

European Political Economy: Which Factors Make Some Member States of
the European Union More Economically Competitive Than Others?

By
Noah Delk

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Noah Delk

Approved:

Dr. Karen Petersen
Political Science

Introduction

Although the current 28 states of the European Union (including the United Kingdom) share many economic policies, most notably the same monetary policy within the Eurozone, some European States have been more economically successful and competitive than their fellow member states. While states such as Germany have continued to surge and expand their economies, other states, such as Greece and Portugal, have continued to increase their debt. Additionally, some European countries, such as Spain and Italy, were hit much harder by the 2008 recession than their Northern European neighbors.

Which factors make some states more stable and economically competitive in the global market? If certain characteristics and traits can be seen frequently among the stronger and more competitive states, could these be responsible for their higher rates of economic success? Furthermore, if these characteristics are responsible for the higher levels of competitiveness, could they be adopted by the surrounding member states and applied for the benefit of those states?

Although some factors and circumstances will be unique to each state due to location, resource availability, workforce, and other aspects, this thesis will seek to identify common factors that arise in states that have shown consistent success and durability in the face of the global market. The end goal will be to isolate which factors make some member states of the European Union more

economically competitive than their fellow European neighbors and identify which factors can be emulated by other member states.

Literature Review

The most general definition of competitiveness from previous literature is “a country’s ability to compete” (Collignon, et al. 2014). For the purposes of this thesis, a more narrow definition of economic competitiveness will be used as “a state’s ability to perform economic activity on an international scale with success” (Collignon, et al. 2014).

A state’s ability to compete economically in the world’s increasingly global market is becoming critical for its overall economic success. The global powerhouse economies such as the United States, China, and Germany all have economies strong enough to dominate global markets. From these powers, corporations such as Amazon and Apple in the United States as well as Siemens and BMW in Germany are household names throughout the world, setting the standard in their respective industrial sectors. Whether it be selling manufactured cars and technology abroad, marketing more specific industries such as wine production, or streaming services like Spotify, a state must be able to produce a product on a large enough scale and with an efficiency capable to turn a profit in the global market.

In the wake of the 2008 global recession, the diversity in European Union member states’ successes or failures to recover has been somewhat large. If certain tactics and policies in countries that were not hit as hard, i.e. Germany,

could be applied to other states, then potentially their own economies could improve. Additionally, should another global shock occur, a stronger and more competitive economy may be able to weather the downturn better. This would, in times of recession, save jobs and maintain national economic stability. In times of economic success, a more economically competitive state should be able to have a higher standard of living for its citizens, with lower levels of unemployment. Considering the significant impacts having a more competitive economy can have on a state, the central question I seek to answer is what factors make a state more economically able to compete.

In order to measure a state's level of economic competitiveness, I will be using each state's real gross domestic product per capita, or rGDP/cap, as my dependent variable. A state's Real Gross Domestic Product can be defined as the inflation-adjusted monetary value of all goods and services produced in an economy during a given year (Investopedia 2018). The rGDP/cap is the rGDP divided by the population. This method of measurement serves as a benchmark for measuring economic competitiveness since it controls for states with larger populations by dividing the value by the population. Furthermore, it also accounts for all domestic economic production, encompassing all that a state contributes to the global economy, without including production by domestic companies from operations abroad. This production is counted towards the rGDP/cap of the state in which it takes place. To clarify, cars manufactured at a Volkswagen Plant in the United States are counted towards the rGDP/cap of the United States and not towards that of Germany, where Volkswagen is

headquartered. I have chosen this variable as my dependent variable to measure economic competitiveness due to its measurement of a state's total economy, as well as its widespread use for this purpose throughout almost all of the reviewed literature.

For the independent variables, previous literature indicates a few common factors worth exploring. A common variable has been price competitiveness (Fagerberg, 2007; Allard, 2009.), which has been previously measured by looking at the relative exchange rates between states (or the capability to sell at the lowest, most competitive price) (Fagerberg, 2007; Allard, 2009). However, Allard found that from 2002-2007 price competitiveness did not have a large overall affect on trade developments or a state's overall economic competitiveness. The study found more support for the role of *Foreign Direct Investment* in the growth of European economies. Allard found that changes in a state's price competitiveness during this time reflected a movement more towards the equilibrium price levels throughout the European Union rather than states becoming independently more or less price competitive. Although Allard found a minimal impact, I include this variable in order to determine the strength of its relation to overall price competitiveness.

More recent studies have explored other factors as well. A 2009 study by Nölke and Vliegenthart looked more closely at the impacts of foreign direct investment (FDI). Other studies propose factors such as export levels (Berthau, 2015) and economic specialization (Sobczak, 2015). To expand upon Sobczak's definition of economic specialization, I examine the significance of some of the

differing components of gross domestic product, specifically trade levels and foreign direct investments. Sobzack's research was more focused on specialization in higher technologies. However, my previous research did not show support for this hypothesis (Delk 2015).

A study by Allard (2009) pointed to higher levels of direct foreign investment resulting in higher export levels, contributing overall to an increase in ability to compete economically. The additional funding available for investment into industry, production, and export sectors allows for this expansion. This study was, however, focused on Central Eastern European Countries. Allard also points out that each of the countries studied has shown strong growth in economic competitiveness since ascending to the European Union, supporting the argument that membership itself plays a strong role in overall economic competitiveness and should be taken into consideration.

Looking specifically at states already incorporated within the European Union, Iverson, Soskice, and Hope (2016) differentiate between the Northern European states and the Southern states, pointing out that the Northern states, for instance Germany, Belgium, Austria, Finland, and the Netherlands, have more export-oriented economies and coordinated market economies (CMEs) (Iverson, et al. 2016). CME countries tend to be more focused on developing a strong and skilled workforce, with much investment in vocational training programs, technical universities, etc. Additionally, they are more attentive to real wage restraint, maintaining a positive feedback system, and are opposed to states devaluing their currency. This contrasts to their Southern neighbors, like Greece, Ireland,

Portugal, and Spain, which tend to have comparative political economies (CPEs). These economies tend to be more focused on tourism sectors, seasonal industries, and service industries. They point to the larger amount of “high-volume added employment” coming directly and indirectly from the export sector, and additionally have had a tendency to use currency devaluation as an economic policy (Iverson, et al. 2016).

Iverson made the argument that success comes from research and development sectors, as in Germany and France, along with close relationships between the presence of technical universities, research systems, and vocational training systems as are all present in the German system, and many of the CME economies (Iverson et al. 2016). Membership in the Eurozone was also considered a large factor in this study, again pointing to the existence of high-volume added employment, along with a huge central positive feedback system already present within the EU, but bolstered within the Eurozone. The study makes the argument that the Eurozone increases competition for its members by 1) providing a significant degree of real wage restraint in exports through the unitary monetary policy and 2) the limitations placed on the fiscal policies of these states through European Union regulations (Iverson, et al. 2016).

Another new factor pointed to by Iverson is *Fiscal Discipline*, or a balanced budget, which is more consistent with the “German” view that having a balanced national budget is of the utmost importance and that those with too much increased annual debt should come under austerity measures, especially with fellow Eurozone members, i.e., Greece. These claims stem from the

German governments' recent commitment to a balanced budget. This goal was written into CDU (Christian Democratic Union) coalition commitments in 2013, and was achieved in 2014 (Reuters 2015). Since then, Angela Merkel and the German government have been preaching the values of a balanced budget. Additionally, they have committed to a balanced budget until the year 2020 in current government spending plans (Deutsche Welle 2016).

To summarize, Iverson presents the following variables as relevant to the argument herein: Membership in the Eurozone, being under austerity measures, whether the state trends towards being a CME or a CPE, and whether or not the state has a balanced budget (i.e. fiscal discipline.).

The idea of the importance of fiscal discipline has its critics. Collignon (2017) claims that forcing countries into debt to balance their budget through austerity measures and refusing to lend more money actually hurts these states' competitiveness since they don't have the money to fund unemployment programs, infrastructure, etc. (Collignon 2017). Additionally, while some may point to cultural elements affecting overall economies, Collignon advises against this. Collignon is against labelling an entire country and its culture as being "lazy." He instead points to the sectors of their economies, previous governments (I.E., Franco's government in Spain), and geographic factors as more significant and more beneficial to the overall idea of European solidarity.

Collignon also emphasizes the importance of the Euro for the competitiveness of European economies as a whole. He addresses the Spanish, Greek, and Italian concern of no longer being able to devalue their currency by

stating that the practice was only a short term solution, and that devaluation causes long term damage to potential economic growth. He also raises the point that with the Euro, debt to other European member states is not paid in “foreign currency,” but with domestic currency, making it easier for member states to pay off international debt. The argument that there is a “German” or “Greek” euro is false according to Collignon. This is the idea that a Euro in Greece is worth less than a Euro in Germany, or vice-versa. Each Euro Area State is using the same currency that is valued the same relative to other currencies across the Eurozone, and although some price variation is to be expected across regions, as in the United States, the value of the currency is relatively stable.

To address the idea of these national euros within the Eurozone, the study will look at the real exchange rates of each country. This rate will demonstrate each country’s actual buying power among states. The European Union’s monetary union consists of 19 of the current 28 member states, with the remaining states continuing to utilize domestic currencies. By noting the real exchange rate, the study can account for the differing currencies, and also the different values placed on the same product in states utilizing the same currency.

Finally, to address the effectiveness of the German model, I look to a few sources. Iverson et. al. point out that while Germany has itself attempted to maintain fiscal discipline and has blamed the lack thereof for the continuing weaknesses of the Southern economies, the model Germany follows would not be possible for all other states to follow due to the damage it causes to the other states (Collignon 2017; Simonazzi, et al. 2013; Iverson et. al 2014). By

maintaining a positive trade balance while having very low levels of imports into the state, Germany is gaining lots of capital from its neighboring states without redistributing it, thus causing a net loss in the other states, especially those with more service-oriented economies. Germany's enforcement of austerity measures would cause more harm than good for struggling economies desperately seeking growth. In spite of the criticisms, Iverson et. al points to some characteristics of the German model that are positive: the strong unions providing job security and a voice in management, the high reputation for quality established over years, and the highly specialized workers in Germany, thanks in part to the German system of vocational training and abundance of apprenticeships available to their workforce.

Overall, previous research has pointed to a few common factors. First and foremost, the standard of utilizing *real gross domestic product* for the purposes of measuring economic competitiveness due to its coverage of all domestic economic sectors and while accounting for relative inflation. Furthermore, there was strong support for examining Price Competitiveness and Foreign Direct Investment as leading explanations for the dependent variable (Allard, 2009; Fagerberg, 2007; Nölke 2009). Other factors commonly pointed to include trade balances and economic specialization (Sobczak, 2015; Berthau, 2015; Allard, 2009; Iverson, et. al. 2016). The literature also pointed to the need to address claims of "National" Euros, fiscal discipline, additional cultural factors, or the existence of austerity measures (Iverson, et. al. 2016; Collignon, 2017).

Considering these commonalities, I will define each concept to be examined in the next section. I will then propose my own hypotheses for how each of the above concepts relate to the dependent variable, and describe the methods used to measure these relationships, and how this information can be applied.

Research Design and Methods

The Dependent Variable

For the purposes of this thesis, a state's level of economic competitiveness will be measured by that state's real gross domestic product per capita (rGDP/cap). This measurement was chosen due to its prevalent use throughout most of the reviewed literature for measuring the strength, growth, and overall health of national economies, as was discussed in the review of literature. Some of the independent variables are, however, listed as components of GDP, specifically Foreign Direct Investment and Exports. This means that when GDP is measured for a state, FDI and Exports are two segments of the economy whose economic value is accounted for in the overall GDP value. The implications of this are further discussed in the results and analysis section.

The Independent Variables

Price Competitiveness: The first independent variable measures how exchange rates and relative prices vary from E.U. state to state. The main purpose of which is to show variance of prices and inflation levels among Euro area states, along with providing a relative price comparison between Eurozone and non-Eurozone states. Additionally, this takes into consideration the exchange rates between the Eurozone and the non-Eurozone member state's national currencies. This data will be measured using the Eurostat 2016 data for Real

Effective Exchange Rates (REER) by E.U. country. For the tables in the results section, this variable will be abbreviated as REER.

Foreign Direct Investment: Second, foreign direct investment (FDI) is included in order to measure the confidence of foreign entities in the national corporations and businesses in the state being analyzed. FDI funds can help a state to increase its performance and output capabilities, which in turn should increase that state's ability to compete on an international level. For the purposes of the study, FDI will be defined as the percentage of a state's GDP that is made up of foreign direct investment. This data will be measured using the Eurostat data for GDP components by country from 2012-2016.

GDP Component-Exports: For the purposes of this study, trade levels will be measured by the proportion of a state's GDP made up of the export sector. The data from this variable will come from the EuroStat GDP components data for GDP components by country for 2012-2016. For the purposes of tables to follow, this variable will be abbreviated as Exports.

Inflation: For the purposes of this thesis, inflation will be measured using the EuroStat data for the inflation rate by state from 2012-2016.

Annual Deficit: For the purposes of this study, Annual Deficit will be measured using the General government deficit (-) and surplus (+) annual data from the Eurostat 2016 data.

Utilizing the above concepts, I propose the following hypotheses: Past research has shown that the most commonly tested relationship is between price competitiveness and economic competitiveness. However, recent studies have

shown that this factor may not necessarily be very significant to overall economic competitiveness (Allard, 2009; Fagerberg 2007). To determine how significant this variable has been between 2012 and 2015, I will test for the impact of this independent variable on rGDP/cap. Additionally, the reviewed literature pointed to any existing relationship being a negative one. Considering the literature, I propose the following:

Hypothesis One: There is a negative relationship between a state's level of *price competitiveness* and a states's level of *economic competitiveness*.

Of the more recently studied variables that have been considered, foreign direct investment has been one of the most common (Nölke, 2009; Allard, 2009; Collignon et al., 2014). All three of these studies demonstrated a positive relationship and a significant correlation between the percentage of gross domestic product (GDP) made up of foreign direct investment and a state's economic competitiveness. Additionally, in my own previous research (Delk, 2015), I found support for a positive relationship between these two variables. Using more recent data, I will once again test the relationship between these two variables.

Hypothesis Two: There is a positive relationship between a state's level of foreign direct investment and a state's level of economic competitiveness.

Previous literature has also demonstrated that states with higher levels of trade (stronger current account values) are typically stronger in terms of economic competitiveness (Collignon, et al. 2014; Allard, 2009, Berthau et al. 2015). Additionally, higher levels of exports have shown a very similar trend. The

definition of trade levels differed slightly between the aforementioned studies, specifically in that Allard described trade levels as a combination of price competition, foreign direct investment, and foreign demand levels, while the Berthau et al. study measured trade levels as net exports (exports revenue minus import costs). With either case, there is the possibility that competitiveness is in fact a symptom for higher or lower trade levels (or net exports, depending on the definition) rather than a cause in itself. This being noted, the possibility exists that a confounding variable is present in this case, affecting both trade levels and competitiveness. I will attempt to identify such a variable should it be present. However, considering the previous literature, this study will test for evidence of a relationship between trade levels and economic competitiveness. For the purpose of this study, trade levels will be measured as the percentage of a state's GDP consisting of exports.

Hypothesis Three: There is a positive relationship between a state's export sector of GDP and its economic competitiveness.

Collignon also proposed the possibility that inflation (and relatedly unemployment) could be indicators of a state's economic competitiveness. I see the potential for this variable to be closely related to real exchange rates and therefore price competitiveness. However, due to nominal inflation's relation with unemployment, along with the differences between the two variables, I will test for the relationship between inflation and economic competitiveness, with the expectation that as inflation increases (and following the Phillips Curve, unemployment decreases (Hoover, 2008)), so will economic competitiveness. It

should be noted that the validity of the Phillips model for the relationship between inflation and unemployment has been called into question (Hoover, 2008). I will, for the purposes of this thesis, apply the basic principles of that model.

Although some inflation is good, an unusually high level of inflation would have a negative relationship with economic competitiveness. For the purposes of this study, the positive relationship between inflation and economic competitiveness will be tested for during a period of stable, natural inflation rates as seen during normal economic cycles (2012-2016). This relationship should not be as strong during periods of crisis or hyperinflation.

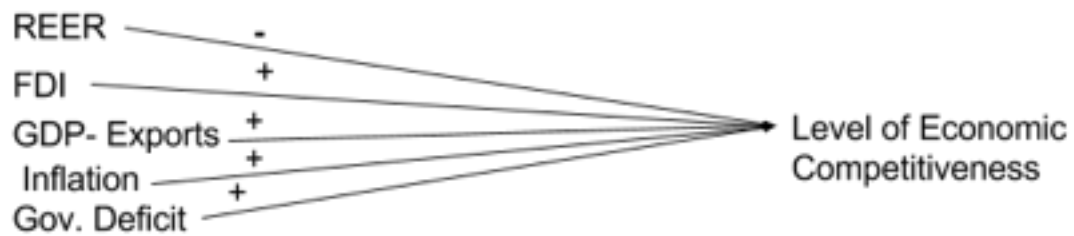
Hypothesis Four: There is a positive relationship between natural inflation and economic competitiveness.

Finally, Colignon proposed that higher levels of borrowing by countries may actually be an indicator of rising economic competitiveness, since this borrowed money should be invested in order to strengthen the receiving country (Collignon 2017). This argument contrasts with the “German” view that a balanced budget or surplus is necessary to maintain a strong economy. To put these competing claims to the test, I propose the following hypothesis:

Hypothesis Five: There is a positive relationship between a government surplus per year and economic competitiveness.

Given the reviewed literature, and the above hypotheses, I have developed the following model:

Figure 1- Economic Competitiveness



Ultimately, I evaluate which of these variables is more significant to determining a state's level of economic competitiveness in the hopes of being able to answer the question, "Why are some E.U. member states more economically competitive than others?"

For the purpose of the research, the 28 member states of the European Union (including the United Kingdom, which has not yet fully withdrawn from the European Union) will serve as cases. The study will use multivariate regression analysis to determine the relationships, if any, between the dependent and independent variables. The data collected for all variables, unless otherwise stated, comes from the Eurostat database. This study utilizes the data between 2012-2016 for each variable in order to account for changes from year to year. The only exception to this was the data for REER, in which case only the most recent data was utilized.

I also separated the member states into five categories depending on their rGDPcap in order to see if the correlations remain strong across a multitude of economic situations. Group 5 was a rgdp/cap value under 10,000 euros, Group 4 is between 10,001 and 20,000 euros, Group 3 is any state between 20,001 and

30,000 euros, Group 2 is any state between 30,001 and 60,000 euros and Group 1 is any state above 60,001 euros. I chose these cut off groups to attempt to create an even distribution across groups. The only state with an rGDPcap above 60,001 was Luxembourg.

Results and Analysis

Each hypothesis will be tested individually, before finally creating a general regression in order to test the model. A model formula will also be produced utilizing the results from the individual regressions. The confidence level was set for each regression at 95%.

Following the individual and general regressions, I assigned each state a rank from 1-5 depending on rGDPcap, with 1 being the richest states and 5 being the poorest. Using these groups, the mean and median data for the statistically significant variables were analyzed for each group.

Hypothesis One

As was previously noted, my first hypothesis is as follows: There is a negative relationship between a state's level of price competitiveness and a states's level of economic competitiveness. Table One below shows the regression values for economic competitiveness and price competitiveness. This is the only case in which there were only 28 observations, since the REER data were only from a single year.

Table One

Source	SS	df	MS	Number of obs	=	28
Model	243806379	1	243806379	F(1, 26)	=	0.86
Residual	7.3330e+09	26	282038985	Prob > F	=	0.3611
Total	7.5768e+09	27	280622963	R-squared	=	0.0322
				Adj R-squared	=	-0.0050
				Root MSE	=	16794
rGDPcap	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
REER	-19515.74	20990.22	-0.93	0.361	-62661.76	23630.28
_cons	45713.98	21546.03	2.12	0.044	1425.479	90002.49

As shown above, the coefficient value for *REER* is -19,515.74, signifying that there is a negative relationship between *REER* and real GDP per capita. The R-Squared value for this model was 0.0322, meaning that *REER* accounts for approximately 3.22% of the dependent variable. This result appears to provide support for my hypothesis. However, the P-Value in this situation is 0.361, which means that this test is statistically insignificant. This could be due to the small sample size.

Hypothesis Two

My second hypothesis was as follows: There is a positive relationship between a state's level of foreign direct investment and a state's level of economic competitiveness. Table Two below shows the regression values for economic competitiveness and price competitiveness.

Table Two

Source	SS	df	MS	Number of obs	=	140
				F(1, 138)	=	72.84
Model	1.2196e+10	1	1.2196e+10	Prob > F	=	0.0000
Residual	2.3107e+10	138	167445161	R-squared	=	0.3455
				Adj R-squared	=	0.3407
Total	3.5304e+10	139	253983225	Root MSE	=	12940

rGDPcap	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
FDI	6209.516	727.5806	8.53	0.000	4770.868	7648.163
_cons	22933.46	1116.537	20.54	0.000	20725.72	25141.19

Table two demonstrates a coefficient value for Foreign Direct Investment in regard to real GDP per capita of 6209.516, which signals a positive relationship between FDI and rGDPcap. The beta value signifies that, for every

increase of 1% for a state's measure of FDI as a percentage of rGDP, the value of the states rGDP/cap increases by 6210 euros. The R-Squared value for this model was 0.3455, meaning that this independent variable accounts for 34.55% of the explanation for the dependent variable, a highly significant indicator. The P-Value is equally strong, registering at 0.00, making this test statistically significant. This regression model provides statistically significant support for hypothesis two. It must be noted, however, that since this variable is considered a component of GDP, this relationship may be due to reverse causality, or a situation where the dependent variable affects the independent variable as well. This potential means that the relationship shown could be stronger or weaker than currently calculated.

Hypothesis Three

Hypothesis Three is as follows: There is a positive relationship between a state's export sector of GDP and its economic competitiveness. In this situation, the export sector of GDP will be represented as simply "exports". Table three shows the results of the regression for the variables.

Table Three

Source	SS	df	MS	Number of obs	=	140
Model	6.4037e+09	1	6.4037e+09	F(1, 138)	=	30.58
Residual	2.8900e+10	138	209419969	Prob > F	=	0.0000
Total	3.5304e+10	139	253983225	R-squared	=	0.1814
				Adj R-squared	=	0.1755
				Root MSE	=	14471
rGDPcap	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Exports	17343.74	3136.433	5.53	0.000	11142.06	23545.42
_cons	13223.35	2432.964	5.44	0.000	8412.644	18034.06

Table three demonstrates a coefficient value for Exports in regard to real GDP per capita of 17,343.74, demonstrating a positive relationship between the tested variables. This beta value signifies that for every increase of 1% of export levels as a component of GDP, the value of the rGDPcap increases by 17,343.74 euros. The R-Squared value for this model was 0.1814, meaning that this variable accounts for 18.14% of the explanation of rGDPcap. The P-Value is equal to 0.00 for this test, indicating that relationship found is statistically significant. The results of this regression provide statistically significant support for the hypothesis of a positive relationship between Exports and rGDPcap. However, exports are also considered to be a component of FDI, so the strength of this relationship may be in part due to reverse causation. It is possible that the relationship could be stronger or weaker due to this.

Hypothesis Four

The fourth hypothesis to be tested is that there is a positive relationship between inflation and economic competitiveness. Table Four below shows the results of this test.

Table Four

Source	SS	df	MS	Number of obs	=	140
				F(1, 138)	=	0.07
Model	18523245	1	18523245	Prob > F	=	0.7882
Residual	3.5285e+10	138	255689456	R-squared	=	0.0005
				Adj R-squared	=	-0.0067
Total	3.5304e+10	139	253983225	Root MSE	=	15990
rGDPcap	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
Inflation	27057.32	100527	0.27	0.788	-171715	225829.7
_cons	24604.26	1638.4	15.02	0.000	21364.64	27843.87

Table Four demonstrates a coefficient value for the relationship between inflation rates and real GDP per capita of 27057.32, demonstrating a positive relationship between Inflation rates and rGDPcap. The R-Squared value for this regression model is 0.0005, showing that this variable would account for approximately 0.05% of the explanation of the dependent variable. This variable accounts for a very small amount, less than half a percent. Furthermore, the P-Value is 0.788, signifying that the results of this regression are not statistically significant. Although there was a trend towards a positive relationship, the relationship was not statistically significant, failing to provide support for hypothesis four. This means that there is a 78.8% chance that the relationship shown could be caused by chance. To measure this more accurately, one could include more than 5 years and do a larger study over a longer period of time.

Hypothesis Five

The fifth and final hypothesis of this study is as follows: There is a positive relationship between a government surplus per year and economic competitiveness. Table Five below reveals the results of the regression for these variables.

Table Five

Source	SS	df	MS	Number of obs	=	140
Model	1.9601e+09	1	1.9601e+09	F(1, 138)	=	8.11
Residual	3.3344e+10	138	241619782	Prob > F	=	0.0051
				R-squared	=	0.0555
				Adj R-squared	=	0.0487
Total	3.5304e+10	139	253983225	Root MSE	=	15544

rGDPcap	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
GovSurp	141254.5	49593.56	2.85	0.005	43193.02 239316.1
_cons	28551.41	1847	15.46	0.000	24899.33 32203.49

As shown above, the coefficient for the tested variables is 141,254.5, demonstrating a positive relationship between the existence of a government surplus or balanced budget and rGDPcap. This signifies that as the value of the government surplus increases by 1% of total GDP, the value of the rGDPcap will increase by 141,254.5. The R-Squared value for this model is 0.0555, signifying that this variable accounts for 5.55% of the explanation for the dependent variable of economic competitiveness. The P-Value for this relationship is 0.005, signifying that the relationship is statistically significant at the 95% confidence level. This test has provided statistically significant support for hypothesis five, backing up the claim of a positive relationship government surplus and rGDPcap.

Utilizing the beta values (coefficients) from the individual trials, the following model can be proposed:

$$Y = (6209.516)_{FDI} + (17,343.74)_{Exports} + (141,254.5)_{GovDef} + e$$

In the above model, Y represents the dependent variable of real GDP per capita, while e represents the proportion of the dependent variable's explanation that is not accounted for by these statistically significant independent variables.

General Regression

I now run a regression using all the above tested data, with the exception of REER. I am not using REER because it was found to be statistically insignificant in its individual analysis, and because it is the only variable with only 28 observations, as opposed to the 140 utilized by the other tested independent

variables. Using this information, I will propose a formula for economic competitiveness.

The following table displays the general regression model:

Table Six

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. reg rGDPcap FDI Exports Inflation GovSurp
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Source	SS	df	MS	Number of obs	=	140
Model	1.2702e+10	4	3.1755e+09	F(4, 135)	=	18.97
Residual	2.2602e+10	135	167418536	Prob > F	=	0.0000
				R-squared	=	0.3598
				Adj R-squared	=	0.3408
Total	3.5304e+10	139	253983225	Root MSE	=	12939

rGDPcap	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
FDI	5454.777	921.3926	5.92	0.000	3632.546 7277.008
Exports	3366.657	3634.767	0.93	0.356	-3821.793 10555.11
Inflation	208.0554	82412.81	0.00	0.998	-162779.1 163195.2
GovSurp	53697.28	43970.68	1.22	0.224	-33263.2 140657.8
_cons	22313.05	3018.948	7.39	0.000	16342.5 28283.6

The general regression shown in table six has an R-Squared value of 0.3598, signifying that the initial regression explains 35.98% of the value of the dependent variable. Since FDI was the only variable that in this instance returned a statistically significant result, I propose the following initial model, utilizing the unstandardized beta values: $Y=(5454.777)_{FDI} + e$

In the above formula, the dependent variable real Gross Domestic Product per Capita is represented by Y, while e represents the proportion of Y that remains unexplained. This means that for every increase of one percent of GDP value by FDI, rGDP increases by 5454.777€. The e once more represents the value of Y when all independent variables are valued at 0.

It should be noted that in the above regression, government budget, represented as GovSurp, was closest to being statistically significant in this model, from the variables that were not statistically significant. For this situation, an increased number of cases over a longer period of time may have been able to allow this independent variable to be statistically significant.

In summary, the general regression points to FDI as making up 35.98% of the explanation for the value of the dependent variable.

Tables of Mean and Median

Utilizing the independent variables that were found to be statistically significant in the individual trials (FDI, Exports, and GovDef), I created a table of means for these variables by GDP ranking. The ranking system and a list of which countries fall into which rank can be found in Appendix I. It is worth noting now, however, that the only country in group 1 is Luxembourg.

Table Seven

gdprank	mean (FDI)	mean (GovSurp)	mean (Exports)
1	7.1496	.0112	2.0584
2	.13336364	-.0113636	.6969091
3	.05412727	-.0296727	.5180909
4	.04768966	-.0304138	.7175862
5	.03027273	-.0181818	.5279091

Table seven shows the means for each of the aforementioned variables. This data shows that the poorer, typically less competitive states receive on average less

foreign direct investment than their richer neighbors, with Luxembourg being an outlier in this situation. On average in group 5, FDI only makes up 3% of total rGDPcap, while in group 2 states, FDI makes up on average 13.34% of their annual rGDPcap. There is also a notable jump from group 3 to group 2, with an 8% increase on average.

In regard to government surplus, Luxembourg can once more be considered an outlier, being the only “group” that on average has a government surplus. The remaining groups all tend to, on average, have deficits. This signifies that although Germany might have a balanced budget, it still falls within group 3, whose average deficit is -29.67%, and has an average FDI of 5.4%. Also notable, group 3 has, on average, one of the highest government deficits and one of the lowest exports values. Thus, although Germany has a balanced budget, it still falls within a group that has arguably less competitive countries, with lower export capacities and higher deficits.

With regard to exports as a percentage of rGDPcap, Luxembourg is once more an outlier in group 1. Interestingly, group 3 actually has the lowest average percentage of exports as a factor of annual rGDPcap of any of the groups, and has a very similar value to the group 5 states, with the former having an average 51.8%, and the latter having an average of 52.7%. The lower average level of exports in the group 3 states could likely be attributed to heavier service industry sectors, as is the case in states such as France. There is also a notable closeness between the average export levels of the group 2 and 4 states, with a difference of only about 2% on average.

In order to take a second look at the data and remove the weight of possible outliers within the groups, table 8 below shows the median data for the same cases listed above. An Outlier in this situation would be, for instance, Germany, which has a balanced budget and a relatively high exports value but still has a group 3 rGDPcap. By taking the median value, the effect of Germany or states in similar situations in other

groups on the overall middle data will be reduced since the median will not take the values of German FDI, GovSurp, or Exports into consideration, but merely their rank within the group.

Table 8

gdprank	med (FDI)	med (GovSurp)	med (Exports)
1	9.811	.013	2.082
2	.02	-.012	.546
3	.017	-.027	.457
4	.0305	-.026	.761
5	.033	-.014	.608

The median data for group 1 is taken from the past five years of data for Luxembourg once more continues to serve as an outlier in every category.

Looking more closely at FDI, we see a more interesting situation here. Unlike in the previous situation, group 2 and group 3 have lower median FDI rates than their group 4 and 5 neighbors, showing that the level of FDI varies greatly within rGDPcap groups. This disparity provides support that FDI can serve as a bolster to economic competitiveness, regardless of initial rGDPcap. To clarify, a state does not already need to have strong economic competitiveness in the form of rGDPcap in order to receive significant amounts of foreign direct investment. Additionally, this means that lower ranking states in this table can receive FDI and in turn increase their state's economic competitiveness by investing the investments into their own state.

With regard to Governmental Budgeting, groups 3 and 4 have the greatest median annual deficits. This could be explained by the prevalence of service industries and tourism in many of the states in these groups and with the previous crisis-filled years

following the global economic crash and the ensuing Euro Crisis in which the service industry suffered. The group 5 states should also be noted for having a relatively low median deficit.

Finally, in regard to Exports, it is notable that the group 4 and 5 states have higher median Export percentages than the group 2 and 3 states. This once again may be due to the differing balance of industrial sectors amongst the varying economies, especially considering that group 3 possesses the lowest median value for this variable.

The mean and median tables have shown that although having a balanced budget may be important, it is not as critical a factor to achieving high levels of rGDPcap. They also showed a strong variance of amount of FDI received, not only between groups but also within groups, potentially pointing to a consideration for certain state's economic sectors, such as manufacturing, etc., attracting more FDI. There was also a very interesting trend in the average export levels, with groups 2 and 4 having closer levels, and groups 5 and 3 having almost identical levels, yet almost 20% lower than the even numbered groups. This was in contrast to my expectations, as I expected the more competitive groups to have the higher export percentages.

Conclusion

In conclusion, my results were not exactly consistent with my expectations. FDI consistently appeared to be the most significant contributor to overall rGDP/cap. I found this very interesting since I was more inclined to believe that a more competitive economy would actually draw in more FDI. With this in mind, it is very possible that there are endogenous factors at play here. As mentioned before, it is very possible that rGDP/cap actually affects the amount of FDI a state receives as well, making FDI a potential dependent variable explained rGDP/cap.

I was also very interested to see what affect a balanced budget or fiscal discipline would have on the dependent variable. This was in part due to my own preconceived notions that a balanced budget would be superior, but also due to the conflicting views found within the literature of the effectiveness of fiscal discipline. I also wondered if, in this situation, fiscal discipline was more likely to be a more common and achievable goal if a state was already economically competitive. Although this variable was not statistically significant in the individual regressions, the beta value in the general regression was very high, showing a large increase or decrease following a change of a single percentage point. I would be willing to say that there may also be an endogenous effect present in this situation as well.

Finding that state's relative levels of real exchange rates were not statistically significant was also surprising. This provides support for Collignon's claims that the Euro is the same in every state in which it is used. A German Euro is not worth more than a Greek Euro, and so forth, a claim that is supported by

the finding that a states rGDP/cap is not affected by the REER value in a statistically significant way.

The main question of this thesis was, “What makes some European Union Member States more economically competitive than others?” At the end of this process, the factors I found to have the most effect on competitiveness were level of foreign direct investment, rate of borrowing relative to their overall GDP, and investment in exports and manufacturing sectors. There are many other factors that were not tested for in this thesis, and others that were tested might be more significant with more cases.

To further this study in the future, I would recommend running the study again with more than five years of data for each case. I would especially want to find a better, more accurate method to measure REER across multiple years. I would also be interested in exploring different, more specific, ways of measuring economic competitiveness itself. While inflation did not have a statistically significant relationship with rGDPcap in this study, a future dependent variable to measure competitiveness could incorporate inflation/unemployment as an indicator of economic competitiveness. I would also utilize FDI as a dependent variable in a similar case to address speculation that FDI is a result of a state being economically competitive, and not necessarily a factor that contributes to a states economic competitiveness.

I would recommend running the statistics using instrumental variable estimation in order to account for reverse causality, assigning new variables to

serve as “instruments.” If these tests could be run, using larger numbers of observations, I believe that the results could be more informative, and accurate.

A further factor to examine in the future, based on the median and mean data, would be to determine if the proportion of sectors such as tourism, service and industry as a percent of rGDP have an affect on the economic competitiveness of these states. This ties back into the idea that a states level of exports or net trade balance has a strong role on their overall competitiveness, and if states were to invest more into their exports sectors, they would become more competitive over time.

Overall, I would recommend that states seek to make their national economies more attractive for foreign investors, and well as focusing on keeping a budget with a reasonable or non-existent deficit based on the results above.

Appendices

Appendix I- GDP Ranking

Explanation on following page.

	state	gdprank						
			51.	Germany12	3	101.	Poland12	4
			52.	Germany13	3	102.	Poland13	4
1.	Austria12	3	53.	Germany14	3	103.	Poland14	4
2.	Austria13	3	54.	Germany15	3	104.	Poland15	4
3.	Austria14	3	55.	Germany16	3	105.	Poland16	4
4.	Austria15	3						
5.	Austria16	3	56.	Greece12	4			
			57.	Greece13	4	106.	Portugal12	4
6.	Belgium12	3	58.	Greece14	4	107.	Portugal13	4
7.	Belgium13	3	59.	Greece15	4	108.	Portugal14	4
8.	Belgium14	3	60.	Greece16	4	109.	Portugal15	4
9.	Belgium15	3				110.	Portugal16	4
10.	Belgium16	3	61.	Hungary12	4			
			62.	Hungary13	4			
11.	Bulgaria12	5	63.	Hungary14	4			
12.	Bulgaria13	5	64.	Hungary15	4	111.	Romania12	5
13.	Bulgaria14	5	65.	Hungary16	4	112.	Romania13	5
14.	Bulgaria15	5				113.	Romania14	5
15.	Bulgaria16	5	66.	Ireland12	3	114.	Romania15	5
			67.	Ireland13	3	115.	Romania16	5
16.	Croatia12	4	68.	Ireland14	2			
17.	Croatia13	4	69.	Ireland15	2			
18.	Croatia14	4	70.	Ireland16	2	116.	Slovakia12	4
19.	Croatia15	4				117.	Slovakia13	4
20.	Croatia16	4	71.	Italy12	3	118.	Slovakia14	4
			72.	Italy13	3	119.	Slovakia15	4
21.	Cyprus12	3	73.	Italy14	3	120.	Slovakia16	4
22.	Cyprus13	3	74.	Italy15	3			
23.	Cyprus14	3	75.	Italy16	3			
24.	Cyprus15	3						
25.	Cyprus16	3	76.	Latvia12	5	121.	Slovenia12	4
			77.	Latvia13	4	122.	Slovenia13	4
26.	Czech Republic12	4	78.	Latvia14	4	123.	Slovenia14	4
27.	Czech Republic13	4	79.	Latvia15	4	124.	Slovenia15	4
28.	Czech Republic14	4	80.	Latvia16	4	125.	Slovenia16	4
29.	Czech Republic15	4						
30.	Czech Republic16	4	81.	Lithuania12	4			
			82.	Lithuania13	4	126.	Spain12	3
31.	Denmark12	2	83.	Lithuania14	4	127.	Spain13	3
32.	Denmark13	2	84.	Lithuania15	4	128.	Spain14	3
33.	Denmark14	2	85.	Lithuania16	4	129.	Spain15	3
34.	Denmark15	2				130.	Spain16	3
35.	Denmark16	2	86.	Luxembourg12	1			
			87.	Luxembourg13	1			
36.	Estonia12	4	88.	Luxembourg14	1	131.	Sweden12	3
37.	Estonia13	4	89.	Luxembourg15	1	132.	Sweden13	3
38.	Estonia14	4	90.	Luxembourg16	1	133.	Sweden14	2
39.	Estonia15	4				134.	Sweden15	2
40.	Estonia16	4	91.	Malta12	4	135.	Sweden16	2
			92.	Malta13	4			
41.	Finland12	3	93.	Malta14	4			
42.	Finland13	3	94.	Malta15	4			
43.	Finland14	3	95.	Malta16	3	136.	United Kingdom12	3
44.	Finland15	3				137.	United Kingdom13	3
45.	Finland16	3	96.	Netherlands12	3	138.	United Kingdom14	3
			97.	Netherlands13	3	139.	United Kingdom15	3
46.	France12	3	98.	Netherlands14	3	140.	United Kingdom16	3
47.	France13	3	99.	Netherlands15	3			
48.	France14	3	100.	Netherlands16	3			
49.	France15	3						
50.	France16	3						

The states were sorted into one of five groups, with group 1 being the richest states (only Luxembourg) and group 5 being the poorest (Bulgaria, Romania, and for one year Latvia). The states on the following year were listed with all five years of data collect since some states moved between groups over the past five years. These states were Latvia, which moved from group 5 to group 4, Malta, which moved from group 4 to group 3 and Ireland and Sweden, which both moved from group 3 to group 2.

The groups were as follows:

Group 1: greater than 60,000

Group 2: between 40,000-60,000

Group 3: between 30,000-40,000

Group 4: between 20,000-30,000

Group 5: less than 20,000

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