Foreign Direct Investment and Economic Growth in Transition Economies

Empirical Evidence from the Commonwealth of Independent States and a comparison with Central and Eastern Europe and the Baltic States

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Bachelor Thesis: Bsc International Bachelor Economics and Business economics

ABSTRACT

In the past 2 decades former communist states have transitioned from a centrally planned economy to a market economy, some more successful than others. As a result a number of these states have seen an increase in foreign direct investment and simultaneously have experienced economic growth. Other states, however, lag behind. This paper identifies and assesses the different determinants of foreign direct investment and as a result the relation these determinants have with a country's economic growth. Using a fixed effects model, no evidence was found that the former communist states in the Commonwealth of Independent States are significantly different in their ability to attract foreign direct investment compared to countries in the Central and Eastern European and Baltic region. Furthermore, with a fixed effects model, it was found that membership of the EEU has a positive relationship with foreign direct investment. Finally, another fixed effects model determined that foreign direct investment has a positive effect on a country's economic growth in the Commonwealth of Independent States.

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I.   Introduction

In 1985, Mikhail Gorbachev was appointed as the general secretary of the Communist Party of the Soviet Union. The social and economic challenges that the USSR faced were approached with Gorbachev's *Perestroika* and *Glasnost*, meaning restructuring and more openness, respectively (Gidadhubli, 1987). These 2 concepts sought to ease power of the government and move the USSR towards an elected form of government. Even though his aim was to modernize the USSR by loosening the Soviet grip on these states, it consequently led to the dissolution of the USSR in 1991. What was meant to only revitalise the Soviet Union, introducing an open market economy opposed to a centralized economy, led to the independence of the former soviet states (Sakwa, 1999). This event caught the attention of the West and led the former soviet states to move from centrally planned economies to more open market economies. At the same time, in Yugoslavia, war erupted, and its individual republics called for more autonomy (BBC, 2016). Starting in the 1990s, all these states faced a period of transition. Most Central and Eastern European and Baltic States (Thereafter CEE and BS)[1] successfully implemented the relevant social and economic policies, but the countries in the Commonwealth of Independent States (Thereafter CIS)[2] still lag behind.

The transition to open economies in these states was welcomed by the West and provided a favourable investment climate, trade policy and evidently market reforms (Deichmann, Eshgi, Haughton, Ayek, & Teebagy, 2003). Previously, leaders of these communist states feared economic imperialism and viewed foreign influence, whether through direct investment, politics or military pressure, to be a threat to the political sovereignty of their states. However, during the 1990s there was an increasing inflow of foreign capital into these states, as illustrated in **Graph 1** below:

Graph 1 - FDI(% of GDP) CIS vs. CEE and BS countries (1990 – 2017)
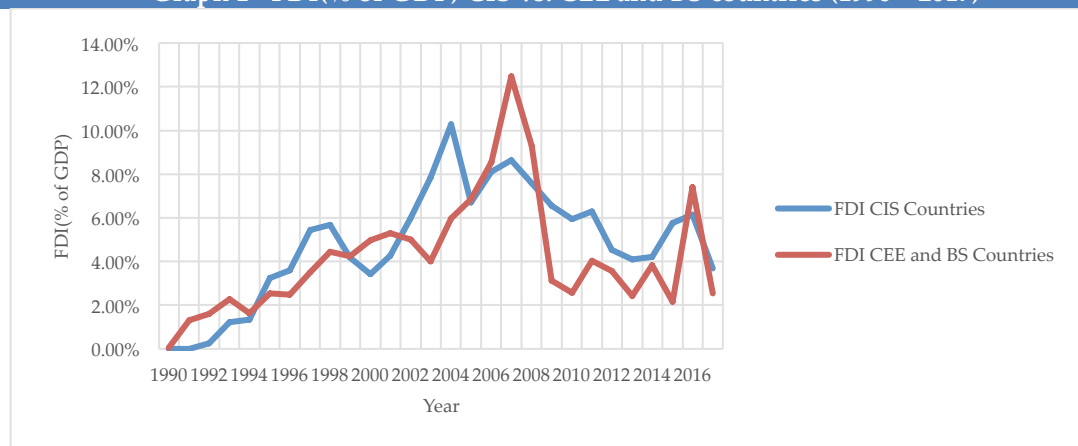
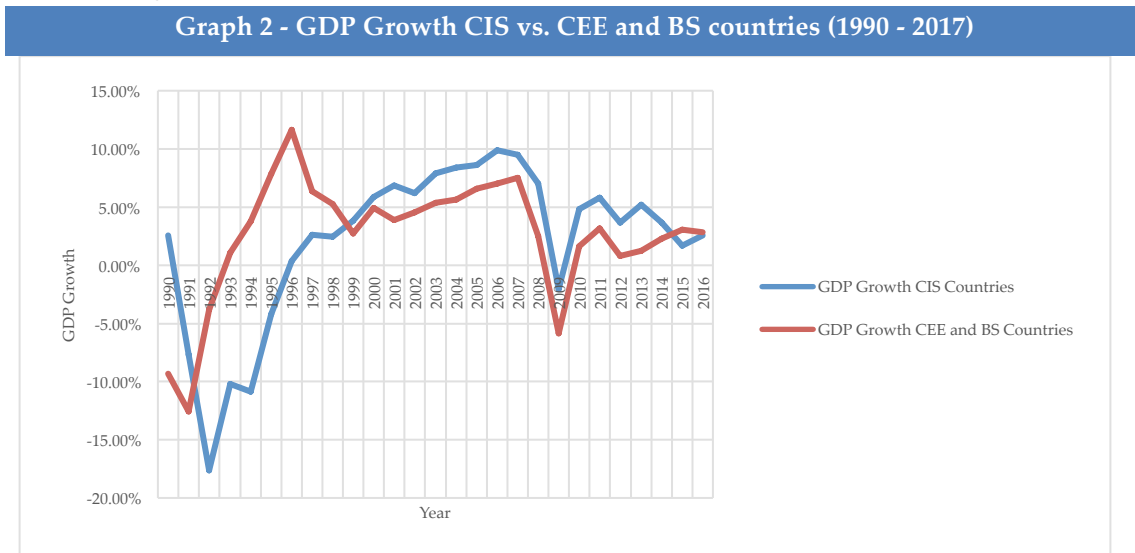Source: (The World Bank Group, 2018)

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[1]Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Romania, Bulgaria, Slovenia, Croatia, Albania, Bosnia and Herzegovina and FYR Macedonia

[2] Armenia, Azerbaijan, Belarus, Georgia (1994 – 2008), Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan

Foreign Direct Investment (FDI) is considered to be a fundamental factor for economic development, as it brings in potential positive externalities such as transfers of technology and other kinds of knowledge (Tøndel, 2001). Furthermore it enhances both domestic and international competition, improving access for imports and exports (Demekas, Horvath, Ribakova, & Wu, 2007). However, many transition economies, as briefly explained above, foresaw that large foreign firms could aggressively abuse their market position, attempt to minimize tax obligations and exploit domestic natural resources.

Natural resources like oil and gas are believed to be an almost necessary condition for foreign capital inflow (Shiells, 2003). Therefore one would expect FDI to be proportionately high in the CIS countries compared to the CEE and BS countries, due to their natural resource abundance. However, it has been observed that the CIS countries have performed poorly in attracting FDI relative to the CEE and BS countries (Deichmann, et al., 2003). This uneven distribution of FDI inflow between these transition economies has resulted in different social and economic reforms. A number of former centrally planned economies have faced challenges like corruption, weak institutions, unemployment rates, a lack of price stability because of high inflation, weak legal framework, and burdensome tax systems. All of these combined may have played a role in deterring foreign investors from participating in these host countries (Tøndel, 2001).

During this transition period these countries also experienced different rates of economic growth as illustrated in **Graph 2** below:

Graph 2 - GDP Growth CIS vs. CEE and BS countries (1990 - 2017)

Source: (The World Bank Group, 2018)

It is observed from **Graph 2** that during the transition period both regions experienced an increase in GDP growth, and a decrease is seen during the financial crisis of 2008. A similar shape is seen with FDI as a share of GDP in **Graph 1, P.3.** Therefore this paper

will assess the association between FDI and economic growth and the following research question is designed:

Does FDI play a role in achieving economic growth in the Commonwealth of Independent States?

The choice to only focus on the CIS countries is based on the fact that, even though the **Graph 1 and Graph 2 (P.3&4)** show a similar trend, they have had more complications to attract FDI (Tøndel, 2001). To answer this question, this paper will be organised as follows. Section II is a brief historical background of the geopolitical situation in part of the Eurasian region[3]. This should provide the reader with a clear understanding how certain determinants discussed in Section III, the theoretical framework, are relevant to this research. In this same section pre-existing literature will be used to design this paper's hypotheses. This will lead to Section IV in which the variables will be explained more thoroughly. Next to that the methods that are used in testing the hypotheses are explained. In Section V the results of the statistical analyses will be presented and in Section VI the implications and conclusions drawn from both the statistical and contextual analysis will be discussed and consequently these will be used to answer our research question. Finally, the limitations and improvements will be described.

II. Historical Background

The USSR
In 1917, the Russian Empire of the Tsars was overthrown during the October Revolution, which led to the establishment of 4 socialist republics. These republics were the Russian, Transcaucasia Soviet Federated Socialist Republics, Ukrainian and Belarusian Soviet Socialist Republics (McCauley, Dewdney, Pipes, & Conquest, 2018). This eventually led to the creation of the largest country in the world, United Socialist Soviet Republics (USSR) stretched from the Baltic and Black Seas to the Pacific Ocean.

During its existence, 1917 – 1991, the USSR had a highly centralized and authoritarian political system, which also reflected its economic system. The idea of Lenin's revolution was based on the philosophy of socialism, to overcome national differences and create a monolithic state based on centralized power, both politically and economically. Over the years, after World War II, this transformed into a totalitarian state, with communist leadership controlling the whole country, under Stalin's Rule (The Cold War Museum, 2018). Stalin's regime funded communist uprisings in other surrounding countries, after the Second World War. This is what led to the long-lasting Cold War with the Western, Capitalist United States of America (thereafter USA). This also led to what is commonly known as the *Tito-Stalin* split, between the USSR and Yugoslavia in 1948. President Tito of Yugoslavia refused Stalin's will to have Yugoslavia subdue to his authoritarian rule (Karchmar, 1982).

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[3] See Appendix – Maps, P.38

During the 1980s there was an increasing interest for a progressive introduction of a market economy. Economic plans failed to meet the needs of the state as it got caught up in an arms race with the USA. The USSR faced economic decline and the need for economic reform was necessary. The population felt the economic downturn immensely and the communist rule lost its influence. With this development, uproar between the parliament of USSR and the individual states increased, since they wanted more autonomy. This imbalanced the power of the USSR in the individual republics, leading to Soviet tanks being deployed to stop the violence. However, the resistance against the USSR increased and consequently, this led to the dissolution of the USSR.

Fall of the Soviet Union
In 1989 Gorbachev made the decisive choice to loosen Soviet control in Eastern Europe. As part of this new policy, Red Army troops were withdrawn from East Germany and resulted in Germany joining NATO. The introduction of his Perestroika and Glasnost policies were meant to revitalise the Soviet Union.

Glasnost
In the literal translation, this means openness. Gorbachev believed that by creating a more open and free society, the population would benefit, and as a result the whole of the Soviet Union. One can think of the more freedom of the press, more transparency between the communist party and the population (Sakwa, 1999).

Perestroika
Glasnost would consequently lead to reforms, since the Soviet Union had suffered for many decades. Through his reforms the economy should have improved and bring stability to the Soviet Union. He admitted that it was a revolution presented from the top to those at the bottom, yet all layers in society had to benefit. His policies allowed a multi-party system and a presidency for the Soviet Union. This quickly led to a democratic momentum in the region and the overthrow of communist rule throughout Eastern Europe (United States Department of State, 2016). Even though then US president George H. W. Bush, and other foreign leaders praised this move, Gorbachev faced a lot of domestic criticism. Finally, on 26 December 1991 a declaration was signed to pursue independence in the former Soviet States. Gorbachev declared his office to be extinct, and this is when Boris Yeltsin, then Russian president, gained control of the powers that the Soviet President had.

Not all former Soviet Republics have distanced themselves from the old Soviet rule and remained in close contact with the Russian Federation. Next to the creation of the Commonwealth of Independent States, Russia, with Vladimir Putin's rule, has been keen to remain a dominant and powerful in the region.

Russian Interferences

Many of the Central Eastern European and Baltic States countries did distance themselves from the Russian military, political and economic dependence and either joined the EU and/or NATO (United States Department of State, 2016).

Over the past 2 decades, the region has seen the creation of a couple of Russian initiatives to achieve regional economic integration. One of the most recent ones is the Eurasian Economic Union. Thus far it is the most advanced organisation for regional cooperation since the fall of the Soviet Union in that region. In essence, it guarantees free movement of goods, services, capital, and labour. The positive sums of returns should be distributed among all members. However, for Russian President Vladimir Putin it is supposed to become just as powerful as the EU and other regional entities (Vitkine, 2014). Some argue that it is also meant to be a means to spread the political influence of Russia (Duarte, 2017). However, Belarus and Kazakhstan deter this notion and have aimed to limit the political weight of this Union. An interesting example of this is the fact that Kazakhstan President, Nursultan Nazarbayev had lobbied to include Economic into the title of the Union, and demanded Russian "gas and cash" (Vitkine, 2014). In reality, the smaller members may be forced by Russia to give up partly its independence. However, the Union could also be used to make it more attractive for countries outside of the Union and maybe even for Foreign Direct Investment. For a lot of Eastern countries that have no Western historical or even cultural roots, the Eurasian Economic Union poses an alternative of interest.

In recent years the Ukrainian conflict has brought light to the aggressive policies of Vladimir Putin towards Western influence in the former Soviet Republics. Without Ukraine, Russia can't build a new Eurasian empire. Russia restricted trade with Ukraine and even annexed Crimea. The Russian project of the Eurasian Economic Union is obstructed by the efforts of EU, US and Chinese policy makers to widen their influence across the globe (Sergi, 2018). Instead of posing as a competitor, the Eurasian Economic Union should present itself as a profitable partner, as integration between the EU and the EEU could be highly promising, positively affecting economic growth in both regions.

The Yugoslav War

Yugoslavia was a socialist state of six individual republics including different ethnicities, not part of the USSR. The President of Yugoslavia, Josip Broz Tito, passed away in 1980. From this moment onwards demonstrations in the individual republics, began to overwhelmingly demand more autonomy. Conflicts between the different ethnicities broke out in 1991, which led to a series of separate wars in this region during the 1990s. During this time, new ideas for elections, market economies and self-representation were promoted, and in turn these countries faced a time of transition. (BBC, 2016). However, this did not go without any costs. A number of genocides took

place against different ethnic groups. The last war ended after weeks of NATO bombings, in Kosovo. The events that took place have resulted in the United Nations to declaring war crimes in Europe for the first time since WWII (Central Intelligence Agency, 2018).

Global Foreign Direct Investment Trends (UNCTAD, 2017)
In 2016, the United Nations Conference on Trade and development published a report that global FDI inflow was relatively low compared to Gross Domestic Product. On average, it decreased by 2% since 2015, in developing countries and also even in large parts of Europe. Interestingly, their report also stated that in transition economies, FDI inflow is 3 times as high as FDI outflow, indicating the dependence of some of these transition economies on foreign investors.

III. Theoretical Framework/Literature Review

Determinants of Foreign Direct Investment
Due to the events that occurred in all of these transition economies brings up the question what factors have played a role to receive FDI in these economies. Since all countries faced period of transition, economic stability was not a given and countries had to implement the right socio-economic policies to successfully transition into an open market economy. In this section, we identify several determinants that could have influenced FDI inflow in these economies. Pre-existing literatures have investigated multiple determinants of FDI in these transition economies, which allows us to identify which pull factors should be controlled for.

During the 1960s and 70s Hungary experimented with a market economy, resulting in already having a cheap, well-trained and educated labour force (Deichmann, et al., 2003). In this example, Deichmann, et al. (2003) identified certain country-specific factors that influence their ability to attract the appropriate FDI. Hunya (2000) argued that mainstream studies had primarily related inflows of FDI from the perspective of multinational corporations, instead of that of the host country. The interests and the behaviour of the multinational corporations can be expected to play a large role in the decision making process of investing in transition economies. However, previous researchers have stressed that country-specific characteristics of the former communist states can be a significant determinant for attracting FDI (Hunya, 2000). This has lead to believe that difference in these country-specific characteristics may also lead to different levels of FDI. Therefore the first hypothesis that will be tested is:
H1: CIS countries are statistically different from CEE and BS countries in terms of their ability to attract FDI.

Over the past 25 years, numerous literatures have studied and analysed the different kinds of determinants of FDI in transition economies. The most important factors identified included behaviour of multinational corporations, market size, domestic institutions, international institutions, natural resource abundance, tax systems, regulation, historical political and economic system, education, the labour force and income inequality (European Bank for Reconstruction and Development, 1999). Next to that countries that are landlocked also generally have higher trading costs and thus are less attractive for FDI, like the CIS countries.

Market Size
In further research, Tøndel (2001) highlighted that market size positively affects FDI inflow, in combination with low wages and high skills. In particular, in his research results indicated a large difference in the CIS and the CEE and BS countries. CIS countries experienced more negative GDP growth over time than CEE and BS countries. One observation is the extent of crime and as a result corruption in these transition economies that potentially deters foreign investors. Interestingly, it has been previously determined that in the former Soviet Union, the unofficial economy led to an improved efficiency of its economy. However, this kind of activity moved into mafia activities and due to this there was too little investment and resources were used inefficiently. Next to that, due to the size of an unofficial economy, government experienced losses in tax revenue (Tøndel, 2001).

Regulation
Demekas, et al., (2007) assessed in their paper what role policies of the host countries play in attracting FDI. This is mainly due to the fact that government has the ability to support and facilitate the private sector in shaping an attractive investment climate. In essence their results promote macroeconomic stability, reducing the uncertainties and supporting competition, rule of law and encouraging the private sector. Policies are highly dependent on those with the highest political power, but also on the effectiveness and efficiency of institutions.

Domestic Institutions
The overall consensus of the transition period is a decline in the output in the region caused by disorganization and due to a change in the institutional structure of the individual economies (Fischer & Sahay, 2004). One of the most important determinants of a well operating market economy is the development of market compatible institutions. In the 1990s institutions supporting socialism were abolished and were replaced by institutions supporting liberal economies. However, only a few countries were able to do so effectively, such as Hungary, Estonia and Poland (Beck & Laeven, 2005). This successful development in these countries led to a more favourable business environment and encouraged investment. In contrast, countries such as Russia got caught in the so called 'reform trap', which meant that early entrants captured all of the previously state owned companies and thus gave rise to its

oligarchs. Due to this development the socialist elite maintained political grip during the transition period. As a result, there was less incentive to create institutions that would increase competition in these markets. The reform trap was mainly present in countries with high natural resource presence. In these countries, oligarchs captured high enough rents that allowed them to control the state and limit or even block any reforms that would develop market compatible institutions.

Acemoglu, Johnson and Robinson (2005) confirmed that a fundamental cause of differences in economic development is the difference in economic institutions. Sound institutions are typically beneficial for those with greater political power. During the transition period, in many countries the political power shifted due to the privatisation process, yet not in the same manner. Acemoglu and Robinson (2008) identified that changes in institutional bodies also alters de jure political power. They distinguish between de jure political power, determined by the rule of law, and de facto political power, where power really lies. De facto power is defined as the power that is determined by groups with extreme wealth, weapons and the ability to solve the collective action problem (Acemoglu & Robinson, 2008). In democracies de jure power leans towards the will of the citizens, while in non-democracies the elite have greater de jure power. Their results suggest that in democracies, the elite intensifies their investment in de facto political power. Acemoglu, et al., (2008) names this a captured democracy where sound institutions exist but end up with forming economic institutions in the equilibrium that are in line with the elite's interest.

Resource Curse
Over the years, countries that possess natural resources like oil, diamonds and others that experience high demand have had to deal with becoming poorer, more corrupt and consequently conflicts arose (Havro & Santiso, 2008). In these countries, Shiells (2003) identified natural resource extraction as a determinant for attracting FDI. According to Deichmann, et al., (2003), natural resources are even a necessary condition for inflow of foreign capital. However, many of the countries in the Eurasian region have been challenged by the *'Resource Curse'*, which dictates that states with an abundance of natural resources are less democratic, experience less economic growth than states with fewer natural resources (Ross, 1999). Karl (1997) highlighted this in the 'Paradox of Plenty' by Karl (1997). He states that sound and solid institutions can overcome the 'resource curse'. Evidence from Mehlum, Moene & Torvik (2006) suggests that natural resources push aggregate income down when institutions are in favour of the oligarchs or elites. Once again, the importance of institutions is stressed.

Inequality
There was not only a natural resource distribution divergence across the former communist countries, but also an increasing income gap between the rich and the poor (Aristei & Perugini, 2012), i.e. the Citizens vs. the Elite. At the time of transition, there had been a profound amount of research on moving from market economies to

centrally planned economies, but not the other way around. As a result, the policy makers that were responsible for shaping the appropriate landscape for a market economy did so without little instruction or example. This is especially the case for those not opening up to foreign knowledge about market economies.

Education
Literature has also focused on the relation between FDI and Education enrolment. Mughal and Vechiu (2009) determined that FDI has a negative impact on secondary and tertiary enrolment rates in developing countries. One of the causes for this could be the quick transition to a market economy, liberalising trade and financial sector, while not attaining the appropriate institutions and infrastructure. Some of the transition economies chose to go about this process as quick as possible, even though the shift from a centralized economy to a market economy needs careful attention due to the many factors that could affect it. It opens up the potential to analyse the effect of educational levels on attracting FDI into a country.

International Institutions
As stated above, numerous researchers have highlighted the distinction between CIS countries and CEE and BS countries and the effects the above-mentioned determinants have had on FDI inflow. One interesting notion is that the prospect of joining the European Union (Thereafter EU) may also have played a role. Many of the CEE and BS countries have joined the EU and other pro-Western alliances, opening their economies more to FDI from member states of the EU and its allies. The smaller and poorer countries of the CIS are located further away from the EU and thus much less likely to become a prospective EU member. Shiells (2003) suggests that regional cooperation, such as the current Eurasian Economic Union (Thereafter EEU) for CIS countries, may help attract FDI to these states as it could remove trade and transport barriers. When looking at the numbers of the EEU, the total GDP of the union adds up to $1.59 trillion in 2015 and its industrial production $1.3 trillion in 2014. This has not been investigated yet, so instead of only using this as a control variable a second hypothesis is tested:
H2: EEU Membership has a significant positive effect on the ability to attract Foreign Direct Investment

This hypothesis is mainly constructed due to the fact that regional economic integration, such as in the EU, is believed to make a more attractive market for FDI. Even though the long term successes are uncertain, Russia is eager to promote stability and political influence in the Eurasian region with both domestic and foreign policy. However, some state that Russian interests mainly dominate the EEU and it should therefore be noted that in the long run not all members might be satisfied with the results (Duarte, 2017).

Another argument Shiells (2003) stresses is that FDI is an important source for technology and management expertise, something that the transition economies lacked during the 1990s. One reason is that it can help to create new firms or expand and restructure existing domestic firms. According to Bayar (2017) Greenfield investment has had a larger positive influence on economic growth in these countries than Brownfield investment, mainly due to raising capital accumulation and transferring knowledge and technology to these states. In essence, it is a widespread belief that FDI is a positive influence on the economic prospects of any country. Therefore the final hypothesis is stated as follows:

H3: FDI has a positive significant effect on the economic growth of CIS countries.

This final hypothesis relates directly to our research question, and combined with the results found testing the first and second hypothesis should provide us with a thorough answer.

IV. Data & Methodology

All the data used in the empirical analysis is retrieved from the World Bank Database and the International Labour Organisation Database (International Labour Organisation, 2018). This contains publicly available time series data on a variety of topics, including the country indicators that this paper uses. Two different datasets will be used, one for the CIS, and a separate one for CEE and BS. In **Figure 1** all variables that are being used are defined and distinguished between whether they are a dummy, percentage, monetary[4], or simply a number.

Figure 1		
List of Variables (The World Bank Group, 2018)		
Variable	*Type of Variable*	*Description*
Year	Dummy	The year in which the data is recorded
Country	Dummy	The country to which the explanatory variables relate
Foreign Direct Investment	Monetary	Direct Investment equity flows in the receiving economy (sum of equity capital, reinvestment earnings, and other capital
Share of FDI/GDP	Percentage	The percentage of GDP that is accounted for by FDI
GDP Per Capita	Monetary	The overall purchasing power parity value of all goods and services produced within a country, divided by the total population
Tariff Rate	Percentage	This is the average of the effectively applied rates weighted by the product import shares corresponding to each partner country.
Total Tax Rate	Percentage	The Total Tax rate of a country is the amount of taxes and mandatory contributions that business have to pay after accounted for allowable deductions an deductions as a share of commercial profits
Inflation	Percentage	The rate at which prices change in the economy. This is measured by the annual growth rate of the GDP implicit deflator[5].
Employment to Population Ratio	Percentage	Proportion of the country's population that is employed.

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[4] All monetary variables are in USD ($)

[5] GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency

Total Labour Force	Number	The total force of labour supply, people that are employed and people that are unemployed but seeking employment.
Educational Attainment[6]	Percentage	The percentage of the population that has attained at least a Bachelor's degree or equivalent
Total Natural Resource Rents	Percentage	The sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents and forest rents are taken as a percentage of GDP
Transport Infrastructure Quality	Index	This is based on a survey conducted where respondents evaluated 8 markets on 6 core dimensions on a scale from 1 – 5. The overall competence and quality of logistics services was evaluated.
Strength of Legal Rights	Index	This is an index that ranges from 1 – 12 and is a measure of the extent to which collateral and bankruptcy laws protect borrowers and lenders (i.e. how these countries expand access to credit.)
Corruption	Index	An index of the perceived transparency, accountability, and corruption levels in the public sector, 1-6.
Accession to EEU (CIS Dataset)	Dummy	A dummy variable that describes whether a country is a member of the EEU within a certain year
Accession to EU (CEE and BS Dataset)	Dummy	A dummy variable that describes whether a country is a member of the EU within a certain year
Basis of Executive Legitimacy	Dummy	A categorical variable, indicating the type of Government that is instated in the country 1. Presidency is independent of legislature 2. Ministry is subject to Parliamentary Confidence 3. Presidency is Independent of Legislature & Ministry is subject to Parliamentary Confidence
Unit Labour Cost[7]	Monetary	Hourly cost of labour per employee

These variables have been chosen based on the indicators illustrated in the literature review (Section II). It must be noted that data for educational attainment and unit labour costs was not found for all relevant countries and years. They are still included in the regressions, because the skills and costs of the workforce constitute important pull factors of FDI and essential causes of economic growth and a key determinant of the possible returns on foreign investment. A country with higher unit labour costs and lower skills level of employees is less likely to attract foreign investors, as it may provide firms with lower returns on investment (Peluffo, 2015).

For the analysis, the monetary variables, FDI, GDP per Capita, unit labour costs have been transformed into natural logarithms, to get normally distributed variables. From the categorical variables, binary variables were generated. As a baseline model two pooled OLS regressions are run separately for the sample of CIS and the CEE and BS countries. Furthermore, a lag variable is generated for *ln(FDI)* and *FDI as a share of GDP* to account for autocorrelation. One limitation is that this may make the effects of the other control variables less significant.

It was observed that certain variables had too little observations, *corruption perception index, strength of legal rights, educational attainment, unit labour costs and transportation quality index.* To overcome this problem, the average of the observed values were used

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[6] The best variable found to account for education levels in these countries
[7] The only variable that was exported from the International Labour Organisation database

for each country for the whole period as a second-best solution. In **Figure 2 & 3** below the summary statistics per dataset are summarized.

Figure 2 Summary Statistics Country-Specific Characteristics CIS					
Variable	Observations	Mean	Std. Dev.	Min	Max
Corruption*	324	2.611	0.495	1.75	3.33
Country	324	6.5	3.457	1	12
EEU Member	324	1.028	0.165	1	2
Education*	324	0.204	0.043	0.156	0.302
Legal Rights*	324	4.958	2.622	1	9
Transport Quality Index*	324	2.374	0.163	2.167	2.648
Ln(Unit Labour Cost)*	324	0.507	0.792	-0.878	1.725
Basis of Executive Legitimacy	324	2	0.914	1	3
Employment to Population ratio	312	0.564	0.589	0.385	0.705
FDI share of GDP	287	0.054	0.065	-0.002	0.551
Inflation	311	2.316	10.389	-0.21	154.44
Ln(FDI)	288	19.989	2.098	13.592	25.038
Ln(GDP per Capita)	319	9.191	2.670	4.189	13.512
Ln(Total Labour Force)	324	15.356	1.190	14.013	18.159
Tariff Rate	144	0.042	0.027	0.003	0.113
Total Natural Resources	315	0.109	0.141	0.001	0.825
Total Tax Rate	124	0.514	0.262	0.153	1.372
Year	324	2003	7.801	1990	2016
Ln(FDI)lag	288	19.989	2.098	13.592	25.038
FDI share of GDP lag	287	0.054	0.062	-0.002	0.551

*These variables are extrapolated

Figure 3 Summary Statistics Country-Specific Characteristics CEE and BS					
Variable	Observations	Mean	Std. Dev.	Min	Max
Corruption*	378	4.375	1.009	2.75	6
Country	378	7.5	4.036	1	14
EU Member	378	1.339	0.474	1	2
Education*	378	0.83	0.059	0.077	0.303
Legal Rights*	378	6.982	1.646	3	9
Transport Quality Index*	378	2.958	0.279	2.381	3.354
Ln(Unit Labour Cost)*	378	1.985	0.780	-0.144	2.926
Basis of Executive Legitimacy	378	2.071	0.258	2	3
Employment to Population ratio	364	0.489	0.066	0.321	0.633
FDI share of GDP	332	0.047	0.060	-0.160	0.555
Inflation	334	0.206	0.947	-0.171	12.717
Ln(FDI)	339	20.568	1.805	9.210	25.041
Ln(GDP per Capita)	346	10.450	1.811	6.939	14.952
Ln(Total Labour Force)	378	14.674	0.926	13.392	16.728
Tariff Rate	332	0.027	0.019	0.010	0.144
Total Natural Resources	348	0.013	0.014	0.001	0.107
Total Tax Rate	168	0.388	0.126	0.074	0.668
Year	378	2003	7.799	1990	2016
Ln(FDI)lag	339	20.60	1.805	9.210	25.041
FDI share of GDP lag	332	0.047	0.060	-0.160	0.555

*These variables are extrapolated

According to these tables, the CEE and BS have a higher corruption index than CIS countries. This is in contrast to the observations of Tøndel (2001). Another interesting observation is that CEE and BS countries have a higher *ln(GDP per Capita)* and a higher *ln(FDI)*, which is what we will be testing to be significant or not. However, *FDI as a share of GDP* proves to be higher in CIS countries, but since it is relative to GDP this does not necessarily mean that it is more than in CEE and BS countries. As previously determined by Shiells (2003), *total natural resource rents* are in fact higher in CIS countries because they are more natural resource abundant. In addition, we can also identify that certain pull factors, such as *tariff rates*, and *tax rates* are higher in CIS countries than in CEE and BS countries, potentially deterring foreign investment. In CIS countries there is also relatively cheap labour, but this could be a consequence of the relatively low level of education observed in the previous figures. As a result this could also deter foreign investment. Another reason why we would believe CEE and BS countries attract more FDI is due to the quality of infrastructure, illustrated by *transport quality index*, which is relatively higher than in CIS countries.

These observations from **Figures 2 & 3** prove to be promising statistics when also looking at what was discussed in the literature review. However, of course, tests are needed to determine the actual effects of these pull factors on FDI, and in turn of economic growth. Correlation matrices are used to detect the possibility of multi-collinearity between pairs of variables. The correlation coefficients for the CIS dataset are summarized in **Figure 4** below (*rounded to 2 decimal spaces*):

	ln(FDI)	FDI ofGDP	Unit Labour Costs	Legal Rights	Corruption	Education	Transport Quality	Employment to Population Ratio	ln(Total LabourForce)	Tariff Rate	Inflation	Total Tax Rate	TotalNatural Resource Rents	Basisof Executive Legitimacy	ln(GDP perCapita)
Figure 4 Correlation Table - CIS Dataset															
ln(FDI)	1,00														
FDIofGDP	0,21	1,00													
UnitLabourCosts	-0,01	0,30	1,00												
LegalRights	-0,06	0,21	-0,15	1,00											
Corruption	-0,09	0,12	0,80	0,12	1,00										
Education	0,05	-0,07	0,52	0,04	0,77	1,00									
TransportQuality	0,59	-0,26	-0,26	0,27	-0,11	0,28	1,00								
Employment to Population Ratio	0,32	0,18	0,37	-0,47	-0,05	0,01	0,07	1,00							
ln(TotalLabourForce)	0,63	-0,11	-0,44	-0,10	-0,65	-0,37	0,63	0,43	1,00						
TariffRate	0,03	0,08	-0,52	-0,50	-0,61	-0,53	-0,21	0,14	0,36	1,00					
Inflation	-0,09	-0,28	-0,04	-0,18	-0,24	-0,15	0,13	0,19	0,25	0,06	1,00				
TotalTaxRate	-0,17	-0,25	-0,42	-0,46	-0,62	-0,42	-0,07	0,09	0,36	0,54	0,34	1,00			
TotalNaturalResourceRents	0,22	0,26	-0,15	-0,35	-0,40	-0,43	-0,06	0,49	0,41	0,53	0,14	0,17	1,00		
BasisofExecutiveLEgitimacy	-0,01	-0,26	-0,33	0,47	0,06	0,31	0,31	-0,56	-0,09	-0,36	-0,27	-0,19	-0,56	1,00	
ln(GDPperCapita)	0,30	-0,10	-0,38	0,17	0,04	0,12	0,49	-0,08	0,22	0,10	-0,22	-0,27	0,20	0,22	1,00

We identify that the correlation between *corruption* and *unit labour cost* is particularly high (0.80) compared to the other correlation coefficients. Since we want to use the same variables in each regression it is also necessary to look at the correlation coefficients of the CEE and BS dataset, summarized in **Figure 5 on P.16.**

Figure 5

Correlation Table - CEE and BS Dataset

	ln(FDI)	FDI ofGDP	Unit Labour Costs	Legal Rights	Corruption	Education	Transport Quality	Employment to Population Ratio	ln(Total LabourForce)	Tariff Rate	Inflation	Total Tax Rate	TotalNatural Resource Rents	Basisof Executive Legitimacy	ln(GDP perCapita)
ln(FDI)	1,00														
FDIofGDP	-0,21	1,00													
UnitLabourCosts	0,41	-0,14	1,00												
LegalRights	-0,35	0,24	-0,79	1,00											
Corruption	0,30	-0,20	0,32	-0,24	1,00										
Education	0,11	-0,11	0,21	0,01	0,28	1,00									
TransportQuality	-0,07	-0,08	0,51	-0,45	0,31	0,23	1,00								
Employment to Population Ratio	-0,04	0,00	0,19	-0,13	0,24	0,16	0,35	1,00							
ln(TotalLabourForce)	-0,27	0,03	-0,37	0,33	0,12	-0,24	0,28	0,05	1,00						
TariffRate	0,17	0,04	0,06	-0,01	-0,10	0,00	-0,43	-0,52	-0,23	1,00					
Inflation	-0,32	0,27	-0,31	0,27	-0,02	-0,01	-0,23	0,08	-0,01	0,07	1,00				
TotalTaxRate	0,04	0,16	0,00	0,23	0,26	0,14	0,31	0,64	0,32	-0,44	0,07	1,00			
TotalNaturalResourceRents	-0,08	0,05	-0,34	0,28	-0,26	-0,20	-0,64	-0,61	-0,01	0,55	0,20	-0,50	1,00		
BasisofExecutiveLEgitimacy	-0,19	-0,06	-0,43	0,32	0,30	-0,38	-0,15	0,03	0,39	-0,07	0,30	0,13	0,18	1,00	
ln(GDPperCapita)	0,30	-0,05	-0,30	0,14	-0,12	0,40	-0,62	-0,19	-0,54	0,25	0,10	-0,23	0,25	-0,26	1,00

From this table we do not identify a correlation coefficient higher or equal to 0.80. Therefore we decide only to not include the variable *corruption* in the regressions. Since the variable *legal rights* already controls for somewhat similar aspects as a country's level of corruption, the omitted variable bias is not likely to occur.

For the first hypothesis we are interested in the level of FDI inflow in CIS countries and CEE and BS countries *(Reminder- H1: CIS countries are statistically different from CEE and BS countries in terms of their ability to attract FDI.).* This may be affected by different indicators, which have been discussed in the literature review that we have to control for. The control variables considered in the OLS regressions for both samples are *unit labour cost, legal rights, education, corruption, transport quality index, employment to population, ln(total labour force), tariff rate, inflation, total tax rate, total natural resource rents* and *basis of executive legitimacy,* and the *lag of FDI* for autocorrelation. Different models are designed for *ln(FDI)* and *FDI as a share of GDP* as the dependent variable.

Similarly for the second hypothesis, the same two models are used, except now a dummy variable is added to the CIS dataset. (*Reminder - H2: EEU Membership has a significant positive effect on the ability to attract Foreign Direct Investment).* The variable *EEU Member* indicates 1 when a country is a member of the EEU, and 0 when it is not. By adding this dummy variable we can analyse it coefficient and its significance to determine the effect it has on FDI. Although not relevant for testing the hypothesis, but interesting for valuable insights and comparison, a dummy variable *EU member* has also been added to the CEE and BS dataset.

Finally the third hypothesis will be tested through means of another OLS regression. (Reminder: *H3: FDI has a positive significant effect on the economic growth in the CIS*). This effect is both tested separately for CIS and CEE and BS countries to be able to draw comparison between these two groups. In these multivariate regressions we use

ln(GDP per Capita) as the dependent variable. *ln(FDI)* and *FDI as a share of GDP* are used as the independent variable in separate regressions.

After performing the regressions, testing all three hypotheses with both *ln(FDI)* or *FDI as a share of GDP* as a dependent variable, in both datasets *ln(FDI)* proved to be the one with the better fit. This is based on the r-squared values of the models. **(See Appendix - Table 1 P.33).** Therefore, *ln(FDI)* was chosen as the dependent variable to continue our analysis with. However, the results of the models with *FDI as a share of GDP* have been added to the appendix **(see Appendix – Table 2 – 6 P.33 – 37).**

As a robustness check we perform a fixed effects model for each hypothesis. With this we can account for the fixed effects that may occur between country specific and year specific characteristics. Since we are using multiple observations about each country over time it is important to think about how much each of the observations differ from the average of each specific countries, looking at within country variation over time. Through this technique we can remove omitted variable bias of time invariant unobservable factors that could affect the dependent variable and control variables. It holds the average effects constant of each country. The coefficients that we will receive from the fixed effects model attain all the across country variations.

V. Results

In the results section the most important observations of the tests will be discussed. This will be separated per hypothesis; however, the main insights of all three hypotheses will be summarized at the end of this section. As stated in section IV, we look at the models with *ln(FDI)* as the dependent variable since it was determined they have a higher r-squared than with dependent variable *FDI as a share of GDP* **(See Appendix - Table 1, P.33).**

In the first regression, to determine whether CIS countries and CEE and BS countries are different in terms of their ability to attract FDI, the two models are presented next to each other in **Figure 6 on P.18.** The first observation is that the model does not have many statistically significant effects. One reason for this is because we added *ln(FDI)lag* to the model which could result in less significant effects of the other control variables. The coefficient of *ln(FDI)lag* has a positive significant effect on *ln(FDI)* for both CIS and CEE and BS countries. This coefficient can be interpreted as the elasticity between these two variables. For CIS countries a 1% increase in *FDI* in the previous year is associated with a 0.7% increase in *FDI* in the current year. In CEE and BS countries this increase is slightly larger, a 1% increase in the previous year is associated with a 0.76% increase in *FDI* in the current year. We can speculate that this small difference is due to the fact that a country, when opening up to FDI, will experience positive externalities such as knowledge transfers and technologic advancements. Other than that, if foreign

investors have experienced positive returns, other foreign investors will also want to participate in the profitable investment.

Variables	CIS	CEE and BS
Figure 6 **Multivariate Regressions Hypothesis 1 CIS vs CEE and BS**		
Unit labour cost	0.122	0.011
	(0.254)	(0.439)
Legal rights	-0.100*	-0.156*
	(0.039)	(0.067)
Education	-2.739	1.550
	(4.547)	(1.865)
Transport quality	0.573	-0.946
	(1.540)	(0.705)
Employment to population ratio	-0.624	-3.174
	(2.211)	(2.125)
Ln(total labour force)	0.456	-0.009
	(0.233)	(0.189)
Tariff rate	0.527	-1.492
	(6.395)	(12.587)
Inflation	-1.527**	-3.114
	(0.530)	(2.236)
Total tax rate	-1.539**	1.904*
	(0.564)	(0.941)
Total natural resource rents	-1.400	-0.218
	(1.096)	(8.598)
Basis of executive legitimacy	0.026	0.126
	(0.186)	(0.232)
Ln(FDI)lag	0.702***	0.760***
	(0.084)	(0.088)
Constant	0.104	9.603**
	(1.581)	(3.649)
Observations	96	140
R-squared	0.881	0.776

Note: Robust standard errors in parentheses
*** $p<0.001$, ** $p<0.01$, * $p<0.05$

Secondly, inflation has a negative significant effect on FDI for CIS countries. Interpretatively this would mean that if *inflation* increases by one unit, we expect *FDI* to decrease by 152.7%. As we have previously determined, a higher inflation does infer an unstable price of the transition economy and will also result into deterring FDI. In CEE and BS countries, the coefficient of *inflation* is almost twice as large, but does not constitute a significant effect. These percentage changes are high, which entails that according to the model *FDI* is highly sensitive to *inflation*. With the same reasoning we observe that a unit increase in the *total tax rate* leads to a 153.9% decrease in *FDI* for CIS countries, and for CEE and BS countries a 190.4% decrease in *FDI.* It is interesting to observe that this effect is larger in CEE and BS countries than in CIS countries. One reason for this difference could be that these countries attract more FDI in general and

are therefore more sensitive to such FDI deterring fiscal policy. Thirdly, *legal right* has a negative significant effect on the level of *FDI* in both CIS and CEE and BS countries. The coefficients respectively constitute that a unit increase in this index leads to a 10% and 15.6% decrease in *FDI*. The variable *legal rights* is intuitively expected to positively influence *FDI,* because one would expect that the more protection an economy offers to borrowers and lenders, the more favourable this investment climate would be. One reason for this result could be that this variable was modified and the average was taken for each country over the years, resulting into an inaccurate effect of *legal rights*. Furthermore, the constant coefficient is only significant for the CEE and BS model. Since we do not expect any of the other pull factors to ever be zero, the constant term is considered to be an estimation of the omitted pull factors and thus absorbs the bias.

A reason why *education, unit labour costs* and *transport quality* are not statistically significant could be due to the fact that they have been averaged across the dataset, and therefore could not represent the sample accurately. Furthermore, *basis of executive legitimacy* was somewhat the same across countries within the datasets, which could have resulted in insignificant coefficients. The coefficients of *transport quality, employment to population ratio, ln(total labour force)* and *tariff rate* are also not statistically significant. Another reason why none of the above mentioned variables were significant could be a result of the decision to not control for the country fixed and time fixed effects at first. In this regression we dealt with the data as a cross section data set. However, the fact that they are insignificant does not mean that there is no practical effect and they should not be interpreted as such. It simply is an indication that their coefficients are not statistically explanatory of our dependent variable.

Based on these results, we reject the first hypothesis that CIS countries are significantly different in their ability to attract FDI than CEE and BS countries.

For the second hypothesis, a likewise approach is used in the regression. However, only the CIS dataset is of interest to test our hypothesis. A dummy variable *EEU Member* was added to the regression as can be seen in **Figure 7** below:

Figure 7 Multivariate Regression Hypothesis 2 (CIS)		
Variables	*Coefficient*	*(Standard Error)*
EEU Member	0.239	(0.185)
Unit labour cost	0.151	(0.258)
Legal rights	-0.095*	(0.038)
Education	-3.078	(4.534)
Transport quality	0.819	(1.579)
Employment to population ratio	-0.692	(2.231)
Ln(total labour force)	0.426	(0.227)
Tariff rate	1.718	(6.325)
Inflation	-1.442*	(0.548)

Total tax rate	-1.472**	(0.556)
Total natural resce rents	-1.187	(1.132)
Basis of executive legitimacy	0.043	(0.183)
Ln(FDI)lag	0.691***	(0.088)
Constant	-0.140	(1.624)
Observations	96	
R-squared	0.882	

Note: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

The first observation is that the regression includes the same significant variables as in the first regression. Based on the same reasoning as in the first regression, including the same significant variable, the coefficients of *education*, *unit labour costs*, *transport quality*, *employment to population ratio*, *ln(total labour force)*, *tariff rates*, *total natural resource rents*, and *basis of executive legitimacy* are not significant. The fact that the controls in our regression changed slightly indicate that *EEU member* is possibly a little correlated with the other control variables. By adding the dummy *EEU member* the coefficient of the controls *education, employment to population ratio*, and *ln(FDI)lag* decreased. The coefficient of *ln(FDI)lag* has remained significant and indicates that a 1% increase in *FDI* in the previous year is associated with a 0.69% increase in *FDI* in the current year. The reason for this increase could be that the attractiveness of a country from its prior levels of FDI to foreign investors could be partially captured by joining a regional economic integration union, like the EEU. *Education* and *employment to population ratio* may also be negatively correlated with the EEU Member variable.

On the other hand, the variables *legal rights, transport quality, ln(total labour force), tariff rate, inflation, total tax rate, total natural resource rents* and *basis of executive legitimacy* have all experienced an increase in their coefficients, indicating these variables may be positively correlated with *EEU Members*. The variable *legal rights* remained a negative significant effect on the level of *FDI* in CIS countries. The coefficient means that a unit increase in this index leads to a 9.5% decrease in *FDI*. Next to that, *inflation* maintained a negative significant effect on FDI. When inflation increases by one unit, we expect *FDI* to decrease by 144.2%. Furthermore, Total Tax Rate has also remained a negative significant effect on *FDI*. An increase in the *total tax rate* by one unit is associated with a 147.2% decrease in *FDI*. In this model, *transport quality, ln(total labour force), tariff rate, total natural resource rents* and *basis of executive legitimacy* repeat a statistically non-significant effect on *FDI*.

However, The variable of interest for the second hypothesis is the coefficient of the *EEU Member* dummy. From **Figure 7** above it is observed that the *EEU Member* coefficient is not statistically significant in our regression. This indicates that there this coefficient does not have a statistical explanatory power on *FDI*. However, in practice it may still influence a country's level of *FDI*. Based on this observation, of *EEU Member,*

we can reject the second hypothesis that *EEU Membership has a positive significant effect on CIS countries' ability to attract FDI.*

To draw comparison, we look at the same regression in the CEE and BS dataset. However, instead of a dummy for *EEU Membership* we now use a dummy for *EU Member.* The results are presented in **Figure 8** below:

Figure 8		
Multivariate Regression Comparison (CEE and BS)		
Variables	Coefficients	(Standard Errors)
EU Member	-0.010	(0.246)
Unit labour cost	0.009	(0.438)
Legal rights	-0.156*	(0.067)
Education	1.560	(1.939)
Transport quality	-0.946	(0.707)
Employment to population ratio	-3.142	(2.301)
Ln(total labour force)	-0.008	(0.192)
Tariff rate	-1.558	(12.775)
Inflation	-3.129	(2.288)
Total tax rate	1.910	(0.967)
Total natural resource rents	-0.248	(8.749)
Basis of executive legitimacy	0.125	(0.238)
Ln(FDI)lag	0.760***	(0.088)
Constant	9.597**	(3.666)
Observations	140	
R-squared	0.776	

Note: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

From **Figure 8** we can draw a similar result as in **Figure 7**, EU membership does not have a statistically significant effect on FDI. Noteworthy, is that EU membership seems to be minimally correlated with the other control variables since the coefficients from the model in **Figure 8** are almost the same as in **Figure 6** on P.18. In addition to that, *unit labour costs, transport quality* and *ln(FDI)lag* have the same coefficient, meaning no correlation exists between them and the *EU Membership* dummy. However, due to the many non significant coefficients in this model it would be interesting to look at this sample more thoroughly in future research with different control variables.

Now that the determinants of FDI have been analysed, the next results will focus on the effect of FDI on economic growth in these countries to test the third hypothesis. In the model for this hypothesis, again only the CIS model is relevant. However, we also look at the CEE and BS model to draw comparisons. In this regression the dependent variable is *ln(GDP per Capita)* and *ln(FDI)* is now an independent variable, next to the previous controls. The results are presented in **Figure 9** on P.22.

	Figure 9	
	Multivariate Regressions Hypothesis 3	
	CIS	CEEBS
Variables	*Ln(GDP per capita)*	*Ln(GDP per capita)*
Ln(FDI)	-0.078	0.166*
	(0.244)	(0.075)
EEU Member	1.407*	.
	(0.700)	.
Unit labour cost	-2.186**	-5.029***
	(0.678)	(0.178)
Legal rights	-0.200	-0.561***
	(0.106)	(0.029)
Education	-11.921	17.582***
	(12.613)	(0.700)
Transport quality	18.387***	-3.087***
	(4.681)	(0.250)
Employment to population ratio	10.181	-3.144**
	(6.268)	(0.956)
Ln(total labour force)	-2.278*	-0.680***
	(0.917)	(0.065)
Tariff rate	29.646	2.261
	(24.162)	(3.492)
Inflation	-3.086**	0.870
	(1.133)	(0.876)
Total tax rate	-4.728***	1.839***
	(1.259)	(0.328)
Total natural resource rents	5.971**	-4.331
	(2.257)	(3.323)
Basis of executive legitimacy	0.010	-1.324***
	(0.417)	(0.085)
Ln(FDI)lag	0.105	0.171*
	(0.250)	(0.080)
EU Member	.	0.071
	.	(0.089)
Constant	-1.995	38.146***
	(5.459)	(1.140)
Observations	94	140
R-squared	0.689	0.972

Note: Robust standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

First, we look at the CIS results to test the third hypothesis. In the regression we observe multiple significant coefficients for the independent variables. *EEU Member* has a significant positive effect on *ln(GDP per Capita)*. Its coefficient indicated that EEU members experience 140.7% higher GDP per Capita than non-members. This could be

due to the fact that such regional integration can lead to the sharing of technologies and synergy effects, and thus lead to economic growth. According to the model, *unit labour costs* has a significant negative effect on *ln(GDP per Capita)*, since *unit labour costs* increase by 1%, *GDP per Capita* decreases by 2.18%. The effect of transport quality also proves to be positively significant on *ln(GDP per Capita)*, which indicates that infrastructure quality plays a large role for a country's economic achievements. An increase in transport quality by one unit is associated with a 1838.7% increase in *GDP per Capita*. Besides, *ln(Total Labour Force)* has a negative significant effect on *ln(GDP per Capita)*, indicating that a 1% increase in total labour force is associated with a 2.28% decrease in *GDP per Capita*. This effect does not align with previous literature, as labour force should positively influence the level of a country's economic growth. Furthermore, as anticipated, *inflation* has a negative significant effect on *ln(GDP per Capita)*, since a unit increase in *inflation* leads to a decrease in *GDP per Capita* of 308.6%. Since *inflation* indicates the price stability of an economy, one could argue that the higher this gets, the less reliable a country's economy, with consequently deteriorating growth prospects. Following the same logic, we identify the negative significant effect of *total tax rate* on *ln(GDP per Capita)*, an increase in total tax rate by one unit decreases *GDP per Capita* by 472.8%. In addition, *natural resource rents* has a positive significant effect on a country's *ln(GDP per Capita)*. Its coefficient shows a 591.7% increase in *GDP per Capita* if *natural resource rents* were to increase by one unit.

Ln(FDI), legal rights, education, employment to population ratio, tariff rate, basis of executive legitimacy and *ln(FDI)lag* all have statistically insignificant coefficients. Thus, these variables might affect economic growth, however, none of these variables have proven to be statistically relevant enough to explain *ln(GDP per Capita)* in our model.

The coefficient *ln(FDI)* indicates a negative effect on *ln(GDP per Capita)*, since a percentage increase in *FDI* is associated with a 0.078% decrease in *GDP per Capita*. We examined the null hypothesis stating that there was no effect of *FDI* on economic growth, which we fail to reject since our coefficient is not statistically significant. Based on this result, we reject the third hypothesis that *FDI* has a positive significant effect on economic growth in CIS countries.

Noticeable, the model of the CEE and BS dataset with the same control variables, proves that when examining these countries *ln(FDI)* does have a positive significant effect on *ln(GDP per Capita)*. A 1% increase in FDI would lead to a 0.16% increase in *GDP per Capita* when controlling for the other variables. The effect of *transport quality* is negatively significant for CEE and BS dataset, decreasing *GDP per Capita* by 308.7% if increased by one unit. Besides, the negative effect of *unit labour costs* is more than twice as large than in CIS countries. A 5.029% decrease in *GDP per Capita* if *unit labour costs* increase by 1% indicating that these countries are more sensitive to changes in labour costs. Furthermore, the *total tax rate* has a positive significant effect on *ln(GDP per*

Capita), indicating that when total tax rate increases by one unit, *GDP per Capita* increases by 183.9%. This is not an anticipated result, since a country's tax rate is seen as a fiscal policy that levies more burdens on producers and consumers. Another difference with the CIS countries that is identified is that *the ln(FDI)lag* coefficient indicates a small, but significant positive effect on *GDP per Capita*. A 1% increase in *FDI* in the previous year is associated with a 0.171% increase in *GDP per Capita* in the current year. This effect is actually larger than that of *FDI* of the current year on *GDP per Capita*.

Robustness Checks

Up to this point all of the regressions have considered both the CIS and CEE and BS dataset as cross sectional. However, we must not forget that the dataset contains data of different points in time for different countries. Therefore robustness checks are performed to account for the fixed effects of the year and dummy variables. The limitation of this check is that the extrapolated variables have been omitted from this regression, since they are constant over time and thus provide no useful input. Usually a fixed effects model should result in the same coefficients, however, since these variables are now omitted these are different. The reason why this is important for the sample is that we are comparing countries on the basis of several pull factors, yet countries can differ on so many different levels, like culture, religion, gender, race, etc. The fixed effects models for the first hypothesis are summarized in **Figure 10,** below:

Figure 10 Robustness Table - Hypothesis 1		
	CIS	**CEE and BS**
Variables	*Ln(FDI)*	*Ln(FDI)*
Unit labour cost	-	-
Legal rights	-	-
Education	-	-
Transport quality	-	-
Employment to population ratio	10.809**	-0.359
	(2.827)	(3.291)
Ln(total labour force)	-0.096	-1.810
	(1.508)	(2.726)
Tariff rate	0.102	-6.216
	(7.500)	(16.553)
Inflation	-1.484**	-2.944
	(0.428)	(2.580)
Total tax rate	-1.440*	-5.341
	(0.564)	(3.431)
Total natural resource rents	-1.215	11.347
	(1.434)	(7.709)
Basis of executive legitimacy	-	-
Ln(FDI)lag	0.655***	0.480*
	-0.084	(0.166)

Constant	3.528	40.050
	(22.245)	(40.116)
Observations	96	140
R-squared	0.622	0.427
Number of Country	11	12

Note: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

One can observe that the model for the CEE and BS only includes one statistically significant coefficient. A 1% increase in the previous year's FDI is associated with a 0.48% increase of FDI in the current year. Besides this effect, the model provides no statistical evidence that we can reject a hypothesis that tests if there is no effect. However, when looking at the CIS dataset, some coefficients do provide statistical significance of some of the control variables. When controlling for country and year fixed effects, we can state the following about the coefficients: When *employment to population ratio* increases with one unit, *FDI* increases by 1080.9%. According to the model, *inflation* remains a negative significant effect, as what has been repeated multiple times, it deters foreign investors. If *inflation* were to go up by one unit, then *FDI* would decrease by 104.8%. Similarly, if *total tax rate* increases by one unit, FDI would decrease by 144%. Besides, if *FDI* in the previous year would increase by 1%, *FDI* in the current year would increase by 0.655%. Based on these findings in the fixed effects model, we reject our first hypothesis that there is a significant difference between the ability of CIS countries and CEE and BS countries to attrac*t FDI*.

Figure 11 Robustness Table - Hypothesis 2		
	CIS	
Variables	*Ln(FDI)*	
	Coefficients	(Standard Errors)
EEU Member	0.531*	(0.217)
Unit labour cost	-	
Legal rights	-	
Education	-	
Transport quality	-	
Employment to population ratio	11.647**	(3.513)
Ln(total labour force)	-0.222	(1.626)
Tariff rate	1.911	(8.063)
Inflation	-1.172*	(0.461)
Total tax rate	-1.194*	(0.475)
Total natural resource rents	-1.669	(1.205)
Basis of executive legitimacy	-	
Ln(FDI)lag	0.608***	(0.104)
Constant	5.164	(24.151)

Observations	96	
R-squared	0.637	
Number of Country	11	

Note: Robust standard errors in parentheses,
*** p<0.001, ** p<0.01, * p<0.05

Figure 11 presents the fixed effects model for our second hypothesis. When we control for the time and country fixed effects, the coefficients of *employment to population ratio*, and *EEU Member* are now statistically significant in the model, next to *inflation, total tax rate* and *ln(FDI) lag*. Both inflation and *total tax rate's* coefficient have increased, closer to 0. According to the new model, a unit increase in i*nflation* leads to a 117.2% decrease in *FDI*. In addition, a unit increase in *the total tax rate* leads to a 119.4% decrease in *FDI*. The lag of FDI's effect has also decreased, to a 0.608% increase in *FDI* in the current year, when its lag is increased by 1%. Besides, *EEU Member* is associated with an increase in FDI by 53.1%. Thus, by this test we would retain the second hypothesis, since *EEU member* has a statistically positive significant effect on *FDI.* In this model, however, *ln(total labour force), tariff rate*, and *total natural resource rents* are statistically not significant and therefore their coefficients do not statistically explain FDI.

The last robustness check, evidently, relates to the third hypothesis. Both the CIS and CEE and BS results are summarized in **Figure 12** below. Even though for the hypothesis only the CIS model is of interest, this paper aims to compare their results.

Figure 12 Robustness Table – Hypothesis 3		
	CIS	**CEE and BS**
Variables	*Ln(GDP per capita)*	*Ln(GDP per Capita)*
Ln(FDI)	0.058***	0.074***
	(0.010)	(0.012)
EEU Member (CIS) /EU Member	0.092	0.133
(CEE and BS)	(0.053)	(0.074)
o. Unit Lab Cost	-	-
o. Legal Rights	-	-
o. Education	-	-
o. Transport Quality	-	-
Employment to population ratio	1.263	0.952
	(1.408)	(1.081)
Ln(Total Labour Force)	-0.011	0.379
	(0.765)	(0.717)
Tariff rate	-0.202	-0.965
	(2.295)	(1.878)
Inflation	-0.014	-1.172*
	(0.081)	(0.486)
Total tax rate	-0.388*	-0.552
	(0.173)	(0.617)
Total natural resource rents	-0.006	-1.998*
	(0.807)	(0.842)
o. Basis of executive legitimacy	-	-

Ln(FDI)lag	0.050*	0.067***
	(0.018)	(0.013)
Constant	6.319	1.559
	(11.455)	(10.743)
Observations	94	140
R-squared	0.638	0.721
Number of Country	11	12

Note: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

The main observation is the statistical significance of *ln(FDI)* on *ln(GDP per Capita)*. A 1% increase in FDI is associated with a 0.058% increase in *GDP per Capita* in CIS countries. Even though this effect is rather small, we can retain the hypothesis that FDI has a positive significant effect on economic growth in CIS countries. Furthermore, the lag of ln(FDI)'s coefficient now proves to be significant in comparison to the multiple regression in **Figure 9** on P.22. However, the effect is quite small, since only a 1% increase in the *FDI* in the previous year has a 0.05% increase in *GDP per Capita*. The coefficients of *EEU Member, employment to population ratio, ln(total labour force), tariff rate, inflation, total natural resource rents* are statistically not significant in the regression, but as previously stated this does not mean that in practice these factors do not effect economic growth. The effect of the *total tax rate* decreased significantly. A unit increase in a country's *total tax rate* is associated with a 38.8% decrease in *GDP per Capita* when controlling for time and country specific effects.

To draw comparisons, in CEE and BS countries, *ln(FDI)* has remained a positive significant effect on *ln(GDP per Capita)*, but it has decreased by almost 50%. In the fixed effects model a 1% increase in *FDI* is associated with a 0.074% increase in *GDP per Capita*. *Inflation* still proves to have a statistically negative significant effect on *ln(GDP per Capita)*, as we have determined earlier. This is in line with the notion that an unstable price is disadvantageous for a country's economy. In this case a unit increase in *inflation* would lead to a 117.2% decrease in *GDP per Capita*. In contrast to Tøndel's (2001) observations, this model indicates that natural resource rents have a negative significant effect on *ln(GDP per Capita)*. A unit increase in *natural resource rents* is associated with a 199.8% decrease in *GDP per Capita.* One reason for this effect could be that the countries in the CEE and BS are not natural resource abundant, and perhaps sensitive to corruption in the extraction of the natural resources (Shiells, 2003). As in the other fixed effects model, the lag of *ln(FDI)* is positively significant. A 1% increase in *FDI* in the previous year leads to a 0.067% increase in *GDP per Capita* in the current year. Despite the fact that this effect is not very large, it is interesting to observe that time does play a role, and it would be interesting for further research to include multiple lags.

However, in this model the coefficients of *EU Members, employment to population ratio, ln(total labour force), tariff rate,* and *total tax rate* are not statistically significant and thus provide no statistical explanation for *ln(GDP per Capita)*. They could, however, in practice, as stated in the previous analyses, have a great influence on *GDP per Capita*, but due to some of the limitations of our research did not appear so in the models. The limitations will be further elaborated in the next section.

VI. Conclusions

Statistical Implications
Together with the insights from the historical background, the results presented provide us with evidence to answer our research question. These conclusions will be separated per hypothesis, and eventually combined when discussing the socio-economic and policy implications and regional integration.

In the first regression we discovered that the coefficients of the CIS and CEE and BS models were differing. Only for *legal rights, total tax rate* and *ln(FDI)lag* these coefficients were proven to be significant in both data sets. The coefficients for *unit labour costs, education, transport quality, employment to population ratio, ln(total labour force), tariff rate, total natural resource rents*, and *basis of executive legitimacy* were not significant in both datasets. As previously determined, this means that these variables do not provide evidence of a statistically significant effect on *FDI*. However, *inflation* was significant in the CIS data set, but not in the CEE and BS dataset. As a robustness check, we controlled for the country and time fixed effects. But in the fixed effects model, only the coefficients for *ln(FDI)lag* in both datasets provide a statistically significant effect. The other coefficients in both the models have no statistical explanatory power on *FDI*. Thus, the model provides no proof of statistical differences between CIS and CEE and BS in terms of their ability to attract FDI. As a result we reject the first hypothesis, which states that *CIS countries are statistically different from CEE and BS countries in terms of their ability to attract FDI*. However, in reality we may find that there are in fact differences in their ability to attract FDI.

In a simple OLS regression, it was discovered that joining the EEU did not have a statistically significant effect on its members' ability to attract FDI. A reason for this result could be because the *EEU Member* variable appeared not to have such a large effect on the other control variables. However, when controlling for the fixed effects this result changed, since membership of the EEU is time variant. In the fixed effects model, *EEU member* proved to have a positive significant effect on FDI, and thus we fail to reject the second hypothesis: *H2: EEU Membership has a significant positive effect on the ability to attract Foreign Direct Investment*.

Finally, evidence from the fixed effects model suggests that there is a positive relation between a country's level of *FDI* and *GDP per Capita*, removing time invariant effects and controlling for the relevant countries. Without controlling for fixed effects, the model suggested there was no statistically significant effect of *FDI* on *GDP per Capita*. One reason why these results differed is that when we account for country specific aspects, like culture, religion, race, and history, the model removes omitted variable bias. It accounts for within county variation over time. Therefore we can retain the third hypothesis: *FDI has a positive significant effect on the economic growth of CIS countries.*

Social Economic/Policy Implications
As stated above, our results provide evidence that it is in a country's benefit to open itself to FDI, as it has a positive effect on economic growth. However, this is not as simple as just allowing more FDI into the country. This is highly dependent on what kind of policies they implement. Especially, if a government is portrayed as a democracy, yet is actually controlled by a political elite, all the FDI may not find its destination in the real economy. Based on our results, countries should find stabilising policies to prevent large price fluctuations. Furthermore, total taxes have been proven to negatively influence FDI, and thus policies should look to provide a favourable investment climate by pursuing favourable taxes. This paper does not suggest all countries should become tax havens. Countries must implement policies that sufficiently tax foreign companies as to not disadvantage the local companies but at the same time also do not deter foreign companies.

Counter intuitively, the legal framework in a country should be less strict, which is in line with Tøndel's (2001) observation that the size of the unofficial economy leads to a more efficient economy. However, from a foreign investor's perspective one would expect that countries with a stronger and fairer legal rights system are more attractive. Furthermore, by collaborating more closely with nearby economies, countries can experience positive externalities from regional integration by knowledge and technology transfers. As a result, such policies should provide a more favourable investment climate and attract more FDI, and in turn this could positively influence a country's economic growth.

Regional Integration
This paper also provided evidence that the CIS countries that have joined the EEU have received relatively more FDI than those that didn't. One of the main implications that this result brings forward is the on-going support for regional economic integration. It is important to see your neighbouring countries as economic partners and not as blockades. The main risk, and thought that the West has highlighted is the political power that Russia may or may not try to pursue in such a union. It is widespread belief that President Putin's nostalgia is a dominant factor for a post-soviet era union in that region. Member states have already expressed their resentment

towards any political influence of Russia in the EEU, but experts maintain that in many ways Russia will want to pressure its fellow member states to entrust Russian political, military, and economic power (Sergi, 2018).

Limitations and Recommendations

This paper and its content offer many kinds of discussions, because it entails a research question and presents hypotheses that are very context dependent. Within our research several limitations were discovered that were mainly related to the data collection. The problem that arose is the transparency of some of these countries into their country-indicators. This forced us to extrapolate certain variables, which does not, econometrically, give us the correct representation of the real world. Ironically, the fact that we could not find data on some of the CIS countries sustains the belief that they haven't fully implemented the right policies and thus attract FDI.

The data that was found also wasn't always complete, leading to cases of missing variables. As a result, our models included a number of insignificant coefficients. This does not mean that our data is irrelevant. The coefficients found still indicate that there may be an effect, but no statistical effect to reject the null hypothesis that there is no effect at all. For the statistical analysis the significant coefficients would have provided us with a better framework to build our analysis on. For that reason it may be of interest for further research to dig deeper into these control variables and gather more complete data.

In addition, it may have been insightful to perform a test for causality between FDI and economic growth to determine a stronger relation between these two variables. This is especially relevant, as this paper did not take into account the idea that there may be reverse causality as countries with economic growth may attract more FDI. Finally, further research could also distinguish between FDI from the West and that of Russia and analyse different effects. Since the source of FDI has been neglected in this paper.

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VIII. Appendix

Regression Tables

Table 1				
Summary of r-squares				
	CIS		CEE and BS	
	Ln(FDI)	*FDI share of GDP*	*Ln(FDI)*	*FDI share of GDP*
Model H1	0.881	0.719	0.776	0.259
Model H2	0.882	0.721	0.776	0.263
Model H3	0.689	0.712	0.972	0.940

Table 2		
Multivariate Regressions H1 CIS		
Variables	*Ln(FDI)*	*FDI as a share of GDP*
Unit labour cost	0.122	-0.003
	(0.254)	(0.018)
Legal rights	-0.100*	-0.003
	(0.039)	(0.003)
Education	-2.739	-0.167
	(4.547)	(0.261)
Transport quality	0.573	-0.026
	(1.540)	(0.095)
Employment to population ratio	-0.624	0.039
	(2.211)	(0.152)
Ln(Total labour force)	0.456	0.004
	(0.233)	(0.013)
Tariff rate	0.527	-0.069
	(6.395)	(0.564)
Inflation	-1.527**	-0.067
	(0.530)	(0.045)
Total tax rate	-1.539**	-0.014
	(0.564)	(0.022)
Total natural resource rents	-1.400	-0.092
	(1.096)	(0.142)
Basis of executive legitimacy	0.026	-0.001
	(0.186)	(0.010)
Ln(FDI)lag	0.702***	
	(0.084)	
FDI as a share of GDP lag		1.174***
		(0.293)
Constant	0.104	0.058
	(1.581)	(0.090)
Observations	96	89
R-squared	0.881	0.719

Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

Variables	Ln(FDI)	FDI as a share of GDP
Table 3		
Multivariate Regression H1 CEE and BS		
Unit labour cost	0.011	0.005
	(0.439)	(0.006)
Legal rights	-0.156*	0.009
	(0.067)	(0.007)
Education	1.550	-0.230
	(1.865)	(0.131)
Transport quality	-0.946	0.005
	(0.705)	(0.028)
Employment to population ratio	-3.174	0.069
	(2.125)	(0.222)
Ln(Total labour force)	-0.009	-0.001
	(0.189)	(0.005)
Tariff rate	-1.492	0.130
	(12.587)	(0.427)
Inflation	-3.114	0.388*
	(2.236)	(0.158)
Total tax rate	1.904*	0.071
	(0.941)	(0.064)
Total natural resource rents	-0.218	0.309
	(8.598)	(0.522)
Basis of executive legitimacy	0.126	-0.066*
	(0.232)	(0.027)
Ln(FDI)lag	0.760***	
	(0.088)	
FDI as a share of GDP lag		0.334
		(0.265)
Constant	9.603**	0.061
	(3.649)	(0.113)
Observations	140	167
R-squared	0.776	0.259

Note: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

Variables	Ln(FDI)	FDI as a share of GDP
Table 4		
Multivariate Regression Hypothesis 2 - CIS		
EEU Member	0.239	-0.011
	(0.185)	(0.014)
Unit labour cost	0.151	-0.003
	(0.258)	(0.019)
Legal rights	-0.095*	-0.004
	(0.038)	(0.003)
Education	-3.078	-0.157
	(4.534)	(0.263)
Transport quality	0.819	-0.035
	(1.579)	(0.095)
Employment to population ratio	-0.692	0.033
	(2.231)	(0.153)
Ln(Total labour force)	0.426	0.006
	(0.227)	(0.013)
Tariff rate	1.718	-0.126
	(6.325)	(0.562)
Inflation	-1.442*	-0.074
	(0.548)	(0.048)
Total tax rate	-1.472**	-0.020
	(0.556)	(0.026)
Total natural resource rents	-1.187	-0.097
	(1.132)	(0.142)
Basis of executive legitimacy	0.043	-0.002
	(0.183)	(0.010)
Ln(FDI)lag	0.691***	
	(0.088)	
FDI as a share of GDP lag		1.156***
		(0.300)
Constant	-0.140	0.070
	(1.624)	(0.093)
Observations	96	89
R-squared	0.882	0.721

Note: Robust standard errors in parentheses

*** $p<0.001$, ** $p<0.01$, * $p<0.05$

Variables	Ln(FDI)	FDI as a share of GDP
EU Member	-0.010	-0.021
	(0.246)	(0.016)
Unit labour cost	0.009	0.009
	(0.438)	(0.007)
Legal rights	-0.156*	0.010
	(0.067)	(0.008)
Education	1.560	-0.216
	(1.939)	(0.126)
Transport quality	-0.946	0.006
	(0.707)	(0.028)
Employment to population ratio	-3.142	0.123
	(2.301)	(0.240)
Ln(Total labour force)	-0.008	0.000
	(0.192)	(0.005)
Tariff rate	-1.558	0.029
	(12.775)	(0.394)
Inflation	-3.129	0.363*
	(2.288)	(0.163)
Total tax rate	1.910	0.082
	(0.967)	(0.064)
Total natural resource rents	-0.248	0.202
	(8.749)	(0.522)
Basis of executive legitimacy	0.125	-0.066*
	(0.238)	(0.027)
Ln(FDI)lag	0.760***	
	(0.088)	
FDI as a share of GDP lag		0.333
		(0.266)
Constant	9.597**	0.038
	(3.666)	(0.121)
Observations	140	167
R-squared	0.776	0.263

Table 5
Multivariate Regression CEE and BS

Note: Robust standard errors in parentheses

 *** p<0.001, ** p<0.01, * p<0.05

	CIS		CEEBS	
Table 6 **Multivariate Regressions Hypothesis 3 (Full)**				
Variables	*Ln(GDP per capita)*	*Ln(GDP per capita)*	*Ln(GDP per capita)*	*Ln(GDP per capita)*
Ln(FDI)	-0.078		0.166*	
	(0.244)		(0.075)	
EEU Member	1.407*	1.136		
	(0.700)	(0.675)		
Unit labour cost	-2.186**	-1.003	-5.029***	-4.468***
	(0.678)	(0.686)	(0.178)	(0.258)
Legal rights	-0.200	-0.159	-0.561***	-0.713***
	(0.106)	(0.121)	(0.029)	(0.048)
Education	-11.921	-19.108	17.582***	19.871***
	(12.613)	(14.917)	(0.700)	(1.051)
Transport quality	18.387***	20.068***	-3.087***	-4.792***
	(4.681)	(4.933)	(0.250)	(0.282)
Employment to population ratio	10.181	9.056	-3.144**	-6.960***
	(6.268)	(5.532)	(0.956)	(1.342)
Ln(Total labour force)	-2.278*	-2.445**	-0.680***	-0.600***
	(0.917)	(0.842)	(0.065)	(0.065)
Tariff rate	29.646	53.161*	2.261	5.144
	(24.162)	(24.811)	(3.492)	(6.445)
Inflation	-3.086**	-3.413**	0.870	-1.561
	(1.133)	(1.274)	(0.876)	(1.666)
Total tax rate	-4.728***	-4.970***	1.839***	3.543***
	(1.259)	(1.047)	(0.328)	(0.537)
Total natural resource rents	5.971**	10.618***	-4.331	-17.375**
	(2.257)	(2.876)	(3.323)	(5.703)
Basis of executive legitimacy	0.010	0.516	-1.324***	-1.115***
	(0.417)	(0.437)	(0.085)	(0.156)
Ln(FDI)lag	0.105		0.171*	
	(0.250)		(0.080)	
FDI as a share of GDP lag		-8.952		-0.986*
		(6.193)		(0.483)
EU Member			0.071	0.212
			(0.089)	(0.148)
FDI as a share of GDP		-0.572		-0.128
		(4.221)		(0.553)
Constant	-1.995	-3.008	38.146***	49.337***
	(5.459)	(4.599)	(1.140)	(1.423)
Observations	94	89	140	144
R-squared	0.689	0.712	0.972	0.940

Note: Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

Maps

The Eurasian Region is a combination of the 2 continents of Europe and Asia. The region used in this paper is illustrated in distinctive colours for each group and subgroup.

■ European Union
■ Eurasian Economic Union
■ Central and Eastern European and Baltic States (Non EU)
■ Commonwealth of Independent States (Non EEU)
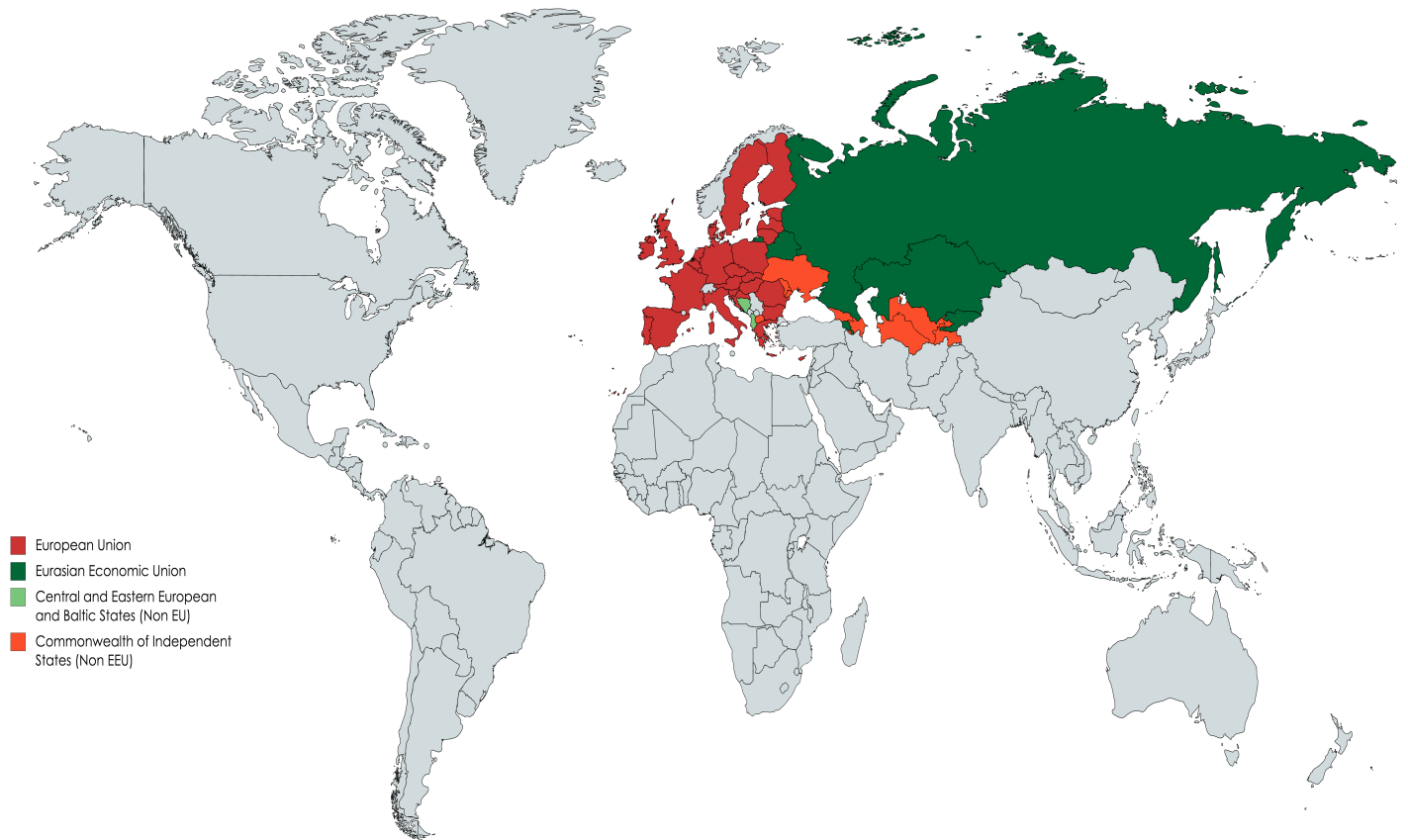
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