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Economic Aspects of Cigarette Consumption

Bachelor Thesis

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Declaration

I hereby declare, that this bachelor thesis entitled *õEconomical aspects of cigarette consumption,ö* is my own work and all the sources have been quoted and acknowledged by means of complete references.

In Prague, 25 of April 2014

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Veronique Pila ová

Acknowledgement

First of all I would like to thank to my bachelor thesis supervisor, Ing.Vladimír Verner, Ph.D. for expert guidance and numerous valuable advices, suggestions and support during writing of this thesis.

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Abstract

Ever since the tobacco was discovered in the New World, the smoking has become one of the favorite activities throughout the whole world. As the world has become interconnected and globalized, the cigarette smoking gradually spreaded to all continents and to all social classes. This bachelor thesis deals with economic aspects of cigarette consumption, while the goal was to investigate wheather any correlation exists between economic development of particular country and the cigarette consumption. Based on available data from World Health Organization (WHO) and World Bank (WB) etc., period from 1990 to 2009 was chosen. This period was further separated into the years 1990, 1995, 2000, 2005, 2009 and into 9 regions containing 89 countries from all around the world. Questions to investigate in this thesis were: Is it possible to trace down tangible correlations between per capita GDP and per capita cigarette consumption? Do secondary factors such as world events or legislative regulations influence the number of consumed cigarettes per capita? Our results showed that higher GDP per capita indicates slightly higher per capita cigarette consumption however the correlation between per capita GDP and per capita cigarette consumption is positive, but rather weak. Correspondingly, the cigarettes consumption decreases only minimally with decreasing GDP per capita. It is also possible to conclude that decreasing GDP per capita does not influence strongly the amount of smoked cigarettes per capita and vise versa. The final conclusion also showed that the cigarette consumption was influenced more by worldwide events and other factors than economic ones, especially by GDP per capita. These events and factors influenced not only the vast number of inhabitants, but also political decisions and worldwide trends. Between concrete factors, we could include for example legislation and marketing strategies of suppliers, particuary price, size of cigarette packets and the enlightenment aspects, which played even more significant role in decrease of cigarette consumption per capita.

Abstrakt

Od doby, kdy tabák byl objeven v Novém sv t , se kou ení stalo jednou z nejpopulárn j ích aktivit na celém sv t . Jak se sv t stával propojen j í a globáln j í, tak se kou ení cigaret postupn í ilo na v echny kontinenty a do v ech sociálních vrstev. Tato bakalá ská práce pojednává o ekonomických aspektech spot eby cigaret. Cílem této práce bylo vyzkoumat, jestli existuje korelace mezi ekonomickým vývojem dané zem a spot ebou cigaret. Práce je zalo ená na dostupných datech z databází Sv tové zdravotnické organizace (WHO) a Sv tové banky (WB) a dal ích, v období od roku 1990 do roku 2009. Toto období bylo dále rozd leno do rok 1990, 1995, 2000, 2005, 2009 a do 9 region obsahující 89 zemí z celého sv ta. Výzkumné otázky v této práci byly: Je mo né vysledovat konkrétní korelaci mezi HDP na obyvatele a spot ebou cigaret na obyvatele? Ovliv ují druhotné faktory, jako sv tové události nebo legislativní omezení, mno ství konzumovaných cigaret na obyvatele? Záv re né výsledky ukázaly, e vy í HDP na obyvatele, znamená lehce vy í spot ebu cigaret na obyvatele, a tato korelace mezi HDP na obyvatele a spot ebou cigaret na obyvatele je kladná, i kdy spí e slabá. Zárove se spot eba cigaret sni uje pouze minimáln se sni ujícím se HDP na obyvatele. Také lze íci, e sni ující se HDP na obyvatele neovliv uje významn po et vykou ených cigaret na obyvatele a obrácen . Výsledky práce rovn ukázaly, e spot eba cigaret byla více ovlivn na celosv tovými událostmi a jinými faktory ne ekonomickými, tedy ne HDP na obyvatele. Tyto události a faktory ovlivnily nejen obrovský po et obyvatel, ale i politická rozhodnutí a celosv tové trendy. Mezi konkrétní faktory m eme za adit nap íklad legislativu a marketingové strategie dodavatel , zejména cenu, velikost krabi ky cigaret a aspekty osv ty, které hrály velmi významnou roli ve sni ování spot eby cigaret na obyvatele.

Klíová slova: HDP na obyvatele, populace, spoteba cigaret, tabák, kouení, historický pohled

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List of Abbreviations

COLAT	Comisión Nacional Permanente de Lucha Antitabáquica (Permanent National Committee for the Fight against smoking)
EU	European Union
GDP	Gross domestic product
MPI	Migration Policy Institute
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing power parity
USA	United States of America
US dollars	United States dollar
WB	World Bank
WHO	World Health Organization

1 Introduction

Ever since, the tobacco was discovered in the New World, today's America, by Christopher Columbus, the smoking has become one of the favorite activities throughout the whole world. As the world has become interconnected and globalized, the cigarette smoking gradually spread to all continents and to all social classes.

This bachelor thesis deals with õEconomic Aspects of Cigarette Consumptionö. The primary question to investigate in this thesis is to determine whether it is possible to trace down tangible trends in the usage of cigarettes. One of the examined trends focuses on the extend of demographic growth among the 9 examined regions all over the world. The second is the average number of cigarettes consumed during the 19 examined years. The next trend is the correlation between GDP per capita and the number of consumed cigarettes per capita. The thesis will primarily focus on analyzing following research questions:

1) Is it possible to trace down tangible correlations between GDP per capita and cigarette consumption[1] per capita?
2) Do secondary factors such as world events or legislative regulations influence the number of consumed cigarettes per capita?

Above stated research questions are leading to more narrow definition of my bachelor thesis, thus to better understanding of researched problems. First research question deals with tracking of GDP per capita trends, economic situation of each country, and tries to analyse, how GDP influences the amount of smoked cigarettes per capita. The answer, to this research question, can in the future serve as an indicator to better understanding and trends anticipation of future cigarette consumption. The second research question was defined mainly for the purpose to find out, if consumption of cigarettes is being influenced

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1 Cigarette consumption per capita does not include the smoking of cigars, pipes and cigarillos. They are excluded because of the difficulty in establishing consumption equivalences between cigars and pipe tobacco that have widely varying tobacco contents and cigarettes, which have reasonably uniform tobacco content (DataInfo+ Explore our metadata, 2013). Typically, a cigarette weighs approximately 1gram, of which the tobacco content can vary between 65 and 100 %, depending on the type of cigarette (Helgi Library, 2009).

apart from GDP (and social aspects also by other external factors), and if they do, how these factors influence cigarette consumption per capita. Whith this research question we should be able to explain, why the development in some countries or researched regions is not corresponding to universal trends previously mentioned in the research questions. All of the sources are mainly in the form of worldwide health organizations studies, statistical institutions of individual states, world datababases, and encyclopedias focused on smoking and tobacco. For explanation of some researched aspects different sources are used, for example legislative laws and regulations and professional publications. In each part of researched period, this thesis examines the relation between data and historical world events.

In the next chapter the aims of this thesis are presented, followed by Methodology section (Chapter 3), where the research methods with their limitations and the work progress are described. Further follows chapter number 4, Theoretical framework, where the literature review is presented and main factors used by this thesis such as population, GDP and cigarettes per capita are defined. Chapter number 4 further aims on short introduction of tobacco and cigarettes and history of their expansion throughout the whole world. In the sections of thesis marked as chapters 5 we focuses on actual researched data and different examined periods (1990, 1995, 2000, 2005, 2009) in all regions. In every region the lowering and rising curve of the population is tracked, the same as trends in the amount of smoked cigarettes per capita and the correlation between GDP per capita and cigarette consumption per capita. The analysis of these trends and explanation of abnormalities is provided in the context of world events as other externalities. In the thesis conclusion the main findings, of this thesis, are summarized and the answers to above stated research questions are provided.

2 Aims of the Thesis

The goal of this thesis is to investigate if there is a correlation between economic aspects with the influence of cigarette consumption (per capita), in the period from 1990 to 2009. In the researched period we are tracking the cigarette consumption per capita, GDP per capita and demographic growth in all regions to the extent, allowed by the accessible data.

3 Methodology

This chapter summarizes the research methodology and work progress. The goal of the thesis is to trace down the impacts of economic aspects on the amount of smoked cigarettes per capita in the period from 1990 to 2009[2] in 9 regions containing countries from all around the world.

Each examined period (year 1990, 1995, 2000, 2005, 2009) was selected because of data base compactness for majority of examined countries. This enables us to objectively consider worldwide trends in the cigarette consumption per capita and to simultaneously assess conclusions about relation and correlation between individual examined factors, however, via shorter time series. Another reason for the selection of this relatively extensive time period is the possibility to follow long-time trends in population changes, in GDP per capita and cigarette consumption per capita and at the same time the possibility to eliminate short fluctuations caused by inaccuracy in measuring or smaller local events. The worldwide focus of this thesis is given mainly by globalization, which leads to region interconnections. Therefore it is not possible to rule out impacts of events in one region on examined factors in other regions.

In the following parts of our thesis, we focus on the correlation comparison between the two variables, i.e. GDP per capita and cigarette consumption per capita. During the entire analysis, we work with data from the Annexe 1, which is available in Annexes and constitutes an integral source of information for all examined periods. At the starting point of this analysis, the selection of states was made by data availability, and only those states were selected, that had the majority of data available in all periods and all categories[3]. No major problems were encountered with the data availability for the first two factors. However, because of the lack of numbers for the cigarette consumption per capita, the

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2 Before the year 1990 the consumption of cigarettes per capita was not actually examined methodically and worldwide or most of the data were missing such as in The Tobacco Control Country Profiles (2003). After this period, that is after 2009, the data of cigarette consumption per capita have not been published yet, therefore, the data could not be used in the analysis.

3 That means GDP per capita (PPP) counted in US dollars, population counted in millions and cigarette consumption per capita counted in cigarette sticks.

number of states was limited to the countries with this type of data available for at least three of the five examined periods. For further analysis, in total 89[4] states were chosen, which were further separated into regions, according to their geographical and economic affiliation[5]. For better overwiev see the Figure 1. Overall, our database is divided into 9 groups[6] called regions. First region contains 35 countries from different parts of the world, which are classified as Developed countries according to the level of their socio-economic development. The second region includes 9 countries of Northern Africa and Middle East Asia. The third region is Sub-Saharan Africa, which is constituted from 11 countries of South Africa. The region Latin America and the Caribbean consists of 16 countries in total. Further follow two smaller regions. One contains 6 countries from South Asia and the second one 5 countries from South-Eastern Asia. Fiji and Solomon Islands create Oceania region and 3 Asian countries (Azerbaijan, Kazakhstan, and Uzbekistan) constitute the Countries in Transition region. China is very specific state, and therefore it is necessary to analyse it separately.

These 9 regions in total form our database for individual research periods. At the starting point, which is the year 1990, we can only state initial level of population, GDP per capita and cigarette consumption per capita. In the four periods that follow we will be analysing changes between each of the two time points (1990-1995, 1995-2000, 2000-2005, 2005-2009). In each period worldwide trends will be analysed first. After that, individual regions will be examined and finally countries, which in some way defy trends in their particular region, will be dealt with. Firstly we will follow the demographic trends, so it would be possible to define relation between GDP per capita and cigarette consumption per capita.

Next sections will contain the actual data of cigarette consumption per capita and GDP per capita. These data will be first averaged worldwide, and after that, within regions. Thanks to these averages in particular researched period, will be possible to relevantly compare not only the particular periods between each other, but also both variables, which are GDP per capita and cigarette consumption per capita. In the end trends from all researched periods

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4   For complete data listing see the last part of the thesis ó Annexes, Annexe 1.
5   The base of the data for region groupings were found at:
     http://mdgs.un.org/unsd/mdg/Host.aspx?Content=Data/RegionalGroupings.htm (Millennium
     Development Indicators: World and regional groupings, 2003).
6   See the full selection in Annexes, Annexe 1.

(that means 19 years in total) will be analysed and the correlation between examined factors will be stated.
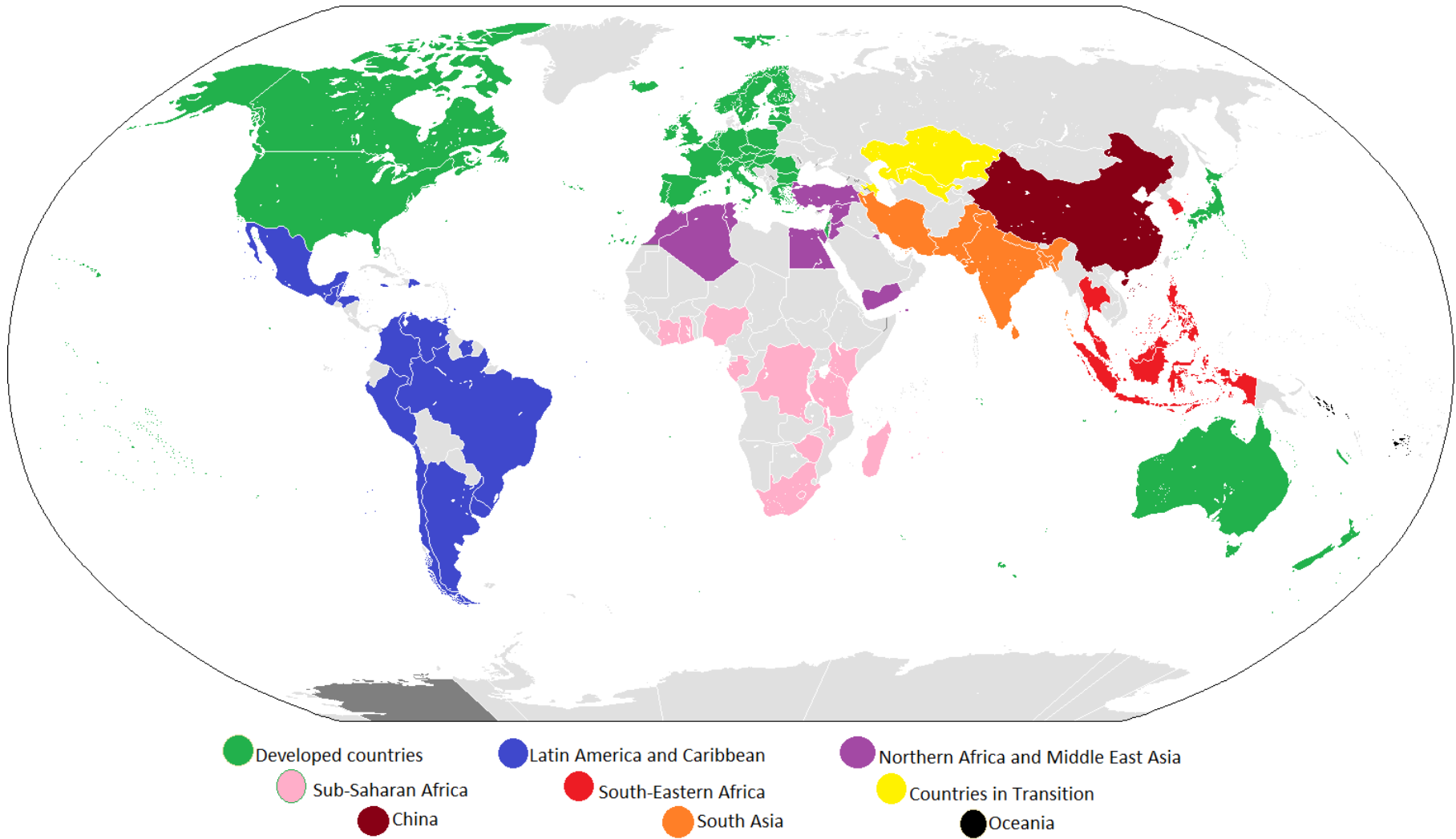
Figure 1: Focused regions and countries included in our survey.

4 Theoretical framework

This topic is unique with its wide subject area, thanks to its aim on all regions, but also with its time period. Research of this extent has not been done yet (according to available sources). Some authors dealt with single economic aspects and their influence on smoking. In their work was researched the age of smokers in single countries, and also the average age when young people start smoking or the effects of legislation and marketing campaigns on smokers and non-smokers. General summary of worldwide cigarettes consumption in the last years we can find in the article of Asya Pereltsvaig (2013), where worldwide cigarettes consumption and its prevalence are well documented. However, provided information is so general that this source is necessary to treat more as a description, than analysis. Summary of socio-economic factors with significant influence on the amount of cigarette consumption per capita in developed countries were also studied (Pampel, 2010). Particularly in Pampel (2010), we can find the hypothesis that smoking in developed countries decreases faster, most probably because the cigarettes were used there for longer period of time, which was explained by higher success of campaigns against smoking among men that among women. The situation in developing countries was described as well (Srinivas and Rao, 2009). The situation in 90 developing countries, in relatively wide period of time from 1994 to 2004, was analyzed. One of the examined factors influencing cigarette consumption was the total GDP of developing countries, womenøs education and percentage of the population older than 65 years. All these factors are possible to assign to developed countries. Srinivas and Rao assume that as these factors will grow, the cigarette consumption will be growing too. The study from G. E. Guindon and D. Boisclair from the year 2003 takes similar view to the cigarette consumption and uses similar methodology as this thesis. Authors introduced wide spectrum of factors across the countries, but only in three-year period from 2000 to 2003. Authors predict that without strict antitobacco politics will in the year 2025 be in the world approximately 1.9 billion of smokers (Guindon and Boisclair, 2003). The research of smoking appeared in some works also as case study. For example the smoking in China was researched (HU et al., 2005), and in Europe (Gallus et al., 2005) or in single ethnic groups (CDC, 1998). Evan Blecher (2008) also researched the impact of tobacco restrictions on cigarette consumption in developing countries. From his publication is clear that restrictions have sense only if

they are wide reaching. If for example, the advertising restrictions on tobacco products are focused only on some media, the tobacco companies will focus on other kind of advertising medium. This thesis, by contrast, focuses on connections, that - to our knowledge - have not been researched yet, including the correlation between GDP per capita and the cigarette consumption per capita.

Historically, tobacco[7] was abudantly used by Indians even before the discovery of America by Christopher Columbus. Tobacco was imported into the Europe for its healing qualities[8] in which the Indians believed. The first place in Europe, where the smoking of tobacco was introduced, was Spain and Portugal (about 1550). From Iberrian peninsula, the usage of tobacco, spread to Rome and Britain and later to the whole continental Europe as well. In the beginning of the 17th century, the tobacco was known to the whole world. In the year 1612, the tobacco became economically important. This year John Rolf, the husband of Pocahontas started the tobacco trade in Jamestown (in Virginia), which was at that time the British colony. The profits from the tobacco trade were so high that in the year 1621 the tobacco was labeled as a food crop. For this reason, it could be cultivated and traded even in bigger quantities. Even later, it became the medium of exchange. This happened at the time, when there was insufficient amount of money available for payments.

The discovery of cigarettes[9] dates to the year 1585. In this year, cigarettes were discovered by Spanish explorers in the New World at one of the native tribes of Aztecs. Thanks to explorers cigarettes spread to Spain and Portugal and from there to the whole Europe (similarly as tobacco). The cigarettes became economically important thanks to Americans,

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7 õ*Tobacco belongs to the Solanaceae ó the large family of plants. The genus of tobacco is Nicotiana. This genus includes about 50 species in which belong also Nicotiana rustica, with the origin from the North America. But the most imported species is Nicotiana tabacum, because until this species was found, the tobacco production wasn´t lucrative.ö* (Hirschfelder, 1999). The very name of the tobacco was derived not from the plant, as we would expect, but from the pipe, which was called Tobago (Encyclopedia Americana, 2001).

8 Even that the cultivation of this plant was assigned also healing qualities, not in all countries the tobacco smoking met with approval. For example in England, õ*James I. placed a punitive tax on tobacco*ö in order to stop it. Other countries as Russia and Turkey introduced harsh penalties for tobacco usage (Encyclopedia Americana, 2001).

9 The cigarette was invented by Mexicans and its shape does not differ from the todayøs cigarette. Their cigarette was consisted from crushed tobacco filled in hollow reed or it was wrapped in to cornhusk. In 16th centaury, the wrapping in paper started to be used. As we could expect, the paper wrapping was not invention of high society, but was invented by beggars living in Spanish Sevilla. They wrapped gathered stubs in piece of paper, which could be found all over the city, in contrast to corn wrappings or reed (Encyclopedia Americana, 2001).

where the cigarettes turned up in the year 1865 (Encyclopedia Americana, 2001). Two factors played important part in cigarettes spreading: production mechanization[10] (1880) and making of domestic blends (1913) (Encyclopedia Americana, 2001). From the time, when the first machine for cigarette production[11] was introduced, many things changed and today's modern cigarettes making machines produce huge amounts of cigarettes per minute. The production capacity can reach even few hundreds of cigarettes per minute. Cigarettes are consecutively electronically counted and sorted.

For the purpose of the research, GDP per capita of chosen country in each examined period was used as a leading indicator in order to document the impact of economic growth of examined country in examined period. Purchasing power parity (PPP) was used. The calculations were done in current US dollars. The sources of the database for this factor were drawn mostly from The World Bank (2014a) and Helgi Library (2013).

Data on total population were gathered from The World Bank (2014b). They were calculated in millions and, if was necessary, rounded to the nearest thousand. Furthermore, it is necessary to take into account, that census inaccuracies caused by illegal immigrants, poor survey methodology and other factors, may slightly distort the final data[12]. In our case was the term of population important mainly for the definition of GDP per capita and cigarette consumption per capita.

Finally, cigarette consumption. In this thesis were taken into consideration only data which were explicitly marked as õcigarette sticks per capitaö. This way, excluding other forms of

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10 We do not know the exact date when the production started. However, it is known, that in the year 1850, was in Russia in St. Petersburg, established first õ*Ferme cigarette factory*ö. In America the start of the cigarettes production dates to the year 1864, but the big milestone became the year 1873, when Americans disgusted by high prices, which they had to pay for their passion - cigar smoking ó got an opportunity to smoke much cheaper cigarettes. Their dependence on tobacco cost them much less then before and because of that the demand for cigarettes increased (Encyclopedia Americana, 2001).

11 In the year 1867 was in Paris Exhibition presented the Susini invention. Sushini claimed that the machine could produce 3,600 cigarettes per hour. In the following year, other unsuccessful attempts for functional machine followed, until the year 1881, when functional cigarette making machine was presented. This machine was patented by James Albert Bonsack on March 8 (Hirschfelder, 1999).

12 This data are acquired on the bases of population census, which means, that mainly are undervalued considering exclusion of immigrants without permanent stay and illegal immigrant in each country. According to the article from Global Migration Institute: õ*A rough estimate about the share of unauthorized immigrants in the world's immigrant stock might put it at between 15 and 20 percent of the total (between 30 and 40 million immigrants)*ö (MPI, 2005).

tobacco (as for example: chewing tobacco, snuffing tobacco, pipe tobacco and other), we prevented the debasement of this analysis. The data were were gathered from The Tobacco Control Country Profiles (2003), The tobacco atlas (2012) or Helgi Library (2014).

5 Economical aspects of cigarette consumption

This chapter analyses the influence of GDP per capita on trends of cigarette consumption per capita.

5.1 Population during examined periods

In 1990 the size of the population in the examined countries was 4,486.6 billion inhabitants. In the course of examined periods the number of inhabitants increased to 5,731.5 billions. In total, the population increased by 27.8 % in 19 researched years. If we put the worldwide data for each examined period into the figure, we get this overview:
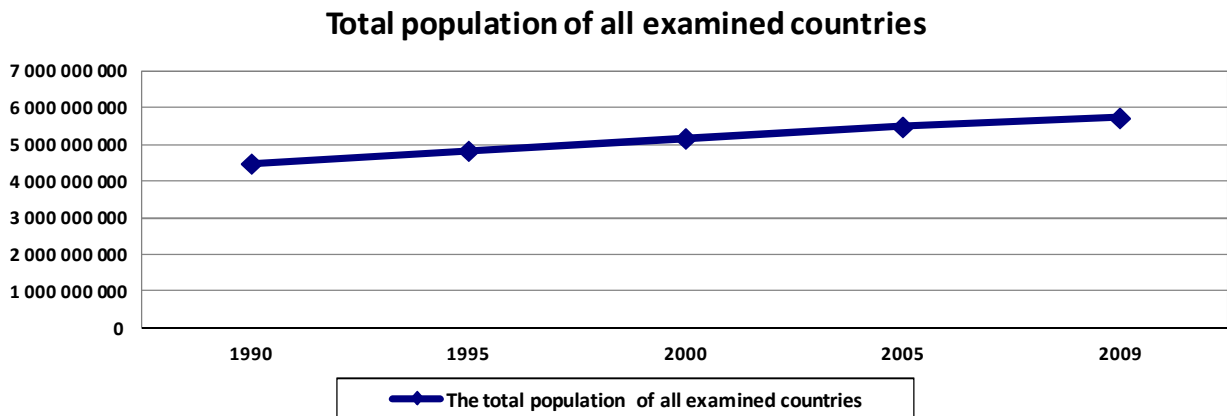
Figure 2: Total population of all examined countries.

The figure above shows that the population increase is getting gradually smaller. Between the first two periods the number of inhabitants increased by 7.8 %, and this percentual increase is getting gradually smaller to 5.5 % between the last two periods. According to these trends the stagnation could continue even in the future. However, despite this trend the number of inhabitants in countries, examined by us, increased by almost 1.25 billion over 19 examined years. It is necessary to mention again, that even this number is not total and worldwide, but it reflects only the data of 89 examined countries.

The Population of examined regions between years 1990-2009
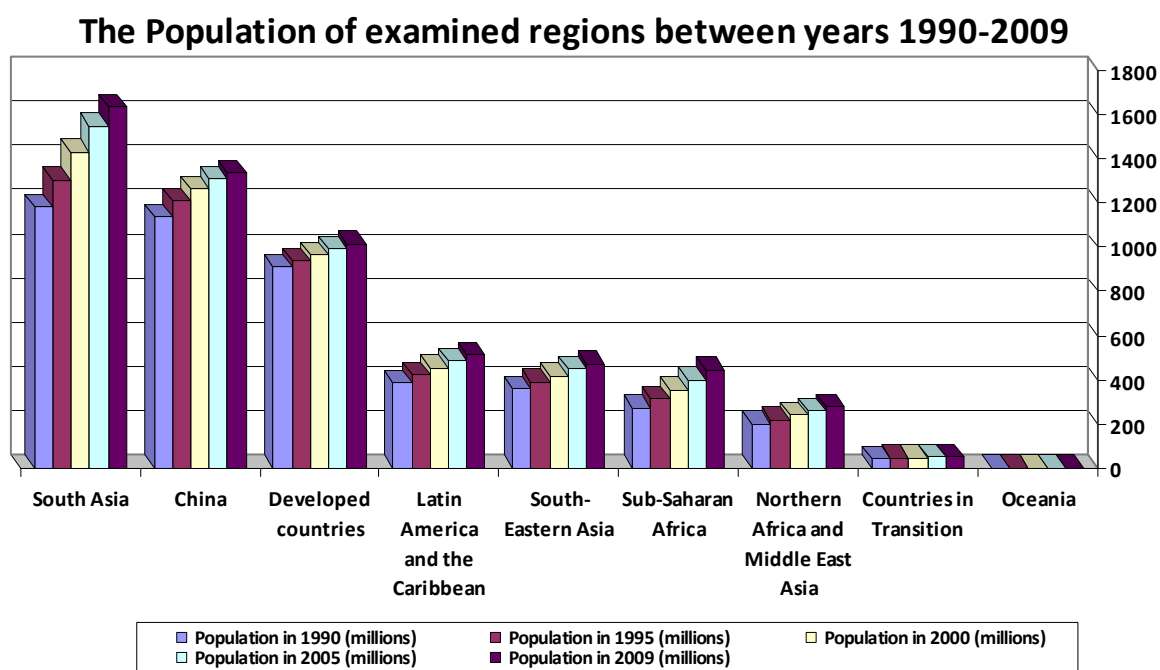
Figure 3: The population of examined regions between years 1990-2009.

When we looked at the data from all examined periods (Figure 3), we found, that the biggest population increase is in regions with lowest GDP per capita. The increase of inhabitants in the poorest areas is the result of decreasing newborn mortality, better healthcare, vaccination and other factors, that prolongs the life. On the contrary in Developed countries is small increase of inhabitants caused by Planned Parenthood and women emancipation in European countries, where women prefer career before family. This causes the ageing of the population and its dying off. Vaccination and the quality healthcare were already common in developed countries in the year 1990 and that is why its improvement did not bring so exceptional mortality decrease, or life prolonging.

5.2 Cigarette consumption per capita during examined periods

In analysis of cigarette consumption per capita we found out, that the annual cigarette consumption per capita in all examined countries in 1990 was 109,817 cigarettes in total.

By dividing this amount between 74 countries, in 1990 the result comes to approximately 1,484[13] cigarette per capita.

Average number of cigarettes consumed in examined regions in 1990
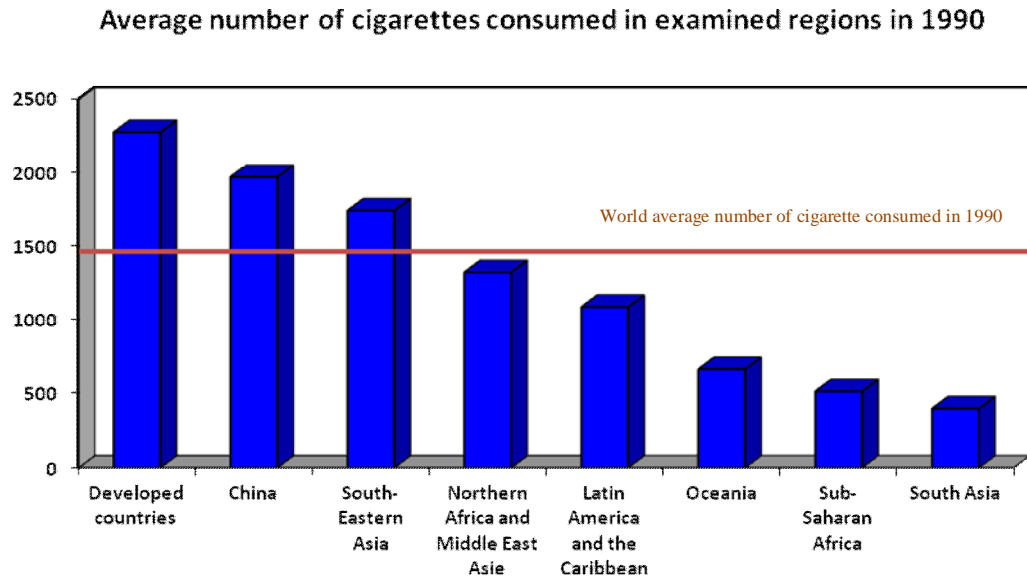
Figure 4: Average number of cigarettes consumed in examined regions in 1990.

Comparing all data in the figure above, we found out, that the highest average number of smoked cigarettes per capita was in the most developed countries, while in developing countries (without the region Countries in Transition, where the data are not available) the average number, of smoked cigarettes per capita, arrives strongly under computed worldwide average, which has been calculated above as 1,484 cigarettes per capita per each country.

If we want to follow the trend in cigarette consumption per capita and compare this trend to all examined periods and to all regions, we must repeat higher mentioned procedure also for the year 1995 and every other examined period. All the necessary results are presented in the Table 1 below. In the next part of this chapter, are counted average smoked cigarettes per capita in each of the regions of the world, so it is possible to evaluate, which of these regions are coming close to higher mentioned average and which are not. This procedure is repeated in all researched periods.

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13 All data are rounded to the whole number for better understanding.

Table 1: Cigarette consumption per capita in all examined regions and in all examined years.

Cigarette consumption per capita (in millions)	Developed countries	Northern Africa and Middle East Asia	Sub-Saharan Africa	Latin America and the Caribbean	South Asia	China	South-Eastern Asia	Oceania	Countries in Transition	World average
1990	2,364	1,325	0,515	1,089	0,399	1,972	1,742	1,164	0	1,484
1995	2,238	1,519	0,459	0,990	0,446	1,892	1,646	0,921	0,823	1,430
2000	1,937	1,185	0,494	0,814	0,414	1,790	1,545	0,745	0,938	1,337
2005	1,519	0	0	0	0	0	0	0	0	0
2009	1,296	1,112	0,244	0,497	0,332	1,711	0,996	0,355	0,1420	0,898

The only exeption is the year 2005 when the only region with sufficient data is the region Developed countries. For other regions unfortunately are not sufficient data, therefore it is pointless to calculate worldwide average, because this calculation would lack the data from the whole economically weaker section of the population. In the year 2005, we will limit our observation to the trends of the cigarette consumption per capita in Developed countries, which can show us, if campaigns against smoking introduced in developed countries have any effect.

In 22 out of 25 European countries, the cigarette consumption per capita in 2005 decreased against the year 2000 and thus it is possible to state, that European politics against smoking, works. The cigarette consumption per capita decreased in both northamerican countries, and it is interesting, that while in USA the number of smoked cigarettes per capita decreased almost to half of the previous amount (by 38 %), in Canada the consumption between both researched periods decreased only by 4.6 %. According to Washington Post, there are a few reasons for this dramatic decrease in the cigarette consumption in the USA. The main reason is price, which grew from the average price $1.74 for the packet in the year 1997 to $3.16 in 2004. This dramatic price increase can be blamed on court decision about cigarettes impact on health, when a few American states obtained through court decisions from tobacco companies settlement in hundreds of billions of dollars. This settlement was called õMaster Settlement Agreementö[14] (2010).

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14 More about this agreement here: http://publichealthlawcenter.org/topics/tobacco-control/tobacco-control-litigation/master-settlement-agreement (Master Settlement Agreement, 2010).

The next factors for lower cigarette consumption in the USA are marketing restrictions and changes in the public opinion. The public started to perceive cigarettes as dangerous (The Washington Post, 2006). In Canada similar development in the tobacco market is missing, therefore the consumption decrease in the year 2005 was less significant.

In the year 2009 all data were available for all countries and worldwide arithmetic average calculation came to 812 cigarettes per capita. In the following part of the chapter are summed up all values filled in the Figure 5.
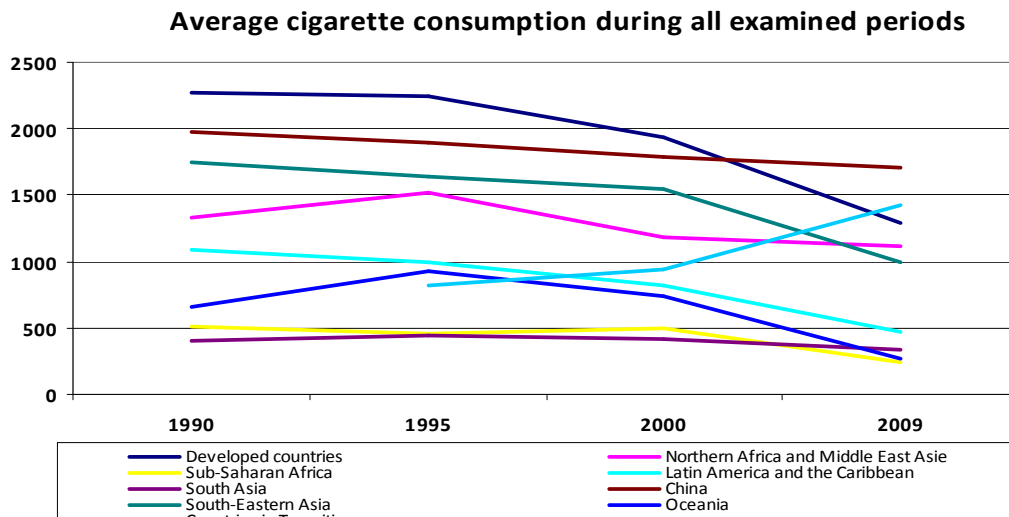
Figure 5: Average cigarette consumption during all examined periods.

From this figure, it is obvious, that cigarette consumption per capita decreased in the course of all examined periods in majority of examined regions with an exception of Countries in Transition. The level of cigarette consumption decrease per capita however differed according to the specifics of each country. In some regions came to irregular increase of average cigarette consumption per capita in single periods, but these changes could be caused by insufficient database. To be able to find out, which factors played part in decrease and increase number of smoked cigarette per capita, individual countries were chosen, that showed abnormalities in the cigarette consumption per capita. In these countries was examined the prevalence of cigarette consumption and further aspects, which could influence the amount of smoked cigarettes per capita.

The firsts group of countries, where the individual fluctuations are, is in the Developed countries region. With regards to the amount of smoked cigarettes, we can be sure about gradually but steadily decreasing cigarette consumption only in 9 researched countries. In other 11 countries we presume the decreasing consumption, but because of one or more missing data, we are able to do only data projection, in accordance with other researched periods. The decrease in consumption is possible to state in approximately 57 % countries. The lowest numbers were measured in Norway. In last examined period we can add to Norway also Iceland. On the contrary the most cigarettes per capita have been smoked in Greece in the first examined period and in Bulgaria in the last examined period. Greece is one of the biggest producer countries in EU and its tobacco products are often exported to other European and non-European countries. In the year 1990 there have been almost 72,000 tobacco growers in Greece. The tobacco was grown on more than 76,000 hectares of land (Greekproducts.com, 2005). On tobacco products from their own production (including cigarettes) are not levied any duties or other surcharges, and this keeps the price lower than in other European states and the smoking more affordable. Advertising make smoking popular and even laws restricting cigarette consumption in public do not have big impact. Similar situation is in Bulgaria, which is also producer country of tobacco and in the last years used protectionist methods for its own cigarette production. More than 90 % of the tobacco market is under the monopoly of the state owned company named Bulgartabac Holding and the market liberalization has taken place only after Bulgaria entered into the EU in 2007 (Loubeau, 2012). The cigarette consumption per capita on Iceland went sharply lower after the beginning of the economic crisis in 2008, when the population incomes significantly decreased. That is why the decrease in cigarette consumption between years 2005 and 2009 is so much sharper than in previous periods. After the beginning of the economic crisis the cigarette consumption per capita decreased by ¾ of the previous number. According to McClure et al. (2012) the financial incomes decrease leads, by former smokers in Iceland, to lower smoking recurrence probability. This study followed also the probability, that the inhabitants of Iceland will terminate smoking. The biggest probability of smoking termination was shown in men's population, consecutively in young women's population with secondary or higher education and after that all others (McClure et al., 2012). The cigarette consumption in Norway is lower as a result of an elaborate campaign against smoking, which started already in 1971, when the

National Council on Tobacco and Health was established, and drafted the law prohibiting cigarette products advertising and set the necessity for warnings on cigarette packaging. In the 80ø the tobacco taxes were increased further and campaign started with the slogan: *õNow itøs getting even more expensive to ruin oneøs health!ö* (Bjartveit, 2003). Norway thus became the pioneer in cigarettes products reduction and this trend continued successfully even in the 90÷s[15].

In the Northern Africa and Middle East Asia region the cigarette consumption is relatively balanced. In the first examined period the biggest amount of cigarettes per capita was smoked in Turkey and the smallest in Yemen. Its GDP level is multiple times lower than in other countries of this region. In addition, after the Government ban on tobacco advertising in the year 2005[16] and following price increase of tobacco products, some portion of the population moved to smoking *qat*, which is the second most popular product with light narcotic effects (The Telegraph, 2009). While Yemen kept the smallest cigarette consumption also in the last examined period, into the foreground moved Kuwait, where the amount of smoked cigarettes in course of time is getting even higher. Because no comprehensive research of Kuwaiti society exists, the reason for this increase is possible only to guess. The fact is that Kuwait has many times higher GDP per capita than other countries in this region and thus better economic situation allows Kuwaiti inhabitants to spend also more money for smoking. The other reason for higher cigarette consumption is the fact that Kuwait is getting on the same economic level like Developed countries. Thanks to this the womenøs emancipation occurs and women are starting to smoke too (Memon et al., 2000).

In the next examined region ó Sub-Saharan Africa - during all examined periods, the cigarette consumption decreased in 7 out of 12 examined countries, which means approximately 58 %. In the majority of countries the cigarette consumption went down sharply, up to half the original level. The highest consumption in the first examined period was measured in the South Africa, but in the last examined period was this country taken

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15 More about the Norwegian fight against tobacco product here: http://www.helsedirektoratet.no/english/publications/tobacco-control-in-norway/Publikasjoner/tobacco-control-in-norway-governmental-initiatives.pdf (Bjartveit, 2003).
16 More about smoking restrictions in Yemen here: http://archive.tobacco.org/news/279028.html (Tobacco.org, 2009).

over by Mauritius. In both of these countries the higher consumption is probably related to their GDP per capita. The lowest cigarette consumption per capita recorded the first examined period in the Democratic Republic of Congo and in the year 2009 ended with lowest numbers Ghana[17] followed by Malawi, where the consumption decreased sharply in the last examined period. In Malawi is more than 80 % population directly or indirectly employed in tobacco business, and therefore part of the cigarette consumption is not certainly recorded in the official documents, because the cigarettes are not bought on the market, but are consumed already during the production. The further reason for rapid decrease of cigarette consumption is declaring of official minimal price for 1 kg of tobacco in 2008. Part of the smokers cannot afford this price and therefore the cigarette consumption is decreasing (Bloomberg, 2009).

In Latin America and the Caribbean is possible to state in some of the countries onetime increase in consumption either in the 1995 or in 2000. Because of the lack of sufficient data in 2005, it is only possible to conclude, that in 2009 approximately in majority of the countries the consumption is lower. In the majority of countries in the beginning of the examined period, the level of cigarette consumption fluctuates from 700 to 2,000 cigarettes per capita, which is quite wide margin. The biggest exception in the cigarette consumption per capita is Peru, where already in 1990 the consumption was only 194 cigarettes per capita and in the last examined year 2009 the consumption went even 60 cigarettes per capita annually lower. This very low amount of smoked cigarettes in Peru has probably a few explanations. In 1985 Peru announced the first National Non-smoking day and in 1988 established a Permanent National Committee for the Fight against smoking (COLAT). The result was gradual laws approval restricting smoking (Pinillos et al., 2005). The next fact is that the majority of smokers buy from street vendorøs handmade cigarettes and these vendors do not keep any sales records. Therefore is very difficult to get to the official relevant statistical data (Europe PubMed Central, 2012). The last but not least fact for low

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17 In Ghana, the reasons for low cigarettes consumption could not be found. Because of similarity in majority of factors with other countries in this region, this is being considered as a cultural thing. More about factors which could influence low consumption in Ghana here: http://tobaccocontrol.bmj.com/content/18/3/206.full (Gallus et al., 2005).

amount of smoked cigarettes is the smoking of cocaine paste[18], which is very popular, because the plant Coca comes from Peru.

In the region South Asia the cigarette consumption in all 6 countries fluctuates between 100 – 700 cigarettes per capita annually. In the lowest part of the spectrum in mainly India and the most cigarettes was smoked in Iran. To the decrease of the consumption came only in 2 out of 6 countries.

In China region is the decrease in the cigarette consumption per capita rather slow. The total decrease in consumption during researched 19 years is only by approximately 260 cigarettes per capita annually, which means approximately ¾ cigarettes daily. Even in China, we cannot trace major fluctuations in data.

In South-Eastern Asia region during examined periods, the cigarette consumption decreased only in 2 countries. In majority of the countries the consumption fluctuates between 1,000 and 1,800 cigarettes per capita per year. The only country where the consumption is more that $^1/_3$ higher is the Republic of Korea. The smoking prevalence specifics in Korea is caused by very strong gender unbalance, because while only 10 % of women smokes, the smoking prevalence in men's population reaches up to 70 %, which is one of the highest levels in OECD countries. The main reason for this high smoking prevalence differences between men and women are social habits. While by women the smoking is still not tolerated[19] (with the exception of very old women and some places such as University campuses), men for the most part start smoking during military service. Until the year 2009 even cigarettes were used as a part of a salary, whether they were distributed to soldiers directly or certain amount of money, for cigarettes purchases, was paid out (Korea4expats, 2014).

In Oceania the cigarettes consumption has small differences, which is possible to justify with lower GDP per capita on Solomon Islands than on Fiji also by lower number of

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18 "*Statistics show that there has been a considerable increase in the production of illegal coca paste and cocaine in Peru since 1970. Similar developments took place in Bolivia and later in Colombia and Ecuador*". (UNODC, 1984).

19 This Leeds to speculation if in this case, the research data can be distorted by false women non-smokers, which are trying to cover the fact that they are smoking in privacy. More about smoking in South Korea here: http://www.korea4expats.com/article-smoking-culture-korea.html (Korea4expats, 2014).

inhabitants, which can afford to buy the cigarettes. The other factor, which lowers the cigarettes consumption on Solomon Islands, is traditional õ*Betel nut chewing*ö, which in this country replaces the tobacco products (Solomon Times Online, 2008).

The examined region ó Countries in Transition ó is the only group of countries, where during the research period the cigarette consumption goes up and not down, and this is happening mainly between 2005 and 2009. The stable increase in Kazakhstan is the result of homeland production, where as well as in Greece this lowers the cigarette price. In Kazakhstan also in addition to traditional men smoking begins to be modern and also the women are starting to smoke. This increases the cigarette consumption per capita even more (Radio Free Europe Radio Liberty, 2013). In Azerbaijan after the Soviet Union disintegration, the foreign brands are imported. That makes the smoking even more popular. In accordance with the study HITT CIS (2013) from the last year, the majority of population is not aware of health smoking risks. In Uzbekistan is besides cigarette smoking used also other alternative of tobacco products - *nashway*. This dried nonsmoking tobacco has in Uzbekistan almost the same popularity as cigarettes, which lowers the cigarette consumption per capita (DocStoc, 2008). In the next chapter, the comparison is presented between GDP per capita and cigarette consumption per capita.

5.3 Comparison of GDP per capita and cigarette consumption per capita

In the previous chapter it was found, that the average amount of smoked cigarettes per capita differs strongly in individual regions. In this part of the thesis we are trying to find out comparison between smoked cigarettes per capita and GDP per capita in each group of countries. The researching procedure of average GDP per capita is similar as in previous chapter.

First, the GDPs per capita per 1990 are added together in all researched countries where for this year are the data available. This way was arrived at the result of 583,925 US dollars of total GDP per capita for 79 countries. The average GDP per capita for each country in

1990 is thus 7,391 US dollars. Now this average will be compared with each region[20]. In Developed countries it is 17,943 US dollars per country, in Northern Africa and Middle East Asia comes the average GDP per capita to 2,239 US dollars per country, in Sub-Saharan Africa it is 1,360 US dollars per country and in the Latin America and Caribbean it is 2,717 US dollars per country. In South Asia the average GDP per capita in each country arrived at the 625 US dollars, while in China it comes only to 314 US dollars GDP per capita in 1990. The average GDP per capita in South-Eastern Asia for each country was calculated as 2,287 US dollars and for Oceania as 1,403 US dollars. The last from examined region are Countries in Transition and their average GDP per capita in 1990 was 1,237 US dollar per country. These data are again put in to the figure below:
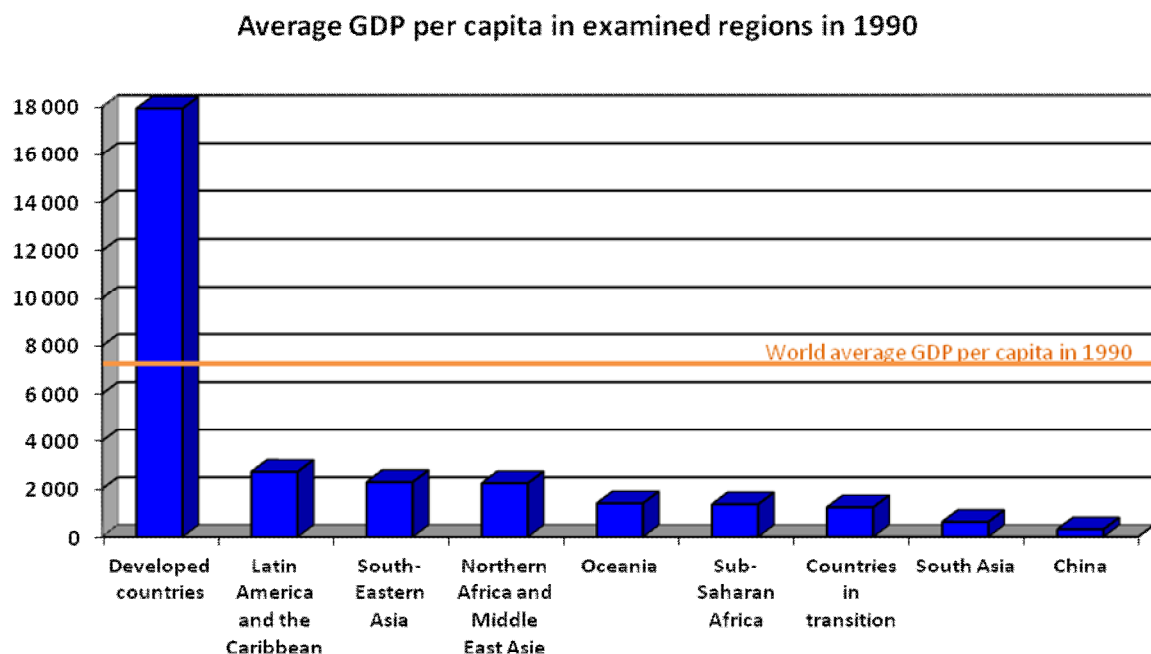
Figure 6: Average GDP per capita in examined regions in 1990.

In the next figure is illustrated the comparison of both acquired variables, that is the average smoked cigarettes per capita in each region and GDP per capita in the same region. Both values are relevant to the year 1990. To be able to compare both data categories we will consider calculated worldwide average as governing value that means 100 %. If we

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20 It is necessary, to take into account, that because of missing data and big differences between GDP per capita in certain countries, can some averages be distorted. Unfortunately other possibilities, how by this amount of researched periods and countries, to compare all data relevantly, does not exists.

calculate in accordance with this pattern, the rest of the average data for each region we will arrived to the following Figure 7:

Comparison of GDP per capita and cigarette consupmtion per capita in 1990
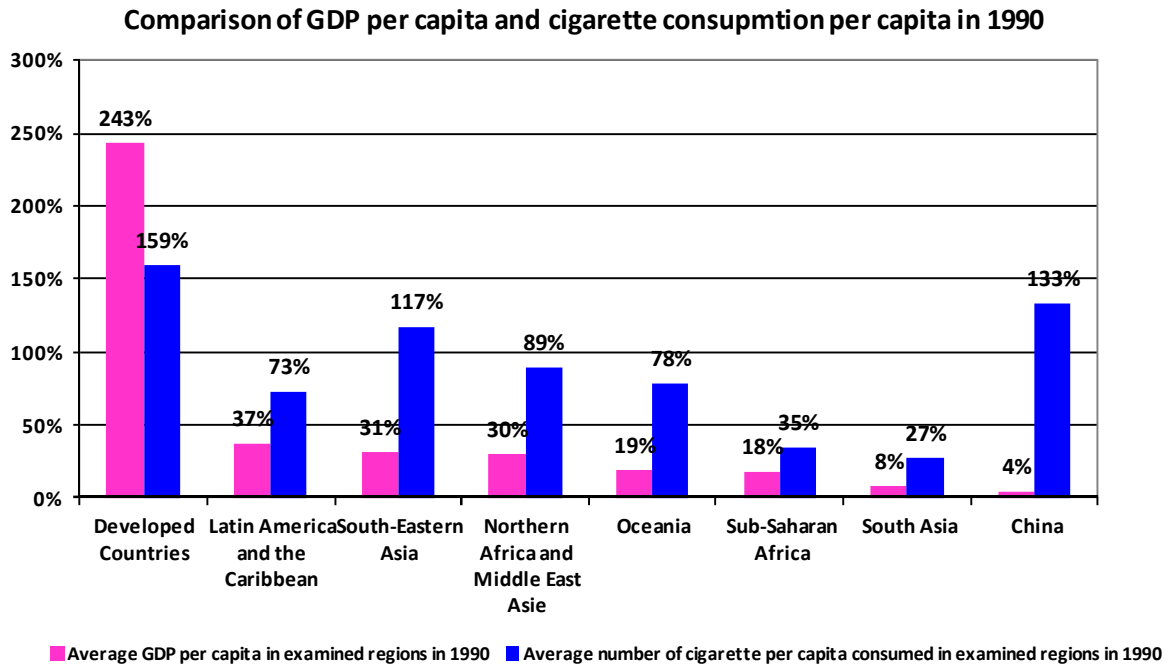
Figure 7: Comparison of GDP per capita and cigarette consumption per capita in 1990.

As it can be seen on the figure[21] above, the most developed countries reached almost 2,5 multiple of average worldwide GDP per capita, but their average cigarette consumption per capita stopped on approximately 1,5 multiple of worldwide average. As GDP per capita in each regions decrease, the number of smoked cigarettes per capita conversely increases against worldwide average. In countries with the lowest GDP per capita is on the contrary the amount of smoked cigarettes per capita against the worldwide average up to multiple times higher, than percentual ratio of GDP per capita against worldwide average. From this observation we can conclude, that while it is not possible to clearly demonstrate, that higher GDP per capita automatically means higher cigarette consumption per capita, the cigarette consumption per capita is relatively higher, the lower is the GDP per capita of each region.

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21 The figure does not include the Countries in Transition region, because in this period, the data about cigarettes consumption in all researched countries are not available.

The higher mentioned procedure for obtaining of average GDP per capita for each country in each region was used also for data in the year 1995 and for all others researched periods. Instead of repeating the whole procedure are averages for every examined period illustrated in following table:

Table 2: GDP per capita in all examined regions and in all examined years.

GDP Per capita (US dollars)	Developed countries	Northern Africa and Middle East Asia	Sub-Saharan Africa	Latin America and the Caribbean	South Asia	China	South-Eastern Asia	Oceania	Countries in Transition	World average
1990	1,7943	2,239	1,360	2,717	0,625	0,314	2,287	1,403	1,237	7,391
1995	1,9375	3,151	1,317	3,851	0,602	0,604	4,142	1,993	1,756	9,069
2000	1,9920	3,807	1,230	4,535	0,659	0,949	3,831	1,565	2,302	9,583
2005	2,9897	6,277	1,811	5,539	1,026	1,731	5,654	2,269	4,082	14,227
2009	3,4028	7,420	2,409	7,367	1,695	3,749	6,464	2,275	6,353	16,566

In the Table 2 is possible to see, that ó with exception of red marked fields[22] - the average GDP per capita divided arithmetic average between numbers of examined countries in each region, grows regularly during the all examined periods. In 19 years between 1990 and 2009, levels gradually increased in all examined regions. In the next part of this thesis, we will use data from this table and data from similarly calculated averages of cigarette consumption per capita from previous chapter for comparison between both variables.

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22 The dept in developing countries in the 90øs is the consequence of dept-crisis in the third world, which was even depend by loans from IMF. More about causes and history of dept-crisis here: http://www.globalissues.org/article/29/causes-of-the-debt-crisis (Shah , 2007).

Comparison of GDP per capita and cigarette consumption per capita in 1995
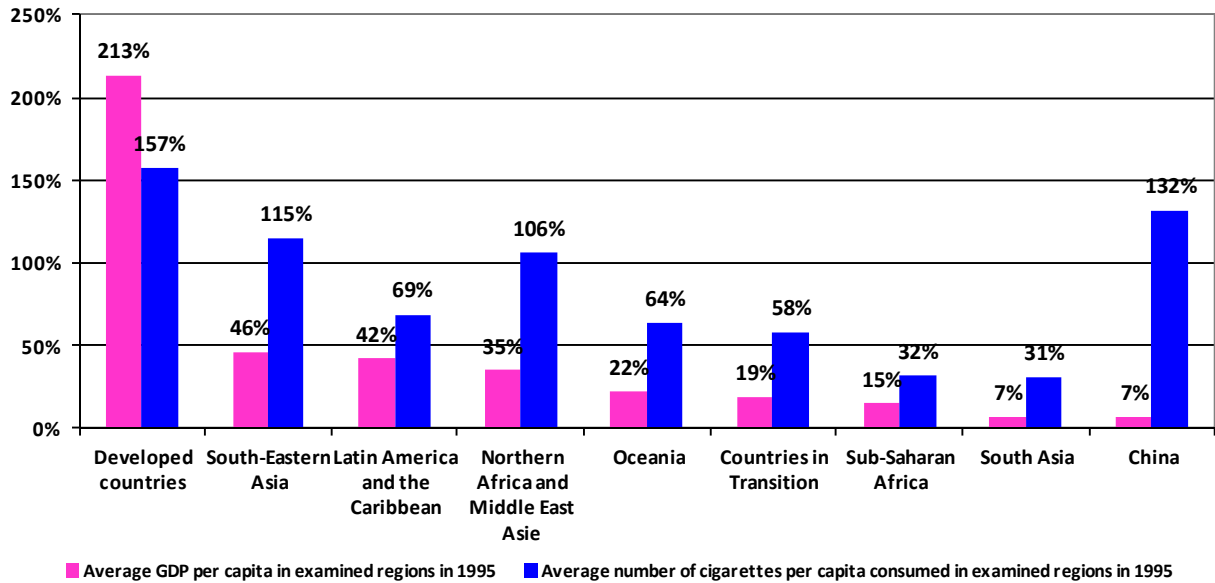
Figure 8: Comparison of GDP per capita and cigarette consumption per capita in 1995.

When looking on the Figure 8, from 1995, we can see that the trends from previous examined periods are persisting. The only bigger change is inclusion of the region Countries in Transition. The GDP per capita in China reached in this examined period the same level as have the countries in South Asia. Further we can see, that the GDP per capita in South-Eastern Asia got higher than in Latin America and Caribbean, while the ratio of cigarette consumption against worldwide average stayed almost unchanged.

In the year 2000 the order of regions changed again against previous examined period. The second place in the GDP per capita belongs again to Latin America and the Caribbean, the third place shares Northern Africa and Middle East Asia together with South-Eastern Asia. Although both of these regions have 40 % of worldwide average in GDP per capita, their cigarette consumption per capita differs almost by ¼ of worldwide average. The next region, whose GDP per capita is constantly growing, is China. In the year 2000, its GDP per capita reached even higher than the GDP of South Asia. Interesting is, that the Chinese cigarette consumption per capita remained almost unchanged. See the Figure 9 below.

Comparison of GDP per capita and cigarettes consumption per capita in 2000
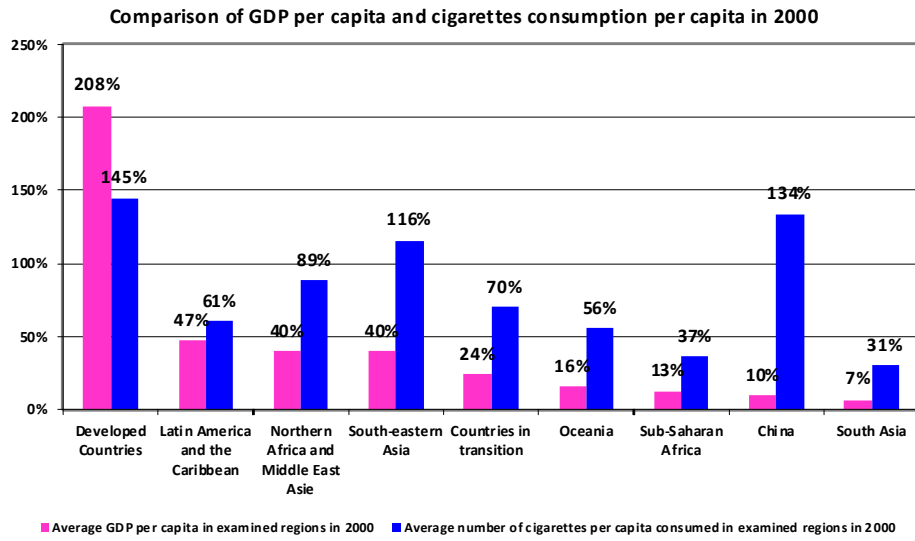
Figure 9: Comparison of GDP per capita and cigarette consumption per capita in 2000.

The year 2005 was excluded from figures showing comparison between both variables, because for this examined period in the majority of examined countries, the data in cigarette consumption per capita are not available. Now follows the Figure 10 of comparison between both variables for last examined period – year 2009.

Figure 10: Comparison of GDP per capita and cigarette consumption per capita in 2009.

In the last examined period the order of regions according to average GDP per capita in comparison with worldwide average changed again. When looking on above shown figures for each researched period, it is possible to see, that while some region are getting economically closer to developed countries, their cigarette consumption per capita is not getting significantly lower. On the contrary, it is possible to say, that GDP per capita and cigarette consumption per capita are functioning according to our data very independently on each other. It is true, that in Oceania and in Latin America and Caribbean the cigarette consumption per capita decreased, but considering the higher mentioned alternatives to cigarettes, this decrease is probably caused only by usage of other types of tobacco product.

To be able to make (from the available data) some conclusions for the whole period of 19 years, it was necessary to average consumption in each region during all periods, so, it would be possible to show average cigarette consumption per capita and average GDP per capita for the whole examined period from 1990 to 2009.
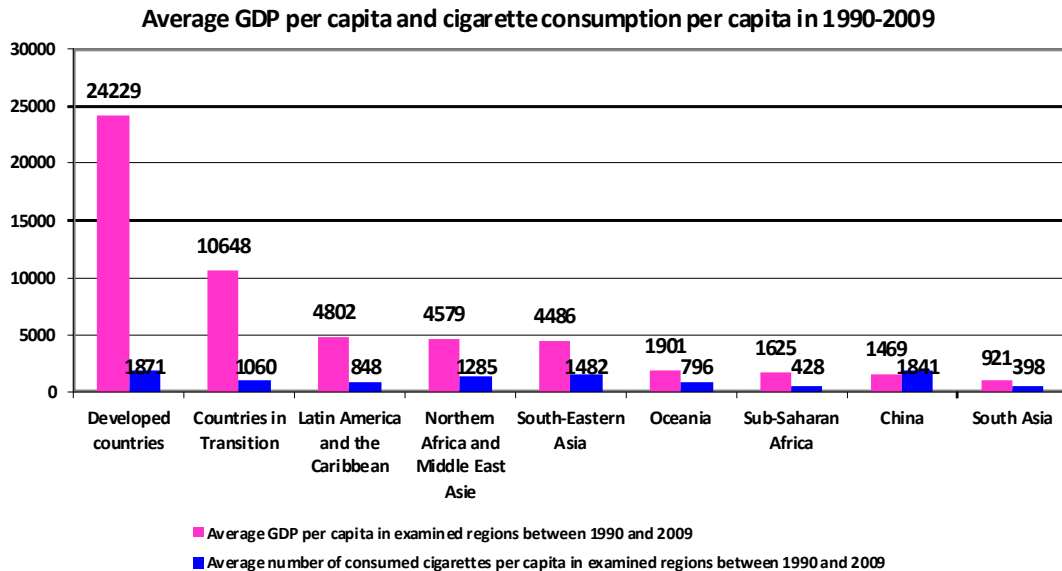
Figure 11: Average GDP per capita and cigarette consumption per capita in 1990-2009.

After data illustration in the Figure 11, we can only repeat the findings, that in Developed countries and Countries in Transition prevails ratio GDP per capita (pink columns), while in other regions GDP per capita clearly decreases, while the cigarette consumption per capita (blue columns) remains unchanged regardless of the size of GDP. The small exceptions are only the cigarette consumptions per capita in regions with other tobacco alternatives and higher cigarette consumption per capita, like in China[23], where measures against higher cigarette consumption were introduced, but these measures are not in any way enforced in practice.

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23 Even in China the differences exists. According to the study from 2010, most smokers are men in agricultural areas with basic education, working as farm workers. On the contrary, only 4 % of Chinese women are smokers. More about smoking prevalence in China here: http://www.nejm.org/doi/full/10.1056/NEJMc1102459 (The New England Journal of Medicine, 2011).

In the next part of the thesis the correlations are presented.

5.4 Correlation between GDP per capita and cigarette consumption per capita

To see tangible trend in our examined regions between our examined variables, we calculated the correlation coefficient for each region. The only exeption was China. As a single state from the region does not form a statistical data. No correlation coefficient can be thus inferred. See Table 3.

Table 3: Correlation coefficient between GDP per capita and cigarette consumption per capita in different regions.

	Developed countries	Northern Africa and Middle East Asia	Sub-Saharan Africa	Latin America and the Caribbean	South Asia	South-Eastern Asia	Countries in Transition	World average
1990	-0,21	0,09	0,56	0,21	0,54	0,87	1,00	0,56
1995	-0,10	0,83	0,78	0,17	0,57	0,94	0,95	0,56
2000	-0,15	0,21	0,79	0,18	0,55	0,84	0,95	0,47
2005	-0,39	0,42	0,80	0,19	0,58	0,85	0,81	0,38
2009	-0,37	0,62	0,87	0,65	0,61	0,77	0,72	0,35

If we put these data into the figure bellow, we get this overwiev:
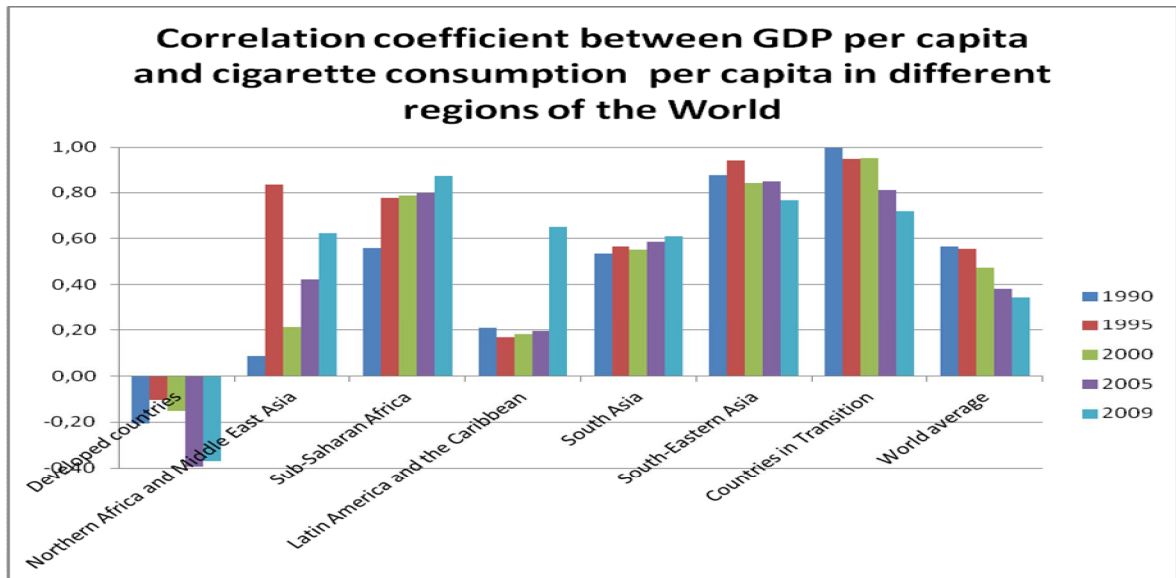
Figure 12: Correlation coefficient between GDP per capita and cigarette consumption per capita in different regions of the world.

As it can be seen in regions in Figure 12, in developing countries exists strong positive correlations between the GDP per capita and cigarette consumption per capita. Put simply, economic prosperity determines how much people are smoking. We have not included China nor Oceania since in both regions one or two countries do not form a statistical data thus correlation coefficient cannot be inferred. This surprising result shows that in developing countries people's wealth directly has an effect on increase of smoking. On the contrary, in Developed countries we see negative correlations. This negative correlation seems to go even lower in the past years . This may be because of the intensification of the õwarö against smoking. There may be some different reasons for that. For example better healthcare, better knowledge about the health consequences of smoking, smoking restrictions and smoking anti-campaigns. The richer the country is, the less people smoke.

Figure bellow show the worldwide correlations between cigarette consumption per capita and GDP per capita.
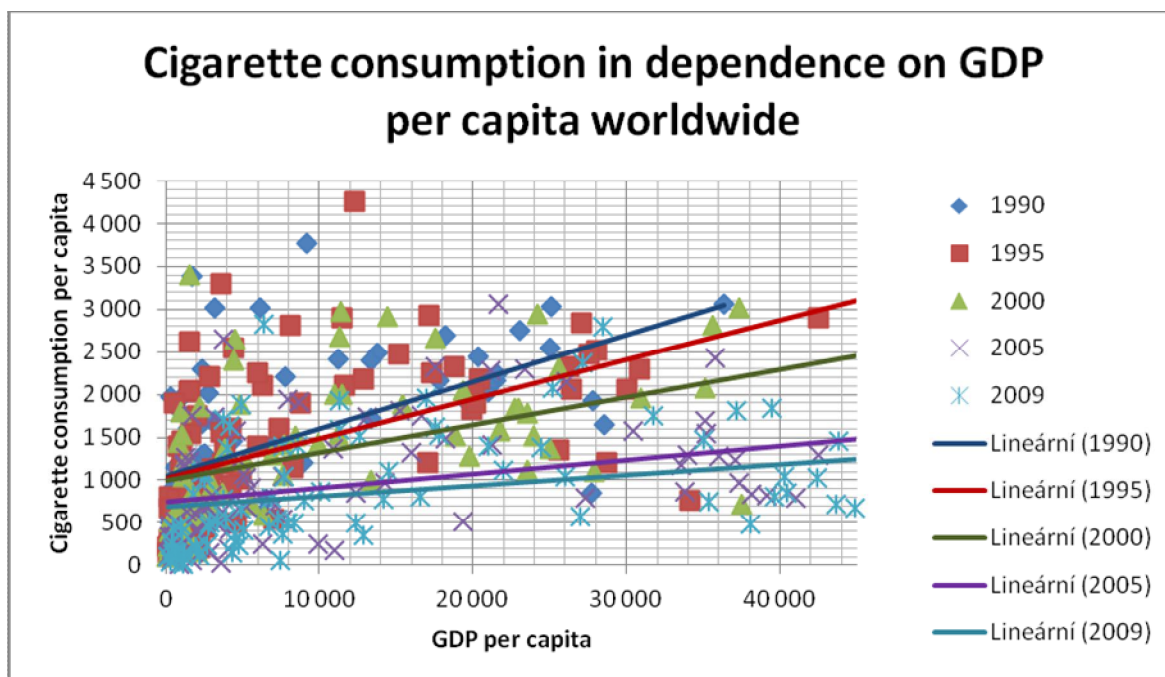
Figure 13: Cigarette consumption per capita in dependence on GDP per capita worldwide.

In figure above, each dot represents a state, each color represents a year. Line regression shows the approximate relations between cigarette consumption per capita and GDP per capita at given year. What can be immeditelly noticed from the figure is that wealth is possitivelly correlated with cigarette consumption, but this correlation seems to fade away during the last years. Interestingly enough, there is some minimal consumption (around 750 cigarettes per year) which people do not wish to renounce, even when their economic prosperity is almost zero compared to developed countries.

In the last Chapter, the final results are discused and presented.

6 Discussion and Conclusions

The goal of this bachelor thesis was to find out if correlation between economic factor GDP per capita and cigarettes consumption per capita exists. The research covered 19 years from 1990 to 2009 and included countries from the whole world. The thesis was divided into five examined periods and in each period the population growth, GDP per capita and cigarette consumption per capita, were analyzed in 89 selected countries of the world. The trends were shown and the exceptions were explained, if they defied the common trends in researched periods.

We found out that, in majority of researched regions, the cigarette consumption per capita decreases, but that fluctuation of economic factors does not have verifable influence on the increase or decreas of cigarette consumption. In thesis the average consumptions of cigarettes per capita in each region were compared. In Figures 7 -11 it is possible to see, that the average cigarette consumption per capita is getting lower in all regions with the exeption of Countries in Transition region, but this decrease is not uniform in developed and developing countries. In tangible regional correlations (Figure 12) the region of Developed countries has negative correlation. On the other hand developing regions have all positive correlation. The Figure 12 demonstrates that the richer the country, the lower the cigarette consumption per capita. From the worldwide point of view (Figure 13) correlations are all positive and especially in last two periods (2005 and 2009) the correlation seems to decline, therefore the cigarette consumption per capita is getting lower worldwide. It is clear, that anti-smoking campaigns and enlightenment do have positive influence, but it is also clear that smoking will stay popular in the foreseeable future.

We can answer research questions mentioned at the beginning of this thesis:

1) If we compare proportional data (GDP per capita and cigarettes consumption per capita), it is possible to say, that the correlation exists, but it is rather weak.

2) Yes, the cigarettes consumption is influenced more by worldwide events and other factors than by GDP per capita. These events and factors influence not only the number

of inhabitants but also political decisions and worldwide trends. Between concrete factors, we can include for example legislation, price and the size of cigarette packets or the enlightenment aspects, which play even more significant role in decrease of cigarette consumption per capita.

The increasing consumption by Countries in Transition, which includes part of former Soviet Union, can be explained by the fact that the cigarettes were in the past not accessible. This would resonate with the hypothesis from Pampel (2010). On the contrary Srinivasøes and Raoøs theory, that smoking will increase with developing countries coming near to developed countries, we can not confirm. In 19 reaserched years the cigarette consumption is decreasing in majority of countries, even that the economic factors are increasing. Also the womenøs better education does not have verifable influence on the cigarette consumption. In China for example even when the GDP per capita is growing and the country is coming near to developed countries, only 4 % of women are smoking and this percentage stayed the same through all examined periods. All authors, who are focusing on cigarettes consumption, are calling for better and wider reaserch, not only from the point of view of the time period but also from the number of reaserched countries.

The recommendation from this bachelor thesis is different. It is necessary to research this topic with comparison of more that two variables. In the next thesis would be meaningfull to use at least one more variable or watch for other factors that can influence the cigarettes consumption. As variable could be taken for example the existence or non-existence of tobacco restrictions, their severity and enforcement. This kind of research was not possible because of the extent of this thesis.

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Annexes

List of Annexes

Continent	Country	Population 1990	Population 1995	Population 2000	Population 2005	Population 2009	Trend	GDP per capita 1990	GDP per capita 1995	GDP per capita 2000	GDP per capita 2005	GDP per capita 2009	Trend	Cigarette consumption per capita 1990	Cigarette consumption per capita 1995	Cigarette consumption per capita 2000	Cigarette consumption per capita 2005	Cigarette consumption per capita 2009	Trend
				(millions)						(PPP, US Dollars)						(cigarette sticks)			
Developed countries																			
Oceania	Australia	17,065	18,072	19,153	20,395	21,779	↗	18,248	20,396	21,708	33,948	42,404	↗	2,689	2,184	1,568	X	1,034	↘
Europe	Austria	7,678	7,948	8,012	8,228	8,365	↗	21,458	30,014	23,974	37,067	45,859		2,165	2,058	1,516	1,241	1,650	
Europe	Belgium	9,967	10,137	10,251	10,479	10,796	↗	20,350	28,068	22,697	36,011	43,843		2,436	2,519	1,837	1,279	1,455	
Europe	Bulgaria	8,718	8,406	8,170	7,740	7,585	↘	2,377	1,555	1,579	3,733	6,403		2,297	2,025	3,407	2,649	2,822	
North America	Canada	27,791	29,354	30,770	32,312	33,727	↗	20,968	20,117	23,560	35,088	39,659	↗	2,030	1,998	1,777	1,695	0,809	↘
Europe	Croatia	4,780	4,669	4,426	4,442	4,429		X	8,136	11,019	15,254	17,548	↗	X	2,806	1,995	X	1,621	↘
Europe	Czech Republi	10,333	10,327	10,272	10,236	10,487		X	12,914	15,462	21,148	25,187	↗	2,152	2,185	1,882	2,275	2,071	
Europe	Estonia	1,569	1,437	1,370	1,346	1,340	↘	X	6,290	9,913	16,636	17,837	↗	X	2,103	1,431	1,746	1,526	
Europe	Finland	4,986	5,108	5,176	5,246	5,339	↗	27,852	25,609	23,530	37,319	44,838		1,923	1,356	1,123	0,972	0,671	↘
Europe	France	58,409	59,541	60,911	63,176	64,703	↗	21,301	26,403	21,775	33,819	40,488		2,168	2,055	1,594	0,867	0,854	↘
Europe	Germany	79,433	81,678	82,212	82,469	81,902		21,584	30,888	22,946	33,543	40,275		2,234	2,297	1,843	1,175	1,045	
Europe	Greece	10,157	10,634	10,917	11,104	11,283	↗	9,190	12,274	11,396	21,621	28,452		3,772	4,252	2,977	3,062	2,795	
Europe	Hungary	10,374	10,329	10,211	10,087	10,023	↘	3,186	4,411	4,543	10,937	12,635	↗	3,022	2,550	2,654	1,368	1,518	
Europe	Iceland	0,255	0,267	0,281	0,297	0,318	↗	25,009	26,239	30,929	54,885	38,038		2,542	2,326	1,956	X	0,477	↘
Europe	Ireland	3,514	3,609	3,805	4,160	4,459	↗	13,782	18,818	25,610	48,740	50,246	↗	2,483	2,319	2,304	1,346	1,006	↘
Asia	Israel	4,660	5,545	6,289	6,940	7,486	↗	11,264	17,310	19,859	19,330	26,032		2,410	2,250	X	X	1,037	↘
Europe	Italy	56,719	56,844	56,942	58,607	60,193	↗	20,065	19,910	19,388	30,479	35,073		2,008	1,817	2,039	1,577	1,475	
Asia	Japan	123,537	125,439	126,870	127,773	127,558		25,124	42,522	37,292	35,781	39,473		3,037	2,905	3,023	X	1,841	
Europe	Latvia	2,663	2,485	2,373	2,301	2,255	↘	X	5,138	7,646	13,130	14,224	↗	X	X	1,054	1,739	0,785	
Europe	Lithuania	3,698	3,629	3,500	3,414	3,340	↘	X	5,991	8,484	14,286	16,594	↗	X	2,249	1,511	0,967	0,804	↘
Europe	Luxembourg	0,382	0,409	0,436	0,465	0,498	↗	31,601	40,482	55,503	70,544	76,897	↗	X	X	1,375	1,118	0,928	↘
Europe	Malta	0,354	0,370	0,381	0,404	0,414	↗	X	X	18,895	21,219	24,481	↗	X	X	1,521	1,411	1,378	↘
Europe	Netherlands	14,952	15,459	15,926	16,320	16,530	↗	19,722	27,102	24,180	39,122	48,174		1,902	2,845	2,951	0,827	0,801	
Oceania	New Zeland	3,330	3,673	3,858	4,134	4,316	↗	13,367	17,098	13,379	27,358	26,990		1,724	1,202	0,997	X	0,579	↘
Europe	Norway	4,241	4,359	4,491	4,623	4,829	↗	27,732	34,162	37,473	65,767	78,457	↗	0,856	0,757	0,721	X	0,534	↘
Europe	Poland	38,111	38,595	38,454	38,165	38,152		1,694	3,603	4,454	7,963	11,295	↗	3,383	3,303	2,395	1,936	1,586	↘
Europe	Portugal	9,983	10,030	10,226	10,549	10,632	↗	7,779	11,619	11,471	18,186	22,019		2,203	2,105	1,998	1,479	1,114	↘
Europe	Romania	23,202	22,684	22,443	21,634	21,480	↘	1,651	1,564	1,651	4,572	7,651		X	2,052	X	1,581	1,404	↘
Europe	Slovakia	5,299	5,362	5,389	5,387	5,419		X	8,810	11,266	16,038	21,017	↗	X	1,896	1,529	1,318	1,403	
Europe	Slovenia	1,998	1,990	1,989	2,000	2,040		X	13,044	17,539	23,401	27,116	↗	X	X	2,658	2,299	2,369	
Europe	Spain	38,850	39,387	40,263	43,398	45,909	↗	13,410	15,151	14,414	26,056	31,714		2,400	2,469	2,909	2,150	1,757	
Europe	Sweden	8,617	8,827	8,872	9,030	9,299	↗	28,557	28,739	27,869	41,041	43,640	↗	1,650	1,201	1,107	0,797	0,715	↘
Europe	Switzerland	6,780	7,041	7,184	7,437	7,744	↗	36,337	46,014	35,639	51,734	65,790		3,064	2,928	2,809	X	1,722	↘
Europe	United Kingdom	57,425	58,019	58,893	60,224	61,811	↗	17,805	20,177	25,058	38,122	35,331		2,170	1,901	1,374	0,839	0,750	↘
North America	United States	249,623	266,278	282,162	295,517	306,772	↗	23,038	27,559	35,082	42,516	45,305	↗	2,755	2,480	2,082	1,290	1,028	↘
Northern Africa and Middle East Asie																			
Africa	Algeria	26,240	29,315	31,719	34,961	36,383	↗	2,365	1,425	1,727	3,013	3,796		1,301	1,094	0,859	X	0,775	↘
Africa	Egypt	56,337	61,168	66,137	71,778	76,775	↗	0,766	0,984	1,510	1,249	2,462		1,180	1,110	1,208	X	1,104	
Asia	Jordan	3,170	4,195	4,797	5,411	5,915	↗	1,268	1,604	1,764	2,326	4,027	↗	1,756	1,540	X	X	1,372	↘
Asia	Kuwait	2,060	1,586	1,906	2,296	2,850		8,947	17,143	19,787	35,186	37,161	↗	1,200	2,935	1,276	X	1,812	
Africa	Morocco	24675	26,833	28,710	30,125	31,277	↗	1,037	1,218	1,276	1,948	2,861	↗	0,954	0,824	0,708	X	0,500	↘
Asia	Syrian Arab R	12,818	14,338	16,371	18,167	21,032	↗	0,989	0,795	1,180	1,589	2,564		1,008	1,402	1,205	X	1,013	
Africa	Tunisia	8,318	8,958	9,564	10,029	10,440	↗	1,507	2,013	2,245	3,219	4,177	↗	1,603	1,756	1,855	X	1,628	
Asia	Turkey	54,911	58,522	63,174	67,743	71,241	↗	2,791	2,896	4,220	7,130	8,626	↗	2,014	2,208	X	X	1,399	
Asia	Yemen	11,790	15,018	17,523	20,140	22,230	↗	0,479	0,284	0,550	0,832	1,106		0,909	0,804	X	X	0,402	↘

II

Continent	Country	Population 1990	Population 1995	Population 2000	Population 2005	Population 2009	Trend	GDP per capita 1990	GDP per capita 1995	GDP per capita 2000	GDP per capita 2005	GDP per capita 2009	Trend	Cigarette consumption per capita 1990	Cigarette consumption per capita 1995	Cigarette consumption per capita 2000	Cigarette consumption per capita 2005	Cigarette consumption per capita 2009	Trend
		(millions)						(PPP, US Dollars)						(cigarette sticks)					
Sub-Saharan Africa																			
Africa	Côte d'Ivoire	12,116	14,217	16,131	17,394	18,601	↗	0,891	0,774	0,646	0,941	1,239		0,307	0,299	0,277	X	0,148	↘
Africa	Democratic R	34,911	42,013	46,949	54,028	60,486	↗	0,268	0,134	0,092	0,133	0,185		0,184	0,137	0,105	X	0,105	↘
Africa	Gabon	0,947	1,080	1,226	1,379	1,519	↗	6,287	4,589	4,135	6,282	7,949		0,623	0,497	X	X	0,501	
Africa	Ghana	14,629	16,761	18,825	21,384	23,692	↗	0,403	0,386	0,265	0,502	1,097		0,218	0,176	0,171	X	0,044	↘
Africa	Kenya	22,446	27,418	31,285	35,786	39,825	↗	0,366	0,330	0,406	0,524	0,768	↗	0,538	0,202	X	X	0,144	↘
Africa	Madagascar	11,546	13,453	15,745	18,290	20,496	↗	0,267	0,235	0,246	0,275	0,419		0,227	0,311	0,401	X	0,260	
Africa	Malawi	9,447	9,964	11,321	12,925	14,573	↗	0,199	0,140	0,154	0,213	0,345		0,212	0,221	0,224	X	0,048	
Africa	Mauritius	1,059	1,122	1,187	1,243	1,275	↗	2,506	3,600	3,861	5,054	6,929	↗	1,307	1,555	1,373	X	0,787	
Africa	Nigeria	95,617	108,425	122,877	139,586	155,381	↗	0,933	0,958	1,087	1,750	2,234	↗	0,229	0,191	X	X	0,116	↘
Africa	South Africa	35,200	39,120	44,000	47,198	49,320	↗	3,182	3,863	3,020	5,234	6,758		1,665	1,333	0,933	X	0,459	↘
Africa	United Repub	25,485	29,944	34,021	38,824	43,640	↗	0,172	0,181	0,308	0,375	0,504	↗	0,264	0,223	X	X	0,132	↘
Africa	Zimbabwe	10,462	11,639	12,504	12,711	12,889	↗	0,840	0,611	0,535	0,453	0,476		0,400	0,360	0,468	X	0,189	
Latin America and the Caribbean																			
South Am	Argentina	32,625	34,833	36,903	38,648	40,024	↗	4,333	7,408	7,701	4,740	7,674		1,451	1,601	1,418	X	1,042	
Central Am	Barbados	0,259	0,263	0,267	0,274	0,279	↗	6,595	7,065	9,577	10,984	12,886	↗	0,777	0,543	X	X	0,344	↘
Central Am	Belize	0,188	0,207	0,239	0,272	0,301	↗	2,202	2,996	3,486	4,100	4,481	↗	1,179	1,127	X	X	0,367	↘
South Am	Brazil	149,648	161,891	174,505	186,142	193,491	↗	3,087	4,750	3,694	4,739	8,373		1,672	1,013	0,858	X	0,504	↘
South Am	Chile	13,214	14,440	15,454	16,338	16,992	↗	2,388	4,941	5,133	7,615	10,107	↗	1,111	1,123	1,240	X	0,860	
South Am	Colombia	33,307	36,574	39,898	43,184	45,803	↗	1,209	2,529	2,504	3,393	5,105		0,623	0,444	0,567	X	0,412	
Central Am	Dominican Re	7,245	7,978	8,663	9,343	9,884	↗	0,976	2,050	2,770	3,639	4,726	↗	1,046	0,842	0,743	X	0,234	↘
Central Am	Guatemala	8,890	9,984	11,204	12,679	13,989	↗	0,860	1,468	1,722	2,146	2,697	↗	X	0,464	0,575	X	0,235	
Central Am	Honduras	4,904	5,592	6,236	6,899	7,470	↗	0,622	0,699	1,140	1,408	1,952	↗	1,019	0,772	1,044	X	0,217	
Central Am	Jamaica	2,390	2,480	2,589	2,650	2,696	↗	1,921	2,344	3,479	4,179	4,477	↗	0,879	0,742	0,565	X	0,283	↘
North Ame	Mexico	86,077	95,393	103,874	110,732	116,423	↗	3,052	3,005	5,597	7,667	7,591		1,068	0,856	0,712	X	0,371	↘
South Am	Peru	21,772	23,939	26,000	27,723	28,934	↗	1,208	2,242	2,050	2,863	4,387		0,194	0,210	0,160	X	0,137	
South Am	Suriname	0,407	0,435	0,467	0,499	0,520	↗	0,955	1,592	1,912	3,591	7,450	↗	1,953	2,622	X	X	0,057	
South Am	Trinidad and	1,230	1,255	1,268	1,297	1,323	↗	4,148	4,246	6,431	12,405	14,557	↗	0,850	0,936	0,589	X	1,106	
South Am	Uruguay	3,110	3,224	3,321	3,325	3,360	↗	2,990	5,985	6,873	5,222	8,996		X	1,400	1,298	X	0,770	↘
South Am	Venezuela	19,741	22,092	24,408	26,726	28,583	↗	6,926	8,302	8,496	9,937	12,409	↗	1,418	1,145	X	X	0,496	↘

Continent	Country	Population 1990	Population 1995	Population 2000	Population 2005	Population 2009	Trend	GDP per capita 1990	GDP per capita 1995	GDP per capita 2000	GDP per capita 2005	GDP per capita 2009	Trend	Cigarette consumption per capita 1990	Cigarette consumption per capita 1995	Cigarette consumption per capita 2000	Cigarette consumption per capita 2005	Cigarette consumption per capita 2009	Trend
		(millions)						(PPP, US Dollars)						(cigarette sticks)					
South Asia																			
Asia	Bangladesh	107,386	119,870	132,383	143,135	149,503	↗	0,281	0,317	0,356	0,421	0,598	↗	0,194	0,239	0,234	X	0,154	
Asia	India	868,891	955,804	1,042,26	1,127,14	1,190,13	↗	0,376	0,384	0,455	0,740	1,147	↗	0,102	0,114	0,107	X	0,096	
Asia	Iran	56,362	60,468	65,911	70,152	73,543	↗	2,059	1,502	1,537	2,737	4,931		0,743	0,784	0,716	X	0,657	
Asia	Nepal	18,111	20,587	23,184	25,292	26,545	↗	0,200	0,214	0,237	0,321	0,484	↗	X	0,677	0,520	X	0,420	↘
Asia	Pakistan	111,091	126,690	143,832	157,971	170,094	↗	0,360	0,479	0,514	0,694	0,951	↗	0,494	0,455	0,571	X	0,468	
Asia	Sri Lanka	17,015	18,136	19,102	19,644	20,450	↗	0,472	0,718	0,855	1,242	2,057	↗	0,461	0,405	0,338	X	0,195	↘
China																			
Asia	China	1,135,18	1,204,85	1,262,64	1,303,72	1,331,26	↗	0,314	0,604	0,949	1,731	3,749	↗	1,972	1,892	1,790	X	1,711	↘
South-Eastern Asia																			
Asia	Indonesia	178,633	194,113	208,938	224,480	237,487	↗	0,641	1,041	0,790	1,273	2,272		1,145	1,191	1,434	X	1,085	
Asia	Malaysia	18,212	20,725	23,421	25,843	27,790	↗	2,417	4,286	4,005	5,554	7,278		1,660	1,601	1,274	X	0,539	↘
Asia	Philippines	61,949	69,607	77,652	85,821	91,886	↗	0,715	1,065	1,043	1,201	1,832		1,846	1,462	1,529	X	0,838	
Asia	Republic of Ko	42,869	45,093	47,008	48,138	49,182	↗	6,153	11,468	11,347	17,551	16,959		3,022	2,899	2,686	X	1,958	↘
Asia	Thailand	57,184	58,984	62,343	65,559	66,277	↗	1,508	2,849	1,969	2,690	3,979		1,036	1,075	0,802	X	0,560	
Oceania																			
Oceania	Fiji	0,728	0,776	0,812	0,822	0,852	↗	1,836	2,540	2,075	3,656	3,381		1,183	0,995	0,745	X	0,530	↘
Oceania	Solomon Islar	0,312	0,359	0,412	0,469	0,515	↗	0,970	1,446	1,055	0,882	1,168		1,145	0,846	X	X	0,118	↘
Countries in Transition																			
Asia	Azerbaijan	7,159	7,685	8,049	8,392	8,947	↗	1,237	0,397	0,655	1,578	4,950		X	0,664	0,573	X	1,877	
Asia	Kazakhstan	16,348	15,816	14,884	15,147	16,094		X	3,691	4,819	8,699	11,288	↗	X	1,195	1,881	X	1,934	↗
Asia	Uzbekistan	20,510	22,785	24,650	26,167	27,767	↗	X	1,179	1,432	1,970	2,820	↗	X	0,609	0,361	X	0,449	↘

IV