ERASMUS UNIVERSITY ROTTERDAM

Master Thesis

Corruption and Growth, an Empirical Study of 40 European Countries

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Abstract

This thesis empirically investigates the relationship between corruption and growth of GDP per capita in real terms. There are two opposing views on the nature of the effects of corruption, some calling it "the helping hand" (Leff, 1964), while others - "the grabbing hand" (Mauro, 1995). This paper composes a dataset of 40 European countries for the time period 1998-2011 with the goal of analyzing the exact nature of the relationship. Both the short-run and the long-run are analyzed through a panel and a cross-section study, respectively. The empirical analysis in the short-run isn't successful in confirming a significant link between growth and corruption thus does not disprove either of the views on corruption. However, in the long-run cross-section regressions the findings indicate a very strong and significant negative relationship between the two. This confirms the "grabbing" effect of bribery on a county's economy in the long-run.

I. Introduction

The effect of corruption on economic growth has been a long and heated debate in the economic community. Data from Transparency International in recent years indicates that corruption has been "*rampant"* in over 70 countries, including some of the world's most populous and fastest growing economies such as China and India, countries that account for a large and rapidly increasing share of the global economy. However, the exact effects that corruption has on growth still remain unclear. Some have argued that bribes perhaps act as a piece-rate wage for bureaucrats who generally tend to be under-paid and thus under-motivated to do their job efficiently. Thus administrative corruption is an effective tool for cutting through excess red-tape and helps speed up the wealth-generating activities of firms. On the other side of the economic spectrum, some believe that corruption is damaging for innovation and investments and thus for growth. This view has been spearheaded in recent years by Paolo Mauro with his famous paper from 1995, "Corruption and Growth". Whatever stance one takes on the topic, corruption remains as one of the main issues and concerns of every government and society on the globe and thus presents itself as a fascinating research topic. In this paper I will first review both points of view on the effects on growth and then follow the analysis of previous researchers with my own empirical study on a data-sample I have gathered consisting of subjective indices, growth variables and GDP for 40 European countries in the period between 1998 and 2011. But before we begin with the literature review and empirical research, let us first introduce the topic in more detail.

What is corruption to begin with? And while it has many names – bribery, kickback, or in the Middle-East – baksheesh, how do we define it so that we can determine its effects? Over the course of time, corruption has gathered a wide myriad of definitions. They vary and often confuse, therefore in this paper I will attempt to define a narrow and clear meaning for the term. Where does the word derive from? The roots of corruption come from the Latin adjective corruptus, meaning spoiled, broken or destroyed. Those who turn to the Oxford Advanced Dictionary will find the following – "dishonest or illegal behavior, especially of people in authority:" The Concise Oxford English Dictionary is more precise in its definition, describing the word in its social context as bribing - an act of "moral deterioration". The Merriam Webster's Collegiate Dictionary defines corruption as "*inducement to wrong by improper or unlawful means (as bribery)."*

What does the economic literature have to say about corruption and its definition? In his work from 1996, "The search for definitions: the vitality of politics and the issue of corruption", Johnston provides an important typology for the definition of corruption. The author divides the existing

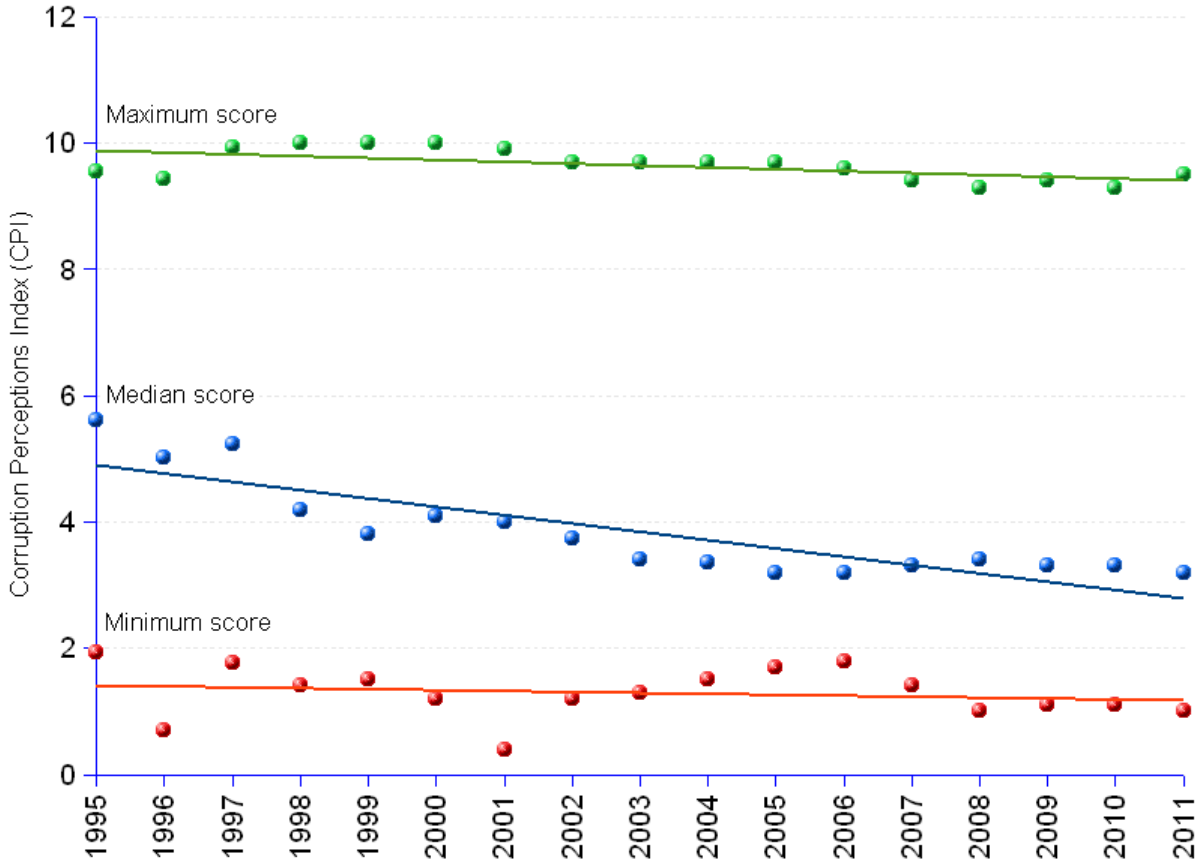
literature into two separate groups. The first group, which he associates with the works of Friedrich 1966, Nye, 1967, Van Klaveren, 1989 and Heidenheimer, 1989, has its focus on the behavioral aspects of corruption. To Johnston, these behavior-focused works all share the opinion that corruption is the abuse of public office, power or authority in the aim of achieving private gain. Nye (1967) defines it as "*behavior which deviates from the formal duties of a public role because of private-regarding (personal, close family, private clique) pecuniary or status gains; or violates rules against the exercise of certain types of private-regarding influence".* Even though not mentioned in the work of Johnston (1996), Garner (2004:370) also gives a definition consistent with this first group. He defines corruption as *"The act of doing something with an intent to give some advantage inconsistent with official duty and the rights of others, a fiduciary's official's use of a station or office to procure some benefit either personally or for someone else contrary to the rights of others".*

The second group of researchers, according to Johnston, defines corruption by focusing on the principal-client-agent relationship. Among the representatives of this group, the author mentions the works of Rose-Akerman, 1978; Klitgaard, 1988 and Alam, 1989. To him, these researches focus more attention to the interactions between and among the involved parties of the above-mentioned relationship. In his work, Alam defines corruption as "*… (1) the sacrifice of the principal's interest for the agent's, or (2) the violation of norms defending the agent's behavior".*

So far, the definition given by the two groups can be summarized as follows. The first one seems to focus on corruption as a phenomenon that exists in the public sector. The second groups of definitions escape the apparent weakness of the previous ones, by not confining corruption only to the public sector. However, when one includes the private sector in the equation as well, he risks defining corruption too broadly and making any empirical research on the matter highly complex. It is for this reason that in this paper I will adopt a definition that confines my research only on the corruption in the public sector. Therefore, I define corruption as follows: "*the abuse or complicity in abuse of public power, office or resources for the goal of achieving personal gains".*

Although there has been a lot of attention on the issue of corruption on both an international level, mainly by campaigns from the United Nations and the World Bank, and on a national level, the presence of corruption in the public sector as it is perceived by the population doesn't cease to grow. Chart 1 indicates the maximum, median and minimum parameters of the Corruption Perception Index or CPI for short, developed by Transparency International and the corresponding regression lines for the years from 1995 to 2011. This subjective index signifies the perceived level of corruption by the public. A low score implies high levels of corruption, while a high score signifies a more clean and probity-rich government.

Chart 1



What Chart 1 shows is that the distribution has shifted to its lower end of the scale. All parameters exhibit decay in the public sector. This occurs not only in the most corrupt nations, but affects the less corrupt as well. The shift is strongest in the median. Here one can observe an average annual change rate of -3.4% (the regression line slope is -0.13). This signifies a deterioration of social morals in more than half of the countries the CPI index covers in its research. This longer term trend is worrisome and merits further investigation into the effects the corruption phenomenon has on the world economy. Although this is hardly the first paper to investigate the link between corruption and growth (Leff, 1964; Huntington, 1968; Acemoglu and Verdier, 1998; all suggest corruption might be desirable for economic growth, while Gould and Amaro-Reyes, 1983; Murphy et al, 1993; Mauro, 1995; Mo, 2001 and most recently, Aidt, 2009 - claim that corruption damages investment and innovation and therefore is detrimental for growth), most of the works done on the subject use older datasets for a wide myriad of countries from all continents. Even one of the most recent works by Aidt, 2009 uses dataset that is only up to the year 2000. I will provide a more recent data-sample I have combined from indices, growth variables and GDP for 40 European countries for the period

from 1998 to 2011. The data I have collected has come mainly from the sources of Transparency International, the World Bank, Penn World Tables and Barro-Lee's data sample on Schooling.

The main hypothesis I will be testing is if there is a link between economic growth (in real terms) and corruption in the economies of Europe and if such a link exists, is its effect negative or positive. The Null Hypothesis I will be testing is that there is no significant link between the two. I will do this by looking at the link between corruption (expressed by the CPI Index from Transparency International) and growth of real GDP per capita. I will use first a panel study to check for first the short-term relationship between the two and then a cross-sectional regression to check for the medium/long-term effects. What I expect to find is a significant negative relation between the level of corruption and growth of GDP in real terms, with the relationship being stronger and more significant in the medium/long-run scenario. (Although, since the CPI Index measures corruption with 1 being the most corrupt and 10 the least corrupt, statistically the relation should be positive between the values of CPI and RealGDP per capita).

In the next section, I will take a closer look at the debate on whether corruption helps grease the cogs of the economy and stimulates growth or does it damage the growth of GDP. After that, I will present the theoretical framework and the model I will use, followed by a section devoted to the methodology used in this paper. Next, I will present a section that takes a deeper focus on the dataset I have constructed and used to test the effects of corruption, explaining how the data was gathered, why I have chosen the 1998-2011 time-frame, why I have chosen the 40 European countries and some descriptive statistics about the data itself. Finally, I will analyze the results of the empirical research and draw conclusions based on them.

II. The two views on corruption

While all economists undoubtedly agree corruption has a significant effect on investments and growth, there are discerning views on what the net effect is. As Aidt (2009) puts it, the world is populated by two types of people – the "sanders" and the "greasers". The sanders are those who believe that bribes and other acts of corruption "sand", that is hinder, development, while the greasers hold the view that, in some cases, corruption can grease the cogs of the economic machine and thus help foster growth. Perhaps the best example of a "greaser" paper is the classic work by Nathan Leff – "Economic Development through Bureaucratic Corruption" from 1964. While the view that corruption can be beneficial for commerce wasn't new at the time of Leff's work, his paper

helped it gain prominence. The paper's significance nowadays should not be underestimated as it has been used as a theoretic basis for more recent works such as Lui (1985) and Beck and Maher (1986). Further claims that support its results have come from empirical papers such as the one of Egger and Winner from 2005. They conclude that "using a data set of 73 developed and less developed countries, we find that corruption is a stimulus for FDI, which confirms the position of Leff (1964) that corruption can be beneficial in circumventing regulatory and administrative restrictions". What is the general idea behind the view of Leff and other researchers that see corruption as the grease necessary to run the commerce machine at full speed? The first thing Leff does to defend his position is to distinguish between bureaucratic corruption and bureaucratic inefficiency. "Corruption refers to extra-legal influence on policy formulation or implementation. Inefficiency, on the other hand, has to do with success or failure in attaining given goals, whether those of its political directors, or those of the grafters." (Leff, 1964). Leff strongly believes that corruption can have a positive effect in economies that suffer from government and administrative inefficiencies, since corruption facilitates beneficial transactions that would otherwise not have occurred and thus corrects the shortcomings of the administration. According to him, this is especially the case in underdeveloped countries, where the government might have other priorities and the importance of economic development is only given lip-service. In such cases, the bureaucracy and authorities generally are more concerned with maintaining the status-quo and could even dislike the emergence of a competing center of power, such as a strong and wealthy middle-class. Through graft, entrepreneurs can induce the administration to take a more favorable stance on activities that would help foster economic growth. Graft can also motivate the bureaucracy to be more efficient in its task of allocating resources to the most productive of the entrepreneurs. According to Leff, this is done by allowing individuals in the private sector to outbid each other for the allocation of scarce licenses or favors and with competition driving prices upwards, the licenses and favors will tend to go to those who can pay the highest prices. In the long run, this will make sure that the favors will go only to the most efficient producers, as they will be able to out-bid less competitive peers. To Leff, this is a situation where the efficient out-do the inefficient and thus presents itself as a good self-correcting mechanism for the market. The author sets the following example to illustrate his theory. In the early 1960s, the government agencies of Chile and Brazil were given the job to enforce price controls for food products. In Chile, the administration strictly enforced the freeze as was charged to do. That resulted in a stagnation of food production. In contrast to Chile, the Brazilian agencies were corrupt and sabotaged the freeze, resulting in a substantial increase in food production.

Daniel Levy provides another example from the real world in his work from 2007 - Price adjustment under the table: Evidence on efficiency-enhancing corruption – that supports the claims of the

greasing effect of corruption. Based on his first-hand experience, his paper offers anecdotal evidence on price-setting and price-adjustment mechanisms that were in usage in the Republic of Georgia during the Soviet planning and rationing regime (1960-1971). In his work, Levy depicts the creative and sophisticated ways that were used to deal with the artificially created shortages of the inefficient central-planned economy of the Soviet Union and its distorted relative prices. Rent-seeking behavior led to the allocation of significant real resources for the development and maintenance of an unexpectedly efficient and well-functioning chain of black markets. This was done through a chain of bribes and secret payments which resulted in the fact that the Georgian economy could produce far more output and allocate it far more efficiently than would have otherwise been feasible.

Next on I will present the paper of Peter Egger and Hannes Winner – Evidence on corruption as an incentive for foreign direct investment. The reason why I have chosen this paper in particular out of all the ones defending the positive externalities of corruption is because it assesses the relationship between corruption and inward foreign direct investments (FDI), an aspect I will examine in detail in the empirical part of my paper and its focus on distinguishing between the long and short term influences of perceived corruption. Egger and Winner use a sample of 73 developed and less developed countries for the time period 1995-1999 and find a clear positive relationship between corruption and FDI and thus conclude corruption is a stimulus for FDI, thus confirming the proposition of Leff (1964). How do they come to that conclusion? Prior research done before their paper, mainly analyzing cross-section data => therefore focusing on the long run, tends to find a negative long run impact of corruption on FDI. The Co-authors thus decide to assess the short and long run impact of corruption on inward FDI stocks by using a panel study to see if there is any significant difference between the two. To accomplish this, they disentangle the short run from the long run by estimating a Hausman-Taylor model and thus accounting for the potential endogenity of the long run. What is more fascinating in this paper is the results Egger and Winner find on the internal distributional effect of corruption on FDI. Their findings suggest that the long run contribution of the perceived corruption amounts to up to 40%, while the short run contribution is 5% of the observed overall FDI growth in their sample of countries in the 1995-1999 period. Furthermore, the observed change in corruption has accounted for an equalization effect on the international distribution of real inward FDI shares (though only accounting 1% for a long run increase in the entropy index).

What do the “sanders” have to say about all this? It seems the “helping hand” theory has no lack of evidence supporting its case, but is corruption all that good? Perhaps it can be circumstantially beneficial only in the cases of major administrative or government failures? Mauro (1995) explores that probability by measuring the effects of the indices for corruption, red tape, the efficiency of the

judicial system and various categories of political stability on the growth of the economy of a cross section of countries. To him, the interaction between the institutions and economic growth is two-sided. While institutions undoubtedly affect economic variables and performance, at the same time, the same economic variables may affect the institutions themselves. In order to escape the issue of endogenity, Mauro uses an index of ethno-linguistic fractionalization (an index that measures the probability that two persons drawn at random from a country's population will not belong to the same ethno-linguistic group) as an instrument in his regressions. What he finds contradicts with the position of Leff (1964) and directly that of Egger and Winner (2005). Mauro finds that corruption lowers private investment and thereby, reduces economic growth even for a subsample of countries where government and bureaucratic regulations and red tape are very cumbersome and major administrative failures are present. His results are significant both statistically and economically. Mauro (1995) gives an example of his findings. He suggests that if Bangladesh were to increase the integrity and efficiency of its administration by one standard deviation increase in the bureaucracy efficiency index, its investments rate would increase by 5 percent, which in turn, would result in an increase in the annual GDP growth increase by half a percentage point. He concludes that bureaucratic efficiency is perhaps just as important determinant of investments and thus growth, as is political stability and thus puts support to the theory of corruption's "grabbing hand" effect.

Another interesting "sander" paper is the 2001 work of Pak Hung Mo – "Corruption and Economic Growth". Similarly to Mauro (1995), Mo does an empirical study in order to provide quantitative estimates on the impact of corruption on the growth of an economy. Unlike previous literature, however, Mo explores the importance of the transmission channels through which corruption affects investment and growth. The author presents the three most important to him, of these channels – the Investment channel, the Human Capital channel and the Political Stability channel. His results are consistent with Mauro (1995). He finds that a one-unit increase in the corruption index (the perceived corruption index CPI) reduces the growth rate of an economy by 0.545 percentage points. While corruption lowers growth through all 3 of the channels he differentiates, its strongest effect is via the Political Stability one, which accounts for around 53% of the overall effect. Additionally, he finds that corruption is most prevalent in countries where other forms of institutional inefficiencies and administrative failures are present, such as bureaucratic red tape and weak or inefficient legislative and judicial systems. Mo concludes that perhaps all these effects are perhaps a manifestation of a single phenomenon and thus should be considered as a whole.

Aidt (2009) takes a slightly different approach then Mauro (1995) and Mo (2001) before him. In his paper "Corruption, institutions and economic development" he looks at the relationship between growth in genuine wealth per capita, a direct measure, the author believes, of sustainable

development, and corruption. Aidt describes corruption as a source of short-term unsustainable growth and while circumstantially an effective lubricator that speeds up the entrepreneurs' wealth generating activities, in a broader sense, corruption is an obstacle for long-term sustainable development. One of the main arguments he puts is the logical fallacy of efficient corruption. If a bureaucrat, who is interested in rent-seeking, knows corruption is a useful tool to overcome cumbersome procedures and excessive red tape or other administrative inefficiencies, he has an incentive to create and maintain such administrative inefficiencies precisely because of their corruption potential. This will cause substantial amounts of real resources to be devoted to contesting the associated rents. The result will be pure waste and misallocation of resources. Even if there are singular examples of efficiency-enhancing corruption on a microeconomic level, according to Aidt, they should not be taken as evidence of the same effect on a macroeconomic level. From a quantitative point of view, unlike the works of Mauro and Mo, the paper is unsuccessful in its attempt at producing statistically robust and convincing evidence of the negative link between corruption and GDP per capita. However, Aidt does present quantitative evidence in the form of field studies and survey points to the substantial cost of corruption. Even though Aidt may not have proven the link statistically, his work does indicate that corruption is a hindrance to sustainable growth. His theoretic model and theoretic framework provide a very interesting and clear explanation on the possible mechanism that makes corruption an ineffective tool for dealing with bureaucratic inefficiency and failures, as well as fostering sustainable growth. The insight his paper provides is the reason why I will use it as my own theoretic framework.

III. Theoretic Framework

After analyzing some of the most prominent works on the subject of corruption and growth, discussing the views of both "greasers" and "sanders", I will now continue this paper with a theoretic framework in order to explain why I believe a link exists between corruption and growth and why I believe the relationship is a negative one. As I said above, the model I will present is a theoretic model based of the insights of Aidt (2009) about the efficient corruption logical fallacy. We have seen so far that corruption is indeed more evident in an economy suffering from administrative failures and or bureaucratic inefficiency. So let us assume first an economy without government intervention, a perfectly competitive market. This economy consists of a continuum of agents. Each of these agents can become an entrepreneur or works for a wage. Each of these agents is differentiated by their level of entrepreneurial skills and productivity or to say it in another way, their

comparative advantage. In this model, we will call this comparative advantage "*a*" with *a* being uniformly distributed between [0, 1]. a = 1 will present the most skilled and productive entrepreneurs while a = 0 the least skilled and productive. If an agent decides to work as a worker in the private sector, his wage will be *w,* with *w* not changing regardless of his entrepreneurial skills and productivity *a.* The wage will, however, increase with the number of firms *n*. Additionally, the profits of the entrepreneur decrease with the increase in *n.* An agent becomes an entrepreneur if $a_i\pi(n) - w(n) > 0$. If an entrepreneur's comparative advantage is high, he is able to produce more cheaply and efficiently, this retaining a higher percentage of the value he produces. In an economy without government intervention, individuals with high levels of *a* create firms until the profit from the two employment opportunities is the same -> $a\pi(\varphi_h) - w(\varphi_h) = 0$ This result is market efficient and allocatively efficient, therefore government intervention isn't necessary or warranted. Yet suppose that the administration decides to implement licenses in order for an entrepreneur to set up a firm and begin wealth generating activities. If the number of licenses, let us denote them as λ, is equal to the number of firms in market equilibrium φ_h , nothing changes in the economy. The market is still in equilibrium and resources are allocated efficiently. Now assume, however, that λ is smaller than φ_h . In this case, the government must decide on how to distribute the licenses among the entrepreneurs who want to set up their operations. Since the administration cannot observe the comparative advantage *a* of each entrepreneur, they have to either distribute the licenses at random or sell them to the highest bidder. In the first scenario, the government distributes the licenses at random which might cause some entrepreneurs with a low value of *a* to set up firms and thus cause a misallocation of resources. The latter option, where a corrupt government official sells the licenses to the highest bidder at first seems like a more effective way for allocation, as only agents with the highest value of *a* would compete for the licenses. In this sense, here corruption can be seen as efficiency-enhancing as more output will be produced than in the non-corrupt case. This is similar to the examples of Leff (1964) of the food production freeze in Brazil and Chile. This scenario creates some complications however. First, it would be far more efficiently-enhancing for the government to not intervene at all or to set the number of licenses λ equal to φ_h . Since we assume all agents to be perfectly rational and the bureaucrats to be the ones determining the number of licenses in the economy λ, they have no incentive to set the number of licenses λ equal to the equilibrium number of firms φ_h , as in that way they do not generate additional income. The profits of the public sector agent will increase from $w_b = t$ to $w_b = t+c$, in the corruption scenario, with c representing the scarcity rent the bureaucrat will gain from selling the licenses and *t* being the wage of the bureaucrat. In fact, we expect the bureaucrat to set the number of licenses λ, in a way to maximize the value of *c* or the profits they will gain from corruption. This will definitely mean setting the number of licenses λ

below the optimum. What this argument says is that not only does corruption not help in cases of government failures and bureaucracy inefficiencies, in fact, knowing that those inefficiency have corruption potential, the administration would purposely impose and maintain them in order to generate rent from the entrepreneurs. This scenario creates misallocation of resources, as agents with high comparative advantage are now interested in private sector jobs. Since fewer entrepreneurs will produce in this equilibrium than in the perfectly competitive market one, investments will decrease and the overall output of the economy will suffer a decrease as well and in this way, decreasing the overall growth of the economy. The crucial point of this model, similar to the insight of Aidt (2009), is that corruption and bureaucratic inefficiency are two elements of the same phenomenon, undividably linked together. Inefficient regulations generate scarcity rents and those scarcity rents by themselves create corruption potential as individuals are only willing to pay to obtain licenses if they are scarce. And even if, as some of the *"greaser"* papers suggest, corruption is a useful tool to circumvent cumbersome regulation or bureaucratic inefficiencies in the short-run, it provides enough incentives for the creation of more such regulation and inefficiencies in the long-run. In the empirical analysis, we would expect that an increase in the Gastil index (that is, worsening of the political freedom and bureaucratic efficiency) and a decrease in the corruption perception index CPI (that is, an increase in the perceived corruption in the public sector) to have negative effects on investments and the growth of real GDP per capita. Since the effects of change in corruption and administrative efficiency take time to bear fruit, we would expect the impact on GDP growth and investments to be more pronounced in the long-run than in the short-run.

IV. Data

1. Data Description

For the purpose of testing empirically the main hypothesis of whether a link between corruption and growth exists, I have constructed a data-sample taken from 40 European countries for the time period from 1998 to 2011. The main reason I have done so is because previous papers that have been written on the topic of corruption and growth all use older data-series, with even the most recent ones using samples going only until the year 2000. Therefore, in order to see if the results of previous researchers are consistent with more recent data, I have collected a data-sample, consisting of subjective indices, growth variables and real GDP per capita from Transparency International, The World Bank, Penn World Tables and The Barro-Lee sources on schooling for the countries: Albania, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, The Czech Republic,

Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Former Yugoslavian Republic of Macedonia, Malta, Moldova, Montenegro, (for the years 1998 and 1999, I used data for Serbia for the CPI and Gastil Indexes) The Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine and the United Kingdom. Initially, the data set also included Monaco, Kosovo, Lichtenstein, San Marino, the Vatican and Andorra, Armenia, Georgia, Iceland but they were dropped from the series due to insufficient data. (Transparency International did not include most of these countries in its CPI Index until much later on in the series). Why have I chosen only European countries? In previous works, the data sample has always had a diverse selection of developed and developing countries from all around the globe. Representatives of almost every continent were present in the data-series. The reason I chose to focus my attention only on Europe is because, even though European countries differ substantially between each other (for example, the Netherlands are very different culturally, ethnically and linguistically from Russia, yet Russia is much more similar to the Netherlands, when compared to China), they still share more commonalities then differences. In that way, I account to some extent for cultural effects on corruption.

Another reason why I have limited my research to Europe only is the fact the continent provides us with an excellent sample of countries, distributed along the whole spectrum of parameters. In terms of the level of CPI, Europe has the 2 highest ranking countries in the index, Denmark and Finland, which have scored on more than one occasion the perfect score of 10. On the other hand, the European series also includes examples such as Albania, Serbia and Russia with scores comparable to third-world countries in Africa in terms of corruption. This diversity and distribution of countries in the data I hope will provide my empirical research with good and robust results on the link between corruption and growth.

The main indicator I am using in this paper for measuring corruption is the Corruption Perception Index which ranks countries according to their perceived level of public-sector corruption. This index is consistent with my definition of corruption as - "*the abuse or complicity in abuse of public power, office or resources for the goal of achieving personal gains"* – since it limits the scope of research to only the public sector. The index ranks its scores from 1 to 10. A score of 10 signifies that the county is a paragon of probity and there is no perceivable corruption, while a score of 1 shows that corruption dominates the country entirely. The index itself is a composite index, drawing on corruption related data by a variety of independent and reputable institutions. The main reason the researchers at Transparency International use an aggregate index of individual sources, rather than taking each score separately, is that a combination of sources measuring the same phenomenon is much more reliable and robust. To be included in their CPI index, a source must measure the overall

extent of corruption (frequency and/or size of corrupt transactions) in the public and political sectors and measure perceptions of corruption in at least a few different countries. The methodology used to assess the perception has to be the same for all assessed countries. There are two different type of sources included in the CPI Index. The first one is business people opinion surveys on how much corruption influences their activities. The second one is assessment scores of a country's performance, provided by a group of country/risk/expert analysts. (For example, the 2009 CPI includes 6 assessments of business people surveys: IMD 2008 and 2009, PERC 2008 and 2009 and WEF 2008 and 2009. The other 7 sources used in the construction of the index are assessments provided by country experts or analysts). Since each of the sources uses its own scaling system, the researchers at Transparency International standardize the data before entering it into the index (For details on how this is achieved refer to www.Transparency.org/cpi).

The next index I use in the data is the Gastil measure of world freedom, taken from the annual report prepared by the Freedom House on World Freedom (Since 1989 the survey has been renamed to the Freedom of the World, however, it used to be called the Gastil index in honor of Raymond Gastil, a Harvard-trained specialist in regional studies who developed the survey's methodology in 1972). I calculate the Gastil Measure by taking the scores of political rights and civil liberties per country, presented in the report, adding them together and then dividing by 2. The survey used in the report provides an annual evaluation of the state of global freedom as experienced by individuals. The ratings are divided into 2 categories – Political rights and civil liberties. Political rights enable people to participate freely in the political process, including the right to vote freely, compete for public office, join political parties and organizations and elect representatives who have a decisive impact on public policies. Civil liberties on the other hand allow for freedoms of expression and belief associational and organizational rights, rule of law, personal autonomy without interference from the state and etc. The survey does not rate governments and or government performance per se, what it does measure is the real-world rights and social freedoms of individuals. The survey tries to reflect the interplay between a variety of governmental and non-governmental actions that affect the freedoms. An important note on the survey is that the Freedom house does not maintain a culture-restricted view of freedom, but grounds its methodology in basic standards of rights and liberties, derived from the Universal Declaration of Human Rights. The ratings are done on a scale of 1 to 7, with 1 indicating the highest degree of freedom and 7 – the lowest. These ratings are applied to 192 countries around the globe. (for a more detailed look at the methodology of the report, please visit http://www.freedomhouse.org/report/freedom-world-2010/methodology).

Next I will present the growth variables I have assembled for the data sample of the 40 countries in the 1998-2011 period. The variables come from the data banks of the World Bank, The Penn World

Tables and The Barro-Lee data sample on Schooling. The values for foreign direct investment (FDI) were gathered from the World Development Indicators (WDI), the primary World Bank databank, compiled from official-recognized sources of development data of national, regional and global estimates. Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors. Data are in current U.S. dollars.

Initial GDP, converted using PPP, from the year 1998 has been taken from the Penn World Tables database. PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. Data are in constant 2005 international dollars. The growth indicator I have chosen is GDP per capita based on purchasing power parity (PPP). PPP GDP is calculated as gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2005 international dollars. The values have been also taken from the Penn World Tables. The next growth variable I have included, taken from the WDI is the population growth. The population growth, expressed as the annual change in percentages, is the exponential rate of growth of a midyear population from the previous period to the current period. It is derived from the total population. The last variable I use from the WDI databank is the Inflation. It is measured by the annual growth rate of the GDP implicit deflator and shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency.

The next development variable I have used is the average years of total schooling for individuals above the age of 25. This variable is used as a proxy for the stock of human capital. It is taken from the well-known dataset of Robert J. Barro and Jong-Wha Lee and provides us with an estimation of the total amount of years, on average, an individual has spent in schooling, with schooling including primary, secondary and tertiary education. The reason I have chosen to employ the measure for individuals over the age of 25, is because that is the age at which, on average, individuals complete

their tertiary education. The data estimations are made for every 5 years, so in the data series I have completed, the measures present are for the years 2000, 2005 and 2010.

The next two growth variables have also been taken from the Penn World Tables. They are Investment Share of PPP Converted GDP Per Capita at 2005 constant prices in percentages and Openness at 2005 constant prices in percentages. Previous researchers have identified Openness to trade, share of investment in GDP, the rate of population growth, the initial level of real GDP and proxy for human capital (in this paper's case, total years of schooling for individuals over 25) to be robust in determining growth (Levine and Renelt (1992)).

One of the goals of this paper is to analyze the effects corruption has on investment and on growth both in the short-run as well as in the medium to long-run. For this reason, the data sample has been constructed to allow for both a panel study that includes samples for every year in the period from 1998 to 2011 (the exception here being the Barro-Lee schooling data which is calculated for every 5 years) and a cross-section analysis which analyses the data averaged over the sample period, displayed in table 1 (For a detailed look at the panel data-sample itself, refer to the Appendix).

Table 1: Cross-section data, averaged over the sample period 1998-2011 on the 40 European countries

	FDI	Kills	Pop Growth	School	Inflation	Real GDP/Cap	Income	Income/Cap	Gastil Index	CPI	Initial GDP	Investment	Openness
AUT	4.4098418	0.72716	0.39323136	9.416267	1.435655	33478.49246	1.71311E+11	20933.9004	1	7.992857	2.372E+11	24.5746154	96.711538
BEL	16.127193	2.25679	0.55767842	10.40047	1.886156	31638.00194	2.11082E+11	20143.6744	1.14285714	6.885714	2.903E+11	26.0023077	150.22923
BGR	10.926582	3.12621	-0.7572182	9.675367	7.230175	9423.432293	13688427302	1755.33868	1.89285714	3.714286	5.394E+10	19.6546154	110.5
ALB	4.626262	7.07618	0.28105846	10.1499	4.230214	6029.323554	4531842630	1443.64262	3.35714286	2.714286	1.248E+10	28.7115385	61.603077
BIH	4.3969893	1.7	0.77670564		5.184807	6250.61911	7074972727	1893.57321	3.89285714	3.021429	1.628E+10	21.4561538	88.743846
BLR	2.3716245	8.30808	-0.4697963		63.95136	8629.520846	17049914029	1749.63511	6.28571429	3.178571	5.314E+10	19.3469231	105.02154
CYP	7.6851676	1.7	1.61384719	9.471967	2.846548	24270.54261	9207530676	9075.81737	1	6.035714	1.432E+10	22.7553846	99.384615
HRV	5.0712984	1.86266	-0.3063047	8.739233	4.006371	14647.12816	21452842215	4825.35404	2.21428571	3.664286	5.333E+10	26.9353846	86.497692
CZE	5.6432686	1.18083	0.16572685	12.4344	2.18902	20605.09885	52383291560	5077.90072	1.21428571	4.485714	1.681E+11	24.8930769	119.14615
DNK	3.9260766	0.92595	0.38030009	10.12177	2.274754	32353.69014	1.38276E+11	25525.5429	1	9.535714	1.592E+11	24.7353846	90.257692
EST	8.7784731	8.96651	-0.310503	11.88023	5.1423	15093.13203	6525937096	4829.1999	1.21428571	6.107143	1.441E+10	25.8307692	143.70846
FIN	3.3331343	2.49117	0.33548333	9.5314	1.695	29805.37428	1.10576E+11	21080.4975	1	9.535714	1.293E+11	25.5476923	76.937692
FRA	2.6474825	0.80818	0.61452038	9.838733	1.641301	28978.97576	1.23797E+12	19740.4741	1.14285714	6.914286	1.604E+12	21.9269231	52.021538
DEU	2.1044349	1.03792	-0.0269358	11.6463	0.765281	31578.50045	1.67458E+12	20362.6217	1.14285714	7.85	2.373E+12	21.4346154	73.247692
GRC	0.7832543	0.985	0.34134598	9.613767	3.196522	23053.65221	1.25674E+11	11339.3596	1.67857143	4.314286	2.053E+11	26.0392308	56.650769
HUN	10.965448	1.99479	-0.2252779	11.4614	6.318964	15824.00892	41568127479	4110.97641	1.25	5.014286	1.298E+11	21.56	133.69923
IRL	8.29811	1.20488	1.43482323	11.39623	1.528783	37127.59807	84403082354	20550.6693	1	7.571429	9.352E+10	27.2046154	151.60692
ITA	0.99713	1.18983	0.4712152	8.9587	2.158187	27779.97684	9.5955E+11	16455.7681	1.25	4.764286	1.501E+12	25.7807692	51.133846
LVA	4.2400551	10.22	-0.6539759	9.9844	6.098541	11782.01567	8464750340	3672.87458	1.5	4.007143	1.808E+10	22.7561538	101.57769
LTU	3.8207803	8.3375	-0.7851116	10.482	2.846664	13282.01313	13124308510	3847.11874	1.28571429	4.6	3.261E+10	16.8269231	110.57385
LUX	365.9793	2.5	1.49356104	9.888333	3.288543	65611.22025	16565792868	35835.6903	1	8.564286	2.266E+10	25.7976923	283.79923
MKD	4.8418387	2.45386	0.28561558		3.582773	7993.178969	3060998155	1506.15481	3.10714286	3.021429	1.361E+10	19.6630769	103.18077
MLT	11.812643	1	0.7879697	9.542767	2.450459	21288.3855	4787319159	11980.4747	1	6.207143	7.262E+09	18.9046154	163.61077
MDA	5.8265743	8.08906	-0.1992091	9.367167	13.65212	2242.505342	1691692310	470.085538	3.32142857	2.742857	6.116E+09	17.4623077	107.38923
MNE	25.52391	3.5	-0.1151135		7.09827	8545.021344	1154418300	1835.2234	3.17857143	2.857143	4.812E+09	24.9123077	115.51692
NLD	6.403704	1.13167	0.48011283	10.98757	2.133621	35133.52155	3.45956E+11	21322.0942	1	8.857143	4.931E+11	21.2830769	126.80538
NOR	2.2630779	0.82337	0.83582597	12.28823	4.862504	46116.94981	1.36968E+11	29552.2286	1	8.757143	1.875E+11	25.29	72.443077
PRT	2.7294055	1.26697	0.37630471	7.2488	2.534399	21290.961	99053107278	9483.17723	1	6.357143	2E+11	29.1453846	64.269231
POL	3.6463391	2.43271	-0.0805979	9.719833	3.855459	14028.11868	1.69306E+11	4426.05834	1.21428571	4.242857	4.147E+11	20.1192308	71.436923
ROM	4.4681972	2.77333	-0.3784853	10.14557	22.28844	9092.025092	42075806835	1933.19646	2.03571429	3.228571	1.521E+11	21.61	70.270769
SRB	5.2538581	2.26909	-0.3723039	9.408033	25.54658	8168.887037	11818345455	1592.17269	2.96428571	2.771429	5.224E+10	17.6030769	68.520769
SVK	3.8835316	2.16536	0.07485117	11.45787	3.724766	16291.51191	27811813023	5153.64484	1.25	4.135714	6.763E+10	22.4130769	144.19846
SVN	1.9228583	1.1197	0.23367512	11.6225	4.188303	22795.93167	19457376980	9693.43076	1.14285714	6.078571	3.58E+10	30.6230769	119.79692
ESP	3.382961	0.9175	1.10965845	9.715733	2.945412	26506.96571	5.54085E+11	12915.5029	1.14285714	6.642857	9.202E+11	28.9846154	54.781538
SWE	6.0233685	1.03917	0.47399831	11.44437	1.539376	31632.0467	2.34399E+11	25901.789	1	9.271429	2.365E+11	18.2692308	87.716154
CHE	4.3424884	0.99289	0.7801244	10.0935	0.917775	35874.6972	2.35019E+11	31668.6592	1	8.871429	2.376E+11	25.5623077	88.699231
TUR	1.5066347	3.3	1.37049397	6.0255	30.11008	11033.88779	2.79901E+11	4146.69102	3.5	3.771429	6.06E+11	18.2946154	43.611538
UKR	3.9242122	8.57149	-0.7257379	11.01977	16.73426	5157.683407	32772601360	692.57252	3.25	2.378571	1.72E+11	13.7038462	92.033077
GBR	4.3880011	1.56288	0.51090828	8.992067	2.217346	31377.83154	1.43816E+12	23908.1852	1.14285714	8.271429	1.58E+12	18.2761538	54.464615
RUS	2.2053138	23.7667	-0.2654607	4.807267	20.74102	11421.87798	3.7916E+11	2438.31227	5.17857143	2.385714	1.077E+12	15.1053846	50.781538

2. Comparative Statistics of the data

Now I would like to turn my focus on some descriptive statistics from the data set I've assembled. I will begin by looking at the descriptive statistics for variables of interest and their individual samples in the panel study short-run scenario. (Table 2)

Table 2: Descriptive statistics for the panel study variables and their individual samples

	FDI	Investment	Openness	POP Growth	RealGDPcap	CPI	Gastil
Mean	14.43284	22.67490	98.56448	0.263769	21274.24	5.533036	1.872321
Maximum	564.9163	47.19000	326.5400	3.421902	74113.94	10.00000	6.500000
Minimum	-29.22884	7.690000	27.98000	-2.850973	1619.869	1.300000	1.000000
Std. Dev.	61.38150	5.401361	45.10473	0.726680	13151.91	2.346298	1.317707
Jarque-Bera	55071.17*	5.205105***	1027.554*	133.4320*	149.2667*	41.53755*	439.2141*
Observations	540	520	520	560	558	560	560

An interesting observation that characterizes the data is that all the variables follow a normal distribution as can be seen from the Jarque-Bera test statistic. All the variables Jarque-Bera test values, except for the Investments at constant prices (KI), are significant at the 1% level. The Investment variable's test statistic is significant at the 10% level. The mean value of CPI is 5.533 and it is surpassed by 19 of the 40 sample countries. These are all developed countries, with the highest results belonging to the Northern European countries. Two countries manage to achieve the perfect score of 10 and the maximum in the sample – Denmark for the years 1998 and 1999 and Finland for the year 2000. On the other hand, the minimum value of 1.3 belongs to Serbia for the year 2000. The same observations are made for the Gastil index as well. Here again, Northern Europe can proudly claim the top spot (in this case, the minimum values) when it comes to political freedom and civil liberties. 26 countries manage to receive the minimum value of 1 (completely free) during the sample period, with Austria, Cyprus, Denmark, Finland, Ireland, Luxembourg, Malta, The Netherlands, Norway, Portugal, Sweden and Switzerland managing to maintain the perfect rating of 1 throughout the whole sample period. The maximum value of 6.5 belongs to Belarus for the years 2004-2011. The mean value for real GDP per capita is 21274.24. The minimum value of the series is 1619.869 and belongs to Moldova for the year 1999. The second lowest value also belongs to Moldova for the year 2000. 17 countries – Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and Great Britain have Real GDPs per capita over the mean value for the entire sample period. The maximum value of 74113.94 belongs to Luxembourg for the year 2007. This isn't surprising, as 2007 was the year before the latest global economic crisis and most countries experience their highest values of GDP per capita during that year.

Table 3: Descriptive statistics for the cross-sectional study variables and their individual samples

	FDI	Investment	Initial GDP	Openness	POP Growth	RealGDP/cap	Schooling	CPI	Gastil
Mean	14.53702	22.67490	3.41E+11	98.56448	0.262675	21330.86	9.971594	5.533036	1.872321
Maximum	365.9793	30.62308	2.37E+12	283.7992	1.613847	65611.22	12.43440	9.535714	6.285714
Minimum	0.783254	13.70385	4.81E+09	43.61154	-0.785112	2242.505	4.807267	2.378571	1.000000
Std. Dev.	57.17227	4.094188	5.46E+11	43.69451	0.627130	13141.09	1.577112	2.330718	1.273160
Jarque-Bera	2231.681*	1.029745	62.11997*	87.51757*	0.991755	9.525759*	17.33915*	3.383564	30.40903*
Observations	40	40	40	40	40	40	40	40	40

When we analyze the variables for the cross-sectional regression (table 3), we find that there are little differences in the data's descriptive statistics of the averaged variables. Perhaps the main difference in the long-run scenario is that not all variables follow a normal distribution anymore. Only 6 variables have significant Jarque-Bera statistics, FDI, Initial GDP (INIGDP), Openness at Constant Prices (OPENK), Real GDP per capita, Total years of schooling and the Gastil Index. Of the 6, all are at the 1% significance level. In terms of the CPI scores, the maximum belongs to Denmark, as in the panel data, while the minimum to Ukraine. In Real GDP per capita, Moldova holds the minimum averaged over the sample period value of 2242.505 with Ukraine being second. The maximum belongs to Luxembourg with an impressive averaged real GDP per capita of 65611.22. The second largest averaged value belongs to Norway. In terms of the 2 new variables that are added to the long-run scenario – Schooling and Initial GDP – we find that the Czech Republic can boast as having the largest amount of total schooling for individuals over the age of 25. On average, a Czech citizen has 12.4344 years spent on his education. Russia on the other hand holds the minimum with 4.8072 years of schooling. In terms of Initial GDP, Germany occupies the first position with Montenegro being last.

I will now look to see if the variables used in the regressions are correlated. Again, I will first look at the short-run panel study, represented in table 4.

Table 4: Short-run Panel Data

Covariance Correlation	CPI	FDI	Gastil Index	Openness	Investment	POPGROWTH
CPI	5.504453					
	1.000000					
FDI	27.47612	3459.497				
	0.199109	1.000000				
Gastil Index	-2.097151	-8.651601	1.723449			
	-0.680885	-0.112045	1.000000			
Openness	21.45691	1722.640	-13.87221	2065.509		
	0.201232	0.644428	-0.232505	1.000000		
Investment	3.520984	32.54366	-2.525401	38.30167	29.44429	
	0.276571	0.101967	-0.354512	0.155312	1.000000	
POPGROWTH	0.737752	10.30931	-0.254447	5.121464	1.197176	0.536528
	0.429296	0.239291	-0.264608	0.153845	0.301204	1.000000

From the covariance analysis of the panel study we see that indeed some of the variables are highly correlated. Perhaps the strongest example of this we can find between the Gastil index and the CPI corruption index. The link is very strongly negative, with a correlation of – 0.68. This result is to be expected, since as we saw in the review of previous researches and paper on the topic, as well as in theoretic part of this paper, corruption is most prevalent in countries that suffer from political instability and governmental and bureaucratic inefficiencies and failures. The Gastil index is a good proxy for those issues and therefore it comes with no surprise to see the relationship. The reason why the link is negative is due to the way the two indexes are calculated. Lower scores of CPI signify higher levels of corruption, while lower scores of the Gastil index represent countries that are not suffering from the previously mentioned administrative issues. As Mo (2001) has suggested, perhaps the two are simply symptoms of the same phenomenon. The other two highly correlated variables we find in this analysis are openness at constant prices (OPENK) and Foreign Direct Investment (FDI). This is also an expected relationship, as it is consistent with previous research that demonstrates the strong link between openness to trade and foreign investment.

Table 5: Cross-Section Long-Run Data

Covariance Correlation	SCHOOL	CPI	FDI	Gastil Index	InitialGDP	Investment	Openness	POPGrowth
SCHOOL	2.418192							
	1.000000							
CPI	1.058370	5.103604						
	0.301268	1.000000						
FDI	0.441815	27.97621	3527.785					
	0.004783	0.208497	1.000000					
Gastil Index	-0.864807	-1.591628	-6.835803	0.949649				
	-0.570679	-0.722972	-0.118102	1.000000				
InitialGDP	-1.64E+11	2.14E+11	-4.19E+12	1.46E+09	3.10E+23			
	-0.189782	0.170257	-0.126789	0.002691	1.000000			
Investment	1.504955	3.201627	29.07903	-1.923667	-3.33E+11	17.39745		
	0.232025	0.339773	0.117378	-0.473266	-0.143329	1.000000		
Openness	26.72675	22.69845	1940.314	-14.40713	-1.09E+13	23.41117	2055.643	
	0.379076	0.221607	0.720522	-0.326078	-0.429764	0.123796	1.000000	
POPGrowth	-0.080711	0.781740	12.17118	-0.205419	3.60E+10	1.027571	5.153791	0.399591
	-0.082107	0.547414	0.324171	-0.333466	0.102350	0.389728	0.179823	1.000000

In the cross-section long-run scenario (table 5), the negative correlation between CPI and the Gastil Index is even stronger. Additionally we find that the Gastil Index is also somewhat highly negatively correlated with the total amount of schooling for individuals above the age of 25. This makes sense, since the more educated the country's population, the higher their need for democracy, political freedom and civil liberties. Perhaps this could be an interesting topic for further research. Furthermore, we also see that the correlation between FDI and Openness at constant prices has increased by more than 15% to 0.72052.

V. Methodology

In order to check empirically if corruption indeed has an effect on growth in the short and long run and if so, is the effect positive, does it grease the wheels as Leff (1964), Levy (2007) and Egger and Winner (2005) suggest or is it negative, is corruption the sand in the cogs of the economic machine, as Mauro (1995), Mo (2001) and Aidt (2009) say, I will now test my initial hypothesis through the use of panel study (for the short-run) and a cross-section study (for the long-run).

As before, I will begin first by looking at the short-run panel data scenario. Since the obtained dataset is characterized by time, cross-section and country specific dimensions a panel data analysis was conducted. The PPP GDP per capita of country J in period T is determined by the levels of corruption it has experienced, measured from 1 to 10. A positive and significant coefficient here would signify that corruption has a negative impact on growth of GDP, since higher values of the CPI index mean less corruption. Previous researchers have identified openness to trade, share of investment in GDP, the rate of population growth, the initial level of real GDP and proxy for human capital (in this paper's case, total years of schooling for individuals over 25) to be robust in determining growth (Levine and Renelt (1992)). Thus I will include them as control variables in my regressions. I have excluded schooling and initial GDP from the short run panel data as variables, since in my sample the data for schooling is measured every 5 years, the dataset only contains 3 entries per country and this would distort the results, not to mention reduce the observations by roughly 5 times. This move can also be justified theoretically, as we expect most of the effects of schooling (human capital) to be in the long run. Initial GDP has been excluded since it is not necessary in a panel-study for the short-run. Lastly, I have added the Gastil Index acts as a measure for the political freedom and civil rights in a country. The positive effects of political stability and democracy on growth have been shown many times before by other researchers.

$$(1)\ \left(\frac{realGDP}{Cap}\right)_{j,t} = I?_0 + I?_1\, CPI_{j,t} + I?_2\, Invest_{j,t} + I?_3\, Pop_{Growth\,j,t} + I?_4\, FDI_{j,t} + I?_5\, Openness_{j,t} + I?_6\, Gastil_{j,t}$$

The Null Hypothesis I will be testing is that corruption has no effect on the growth of real GDP. The other variables employed in the regression act as control variables. In the results section, I will test several models that include or exclude some of them in order to find the most robust and best fitting results.

Since all 7 variables pass the normality assumption as can be seen in table 2 from the data section, I will not use logarithmic values and transform them in anyway. To check if fixed cross-section effects are necessary in the panel-regression, I test with the redundancy fixed effects test. The null hypothesis is that the fixed effects are redundant and thus unnecessary.

Effects Test	Statistic	d.f.	Prob.
Cross-section F	303.744791	(39,474)	0.0000

The likelihood ratio test for redundant fixed effects shows that the use of fixed effects estimation is adequate because the null hypothesis of redundant fixed effects can be rejected on a 1% level. Thus the regression will use cross-section fixed effects which are a set of dummy variables where each country gets its own dummy variable. Using a panel regression with fixed effects allows for an estimation of the regression parameters by ordinary least squares (OLS). It is safe to assume some differences in the level of economic development as well as the political, administrative and financial environment in the panel of countries of interest (countries such as the ones from war-recovering former Yugoslavia and the former Soviet Bloc differ substantially from Western European countries), differences in cross-sectional residuals might exist, which would in turn signify heteroskedasticity. Eviews 7 cannot provide significant evidence for heteroskedasticity by means of a standard White test. In order to account for this occurrence, which might bias the results, I will use white cross-section coefficient covariance method. When using the white cross-section method, the influence of heteroskedasticity in the error terms is minimized.

To further extend my analysis on the effects of corruption on the growth of GDP, expressed by real GDP per capita, in the short-run I will run a regression on investment to see if corruption has a negative impact there as well. All previously done research on the link between corruption and investment indicates there is a strong relationship between the two, even if they do not agree on the exact nature of this relationship. I expect to find a positive relationship between CPI and investment at constant 2005 prices. I say positive because of the way the CPI index is measured. An increase in the index means a decrease in corruption for a country. If such is the case, we can then conclude that corruption will have both a direct and indirect effect on the growth of real GDP per capita, with the indirect being the change in investment due to the changes in corruption.

$$(2)\ Invest_{j,t} = I?_0 + I?_1 CPI_{j,t} + I?_2 FDI_{j,t} + I?_3 Openness_{j,t} + I?_4 X_{j,t}$$

As before, I wish to test my initial null hypothesis that corruption has no effect on investment. Similarly to the previous regression, I will first check to see if fixed effects are necessary. I will use the same test as before – The Redundant Fixed Effects Test.

Effects Test	Statistic	d.f.	Prob.
Cross-section F	15.301463	(39,357)	0.0000
Cross-section Chi-square	396.999966	39	0.0000

We can conclude from the test that fixed cross-section effects are appropriate in this case. The control variables I will employ in this regression are FDI in country J at period T, openness of the economy J at period T and population growth for country J at time T, as well as a selection of other control variables which I have not used in the regressions for GDP growth such as income, inflation and the number of intentional homicides, a measure that I use as proxy for political stability in country J at period T. Similarly to the panel-study on the short-run growth, we expect to encounter heteroskedasticity, thus in order to account for such occurrence, a white coefficient covariance matrix is used.

Mauro (1995), Mo (2001) and Aidt (2009) all agree that the effects of corruption are strongest in the medium to long-run. Most of the effects of corruption on growth and investment take time to come into play, since institutional changes are long and slow processes that span for more than several years, so I expect to find much more robust and significant results than what I expect to have for the panel study. It is for this reason that I will now do a long-run scenario cross-section regression. As in the two previous regressions, here again my null hypothesis will be that corruption has no significant effect on the growth of real GDP per capita. The data here will be averaged over the sample period 1998-2011. As we saw in the data section table 3, unlike in the short-run scenario, here not all variables meet the normal distribution requirement of OLS. For this reason, I will use the logarithmic values of Investment, Population growth and CPI. The control variables I will employ in this regression are FDI in country J and openness of the economy, total years of schooling for individuals over the age of 25 and the number, share of investment over GDP at constant 2005 prices, population growth, initial real GDP at 2005 constant prices and the Gastil Index of political freedom. Similarly to the panel-study on the short-run growth, we expect to encounter heteroskedasticity, thus in order to account for such occurrence, a white coefficient covariance matrix is used.

$$(3)\ \frac{realGDP}{Cap}_j = I?_0 + I?_1\, logCPI_j + I?_2\, logInvest_j + I?_3\, Pop\_Growth_j + I?_4\, Initial\_GDP_j + I?_5\, Openness_j + I?_6\, Schooling_j + I?_7\, FDI_j + I?_8\, Gastil_j$$

Even though Population growth fails the normal distribution assumption, the variable measures the percentage changes of the total population of a country and since we have countries that experience negative growth, I cannot use its logarithmic value. Therefore, I will transform the data to 1 + the Population growth in order to make it possible.

The Durbin-Watson statistic indicates that there is no presence of autocorrelation in the regression and thus HAC Newey-West estimators are not necessary.

The final regression I will run in this paper is the medium to long-run cross-sectional study on the relationship between investment and corruption. In most aspects, it is similar to the short-run scenario. The main difference will stem from the inclusion of total years of schooling for an individual over the age of 25. I expect to find the negative link between corruption and investment (positive link between CPI and Investment) stronger and more significant than in the short-run case due to the nature of bureaucratic and administrative changes. Due to Investment, Population growth and CPI failing the normal distribution assumption, I will use their logarithmic values in the OLS regression.

$$(4)\ logInvest_j = I?_0 + I?_1\, logCPI_j + I?_2\, FDI_j + I?_3\, Openness_j + I?_4\, School_j + I?_5\, X_j$$

After describing the data and methodology parts of this paper, I will now proceed to examine the results of the panel and cross-section regressions. We will now finally see if the empirical research coincides with what the theory predicts. Does corruption grease the wheels of the great economic machine or is it the sand in the cogs of the economic engine? We are about to find out in the next section.

VI. Results

1. Short-run Scenario

After conducting a panel regression, represented by equation (1) in the Methodology section, we see some interesting results. At first glance those results appear to contradict with some of the reference papers I presented in the literature part of this paper. Particularly, the results contradict with the greasing theory championed by Leff (1964) and Egger and Winner (2005), however they do resemble the results of Mauro (1995) and Mo (2001). Six regressions have been run to check for the exact nature of the relationship between growth (expressed in real GDP per capita) and corruption (expressed as CPI). These regressions differ based on the set of control variables used in them. Table

6 and 7 below will present the results of the panel regression. Table 6 shows the results without using fixed cross-sectional effects, while table 7 will show the output after their addition to the regression. This is done to improve the robustness of the results.

Table 6: Regression Results for Panel Study, no fixed effects.

	Dependent Variable – Real GDP/Capita					
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-4870.062*	-10016.99*	-13962.27*	-10593.50*	-6348.437*	-2813.739*
	(206.11)	(470.56)	(502.69)	(868.59)	(950.05)	(1219.74)
CPI	4732.537*	4558.853*	4356.388*	3972.320*	3941.944*	3698.710*
	(80.85)	(131.03)	(119.06)	(52.94)	(51.03)	(105.23)
Investment		263.82*	204.3850*	121.001*	149.914*	120.415*
		(30.51)	(37.85)	(43.26)	(36.55)	(24.97)
Openness			65.12*	62.687*	6.259	3.043
			(1.13)	(1.16)	(6.56)	(7.06)
Pop Growth				3315.468*	2505.906*	2581.718*
				(655.94)	(478.24)	(424.73)
FDI					69.280*	71.194*
					(8.83)	(8.86)
Gastil						-667.803*
						(-197.14)
Adj R^2	0.712	0.724	0.771	0.797	0.848	0.850
No of obs	558	518	518	518	503	503

indicates significance at a 1 level, ** at a 5% significance level and *** at a 10% significance level

Note: The first 6 Model Specifications, depending on the different control variables; (1) is the simple RealGDP per capita and Corruption regression. (2) Incorporates Investment, (3) Openness to trade and its effects on the Growth of Real GDP per capita. (4) Includes the growth of the population of country J for period T. (5) adds the FDI as an independent variable and (6) includes the Gastil Index as a determinant for growth. As we saw in the descriptive statistics in the data section of this paper, FDI is highly correlated with Openness and Gastil is highly correlated with CPI. Thus (5) and (6) will suffer from biasness due to multicolinearity of the independent variables. The method used is Panel Least Squares, with no fixed effects and no logarithmic values. All variables are at 2005 $ constant prices. All standard errors are reported in parenthesis.

The reason why I have run both regressions with fixed effects and without, even though in the methodology section I have tested and confirm their appropriate use in this scenario, is to check if there is any large discrepancy in the results. If such exists, perhaps the 40 countries should not be pooled together, since the data set includes some of the most developed western countries and some of the least developed. If we see very different results, that would indicate the need to perhaps separate the data set into two different groups, developed and developing and run the regressions then.

The first thing we notice is that corruption (CPI) remains highly significant (significant at a 1% level) through the regressions (1) to (6). Even on its own, as in (1) we see that CPI is responsible for 71% of the changes we see in the 40 countries in the sample period 1998-2011. This result confirms what all previous researchers so far have done – the strong relationship between corruption and growth. If a country increases its probity by 1 level, that is to say, it improves its CPI rating by 1 mark, according to this regression, this will improve the real GDP per capita of its population by 4373 $. This is a very strong positive relationship between corruption and growth. The gradual addition of other control variables does decrease the effect of corruption on growth, but it doesn't change its sign or significance. In the end, we find corruption, investment, Population growth and openness of an economy to be significant determinants of growth in terms of real GDP per capita (1)-(4).After adding FDI (5) as a determinant for growth, openness losses its significance in the regression. This can be attributed to the effects of multicolinearity of the independent variables. As we saw in the descriptive statistic of the data section, FDI and Openness are highly correlated and thus the results could suffer from biasness. (6) Also suffers from multicolinearity, this time also due to correlation between CPI and Gastil. All of the variables exhibit the expected relationships with growth. As previous researchers have shown (Levine and Renelt (1992)) Openness to trade, share of investment in GDP, the rate of population growth are all robust and positive in determining growth. FDI is also a positive determinant of real GDP per capita, though compared with the other variables its effect is quite small. The reason why we see a negative relation between the Gastil index and growth in (6) is due to the nature of the Index itself. Since it is measured from 1 to 7, with 1 being the most free countries and 7 the least free, it makes sense that the more politically and socially free a country is, that is the lower its score is, the more investment it will attract and thus the more growth it will experience.

The results from running the regressions with fixed effects are displayed in table 7. The first big difference we can see is the change of the constant. It becomes positive. The second change of note is that the coefficient of the corruption variable CPI losses its significance in regressions (9) and (10). However, the overall effects of the variables do not change. All of them, with the exception of the

constant, retain their signs and their values do not differ substantially from those of regressions (1) – (6). Similarly to regressions (5) and (6), (11) and (12) suffer from multicolinearity and thus possibly suffer from biased estimators. While there are indeed changes between regressions (1)-(6) and (7)-(12), they are not large enough to signify that the data cannot be pooled together and therefore there is no reason to separate the 40 countries in developing and developed countries.

Table 7: Regression Results for Panel Study, with fixed effects.

	Dependent Variable – Real GDP/Capita					
Independent Variables	(7)	(8)	(9)	(10)	(11)	(12)
Constant	15455.41* (886.21)	12588.12* (1159.55)	8696.515* (847.07)	8961.131* (804.82)	8188.602* (869.09)	10726.82* (1790.52)
CPI	1055.11* (147.23)	750.695* (67.18)	114.15 (114.32)	99.127 (103.99)	166.293*** (92.17)	11.311 (92.28)
Investment		194.014* (49.23)	69.515* (23.00)	62.550* (22.15)	84.344* (30.86)	75.665* (30.83)
Openness			103.892* (8.93)	102.211* (8.89)	103.886* (9.89)	100.602* (11.10)
Pop Growth				533.698* (139.49)	533.012* (146.43)	567.048* (129.61)
FDI					-2.609 (11.49)	-2.670 (11.65)
Gastil						-625.436** (285.70)
Adj R^2	0.973	0.976	0.985	0.986	0.986	0.986
No of obs	558	518	518	518	503	503

indicates significance at a 1 level, ** at a 5% significance level and *** at a 10% significance level

Note: The second 6 Model Specifications, depending on the different control variables; (7) is the simple RealGDP per capita and Corruption regression. (8) Incorporates Investment, (9) Openness to trade and its effects on the Growth of Real GDP per capita. (10) Includes the growth of the population of country J for period T. (11) adds the FDI as an independent variable and (12) includes the Gastil Index as a determinant for growth. Model specifications (7) – (12) all include fixed cross-section effects in order to account for the differences in the countries from the dataset. Similarly to regressions (5) and (6), (11) and (12) will suffer from biasness due to multicolinearity of the

independent variables. The method used is Panel Least Squares and no logarithmic values. All variables are at 2005 $ constant prices. All standard errors are reported in parenthesis.

After analyzing the results from tables 6 and 7, we can conclude that just as the economic theory predicts, corruption has a very strong effect on the growth of an economy. Corruption appears to be detrimental to growth, just as Mauro (1995), Mo (2001) and Aidt (2009) say. This also coincides with what our theoretic model predicts. The results from the fixed cross-section effects regressions (7) – (12) appear to be more robust and have higher adjusted R-squared values, making their prediction estimators superior to the regressions without the fixed effects. However, in all regressions (1) – (12) we can see that the Durbin-Watson statistic is rather low while ideally it should be close to 2. This indicates the possible presence of positive autocorrelation in our short-run panel studies and thus is another aspect that shall be considered in this paper. I will run a third set of regressions (13) – (18) which include a lagged variable of the dependent variable real GDP per capita in order to account for the possible distortion caused by the autocorrelation in the data. It can also be justified theoretically, since perhaps changes need additional periods to take effect. The results are presented in table 8.

Table 8: Regression Results for Panel Study, with fixed effects and Lagged Variable

	Dependent Variable – Real GDP/Capita					
Independent Variables	(13)	(14)	(15)	(16)	(17)	(18)
Constant	2265.307 (1585.43)	1693.526 (1142.98)	1787.230*** (1048.71)	1708.836 (1044.351)	1370.989 (959.62)	1832.551 (1199.45)
CPI	241.304* (70.30)	108.39* (32.00)	43.707 (30.49)	45.604 (32.27)	79.295 (59.32)	53.533 (47.60)
Lagged GDP	0.848* (0.09)	0.803* (0.09)	0.754* (0.09)	0.758* (0.09)	0.748* (0.10)	0.744* (0.10)
Investment		98.917* (31.04)	86.086* (26.74)	87.133* (26.77)	101.024* (32.81)	100.111* (32.67)
Openness			15.765* (3.94)	15.682* (3.99)	16.948* (3.40)	16.795* (3.39)
Pop Growth				-111.805* (30.32)	-111.478* (30.08)	-98.300* (33.03)
FDI					-1.168 (4.21)	-1.287 (4.27)
Gastil						-109.729 (90.74)
Adj R^2 No of obs	0.997 518	0.998 478	0.998 478	0.998 478	0.998 466	0.998 466

indicates significance at a 1 level, ** at a 5% significance level and *** at a 10% significance level

Note: The third 6 Model Specifications, depending on the different control variables; (13) is the simple RealGDP per capita and Corruption regression. (14) Incorporates Investment, (15) Openness to trade and its effects on the Growth of Real GDP per capita. (16) Includes the growth of the population of country J for period T. (17) adds the FDI as an independent variable and (18) includes the Gastil Index as a determinant for growth. Model specifications (13) – (18) all include fixed cross-section effects in order to account for the differences in the countries from the dataset and lagged variable to account for autocorrelation. Similarly to regressions (5), (6), (11) and (12), regressions (17) and (18) will suffer from biasness due to multicolinearity of the independent variables. The method used is Panel Least Squares and no logarithmic values. All variables are at 2005 $ constant prices. All standard errors are reported in parenthesis.

The effect of corruption on real GDP per capita is similar to the regressions (7) - (12), though the value of its coefficient has decreased substantially. It still retains its sign throughout all 18 regressions, however its loss of significance in tables 7 and 8 does indicate the effect isn't substantial enough in the short-run for us to safely reject the null hypothesis of no correlation between corruption and the growth of real GDP per capita. In general, all coefficients have decreased in value, however have not changed significantly. The one exception to this is the effect of population growth. In regressions (10), (11) and (12) it displayed positive effects on growth of real GDP per capita, while in models (16), (17) and (18) it signifies a negative relationship between the two. After checking the Durbin-Watson test statistic in the models (13) – (18) we see that it has increased to the ranges of 1.57 and 1.65, ranges safe enough to assume autocorrelation has no effect on the estimators of the regression. The lagged variable also retains its significance throughout all the models it was included.

After adjusting the initial results from table 6 for heteroskedasticity (table 7) and autocorrelation (table 8), we see that corruption, expressed via the CPI Index, consistently has a strong negative relationship with the growth of Real GDP per capita in the short-run, however its loss of significance in the latter regressions does not allow us to be certain in rejecting the null hypothesis. We cannot conclude for certain that corruption has an effect on real growth of GDP in the short-run. This result renders us unable to confirm our previous expectations, however is somewhat consistent with the results of Mauro (1995), Mo (2001) and Aidt (2009), which predict that most of the negative effect of corruption on growth comes in the medium to long-run and also doesn't contradict the works of Leff (1964), Levy (2007) and Egger and Winner (2005), which expect that corruption not only does not damage the economy in a significant way, but nurtures growth.

Following the methodology explained in the previous part, I will now analyze what effects, if any, corruption has on investments. Investments, similar to the real GDP per capita, is expressed in

constant 2005 $ prices. If we find a negative relation between corruption and investment (positive relationship between CPI and Investment) this will signify that corruption affects growth both a directly and indirectly through Investment changes. The regression I will run is equation (2) from the methodology section of this paper. Similarly to the regressions on the short-run changes in real GDP per capita, I will run regressions using both with and without fixed cross-section effects. In the methodology section we tested via the redundant fixed effects test that the use of cross-country fixed effects is appropriate, therefore I will only present the results from the regressions with fixed effects (8) – (14) (Table 9). The results from the regressions without fixed cross-section effects (1) – (7) are available in the Appendix section (Table 10). As in the previous panel study, all variables are found to be normally distributed and thus no logarithmic values are taken and used.

Table 9: Regression Results for Panel Study, with fixed effects

	Dependent Variable – Investment						
Independent Variables	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Constant	8.559* (3.15)	8.931* (3.23)	7.106** (3.59)	10.304* (2.75)	9.751* (3.09)	9.212* (2.98)	13.469* (3.08)
CPI	0.913* (0.31)	0.879* (0.31)	0.922* (0,32)	0.666 (0.50)	0.744 (0.52)	0.819 (0.51)	0.563 (0.43)
Openness	0.092* (0.03)	0.087** (0.04)	0.076** (0,03)	0.049** (0.02)	0.042** (0.02)	0.026 (0.02)	0.022 (0.02)
Pop Growth		0.994 (0.64)	0.889 (0.64)	1.050 (0.68)	1.378** (0.67)	1.422** (0.67)	1.235** (0.60)
Income/Cap			0.0002*** (0.0001)	0.001* (0.0002)	0.001* (0.0002)	0.001* (0.0002)	0.001* (0.0002)
KILLS				-0.495** (0.25)	-0.425*** (0.26)	-0.416 (0.26)	-0.387 (0.25)
Inflation					-0.034* (0.01)	-0.035* (0.01)	-0.036* (0.01)
FDI						0.097** (0.44)	0.094** (0.43)
Gastil							-1.147** (0.45)
Adj R^2 No of obs	0.592 520	0.597 520	0.598 520	0.598 520	0.707 411	0.714 404	0.750 404

indicates significance at a 1 level, ** at a 5% significance level and *** at a 10% significance level

Note: The second set of 7 Model Specifications, depending on the different control variables used. Models (8) – (14) use fixed cross-section effects. (8) Is the base model, Investment determinants being

only Corruption and Openness to Trade. (9) Introduces population growth as an independent variable. (10) Adds income per capita as an explanatory variable for Investment. (11) Introduces the number of intentional murders per 100 000 people per year, a proxy measure of the political stability of a country. (12) Presents Inflation as a determinant. (13) and (14) add FDI and the Gastil Index, respectively, to the regression equation. The last two regressions suffer from multicolinearity, as shown in the descriptive statistics of the data section. The method used is Panel Least Squares and no logarithmic values. All variables are at 2005 $ constant prices. All standard errors are reported in parenthesis.

As we can see from table 9 corruption has a negative impact on Investment throughout all the 7 regressions. In model (8) we see that if a country, for example, Moldova, would increase its CPI rating by 1 measure (that is decrease its corruption level by 1), we would expect to see the share of investments per real GDP in the country rise by 0.913. CPI doesn't manage to maintain its significance throughout models (11) – (14), however, it sign remains unchanged and its coefficient doesn't change substantially. A reason why CPI might lose its significance is due to it being moderately (0.54) correlated with the measure of intentional murders per 100 000 individuals. While corruption doesn't necessarily indicate lawlessness, it follows common sense that corruption can lead to less political stability due to crimes not being punished. This is a relationship that, in this author's opinion, deserves further investigation and research. Openness and Population growth seem to both be positive influences on the share of investments in country J. Openness is found to be a significant and robust determinant for investment in models (8) to (12), becoming insignificant only in the last 2 models, which suffer from multicolinearity due to the FDI being highly correlated with openness. Thus we can conclude that openness is a good determinant for growth of an economy. While income per capita does have a positive effect on investment, its estimator is negligibly small and thus can safely be ignored. It is not surprising to see a negative relationship between the amount of intentional homicides and Investment. As we saw before, intentional murders per 100 000 is often used by researchers as a proxy for political stability. Thus a decrease in political stability in a country (increases in homicides) creates more potential risk for investors, increasing their potential costs and thus decreasing their overall investment into the country. The result is significant in models (11) and (12). Inflation is another variable that has a negative relationship with investment growth according to the regressions in table 9. While its effect is rather small, its addition has increased the explanatory power of the regression (its adjusted R-squared) substantially. Furthermore, Inflation is found to be significant in all of the models it has been used in. Finally, we see the effects of change coming from the last 2 independent variables – the FDI and the Gastil Index. FDI, as expected, significantly increases the share of investments in country J. The Gastil

Index of Political Freedom, on the other hand, is strong deterrent to growth in Investments. Less politically free countries, suffering from administrative inefficiencies, in general offer less lucrative possibilities for Investment. Most are either centralized and government owned or monopolized by existing entrepreneurs with a strong lobby. These things drive off investors to safer shores and thus substantially decrease investments.

After analyzing the results of the relationship between corruption and investments we can now conclude that, much like in the case of corruption and growth of PPP derived GDP per capita, corruption has a negative effect on the economy J in the short-run. However, we cannot safely reject the null hypothesis for both equation (1) and (2) from the methodology section. In both cases CPI's coefficients are not significant enough to allow us to be certain of the relationship between corruption and growth and investment in the panel study. Only half of the regressions seem to indicate the relationship. Theoretically, this result can be explained since changes in the administration and government take a long time to be implemented. Additionally, the CPI measures the perception of corruption in the public sector of the economy. Perceptions do not change overnight just because the bureaucracy has made some reforms in combating bribery. Thus it is not such a big surprise that we cannot find panel data effect of CPI on growth and on investment. I do however expect to find a very strong and significant link between corruption and growth in the long-run. I expect this effect to have two transitional channels through which it takes place. The first channel would be the indirect one, through Investments. Corruption decreases investments in country J. Since corruption increases the costs of entrepreneurs to invest in the economy through increased risk and bribes, less of them would be willing to commit their resources to this country and will look for more profitable alternatives. And while corruption could speed up the wealth generating activities of some investors in the short-run and thus actually increase their willingness to invest, according to the theory of Leff (1964) and Egger and Winner (2005), I expect that the overall net effect of corruption on investment and growth of the real economy to be negative. The second transitional channel will be the direct one. Here corruption directly decreases the growth of the economy. As an example we can use a politician who pockets the money that should go to improving road infrastructure. Or a politician who is bribed to accept terms of an agreement that are not favorable for the economy of the country.

2. Long-run Scenario

Unlike in the short-run setting, here I will use a cross-section analysis of the data from the 40 European countries, having all variables averaged over the period sample 1998-2011 (equation (3) from the methodology section). This is done to examine the long-term effects of corruption on

investment and growth of real GDP per capita. I expect to find the results much more significant and stronger than what we saw in the short-run panel scenario.

Table 11: Long-run Cross-Section Analysis, data averaged over time

	Dependent Variable – Real GDP/Capita							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-19983.89* (3849.21)	-32359.59** (15484.24)	-34100.33 (16787.77)	-17161.65 (18822.11)	-29348.08 (17501.97)	-25352.19 (19533.35)	-17827.03 (15551.10)	-34211.73 (22822.40)
CPI	25524.67* (2775.38)	24722.14* (2480.46)	23586.71* (1740.04)	21040.21* (2055.94)	18838.06* (2513.19)	18075.73* (2116.91)	18889.58* (2192.61)	21740.67* (4115.56)
Investment		4404.865 (4580.02)	3603.835 (4991.77)	-748.2933 (5810.407)	2932.486 (5282.18)	3453.80 (6126.20)	507.691 (4576.50)	2485.312 (4979.37)
Openness			61.537 (54.52)	65.201 (50.31)	93.279*** (52.22)	98.652*** (56.83)	-29.548 (45.36)	-24.786 (43.57)
Pop Growth				4344.232** (1871.43)	3803.320** (1647.16)	4135.023** (2270.26)	3436.424** (1408.869)	2962.606*** (1473.07)
Initial GDP					4.682** (2.32)	4.389** (2.08)	1.896 (1.86)	1.93 (1.93)
Schooling						-453.303 (979.37)	775.277 (918.03)	1005.43 (899.23)
FDI							105.564* (21.49)	102.675* (20.80)
GASTIL								1699.858 (2055.80)
Adj R^2 No of obs	0.733 40	0.729 40	0.764 40	0.788 40	0.810 40	0.796 36	0.881 36	0.881 36

indicates significance at a 1 level, ** at a 5% significance level and *** at a 10% significance level

Note: The 8 Model Specifications, depending on the different control variables; (1) is the simple RealGDP per capita and Corruption regression. (2) Incorporates Investment, (3) Openness to trade and its effects on the Growth of Real GDP per capita. (4) Includes the growth of the population of country J for period T. (5) adds the initial real GDP as an independent variable and (6) includes the total amount of schooling of an individual over the age of 25 as a determinant for growth. As we saw in the descriptive statistics in the data section of this paper, Pop Growth, CPI and Investments fail the normal distribution assumption of OLS and thus their logarithmic values have been taken and used. (7) Introduces FDI as a growth variable and (8) and incorporates the Gastil Index of Political Freedom. FDI is highly correlated with Openness and Gastil is highly correlated with CPI. Thus (7) and (8) will

suffer from biasness due to multicolinearity of the independent variables. The method used is Least Squares, with a White coefficient covariance matrix. All variables are at 2005 $ constant prices. All standard errors are reported in parenthesis.

As we saw in the descriptive statistics part of the data section (table 3), Pop Growth, CPI and Investments fail their normal distribution assumptions. Therefore, in order to account for this and use OLS, I have taken and used their respective logarithmic values. As we would expect, the magnitude of change in the long-run scenario is much greater for all parameters. This is especially the case for corruption. Its coefficient has increased over tenfold when compared to the regressions of the short-run panel studies and fixed cross-section effects (table 7 and 8) and roughly 5 times when compared to the results of the panel with no fixed effects (table 8). What is more important here to see is how large the prediction power of CPI is. Just by itself it predicts the changes in the long-run real GDP per capita in 73.3 % of the examined cases in the dataset. Throughout all the 8 regressions (models (1) – (8)) CPI remains highly significant at a 1% confidence level and its coefficient doesn't change drastically with the additions of other control variables. These results indicate that between corruption and growth exists a very strong link. Since CPI remains significant through all of the regressions, unlike in our panel study case, we can safely reject the null hypothesis that there is no link between the two. In table 11 we see that, on average, if a country increases its CPI rating by 1 level (that is, it increases its probity by 1 level or decreases its corruption by 1 level) we can expect that it will increase its real GDP per capita by about 20 000 on average. This is very strong evidence in defense of the sander papers we examined in the literature section and the theoretic model presented in the theoretical section. The other explanatory variable found to be significant in determining growth of real GDP per capita in the long run is Population growth. While its effect and significance is smaller than that of corruption, it still remains consistently an accurate and positive determinant of growth at 5% and 10% significance level. Initial real GDP also has a significant positive effect on growth as economic theory would predict. All variables behave as we would expect from them. The 2 exceptions are the total amount of schooling and the Gastil Index of Political Freedom, however, both are consistently insignificant in their results and thus can be discarded. Schooling has been found to be a problematic explanatory variable by other papers as well (Aidt 2009) and could perhaps also suffer from the fact that its measured on a 5 year basis, compared to all other variables which are taken annually. The Gastil Index surprisingly shows a positive relationship with the growth of real GDP per capita. This is unexpected due to the nature of the way the index is measured. Lower levels of the Gastil Index mean a country is more politically free, while higher indicate administrative failures and political instability. Therefore, we would expect low levels of Gastil to be associated with better growth. However, since we know regressions (7) and (8) suffer

from multicolinearity due to the Gastil Index being highly correlated with the CPI index (table 5) and FDI being highly correlated with the Openness of a country (also table 5), we can judge these results biased and thus discard them from our analysis.

Another notable change from the short-run scenario is that investment at constant 2005 prices is consistently found to be insignificant and thus not a good predictor for long –term real GDP per capita growth. This is unexpected, but can be explained that it comes from the fact that investment data from the dataset failed the normal distribution assumption of OLS even after its values had been logged. Overall, the regressions have good explanatory power, their adjusted R-squared values are all above 70 percent. The Durbin-Watson test statistic is within 1.91 and 2.15, values that signify that there is no autocorrelation presence in the regressions. This means that the use HAC Newey-West estimators is not necessary. However, a white coefficient covariance matrix has been used to account for any possible heteroskedasticity in the results due to the difference between the countries themselves.

To further make the findings of this paper on the long-run effect of corruption on growth of real GDP per capita even more robust, I will now run regression (5) from table 11, one by one removing the most corrupt and least developed countries in the data set. This is done as another check for the poolability of the data. If we see any significant changes in the results, this will indicate that the relationship of corruption and growth differ in the less developed and more corrupt countries from the more developed and less corrupt. The consequences of such a result would be the need to run 2 separate data-sets, one of the more developed western European countries and one of the developing others. The results of the test are displayed in table 12 below.

Table 12: Pooling test for the cross-section real GDP per capita growth regressions.

	Dependent Variable – Real GDP/Capita								
Independent Variables	(0)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	-29348.08 (17892.14)	-25686.12 (18361.93)	-25837.36 (19039.54)	-25734.78 (19375.94)	-26857.84 (19896.20)	-34110.64 (21109.21)	-39182.93*** (21763.17)	-36355.71 (22115.60)	-52789.41** (23176.62)
CPI	18838.06* (2739.28)	18424.23* (2781.32)	18386.85* (2980.44)	18361.81* (3040.75)	17989.02* (3251.36)	18180.94* (3254.34)	18625.83* (3289.35)	17650.88* (3495.81)	19923.48* (3595.11)
Investment	2932.49 (5910.28)	1979.96 6011.68	2054.05 (6389.53)	2037.12 (6493.72)	2581.243 (6755.70)	4767.036 (7081.14)	5977.24 (7196.18)	5688.25 (7238.61)	9683.47 (7312.80)
Openness	93.28* (24.88)	94.53* (24.97)	94.48* (25.52)	94.57* (25.95)	95.59* (26.47)	94.33* (26.48)	96.84* (26.63)	96.11* (26.77)	95.41* (25.75)
PopGrowth	3803.32** (1847.32)	3995.53** (1862.87)	4002.76** (1900.65)	3988.87** (1937.10)	4004.58** (1965.31)	4321.31** (1988.12)	4310.63** (1990.01)	4847.54** (2095.60)	4317.87** (2037.24)
IniGDP	4.68** (2.08)	4.57** (2.09)	4.57** (2.12)	4.56** (2.15)	4.60** (2.19)	4.69* (2.19)	4.98** (2.21)	4.76** (2.24)	4.12*** (2.18)
Adj R^2 **No of Obs**	0.810 40	0.810 39	0.795 38	0.787 37	0.779 36	0.773 35	0.769 34	0.759 33	0.776 32

indicates significance at a 1 level, ** at a 5% significance level and *** at a 10% significance level

Note: The 9 Model Specifications of model (5) from the previous table, depending on the included countries in the regressions; (0) includes all 40 European countries, (1) removes Moldova from the data series, (2) removes Albania, (3) removes Belarus, (4) Bosnia and Herzegovina, (5) Montenegro, (6) Ukraine, (7) Serbia and (8) Russia. As we saw in the descriptive statistics in the data section of this paper, Pop Growth, CPI and Investments fail the normal distribution assumption of OLS and thus their logarithmic values have been taken and used. The method used is Least Squares, with a White coefficient covariance matrix. All variables are at 2005 $ constant prices. All standard errors are reported in parenthesis.

In the test above I have gradually reduced the numbers of observations from 40 to 32, one by one removing Moldova, Albania, Belarus, Bosnia and Herzegovina, Montenegro, Ukraine, Serbia and Russia. I have chosen these 8 on the basis of their CPI scores and real GDP per capita as they occupy the lowest ratings on those 2 accounts. When comparing all 9 regressions, we see that almost nothing really changes. CPI remains significant at the 1% level, its coefficient never really deviates

with more than 500-600. All of the variables behave the similarly. The adjusted R-squared also doesn't change much. These results seem to indicate that the strong negative relationship between corruption and growth of real GDP is robust. The data set is poolable, as there doesn't seem to be a significant change in the results when the least developed and most corrupt countries are removed from the regressions. Separating the data into two groups isn't necessary.

I will now run equation (4) from the Methodology section to examine the effects of corruption on investments in the long-run. Again, all the data has been averaged over the sample period and the values of CPI, Population growth and investment have been taken as logarithms. The results are displayed in table 13.

Table 13: Regression results for cross-section study for Investment in the Long-run scenario

	Dependent Variable – Investment							
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Constant	2.796* (0.13)	2.865* (0.14)	2.734* (0.17)	2.885* (0.19)	2.975* (0.21)	3.250* (0.35)	3.150* (0.36)	3.097* (0.56)
CPI	0.178** (0.07)	0.127 (0.08)	0.250*** (0.13)	0.173 (0.14)	0.129 (0.14)	-0.0069 (0.16)	0.073 (0.18)	0.096 (0.26)
Openness	0.000208 (0.0005)	0.000161 (0.0005)	0.000200 (0.0007)	0.000248 (0.0006)	0.0002 (0.0006)	-9.63 (0.0007)	-0.001 (0.001)	-0.001 (0.001)
Pop Growth		0.069 (0.05)	0.086 (0.05)	0.059 (0.06)	0.059 (0.05)	0.103 (0.06)	0.103 (0.06)	0.101 (0.07)
Income/Cap			-6.70 (6.15)	-5.15 (6.10)	-4.74 (6.06)	-4.31 (5.99)	-8.57 (7.28)	-9.08 (8.44)
KILLS				-0.0124 (0.0078)	-0.0106 (0.0079)	-0.0094 (0.0089)	-0.0081 (0.0089)	-0.0091 (0.0120)
Inflation					-0.0034 (0.0027)	-0.0132** (0.0055)	-0.014** (0.006)	-0.0140** (0.007)
Schooling						0.0018 (0.0247)	0.0117 (0.0265)	0.0124 (0.0275)
FDI							0.00095 (0.00092)	0.00097 (0.00096)
GASTIL								0.0124 (0.0987)
Adj R^2 **No of obs**	0.14 40	0.16 40	0.16 40	0.20 40	0.21 40	0.29 36	0.29 36	0.26 36

indicates significance at a 1 level, ** at a 5% significance level and *** at a 10% significance level

Note: The 8 Model Specifications, depending on the different control variables; (1) is the simple Investment, Openness and Corruption regression. (2) Incorporates Population Growth, (3) Income per capita and its effects on Investments. (4) Introduces the number of intentional murders per 100 000 people per year, a proxy measure of the political stability of a country. (5) Presents Inflation as a determinant. (6) Includes the total amount of schooling of an individual over the age of 25. As we saw in the descriptive statistics in the data section of this paper, Pop Growth, CPI and Investments fail the normal distribution assumption of OLS and thus their logarithmic values have been taken and used. (7) Introduces FDI as a growth variable and (8) and incorporates the Gastil. FDI is highly correlated with Openness and Gastil is highly correlated with CPI. Thus (7) and (8) will suffer from biasness due to multicolinearity of the independent variables. The method used is Least Squares, with a White coefficient covariance matrix. All variables are at 2005 $ constant prices. All standard errors are reported in parenthesis.

When compared with the regressions from the panel short-run study, we notice the long-run cross-section ones are much less robust and accurate in predicting changes in investments. The adjusted R-squared is substantially lower than what we saw before and out of all the explanatory variables, only 2 are found to be significant and even they are not significant all the time. Corruption is still a determinant of investment growth, though much less so. Its results are only significant in models (1) and (3). Its effect still remains negative, however. The other variable found to be significant in this regression is inflation. Similar to corruption it too has a negative relationship with investment growth. Overall, the results seem much less robust and significant when compared with the short-run study. I attribute this to the fact that Investment fails its normality assumption even after its values had been transformed via logarithms.

Unfortunately, regressions (1) – (8) do not confirm the initial expectation of corruption being detrimental to investment growth in the long-run. Thus, we cannot reject the null-hypothesis of equation (4) from the methodology section. Corruption doesn't appear to affect real growth of GDP per capita indirectly through investments, at least not significantly enough for us to conclude with 99%, 95% or even 90% certainty.

After analyzing the link between corruption and the growth of real GDP per capita for the 40 European countries selected in the time period 1998-2011, this paper finds that a strong negative relationship exists between the two in the long-run. The long-run null-hypothesis that there is no relation between the 2 is then rejected. The results are not, however, significant in both the short-run scenario, as demonstrated by the panel study and in the long-run, as shown by the cross-section analysis of the averaged data. While the panel study found a negative coefficient for corruption when

determining the real growth of GDP per capita, its results lacked the necessary significance to be certain in the outcome. Moreover, through the analysis of the short and long-run regressions on the effects of corruption on investment, this paper wasn't successful in proving that corruption has a direct and indirect effect on real growth through its negative influence on investment. The conclusions still however confirm the position of Mauro (1995), Mo (2001) and Aidt (2009) who all see corruption as a hindrance towards sustainable long-run growth for an economy.

VII. Limitations and Further Research

Although the analysis in general and the empirical model have been constructed as complete and as comprehensive as possible, there are some limitations, causing suggestions for further research and improvements to the existing research I have done in this paper.

First, the analysis presented in this paper only covers 40 European countries for which there was sufficient data on their growth variables, real GDP and most importantly CPI index ratings from Transparency International. The results thus cover the realities in the European region only. If someone was to perhaps do similar research centered around countries from the Middle East, where corruption and bribery, or as it called there baksheesh, are part of the culture, the results could differ substantially from those presented in this paper. This is due to the fact that CPI measures the subjective perception of corruption, not any real data on its activities since it's practically impossible to measure the actual grey market and bribes.

A second limitation experienced in this paper is perhaps the too short time-span. The 14 years analyzed by the regressions of this paper perhaps could be insufficient to explore the full effect of corruption on growth and on investments. This is especially true for cross-section study. Although the results are more significant and greater in magnitude than those in the short-run panel study, perhaps if the dataset covered 25 years or more, we would find even greater effects.

Thirdly, an interesting relationship between the amount of intentional homicides, an often used proxy for political instability and the level or perceived corruption (CPI) became apparent during my regressions on Investments. I have not explored this relationship, as I feared it might distract me away from the main topic of corruption and growth, but I find the idea that corruption may cause increases in murders and thus political instability very interesting and worthy of further investigation.

Fourthly, I limit the definition of corruption and its effects only to the public sector. The addition of corruption in the private sector to the regressions and theoretic models would have made them perhaps too complex to tackle together. I suggest further research be done on corruption solely on the private sector and what effect it has on growth and investment.

Furthermore, the dataset is an unbalanced panel which creates a limitation with the empirical analysis and a balanced panel would add to the reliability and the completeness of the analysis.

And finally, a limitation I encountered during my research was that the data on investment in the cross-section long-run estimations failed the normality distribution assumption of OLS, even after being transformed through logarithms. Perhaps if another source for the data on investment is taken (the source I used was the Penn World Tables) the results on the relationship between investment and corruption in the long-run could improve or even change.

VIII. Conclusions

In this thesis an empirical model has been used to see if corruption has an effect on the growth of an economy, expressed in real GDP per capita terms and if such an effect indeed exists, is it positive or negative, or to quote existing literature – does corruption grease or sand the growth of a country. The settings of the paper are 40 European countries in the time frame 1998-2011. The paper first described the importance of the corruption phenomenon for modern macroeconomics and its real world relevance. As we saw, the topic of corruption is very heatedly discussed in both the international and local policy maker circles as well as in the academic world. I analyzed first the meaning of the word corruption and attempted to give it a narrower and concise definition, one that can make its research more practical and easier. I have defined corruption as "*the abuse or complicity in abuse of public power, office or resources for the goal of achieving personal gains"*, thus limiting its scope solely on the public sector. Next this paper has presented three influential papers from each side of the debate. The three "*greaser"* works that I have analyzed were "Economic Development through Bureaucratic Corruption" by Nathan Leff from 1964, "Price adjustment under the table: Evidence on efficiency-enhancing corruption" from 2007 by Daniel Levy and "Evidence on corruption as an incentive for foreign direct investment" by Egger and Winner from 2005. All three of these papers in turn have shown how corruption perhaps can be a useful tool to overcome administrative failures and/or bureaucratic inefficiencies in the public sector and thus speed up the wealth generating activities of firms in the short-run. Contrasting to *the helping hand* theory are the

three "*sander*" papers of Mauro, Mo and Aidt – "Corruption and Growth" (1995), "Corruption and Growth, an empirical study" (2001) and "Corruption, Institutions and Economic Development" (2009) respectively. They believe that not only is corruption not beneficial for economic development and growth in the short-run, it is detrimental to the growth of the economy and hurts investments. This paper has given special attention to the paper of Aidt (2009) as it has used his theoretic framework to form the theoretic model in part III. The model there explains the interaction between corruption and growth, showing the logical fallacy of using bribes and other means of corruption to solve bureaucratic and administrative inefficiencies and that the prospect of corruption is the reason why those inefficiencies might exist there in the first place and thus hurt the growth of the economy. After presenting a detailed overview and descriptive statistics of the data, the null hypothesis is formed as follows: corruption has no effect on growth of real GDP per capita in the short-run and respectively in the long-run. The methodology section explained how 4 equations were formed to test the hypothesis, 2 focusing on the short-run and 2 on the long-run. To see if corruption has also an indirect effect on growth of real GDP per capita through its influence on investments, as the *sander* papers suggested in the literature section, further analysis and regressions have been made to explore the possibility. The null hypothesis for the investment regressions is: corruption has no effect on investment in the short-run and long-run respectively.

In order to test the above explained hypothesis in the short-run, an empirical analysis using panel regression models with different control variables and fixed effects (and lagged variables) for robustness have been employed. In all three sets of regressions, corruption has been found to be a negative determinant of growth of real GDP per capita in the short-run. However, this result is significant in only half of the examined regression-scenarios. Thus the null hypothesis cannot be rejected safely. This result hasn't managed to confirm the conclusions of the papers of Mauro, Mo and Aidt, or to disprove the claims of Leff (1964), Levy (2007) and Egger and Winner (2005). The results are similar in the case of corruption and investments in the short-run scenario. The result cannot confirm the possibility of bribery affecting growth through a direct and indirect transmission channel (through investments).

To check if the same conclusion can be made for the long-run scenario, a cross-section analysis has been constructed, taking the variables from the panel study and averaging them over the sample period. Additional long-run variables such as the total amount of schooling for an individual over the age of 25 and initial real GDP have been added to the cross-sectional regressions. Unlike in the short-run panel study, the results here have shown themselves highly significant and large in magnitude, indicating that corruption becomes a great hindrance to economic growth in larger time spans. The results robustness has been confirmed by an additional test on the poolability of the data, indicating

that the relationship between the two variables doesn't change even when the outliers are excluded. This conclusion underlines the importance of the prevention of increases in corruption to the policy makers, both on a global and on a local level. When analyzing the long-run effects of corruption on investments and thus indirectly on growth of real GDP, our results have been less significant and robust, due to the data for investment failing the normality distribution assumptions of OLS, even after being transformed through the use of logarithms. They still, however, indicate the same conclusion that corruption decreases investments in the long-run.

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Appendix

Table 9: Results from the panel study without fixed cross-section effects

	Dependent Variable – Investment						
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Constant	18.113* (0.999)	19.008* (1.07)	18.294 *(0.923)	21.266* (0.93)	22.034* (0.930)	22.139* (1.01)	24.001* (0.71)
CPI	0.597* (0.12)	0.388* (0.14)	0.645* (0,13)	0.609* (0.12)	0.566* (0.14)	0.618* (0.12)	0.407* (0.1)
Openness	0.013* (0.005)	0.011** (0.005)	0.012** (0.005)	0.012** (0.006)	0.010*** (0.006)	0.007 (0.010)	0.006 (0.010)
Pop Growth		1.589* (0.22)	1.715* (0.28)	3.633* (0.35)	3.530* (0.35)	3.547* (0.36)	3.534* (0.36)
INCOMECAP			-7.11*** (3.78)	-0.0002* (3.12)	-0.0002* (3.22)	-0.0002* (2.62)	-0.0002* (2.14)
KILLS				-0.311* (0.04)	-0.276* (0.03)	-0.276* (0.04)	-0.220* (0.06)
INFLATION					-0.0475* (0.013)	-0.048* (0.013)	-0.0382* (0.012)
FDI						0.016 (0.025)	0.014 (0.026)
Gastil							-0.592*** (0.34)
Adj R^2 No of obs	0.086 520	0.645 520	0.123 520	0.292 411	0.312 408	0.311 404	0.317 404

indicates significance at a 1 level, ** at a 5% significance level and *** at a 10% significance level

Note: The first set of 7 Model Specifications, depending on the different control variables used. Models (1) – (7) do not use fixed cross-section effects. (1) Is the base model, Investment determinants being only Corruption and Openness to Trade. (2) Introduces population growth as an independent variable. (3) Adds income per capita as an explanatory variable for Investment. (4) Introduces the number of intentional murders per 100 000 people per year, a proxy measure of the political stability of a country. (5) Presents Inflation as a determinant. (6) and (7) add FDI and the Gastil Index, respectively, to the regression equation. The last two regressions suffer from multicolinearity, as shown in the descriptive statistics of the data section. The method used is Panel Least Squares and no logarithmic values. All variables are at 2005 $ constant prices. All standard errors are reported in parenthesis.

Panel data:

		FDI	Pop Growth	School	Inflation	Pop Total	Income	Income/Cap	Gastil	CPI	Investment	Openness	RealGDP/Cap
1998	AUT	2.17656954	0.109728368		1.00320326	7976789	1.5047E+11	18863.57479	1	7.5	26.2	78.16	29732.90823
1999	AUT	1.41700163	0.194563153		1.00283421	7992324	1.5511E+11	19407.32112	1	7.6	26.26	79.75	30725.35544
2000	AUT	4.43868022	0.240466652	9.0002	1.00919217	8011566	1.5966E+11	19928.21476	1	7.7	25.88	86.64	31775.73316
2001	AUT	3.08113594	0.382799394		1.01873801	8042293	1.5989E+11	19881.04948	1	7.8	25.47	90.97	31925.7334
2002	AUT	0.15328923	0.491980464		1.01239627	8081957	1.6532E+11	20455.17369	1	7.8	23.84	91.23	32307.13267
2003	AUT	2.79518415	0.487133895		1.0114961	8121423	1.67E+11	20562.52294	1	8	24.94	92.91	32428.53081
2004	AUT	1.33550064	0.620413127		1.01683295	8171966	1.7189E+11	21033.81347	1	8.4	24.76	100.06	33062.53159
2005	AUT	26.771322	0.681267248	9.4862	1.02039182	8227829	1.7481E+11	21246.00636	1	8.7	24.61	104.13	33626.38683
2006	AUT	1.2349812	0.494797775		1.01884472	8268641	1.8091E+11	21879.52556	1	8.6	24.18	107.27	34688.34224
2007	AUT	17.0572841	0.388028342		1.02004815	8300788	1.8658E+11	22477.56937	1	8.1	24.85	111.54	35834.55607
2008	AUT	1.59406554	0.434411324		1.01763742	8336926	1.8919E+11	22693.5253	1	8.1	24.02	110.64	36177.36111
2009	AUT	3.01814816	0.339464568		1.01045947	8365275	1.793E+11	21433.47598	1	7.9	22.12	99.27	34681.08772
2010	AUT	-6.6796129	0.292401674	9.7624	1.01784615	8390000	1.8692E+11	22278.93239	1	7.9	22.34	104.68	35380.23766
2011	AUT	3.34423632	0.347783065		1.02107097	8419000			1	7.8			36352.99748
Average	**AUT**	**4.40984184**	**0.393231361**	**9.41627**	**1.01435655**	**8193341.214**	**1.7131E+11**	**20933.9004**	**1**	**7.99**	**24.57461538**	**96.71153846**	**33478.49246**
1998	BEL		0.213527651		1.87034334	10203008	1.9204E+11	18821.77078	1.5	5.4	26.4	135.04	28453.84294
1999	BEL		0.229189103		0.31416897	10226419	1.9723E+11	19285.87391	1.5	5.3	26.15	135.19	29393.57797
2000	BEL		0.242517956	10.0432	1.97854637	10251250	2.0273E+11	19776.49158	1.5	6.1	26.82	146.02	30398.44681
2001	BEL		0.343951158		2.05050351	10286570	2.0266E+11	19700.95458	1.5	6.6	25.49	146.17	30538.75359
2002	BEL	7.15226748	0.448268895		2.00655244	10332785	2.0689E+11	20022.56467	1	7.1	23.96	147.08	30815.599
2003	BEL	11.0828418	0.418641508		1.98285913	10376133	2.0745E+11	19992.55725	1	7.6	23.87	146.68	30934.38116
2004	BEL	12.2801347	0.432788248		2.14173117	10421137	2.1168E+11	20312.52787	1	7.5	25	150.34	31807.18698
2005	BEL	8.92640648	0.550055708	10.5918	2.36906721	10478617	2.1335E+11	20360.07107	1	7.4	26.4	153.88	32189.35133
2006	BEL	14.708188	0.659558215		2.2928009	10547958	2.1753E+11	20622.99078	1	7.3	26.94	157.39	32846.93669
2007	BEL	21.0148491	0.734330831		2.33924032	10625700	2.2446E+11	21124.52131	1	7.1	27.98	160.7	33558.65196
2008	BEL	36.4296125	0.789976845		2.15731173	10709973	2.2205E+11	20732.98913	1	7.3	28.28	162.97	33617.42962
2009	BEL	14.0536797	0.804599573		1.21916365	10796493	2.1445E+11	19862.80962	1	7.1	25.79	150.52	32414.0013

2010	**BEL**	17.6695411	0.915465803	10.5664	1.80073131	10896000	2.3156E+11	21251.64524	1	7.1	24.95	161	32837.35224
2011	**BEL**	17.9544085	1.024626399		1.88316301	11008000			1	7.5			33126.51554
Average	**BEL**	**16.12719 29**	**0.55767 8421**	**10.4 005**	**1.8861 5593**	**105114 31.64**	**2.1108 E+11**	**20143. 67445**	**1.1 429**	**6. 89**	**26.002 30769**	**150.22 92308**	**31638. 00194**
1998	**BGR**	4.11397327	-0.667302701		29.6722235	8256786	9942461084	1204.156325	2.5	2.9	11.74	105.66	6533.150736
1999	**BGR**	6.18963535	-0.560648225		3.6946904	8210624	1.0265E+10	1250.206197	2.5	3.3	12.87	106.79	6698.923368
2000	**BGR**	7.76146183	-0.493896417	9.3994	6.60383738	8170172	1.1016E+10	1348.284429	2.5	3.5	13.75	88.7	7117.56846
2001	**BGR**	5.86174644	-1.851637793		6.17759335	8020282	1.1782E+10	1469.078522	2	3.9	15.52	93.87	7551.590855
2002	**BGR**	5.6614856	-1.911020315		4.67039971	7868468	1.2546E+10	1594.451711	1.5	4	15.69	97.33	8055.230459
2003	**BGR**	10.1450105	-0.572406973		2.27267173	7823557	1.3162E+10	1682.353018	1.5	3.9	17.4	105.04	8547.487295
2004	**BGR**	10.5295442	-0.543375463		4.17276241	7781161	1.396E+10	1794.084431	1.5	4.1	18.77	111.56	9174.011021
2005	**BGR**	14.9243456	-0.531678823	9.6771	7.38514136	7739900	1.4541E+10	1878.735147	1.5	4	22.41	93.02	9809.338565
2006	**BGR**	23.3598204	-0.529571959		6.83857058	7699020	1.529E+10	1985.997299	1.5	4	25.72	130.93	10508.5605
2007	**BGR**	31.3782676	-0.511187415		9.23353529	7659764	1.5234E+10	1988.882965	1.5	4.1	27.4	133.5	11238.41113
2008	**BGR**	19.2597934	-0.475936534		8.41565821	7623395	1.7047E+10	2236.137066	2	3.6	30.28	131.66	11992.13195
2009	**BGR**	7.05188865	-0.503192495		4.33360008	7585131	1.6516E+10	2177.383271	2	3.8	23.75	114.3	11389.73302
2010	**BGR**	3.33406909	-0.672541561	9.9496	2.79371595	7534000	1.6648E+10	2209.652458	2	3.6	20.21	124.14	11512.45824
2011	**BGR**	3.40110198	-0.776657838		4.95805149	7476000			2	3.3			11799.45649
Average	**BGR**	**10.9265 817**	**-0.75721 8179**	**9.67 537**	**7.2301 751**	**781773 2.857**	**1.3688 E+10**	**1755.3 3868**	**1.8 929**	**3. 71**	**19.654 61538**	**110.5**	**9423.4 32293**
1998	**ALB**	1.65008065	-0.416954977		13.5560082	3079037	2732729639	887.5273791	4.5	2.4	16.83	34.78	4053.182072
1999	**ALB**	1.19962644	-0.205209571		4.47606852	3072725	3079504113	1002.206222	4.5	2.3	19.43	39.54	4471.72045
2000	**ALB**	3.87886086	-0.028285086	9.8659	4.32151113	3071856	3381177093	1100.69518	4.5	2.4	25.31	49.22	4799.513398
2001	**ALB**	5.06719	0.17959		3.4582	307737	368411	1197.1	3.5	2.	28.65	51.26	5126.2

		565	9654		8096	8	7735	61264		5			6431
2002	**ALB**	3.03413506	0.402130794		3.30019587	3089778	3836688588	1241.736004	3	2.5	28.39	62.85	5253.756466
2003	**ALB**	3.14979054	0.54621478		3.38348607	3106701	4125418714	1327.909803	3	2.5	29.53	64.92	5522.970763
2004	**ALB**	4.57214198	0.582841073		6.00774467	3124861	4433719353	1418.853304	3	2.5	28.53	63.85	5814.835828
2005	**ALB**	3.13352262	0.540608188	10.204	3.4692522	3141800	4663774202	1484.427462	3	2.4	30.96	68.43	6101.576853
2006	**ALB**	3.5615231	0.470183247		1.99524122	3156607	4976769376	1576.619889	3	2.6	33.29	69.1	6376.603379
2007	**ALB**	6.18683777	0.412818752		2.02408136	3169665	5692926114	1796.065551	3	2.9	34.76	74.36	6725.003521
2008	**ALB**	7.39089006	0.369450443		4.36090456	3181397	6442019361	2024.902696	3	3.4	36.3	73.05	7216.119498
2009	**ALB**	7.95993176	0.35537492		2.41088207	3192723	5990145843	1876.187143	3	3.2	33.19	70.69	7427.807916
2010	**ALB**	9.35686981	0.361450678	10.3798	3.45934259	3205000	5874964060	1833.062109	3	3.3	28.08	78.79	7660.043814
2011	**ALB**		0.364595549		3	3215988		0	3	3.1			7861.131481
Average	**ALB**	**4.62626202**	**0.28105846**	**10.1499**	**4.23021424**	**3134679.714**	**4531842630**	**1443.642616**	**3.3571**	**2.71**	**28.71153846**	**61.60307692**	**6029.323554**
1998	**BIH**	1.62111583	3.350317972		-1.5819249	3480285	4890300000	1405.143544	5	2.6	25.15	88.78	4677.44996
1999	**BIH**	3.77274415	3.421902317		8.35565081	3601438	5337500000	1482.046893	5	2.7	19.99	89.81	4954.029305
2000	**BIH**	2.65303348	2.529491409		28.7901362	3693698	5549200000	1502.342639	4.5	2.6	19.78	84.35	5095.955058
2001	**BIH**	2.06114828	1.469295458		2.96196248	3748370	5665300000	1511.403623	4.5	3	18.95	88.59	5242.579426
2002	**BIH**	4.02586774	0.731318381		4.46158305	3775883	5843600000	1547.611512	4	3.3	21.66	87.03	5480.211436
2003	**BIH**	4.56133472	0.180827187		0.91238477	3782717	6881100000	1819.089295	4	3.3	21.97	90.68	5689.123106
2004	**BIH**	7.08231975	-0.035933013		2.57249762	3781358	7193100000	1902.253106	3.5	3.1	23.63	95.34	6038.328979
2005	**BIH**	5.55176984	-0.009441498		3.8776273	3781001	7586600000	2006.505685	3.5	2.9	23.59	98.8	6340.84407
2006	**BIH**	6.19572372	0.015523784		5.72849024	3781588	1.0524E+10	2782.957847	3	2.9	18.53	90.76	6732.931116
2007	**BIH**	13.5517416	-0.067560582		5.71779231	3779034	8534000000	2258.249066	3.5	3.3	23.79	92.55	7198.190442
2008	**BIH**	5.29455998	-0.128952019		7.55658443	3774164		0	3.5	3.2	25.77	92.39	7598.123984
2009	**BIH**	1.40555168	-0.171867756		0.05194539	3767683		0	3.5	3	18.99	76.34	7389.708194
2010	**BIH**	1.39083601	-0.200163939		1.40488499	3760000	9820000000	2611.702128	3.5	3.2	17.13	78.25	7463.750655
2011	**BIH**	2.39010346	-0.210878739		1.77768283	3752228		0	3.5	3.2			7607.441804
Average	**BIH**	**4.39698**	**0.77670**	**0**	**5.1848**	**373281**	**707497**	**1893.5**	**3.8**	**3.**	**21.456**	**88.743**	**6250.6**

		93	**564**		**0696**	**7.643**	**2727**	**73213**	**929**	**02**	**15385**	**84615**	**1911**
1998	**BLR**	1.33490 87	- 0.47557 7999		76.580 4094	100690 00	1.0498 E+10	1042.5 75162	6	3. 9	16.87	98.46	5277.2 04636
1999	**BLR**	3.65778 751	- 0.33824 1447		316.79 3331	100350 00	1.0668 E+10	1063.0 64545	6	3. 4	13.21	94.97	5475.1 17427
2000	**BLR**	0.93272 622	- 0.29940 1402		185.29 0798	100050 00	1.1157 E+10	1115.1 76343	6	4. 1	14.02	99.34	5810.0 43576
2001	**BLR**	0.77540 586	- 0.34783 004		79.534 5725	997026 0	1.1688 E+10	1172.3 25515	6	4. 7	12.92	101.52	6105.7 86817
2002	**BLR**	1.69305 422	- 0.45498 4055		44.893 7391	992500 0	1.2458 E+10	1255.1 88662	6	4. 8	12.48	104.45	6443.0 88487
2003	**BLR**	0.96379 129	- 0.51549 9169		30.685 3214	987396 8	1.3795 E+10	1397.0 69441	6	4. 2	14.96	109.95	6932.5 33067
2004	**BLR**	0.70781 66	- 0.50256 7781		22.675 1226	982446 9	1.5559 E+10	1583.6 77449	6.5	3. 3	18.15	120.6	7765.2 17946
2005	**BLR**	1.00959 64	- 0.49875 412		18.927 6963	977559 1	1.8248 E+10	1866.6 39494	6.5	2. 6	18.49	106.38	8540.8 16352
2006	**BLR**	0.95774 248	- 0.44177 639		10.750 6375	973250 0	2.059E +10	2115.5 73687	6.5	2. 1	23.02	114.96	9436.3 21528
2007	**BLR**	3.98734 757	- 0.31387 5068		12.823 5533	970200 0	2.1897 E+10	2256.9 50995	6.5	2. 1	24.23	110.73	10284. 54004
2008	**BLR**	3.58866 853	- 1.03606 3971		21.160 4911	960200 0	2.5426 E+10	2648.0 35874	6.5	2	28.08	109.33	11456. 61003
2009	**BLR**	3.82454 137	- 0.99430 4073		5.7222 859	950700 0	2.39E+ 10	2513.9 78086	6.5	2. 4	26.45	96.79	11590. 01457
2010	**BLR**	2.54034 101	- 0.17897 5676		11.113 5436	949000 0	2.5765 E+10	2715.0 01117	6.5	2. 5	28.63	97.8	12504. 80624
2011	**BLR**	7.22901 478	- 0.17929 6573		58.367 5854	947300 0		0	6.5	2. 4			13191. 19114
Average	**BLR**	**2.37162 447**	**- 0.46979 6269**	**0**	**63.951 3634**	**978462 7.714**	**1.705E +10**	**1749.6 35105**	**6.2 857**	**3. 18**	**19.346 92308**	**105.02 15385**	**8629.5 20846**
1998	**CYP**	3.61541 751	1.92365 6882		2.9402 1527	908059	808139 8424	8899.6 40248	1	6	21.73	94.63	21095. 551
1999	**CYP**	8.31665 03	1.90290 9953		2.3485 6355	925504	763919 8027	8254.0 95095	1	6. 3	19.68	96.23	21871. 89786
2000	**CYP**	9.17745 589	1.90395 5099	9.67 88	3.8193 2399	943294	778688 3973	8254.9 91522	1	6. 4	21.01	101.58	22731. 77273
2001	**CYP**	9.76044 124	1.90978 3912		3.3739 6029	961482	827900 9746	8610.6 75755	1	6. 1	19.53	103.72	23393. 34261
2002	**CYP**	10.4519 414	1.89481 4787		1.1938 099	979874	854578 6167	8721.3 11278	1	6	21.78	98.79	23586. 88614
2003	**CYP**	6.81815 734	1.84635 4387		5.0852 5825	998134	886892 7149	8885.5 07506	1	6. 1	20.62	96.98	23630. 10885
2004	**CYP**	7.07367 886	1.75501 2919		3.2268 3713	101580 6	912443 4380	8982.4 57654	1	5. 4	23.63	99.52	24061. 81316

2005	**CYP**	6.8360224	1.636070643	8.9853	2.38761029	1032562	9417376138	9120.397747	1	5.7	23.38	99.96	24407.93895
2006	**CYP**	10.1483149	1.510000173		2.97900604	1048272	9779679047	9329.333462	1	5.6	24.23	100.98	24929.47475
2007	**CYP**	10.5094511	1.397740464		4.63363053	1063027	1.0122E+10	9522.087446	1	5.3	25.87	105.1	25826.45205
2008	**CYP**	5.30499824	1.305982783		5.05704143	1077001	1.0611E+10	9852.681317	1	6.4	27.43	105.93	26456.15767
2009	**CYP**	15.0791274	1.243122039		-0.31161306	1090473	1.0857E+10	9956.630432	1	6.6	23.98	92.2	25789.7083
2010	**CYP**	3.5429194	1.200860328	9.7518	1.90099828	1103000	1.0584E+10	9595.81632	1	6.3	22.95	96.38	25961.04672
2011	**CYP**	0.95777105	1.16359623		1.21703315	1116564		0	1	6.3			26045.44577
Average	**CYP**	**7.685167644**	**1.613847186**	**9.47197**	**2.84654822**	**1018789.429**	**9207530676**	**9075.817368**	**1**	**6.04**	**22.75538462**	**99.38461538**	**24270.54261**
1998	**HRV**	3.74737334	-1.565115162		8.20411273	4501000	1.7623E+10	3915.342054	4	2.5	22.43	76.89	11848.26227
1999	**HRV**	6.29347255	1.170637333		3.81289274	4554000	1.6931E+10	3717.830564	4	2.7	21.24	77.47	11588.24645
2000	**HRV**	5.15822849	-2.850972601	8.5052	4.60496244	4426000	1.7558E+10	3967.017471	2.5	3.7	19.79	80.22	12370.55168
2001	**HRV**	6.86451913	0.315813482		4.14823935	4440000	1.7793E+10	4007.524748	2	3.9	22.24	84.41	12782.38649
2002	**HRV**	4.14691567	0		3.53403122	4440000	1.9308E+10	4348.564682	2	3.8	25.84	85.99	13405.94526
2003	**HRV**	6.00059	0		4.05478411	4440000	2.0034E+10	4512.059719	2	3.7	28.11	91.02	14125.98765
2004	**HRV**	2.63041782	-0.022525059		3.79428386	4439000	2.1393E+10	4819.358731	2	3.5	28.08	91.88	14712.48381
2005	**HRV**	3.98917146	0.067559962	8.7358	3.34641312	4442000	2.2704E+10	5111.213886	2	3.4	28.88	91.45	15331.78789
2006	**HRV**	6.93368095	-0.045034903		4.01433308	4440000	2.3893E+10	5381.242744	2	3.4	31.25	93.27	16095.69542
2007	**HRV**	8.36290682	-0.090130696		4.10021401	4436000	2.5405E+10	5726.942891	2	4.1	31.59	93.26	16925.37433
2008	**HRV**	8.62178126	-0.045095829		6.08886834	4434000	2.6252E+10	5920.683421	2	4.4	33.02	93.79	17300.33791
2009	**HRV**	5.2466697	-0.112828625		3.34351295	4429000	2.4985E+10	5641.125542	1.5	4.1	30.45	80.99	16282.22616
2010	**HRV**	0.701183	-0.248671994	8.9767	1.01672211	4418000	2.5009E+10	5660.696023	1.5	4.1	27.24	83.83	16128.31697
2011	**HRV**	2.30126797	-0.249291914		2.02581708	4407000		0	1.5	4			16162.19199
Average	**HRV**	**5.071298444**	**-0.306304667**	**8.73923**	**4.00637051**	**4446142.857**	**2.1453E+10**	**4825.354037**	**2.2143**	**3.66**	**26.93538462**	**86.49769231**	**14647.12816**
1998	**CZE**	5.79388677	-0.094744752		9.63090992	10294373	4.3041E+10	4181.030601	1.5	4.8	24.55	86.65	16334.13824

1999	**CZE**	10.1544624	-0.102175934		2.51979878	10283860	4.3016E+10	4182.824953	1.5	4.6	23.57	89.68	16625.41388
2000	**CZE**	8.48038228	-0.112258212	11.8969	1.37212016	10272322	4.3702E+10	4254.342931	1.5	4.3	25.35	101.01	17340.75109
2001	**CZE**	8.76222445	-0.34942087		4.63939418	10236491	4.5088E+10	4404.672884	1.5	3.9	25.75	109.55	17940.43301
2002	**CZE**	10.8340289	-0.309549365		2.65259043	10204853	4.6569E+10	4563.419202	1.5	3.7	25.52	110.83	18382.84273
2003	**CZE**	2.12112715	0.024583319		0.89629509	10207362	4.8792E+10	4780.110189	1.5	3.9	24.36	114.73	19070.48392
2004	**CZE**	4.36738067	0.084746025		4.03393128	10216016	5.1137E+10	5005.547835	1	4.2	24.86	122.6	19957.99817
2005	**CZE**	8.92100195	0.193742982	13.0864	-0.34880164	10235828	5.4524E+10	5326.795981	1	4.3	24.36	125.23	21264.41393
2006	**CZE**	3.72224115	0.32485824		0.53328296	10269134	5.7862E+10	5634.516868	1	4.8	25.1	131.58	22683.44791
2007	**CZE**	5.87556946	0.63122155		3.32023178	10334160	6.0738E+10	5877.40164	1	5.2	27.45	139.47	23833.45558
2008	**CZE**	2.91530326	0.868815999		1.91560755	10424336	6.2854E+10	6029.588221	1	5.2	27.12	139.7	24359.49355
2009	**CZE**	1.46233205	0.601029549		1.94957466	10487178	5.9702E+10	5692.830383	1	4.9	22.49	130.51	23076.64928
2010	**CZE**	3.09580439	0.310506715	12.3199	-1.72856851	10520000	6.3958E+10	6079.627611	1	4.6	23.13	147.36	23635.21602
2011	**CZE**	2.50001544	0.248820586		-0.74008483	10546000		0	1	4.4			23966.64661
Average	**CZE**	**5.6432686**	**0.165726845**	**12.4344**	**2.18902013**	**10323708.07**	**5.2383E+10**	**5077.900715**	**1.2143**	**4.49**	**24.89307692**	**119.1461538**	**20605.09885**
1998	**DNK**	3.84367437	0.363162524		1.18743426	5304219	1.2399E+11	23376.6376	1	10	25.15	70.77	30009.36331
1999	**DNK**	9.68579063	0.330886246		1.68125147	5321799	1.2671E+11	23809.45062	1	10	23.41	74.51	30676.06749
2000	**DNK**	22.4967088	0.334233619	9.993	2.99856283	5339616	1.2822E+11	24012.28046	1	9.8	25.08	80.75	31652.54989
2001	**DNK**	5.78678147	0.358315679		2.49621092	5358783	1.3048E+11	24348.09477	1	9.5	24.26	82.38	31761.63679
2002	**DNK**	2.54812629	0.319487125		2.30312423	5375931	1.3151E+11	24462.16424	1	9.5	24.45	86.48	31807.81346
2003	**DNK**	0.55724523	0.272010444		1.64607467	5390574	1.3277E+11	24629.27737	1	9.5	23.8	85.2	31843.16711
2004	**DNK**	-3.5975313	0.258432282		2.32573035	5404523	1.3789E+11	25513.3242	1	9.5	24.8	87.34	32490.36713
2005	**DNK**	4.98078381	0.275481733	10.098	2.87788675	5419432	1.4361E+11	26498.32289	1	9.5	25.48	93.24	33193.23729
2006	**DNK**	0.88196922	0.328645159		2.12459802	5437272	1.4944E+11	27484.26436	1	9.5	27.48	99.77	34207.44552
2007	**DNK**	3.79215832	0.443466054		2.27883765	5461438	1.5018E+11	27498.8125	1	9.4	27.56	101.65	34595.28003
2008	**DNK**	0.63719864	0.58754759		4.23171199	5493621	1.4949E+11	27211.93425	1	9.3	26.41	106.11	34123.025
2009	**DNK**	1.25941585	0.535079062		1.02741185	5523095	1.4173E+11	25661.97266	1	9.3	21.81	101.56	31960.90232

2010	**DNK**	-2.4652985	0.444197155	10.2743	3.85926487	5547000	1.5157E+11	27325.52138	1	9.3	21.87	103.59	32231.50202
2011	**DNK**	4.55805015	0.473256595		0.80845319	5574000		0	1	9.4			32399.30467
Average	**DNK**	**3.92607665**	**0.380300091**	**10.1218**	**2.27475379**	**5425093.071**	**1.3828E+11**	**25525.54287**	**1**	**9.54**	**24.73538462**	**90.25769231**	**32353.69014**
1998	**EST**	10.3777662	-0.960559005		5.15029025	1386156	4445610438	3207.15016	1.5	5.7	21.92	125.98	10397.01767
1999	**EST**	5.3456443	-0.760519414		6.77146387	1375654	4375692967	3180.809249	1.5	5.7	18.41	121.3	10447.97286
2000	**EST**	6.82464091	-0.447259184	11.7301	4.79298599	1369515	4740048682	3461.114834	1.5	5.7	21.13	141.11	11512.50683
2001	**EST**	8.69672803	-0.396105896		6.47793358	1364101	5196485650	3809.458134	1.5	5.6	21.83	138.96	12284.24394
2002	**EST**	3.88788613	-0.400846007		4.6864351	1358644	5644100478	4154.215878	1.5	5.6	26.98	133.92	13142.7196
2003	**EST**	9.33862995	-0.37512013		4.04207945	1353557	6128877129	4527.9786	1.5	5.5	28.67	136.08	14216.53178
2004	**EST**	8.03111563	-0.315741405		4.45808579	1349290	6637872353	4919.529792	1	6	29.18	146.42	15166.07326
2005	**EST**	21.1518305	-0.236923417	11.9044	6.06084442	1346097	7469128746	5548.729955	1	6.4	30.46	159.82	16547.96064
2006	**EST**	10.6404706	-0.189616229		8.77254949	1343547	8261101701	6148.725501	1	6.7	34.95	160.38	18253.44373
2007	**EST**	12.3673398	-0.139653436		11.6393359	1341672	8975353395	6689.677801	1	6.5	36.04	156.94	19648.44954
2008	**EST**	7.32125872	-0.074337887		5.32744362	1340675	8576790137	6397.3671	1	6.6	30.03	158.94	18941.29094
2009	**EST**	9.92523971	-0.030138615		-1.00154532	1340271	7085719988	5286.781545	1	6.6	17.66	131.96	16245.56123
2010	**EST**	8.17687553	-0.008207632	12.0062	1.07708733	1340000	7300400587	5448.060139	1	6.5	18.54	156.4	16614.64714
2011	**EST**	0.8131972	-0.012014204		3.73720744	1340000		0	1	6.4			17885.42924
Average	**EST**	**8.77847308**	**-0.310503033**	**11.8802**	**5.14229978**	**1353512.786**	**6525937096**	**4829.199899**	**1.2143**	**6.11**	**25.83076923**	**143.7084615**	**15093.13203**
1998	**FIN**	9.2696831	0.265472962		3.41247353	5153498	9.3389E+10	18121.47694	1	9.6	25.9	62.56	25085.18509
1999	**FIN**	3.56742601	0.232116249		0.9337678	5165474	9.6997E+10	18777.98774	1	9.8	24.64	65.06	26005.17494
2000	**FIN**	7.49254047	0.207606515	8.2107	2.60952739	5176209	1.0199E+11	19702.97716	1	10	26.17	72.35	27332.82213
2001	**FIN**	3.00013329	0.227687342		3.01300161	5188008	1.052E+11	20276.57787	1	9.9	25.77	72	27893.45255
2002	**FIN**	6.12200	0.24238		1.2713	520059	1.0748	20667.	1	9.	24.79	73.38	28336.

		216	105		2188	8	E+11	02294		7			28952
2003	**FIN**	2.11398529	0.23845724		-0.68636695	5213014	1.0776E+11	20671.55036	1	9.7	25.11	72.62	28837.69085
2004	**FIN**	1.51841035	0.290350362		0.48308248	5228172	1.1334E+11	21678.17277	1	9.7	25.54	75.14	29940.15073
2005	**FIN**	2.45465124	0.342248594	10.0972	0.46126601	5246096	1.1446E+11	21817.72431	1	9.6	27.07	79.43	30707.94588
2006	**FIN**	3.71398777	0.383777136		0.84712964	5266268	1.1883E+11	22564.60711	1	9.6	25.97	83.9	31939.53604
2007	**FIN**	5.15263114	0.425429832		2.99014704	5288720	1.2373E+11	23394.68568	1	9.4	27.35	85.37	33500.75641
2008	**FIN**	-0.843103	0.465549285		2.94529458	5313399	1.2245E+11	23045.86388	1	9	26.49	90.76	33443.04788
2009	**FIN**	0.20765404	0.478246393		1.38662026	5338871	1.1387E+11	21328.23388	1	8.9	23.26	82.24	30502.88267
2010	**FIN**	2.90530892	0.457494535	10.2863	0.42773087	5364000	1.1801E+11	21999.58691	1	9.2	24.06	85.38	31496.67958
2011	**FIN**	-0.0114302	0.439949095		3.63501052	5387000		0	1	9.4			32253.6257
Average	**FIN**	**3.33313433**	**0.335483328**	**9.5314**	**1.69500047**	**5252094.786**	**1.1058E+11**	**21080.4975**	**1**	**9.54**	**25.54769231**	**76.93769231**	**29805.37428**
1998	**FRA**	2.00959736	0.42698263		1.03486414	6029914	1.1098E+12	18404.51531	1.5	6.7	20.41	45.66	26608.78855
1999	**FRA**	3.15750333	0.324874319		0.1767485	6049536	1.1547E+12	19087.00058	1.5	6.6	21.26	46.6	27395.5908
2000	**FRA**	3.19523032	0.684578435	9.2981	1.57287958	6091092	1.1839E+12	19435.92664	1.5	6.7	22.32	50.98	28209.95217
2001	**FRA**	3.76169973	0.727334167		2.01374978	6135563	1.2012E+12	19577.49268	1.5	6.7	22.01	51.28	28519.62272
2002	**FRA**	3.41375057	0.726679916		2.21817924	6180304	1.2033E+12	19469.24467	1	6.3	21.15	51.71	28576.12091
2003	**FRA**	2.40272318	0.708165157		1.99740353	6224226	1.2166E+12	19545.67322	1	6.9	21.03	51.1	28629.69924
2004	**FRA**	1.59698712	0.735700104		1.67425767	6270187	1.2471E+12	19889.70855	1	7.1	21.93	52.43	29143.05325
2005	**FRA**	3.97820234	0.753214979	9.7868	1.91221956	6317593	1.2653E+12	20027.52861	1	7.5	22.45	53.62	29452.66778
2006	**FRA**	3.18440532	0.696620054		2.14071156	6361756	1.2935E+12	20331.87423	1	7.4	22.85	54.97	29969.73314
2007	**FRA**	3.80703704	0.618171961		2.587109	6401205	1.3267E+12	20726.08263	1	7.3	23.91	55.79	30465.75175
2008	**FRA**	2.34968143	0.558432414		2.54207403	6437051	1.3149E+12	20427.0888	1	6.9	23.75	56.03	30271.65613
2009	**FRA**	1.34067174	0.541817076		0.71597215	6472023	1.2763E+12	19719.50363	1	6.9	20.97	51.1	29160.56583
2010	**FRA**	1.32095528	0.547533718	10.4313	1.05036612	6507600	1.3005E+12	19984.52374	1	6.8	21.01	55.01	29483.65768
2011	**FRA**	1.54630989	0.553180682		1.34167543	6543652		0	1	7			29818.80064
Average	**FRA**	**2.64748247**	**0.614520382**	**9.83873**	**1.64130073**	**6287264.93**	**1.238E+12**	**19740.4741**	**1.1429**	**6.91**	**21.92692308**	**52.02153846**	**28978.97576**
1998	**DEU**	1.08512352	0.015143651		0.58978677	8204719	1.5269E+12	18610.54256	1.5	7.9	23.03	54.27	28916.54191
1999	**DEU**	2.62343774	0.064634578		0.19197153	8210024	1.5567E+12	18960.40112	1.5	8	23.64	57.08	29438.55973
2000	**DEU**	11.136836516	0.135431 6	10.4935	-0.6723	8221150 8	1.5802E+12	19221.33808	1.5	7.6	23.69	62	30297.62732

					2846								
2001	**DEU**	1.39142267	0.168225361		1.12548359	82349925	1.604E+12	19477.596	1.5	7.4	22.25	63.53	30704.74918
2002	**DEU**	2.67146418	0.168128319		1.43125947	82488495	1.6125E+12	19548.04864	1	7.3	20.4	64.73	30656.27991
2003	**DEU**	1.27625167	0.055363304		1.09713176	82534176	1.62E+12	19628.24176	1	7.7	20.7	67.48	30524.27883
2004	**DEU**	-0.359563	-0.021709728		1.0709031	82516260	1.6737E+12	20283.3776	1	8.2	20.32	73.12	30885.4106
2005	**DEU**	1.67999248	-0.056778262	12.2369	0.61821196	82469422	1.6757E+12	20319.03615	1	8.2	19.81	77.74	31114.53059
2006	**DEU**	1.95139759	-0.112797498		0.31201245	82376451	1.7524E+12	21273.40967	1	8	20.73	84.18	32302.18373
2007	**DEU**	2.42470534	-0.133718573		1.63033557	82266372	1.8061E+12	21954.2487	1	7.8	21.85	86.83	33402.79265
2008	**DEU**	0.23331292	-0.190142845		0.77376649	82110097	1.8017E+12	21942.68197	1	7.9	21.92	88.45	33828.87411
2009	**DEU**	0.77847903	-0.25338341		1.17309836	81902307	1.7412E+12	21258.92759	1	8	19.63	82.89	32175.88586
2010	**DEU**	1.44086719	-0.153198447	12.2085	0.59592343	81777000	1.8184E+12	22236.23217	1	7.9	20.68	89.92	33414.44319
2011	**DEU**	1.12836031	-0.06229858		0.77637618	81726000		0	1	8			34436.8487
Average	**DEU**	**2.10443487**	**-0.026935752**	**11.6463**	**0.76528087**	**82205389.36**	**1.6746E+12**	**20362.62169**	**1.1429**	**7.85**	**21.43461538**	**73.24769231**	**31578.50045**
1998	**GRC**		0.540235109		5.19730808	10834880	1.0531E+11	9719.951108	2	4.9	24.47	50.27	18946.45346
1999	**GRC**	0.42594096	0.439278596		3.02860053	10882580	1.0735E+11	9864.682465	2	4.9	25.86	56.52	19508.42208
2000	**GRC**	0.87077317	0.320201198	8.5692	3.39684886	10917482	1.1053E+11	10124.3725	2	4.9	27.24	62.07	20316.73459
2001	**GRC**	1.22071725	0.297017167		3.1175772	10949957	1.1566E+11	10562.50037	2	4.2	27.18	60.01	21106.65378
2002	**GRC**	0.03633098	0.342664723		3.40117707	10987543	1.2011E+11	10931.25805	1.5	4.2	26.67	55.75	21757.85853
2003	**GRC**	0.69053245	0.326845113		3.92210064	11023514	1.2566E+11	11398.9037	1.5	4.3	29.62	53.8	22975.79172
2004	**GRC**	0.92344245	0.345815407		2.94694428	11061701	1.3115E+11	11856.59567	1.5	4.3	27.78	56.9	23896.50888
2005	**GRC**	0.27394133	0.381347001	9.7731	2.81197995	11103965	1.3251E+11	11933.65364	1.5	4.3	24.76	56.03	24348.40224
2006	**GRC**	2.06093871	0.399912003		2.52393621	11148460	1.3874E+11	12444.46075	1.5	4.4	27.81	56.03	25595.45975
2007	**GRC**	0.6424133	0.396603696		3.54142176	11192763	1.4203E+11	12689.16172	1.5	4.6	29.68	60.58	26258.00216
2008	**GRC**	1.55444353	0.395286138		4.720116	11237094	1.3986E+11	12445.98898	1.5	4.7	27.44	62.81	26113.38576
2009	**GRC**	0.75181334	0.405562688		2.79256568	11282760	1.3444E+11	11915.95039	1.5	3.8	21.08	52.66	25162.2855
2010	**GRC**	0.1437481	0.289827724	10.499	1.71011374	11316000	1.3041E+11	11524.19484	1.5	3.5	18.92	53.03	24207.13806

2011	GRC	0.58727041	-0.101752885		1.64057484	11304000		0	2	3.4			22558.0344
Average	GRC	**0.78325431**	**0.341345977**	**9.61377**	**3.19652206**	**11088764.21**	**1.2567E+11**	**11339.35955**	**1.6786**	**4.31**	**26.03923077**	**56.65076923**	**23053.65221**
1998	HUN	6.97161433	-0.232679337		13.6518844	10266570	3.3329E+10	3246.317893	1.5	5	24.2	87.6	12643.89418
1999	HUN	6.85456902	-0.28326061		7.85905782	10237530	3.3915E+10	3312.78317	1.5	5.2	23.55	94.49	13085.22024
2000	HUN	5.97271541	-0.259764908	11.2444	9.7430961	10210971	3.5205E+10	3447.726968	1.5	5.2	24.2	108.21	13673.57493
2001	HUN	7.48068992	-0.229379183		11.2631003	10187576	3.7454E+10	3676.483538	1.5	5.3	22.28	111.59	14213.73177
2002	HUN	4.53814581	-0.284751377		8.45715315	10158608	4.0183E+10	3955.609155	1.5	4.9	22.01	111.72	14896.57579
2003	HUN	2.6062838	-0.286433268		5.39766804	10129552	4.2191E+10	4165.155591	1.5	4.8	21.32	115.35	15514.53226
2004	HUN	4.20089499	-0.221439379		5.23445876	10107146	4.4332E+10	4386.246576	1	4.8	23.47	126.65	16294.83651
2005	HUN	6.91264751	-0.198878843	11.4672	2.48560047	10087065	4.5542E+10	4514.922037	1	5	22.22	132.82	16974.55981
2006	HUN	17.3480171	-0.155716485		3.49478071	10071370	4.6657E+10	4632.588938	1	5.2	21.33	149.67	17663.56947
2007	HUN	52.05155	-0.154915158		5.43745802	10055780	4.5892E+10	4563.780646	1	5.3	20.94	169.94	17711.2456
2008	HUN	47.0331173	-0.175097367		5.27590934	10038188	4.622E+10	4604.454167	1	5.1	21.52	177.81	17900.92761
2009	HUN	3.67167442	-0.154908814		3.56476783	10022650	4.3538E+10	4343.931228	1	5.1	16.22	166.1	16709.77564
2010	HUN	-29.228838	-0.226013876	11.6726	3.09274899	10000000	4.5927E+10	4592.693488	1	4.7	17.02	186.14	16958.29498
2011	HUN	17.1031943	-0.290651314		3.50780824	9971000		0	1.5	4.6			17295.38614
Average	HUN	**10.96544483**	**-0.225277851**	**11.4614**	**6.31896403**	**10110286.14**	**4.1568E+10**	**4110.976415**	**1.25**	**5.01**	**21.56**	**133.6992308**	**15824.00892**
1998	IRL	12.5228416	1.048535847			3712696	6.581E+10	17725.59031	1	8.2	30.65	133.5	
1999	IRL	19.0028559	1.133677522			3754786	7.0569E+10	18794.37638	1	7.7	29.95	137.57	
2000	IRL	26.1483268	1.341967292	11.1807		3805174	7.4403E+10	19553.11749	1	7.2	29.21	151.04	33424.40788
2001	IRL	9.05611823	1.604893758		6.48709449	3866243	7.7291E+10	19991.20539	1	7.5	27.39	155.35	34473.06392
2002	IRL	23.8492867	1.699427584		5.01888451	3931947	8.0199E+10	20396.64718	1	6.9	26.66	152.1	35887.81123
2003	IRL	14.0841	1.64229		3.0573	399652	8.471E	21195.	1	7.	27.51	143.89	36776.

		05	0702		7144	1	+10	86025		5			57951
2004	**IRL**	-5.8809501	1.845129802		2.18798036	4070262	8.7662E+10	21537.18038	1	7.5	28.2	149.37	37738.05592
2005	**IRL**	-14.922137	2.202610053	11.3959	3.06554795	4159914	9.2079E+10	22134.75118	1	7.4	30.81	149.75	38896.38661
2006	**IRL**	-2.4692506	2.385480304		3.57432566	4260341	9.8068E+10	23018.82794	1	7.4	31.22	151.09	39996.86359
2007	**IRL**	9.45584343	2.24187064		1.27754897	4356931	1.0106E+11	23195.78123	1	7.5	29.89	155.3	41136.9735
2008	**IRL**	-6.1969568	1.565670641		-2.33212552	4425683	9.6396E+10	21781.14742	1	7.7	26.79	157.22	39294.28654
2009	**IRL**	11.900909	0.748690133		-4.06452856	4458942	8.783E+10	19697.39825	1	8	19.7	162.34	36273.2475
2010	**IRL**	13.1959199	0.34509126	11.6121	-2.44836252	4475000	8.1162E+10	18136.81774	1	8	15.68	172.37	35993.08389
2011	**IRL**	6.42662771	0.282189624		0.9928738	4487000		0	1	7.5			35640.41671
Average	**IRL**	**8.29810996**	**1.434823226**	**11.3962**	**1.52878278**	**4125817.143**	**8.4403E+10**	**20550.66932**	**1**	**7.57**	**27.20461538**	**151.6069231**	**37127.59807**
1998	**ITA**	0.21514366	0.028774016		2.66227438	56906744	9.0149E+11	15841.54913	1.5	4.6	24.55	46.4	26374.00506
1999	**ITA**	0.5746543	0.016820844		1.79379448	56916317	9.1777E+11	16124.95913	1.5	4.7	25.25	46.34	26752.216
2000	**ITA**	1.19350456	0.045303631	8.5794	1.94499753	56942108	9.3315E+11	16387.66901	1.5	4.6	25.72	49.38	27717.07423
2001	**ITA**	1.32365168	0.061638359		2.87775192	56977217	9.5342E+11	16733.38911	1.5	5.5	25.77	49.6	28215.94285
2002	**ITA**	1.19975815	0.315748447		3.20803967	57157406	9.5817E+11	16763.77454	1	5.2	26.52	48.6	28253.9674
2003	**ITA**	1.09196128	0.779446184		3.11876789	57604658	9.6006E+11	16666.43257	1	5.3	26.35	48.76	28021.54093
2004	**ITA**	0.96749769	0.985760544		2.3921949	58175310	9.7799E+11	16811.09263	1	4.8	26.4	50.56	28226.87466
2005	**ITA**	1.09931664	0.739383915	8.9992	1.81709713	58607043	9.7964E+11	16715.44291	1	5	25.99	51.87	28279.87053
2006	**ITA**	2.0826145	0.569053256		1.70759938	58941499	9.9442E+11	16871.30041	1	4.9	26.77	54.74	28737.7242
2007	**ITA**	1.88243977	0.733272008		2.37385695	59375289	1.0093E+12	16998.19883	1	5.2	27.03	56.9	29007.90948
2008	**ITA**	-0.4112333	0.766549688		2.53315842	59832179	9.7279E+11	16258.66342	1.5	4.8	26.32	55.95	28453.5621
2009	**ITA**	0.7849556	0.600742268		2.08894808	60192698	9.3758E+11	15576.3452	1.5	4.3	23.72	50.2	26729.15091
2010	**ITA**	0.46943466	0.481764994	9.2975	0.39097847	60483000	9.7838E+11	16176.16832	1.5	3.9	24.76	55.44	27080.68577
2011	**ITA**	1.48612083	0.472754693		1.30515802	60770000		0	1	3.9			27069.15162
Average	**ITA**	**0.99713**	**0.471215203**	**8.9587**	**2.15818694**	**584915 33.43**	**9.5955E+11**	**16455.76809**	**1.25**	**4.76**	**25.78076923**	**51.13384615**	**27779.97684**
1998	**LVA**	5.39371743	-0.942918937		4.6026384	2410019	5222513517	2167.000973	1.5	2.7	19.27	100.36	7502.445171
1999	**LVA**	4.76914	-		4.3732	239048	546472	2286.0	1.5	3.	19.3	91.75	7919.1

		088	0.81396 1204		2903	2	4318	34498		4			89185
2000	**LVA**	5.26613 554	- 0.73463 6293	9.42 75	4.1859 2808	237298 5	600563 1173	2530.8 34022	1.5	3. 4	18	91.92	8529.1 43493
2001	**LVA**	1.58786 529	- 0.76032 5795		1.6953 6302	235501 1	670198 2668	2845.8 3922	1.5	3. 4	20.98	95.84	9285.5 17512
2002	**LVA**	2.72255 371	- 0.69826 7615		3.6086 7367	233862 4	719770 6522	3077.7 52782	1.5	3. 7	20.8	93.79	9955.8 00694
2003	**LVA**	2.71310 317	- 0.56955 9723		3.5655 0233	232534 2	777339 7618	3342.9 05094	1.5	3. 8	25.05	96.57	10733. 17214
2004	**LVA**	4.62810 581	- 0.53999 9816		7.0085 8657	231281 9	833874 5631	3605.4 467	1.5	4	28.85	101.6	11727. 73413
2005	**LVA**	4.44774 403	- 0.53354 1998	10.1 067	10.173 5304	230051 2	940295 0357	4087.3 29411	1	4. 2	27.95	107.57	13040. 3715
2006	**LVA**	8.34811 2	- 0.54763 6087		9.8775 2182	228794 8	1.0475 E+10	4578.1 28768	1	4. 7	28.96	110.04	14716. 00021
2007	**LVA**	8.04986 857	- 0.51918 9396		20.295 4472	227610 0	1.2292 E+10	5400.3 98854	1.5	4. 8	29.99	114.12	16268. 55122
2008	**LVA**	4.03155 774	- 0.44058 075		14.383 2794	226609 4	1.1857 E+10	5232.1 61385	1.5	5	24.57	109.75	15646. 97259
2009	**LVA**	0.36134 175	- 0.49812 8848		- 1.4971 1179	225483 4	1.0002 E+10	4435.6 08148	1.5	4. 5	15.46	97.76	12901. 66675
2010	**LVA**	1.53688 01	- 0.70434 4542	10.4 19	- 2.3157 1934	223900 0	930960 4637	4157.9 29717	2	4. 3	16.65	109.44	12948. 22878
2011	**LVA**	5.50464 583	- 0.85257 1475		5.4227 0196	222000 0		0	2	4. 2			13773. 42603
Average	**LVA**	**4.24005 513**	**- 0.65397 5891**	**9.98 44**	**6.0985 4077**	**231069 7.857**	**846475 0340**	**3672.8 74583**	**1.5**	**4. 01**	**22.756 15385**	**101.57 76923**	**11782. 01567**
1998	**LTU**	8.22392 827	- 0.72443 6207		3.2349 0575	354933 1	882338 4058	2485.9 28773	1.5	3. 9	15.45	96.28	9187.8 60603
1999	**LTU**	4.43387 907	- 0.70948 9234		- 1.4541 353	352423 8	878359 4302	2492.3 38571	1.5	3. 8	13.64	83.51	9153.9 69997
2000	**LTU**	3.31352 434	- 0.70338 544	9.86 29	0.9372 868	349953 6	923919 1239	2640.1 1893	1.5	4. 1	12.9	86.26	9518.2 55249
2001	**LTU**	3.66655 77	- 0.52268 9903		- 0.3699 493	348129 2	996867 3276	2863.4 98171	1.5	4. 8	14.17	96.7	10212. 61875
2002	**LTU**	5.03003 573	- 0.35169 4274		0.1827 712	346907 0	1.0765 E+10	3103.1 66542	1.5	4. 8	15.59	107.29	10952. 01407
2003	**LTU**	0.96287 99	- 0.42942 1707		- 0.7772 0392	345420 5	1.1996 E+10	3472.7 35642	1.5	4. 7	16.38	106.07	12126. 19313
2004	**LTU**	3.42838 621	- 0.54033		2.5372 5322	343559 1	1.3512 E+10	3932.8 88335	2	4. 6	19.36	109.14	13088. 09233

			6616										
2005	**LTU**	3.97430506	-0.621529776	10.6781	6.61458237	3414304	1.478E+10	4328.768305	1	4.8	18.66	118.15	14197.22208
2006	**LTU**	6.11590811	-0.594033871		6.53604712	3394082	1.5754E+10	4641.474713	1	4.8	19.31	123.9	15402.19279
2007	**LTU**	5.15813739	-0.545490813		8.49977942	3375618	1.7313E+10	5128.902403	1	4.8	22.97	122.01	17010.27493
2008	**LTU**	4.21784846	-0.519861403		9.77284081	3358115	1.8262E+10	5438.099427	1	4.6	22.89	131.04	17599.49749
2009	**LTU**	0.04361788	-0.557188517		-3.70578037	3339456	1.5566E+10	4661.341442	1	4.9	10.9	119.66	15088.86981
2010	**LTU**	2.06149563	-1.588738747	10.9 05	2.02918915	3287000	1.5854E+10	4823.282424	1	5	16.53	137.45	15534.43224
2011	**LTU**	2.86042022	-2.583266138		5.81570547	3203000		0	1	4.8			16876.69028
Average	**LTU**	**3.82078028**	**-0.785111618**	**10.482**	**2.846663 74**	**3413202.714**	**1.3124E+10**	**3847.118744**	**1.2857**	**4.6**	**16.82692308**	**110.5738462**	**13282.01313**
1998	**LUX**	117.2402	1.243870803		-0.41053722	424700	1.3357E+10	31449.55956	1	8.7	25.07	239.77	53353.7477
1999	**LUX**	564.916268	1.350621285		5.33001266	430475	1.4618E+10	33957.47835	1	8.8	26.73	251.86	57068.77143
2000	**LUX**	437.792606	1.344082996	9.7043	2.01540787	436300	1.4995E+10	34369.55017	1	8.6	25.48	259.11	61061.16607
2001	**LUX**	436.672985	1.190456345		0.07944037	441525	1.5248E+10	34534.7965	1	8.7	26.17	265.25	61857.3667
2002	**LUX**	524.879972	1.047660816		2.09981792	446175	1.5106E+10	33856.55133	1	9	24.14	259.66	63725.40389
2003	**LUX**	307.918623	1.21520088		6.03604799	451630	1.4922E+10	33040.06108	1	8.7	25.74	271.9	63930.23909
2004	**LUX**	234.950616	1.421332565		1.79946388	458095	1.7716E+10	38674.25824	1	8.4	25.72	289.99	65800.17593
2005	**LUX**	305.771726	1.530054663	9.8673	4.61467298	465158	1.8738E+10	40283.19595	1	8.5	27.02	285.99	68319.63721
2006	**LUX**	305.222741	1.595051918		6.70689124	472637	1.7912E+10	37897.51036	1	8.6	25.75	307.71	70581.76916
2007	**LUX**	377.621219	1.544386847		3.6449828	479993	2.0798E+10	43329.84789	1	8.4	27.08	314.03	74113.93931
2008	**LUX**	176.764317	1.787496632		4.40373576	488650	1.9545E+10	39997.58598	1	8.3	27.6	326.54	73349.64076
2009	**LUX**	398.745203	1.85177523		0.1226786	497783	1.5535E+10	31209.27267	1	8.2	22.97	308.3	68188.42718
2010	**LUX**	392.336884	1.825405804	10.0934	4.87810695	507000	1.6865E+10	33264.30624	1	8.5	25.9	309.28	68748.10462
2011	**LUX**	542.87683	1.962457738		4.71887772	517000		0	1	8.5			68458.69447
Average	**LUX**	**365.979299**	**1.493561037**	**9.88833**	**3.28854282**	**465508.6429**	**1.6566E+10**	**35835.69033**	**1**	**8.56**	**25.79769231**	**283.7992308**	**65611.22025**
1998	**MKD**	4.2139531	0.473412603		1.39117488	1992404	2664060822	1337.10875	3	3	20.38	99.03	6829.693555
1999	**MKD**	2.40673077	0.439405732		2.73820895	2001178	2821548666	1409.943876	3	3.3	17.83	97.48	7094.804868

2000	**MKD**	5.995638667	0.394637381		8.178700553	2009091	2977283018	1481.905508	3.5	2.7	19.67	115.76	7388.335521
2001	**MKD**	13.00950513	0.347017092		3.610418755	2016075	2831461981	1404.442782	4	2	17.39	101.69	7029.552251
2002	**MKD**	2.784648833	0.306067351		3.448566684	2022255	2865722988	1417.092794	3	2.2	19.7	104.89	7067.883168
2003	**MKD**	2.475906775	0.274760585		3.000913593	2027819	2780647995	1371.250587	3	2.3	18.61	89.89	7247.00974
2004	**MKD**	5.858040175	0.257088668		0.790833373	2033039	2882541003	1417.848356	3	2.7	19.65	98.39	7562.882049
2005	**MKD**	1.620490747	0.249069924		3.774620153	2038109	3022136560	1482.814001	3	2.7	18.12	103.77	7872.399054
2006	**MKD**	6.465242544	0.244144001		3.279820582	2043091	3202411911	1567.434789	3	2.7	18.65	108.03	8248.268749
2007	**MKD**	8.567494882	0.236176333		7.432175588	2047922	3140198025	1533.358216	3	3.3	21.56	116.78	8734.78988
2008	**MKD**	5.968592933	0.224463482		7.485171188	2052524	3469404807	1690.311444	3	3.6	21.51	108.26	9146.609187
2009	**MKD**	2.116154494	0.206604957		0.685100267	2056769	3459634353	1682.072393	3	3.8	21.41	92.54	9043.73178
2010	**MKD**	2.270446774	0.184294153		1.611285833	2060000	3675923885	1784.42907	3	4.1	21.14	104.84	9187.353899
2011	**MKD**	4.032895744	0.161475876		2.731822145	2063893		0	3	3.9			9451.191872
Average	**MKD**	**4.841838681**	**0.285615581**	**0**	**3.582777288**	**2033154.929**	**3060998155**	**1506.154813**	**3.1071**	**3.02**	**19.66307692**	**103.1807692**	**7993.178969**
1998	**MLT**	7.433124685	0.605779054		0.380355516	377516	4107789629	10881.10074	1	6.3	27.74	183.6	19236.0795
1999	**MLT**	21.94008233	0.487267042		0.589851187	379360	4376395234	11536.25905	1	6.2	26.7	173.86	20046.10078
2000	**MLT**	15.18761873	0.526605513	8.9527	4.177433311	381363	4564536761	11969.0079	1	6.3	25.31	162.92	21290.84616
2001	**MLT**	6.129274143	3.012917873		3.281862299	393028	4464844247	11360.11746	1	6.7	17.38	153.41	20338.74717
2002	**MLT**	-10.007119	0.745506921		2.771687875	395969	4643061910	11725.82174	1	6.7	14.05	155.67	20755.27878
2003	**MLT**	19.66913962	0.657732334		3.534258864	398582	4720595254	11843.47325	1	6.9	16.16	155.17	20646.44796
2004	**MLT**	7.002967654	0.671628455		1.225155214	401268	4644908558	11575.57682	1	6.8	15.45	161.43	20405.04264
2005	**MLT**	11.34750778	0.638179795	9.746	2.559441227	403837	4817200000	11928.57514	1	6.6	19.15	157.33	21018.44605
2006	**MLT**	28.81605611	0.634624991		3.043455932	406408	4917101011	12098.92771	1	6.4	19.89	170.51	21349.95363
2007	**MLT**	13.25368088	0.647981685		3.094935611	409050	5179623136	12662.56726	1	5.8	21.39	167.02	22119.76919
2008	**MLT**	9.733364067	0.706458478		2.576133322	411950	5318893276	12911.50207	1	5.8	16.96	162.77	22922.47009
2009	**MLT**	10.88403553	0.494225173		2.557757762	413991	5182343741	12518.01064	1	5.2	13.51	151.67	22204.42002
2010	**MLT**	12.17462139	0.482900654	9.9296	2.927276076	416000	5297856308	12735.23151	1	5.6	12.07	171.58	22696.67996
2011	**MLT**		0.719767896		1.586844435	419000		0	1	5.6			23007.11502
Average	**MLT**	**11.81264261**	**0.787969704**	**9.54277**	**2.450458856**	**400523**	**4787319159**	**11980.47471**	**1**	**6.21**	**18.90461538**	**163.6107692**	**21288.3855**
1998	**MDA**	4.605070361	-0.188282303		5.598556234	3652771	1249938039	342.1889954	3	2.4	16.81	73.23	1674.233379

1999	**MDA**	3.23629005	-0.158142002		44.8785754	3646999	1168881386	320.5049922	3	2.6	15.23	71.1	1619.869113
2000	**MDA**	9.89894428	-0.20341492	9.0286	27.3372412	3639588	1193882084	328.0267119	3	2.6	16.09	82.67	1657.25404
2001	**MDA**	3.68350025	-0.223571716		12.0887841	3631460	1354727108	373.0530166	3	3.1	16.28	89.85	1762.282099
2002	**MDA**	5.05771339	-0.231607464		9.82864115	3623059	1462913385	403.7785156	3.5	2.1	15.04	96.01	1904.145142
2003	**MDA**	3.72305226	-0.281650308		14.8656314	3612869	1674998920	463.6201645	3.5	2.4	15.84	111.44	2035.543771
2004	**MDA**	3.37498799	-0.247616696		7.97653835	3603934	1746695519	484.6635701	3.5	2.3	16.66	112.76	2191.799395
2005	**MDA**	6.38182718	-0.243141083	9.3918	9.34311163	3595182	1878886913	522.612461	3.5	2.9	18.2	125.34	2361.950703
2006	**MDA**	7.58320297	-0.269110341		13.4360757	3585520	2015127319	562.0181504	3.5	3.2	19.48	127	2481.631234
2007	**MDA**	12.2943896	-0.240589056		15.830427	3576904	2058166801	575.4045402	3.5	2.8	23.46	141.88	2563.927394
2008	**MDA**	11.750335	-0.190205445		9.27997236	3570107	2169253913	607.6159377	4	2.9	23.29	135.9	2768.272819
2009	**MDA**	2.67178251	-0.126238331		2.1591387	3565603	1908609304	535.2837387	3.5	3.3	14.5	110.96	2605.752291
2010	**MDA**	3.39683634	-0.099359336	9.6811	11.0698568	3562000	2109919336	592.341195	3	2.9	16.13	117.92	2793.534963
2011	**MDA**	3.91410752	-0.085998414		7.43716075	3559000		0	3	2.9			2974.878449
Average	**MDA**	**5.82657426**	**-0.199209101**	**9.36717**	**13.6521226**	**3601785.429**	**1691692310**	**470.0855376**	**3.3214**	**2.74**	**17.46230769**	**107.3892308**	**2242.505342**
1998	**MNE**		-0.503027175			639309		0	6	3	22.77	97	7526.833427
1999	**MNE**		-0.567845554			635689		0	5	2	21.28	100.49	6858.144392
2000	**MNE**		-0.486165454			632606	982030000	1552.356443	4	1.3	22.19	83.37	7105.206093
2001	**MNE**		-0.365348552		20.2036318	630299	941869000	1494.320949	3	2.3	24.85	107.26	7209.655675
2002	**MNE**		-0.270873067		3.06076296	628594	944584000	1502.693312	2.5	2.3	16.87	110.87	7366.566175
2003	**MNE**		-0.174190829		8.32058618	627500	1000500000	1594.422311	2.5	2.3	13.89	88.35	7563.894472
2004	**MNE**		-		5.9151	626912	108430	1729.5	2.5	2.	15.47	109.82	7904.1

			0.09374911		9021		0000	88842		7			12391
2005	MNE		-0.027599388		4.31444546	626739	1123900000	1793.25046	2.5	2.8	16.7	104.63	8238.358534
2006	MNE		0.053436997		9.02089707	627074	1171900000	1868.838446	3	3	26.03	133.86	8942.077713
2007	MNE	25.4695766	0.141509909		12.6799481	627962	1230600000	1959.672719	3	3.3	38.21	158.35	9884.882039
2008	MNE	21.2495593	0.194567602		7.68480142	629185	1319100000	2096.521691	3	3.4	47.19	164.24	10546.39905
2009	MNE	36.877987	0.19847262		2.44786071	630435		0	2.5	3.9	32.72	123.38	9925.535271
2010	MNE	18.4985163	0.167204905		1.58284944	632000		0	2.5	3.7	25.69	120.1	10156.67699
2011	MNE		0.122017723		2.85	632261	1745400000	2760.568816	2.5	4			10401.9566
Average	**MNE**	**25.5239098**	**-0.115113527**	**0**	**7.0982703**	**630468.9286**	**1154418300**	**1835.223399**	**3.1786**	**2.86**	**24.91230769**	**115.5169231**	**8545.021344**
1998	NLD	9.34286788	0.616640531		1.91176068	15707209	2.9766E+11	18950.47768	1	9	22.91	105.13	31393.27148
1999	NLD	10.0053744	0.665493187		1.77887077	15812088	3.1822E+11	20124.96233	1	9	23.17	109.35	32645.87146
2000	NLD	16.3913168	0.714770363	10.8104	4.12218618	15925513	3.324E+11	20872.1887	1	8.9	22.58	118.7	33690.78287
2001	NLD	12.9736902	0.754840058		5.09887677	16046180	3.3505E+11	20880.06834	1	8.8	22.38	118.99	34081.38569
2002	NLD	5.81469323	0.638291666		3.82556727	16148929	3.3779E+11	20917.45529	1	8.9	20.73	119.77	33890.38298
2003	NLD	3.79718956	0.471814399		2.17871934	16225302	3.3804E+11	20834.0614	1	8.9	20.47	121.41	33844.06201
2004	NLD	0.71793928	0.347475412		0.73256114	16281779	3.4927E+11	21451.7047	1	8.7	20.05	126.85	34480.9681
2005	NLD	7.41277364	0.233663148	10.9873	2.42821427	16319868	3.4829E+11	21341.6816	1	8.6	20.29	131.31	35104.48753
2006	NLD	1.04088503	0.160613669		1.76759923	16346101	3.7037E+11	22657.88744	1	8.7	21.3	137.07	36237.75037
2007	NLD	15.9419168	0.217521601		1.84845093	16381696	3.8129E+11	23275.16914	1	9	21.73	139.8	37576.67229
2008	NLD	1.14928512	0.389292461		2.1290383	16445593	3.6885E+11	22428.80445	1	8.9	21.91	140.28	38105.94485
2009	NLD	4.62974284	0.514284545		-0.40299372	16530388	3.5104E+11	21235.77266	1	8.9	19.58	134.1	36569.69524
2010	NLD	-1.4263266	0.512923101	11.165	1.31183951	16616000	3.6916E+11	22216.99058	1	8.8	19.58	145.71	36997.3111
2011	NLD	1.86050783	0.483955474		1.14000827	16696000		0	1	8.9			37250.7157
Average	**NLD**	**6.403704**	**0.48011283**	**10.9876**	**2.13362135**	**16248760.43**	**3.4596E+11**	**21322.09418**	**1**	**8.86**	**21.28307692**	**126.8053846**	**35133.52155**
1998	NOR	2.88069507	0.595410343		-0.76920183	4431464	1.0685E+11	24111.80099	1	9	26.69	72.17	42304.01583
1999	NOR	4.26038633	0.684759433		6.61516091	4461913	1.1198E+11	25095.84273	1	8.9	24.21	72.01	42866.46219
2000	NOR	4.13676023	0.649044821	11.523	15.6512089	4490967	1.1786E+11	26243.03159	1	9.1	23.71	71.76	43974.79834
2001	NOR	1.23088216	0.506046911		1.73207939	4513751	1.2436E+11	27550.52837	1	8.6	21.84	73.03	44623.55032

2002	**NOR**	0.34229368	0.539290805		-1.773445577	4538159	1.2487E+11	27515.97122	1	8.8	21.46	72.24	45050.22345
2003	**NOR**	1.57851027	0.586532692		2.896825508	4564855	1.2551E+11	27494.96625	1	8.8	20.89	72	45227.21051
2004	**NOR**	0.97834307	0.590930940		5.892900672	4591910	1.3425E+11	29236.84094	1	8.9	23.81	71.83	46741.64556
2005	**NOR**	1.75944092	0.681072964	12.7104	8.937638491	4623291	1.4365E+11	31070.20758	1	8.9	25.83	72.06	47626.27982
2006	**NOR**	2.12266823	0.805392739		8.663097710	4660677	1.5523E+11	33306.73319	1	8.8	28.44	72.17	48402.63679
2007	**NOR**	1.66038039	1.034734515		3.028038810	4709153	1.5881E+11	33722.67667	1	8.7	30.2	73.56	49175.28192
2008	**NOR**	1.65502519	1.246333015		10.95066595	4768212	1.5932E+11	33413.61877	1	7.9	30.09	74.89	48583.24145
2009	**NOR**	4.00268623	1.261127289		-6.381515559	4828726	1.5393E+11	31877.08786	1	8.6	25.45	70.43	47174.5959
2010	**NOR**	2.81194072	1.24566618	12.6313	6.351116849	4889000	1.6398E+11	33539.66618	1	8.6	26.15	73.61	46905.79761
2011	**NOR**		1.275220883		6.280403415	4952000		0	1	9			46981.55761
Average	**NOR**	**2.26307788**	**0.835825967**	**12.2882**	**4.862503937**	**4644577**	**1.3697E+11**	**29552.22864**	**1**	**8.76**	**25.29**	**72.44307692**	**46116.94981**
1998	**PRT**	2.44533369	0.377539776		3.792817351	10129290	9.1569E+10	9039.979852	1	6.5	31.96	56.32	19747.47667
1999	**PRT**	0.92353523	0.420260682		3.298529320	10171949	9.5503E+10	9388.852127	1	6.7	32.99	57.63	20465.63156
2000	**PRT**	5.69620037	0.528362519	6.7771	3.251457310	10225836	9.6302E+10	9417.519808	1	6.4	32.35	59.45	21154.89624
2001	**PRT**	5.13063766	0.654649641		3.573679160	10292999	9.7689E+10	9490.857223	1	6.3	32.13	59.14	21431.93042
2002	**PRT**	1.3265393	0.729905306		3.740268950	10368403	1.0013E+11	9657.111687	1	6.6	30.4	59.51	21438.66723
2003	**PRT**	4.48019563	0.698453805		3.005058250	10441075	1.0006E+11	9583.61432	1	6.6	28.39	61.13	21095.47803
2004	**PRT**	0.89572728	0.581531211		2.472075440	10501970	1.0126E+11	9642.426068	1	6.3	28.98	63.81	21300.42179
2005	**PRT**	2.11559083	0.450840266	7.2394	2.524703100	10549424	1.0082E+11	9556.83154	1	6.5	28.57	64.36	21368.95879
2006	**PRT**	5.43565031	0.330466669		2.781055669	10584344	1.0037E+11	9483.254661	1	6.6	28.01	69.23	21606.92228
2007	**PRT**	1.28156883	0.226408471		2.829525790	10608335	1.0316E+11	9724.159825	1	6.5	27.93	71.98	22067.96874
2008	**PRT**	1.85817233	0.132618993		1.581937470	10622413	1.0094E+11	9502.2347	1	6.1	27.92	72.95	22036.84801
2009	**PRT**	1.15429039	0.094745241		0.911711113	10632482	9.9097E+10	9320.246592	1	5.8	25.25	68.14	21375.67528
2010	**PRT**	1.17438718	0.045736149	7.7299	1.056239880	10638000	1.0079E+11	9474.215643	1	6	24.01	71.85	21665.30354
2011	**PRT**	4.29384799	-0.003252744		0.662523670	10637000		0	1	6.1			21317.27548
Average	**PRT**	**2.7294055**	**0.3763047715**	**7.2488**	**2.5343 9882**	**10457394.29**	**9.9053E+10**	**9483.177234**	**1**	**6.36**	**29.14538462**	**64.26923077**	**21290.961**
1998	**POL**	3.68128597	0.035753301		11.06712 06	38663481	1.3717E+11	3547.89489	1.5	4.6	21.74	57.79	10726.69355
1999	**POL**	4.33249356	-0.008302753		5.98642228	38660271	1.4287E+11	3695.644323	1.5	4.2	22.03	54.96	11212.92141

2000	**POL**	5.45493446	-0.535608109	9.5117	7.25212342	38453757	1.4735E+11	3831.758976	1.5	4.1	21.97	62.74	11753.35344
2001	**POL**	3.00072151	-0.536314414		3.47965753	38248076	1.4839E+11	3879.709047	1.5	4.1	18.71	60.77	11958.98287
2002	**POL**	2.08447471	-0.046318937		2.24590518	38230364	1.5038E+11	3933.547934	1.5	3.6	17.08	62.01	12137.23122
2003	**POL**	2.11668874	-0.067492702		0.39400034	38204570	1.5408E+11	4032.988783	1.5	3.6	16.97	66.71	12615.1087
2004	**POL**	5.03068021	-0.058512735		4.08873467	38182222	1.5994E+11	4188.830285	1	3.5	18.48	72.78	13297.13925
2005	**POL**	3.39209758	-0.043948953	9.6973	2.64337736	38165445	1.6914E+11	4431.694984	1	3.4	18.1	74.72	13784.16006
2006	**POL**	5.81731006	-0.063370574		1.48333664	38141267	1.7818E+11	4671.609386	1	3.7	19.81	81.71	14651.8488
2007	**POL**	5.56073462	-0.054305021		3.95598066	38120560	1.9075E+11	5003.932624	1	4.2	23.1	85.43	15654.51566
2008	**POL**	2.82923728	0.01363738		3.10162053	38125759	2.0313E+11	5328.023367	1	4.6	22.84	87.4	16454.80793
2009	**POL**	3.02219881	0.067763227		3.71793237	38151603	2.0849E+11	5464.887843	1	5	19.83	77.39	16711.31169
2010	**POL**	1.937921	0.084050257	9.9505	1.40346908	38184000	2.1109E+11	5528.235976	1	5.3	20.89	84.27	17348.1442
2011	**POL**	2.78796867	0.084599833		3.15674048	38216000		0	1	5.5			18087.44273
Average	**POL**	**3.64633908**	**-0.080597872**	**9.71983**	**3.85545865**	**38267669.64**	**1.6931E+11**	**4426.05834**	**1.2143**	**4.24**	**20.11923077**	**71.43692308**	**14028.11868**
1998	**ROM**	4.82245322	-0.206980242		55.2234588	22507344	3.126E+10	1388.900519	2	3	16.95	41.27	6759.249476
1999	**ROM**	2.92478687	-0.156978616		47.7691848	22472040	3.1029E+10	1380.801142	2	3.3	14.8	43.6	6688.629694
2000	**ROM**	2.79872123	-0.12944004	9.867	44.2546316	22442971	3.1386E+10	1398.484278	2	2.9	18.09	52.69	6837.936335
2001	**ROM**	2.87948859	-1.395429986		37.4415236	22131970	3.3285E+10	1503.944358	2	2.8	19.78	56.99	7329.26333
2002	**ROM**	2.49647951	-1.496967793		23.4275355	21803129	3.5548E+10	1630.430398	2	2.8	19.49	61.99	7819.235465
2003	**ROM**	3.0987771	-0.28070199		23.9802842	21742013	3.7274E+10	1714.358188	2	2.8	19.7	66.13	8248.958092
2004	**ROM**	8.53496856	-0.263076706		15.040799	21684890	3.9798E+10	1835.282918	2.5	2.9	21.18	70.89	8965.424834
2005	**ROM**	6.55336941	-0.233240465	10.1337	12.2925663	21634371	4.1538E+10	1919.99338	2	3	21.05	75.71	9361.297906
2006	**ROM**	9.29002759	-0.21611		10.7831743	21587666	4.6775E+10	2166.749892	2	3.1	24.41	81.73	10122.69365

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2007	**ROM**	5.8629808	-0.189143147		13.0326971	21546873	5.3634E+10	2489.19494	2	3.7	29.71	91.95	10750.36964
2008	**ROM**	6.93903447	-0.154438571		11.5774121	21513622	5.82E+10	2705.26938	2	3.8	28.63	92.27	11781.85991
2009	**ROM**	3.00787683	-0.154537791		6.53865643	21480401	5.3988E+10	2513.36584	2	3.8	23.03	82.76	10797.07449
2010	**ROM**	1.81960204	-0.197584308	10.4436	3.57097641	21438000	5.3269E+10	2484.778726	2	3.7	24.11	95.54	10920.97585
2011	**ROM**	1.52619522	-0.224157182		7.10527323	21390000		0	2	3.6			10905.38262
Average	**ROM**	**4.46819724**	**-0.378485252**	**10.1456**	**22.288441**	**21812520.71**	**4.2076E+10**	**1933.196458**	**2.0357**	**3.23**	**21.61**	**70.27076923**	**9092.025092**
1998	**SRB**	0.69735174	-1.076224227		27.6877289	7567745		0	6	3	7.69	52.84	6902.974838
1999	**SRB**	0.63518328	-0.361977305		42.4617547	7540401	8732600000	1158.10817	5	2	8.88	30.13	6152.070499
2000	**SRB**	0.85301296	-0.319014864	9.2454	77.3868958	7516346	8963300000	1192.507636	4	1.3	8	27.98	6501.292217
2001	**SRB**	1.55817997	-0.171798903		88.3834067	7503433	9886900000	1317.650201	3	2.3	11.47	66.9	6857.642058
2002	**SRB**	3.75648751	-0.045339247		22.5527661	7500031	1.0344E+10	1379.194299	2.5	2.3	10.83	65.66	7143.601324
2003	**SRB**	7.19128522	-0.259198929		12.7427416	7480591	1.0467E+10	1399.220997	2.5	2.3	14.26	69.4	7353.719925
2004	**SRB**	4.34700433	-0.233056452		12.2034708	7463157	1.136E+10	1522.144047	2.5	2.7	27.86	76.48	8056.39182
2005	**SRB**	8.12686715	-0.29998029	9.4249	15.6818508	7440769	1.1771E+10	1581.960144	2.5	2.8	23.35	76.23	8516.986258
2006	**SRB**	17.0015782	-0.393204593		12.4984584	7411569	1.2634E+10	1704.632312	2.5	3	23.74	83.06	8858.360855
2007	**SRB**	8.81061685	-0.405458542		10.0995578	7381579	1.3726E+10	1859.493748	2.5	3.4	28.56	87.36	9374.645689
2008	**SRB**	6.27376212	-0.425719157		12.6080152	7350221	1.4495E+10	1972.049548	2.5	3.4	29.32	89.89	9772.39676
2009	**SRB**	4.82120212	-0.4009813		5.64462192	7320807		0	2	3.5	17.53	76.71	9468.25278
2010	**SRB**	3.48617589	-0.402005901	9.5538	9.09589532	7291000		0	2	3.5	17.35	88.13	9597.083308
2011	**SRB**	5.99530619	-0.418294839		8.60499504	7261000	1.7622E+10	2426.938438	2	3.3			9809.000194

Average	**SRB**	**5.25385811**	**-0.372303896**	**9.40803**	**25.5465828**	**7430617.786**	**1.1818E+10**	**1592.172685**	**2.9643**	**2.77**	**17.60307692**	**68.52076923**	**8168.887037**
1998	**SVK**	1.91996099	0.134121598		5.07325709	5390516	2.2071E+10	4094.404996	2	3.9	26.49	110.27	12545.74014
1999	**SVK**	1.18307559	0.102053161		7.36160934	5396020	2.1785E+10	4037.151668	1.5	3.7	22.25	117.05	12537.67365
2000	**SVK**	7.14551547	-0.135376488	11.2079	9.41714814	5388720	2.2489E+10	4173.298544	1.5	3.5	21.18	125.2	12726.45514
2001	**SVK**		-0.183012271		5.01671439	5378867	2.3201E+10	4313.354872	1.5	3.7	23.8	133.33	13193.71305
2002	**SVK**	11.8487277	0.003513689		3.87409235	5379056	2.4219E+10	4502.41769	1.5	3.7	23.03	133.4	13797.88191
2003	**SVK**	1.22010672	0.010242908		5.31000063	5379607	2.4002E+10	4461.625633	1.5	3.7	20.05	142.15	14455.25378
2004	**SVK**	5.41687959	0.05261082		5.84856941	5382438	2.5758E+10	4785.561745	1	4	22.23	146.81	15178.38465
2005	**SVK**	3.93150531	0.084739795	11.6028	2.38184062	5387001	2.8014E+10	5200.370385	1	4.3	24.34	153.55	16174.8268
2006	**SVK**	6.03889945	0.081793145		2.94194631	5391409	3.0335E+10	5626.555526	1	4.7	23.85	169.23	17510.3539
2007	**SVK**	3.99882142	0.109540275		1.11284652	5397318	3.3663E+10	6236.991146	1	4.9	23.68	171.09	19326.69704
2008	**SVK**	3.29982463	0.172307489		2.86078438	5406626	3.5651E+10	6593.92738	1	5	23.41	166.61	20402.88841
2009	**SVK**	-0.0361687	0.221039559		-1.18157029	5418590	3.3252E+10	6136.687224	1	4.5	17.07	144.47	19353.87576
2010	**SVK**	0.635231	0.212173182	11.5629	0.4916413	5430000	3.7114E+10	6835.036068	1	4.3	19.99	161.42	20120.69302
2011	**SVK**		0.182169504		1.63783974	5440000		0	1	4			20756.72951
Average	**SVK**	**3.8835316**	**0.074851169**	**11.4579**	**3.72476571**	**5397583.429**	**2.7812E+10**	**5153.644837**	**1.25**	**4.14**	**22.41307692**	**144.1984615**	**16291.51191**
1998	**SVN**	0.99184428	-0.218117657		7.03190335	1981629	1.5318E+10	7729.902044	1.5	5.9	28.06	100.38	18065.32831
1999	**SVN**	0.4778194	0.071430845		6.56828601	1983045	1.6276E+10	8207.639206	1.5	6	30.83	99.48	19013.83164
2000	**SVN**	0.67969778	0.29607496	11.5642	5.22337966	1988925	1.6538E+10	8314.858045	1.5	5.5	30.35	105.02	19766.26283
2001	**SVN**	2.4557383	0.157498742		8.65155603	1992060	1.7271E+10	8669.705826	1.5	5.2	28.7	107.1	20315.29699
2002	**SVN**	7.17269504	0.123915442		7.58475371	1994530	1.8103E+10	9076.446469	1	5.9	28.47	109.17	21066.6121
2003	**SVN**	1.0342318	0.060296779		5.53278974	1995733	1.8855E+10	9447.734702	1	5.9	30.39	110.89	21670.80352
2004	**SVN**	2.45701917	0.064066202		3.27081632	1997012	1.9522E+10	9775.801833	1	6	32.04	119.74	22610.2203
2005	**SVN**	1.51297393	0.173208905	11.5984	1.66005894	2000474	2.0139E+10	10067.12159	1	6.1	30.89	125.2	23475.57268
2006	**SVN**	1.66729982	0.319114537		2.1136444	2006868	2.1271E+10	10598.8924	1	6.4	32.73	132.5	24769.63065
2007	**SVN**	3.2371133	0.559207816		4.17296943	2018122	2.2707E+10	11251.32135	1	6.6	36.26	141.85	26323.73439
2008	**SVN**	3.54686761	0.158140844		4.12435758	2021316	2.3039E+10	11397.93478	1	6.7	36.35	141.6	27225.48029
2009	**SVN**	-1.30618	0.903875535		2.96371089	2039669	2.1606E+10	10592.75469	1	6.6	26.71	127.79	24819.94394

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2010	**SVN**	0.78059052	0.436079485	11.7049	-1.066980 39	2049000	2.2302E+10	10884.487	1	6.4	26.32	136.64	25052.85592
2011	**SVN**	2.21230888	0.166659267		0.804995 93	2052000		0	1	5.9			24967.46976
Average	**SVN**	**1.92285832**	**0.233675122**	**11.6225**	**4.188302 97**	**2008598.786**	**1.9457E+10**	**9693.430764**	**1.1429**	**6.08**	**30.62307692**	**119.7969231**	**22795.93167**
1998	**ESP**	2.3770548	0.34978306		2.480006884	39721108	4.5895E+11	11554.38738	1.5	6.1	26.5	47.41	23165.56868
1999	**ESP**	2.99789616	0.515171909		2.626982 62	39926268	4.7939E+11	12006.96502	1.5	6.6	27.99	49.86	24140.30709
2000	**ESP**	6.69173192	0.840384465	9.0939	3.394295 73	40263216	4.9645E+11	12330.05573	1.5	7	28.25	52.43	25147.12499
2001	**ESP**	4.62566002	1.129296043		4.192208 21	40720484	5.1272E+11	12591.20716	1.5	7	28.44	52.74	25777.13127
2002	**ESP**	5.82740165	1.446951382		4.353089 49	41313973	5.2976E+11	12822.70152	1	6.9	28.64	52.85	26095.40574
2003	**ESP**	2.89723163	1.657650711		4.162609 67	42004522	5.4859E+11	13060.36127	1	6.9	29.24	53.81	26459.34904
2004	**ESP**	2.3732789	1.622698513		4.042641 34	42691689	5.6155E+11	13153.51168	1	7.1	29.8	55.82	26881.96717
2005	**ESP**	2.17303122	1.641238788	9.703	4.343944 47	43398143	5.7947E+11	13352.43449	1	7	30.7	56.87	27392.04339
2006	**ESP**	2.52126819	1.641587259		4.140483 09	44116441	5.9933E+11	13585.2055	1	6.8	32.01	59.48	28044.43046
2007	**ESP**	4.62610741	1.713622904		3.267682 25	44878945	6.1586E+11	13722.66333	1	6.7	32.28	61.81	28527.08873
2008	**ESP**	4.88890341	1.49673505		2.374449 42	45555716	6.1061E+11	13403.65194	1	6.5	30.68	59.28	28353.03543
2009	**ESP**	0.66661385	0.771622835		0.073730 32	45908594	5.926E+11	12908.24282	1	6.1	26.99	52.65	27082.63438
2010	**ESP**	2.9754832	0.353072269	10.3503	0.404831 23	46071000	6.1782E+11	13410.14937	1	6.1	25.28	57.15	26968.43187
2011	**ESP**	1.71979159	0.355403168		1.378750 17	46235000		0	1	6.2			27063.00162
Average	**ESP**	**3.382961**	**1.109658454**	**9.71573**	**2.945411 92**	**43057507.07**	**5.5408E+11**	**12915.50286**	**1.1429**	**6.64**	**28.98461538**	**54.78153846**	**26506.96571**
1998	**SWE**	7.85843472	0.055512122		0.533929 08	8850974	1.9926E+11	22513.30673	1	9.5	17.62	77.68	26724.50151
1999	**SWE**	23.4248638	0.077927151		0.898097 75	8857874	2.0642E+11	23303.14984	1	9.4	17.82	78.91	27948.03235
2000	**SWE**	9.658416	0.160575485	10.9885	1.424560 61	8872109	2.1382E+11	24100.78805	1	9.4	18.5	84.6	29145.49446
2001	**SWE**	4.94521271	0.268470528		2.370269 57	8895960	2.1439E+11	24100.17806	1	9	18	83.11	29434.27256
2002	**SWE**	4.93641082	0.325438068		1.532777 16	8924958	2.1846E+11	24477.96518	1	9.3	17.13	81.15	30067.23867
2003	**SWE**	1.5915008	0.372092943		1.765944 96	8958229	2.2835E+11	25490.42061	1	9.3	17.24	82.48	30655.24124
2004	**SWE**	3.3467929	0.393298991		0.313589 72	8993531	2.3413E+11	26033.62942	1	9.2	17.2	86.18	31828.02254
2005	**SWE**	3.27275002	0.399942763	11.7296	0.885621 23	9029572	2.4186E+11	26785.3379	1	9.2	18.01	89.2	32702.98278
2006	**SWE**	7.13838552	0.562483906		1.942265 21	9080505	2.5368E+11	27936.58806	1	9.2	19.07	93.18	33916.97341
2007	**SWE**	6.00812089	0.741552515		2.759659 81	9148092	2.6663E+11	29146.174	1	9.3	20.77	96.64	34782.1783
2008	**SWE**	7.85539007	0.779033291		3.137510 15	9219637	2.6601E+11	28852.5392	1	9.3	20.66	99.74	34300.56246

2009	**SWE**	2.41187016	0.851904413		2.05621443	9298515	2.4454E+11	26298.44737	1	9.2	16.66	91.04	32299.67999
2010	**SWE**	-0.4034026	0.852524629	11.615	1.02222708	9378000	2.5963E+11	27684.73253	1	9.2	18.82	96.4	33995.91437
2011	**SWE**	2.28241388	0.795219517		0.90859582	9453000		0	1	9.3			35047.55917
Average	**SWE**	**6.02336855**	**0.473998309**	**11.4444**	**1.5393759**	**9068639.714**	**2.344E+11**	**25901.789**	**1**	**9.27**	**18.26923077**	**87.71615385**	**31632.0467**
1998	**CHE**	3.53923568	0.297135766		0.2891813	7110001	2.1361E+11	30042.93223	1	8.9	28.92	74.17	33424.50479
1999	**CHE**	4.63291222	0.476919931		0.61493598	7143991	2.1705E+11	30381.55761	1	8.9	27.11	77.48	33701.63124
2000	**CHE**	7.90834017	0.561954617	9.9885	1.13163993	7184250	2.2426E+11	31215.17489	1	8.6	26.63	83.44	34713.23698
2001	**CHE**	3.68344143	0.632771238		0.79532497	7229854	2.1806E+11	30160.36634	1	8.4	26.34	83.64	34891.67646
2002	**CHE**	2.43537049	0.756469146		0.46983292	7284753	2.1834E+11	29971.56453	1	8.8	26.08	82.83	34782.18162
2003	**CHE**	5.37499249	0.741919603		0.99945594	7339001	2.3077E+11	31444.58246	1	8.8	25.83	83.39	34456.792
2004	**CHE**	0.51132781	0.68742596		0.57069173	7389625	2.3574E+11	31902.13011	1	9.1	26.07	87.5	35087.44703
2005	**CHE**	-0.1409619	0.640601548	10.0288	0.10818392	7437115	2.4584E+11	33055.72136	1	9.1	26	91.41	35784.01319
2006	**CHE**	11.50022	0.627558473		2.06130403	7483934	2.4949E+11	33336.144	1	9.1	25.48	95.76	36851.12207
2007	**CHE**	7.69616165	0.893690978		2.49360982	7551117	2.4047E+11	31845.57214	1	9	24.51	99.86	37854.35512
2008	**CHE**	3.18029897	1.270618074		2.44493291	7647675	2.2206E+11	29036.32521	1	9	23.38	99.76	38159.62633
2009	**CHE**	5.95182475	1.249484631		0.16040647	7743831	2.6117E+11	33726.3771	1	9	23.11	94.49	36978.0434
2010	**CHE**	4.10026222	1.057454743	10.2632	0.06965132	7826000	2.784E+11	35574.12096	1	8.7	22.85	99.36	37582.12145
2011	**CHE**	0.42141151	1.027736927		0.6396954	7907000		0	1	8.8			37979.00906
Average	**CHE**	**4.34248839**	**0.780124402**	**10.0935**	**0.91777476**	**7448439.071**	**2.3502E+11**	**31668.65915**	**1**	**8.87**	**25.56230769**	**88.69923077**	**35874.6972**
1998	**TUR**	0.34906982	1.566161411		137.964853	61742674	2.4681E+11	3997.431259	4.5	3.4	19.06	37.95	9815.450293
1999	**TUR**	0.31351167	1.526834476		54.1790075	62692616	2.3781E+11	3793.348843	4.5	3.6	17.5	36.06	9341.404356
2000	**TUR**	0.36838695	1.480778262	5.5449	49.2258732	63627862	2.4906E+11	3914.345878	4.5	3.8	19.13	40.32	9827.625473
2001	**TUR**	1.71015793	1.430986638		52.850551	64544914	2.2949E+11	3555.45197	4.5	3.6	13.34	37.95	9136.023638
2002	**TUR**	0.46530718	1.386657374		37.4248384	65446165	2.4329E+11	3717.405926	3.5	3.1	16.2	40.47	9565.587659
2003	**TUR**	0.56170634	1.355659031		23.2703148	66339433	2.6043E+11	3925.775672	3.5	3.1	16.95	43.82	9933.657685
2004	**TUR**	0.71015796	1.342324604		12.3998734	67235927	2.6995E+11	4014.902025	3	3.2	18.17	46.44	10718.87495
2005	**TUR**	2.07689829	1.340343517	6.0568	7.08429226	68143186	2.9448E+11	4321.534672	3	3.5	19.83	47.17	11464.73258
2006	**TUR**	3.8020336	1.341575365		9.33086822	69063538	3.1E+11	4488.668769	3	3.8	21.05	47.18	12091.73982
2007	**TUR**	3.40675658	1.336480094		6.22093193	69992754	3.2635E+11	4662.684982	3	4.1	21.24	49.08	12488.22926

2008	**TUR**	2.67054617	1.321335189		11.9944161	70923730	3.2351E+11	4561.335324	3	4.6	20.11	48.31	12405.50061
2009	**TUR**	1.36863499	1.292281589		5.29434107	71846212	3.103E+11	4318.896136	3	4.4	14.96	45.37	11655.2308
2010	**TUR**	1.23614434	1.253297411	6.4748	5.67573972	72752000	3.3722E+11	4635.201748	3	4.4	20.29	46.83	12564.03914
2011	**TUR**	2.05357359	1.21220059		8.62527039	73639596		0	3	4.2			13466.33282
Average	**TUR**	**1.50663467**	**1.370493968**	**6.0255**	**30.1100836**	**67713614.79**	**2.799E+11**	**4146.691016**	**3.5**	**3.77**	**18.29461538**	**43.61153846**	**11033.88779**
1998	**UKR**	1.77397922	-0.893741564		12.0120189	50143939	2.2746E+10	453.6132822	3.5	2.8	13.32	96.34	3429.970333
1999	**UKR**	1.57058253	-0.942908046		27.3999247	49673349	2.2347E+10	449.8729416	3.5	2.6	10.89	86.11	3455.539826
2000	**UKR**	1.90329792	-1.006597042	10.6584	23.1159426	49175847	2.285E+10	464.6540211	4	1.5	12.86	100.09	3696.438272
2001	**UKR**	2.08369812	-1.005494904		9.94718615	48683864	2.4799E+10	509.387231	4	2.1	13.96	96.44	4077.302237
2002	**UKR**	1.63470785	-0.993676542		5.1218419	48202500	2.7106E+10	562.3373796	4	2.3	12.9	95.46	4332.156404
2003	**UKR**	2.84044706	-0.811436362		8.22060286	47812950	2.8767E+10	601.6649981	4	2.3	14.64	98.55	4777.992602
2004	**UKR**	2.64321686	-0.758627911		15.1556536	47451600	3.2902E+10	693.3748912	3.5	2.2	13.63	103.18	5396.917319
2005	**UKR**	9.06410156	-0.732790732	11.1192	24.5522927	47105150	3.5149E+10	746.1868105	2.5	2.6	14.81	94.51	5583.399175
2006	**UKR**	5.20077993	-0.676092035		14.8782516	46787750	3.9119E+10	836.1041487	2.5	2.8	16.19	87.69	6031.629136
2007	**UKR**	6.93040122	-0.596804887		22.7526076	46509350	4.5056E+10	968.7474874	2.5	2.7	18.68	90.76	6547.084842
2008	**UKR**	6.06303358	-0.541462211		28.583474	46258200	4.8032E+10	1038.339997	2.5	2.5	18.18	97.3	6734.031492
2009	**UKR**	4.1082416	-0.443932417		13.0736131	46053300	3.6964E+10	802.6342746	2.5	2.2	8.64	73.81	5762.921606
2010	**UKR**	4.76108017	-0.397285236	11.2817	13.8596912	45871000	4.0207E+10	876.5252952	3	2.4	9.45	76.19	6023.08274
2011	**UKR**	4.3614025	-0.359480081		15.6065722	45706100		0	3.5	2.3			6359.101708
Average	**UKR**	**3.92421215**	**-0.725737855**	**11.0198**	**16.7342624**	**47531064.21**	**3.2773E+10**	**692.5725199**	**3.25**	**2.38**	**13.70384615**	**92.03307692**	**5157.683407**
1998	**GBR**	5.12705989	0.291406085		2.00431964	58487141	1.2168E+12	20804.15161	1.5	8.7	18.71	48.87	27021.47898
1999	**GBR**	5.94476586	0.333405882		1.92912191	58682466	1.2391E+12	21115.0655	1.5	8.6	18.54	49.53	27916.07171
2000	**GBR**	8.26948133	0.357300887	8.5824	0.61891257	58892514	1.2783E+12	21706.48139	1.5	8.7	18.14	51.92	29056.46827

2001	**GBR**	3.66123966	0.365161651		1.44816455	59107960	1.3366E+12	22613.17193	1.5	8.3	18.24	52.36	29862.69405
2002	**GBR**	1.58409118	0.367883666		2.53564952	59325809	1.3995E+12	23589.42102	1	8.7	17.88	52.86	30543.72469
2003	**GBR**	1.48427803	0.404485063		2.35076281	59566259	1.453E+12	24392.96005	1	8.7	17.93	52.04	31492.63429
2004	**GBR**	2.60440046	0.505061081		2.49376652	59867866	1.4951E+12	24973.57132	1	8.6	18.3	53.56	32260.00078
2005	**GBR**	7.77908736	0.593614118	8.9762	2.18692471	60224307	1.5169E+12	25187.1026	1	8.6	18.29	56.45	32737.9538
2006	**GBR**	6.30457993	0.614676968		3.23266328	60595632	1.5421E+12	25448.8439	1	8.6	18.93	60.96	33385.62467
2007	**GBR**	7.18380223	0.643216010		2.26586372	60986649	1.6151E+12	26482.63868	1	8.4	20.07	58.18	34321.35301
2008	**GBR**	3.54731642	0.664933705		3.13445115	61393521	1.6007E+12	26072.75252	1	7.7	18.99	58.88	33717.8864
2009	**GBR**	3.35838735	0.677747055		1.65494344	61811027	1.5161E+12	24528.40366	1	7.7	16.14	55.14	32025.50077
2010	**GBR**	2.35215485	0.677688813	9.4176	2.86140664	62232000	1.4868E+12	23891.84334	1	6.7	17.43	57.29	32474.70243
2011	**GBR**	2.23137081	0.656134870		2.32589030	62641000		0	1	7.8			32473.54772
Average	**GBR**	**4.3880011**	**0.5109082275**	**8.99207**	**2.21734577**	**60272439.36**	**1.4382E+12**	**23908.18519**	**1.1429**	**8.27**	**18.27615385**	**54.46461538**	**31377.83154**
1998	**RUS**	0.46862425	-0.275320276		18.538687	146899000	2.0015E+11	1362.500766	4	2.4	9.66	42.11	7328.874682
1999	**RUS**	1.12687851	-0.402445224		72.3867777	146309000	2.0944E+11	1431.490886	4.5	2.4	8.69	41.5	7829.368262
2000	**RUS**	1.22320796	-0.004100994	4.7718	37.6980956	146303000	2.5971E+11	1775.151569	5	2.1	13.83	43.49	8612.658286
2001	**RUS**	0.82601315	-0.241859173		16.489528	145949580.3	2.6656E+11	1826.384148	5	2.3	15.25	44.54	9073.131172
2002	**RUS**	1.02362861	-0.446278 28		15.4929534	145299690.3	2.7675E+11	1904.684032	5	2.7	14.08	47.16	9546.037536
2003	**RUS**	2.26029466	-0.483095546		13.7800615	144599446.7	3.0648E+11	2119.510184	5	2.7	14.95	50.01	10292.10332
2004	**RUS**	2.33191834	-0.519935361		20.2820769	143849574.2	3.5476E+11	2466.187348	5.5	2.8	15.48	53.37	11088.16108
2005	**RUS**	1.67113349	-0.487509848	4.8285	19.3060948	143150000	4.0884E+11	2856.025148	5.5	2.4	15.84	54.91	11852.80594
2006	**RUS**	2.33864915	-0.455103184		15.1700471	142500000	4.6784E+11	3283.087719	5.5	2.5	17.3	57.38	12877.69003
2007	**RUS**	3.5327704	-0.281096461		13.8044207	142100000	5.1708E+11	3638.845883	5.5	2.3	19.51	60.72	14016.15479
2008	**RUS**	3.34730209	-0.105615218		17.959714	141950000	6.1858E+11	4357.731596	5.5	2.1	20.58	61.98	14767.30437
2009	**RUS**	3.57134885	-0.028182907		2.0061638	141910000		0	5.5	2.2	13.48	53.72	13614.5467

2010	**RUS**	3.5308956	0.007046471	4.8215	11.6039809	141920000		0	5.5	2.1	17.72	49.27	14198.97165
2011	**RUS**	3.62172853	0.007045975		15.8557119	141930000	6.6373E+11	4676.460227	5.5	2.4			14808.48399
Average	**RUS**	**2.20531383**	**-0.265460716**	**4.80727**	**20.7410224**	**143904949.4**	**3.7916E+11**	**2438.31227**	**5.1786**	**2.39**	**15.10538462**	**50.78153846**	**11421.87798**