism” definition and how the definition had been developed until it could be used for the purposes of tourism statistics. It is also explained that after the end of WWII tourism started to grow in popularity and the number of international visitors rapidly increased. Europe is the “winner” of the outbound tourism with regard to the number of international tourist arrivals, therefore, it is the continent worth researching.

The second theoretical part of the thesis includes the information about what Tourism Satellite Account is. It is the system of definitions, classifications and rules how tourism statistics should be compiled. The development of tourism statistics differs among particular countries. Germany and the Czech Republic were chosen as a demonstration. The Czech Republic can be proud of the “full – fledged” system of tourism statistics while Germany does focus on the domestic and inbound tourism and it ignores the outbound tourism, which put a question to the research part of this thesis. As the official statistics of Germany does not include any data about the outbound tourism demand, the thesis uses tourism statistics prepared by Deutscher ReiseVerband (German Travel Association).

As far as the empirical section of the thesis is concerned, it is divided into three chapters. The first chapter deals with the percentage of tourists participating in outbound tourism to the total number of tourists in Germany and in the Czech Republic and with the percentage of the visitors travelling abroad to the total population of Germany and the Czech Republic. This information aims at discovering

the popularity of the outbound tourism in Germany and in the Czech Republic. The thesis takes into account only outbound holiday, which means that it ignores business trips and professional trips. They “one-day” trips are neglected since, firstly, the data necessary for the research are not accessible, and secondly, the number of business and professional trips would totally change the numbers of outbound visits to the particular destinations, and therefore, the sample of researched target destinations as well. It would be a shame as it is more interesting to investigate “holiday” destinations than the neighbouring countries only. The chapter also introduces the literature review related to outbound tourism demand.

The second chapter of the research part of the thesis presents the theory necessary for the model creation. Since we dispose of two panel data sets of the same structure, it is assumed that the same econometric technique, random effects estimation, fixed effects estimation or pooled OLS procedure, will be employed in order to create absolutely same models for both countries and then to be able to compare the results. The intended determinants include the gross domestic product, the real effective exchange rate, the real price of the destination and the employment rate. The number of holiday trips to the five most visited destinations by the Czechs and the Germans is chosen as the dependent variable describing the outbound tourism demand. The random effects estimation is proved to be the best estimation method for the description of the outbound tourism model.

The last chapter of the research shows the results, individually for Germany and for the Czech Republic. The results do not correspond to the expectations. Nonetheless, they are very interesting and demonstrate that the behaviour of German and Czech tourist is absolutely different. The Germans look at the outbound holiday trip as at a Giffen good which verifies the high living standard in Germany. Moreover, 1 % increase in the level of employment causes 0.069 % decrease in the number of outbound holiday trips. It can be explained by three facts. Firstly, the freshly employed people might not have any claim to take a holiday. Secondly, the people who successfully found the job might be afraid of losing it, and lastly, they have to cover their mandatory expenses at first and cannot afford to travel abroad. According to the results of the outbound tourism demand for the Czechs, it is concluded that Czech clients are not affected by any macroeconomic determinant chosen for the

research. As far as “one-off” events are concerned, neither the Czech outbound tourism demand nor the German outbound tourism demand is influenced.

To sum up the outcome of the research employed in the thesis, one can deduce that some of the expected determinants of the number of outbound tourism visits were proved to have the impact on the outbound tourism demand, but only in Germany. On the contrary, the Czech clientele prefers to travel to the chosen target destinations independently on the gross domestic product, the real effective exchange rate, the employment rate and the real price of the destination. Therefore, it is possible to accept just one explanation which is difficult to measure and which leans on the psychological view of the tourists’ behaviour. However, this explanation is beyond the scope of this thesis. Indeed, Czech customers go abroad for their holiday even if they have to save in other areas or if they have to reduce the amount of time spent at the holiday destination.

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