To Be or Not to Be:

Examining the effects of membership of the European Union on growth and stability

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Introduction

Traditional economic theory tells us that trade is beneficial to the welfare of a country. David Ricardo's international trade theory is the basis of many economic unions. Ricardian trade theory is founded on comparative advantage and specialization. The main premise is that trade allows for a country to consume more than it would be able to produce itself. With trade barriers, commerce abroad becomes more expensive and decreases its benefits. By removing trade discrimination, the profits should increase. Other trade theories, including the Heckscher-Ohlin Model and the Specific-Factors Model, postulate that countries will be no worse off or better due to an increase in trade.

This project proposes to study the causal relationship between being in an economic union and a country's economic health. There are innumerable variables that affect economic health and development, such as technology, social and political factors, unemployment, and human and natural capital. In order to deal with the heterogeneity, they will be held as constant between countries, utilizing the difference-in-differences methodology. Two sets of countries will be analysed with the treatment as being in an economic union. The focus will be primarily on the European Union. The European Union is currently the largest regional conglomeration and the effects that it has could possibly recur in other regional unions. The hypothesis that is tested is hence – being in the EU has a positive effect on the economic growth and stability of a country.

In section two, I will give a review of the existing literature and its limitations. Some of the existing literature review comes from my Topics in Applied Economics Project Proposal in my Masters of Economics degree at the University of Manchester, while others come from my International Trade Theory and Policy course at Cornell University. In section three, I will explain where the data comes from and the restraints that can arise. In section four, which is broken into two subsections, I will talk about the Econometrics behind this research. The first subsection will discuss the methodology to be used, with the second giving predicted results. The fifth section gives a timescale of how I will be spending my time during my dissertation.

Literature Review

Economic unions are still a controversial topic. Many question if being a part of a union is worth the costs that come with it. Scholars have debated the benefits of joining and participating in a coalition. Based on economic theory, some believe that all unions have positive effects, especially those will lower Gross Domestic Products (GDP). However, others believe that this is not always the case. There is a final group that has mixed views on the worth.

In his book, the "The Theory of Economic Integration", Béla Balassa, a Hungarian economist and consultant with the World Bank, explains that economic integrations should

create growth. Economic integrations suppress discrimination by removing trade barriers, therefore, growing international trade (Balassa 2011 p2). International trade then increases the exposure to different customers, creating a wider market. This lessens the uncertainty that can occur in intra-area trade. Multinational trade should alleviate cyclical variations of a country and increase the growth of the national income (Balassa p6).

Economic theory tells how restrictions affect the welfare of countries of different sizes. Imposed on a small country, tariffs will decrease the prosperity due to deadweight loss. Discriminatory tariffs, those that do not affect all countries equally, are common and have a higher deadweight loss than an equal tariff (Feenstra p273). Import quotas restrict the quantity of an import, raising the domestic price and production. Competition from imports eliminates monopoly power (Feenstra p321).

In 1817, David Ricardo introduced his international trade theory of comparative advantage and specialization in his book "On the Principles of Political Economy and Taxation". According to Ricardo, foreign trade is "highly beneficial to a country, as it increases the amount and variety of the objects on which revenue may be expended, and affords, by the abundance and cheapness of commodities, incentives to savings, and to the accumulation of capital" (Ricardo 1821, c7.8). Gains from trade occur as both countries will have a higher utility with free trade for its citizens than with no trade. With an increase in trade between countries, there should be an increase in consumption, the overall standard of living, and wages of citizens.

Another model, integral to modern international trade theory is the Heckscher-Ohlin Model which builds upon the Ricardian model and assumes that trade occurs because countries have different resources. Countries will export goods that use the factor of production that it has in abundance; this factor will be used more efficiently and plentifully produced (Feenstra p98). While the gains are asymmetric, they will be higher than any losses that have occurred.

According to some scholars, the European Union's influence on Europe's growth rates is undeniable. In 'Growth Effects of Economic Integration: Evidence from the EU Member States', Badinger acknowledges the fact that growth rates are obviously affected but questions whether the growth is affected temporarily or permanently (Badinger 2005, p51). The EU's single market fostered trade and economic growth after the Second World War. The fifteen European members that joined before its expansion in 2004 have reaped the benefits of the union. Without the incorporation that began in 1950, the EU-15 would have a GDP that would be a fifth lower (Badinger, p52). There is no doubt that integration had a significant impact on the post-war economies. His econometric results give evidence to the temporary effect of growth rates that are led by the investments given to countries, instead of by trade (Badinger p74). The conclusion is while there has been growth, without the growth effect of trade, one cannot predict the EU's potential performance or the performance of other unions. However, his research did not include the 10 countries that were annexed into the EU in 2004 and does not include the financial crisis.

Multilateral trade rules provide a safer and more stable economic environment (Cedro & Melnyk 2014, p178). The formation of the EU has fostered growth and stimulated producers within the region (Cedro et. al p178). Having commitments with other members within a union may generate benefits to regional unions. However, regional unions don't have absolute power to regulate and preserve its own internal market. Lowering external tariffs affect regional objectives and while fostering global integration, it erodes preferences (Cedro et. al p184).

In his paper, Takahashi studies the effects of a tariff imposed by the government of an economic union. Like in classical theory, import tariffs redistribute income. This income comes from unprotected to protected industry workers (Takahashi 1999, p291). Tariffs increase trade within the union and raise the wage rate and price of goods in member countries (Takahashi p293). They, unfortunately, enhance the price of goods from non-members. If the tariff revenue is given out based on wage rate, welfare remains the same. However, if it is given as a lump-sum, workers will be hurt if the population is small. In the long run, the population will redistribute so that no workers in the union are hurt, leading to welfare convergence (Takahashi p307).

In a paper written two years after the formation of the European Union, Daniel Landau is critical of economic integration. He claims that the European Economic Committee, the precursor of the European Union, does not foster growth. While there could have been a positive influence at its initiation, the Common Market's impact decreased throughout the years, leading to a lower rate of growth by 1972 (Landau 1995, p774). The benefits of a union seem to be little as economic growth disappeared and unemployment rose in EEC countries (Landau, p774). Using econometric modeling, Landau does not find statistically significant effects of EEC membership on growth. There was no statistically significant difference between the growth of EEC and non-EEC countries (Landau, p780). However, this paper was written in 1995, in the early states of the European Union. Since then, there has been many financial cycles and a globalization movement, changing the way that countries have behaved economically.

The collapse of Lehman Brothers in September 2008 created an international financial crisis. The question becomes if economic unions helped to reduce the risk before, assist in absorbing the shock during, or recover after the event? Alliances are believed to be useful to small states as these are more vulnerable to global financial cycles as they have smaller economies. Two small countries that were hit badly by the events were Ireland and Iceland, requiring them to ask for outside financial aid (Thorhallsson & Kirby 2012, p801). While Ireland's membership in the European Union did not prevent the crisis, the EU assistance helped to absorb the shock and clean up afterward. Arguably, the rescue package's terms might have prolonged the crisis (Thorhallssoon et. al, p815). After a rough start, Iceland recovered more successfully due to its early change of government and restructuring of the banking sector through stricter domestic policy (Thorhallsson et. al, p815). Thorhallsson and Kirby basis their analysis of these countries on the fact that they have similarly small economies, however, there are many more variables that differ between them, including location to Europe. Therefore, it is possible that the unobserved differences may explain the results.

None of these papers look closely at the overall effects that exist in the European Union. Many of the scholars in this area of study use economic theory alone to explain what has happened and what should happen in the future, while others look at a small group of countries. By not using true data of many countries within and without the EU, there are observations that have been overlooked or overstated.

Data

All of the data necessary to partake in this econometric analysis is publicly available through innumerable international organizations. The two main institutes data will be collected from are the European Union (EU) and the World Bank. The EU website contains various data pertaining to the regional union. This includes entrance data for every member

state and the names of countries that are in the process of integrating into the system (European Union 2017). These are important because they allow us to choose countries that are and are not in the EU for regression purposes.

The second, and essential, source is the World Bank World Development Indicators website that collects and tracks numerous economic and social indicators for the countries around the world. Gross Domestic Production (GDP) per capita annual growth rate data and inflation annual rate based on the consumer price index (CPI) will be used to test the economic health of countries. The indicator GDP measures the value of the goods and services produced in a country. Using the annual growth rates will make it easier to see the economic growth that occurs. Another indicator that could have been used is the Gross National Income (GNI), which measure the income of all residents of a country, even those that live abroad. Due to free movement in the European Union, citizens can move to places with higher paying wages, which is not an effect of trade, making GNI a bad indicator to use.

The World Bank also tracks annual inflation from countries all over the world. Inflation is the rate at which prices increase for goods and services and results in a decrease in the purchasing power of money. A stable economy is often defined as one that has a low and steady rate of inflation. A low level of inflation disallows prices from skyrocketing while also reducing the severity of economic recessions. Therefore, it makes sense to use this as an indicator of economic health. The Federal Reserve considers the safe target for inflation to be 2%.

The only inherent problems come from measurement error and a lack of data. Nevertheless, as this dissertation is focused on the recent economic history of European countries, there should be very little error in the data. Data quality should not pose a problem as most developed countries collect and give honest records. I would only expect to have a lack of data for only newly created countries.

Econometrics

Methodology

Does being a part of an economic union have an impact on growth and stability? In order to research this question, we need to analyse the effects of a union through statistically comparing the economies of those within a union and those without. The best model to use to do this analysis would be Difference-in-Differences (DiD). This model allows for a comparison over time of a treatment and control group. DiD recognizes the fact that bias exists in the treatment group. This bias is based upon self-selection, countries that join economic unions choose to participate and have to be approved by prior members that might have economic and human development requirements. The major premise of DiD is the common trends assumption. The common trends assumption is that "in the absence of treatment, changes over time for treatment and control group would be the same" (Manderson 2017, p18). The treatment group has to behave over time in a way that gives a good idea how it would react without the treatment. Since the pre-existing unobserved heterogeneity remains the same over time, they will fall out of the equation, allowing the control group to be used as a counterfactual. The main limitation of DiD is that the common trends assumptions may not hold.

In order to apply this model, the treatment period and the groups must be chosen. The treatment period will be 2004, the year that the largest expansion, the addition of 10 countries, of the EU happened (EU 2017). The treatment group will be those added during

expansion and the control group will be certain European countries that are not currently in the EU. The treatment group is Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. The control group is Albania, Belarus, Kosovo, Liechtenstein, Macedonia, Montenegro, Norway, Serbia, and Switzerland.

As both economic growth and stability will be tested, two models will be used.

$$Growth: GDP_{it} = \alpha + \gamma EU_i + \lambda 2004_t + \delta(EU_i \cdot 2004_t) + \varepsilon_{it}$$
$$Stability: Stab_{it} = \alpha + \gamma EU_i + \lambda 2004_t + \delta(EU_i \cdot 2004_t) + \varepsilon_{it}$$

The first model will use GDP growth rates as the dependent variable as a way of examining economic growth. The model that analyses economic stability uses unemployment as its dependent variable. The unemployment stability (stab) variable is a dummy variable that takes the value of 1 if unemployment is between 1% and 3% and 0 otherwise.

Economic Analysis

The results from these models will give an analytical review of the European Union. According to Ricardian trade theory, having fewer barriers to trade will increase the economic welfare of a country. Higher levels of trade will lead to more production increasing gross national incomes. Trading with other countries will keep countries stable by keeping unemployment rates low. Therefore, the expectation is that lambda will be positive in both models. While lambda is expected to positive, gamma is harder to anticipate. In the both models, gamma would be positive prior to 2008 but afterward, the global financial crisis growth will have turned negative before eventually becoming positive in some countries. It is hard to know which trend will outweigh the other given the large sample of countries.

While economic theory suggests that delta should be positive, determining the sign of delta in this application is more complicated than the prior coefficients. Given by the equation

$$\hat{\delta} = (\bar{y}_{EU,after} - \bar{y}_{non-EU,after}) - (\bar{y}_{EU,before} - \bar{y}_{non-EU,before}),$$

delta encapsulating the difference-in-differences (Manderson, p11). If delta is positive, the EU aids country's economically. If it is negative, being a part of the EU has is detrimental to a country's economy. Finding this measurement will tell the impact that being in the EU has on the economic growth and stability of a country.

Time Scale

A rough timescale of how I will be breaking up my time during my dissertation:

	Early	*Mid*	*Late*
June	Pick a topic and begin to look for resources and useful information	Read existing literature on topic	Work on proposal
July	Collect and manipulate data to create a database	Use descriptive analysis to create an EDA	Using statistical analysis, make conclusions based on the data
August	Write the final report Prepare for presentations	Present results Modify drafts	Finish and submit all documents required

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