

THE EFFECTS OF MACROECONOMIC FACTORS
ON ECONOMIC GROWTH WITHIN THE FORMER
SOVIET UNION

By

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CHAPTER I

INTRODUCTION

The dissolution of the Soviet Union cast all fifteen of its former member-countries into states of economic turmoil. Not one country even posted a year of positive economic growth until at least 1994. Recently, there has been a trend in all of these countries towards stronger economic performances. However, some countries have done significantly better than others. While each former-Soviet country has its own individual characteristics that help explain performance, we can also observe trends among the region as a whole.

The post-Soviet region offers an interesting setting for the study of economic growth. Before 1991, each of these countries relied on socialist systems of government, characterized by state ownership of major industries and central planning of economic activities. As this system proved to be fatally flawed, market-based economic reforms were instituted in the hope of stabilizing chaotic economies and promoting growth. Making this economic transition was clearly a long and arduous process for many of these countries. By grouping these countries together, I can draw interesting conclusions on how economic growth rates are affected in countries moving away from socialism and towards capitalism. I want to determine if the effects of several macroeconomic variables

on growth, as described in the literature, can be observed in the post-Communist economies of the former-Soviet Union.

The main macroeconomic concepts I will focus on are inflation and debt. While small levels of inflation are usually desirable, countries have good reason to avoid sustained high levels of inflation. High inflation creates an atmosphere of economic uncertainty within a country. Internally, this uncertainty discourages domestic investment and saving. Externally, uncertainty wards off potential investors who are unable to create accurate, long-term budget plans. These are in addition to the negative social effects high levels of inflation can have on a population. While effects like the decimation of the purchasing power of one's life savings and inefficiencies of domestic markets are dramatic and real, they are not the focus of this thesis. I only want to determine the role inflation plays at the macro-level on economic growth, investment, and confidence. There are certain steps governments can take to tighten the money supply and reel in out-of-control inflation. However, these measures can be painful and unpopular, especially in the short-term. It is useful to determine what effect inflation has had on growth, and whether or not those countries that chose to take action against inflation in the short-term enjoyed economic benefits in the long run.

The role of external debt is also important, especially within the former-Soviet Union. In the aftermath of the dissolution of the Soviet Union in late 1991, international organizations, amongst others, poured money into the various now-independent states as a means of assisting with their political transitions and market-based economic reforms. These loans were certainly necessary, and no doubt has a positive initial effect in most of the countries receiving the money. However, in recent years, the level of debt and

number of external creditors has risen around the region. At high levels of debt, problems start to emerge with servicing these debts. In many developing countries, including within the former-Soviet Union, there is not much government revenue to begin with. As debt levels increase, it becomes more and more difficult for a country to service its debt obligations, at times failing to even meet payments on interest. Sometimes, high growth rates of gross domestic product (GDP) can help countries grow out of their small to moderate levels of debt. With high external debt, however, there seems to be a vicious circle. Countries are unable to rescue themselves from debt problems because of their slow growth, and they are growing slowly at least in part because of their debt burden (Krugman 1990).

I also want to determine the role of trade within this region. There has been much discussion over the promise of “export-led growth”, which merges comparative advantages at home with external demand from abroad as a means of increasing economic growth. This is relatively simple to measure, and I will look to determine whether or not increases of exports as a percentage of GDP have led to higher growth rates. Another testable characteristic is the impact of the World Trade Organization. The former-Soviet countries have lagged behind in WTO ascension more than any other region in the world. Worldwide, over seventy-eight percent of the countries have joined the WTO (153/195). Within the former-Soviet Union, however, only about half of the countries have joined (8/15). This interesting observation provides a sample for comparison between WTO member and non-WTO economic performances in the post-Soviet world.

Perceptions of institutional strength hold important significance within countries. There has recently been a promising contribution to understanding economic growth as a reflection of institutional quality. The importance of strong institutions in economic growth is well-supported, as is its relationship with levels of foreign direct investment. Measuring institutional strength and economic openness can be difficult, as no two countries have identical institutions or policies. Additionally, what may work well to protect property rights, for example, may be effective in one country and not another. I argue that a perceptions-based approach is the best way to measure strength. By compiling the opinions of domestic enterprises, outside investors, multilateral development agencies, and commercial business information providers, one can get a quantifiable dataset that bypasses the variation of institutions across different countries and focuses exclusively on strength and effectiveness.

While this is a large scope of phenomena to focus on, I believe that each of these variables reflect important questions in understanding trends in growth within the former-Soviet Union.

The rest of the thesis is organized as follows: first, I will review existing research to better explain the theoretical arguments behind the effects of macroeconomic variables, and show the results of previous studies relevant to this thesis. Next, I will present my research design, discussing my data as well as the statistical methods I will be using. I will then present my results and interpret the outputs from my statistical tests. In my conclusion, I will refer back to my hypotheses to determine whether or not they are supported by the evidence, and discuss the implications of my findings. I will end with a few remarks over the limitations of my study and avenues for future research.

CHAPTER II

REVIEW OF LITERATURE

Strong arguments have been made regarding the effects certain macroeconomic factors should have on growth. These relevant factors include the monetary and fiscal policies that help determine rates of inflation, the budget deficit, and the balance of payments (Fischer 1991). Milton Friedman argued that the high variability of inflation causes market prices to become a less efficient system for coordinating economic activity (Friedman 1977). Inflation can also be an indicator of the overall ability of the government to manage the economy, and high inflation is a sign that a government has lost control of its economy. Additionally, economic growth is likely to be low in countries with sustained high inflation rates. Inflation can have negative effects on investment as well. Barro argues that monetary variance makes the process of determining the rate of return on investment projects more difficult, driving away potential investors (Barro 1976). In general, a strong, growth-friendly macroeconomic environment should include low and stable inflation, appropriate real interest rates, a sustainable fiscal policy, and a viable balance of payments situation.

There are several ways that government debt depresses growth and investment. First, government debt displaces private capital (Samuelson and Nordhaus 1992).

As debt is financed, for example by bonds, people accumulate government debt instead of private capital. As less people desire to hold private capital, interest rates increase, discouraging the desire to businesses to hold private capital or engage in new, costlier investments. Also, the burden of government debt reduces output. Interest must be paid on government debt, and taxes raised to pay this interest lower national income and consumption (Samuelson and Nordhouse 1992).

Several studies have been conducted to test the effects of macroeconomic policies on growth. In two separate studies, using a sample of over 100 countries, Fischer found several of these factors did have a significant effect on long-term growth, especially inflation and debt (Fischer 1991, 1993). Regarding investment, he found that high levels of inflation and debt were significantly negatively related to higher levels of investment. Missing out on potential investment punishes countries by limiting opportunity for higher levels of growth. Other economists however, have been skeptical of the importance of macroeconomic factors in explaining growth. Garrison and Lee look at sixty-seven countries over a twenty-seven year period and found no evidence that high inflation, large budget deficits, and higher levels of debt lead to low levels of economic growth (Garrison and Lee 1995).

Fischer also uses case studies to argue the importance of macroeconomic factors on growth. In Chile and Mexico, budget discipline and the reduction of inflation restored higher levels of growth. In Brazil, however, prolonged high rates of inflation led to further macroeconomic instability and stagnant investment and economic growth (Fischer 1993). High levels of growth in East Asia have also been characterized by single or low-double digit inflation rates. This relationship is not perfect, however, as several countries

in Africa within the franc zone have seen low levels of economic growth despite low inflation.

Exports and Economic Growth

There are also various levels of optimism concerning the ability of trade, specifically exports, to positively affect economic growth. The argument supporting this contends that exports can contribute to growth in several ways – greater capacity utilization, incentives for technological improvement, and greater efficiency through higher levels of competition (Feder 1982). Increased exports allow for new access to foreign markets, allowing for opportunities for specialization. Some economists also favor the expansion of the export sector by arguing that these sectors are the most efficient within a country (Zestos and Taof 2002). These sectors usually offer the highest wages and earn the highest profits, since only the most efficient of firms can compete successfully in the global market. Additionally, access to foreign capital and the transfer of technology would be nearly impossible without a strong export sector as a means of to higher levels of economic growth.

Like the role of macroeconomic effects on growth, the relationship between exports and growth has also been extensively tested. Garrison and Lee show that the growth rate of the ratio of real exports to GDP has a positive and statistically significant effect on growth. They argue that this is because an increasing degree of export orientation encourages higher productivity, leading to higher levels of economic growth (Garrison and Lee 1995). Additionally, looking at over thirty developing countries, Ibrahim found that increased exports had a positive effect on both economic growth and

productivity (Ibrahim 2002). However, there have been detractors from this idea as well. Anwer and Sampath, for example, examine ninety-six countries and find that only eight show support for the idea that exports lead to higher levels of economic growth (Anwer and Sampath 1997). They also argue that there is not much support in general for any relationship between exports and GDP.

The WTO and Economic Growth

The question of the WTO's effect on economic performance has been examined by a large number of scholars. These authors are driven by similar questions to my own, namely, the potential for increased economic growth coming from WTO ascension. Arguments have been made in either direction, both extolling and dismissing its relevance in explaining growth. Though many are quick to point out the correlation between the rise of the WTO and worldwide economic growth, most of the scholarly debate focuses on whether or not the relationship truly implies causation and the necessity of the WTO.

Arguments backing the WTO's assertion of its ability to increase economic growth have also emerged out of empirical testing. Goldstein, Rivers, and Tomz find that WTO members have enjoyed higher levels of growth, with the stipulation of increased institutional standing. This is because these authors believe that the presence of the WTO sets new rules of trade for not just member-countries, but also those seeking membership (Goldstein, Rivers, Tomz 2007:64). Once this is controlled for, then they believe that the WTO does meet the requirements regarding causation in explaining economic growth.

Lang and Jackson have pointed out the correlation between improved economic performance and WTO participation (particularly in the United States), but have urged that we should look at the policies and institutions set up by the WTO and judge their effectiveness, rather than generalizing about the WTO as a whole (Lang and Jackson 1996: 420). They point to specific effective policies, like its dispute settlement system, and argue that these arrangements can be implemented outside of the WTO with similar results. As a whole, the authors are optimistic about the positive role the WTO can play in promoting economic growth. However, they are concerned with the growing rigidity of new “rounds” of negotiation, as they believe the strength of the WTO lies in its ability to be flexible regarding issues important to international trade (Lang and Jackson 1996: 423). It is also important to note the time at which this article was written, just about one year after the inception of the WTO.

Other authors have disputed the effectiveness of the WTO. Rose used a fifty year, 175 country model designed to seek out special trading patterns amongst member-countries compared to outsiders. He finds little evidence supporting any kind of key effect associated with membership, arguing that bilateral trade patterns cannot be linked to WTO status (Rose 2004: 112). He refers to this as a “mystery”, as he previously assumed that membership was correlated with trade and growth. Goldstein, Rivers, and Tomz once again cite their argument of obligation without membership for a number of countries throughout the world. They argue that because Rose treats all non-members the same, his data is biased because it does not account for steps taken by some non-member countries in the hope of becoming later becoming full members (Tomz, Goldstein, and Rivers 2007: 2005). Once controlled for, these authors believe that WTO-associated

countries (both full members and non-member participants) consistently post higher levels of international trade. Rose counters by explaining that the patterns of formal members and informal non-members of WTO are testable, and that it has been proven that the two are strikingly different (Rose 2007: 2021). Additionally, Rose makes the important point of noting that there are major differences even among informal non-members. Some informal non-members have chosen to remain “de-facto” members for over twenty years. Rose believes it is a mistake to lump countries who have exploited this system so long with the actual evidence of liberalization we see with full-member countries (Rose 2007: 2021).

Institutional Confidence and Economic Growth

The importance on strong institutions and government effectiveness in promoting higher levels of growth and trade has also been well-documented. A great example of this is Russia after the dissolution of the Soviet Union. Regardless of one’s opinions on the shock therapy reforms implemented in Russia, it is clear that Russia still suffers from a lack of strong market-supporting institutions (Black and Tarassova 2003: 213). Those advocating a shock therapy approach to economic reform in post-Soviet Russia believed that an economic recovery would be seen by the mid-1990s. The fact that Russia (and many other post-Soviet countries) are still not fully transformed makes it apparent that specific, institutional reforms play a necessary role in promoting prolonged economic growth (Black and Tarassova 2003: 218).

Dani Rodrick has written intensely on the importance of institutions on economic growth. Institutional strength, not WTO membership, he argues, holds the key for

understanding patterns of prosperity around the world (Rodrick 2004: 1). But how does a researcher go about measuring strength? Rodrick believes (a view which I share) that the most promising measure is one relying on investor confidence, for example whether or not they consider their investments safe. He demonstrates the advantages of such a method by invoking the example of Russia and China. China was able to provide the semblance of effective property rights despite the absence of any actual policies in place. Russia, on the other hand, implemented a number of institutions as a result of its shock therapy policies, but these institutions were plagued with problems that drove off potential investors. A traditional dataset would grade Russia positively and China negatively on their institutions, when in fact investors trusted and preferred China's property rights protections and invested in China by an exponentially larger percentage (Rodrick 2004 9).

According to Rodrick, the question is no longer "do institutions matter" but rather "which institutions matter and how does one acquire them" (Rodrick 1999: 3).

Unfortunately, there is no one-size-fits-all approach for institutional reform, and the characteristics of each country's particular situation must be taken into account when prescribing a solution. For example, there exists a substantial literature linking democratic reforms to better economic performance. However, the example of China quickly discredits the idea that these democratic reforms are a necessary condition for successful economic reform (Rodrick 1999: 24).

Though large-scale attempts have been made to determine the effectiveness of the WTO's claims to increased institutional strength and economic growth, the former-Soviet countries have not been examined extensively. I want to determine whether or not the

eight of fifteen countries that did become full member-countries have benefited greater economically. This further, area specific evidence can help contribute to the discussion on the overall effects of the WTO as an institution promoting international trade and economic growth.

CHAPTER III

METHODOLOGY AND HYPOTHESES

My area of focus for this study is the fifteen countries that make up the former-Soviet Union. Economically, this is a very interesting region to study. The collapse of the Soviet Union in 1991 produced fifteen independent republics, each with its own system of government. All faced tremendous economic difficulties initially, and no countries took the exact same steps to address these problems. Understandably, GDP growth and other economic measures of progress look very different throughout the region. I hope to explain some of this variance by examining several macroeconomic factors in all of these countries. While it is difficult to make direct causal arguments, I can note important correlations and see if the preconceived notions about factors like inflation and debt match with the post-Soviet region specifically.

The broad time period for this study is 1996-2008. The political and economic turmoil seen during the initial post-Soviet years leads me to believe that this period is too unstable to draw valid conclusions. Several countries in the region begin to post positive economic growth numbers around 1994, so 1996 seems like a more reasonable and stable starting point. From then on, I look to get as recent data as possible, usually dating up to around 2008. However, based on availability of data, some variables are limited to a

smaller time period than the previously defined 1996-2008. Complete information on the variables, their sources, and their time periods is available later in this thesis.

Data Sources

My macroeconomic data comes from a few different, large datasets. I draw heavily from the World Bank's World Development Index dataset, which features, among several others, information on macroeconomic variables such as GDP and inflation. Additionally, I use the Finance and Growth dataset initially developed by Eschenbach, Francois, and Nitzsche (2003). This source covers much of the ground already available through the World Bank, but also includes information on variables like debt, foreign direct investment, and productivity.

Also important is the effect of institutional quality on economic growth. Unlike GDP or foreign direct investment, which can be measured in dollars, measuring institutional quality and confidence is more difficult. Does one judge quality by the make-up of these institutions, or government estimations of their performances? Looking at institutions this way is problematic for a number of reasons. Rather than this, I believe that the best way of judging institutional quality in a systematic manner is outsider perception. Luckily, there is an institutions dataset that relies on international perceptions of country institutions, the World Government Index.

The advantages of using datasets like this are substantial. Certainly, measures of institutional quality based on individual, country-level indicators exist, but they are problematic. These numbers, provided by the government, may differ drastically from the actual situation on the ground. Additionally, numbers may be hard to measure

quantitatively in the first place. For example, think about the problem of corruption. Corruption leaves no set, measureable trail for us to evaluate. In cases like this, we are almost forced into using subjective data (Kaufmann Kraay Mastruzzi 2010: 18)

Far from being a weakness, for this study I believe that subjective data is advantageous to objective data. Because “true” governance is hard to observe for certain, what is the best way to extract a “signal” of unobserved governance from observable data (KKM 2010: 16)? An effective measure must include the perceptions of effectiveness from several outside sources. Perceptions are important because agents base their actions on perceptions, impressions, and views (KKM 2010: 18). From an economic standpoint, investors base their decisions on their perceived view on the country’s political climate and overall government performance. Outsider confidence is essential to economic growth, and the collective views on a country’s institutions by those considering investing or doing business within the country are far more trustworthy than estimates produced by the government themselves. Intuitively, this makes sense. Governments have incentives to misrepresent their institutional strength; negative reports would discourage outside business interest and investment. Investors however, have every incentive to be as certain as possible about the actual effectiveness of these institutions. An investor concerned with corruption within a country will be persuaded more effectively by noticing other investors’ behaviors, rather than simply follow rhetoric of government officials.

The WGI dataset offers cross-country indicators of governance based on a large and disparate set of individual perceptions. Governance is defined as “the traditions and institutions by which authority in a country is exercised” (KKM 2010: 2). There are

several different sources surveyed by the WGI. This includes domestic firms with first-hand knowledge of the country, multilateral development agencies, and commercial business information providers:

The World Governance Indicators dataset contains six variables, listed and explained as follows:

- 1. Voice and Accountability (VA)** – capturing perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
- 2. Political Stability and Absence of Violence/Terrorism (PV)** – capturing perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism.
- 3. Government Effectiveness (GE)** – capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
- 4. Regulatory Quality (RQ)** – capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
- 5. Rule of Law (RL)** – capturing perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.

6. Control of Corruption (CC) – capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

Statistical Tests: Macroeconomic Variables

First, I will test the effects of various macroeconomic variables on GDP growth. I want to control for as much country-specific variation as possible, so I will use fixed effects in my regressions. I am aware that any study like this risks the criticism of omitted variable bias. There are also country-specific variables which are simply too difficult to observe. Using fixed effects helps address problems regarding omitted variable bias by controlling for all stable characteristics of a study, eliminating potentially large sources of bias (Allison 2005: 5).

It is also important to explain why I am choosing to take the natural log of my variables. When looking at sometime disparate levels of inflation for example, the effect may not be perfectly linear. For example, a change in inflation from ten to twenty percent is much more influential than an increase from 200 percent to 210 percent. I want to be able to account for these differences and have my results skewed by a few outliers. The statistical method can be explained as follows:

A typical use of a logarithmic transformation variable is to pull outlying data from a positively skewed distribution closer to the bulk of the data in a quest to have the variable be normally distributed. In regression analysis the logs of variables are routinely taken, not necessarily for achieving a normal distribution of the predictors and/or the dependent variable, but for interpretability. The standard interpretation of coefficients in a regression analysis is that a one unit change in

the independent variable results in the respective regression coefficient change in the expected value of the dependent variable while all the predictors are held constant¹.

Inflation will be the first variable I will test. As laid out during the literature review, there are several harmful effects of high levels of inflation, specifically on the uncertainty with which it is accompanied. However, I cannot assume a directly negative linear relationship between inflation and GDP growth. This is because moderate levels of inflation are acceptable, and even encouraged. Zero inflation implied a static economy, while deflation is the result of insufficient demand within an economy, and is usually associated with economic recession. Therefore, it is important to account for “good” levels of inflation. The threshold I use is two percent. For all of my observations on inflation, I subtract two percent, and then take the absolute value. By using this formula, I can determine the effect of inflation beyond acceptable levels on growth. Also, I will be able to test my hypothesis that increasingly higher levels of inflation are associated with lower levels of economic growth. I am using the GDP deflator as my measure of inflation. I have 133 observations of inflation from the fifteen former-Soviet countries across the time period of 1996-2008. I will use a multivariate regression to determine the effects of inflation on overall economic growth.

High levels of debt have the ability to cripple the economies of developing countries, as servicing this debt becomes increasingly difficult. Debt has also been shown to be negatively correlated with economic growth. I will use data reporting debt as a percentage of GDP to control for the disparities in economy size. Here, I will use a similar statistical method to determine the effects of increasingly high levels of debt. I

¹ http://www.ats.ucla.edu/stat/sas/fag/sas_interpret_log.htm

will determine the significance of government debt on GDP growth, noting whether or not level of debt holds any kind of significance.

To test the effect of export growth, I will simply use exports as a percentage of GDP from year to year. I will run a regression on this and GDP growth to find out if an emphasis on exports has a statistically significant effect on GDP, as I expect it should.

The two macroeconomic variables I do feel comfortable testing as a linear relationship are FDI and productivity. I cannot think of reason that a 0-5 percent increase in FDI should have any different of an effect than a 5-10 percent increase, for example. I anticipate that higher levels of FDI should lead to higher levels of growth, and will test accordingly. For productivity, I will use the Solow residual variable, which is calculated by determining rising output with constant capital and labor input.

Statistical Tests: WTO Membership and Growth

The current position of the former Soviet countries offers a very interesting opportunity for economic analysis based on WTO participation. Of the fifteen countries that make up the former USSR, seven are full members, while the other eight are not. This clean break is surprising considering the near-uniformity of regional ascent to the WTO elsewhere in the world. Additionally, most of the former-Soviet countries who are full members of the WTO joined around the same time period, mostly in 1998 and 1999.

These region-specific characteristics offer two opportunities for analysis. First, we can compare economic performance broadly from 1991-2008, and determine whether or not WTO countries boast more favorable results than countries who are not full members. Additionally, we can examine the post-2000 time period specifically to compare the influence of the WTO more accurately. This is because by 2000 all WTO

countries in this study had become full members. Focusing on this time period is helpful because it eliminates a time period bias. For example, the fact that Estonia boasts a higher growth rate in 2001 than Russia does in 1997 is true, but that may be due to global economic characteristics in the two respective years, and not WTO status itself. The breakdown of countries used in this study is as follows:

WTO Full-Member Country	Non-WTO Member Country
Armenia (2002)	Azerbaijan
Estonia (1999)	Belarus
Georgia (2000)	Kazakhstan
Kyrgyzstan (1999)	Russia
Latvia (1999)	Tajikistan*
Lithuania (2001)	Turkmenistan
Moldova (2001)	Ukraine**
	Uzbekistan

* Tajikistan is the only former-Soviet Union country yet to begin ascension talks with the WTO. All of the other countries in the “Non-WTO Member Country” category are observer governments besides Tajikistan.

** Ukraine became a full member of the WTO on May 16, 2008. Because this study uses a time period of 1991-2008, I chose to code Ukraine as a non-WTO country and exclude its data in 2008 from my analysis.

There are several ways to test how a country’s economic performance varies depending on WTO participation. The tests I will be performing can be divided into two categories. The first set of tests concern more traditional economic measures. This includes the data on yearly economic growth rate and foreign direct investment. As an institution which touts its ability to promote growth, both growth rates and foreign direct investment should be higher in WTO countries than in non-WTO countries. I will use the

² http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm

World Bank's data for these two variables. Once narrowed down to the specific time periods and countries relevant for this study, I can use regression analysis to determine the significance of WTO participation in explaining economic growth.

After my statistical analysis, I will use a series of figures to show examples of the country-level effects of each of these variables. All of the data used in these figures comes from the exact same sources and observations used in my regression analyses.

Hypotheses

The following are the hypotheses I will test in this study:

H1: High inflation is negatively correlated with economic growth.

High inflation creates an atmosphere of economic uncertainty within a country.

Internally, this uncertainty discourages domestic investment and saving.

Externally, uncertainty wards off potential investors who are unable to create accurate, long-term budget plans. Barro argues that monetary variance makes the process of determining the rate of return on investment projects more difficult, driving away potential investors (Barro 1976).

H2: High levels of external debt are negatively correlated with economic growth.

At high levels of debt, problems start to emerge with servicing these debts. In many developing countries, including within the former-Soviet Union, there is not much government revenue to begin with. As debt levels increase, it becomes more and more difficult for a country to service its debt obligations, at times failing to even meet payments on interest.

H3: Higher levels of investment will lead to higher levels of growth.

Outside investment offers to opportunity to mobilize resources and members of the workforce that otherwise would go unused due to a lack of start-up capital. These investments can help build up profitable industries that increase overall output within the country.

H4: Increased focus on exports will lead to higher levels of economic growth.

An increased focus on exports forces a country to become more efficient and productive, as it strives to expand beyond domestic markets and compete in the world market. The increased profits in the export sector will shift capital and labor to their more productive sectors, increasing overall efficiency and productivity, and eventually overall GDP growth.

H5: WTO countries will post higher levels of economic growth than their counterparts in the region.

The WTO claims that its member-countries will enjoy higher levels of economic growth, thanks to opportunities for new trading partners. Countries will be able to import goods that they cannot produce efficiently, while at the same time finding new markets for their exports. Additionally, outside investors should view the reforms necessary to join the WTO beneficial for business, thus increasing overall levels of FDI.

CHAPTER IV

FINDINGS

Using Stata, I can run a multivariate regression to determine the effects of all of these variables on economic growth. The following is the output from this regression:

Fixed-effects (within) regression		Number of obs = 134	
Group variable: countrycode		Number of groups = 15	
R-sq: within = 0.9893		Obs per group: min = 8	
between = 0.9992		avg = 8.9	
overall = 0.9986		max = 9	
corr(u_i, Xb) = -0.9341		F(7,112) = 1475.59	
		Prob > F = 0.0000	
IngdP	Coef. Std. Err.	t	P>t [95% Conf. Interval]
llngdp	1.083372 .0149832	72.31	0.000 1.053685 1.11306
Lfdi	5.52e-06 2.10e-06	2.63	0.010* 1.36e-06 9.69e-06
Lcab	.0007754 .0005551	1.40	0.165 -.0003244 .0018753
Lsolow	.1168023 .0784264	1.49	0.139 -.0385896 .2721941
Ldebt	.0007608 .0001747	4.36	0.000* .0004147 .001107
Lexgrowth	.0501771 .0180489	2.78	0.006* .0144155 .0859386
llninfla	.0038522 .0045723	0.84	0.401 -.0052071 .0129116
_cons	-22.29267 .0324307	-687.39	0.000 -22.35693 -22.22841
sigma_u	.13167836		
sigma_e	.03150059		
rho	.94586978		
F test that all u_i=0: F(14, 112)		= 13.34	Prob > F = 0.0000

As we can see, this equation successfully accounts for economic growth at a statistically significant level. However, not all of the individual macroeconomic variables will examine these variables individually.

Interpreting Results: Inflation

The goal of this thesis is to determine which macroeconomic variables influence economic growth in a similar fashion across the former-Soviet Union, regardless of country. There are good arguments (put forth in the literature review) regarding the negative effects of high inflation, and how that should affect economic growth. However, after running the statistical tests, this simply is not the case. To help understand these results, it is helpful to look at the relationship between inflation and economic growth in a few individual countries (See charts on the next page).

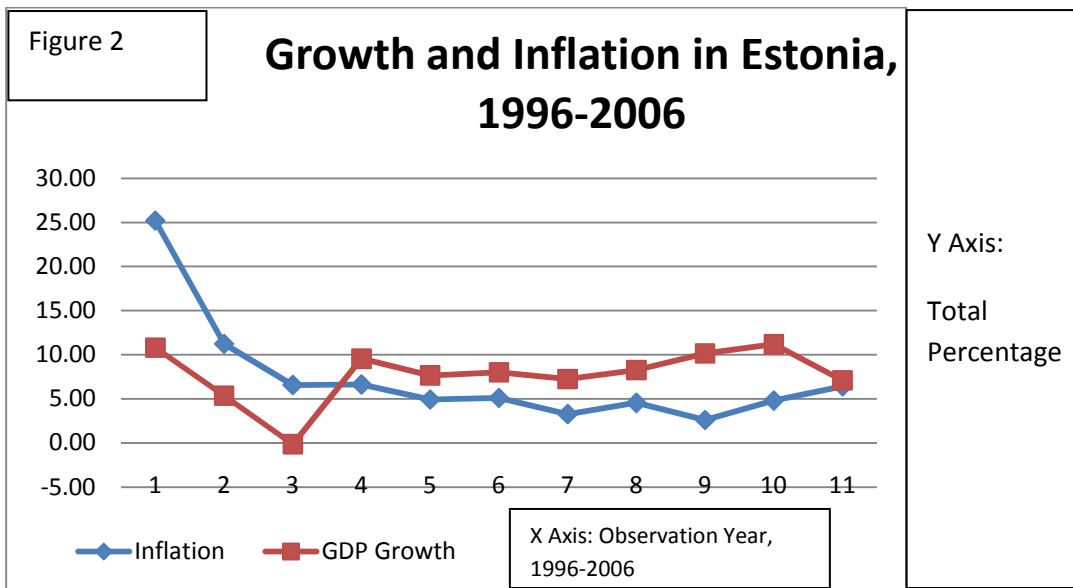
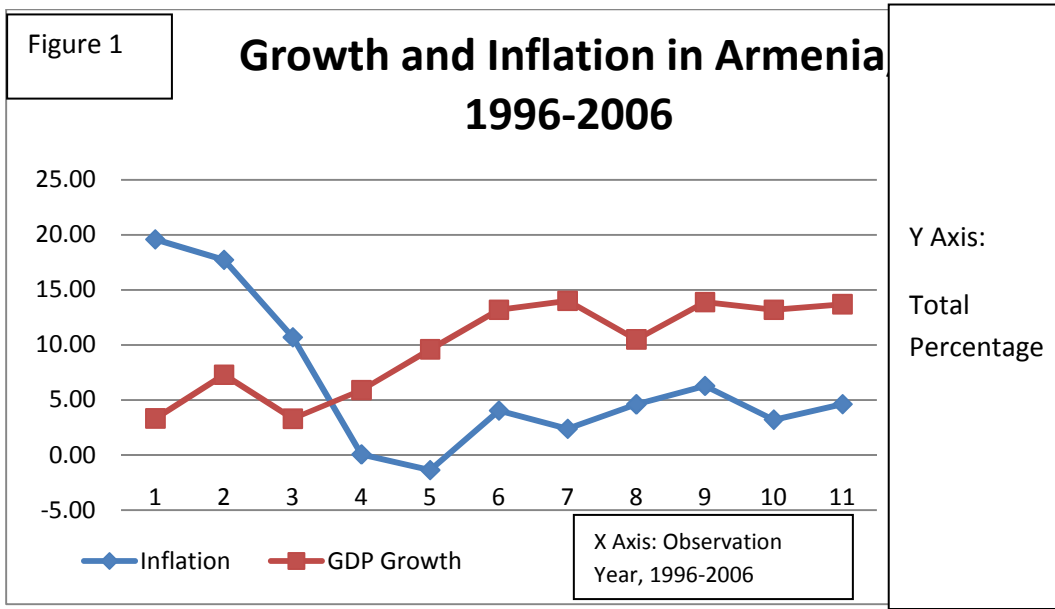
After looking at just a few individual countries, it is somewhat difficult to see why no direct correlation was noted in the statistical analysis. If my hypothesis was correct, then sharp jumps of inflation would be accompanied by GDP stagnation and declines in inflation would be accompanied by significant GDP growth. Looking at this data, there seems to be limited support for my hypotheses. In the two cases below, both Armenia and Estonia started with high inflation and low growth. As inflation was brought under control, growth rates jumped to comfortable levels, and both growth and inflation stayed at relatively acceptable and stable levels.

One possible explanation for this is that when inflation and growth are relatively stable, small fluctuations in one direction of the other do not tend to have much of an effect on the growth rate. Also, a change in inflation from -2 to +4 would be coded as an

unhealthy 6 percent increase in inflation, while in reality this is clearly a positive change to an economy.

Looking at the literature, there are several scholars positing the negative effects of inflation (Fishcher 1993, Barrow 1996, 1997). However, I am not the first to experience difficulty studying the relationship between inflation and economic growth. In fact, when actually testing this relationship in practice, many have failed to find a direct relationship. Hineline's cross-country test, also using fixed effects, found that the only time inflation plays a significant role in growth is when it is excessively high (Hineline 2007). Even then, exogenous shocks seem to drive the growth effects, and not inflation itself.

The fact that I was unable to find a strong statistical relationship between inflation and growth likely implies that there are several factors that influence GDP growth, and inflation is simply too small of a factor to play a significant role. However, when looking at country-specific cases, there does tend to be a negative correlation between inflation and growth. In these instances, inflation needed to come down to a manageable level before strong, sustained GDP growth could take place. While the fact that this is not statistically significant reflects that results likely differ among countries, the correlation in these cases is at least interesting to note and should not be dismissed.



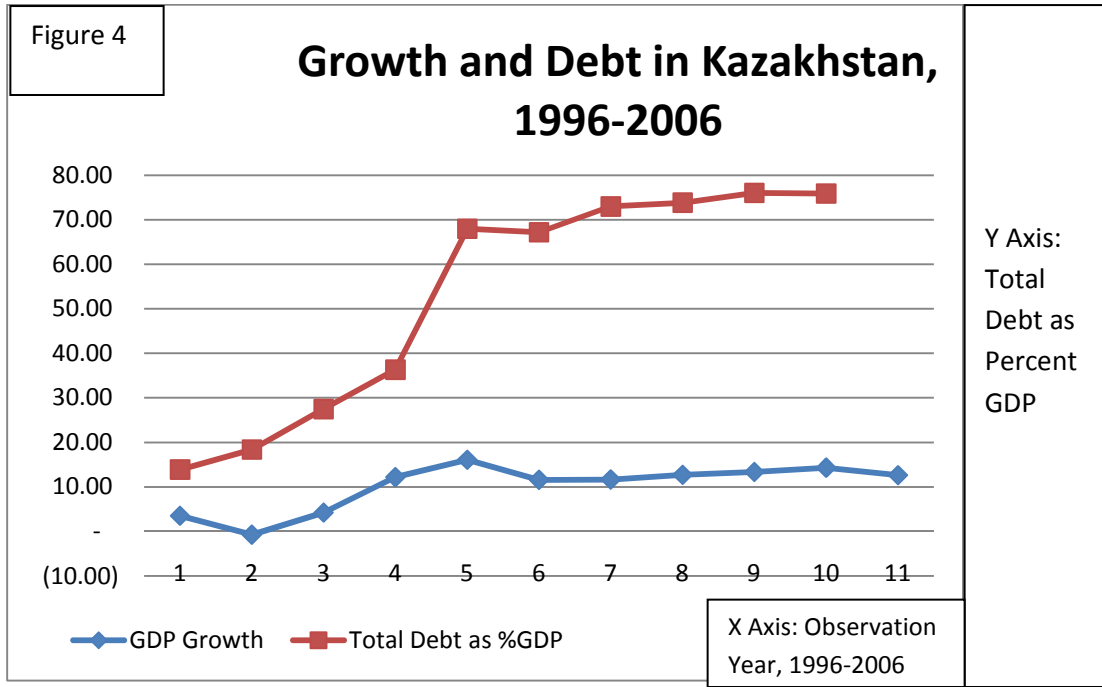
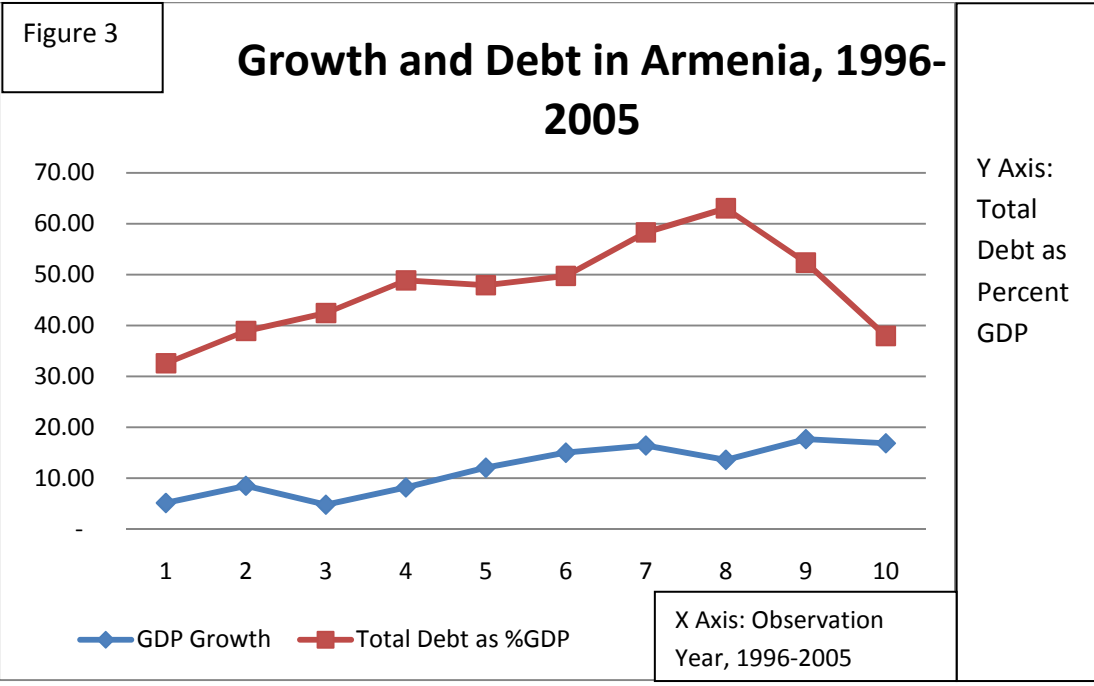
Interpreting Results: Debt

Another surprising result from my statistical analysis is the effect of debt levels on economic growth. I expected that higher levels of debt would be associated with lower levels of GDP growth. My results are significant, but in the opposite way I anticipated. Higher levels of debt in the post-Soviet countries have actually been

correlated with higher levels of growth. Again, it is helpful to look at the relationship between growth and debt in a few individual countries.

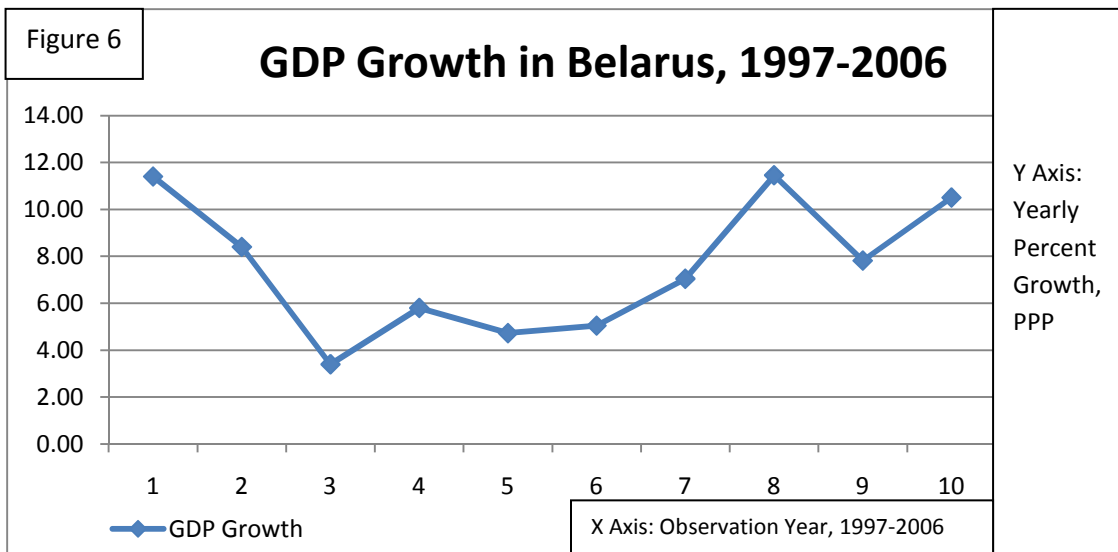
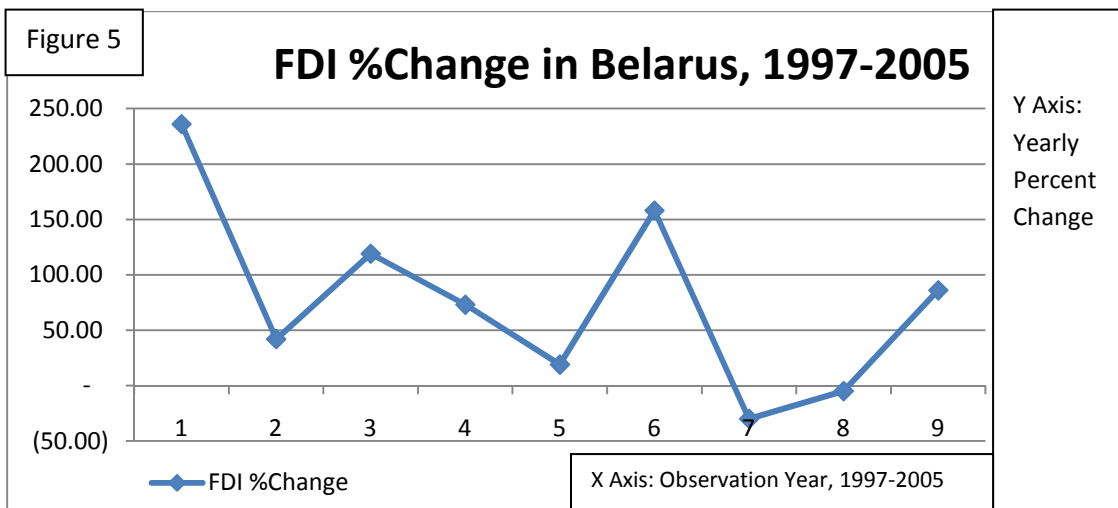
The strong regression result is still difficult to understand after looking at a few individual countries. Rather than being associated with periods of economic stagnation, the relationship appears to be largely unstable. Prolonged periods of economic growth can be associated with increased levels of debt, stagnant debt, or even reduced debt. In the case of debt levels, the statistical test seems at odds with individual country analyses, which show the various inconsistent effects of debt levels on GDP growth.

Explaining this finding also comes at odds with the theoretical negative effects of increased debt, as described in the literature. This is certainly true with my statistical results, which show the complete opposite, at least in the short run. High debt levels may prevent a country from a rapid increase in its growth rate, but certainly does not bring doom and economic stagnation. It is possible that debt levels, like inflation, are better explanatory variables for long-term economic effects, rather than the short-term fluctuations in this study.



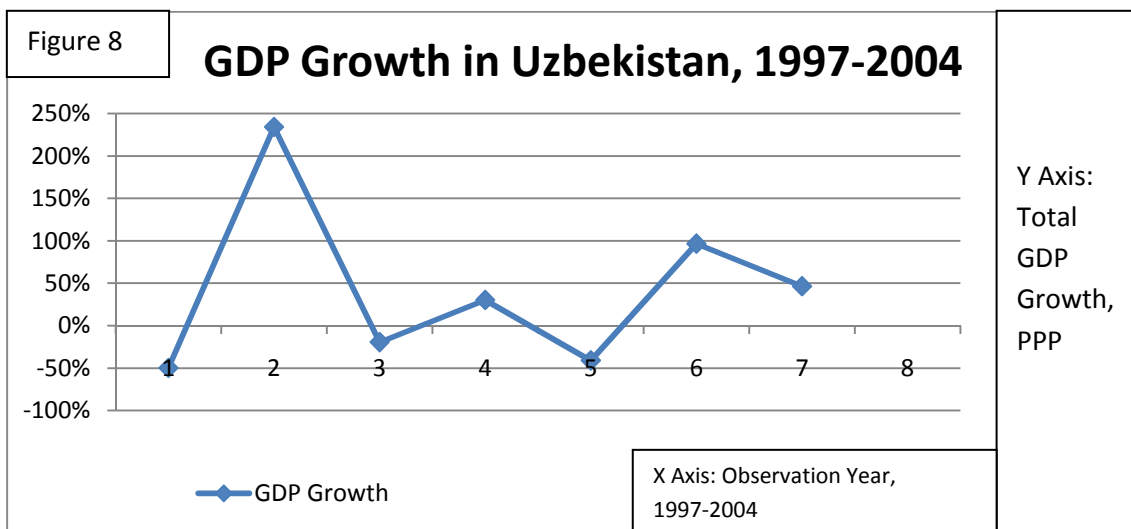
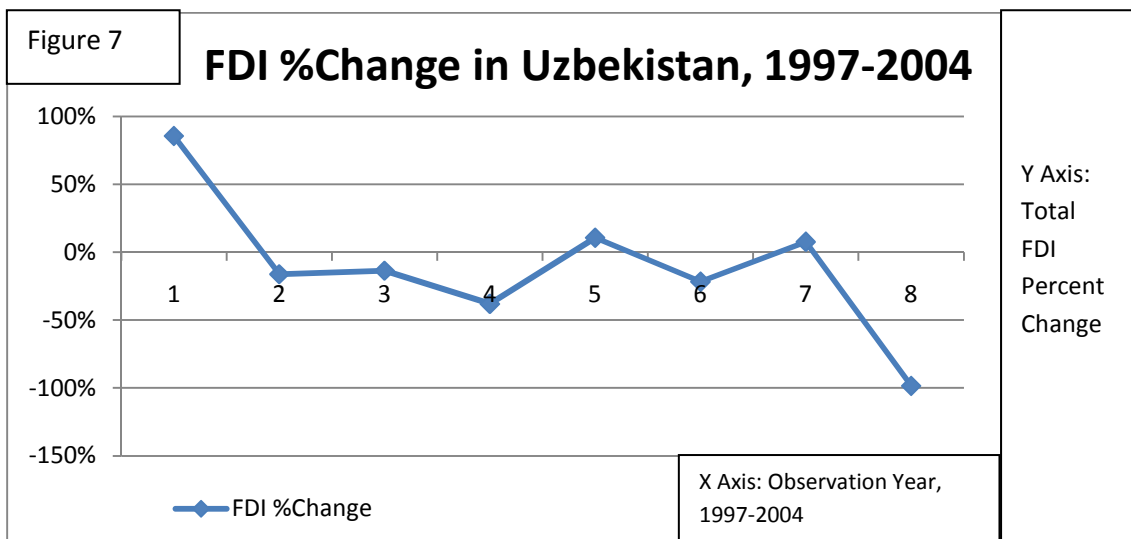
Interpreting Results: FDI

There is strong statistical support that higher levels of FDI have been associated with higher levels of economic growth. This confirms my hypothesis, as well as the arguments made earlier in the thesis on why investment matters. In addition to the regression results, we can examine the relationship between FDI and GDP growth in a few individual countries to help solidify my findings.



These charts reinforce the findings of my statistical study, and also demonstrate why a lag period is so important. For example, a spike of FDI in Period 5 had little initial effect, but was followed by strong GDP growth from Period 6-8. Similarly, note that it was not until Period 8 that GDP growth began to fall off, after a significant drop in investment growth after Period 6. Even visually, the two graphs look similar with their respective rises and falls, once FDI is shifted to the right to incorporate the necessary lag time.

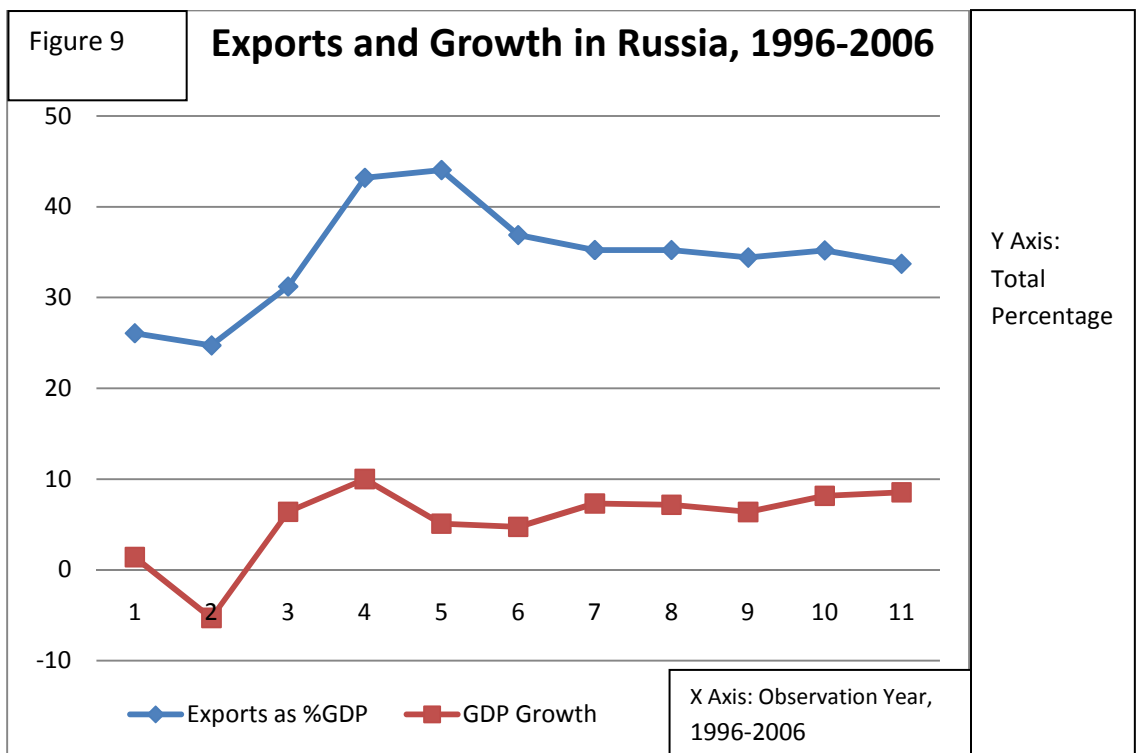
We can look another example, Uzbekistan, from a different region (Central Asia):

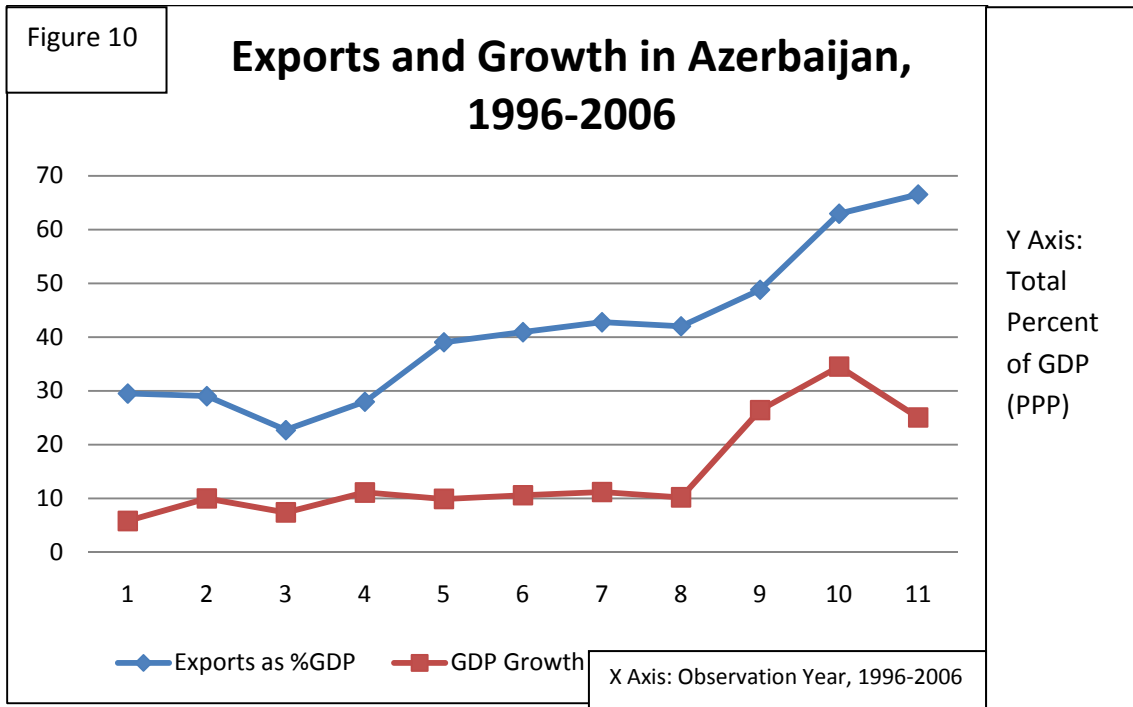


Again, there seems to be a correlation between the two. Interesting to note is that there seems to be a variation in lag times. The time it takes investment inflows to impact a country does not seem to be uniform. What does seem similar, though, is that the impact will be visible and significant. This country analysis backs up the strong statistical findings that higher levels of FDI lead to higher GDP growth.

Interpreting Results: Export Growth

Also significant in explaining economic growth is export growth. Countries that shift their trade balance towards exports enjoy higher GDP growth levels. The strong correlation can also be seen when examining individual countries:





The individual country analyses show strong support that an increased focus on exports leads to higher levels of growth. There are several theoretical arguments regarding trade that support this idea. Being successful in exporting goods requires specialization, and forces a country utilize its comparative advantage. Additionally, capital inflows stemming from exports will push up wages in the exporting sector. Both labor and resources will begin to be directed to the profitable sector. This will serve to help make the economy more efficient and productive. As a result, GDP growth will grow alongside with exports as a percentage of GDP. This is clearly demonstrated in both the statistical and country-level analysis.

The issue of lag time also seems interesting. The 1 year lag reflected in these graphs seems to work well, as the high growth seems to occur almost simultaneously with export growth. However, in some cases the export growth precedes GDP growth, possibly implying that the 1 year lag may be too long.

WTO Status and Economic Growth

First, I will use bivariate regression analysis to understand the effects of the WTO on a country's GDP growth rate. As discussed earlier, I will be using fixed effects to account for possible omitted error bias. The following table indicates the relationship between growth and WTO status:

Table 3

VARIABLES	(1) <u>Growth Rate and WTO Status</u> growthrate	(2) <u>Including control for years</u> growthrate	(3) <u>Including years only after 1998</u> growthrate
WTO Status	11.70* (1.797)	-1.832 (1.699)	4.926* (1.490)
Year		1.445* (0.106)	0.150 (0.121)
Constant	-0.938 (0.714)	-2,887* (211.6)	-293.6 (241.3)
Observations	281	281	150
R-squared	0.138	0.494	0.124
Number of countrycode	15	15	15

Standard errors in parentheses
 *** p<0.001, ** p<0.01, * p<0.05

At first glance, these results seem to be a strong relationship between high levels of growth and membership in the WTO. The coefficient and the .001 probability level indicate this. WTO countries have posted considerably larger growth rates in post-Soviet times. However, there is an important variable to consider here; time. If economic performance is increasing all across the Soviet Union during certain periods, then looking the growth rates of WTO countries (mostly coming into effect around 1999-2000) will obviously be higher than the growth rates compared to non-WTO countries in earlier years. To counter these issues, I ran the same regression, but this time controlled for the year as well.

This time, I limited my data to only years after 1998. This analysis looks at growth rates between countries only after former Soviet countries became full members of the WTO (roughly 1998-1999). This is arguably the best time-table for analysis, because it provides a heads-up comparison of WTO and non-WTO country economic performance. This time, I find that WTO status again becomes statistically significant. By limiting the analysis to the years when it can be studied with the least amount of bias as possible, we can be sure that WTO countries have been associated with higher levels of growth than non-WTO countries since the ascension of these countries around the year 1999.

So how is this significance explained? Again, assuming it is not simply the label of being a WTO country, it is more important to look at what about being a WTO country leads you to achieve higher levels of growth. One possible explanation is that WTO countries enjoy higher levels of FDI. As established earlier, higher levels of FDI lead to higher GDP growth. Next, I will test to see if increased FDI is the reason why WTO countries are performing better.

WTO Status and FDI

In theory, I expect that WTO member countries should benefit from the institutional respect a country derives from being a member of this organization. The WTO claims to promote stronger institutions, and therefore invite higher levels of investment from previously-skeptical investors. Again, using fixed effects to account for country variation, here are the regression results on levels of FDI and WTO status:

Table 4

VARIABLES	(1)	(2)	(3)
	<u>FDI and WTO Status</u>	<u>Including control for years</u>	<u>Including years only after 1998</u>
	fdichange	fdichange	fdichange
WTO Status	-0.467 (0.917)	-1.261 (1.228)	-0.733 (2.049)
Year		0.107 (0.110)	0.235 (0.184)
Constant	1.088* (0.453)	-213.4 (220.3)	-470.5 (367.6)
Observations	178	178	126
R-squared	0.002	0.007	0.015
Number of countrycode	14	14	13

Standard errors in parentheses
 *** p<0.001, ** p<0.01, * p<0.05

Regardless of the changes in years and control variables added to the analysis, it is very obvious that there is no significant evidence associating WTO status with higher levels of FDI. Investors seem not to be comforted simply by a country's membership in the WTO. Similarly, non-WTO countries do not seem to suffer a comparatively lesser level of FDI based solely on their lack of WTO membership. Whatever factors weigh in the minds of potential investors, clearly their WTO status does not make much of a difference.

If foreign direct investment is not explaining the disparity between WTO and non-WTO countries, something else must be playing a key role. Next, I will examine institutional strength. As described in the literature review, institutions play a key role in encouraging economic growth. Perhaps reforms necessary to become a WTO member helps a country strengthen its internal institutions. Next, I will examine the relationship between WTO countries and institutional strength.

WTO Status and Institutional Perceptions

Earlier in this thesis I detailed the advantages of using a perceptions-driven dataset. This approach is the best method to determine whether or not WTO countries are perceived as having stronger institutions and more effective patterns of governance than those who have not yet been accepted as members. While the WGI dataset goes back to 1996, the following tests will only include years from 2000 onward, as to reflect the most accurate representation of the relationship between institutional perceptions and WTO status.

The first governance variable included in the WGI dataset is voice and accountability. We can test whether or not outside organizations have viewed a comparative rise in a more democratic system of governance in WTO countries.

Table 5

VARIABLES	(1)	(2)
	<u>All Years</u> voice	<u>Post-1998 Only</u> voice
WTO Status	0.0194 (0.0566)	-0.0361 (0.0803)
Year	-0.00768 (0.00461)	-0.00469 (0.00596)
Constant	14.78 (9.232)	8.799 (11.94)
Observations	149	120
R-squared	0.025	0.012
Number of countrycode	15	15

Standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

There appears to be no relationship between a country's WTO status and a perceived increase in democratic institutions. This was not tested as a causal argument;

rather, I wanted to determine rather or not the better economic performances of WTO member-countries from 1998-2008 has been accompanied by a view that these countries are moving towards building a stronger democracy. Clearly, this is not the case, at least not in this region of the world. Many of these countries better resemble the pattern demonstrated by China; WTO ascension, significant economic growth, and no steps to address global concerns regarding democracy.

The next variable seeks to measure the perceptions regarding the stability of the government. It also takes into account perceptions of the risk of politically motivated violence and terrorism.

Table 6

VARIABLES	(1) <u>All Years</u> politicalstability	(2) <u>Post-1998 Only</u> politicalstability
WTO Status	-0.0124 (0.120)	0.297* (0.133)
Year	0.00707 (0.00969)	0.0278* (0.00988)
Constant	-14.48 (19.39)	-56.14* (19.78)
Observations	150	120
R-squared	0.005	0.162
Number of countrycode	15	15

Standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

Here, we do in fact see a significantly better performance by WTO member-countries when compared to observer-countries. Democratic values aside, outside investors and organizations have perceived lower risks regarding stability, politically motivated violence, and terrorism in WTO-member countries post-ascension.

Next, the “Government Effectiveness” variable captures perceptions regarding the quality of public and civil services, as well as the credibility of the government to enforce these policies free of political pressures.

Table 7

VARIABLES	(1)	(2)
	<u>All Years</u> goveffect	<u>Post-1998 Only</u> goveffect
wtostatus	0.110 (0.0696)	0.177* (0.0801)
year	0.0163** (0.00560)	0.0174* (0.00595)
Constant	-33.15** (11.21)	-35.47* (11.91)
Observations	150	120
R-squared	0.152	0.167
Number of countrycode	15	15

Standard errors in parentheses
 *** p<0.001, ** p<0.01, * p<0.05

This variable is also statistically significant. The institutions charged with implementing policy free of political pressure are extremely important in building the foundations for long-term economic growth (Rodrick, etc), and it is interesting to see that WTO countries are perceived to do a better job of this.

Next, we can determine whether or not perceptions on the rule of law in a country are higher in WTO countries than non-WTO countries. Again, this variable is important regarding growth because of its reflection on the quality of contract enforcement and property rights, which can both make-or-break the potential for investment.

Table 8

VARIABLES	(1)	(2)
	<u>All Years</u> ruleoflaw	<u>Post-1998 Only</u> ruleoflaw
wtostatus	-0.0183 (0.0696)	0.0327 (0.0880)
year	0.00343 (0.00560)	0.0236* (0.00653)
Constant	-7.450 (11.21)	-47.84* (13.08)
Observations	150	120
R-squared	0.003	0.136
Number of countrycode	15	15

Standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

Perceived advances in rule of law have not been significantly altered based on WTO status. From the point of view of a WTO-backer, this finding should be disappointing. The WTO frequently stresses the benefits a member-country enjoys through its complex dispute resolution system. This lack of evidence implies that despite the pledges member-countries must make to gain ascension, outside investors and organizations do not see a significant difference between their progress and that of non-WTO countries in the former-Soviet Union.

The regulatory quality variable measures perceptions regarding the government's ability to enforce regulations regarding public and private sector business. This measure is especially relevant to FDI and GDP growth, as investors are intensely concerned with the stability and safety of their investments.

Table 9

VARIABLES	(1)	(2)
	<u>All Years</u> regquality	<u>Post-1998 Only</u> regquality
wtostatus	0.0306 (0.0755)	0.0918 (0.0883)
year	0.0363* (0.00607)	0.0370* (0.00656)
Constant	-73.07* (12.15)	-74.57* (13.13)
Observations	150	120
R-squared	0.299	0.292
Number of countrycode	15	15

Standard errors in parentheses
 *** p<0.001, ** p<0.01, * p<0.05

This is another surprising lack of significance, because again, I expected to see higher growth rates associated with better perceptions of institutional quality across the board. Amongst the former-Soviet countries, however, there does not seem to be a significant relationship.

Lastly, the corruption variable seeks to display perceptions on the level of corruption within a state, including involvement of government officials themselves. It has been argued that comparative success on controlling corruption is a key reason why some European and Baltic countries have undergone more successful transitions from central planning to market economies (Black and Tarassova 2003: 214).

Table 10

VARIABLES	(1)	(2)
	All Years corruption	Post-1998 Only corruption
wtostatus	0.0219 (0.0758)	0.00104 (0.0856)
year	0.0189* (0.00610)	0.0158* (0.00635)
Constant	-38.43* (12.21)	-32.32* (12.72)
Observations	150	120
R-squared	0.105	0.065
Number of countrycode	15	15

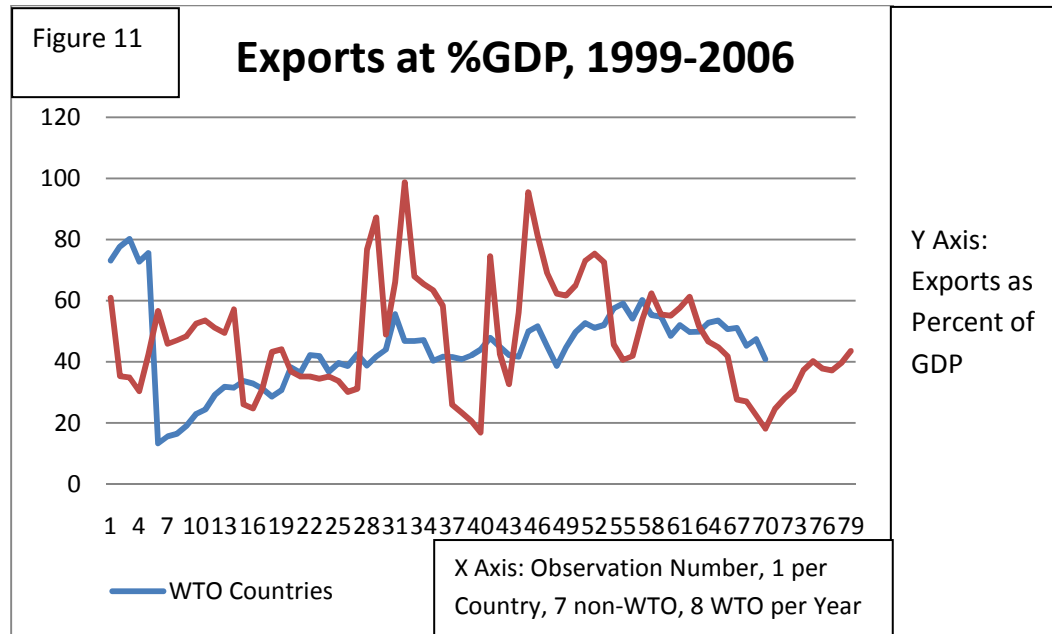
Standard errors in parentheses
 *** p<0.001, ** p<0.01, * p<0.05

WTO status is also not a good predictor the perception of a country's ability to combat internal corruption. Corruption is a rampant problem throughout the former-Soviet Union, and apparently outside organizations and investors believe that WTO-countries have been just as ineffective in addressing it as non-members.

WTO Status and Export Growth

Lastly, I can determine whether or not WTO countries in the former-Soviet Union tend to export more than non-WTO countries. Because I determined that export growth plays a significant role in GDP growth, if the WTO leads countries to export more, this could be the link between WTO membership and GDP growth. I will examine this claim next.

Becoming a WTO member should expand your possibilities for trade, by giving a country greater access to export markets. If this holds in practice, we should see a significantly higher GDP share of exports from WTO countries. The following shows each yearly export observation for WTO and non-WTO countries since the end of 1998:



Strangely, WTO countries tend to be less oriented towards export-driven growth than their non-WTO counterparts. Indeed, over the course of this sample, WTO countries have a mean of 44.6%, while non-WTO countries have a mean of 47.7%! While I do not believe there is any causation between non-membership and export growth, this clearly shows that WTO status alone is not associated with higher export growth, despite the supposed access to new markets. Perhaps, this puzzle can be solved by looking at the trading patterns of the non-WTO countries. Countries like Russia, while outside the WTO, still are heavily involved in international trade, and have in place several bilateral trade agreements. It is possible that the prevalence of these agreements can marginalize the importance of the WTO in increasing exports.

These tests have shown that it is not increased FDI or exports that explain why WTO members enjoy higher levels of growth. The fact that WTO countries are perceived to be more politically stable and have a more effective government may play somewhat of a role. Nevertheless, the WTO-GDP growth mystery remains difficult to

explain conclusively. Lastly, we test that WTO members simply engage in international trade more than their non-member counterparts around the former-Soviet Union.

WTO Status and Trade Growth

Perhaps the only factor explaining the link between WTO membership and economic growth is simply increased trade overall. As shown earlier, WTO member-countries are not more likely to export more than non-members. However, increased trade in general, whether from imports or exports, puts pressure on inefficient domestic industries. These domestic industries must become more productive and efficient, or else risk having their customers abandon them in favor of foreign imports. Because looking at pure volume of trade is misleading due to the disparity in economy size, the best way to examine this is by looking at trade as a percentage of GDP for WTO versus non-WTO countries.

There does tend to be support for this explanation. On average, WTO countries have posted higher trade numbers (106.6% to 99.9%) and have a smaller standard deviation (27.5 to 31.3), meaning that WTO countries also seem to look more alike than non-WTO countries. This helps give credit to the claim that WTO membership itself is behind the increases in trade in these countries.

Figure 12

Trade as %GDP

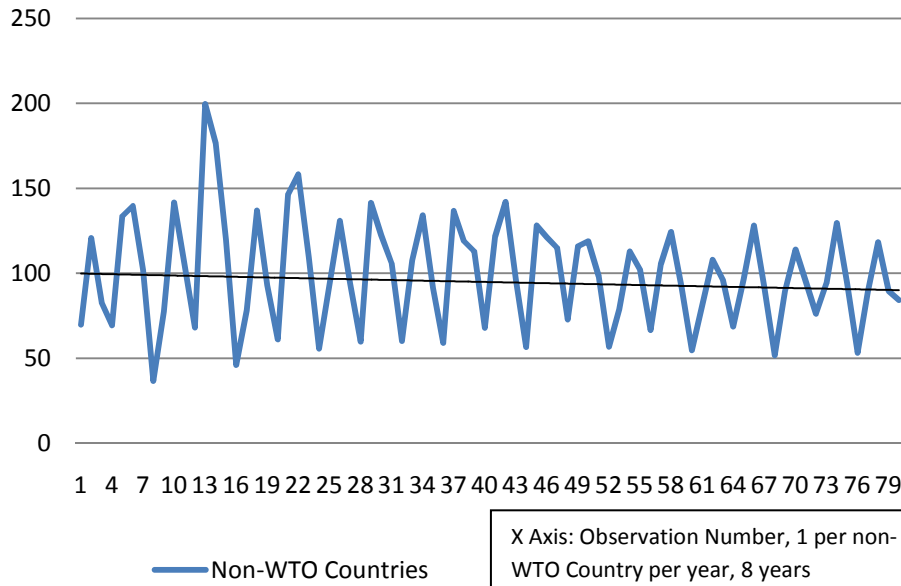
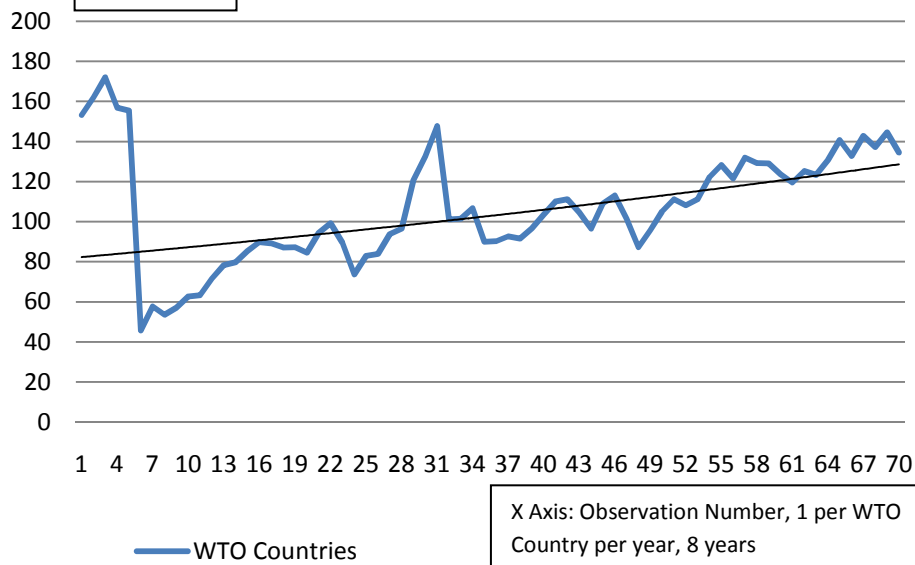


Figure 13

Trade as %GDP



Results: Hypotheses Revisited

Next, I will revert back to my hypotheses, briefly reflecting on how my results compare with my predictions. In the next section, I will try to interpret and explain these results.

H1: High inflation is negatively correlated with economic growth.

There does not seem to be much support for this hypothesis. Despite controlling for a healthy two percent inflation rate, there seems to be no stable statistical relationship between high inflation and economic growth.

H2: High levels of external debt are negatively correlated with economic growth.

These results are statistically significant; but in the opposite direction of what I predicted. Higher levels of external debt are strongly correlated with higher levels of economic growth.

H3: Higher levels of investment will lead to higher levels of growth.

This hypothesis holds true. A higher level of FDI as an explanation for higher levels of economic growth is statistically significant at the .010 level.

H4: Increased focus on exports will lead to higher levels of economic growth.

Export growth is strongly correlated with GDP growth. This lends support to the idea that trade and export-driven economies grow faster. Additionally, there is support for the claim that WTO member-countries post higher levels of economic results.

H5: WTO countries will post higher levels of economic growth than their counterparts in the region.

WTO countries do post significantly higher levels of growth. Obviously, just calling yourself a WTO country does not automatically raise your GDP, so I looked at FDI, institutional confidence, and export growth to see what about being a WTO country leads to economic growth. I found that I could reject all of these, and showed that only higher overall trade growth is significant in WTO countries.

CHAPTER V

IMPLICATIONS AND CONCLUSIONS

Despite substantial literature warning of the negative effects of high inflation and external debt, neither seems to be completely accurate in this study. Inflation, even after being adjusted for a healthy level of two percent, had various effects on growth levels across the region and did not come close to registering as statistically significant. Debt registered statistically significant in the opposite manner I expected, and country-level analysis did not yield any substantial findings. This seriously limits the credibility of any association between debt levels and economic growth found in this thesis.

While it is impossible to determine from this thesis the effects of these variables in the long-run, it is possible to make a few assertions over their influence on economic growth in the short-run. In short, neither plays much of a role. Perhaps if this study was expanded over a longer period of time, it might be possible that negative effects could be found. However, I am limited by not only the relatively recent dissolution of the Soviet Union, but also the chaotic initial post-Soviet years that would be unrealistic to group with more recent years. Inflation (at least in moderate amounts) reflects growing levels of demand within an economy, which is generally good. Debt is necessary for investment projects that will be beneficial in the future, which is also generally good.

The inability to distinguish between good and bad examples because of the short time period prevents this study from making causal arguments about their respective effects.

Foreign direct investment has been proven to play a key role in development within the former-Soviet Union. Using a statistical approach, I was able to show that FDI was significant in explaining increases in GDP growth rates. Additionally, looking at a few cases helps supplement that finding. Spikes in levels of FDI often lead to spikes in GDP growth, while depressions in FDI levels leads to economic stagnation or even decline. This reflects my hypothesis concerning FDI, as well as much of the academic literature. Domestic investment is hard to come by in developing countries, for several reasons. First, saving is necessary for investment, and many countries within the former-Soviet Union do not have a significant amount of their national incomes devoted to savings, as more pressing matters require immediate consumption of a large portion of the income. This was especially true early after the dissolution. Additionally, these countries lack the sufficient financial institutions to enable the transfer of capital from savers to investors. Growth depends on investment, and in developing countries, FDI plays an essential role in providing capital to a country that otherwise would struggle towards economic progress.

Perhaps surprisingly, even more important than FDI in this study is the role of exports. As a country adjusts its trade balance to favor exports over imports, their economy will benefit significantly. Besides redirecting labor and domestic capital towards their most productive uses, exports offer a great opportunity to attract foreign capital. Export-driven growth is an attractive option for developing countries because of its quick benefits to the economy. While inflation and debt play a minimal role and FDI

plays a fairly strong role in short-run growth, a shift towards increased exports requires the least amount of lagged time to have a significantly positive effect on economic growth.

Variety within the different economies of the former-Soviet Union is no doubt present, which is why a study like this is unable to offer a causal argument on the steps to increase economic growth. However, the correlations determined here were especially strong concerning FDI and exports across the region, and thus it still seems that while there may be several ways of achieving increases in these areas, they remain the most promising path towards increasing short-term economic growth rates.

WTO Status and Growth

After demonstrating that WTO countries post significantly higher economic growth compared to their non-WTO counterparts, I then set out to determine what about WTO membership actually leads countries to consistently grow faster. I examined two of the macroeconomic variables found earlier in this thesis to be significant in explaining growth, increased levels of FDI and an increasingly export-driven economy. For FDI, there was no evidence to suggest that WTO countries were more likely to receive higher levels of FDI than non-members. For exports, not only was there no evidence to support higher exports among WTO countries, but non-WTO countries actually posted slightly higher exports as a percentage of GDP numbers. Since FDI and exports cannot explain why WTO countries grow faster, there must be some other WTO characteristic at play here.

To determine whether WTO membership led to stronger institutions important to trade, I examined perceptions of these institutions in WTO versus non-WTO countries. Contrary to my expectations, I found limited support here as well. To summarize, here are the results of those tests:

Table 11

Statistically Significant Positive Effect	No Significant Effect
Political Stability	Voice and Accountability
Government Effectiveness	Rule of Law
	Regulatory Quality
	Corruption

* Results from regressions in Chapter IV

On one hand, the expectation of a stable government committed to the policies it puts into effect is surely helpful towards encouraging growth and investment. However, the lack of support seen for WTO countries in other important areas such as corruption and regulatory quality prevents explaining the link between WTO membership and growth as simply a strengthening of internal institutions.

The only solid difference between WTO and non-WTO countries demonstrated in this thesis is in overall level of trade. WTO countries post higher levels of trade as a percentage of GDP than non-WTO countries, and also have more uniform levels than non-members. As this trade does not come from increased exports, how can this correlation be explained? One possible explanation is that WTO members enjoy greater

access to foreign imports, which in turn leads to increased efficiency and productivity within domestic economies. This thesis has shown that WTO membership does not serve as a positive shock to a country's exports, as increased exports are seen throughout the region, and in some cases even more so in non-WTO countries. An explanation for this is that several countries within this region, Russia for example, are already involved in a number of bilateral free trade agreements with their biggest trading partners. This is done to make sure that countries are able to profit from their biggest resources through exports. Perhaps WTO membership can serve as a shock for imports, however, as citizens can now branch out from free trade agreements designed with specific resources in mind, to the WTO's focus on all goods. This shock, and the subsequent expansion of imports and therefore overall trade within an economy, could serve as the explanation between WTO membership and higher GDP growth.

There are some portions of my thesis that would be strengthened by further analysis. The following are, in my opinion, the two biggest areas in my analysis that deserve further study:

1. More country-level analysis is necessary to supplement statistical findings, especially concerning my most significant findings.

A common (and justified) critique of large scale statistical studies is that because of the variation between countries, the most statistically significant of findings can may not be helpful in understanding economic effects within individual countries. I have tried to address this by incorporating a few examples of individual countries to supplement my statistical findings, but even this is relatively minimal. There is

strong statistical support in this study for the role of FDI and exports in explaining economic growth, but few details about the means by which they were increased. In order to argue causation instead of correlation, more work needs to be done on how FDI and exports work in practice, within individual countries.

That being said, it is not feasible to examine every single country in detail for each of the variables I want to test. Perhaps if I focused on only on macroeconomic variable, this would be possible. However, my goal was to produce a much larger study, examining the trends and effects of several macroeconomic variables within the post-Soviet region. The benefit of a study like mine is that there are several findings that can later be tested on the individual country-level. Large scale statistical studies are helping in exposing trends that might otherwise have gone unnoticed, and produce generalizable findings that do not suffer from selection bias to the level that of individual country analyses. Statistical and case study methods can complement one another nicely, and a further incorporation of the latter would help to strengthen the validity of my findings.

2. No explanation for debt findings.

Despite my best efforts, I am still unable to offer any kind of substantive explanation for the role debt levels play in determining economic growth levels. My statistical study produced results that were significant, yet counterintuitive. Incorporating examples of individual countries only further clouded understanding, as effects varied greatly from country to country. Perhaps the short lag (1 year) along with the unspecified differences in good and bad debt are part of the reason for the

lack of clarity. Additionally, there is a strong possibility that there are different types of debt, which may have varying effects on a country's economy. A deeper, country-level analysis is necessary in explaining this association, as it cannot immediately be understood through my statistical study.

Conclusions

This study has yielded evidence that moving beyond individual countries, there are certain macroeconomic variables that play a significant role in explaining economic growth throughout the region. An in-depth study of inflation and debt showed that neither significantly affects short-term growth. Both FDI and export-led growth help countries quicken their GDP growth rates, with rebalancing a trade balance towards exports being both more helpful and requiring less of a lag time to for economic benefits to materialize.

Trade has a strong effect on economic growth, and WTO member-countries within the former-Soviet Union do experience higher economic growth rates than non-members. However, this effect can only be attributed to higher overall trade levels. WTO countries have not increased their exports more than non-members, do not receive significantly higher levels of FDI, and enjoy only a minor advantage in perceptions of domestic institutions.

Moving forward, there are future studies that would help to both test and advance my findings. First, more country-level studies need to be added to solidify the importance of FDI and exports on economic growth. Also, adjusting the lag times of my variables might help to understand their effects on long-term growth, as my study mainly

explains economic fluctuations in the short-run. My finding that WTO countries trade significantly more, but do not export more, is interesting and invites further analysis. My explanation of WTO membership as an import-focused shock that benefits a country by forcing domestic industries to becoming more efficient is purely speculation at this point. This could be tested by examining the type and quantity of commodities traded before (under bilateral trade agreements) and after WTO ascension. Further examination into why WTO countries grow faster than non-WTO countries would also be helpful, as my study tests only FDI, exports, institutions, and trade volume.

Explaining economic growth is extremely tricky, not least because of the amount of variables that can affect a country's economy. This study has shown that certain macroeconomic variables are more important than others in explaining short-term GDP growth. Thus, developing countries seeking to grow should not be overly concerned with immediate steps to combat inflation or debt, but rather seek methods of attracting high levels of FDI, or developing sectors in which they have a comparative advantage in order to increase exports. These findings are not a panacea though. Becoming too dependent on FDI can be catastrophic should outsiders lose confidence within a country and rush to extract their money, as Southeast Asian countries found out the hard way in 1997. Obsessing over exports, on the other hand, makes countries dependent on outsiders, and may lead countries to manipulate their currencies to ensure favorable exchange rates, which risks inflation and dampens domestic consumption. Long-term economic growth strategies are complicated, and may differ significantly from country to country. However, the findings of this study have demonstrated that should an economy seek to improve its GDP growth rate quickly, FDI and balance of trade are more pressing matters

than controlling inflation or debt levels. The short-term effects of these variables on growth rates in the post-communist economies of the former-Soviet Union do not match uniformly with the effects often argued in the literature.

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Scope and Method of Study: Since the mid-1990s, the fifteen countries that make up the former-Soviet Union have started to graduate from the economic problems that devastated the region after the dissolution of the USSR. While there is disparity in both the size and makeup of these separate economies, there are still common economic trends that can be observed. The goal of this thesis is to examine several macroeconomic variables from 1996-2008, in order to determine which have similar effects on economic growth throughout the region. I also want to determine whether or not these newly post-Communist economies respond to these factors in the manner that the literature suggests should be universal.

Findings and Conclusions: Although there is much literature extolling the negative effects inflation and debt have on economic growth, I find little evidence of their short-term importance. Foreign direct investment and exports, however, both play a key role in determining economic growth rates. Additionally, I find support for the theory that World Trade Organization member-countries experience higher economic growth, and attempt to explain what about membership explains this trend. WTO countries have engaged in higher levels of overall trade, but have not experienced higher levels of FDI, exports, or institutional confidence than their non-WTO counterparts.

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