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INFLUENCE OF GOVERNMENTAL POLICIES ON ECONOMIC GROWTH: CASE OF UKRAINE AND GEORGIA

Bachelor Thesis

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I declare that I have written this bachelor thesis on my own, using reliable and appropriate sources I have referred to.

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Abstract

The purpose of this thesis is to analyze the extent to which economic reforms in Georgia after the 2004 Rose Revolution and Ukraine after the 2014 revolution influence economic growth. The outcome of the thesis is that economic reforms such as privatization, liberalization and de-bureaucratization indeed influence per capita growth rate, however, promotion of limited governmental interference is not always beneficial for the economy. The results suggest that currently Ukrainian government should not focus on promotion of foreign direct investment, but rather on increasing government integrity. Whereas Georgia should focus on increasing financial freedom. Moreover, the thesis shows that limitation of governmental influence is not always the key to economic growth.

Key Words

Economic Growth, Economic Reforms, Privatization, De-bureaucratization, Liberalization

JEL Classifications

E02, E44,. E62, F41, H2

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Introduction

The interest of growth theories and economic development have been the topic of discussion for the last decades. Nowadays, developing countries are aiming to increase their economic growth to become dominant players in the globalized world. However, what are the steps that should be taken to reach this goal? Milton Friedman (pg. 1; 1968) said: “There is a wide agreement about the major goals of economic policy: high employment, stable prices, and rapid growth” It can be said that most open economies in the world, are following this “wide agreement” by promoting openness, stability and prosperity as the key factors of economic growth.

The intention of this thesis is to show how economic reforms influence economic growth in Ukraine and Georgia, as well as attempt to quantify the effects of these reforms. It is crucial to understand which parts of the economy and government should be changed, altered, or erased. The goal is to be able to identify the main indicators that should be stimulated in order to achieve economic growth and to understand whether limiting government’s influence on the economy has a positive impact on per capita growth rate.

After the collapse of the Soviet Union, most countries were in distress. A significant part of these countries was able to stand up and recover, whereas others were not so lucky. After gaining independence from the Soviet Union, most nations did not understand how their economy should and can look like without the Union supporting it. Georgia and Ukraine are the countries that are the focus of this thesis, because for both of them it took some time in order to establish certain goals and policies that allowed them to become more efficient and open to the world. Both nations have went through revolutions which aimed at establishing better, more effective and democratic governments.

The theoretical part of the thesis will focus on the steps that the countries took in promotion of open economy, deregulation and privatization, as well as economic growth theories which served as the basis of the countries’ policies. Particularly the countries were aiming at reducing the number of governmental bodies, de-bureaucratizing institutions, liberalizing the economy, privatizing state enterprises, reforming law enforcement and improving the management of state institutions.

The empirical part quantifies the effect of economic reforms on economic growth. The focus is on the influence of overall economic indicators and indexes of economic freedom on economic growth. The data was taken from the world bank and adjusted accordingly to the necessities of a time series analysis. Subsequently, this data was used to create econometric regression models with the aim of finding the relationship between per capita growth rate and chosen economic indicators.

The empirical part allowed to make conclusions about the specific focus points that should be present in the governments of Ukraine and Georgia, if one of their aims is to increase economic growth. Moreover, the model allows to see that sometimes government intervention can be beneficial in improving a country's economy.

Theoretical Part

1. Theory behind the Reforms

The countries in question, focused their economic reforms on privatization, decentralization and de-bureaucratization, but how did their politicians decide that this would be the best tactic for their country? What is the evidence that suggests that these types of reforms will lead to an increase in economic growth?

It is thought that democracy promotes growth (Barro, 1994), which is the main hypothesis that motivates modern people to work and invest. Democracies can limit state intervention in the economy, encourage stable and long-term growth and respond to the public's demands. Hence, it is important to know the role that these policies might play in achieving economic growth.

Over the years, there have been three main "waves of interest" in growth theory. In his paper, Solow (1994) divides the growth theories into three parts: Harrod-Domar model, neoclassical model and modern alternatives. The Harrod-Domar (1948, 1947) model is a classical Keynesian model of economic growth. It explains economic expansion with the use of saving and productivity of capital. The main issues of this model were: 1. unrealistic assumption that economies spend most of their time experiencing prolonged fluctuations of unemployment rates and prolonged fluctuations of capacity utilization 2. Even if the first assumption is avoided, the economy can increase its long-term growth rate by simply increasing the investment quota.

The neoclassical growth model or the Solow-Swan model (Solow, 1956) resolves the issues above. It predicts that the economy grows because of technological progress, capital accumulation and population growth. Solow's main prediction is such, that in the long run an economy will achieve its steady-state equilibrium, whereas permanent growth is attainable only with the help of technological progress. Later research suggests, that long term growth rate depends on governmental actions which are primarily focused on taxation, law and order, provision of infrastructure, protection of property rights, regulations of trade, financial markets and other aspects of the economy (Barro, 1996). Emerging economies and developing countries need to go through reorganization of their development policies. It is also important to liberalize markets and create policies which support the private sector (Hatem et al, 2011).

Simon Kuznets (1973) pointed out the significance of a type of political environment in the economy, that fulfills the necessary conditions for growth. He stressed, that advancing technology plays a substantial role in countries' growth rate, but this is not the only factor that provides the necessary conditions for economic growth. He pointed out that sufficiency is ensured only if technological advancement is coupled with stable and flexible sociopolitical institutions offering freedom and civil liberties to its citizens. Democratic systems must promote active and voluntary citizen participation, competitive market conditions and economic freedoms.

Georgia and Ukraine are still struggling with transitioning from planned economies to open ones. There are two types of transitions from such different poles: the "shock therapy" and a "gradualist" strategy. The gradualist approach needs strong state and governance institutions, whereas shock therapy promotes rapid privatization with the assumption that stable institutions will develop naturally with the advance and expansion of private markets (Sumner, 2008). Most post-soviet countries took the shock therapy approach. The main issue was facing privatization, policymakers and economists knew how to liberalize and stabilize an economy, but did not know how to privatize an entire economy (Hamm et al. 2012). Poland is considered to be the best example of the "shock therapy" approach. (Balcerowicz, 1994) A "Balcerowicz Plan" was implemented by Leszek Balcerowicz, Polish minister and economist. The goal was to transform the economy from central planning to a market economy as fast as possible. The strategy contained ten main points (Garland, 2015):

1. Act on Financial Economy Within State-owned Companies, which allowed for state-owned businesses to declare bankruptcy and ended the fiction by which companies were able to exist even if their effectiveness and accountability was close to none.
2. Act on Banking Law, which forbade financing the state budget deficit by the national central bank, NBP, and forbade the issue of new currency.
3. Act on Credits, which abolished the preferential laws on credits for state-owned companies and tied interest rate to inflation.
4. Act on Taxation of Excessive Wage Rise, introducing the so-called 'popiwek tax' limiting the wage increase in state-owned companies in order to limit hyperinflation.

5. Act on New Rules of Taxation, introducing common taxation for all companies and abolishing special taxes that could previously have been applied to private companies through means of administrative decision.
6. Act on Economic Activity of Foreign Investors, allowing foreign companies and private people to invest in Poland and export their profits abroad.
7. Act on Foreign Currencies, introducing internal exchangeability of the Zloty and abolishing the state monopoly in international trade.
8. Act on Customs Law, creating a uniform customs rate for all companies.
9. Act on Employment, regulating the duties of unemployment agencies.
10. Act on Special Circumstances Under Which a Worker Could be Laid Off, protecting the workers of state firms from being fired in large numbers and guaranteeing unemployment grants and severance pay.

This plan was based on the "Washington Consensus" theory that was drawn up by Williamson, Sachs and Lipton which outlined how economic transitions should be done. The removal of constraints in order for private enterprises to develop, privatization of state-owned enterprises were the key aspects of Poland's transition. There were both positive and negative outcomes from the shock therapy approaches, but despite the criticism, sine 1990 until 1996 Poland's GDP ppp increased by 6.61%.

As for the countries in focus of this thesis, Ukraine and Georgia became independent nations in 1991. After gaining their independence, the institutions in the countries remained the same, the countries were not prepared for such changes. After the 2004 Rose Revolution in Georgia, Orange Revolution and 2014 Euromaidan revolution in Ukraine, the leaders kept on attempting to establish democratic governments and market economies. Georgia started to do massive economic reforms after the 2004 revolution, whereas for Ukraine it took a while longer, due to unstable political and economic environment, making their first steps to democratic governance only after 2014.

The countries favored the shock therapy method which promotes rapid privatization, the death of native bourgeoisie and domestic capital. Privatization was one of the key reforms in Ukraine and Georgia. Particularly, mass privatization has been especially popular with the post-soviet countries making it one of the defining components of transitioning from planned economy to a free market. However, in post-socialism countries, the main challenge of privatizing state property is that "Privatization is the sale of enterprises that no one knows, and whose values no one knows, to buyers who have no money" – Poland's Minister of Ownership Changes in 1991 (Savas, 1992). This leads to the conclusion that without effective institutions in place, it is impossible to achieve what post-socialist countries sought out to accomplish.

There are three main challenges that must be tackled when transitioning from socialism to democracy; liberalization, privatization and de-bureaucratization It is important to have the correct institutions in place, when trying to pursue mass privatization. Without an effective competition policy, existing monopolies go into private hands, which then might have enough power to overtake the state apparatus – hence, effective de-bureaucratization has to take place, in order to ensure that qualified people are creating the policies (Roland,2002) .

2. GEORGIA

I. De-bureaucratization

After the 2004 Rose Revolution, the trouble with the new government was that there was no dominant ideology and it was impossible to carry out reforms when most of the ministers were contradicting each other. Only in the second half of 2004 did they begin to somehow consolidate and crystallize their ideology. "You can sell everything except conscience" is Kakha Bendukidze's scandalous phrase that began the movement towards libertarian economy.

A key part of the reform was the radical reduction of the state apparatus. By the time of the arrival of the new government, it was obvious that it was impossible to achieve changes without a flow of fresh blood, or rather a complete transfusion. The main issue was that unclear structure of the political bodies reduced the efficiency of the state. There were so many regulatory institutions and inspections in the state, that the regulators themselves did not know the boundaries of their powers and shifted responsibility between each other. Often, the functions were duplicated, and most often this was accompanied by a lack of any control.

The first part of the reform was cleansing of corrupt and insufficient employees . Widespread testing, competitions, interviews, layoffs, new people were hired for work. The national policy reflected in the country's medium-term development project was broadcast by each ministry, each institution, but the tone for the changes was set by the Ministry of Economic Development. The task for the ministry was such, that they needed to select "smart people". As a result, out of almost a thousand already working in it there were not more than fifty employees left. Then, after a serious selection, they were joined by completely new people who got to the ministry, including fresh graduates. Many of the new joiners could not believe that they can go up the career latter so fast, without patronage and simply thanks to their potential they were able to not only get to civil service but also advance in it. The main steps in achieving de-bureaucratization was not only decreasing the actual amount of state bodies, but reforming them.

i. Decreasing number of Governmental Institutions

To begin with, The government demanded the various department to send a page length summary of their work essence. After the check up it came to be that some departments are in fact non-existent. All dismissals and acceptances for work were recorded on camera, so that in the event of legal actions there were no problems: "This was fully justified. Everyone knew that they were being laid off, and they could not come up with anything for the trial. And out of three thousand contestants, only one went to court, but we still won."(Burakova (Буракова), 2011) As a result, the total number of ministries was reduced from eighteen to thirteen. Eighteen state departments were transformed into institutions subordinate to ministries, and the total number of subordinated agencies and institutions decreased from fifty-two to thirty-four, and the number of employees of ministries and departments dropped almost twofold.

Since January 2005, the reform of remuneration in the civil service has begun. A maximum of the minister's salary was equivalent to $1800, and a minimum of $70. The goal for setting a margin of salaries, was to allow each department to decide which salary to give judging by the performance of their staff. This completely eliminated the unused system of a single tariff scale. As a result of optimizing the number of officials and increasing budget revenues in 2004-2005, it became possible to raise the salaries of civil servants by fifteen times.

The forces of new people in the government, made possible the successful fight against corruption, eloquent proof of which is the result of the national survey of the Caucasian Research Center (CRCC): in 2007, only 1 percent of respondents admitted that they bribed the previous twelve months (for comparison: in Armenia - 8, in Azerbaijan - 20 percent) (Georgia Human Development index, 2008).

In addition to optimizing the state apparatus, there has also been a qualitative change in the principles of its operation as a result of two parallel processes. The first was initiated by the Ministry of Finance, which, under the influence of the International Monetary Fund, changed the horizons of budget planning. Instead of a one-year budget, medium-term planning was used for three years, which made it possible to present the reforms in a comprehensive manner: with an annual planning the angle of view narrowed, it was more difficult to cover the changes entirely. The second process was initiated by the Ministry of Economy, which forced all ministries to determine their priorities.

This is how Georgia's ex-Minister of Economy Kakha Bendukidze assesses this step:

"It was even kind of funny. I gathered a meeting from the deputy ministers, announced that everyone should write a document that will formulate the mission of the ministry, future actions and so on. As a result - a full zero.

Then I simply dictated to my deputy Lily Begiashvili, which parts should be in the document and stressed that first of all it is necessary to describe the three biggest reforms that the ministry is going to hold. We gave this to the heads of ministries. Some were very well written, for example the Ministry of Culture. I remember that the minister even said that it was very useful for them, we said, they never thought of it that way, but then they gathered, thought and prepared a very interesting document. According to him, he himself revered it with pleasure.

But there were several ministries - "twins". The most catastrophic was the position of the Ministry of Agriculture. For the year of training, they wrote fourteen different versions of the document. The ministry itself did not know why they exist. For example, they wrote that there is a problem of the lack of sales markets, and at the same time they want to increase in productivity. This is nonsense! If you increase production, and there are no markets, the problem will worsen. " (Burakova pg 48, 2011)

ii. Reform of the Ministry of Internal Affairs

Speaking of de-bureaucratization, it is impossible not to mention the most successful and illustrative example - the reform of the Ministry of Internal Affairs. One of the first initiatives of the new government in a matter of days changed what, as everyone thought, can not be changed, thereby adding confidence to the population in their choice and power - in their methods. In Georgia, law enforcement structures have always been one of the most corrupt elements, and in the 1990s they were demoralized as a result of armed conflicts, a sharp drop in discipline, repeated corrupt amnesties and rampant crime and corruption (Siegel, 2005).

Part of the underworld merged with the police, and the police merged with professional criminal groups and with corrupt government officials and politicians. The most corrupt was the traffic police (the former General Administration for Traffic Safety), which almost completely switched to "self-sufficiency" by taking and asking for bribes from both local and foreign drivers and not following the rule of law. [2]

The Georgian recipe for reform was very simple and understandable: if there is a non-functioning, corrupted institution, the only way to correct the situation is to liquidate it and create a new one.

"We did not listen to the advice of European well-wishers who suggested that we carry out reforms slowly, gradually. We acted very rudely and in one day dismissed 15,000 employees from the Ministry of Internal Affairs" (Svoboda (Свобода), 2008) recalls Interior Minister Vano Merabishvili. Moreover, the employees that were dismissed and not allowed back to serve in the Ministry of Internal Affairs, did not try to protest, because even for them it was obvious that the system now operates according to different rules.

In the summer of 2004, the traffic police was completely abolished, and within just two months the Ministry of Internal Affairs created and completed an American-type patrol police from scratch. Her job is to ensure law and order and safety on the roads. It can stop an offense on the street, as well as help in resolving domestic conflicts. Examinations, testing, and interviews allowed to select the best of the applicants. New cars were purchased and a new form was developed, police stations began to be repaired. The salaries of police officers rose tenfold from $ 20. A self-monitoring system was established in the ministry - the General Inspectorate, engaged in an internal investigation of the facts of bribery. Previously, the situation was such that the policeman had almost no chance to avoid corruption: from an ordinary employee was required to transfer the collected tribute to the top, and so on the chain higher and higher.

The modern Ministry of Internal Affairs of Georgia in early 2004 united the Ministry of State Security, the Department of Emergency Situations, the Department of Oil Pipeline Protection and the Border Department. The total number of employees in the association decreased from

75 to 27 thousand (4 thousand of which - the border service), and the average monthly salary of a ministry employee grew from $ 56 in 2003 to $ 443 in 2007.

During the first months of patrols, the broadcasts of the leading television companies were crowded with people giving bribes to new "traffic cops", which were filmed by a hidden camera by intelligence agents. To send a message, it was necessary to show that bribery is an offense and you will be sent to prison for it, thus there were cases when people were sent prison for 10 years for a bribe of $ 50.(Siegel, 2005). Shota Utiashvili, head of the information and analytical department of the Ministry of Internal Affairs, says: "During the first year, we put a lot of resources and energy into PR. We constantly showed on television how they detained another corrupt official. This was a signal to society: the situation is changing."(Burakova, 2011)

The new police immediately became a symbol of the reforms of the new government. The reform of the police reinforced the mandate of confidence in the authorities and gave strength and confidence for other reforms. When it turned out that Georgia can have a good police, and the funds allocated, if they are not plundered, is enough to improve the situation, it became clear that solving other problems is possible and inevitable.

II. Privatization

“Privatization gives three results. The first is budget revenue. The second is the transformation of property from the state into a private one, which in turn leads to the development of a more efficient private sector. And the third - the fight against corruption, which inevitably occurs where money comes into contact with the state," explains Kakha Bendukidze.(Burakova, pg.58, 2011)

In Georgia, as in other post-Soviet countries, state ownership began to pass into private hands in the very beginning of the 1990s. Privatization was elevated to rank, and large facilities were almost not closed. At the same time, mass privatization of the 1990s did not bring any special financial consequences.

Saakashvili said in his 2004 speech: "During the reign of Shevardnadze, up to 90 percent of state property was sold, but from this the country received almost nothing, and we plan to receive up to 200 million dollars from privatization of the remaining 10 percent". Here are two ways of privatization. The first is the so-called beauty contest, when the buyer comes and “promises” to purchase the land/building. The second is when the object gets to someone who offers the best price. To sell it is necessary for money, instead of for promises: who paid more, that and will better understand with it. Transparent auction with a low initial price, and there it will turn out! (Burakova, pg. 63, 2011)

All the key ministers were gathered to draw up prices and properties which they could sell to private entities. The launch of a large-scale privatization policy was given on July 15, 2004, when the Ministry of Economy of Georgia submitted a list of 372 objects subject to privatization at the first stage (2004-2006). In total it was planned to sell about 1800 small, medium and large enterprises. So, the implementation of the concept, which Bendukidze announced on June 1, 2004: "Everything can be sold, except conscience" went live.

i. Auctions for Public Property

Georgia took the path of an open economy, therefore, most of the largest state companies were put up for sale without any restrictions for buyers. As the headline of the newspaper Vecherny Tbilisi said in August 2004, "Everyone can take part in the privatization of state property, you simply need money ...". Moreover, there were no benefits for local businessmen, not counting the fact that they were the first to learn about the upcoming sale. For reformers, it did not matter who bought state-owned enterprises - Georgian, Russian, American or other businessmen. The main thing is to get as much money from privatization as possible (Burakova, 2011).

The main buyers of small properties were local companies, whilst the buyers of large properties were foreign. In May 2006, the country's largest fixed-line operator, United Telecommunications Company ("Telecom"), was sold for $ 90 million to a subsidiary of the Kazakh bank TuranAlem. At the same time the Kazakh company "KazTransGas" has acquired the assets of the bankrupt Tbilisi gas distribution company "Tbilgazi" for 12.5 million dollars.

However, there were some objections to the privatization, for instance - former Georgian Minister of Economy Vladimir Papava said: "Large-scale privatization, started in 2004, was conducted in violation of the law. This is exactly the way that Russian, Kazakh and Arab capitals entered Georgia ... In some cases, another state became the owner of state property of Georgia (for example, after the sale of Tbilgazi, its owner was the state-owned company of Kazakhstan), which can not be considered as privatization "

Kakha Bendukidze objects to critics: "Who would have bought the enterprise for a lot of money if there had been a violation of the law! We sold everything we could."

ii. Health care

After the collapse of the Soviet Union, many things gradually fell into disrepair and hospitals were a major part of that. Officially, healthcare in Georgia was free, however, without a "gift" doctors would not work. A big problem existed with the inventory of the property of hospitals, with statistics, which since Soviet times has not been practically updated. Several people traveled by region, collected all the necessary information: counted the number of operating beds, measured the area of hospitals, etc.

(Burakova, 2011) The concept of the "100 new hospitals in Georgia" program was prepared, based on the desire to transform the old state system of soviet hospitals into a network of new private clinics. Corresponding to the needs of the population (at the rate of one bed per one thousand people), the rule of the location of hospitals in 30-minute availability and the real state of affairs, Deputy Vato Lezhava estimated that it is necessary to build 23 new hospitals in Tbilisi and 77 in the regions to the total beds, together with the already existing at that time private clinics, was 7800. This is significantly less than those formally existing at the time more than 17 thousand beds left from Soviet times. After the Prime Minister and the Government approved it, on January 2007, a corresponding government decree was issued.

As a result of intensive six month work, a rather unusual concept has developed. The investor was offered a building of the public hospital in a commercially promising place (for example, in the elite district of Tbilisi). Money from this transaction to the budget was not received, but the investor undertook to build within a maximum of 36 months new hospitals in the regions specified in the contract. The amount of such obligations of the investor was determined by the Ministry of Economy, based on the nominal value of the sold building and territories. Then, to conduct a closed competition, lots were formed in which the places of construction of new hospitals and their purpose were indicated. The winner was the one who offered the project with a large number of beds, of course, taking into account all the standards. In fact, investors were given a one-sided capital grant to create a business if they took on the corresponding obligations.

To develop a fundamentally new privatization scheme, the reformers had to persuade private investors that were not very interested in entering the industry, where costs are high, and effective demand is small. The new concept did not pursue the goals of increasing the state budget, it was rather aimed at stimulating private interest In addition to developing a reform strategy, the authors also thought of the three-step tactics of its implementation.

First, the investor was charged with the responsibility for seven years to keep the specialization for the hospital building he built. If after this period he wants to reorient his business, then at least a year he will have to warn the state about it. Although this item is rather formal, since it is unlikely that a businessman will prefer a sharp change in activity after seven years of work and large investments.

The investor was given a choice on condition of entering a bank guarantee. The minimum guarantee was 15 thousand dollars for one bed. It was necessary for the state to be able to levy a penalty for failure to comply with the terms of the stipulated in the contract. But if the investor made a guarantee of $ 45 thousand dollars per bed, then he had the right to use the received property in any way. For example, to buy a hospital building without the desire to engage in hospital business, but in return, arrange a hotel instead of a hospital or something else. But at the same time, the investor was obliged to preserve the entire range of medical services provided at another facility located in the same locality. Thus, the state insured itself against the costs of building a new hospital in case of failure by the investor to fulfill its obligations: 45 thousand dollars is the average cost of one new hospital bed. As the requirements of the contract were fulfilled, the bank guarantee was proportionally reduced.

Secondly, if the investor went bankrupt in the process of realizing his plans, conditioned by the contract, he was able to sell the acquired property. And the buyer, in turn, assumed all the obligations of the previous contract with the state.

Thirdly, the situation was solved with rented small offices in public hospitals. In accordance with this program, doctors who rented premises were able to buy them out for their professional needs at a nominal price, in fact lower than the market price. The building intended for such small private practices was not offered to outside investors.

3. UKRAINE

I. Public Administration Reform

Public administration reform is one of the keys to transition economies. The quality of life, doing business, the level of GDP and other economic indicators directly affects the effectiveness of state administration. Effective activity of the Cabinet of Ministers of Ukraine in formulating state policy is possible only in the presence of a professional, effective and efficient accountable executive system. An effective public administration system is also one of the main prerequisites for democratic governance based on the rule of law. According to the world's performance indicators of governance, Ukraine has a relatively low ranking in its competitiveness ratings.

Such factors as reducing the administrative burden of state regulation, improving the quality of administrative services, and ensuring the legality and predictability of administrative actions are capable of improving the position of the state.

Ukraine’s Governmental Portal (kmu.gov.ua) states that the aim of the reform is to create a system of public administration that guarantees the proper implementation of political decisions and legal norms. The goal is to present a transparent, predictable and client-oriented system, aimed at sustainable economic growth which in return will develop entrepreneurship. In addition, the efficiency of public administration should be the rational use of financial and human resources, creating conditions for self-realization of citizens and transformation of the state into an attractive and efficient employer.

i. Clear subordination and distribution of functions

The reform also applies to Central Executive Bodies (CEBs) and the interaction between them and the Cabinet of Ministers of Ukraine (CMU). A rational and transparent system of subordination and accountability of the CEBs will be created, a clear list of their powers and areas of responsibility will be established and duplication of functions is eliminated by various bodies. Organizational structures of ministries and CEBs will be reorganized and optimized, and new staff will be recruited by highly skilled professionals on a competitive basis.

In particular, the introduction of an administrative procedure in accordance with the principles of the EU, improving the quality of the provision of administrative services and increasing the share of services available in electronic form, as well as reducing the administrative burden on business and citizens.

II. Reform of Management of State Enterprises

Ukraine's Governmental Portal gives a valuable outline of the governmental policies regarding the reform of management of state enterprises. The state is the largest asset holder in Ukraine. The need for reform has been long overdue because, since 1991, this sector of the Ukrainian economy has hardly changed. Insufficient transparency of activity and reporting, poor operational and financial results, as well as serious shortcomings in the organization of corporate governance of state enterprises - this is not all the list of problems that Ukraine should solve through in-depth changes.

The main task of the Government is to ensure the process of effective asset management in favor of their main owner - the people. The state should be a professional and responsible owner of the enterprises and focus its efforts on increasing the value of their assets. Therefore, for the Government, the reform of state-owned enterprises is one of the priorities.

In Ukraine, there are more than 80 entities that manage state-owned objects, including state-owned enterprises. Subjects of state property management are subordinated to more than 3,500 enterprises of various organizational and legal forms, most of which do not carry out economic activity. A significant number of enterprises are not making any profit and are a potential source of fiscal risks. Due to insufficient quality of control mechanisms and poor transparency, the activities of state enterprises are the source of corruption risks and losses of the state. The main goal of the state-owned enterprises reform is to increase the efficiency of the activity of business entities of the state sector of the economy.

Major changes envisioned by the reform: strengthening oversight and achieving transparency and improving corporate governance. One of the major goals of this reform is to strengthen quality control and achieve transparency. The government has begun implementing more viable monitoring and control mechanisms for state-owned enterprises to ensure transparency of their activities and control over the creation of strategic business objectives. One of the key steps towards achieving transparency of state-owned enterprises is disclosure of their financial data and other valuable information. This requirement is in line with international practice and allows to objectively compare financial and operational results of activities, including comparing financial indicators of state enterprises with the results of similar enterprises in the private sector. Thus, the preparation and audit of financial statements of state-owned enterprises should be carried out in accordance with international standards, within the terms stipulated by the legislation, and the results of the audit should be publicly disclosed.

A new corporate governance model for state-owned enterprises involves strategic planning, the appointment of independent members of supervisory boards, and the development of a system of incentives for supervisory boards. Competent and well-motivated Supervisory Board is one of the key factors in ensuring the effective functioning of the company. This is confirmed by the experience of many state-owned enterprises in other countries. The Supervisory Board carries out such important functions as determining the directions of strategic development, monitoring and evaluating the work of managers, providing information to shareholders, monitoring the financial activities of the enterprise, etc.

It is expected that the new model of corporate governance of state-owned enterprises will not only create financial benefits for the state budget, but will also increase the quality of services provided to Ukrainian citizens. In addition, effective corporate governance of state-owned enterprises will have a positive impact on the national economy and the business environment, which will increase the attractiveness of Ukraine for foreign investors.

An important element of the work of the Supervisory Boards should be the formation of audit committees. Creation of such committees will be mandatory for all large state-owned enterprises.

Another improvement for the state-owned enterprises is increasing remuneration to a competitive level, which will serve as an “incentive system” for both current and future employees. At the same time, the financial remuneration must directly depend on the fulfillment of the objectives pursued by the company and its managers. This model is intended to stimulate competent professionals to work for state-owned enterprises, and thus help to improve the quality of management.

i. **Defining clear objectives of the activity**

For a long time, state-owned enterprises set various and often contradictory goals, resulting in uncertainty in the allocation of responsibilities. In exercising their managerial authority, state bodies should ensure absolute clarity and transparency of commercial and non-commercial (in particular, social) state-owned enterprises objectives and control their implementation. This will help state enterprises realize their strategic objectives by providing the public with the highest quality services and products with maximum efficiency.

Unprofitable commercial activities and non-performing functions will be stopped. It is necessary to intensify the efforts and rates of corporatization of state-owned enterprises that carry out commercial activities.

ii. **Separation of commercial and non-commercial functions**

The OECD recommendations encourage state-owned enterprises to define their non-profit (or social) functions and to separately indicate them in their charters. In addition, businesses must divide commercial and non-commercial transactions into their accounting documents to provide greater transparency and simplify financial analysis. The largest state-owned enterprises in Ukraine will have to assess the scope of their non-profit functions and their associated costs, as well as their impact on financial efficiency. It is important to introduce a clear and transparent model for financing non-commercial transactions to avoid cross-subsidization. Such financing should not affect market conditions. This means that the commercial activities of companies should be in accordance with the principles of fair competition.(OECD Guidelines on Corporate Governance of SOEs, 2015)

State-owned enterprises compete with private companies - hence, when establishing state-owned enterprise management systems, the government must strictly adhere to the principle of separation of ownership functions and regulatory functions.(OECD Guidelines on Corporate Governance of SOEs, pg. 22, 2015). Taking this into account, the Government is developing the main principles of realization of the state property policy concerning state-owned enterprises.

III. Privatization

i. Law on the Privatization of state property

The introduction of a new procedure for the sale of state assets is controlled by the new Law on the privatization of state property which was implemented by the President and Verkhovna Rada on March 2, 2018 (president.gov.ua, 2018). This law provides a fundamentally new approach to the distribution of both small and large assets.

The objects of large privatization will be sold with the assistance of an investment advisor. The counselor will study the demand for the facility, communicate with potential buyers, and offer the starting price. At the same time, small-scale privatization objects can be realized through open online auctions, as it is already happening with assets of insolvent banks and non-core assets of state-owned enterprises at ProZorro Sales. The starting price will be the net asset value (asset value minus liability), or one hryvnia, if the net value is negative (Reforms of Management of State Enterprises, kmu.gov.ua).

The new law will bring competition for state assets to a global level and move to market pricing for state-owned objects. Thus, it is predicted that it will not be the state deciding prices for the properties, but rather the market. Some of the organizations that are helping to foresee the transparency of the privatization process are: USAID, European Bank for Reconstruction and Development, IMF, IFC, Baker & McKenzie, PWC, Deloitte, Ernst and Young.

ii. State Property Fund of Ukraine

The State Property Fund of Ukraine is a “special status” body of the executive branch which implements policies of privatization, lease, use, alienation, management of state property and corporate rights of the state, as well as regulates professional appraisal activity in Ukraine. The main mission of the fund is to increase investment attractiveness and competitiveness of

Ukraine's economy. The Fund's strategy is transparent and professional management of state property in Ukraine.

The fund has established the steps for privatizations, which are:

1. Select the privatization object at http://www.privatization.gov.ua/en/ ;
2. Participate at the auction;
3. Register and pay a deposit fee.

According to Art.8 of the Law of Ukraine "On privatization and State Property" the investors or buyers of the objects may be:

- Citizens of Ukraine, foreign citizens, stateless persons;
- Legal entities registered in the territory of Ukraine, except as provided for in part three of this Article;
- Legal entities of other states.

However, there are also certain restrictions on those who are participating in the auction, various categories of people or entities which cannot take part in the auction, here are some examples:

- Legal entities, owning more than 25 percent of the shares (shares, shares) of which is the state of Ukraine;
- Public authorities;
- Persons registered in the offshore zone (the list of such zones is determined by the Cabinet of Ministers of Ukraine) or countries included in the FATF in the list of non-cooperating countries in the area of counteraction to money laundering;
- Companies who directly or indirectly controlled by persons, ultimate beneficial owner (controller) of which are the persons defined in part three of this article, or are associated persons of such persons;
- Legal persons or any of their affiliates, registered in States which are recognized by the Verkhovna Rada (Parliament) of Ukraine as the aggressor state or against whom

there are sanctions in accordance with the law; (Conditions For Bidders, privatization.gov.ua)

IV. Police Reform

Police reform in Ukraine began after the Euromaidan in 2014. To achieve better results, the authorities decided to use the successful experience of foreign partners, particularly of Georgia and the US. The Cabinet of Ministers of Ukraine appointed Eku Zguladze (foreign Deputy Minister of Internal Affairs of Georgia 2005-2012) as the First Deputy of Internal Affairs of Ukraine. During her time in Georgian government she worked alongside Mikhail Saakashvili and took active part in the radical reforms of Georgian police reform.

The goal of the Ukrainian police reform was to completely reorganize the existing militia, with the dismissal of all employees. The next step was creating a brand new police, hiring both new people and those who worked in militia previously. All newcomers had to undergo interviews and examinations, as well as being a part of the new police school. The selection and training of the staff took six months. This was all occurring with the help of western partners, who were actively participating in the preparation of new patrols, for instance the United States sent their instructors from California and Ohio and held both practical and theoretical sessions for the perspective policemen and women (Law of Ukraine, About Police, Article 2).

According to the National Police (npu.gov.ua), the main tasks of the National Police are:

1. Ensuring public order and safety, protecting human rights and freedoms, as well as the interests of society and the state;
2. Prevention, detection and suppression of criminal and administrative offenses;
3. Ensuring traffic safety, organizing control over observance of laws, other regulatory acts on road safety issues, as well as improving traffic regulation in order to ensure its safety;
4. Rendering services to assist persons who need such assistance for personal, economic, social or emergency reasons

Advertisement campaigns and public awareness kept the police reform in the focus of the population, thus there was no room for error. Thanks to this, after the IFES surveyed the population it was concluded that the trust in the police increased from 22% (2014) to 52% (2015).(IFES, 2015)

Empirical Part

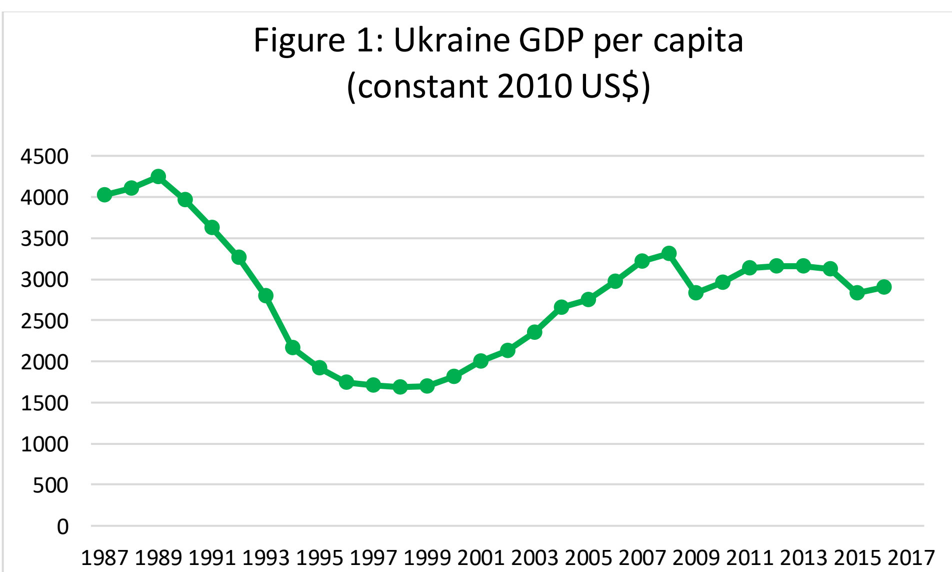
1. Theoretical model

The three main reforms that took place both in Ukraine and in Georgia were: privatization, de-bureaucratization and liberalization. The main hypothesis of this thesis is that economic reforms influence economic growth. There are several ways of how we can track the influence of these reforms on the economy. Various indicators were considered to create the models in this empirical part. I divided the indicators into two parts - overall indicators of economic performance and indicators of economic freedom.

I. Overall Economic Indicators

Gross domestic product per capita, was taken as an indicator of economic growth in an economy. To show the impact of changes in governmental policies four other indicators were taken into account – FDI, Tax Revenue, Unemployment, and Inflation.

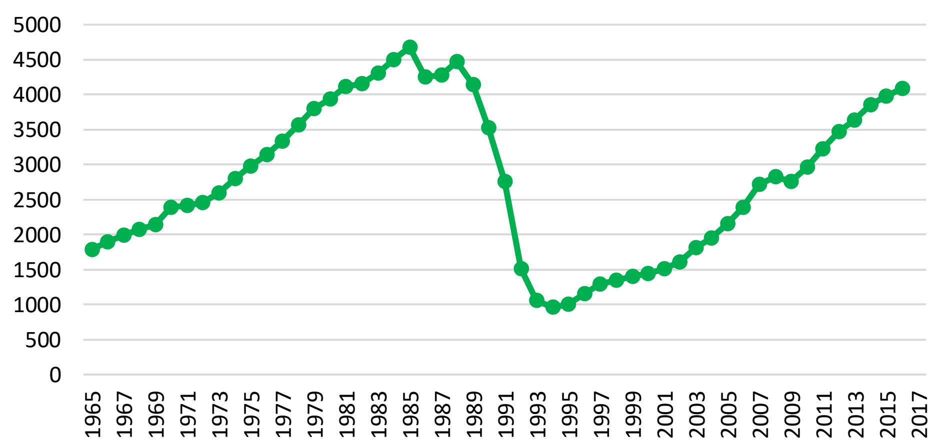
Gross Domestic Product per capita as an indicator (Growth rate of per capita GDP) is a measure of economic growth in a country. It is the sum of all final goods and services produced during a specific period (usually a year). Looking at Figure 1, we can see that Ukraine's real GDP per capita was steadily increasing form 2000-2008 and experience a rapid fall during the 2008 financial crisis. After that Ukraine went through economic growth up until the 2014 Euromaidan revolution, after which, in 2015 it slowly starts to increase.



Source: own graph with data taken from https://data.worldbank.org/country/ukraine

Figure 2 shows Georgia's GDP per capita. Here we can also notice rapid growth since its independence in 1991, facing some decrease in 1998, but starting from 2004 (the year of reforms) it faces a huge jump in economic growth. In 2007, Georgia's real GDP growth rate reached 12 percent making Georgia one of the fastest growing economies in Eastern Europe.

Figure 2: Georgia GDP per capita
(constant 2010 US$)



Source: own graph with data taken from https://data.worldbank.org/country/georgia

Foreign direct investment, according to the financial times dictionary, is an "investment from one country into another that involves establishing operations or acquiring tangible assets, including stakes in other businesses." This indicator was considered, because Georgian and Ukraine's reforms were largely focused on foreign investment, mostly during the privatization period of the reforms. Research suggests that there is a high possibility that a firm that decides to invest in another country, will enjoy lower costs and higher productive efficiency than the domestic competitors. Developing countries in particular are a great attraction for FDI, most of them have very low price levels, which allows for cheap investments, as well as the combination of productive labor and new technology – always brings high returns.(Borensztein et al, 1997)

There are many advantages of inviting foreign investment into a country. If a firm decided to invest into another country, it is because of low costs and high efficiency. In return, the host country does not only benefit from using its own resources more efficiently, these investments introduce new processes to the domestic markets with training of the labor force, and learning-by observing. Not only does FDI positively influence the economy, but it also creates new networks of countries who are partners. In return, the governments implement fiscal and financial incentives to attract FDI as well as improve regulatory environments and the ease of doing business.

As described in the theoretical part of the thesis, both countries focused on providing a better environment not only for private businesses, but also foreign investors. When the countries began the process of privatization and auctions of public property, many international companies began to take part in these auctions. To achieve this, the countries decreased the amount of bureaucratic steps that businesses must go through, in order to open a business. Particularly, since 2014 Ukraine (76th out of 190 countries) has improved 15 indicators of "doing business", for instance, Ukraine has made trading across borders more efficient, by decreasing the amount of inspections and releasing customs declarations more quickly; starting a business became easier by reducing the time required for VAT registration and elimination of unnecessary fees (Business Reforms in Ukraine, World Bank Group). Georgia (9th out of 190 countries) focused on changing the land administration, protection of minority investors and property registration. (Business Reforms in Georgia, World Bank Group)

Inflation (GDP deflator) is an indicator of overall price level in an economy. GDP deflator is a more accurate way of calculating inflation, because unlike the Consumer Price Index (CPI), it doesn't use a "fixed basket" of goods or services, but rather expects that there will be changes in consumption and accommodates accordingly. How can inflation influence the economic growth? Robert Barro took data from 100 countries and concluded that there is a negative relationship between economic growth and inflation. Meaning that an increase in inflation will cause a decrease in economic growth. (Barro, 1995). No matter the bad influence of high inflation on the economy, it might be useful when trying to attract investors. When the price level is low – more investors come into the economy.

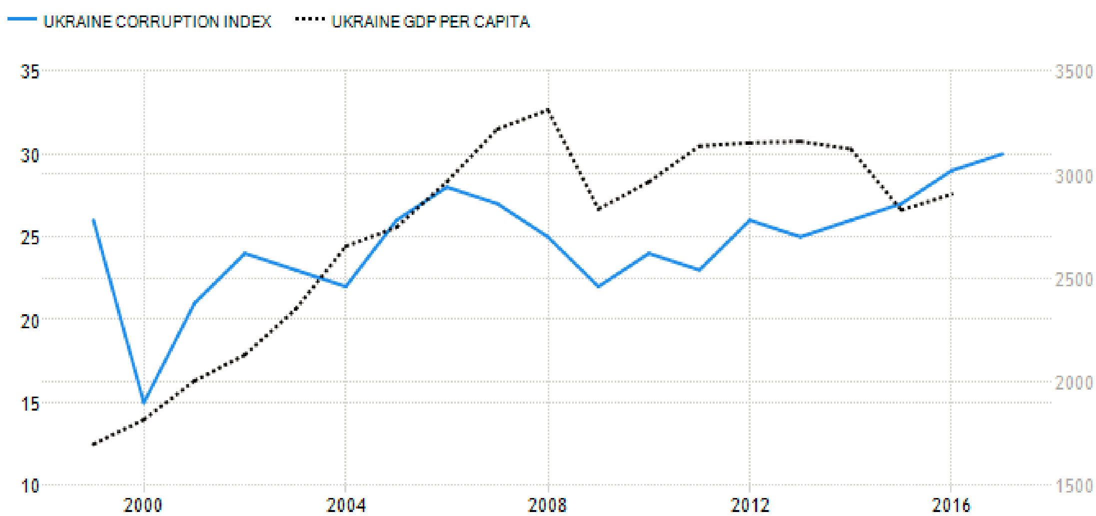
Tax revenue is defined as the revenue that the government gathers after collecting all taxes from the population. Georgian main tax reforms were: decrease of the overall amount of taxes collected from 26 (2003) to 6 (2008), decrease of VAT from 20% to 18%, introduction of a flat income tax of 12%, the marginal income tax was reduced from 20% to 15%, tax return, and the ability of submitting your taxes in electronic format.(Burakova, 2011) Ukraine's reforms are: decrease of corporate tax from 23% to 18%, the "single social contribution" was decreased to 22%, as well as the government created an online database for tax invoices (The Reforms Guide, 2017).

Why this indicator? Literature suggests that national taxation can affect long-run growth rates. (King and Sergio, 1990) Particularly, open economies that have access to international capital markets have incentives to accumulate physical and human capital. Also, governmental policies have potential to influence growth rate, which usually leads to policies that focus more on welfare or business, depending on the government's aim.

In Figure 3 we can see a slow, but steady increase of tax revenue in Ukraine, as percent of GDP. Because Ukraine's tax reforms were just introduced, it is hard to connect the reforms with the changes in tax reforms. However, if we look at Figure 4, we can see that in Georgia, tax revenue began to grow steadily. This might seem strange, considering that the government decreased the overall tax rate why should the tax revenue increase? This occurred, because the population began to understand what each tax is for – the less the amount of taxes, the easier it is to keep track of all the payments – this pushed the people to pay these taxes, because the trust in the government's actions started to increase.

Corruption Perception Index is Transparency International's index, which annually ranks countries according to "perceived levels of corruption, as determined by assessments and opinion surveys" (Transparency International) Originally, the index was supposed to be one of the main components of my empirical model, however, after learning the methodology behind the index, it became clear that I cannot use it. Before 2012, Transparency International was ranking each participant country on a scale from 0 to 10 (very clean or very corrupt). The main issue with the initial calculations, was that the perception was based on comparison with other countries, thus if a country's rank has decreased closer to 0, it does not necessarily mean that the country became less corrupt, it might mean that other countries in the world became less corrupt. The 2012 corruption perception index fixes this problem and begins to scale the countries from 0 to 100 (very clean to vary corrupt).

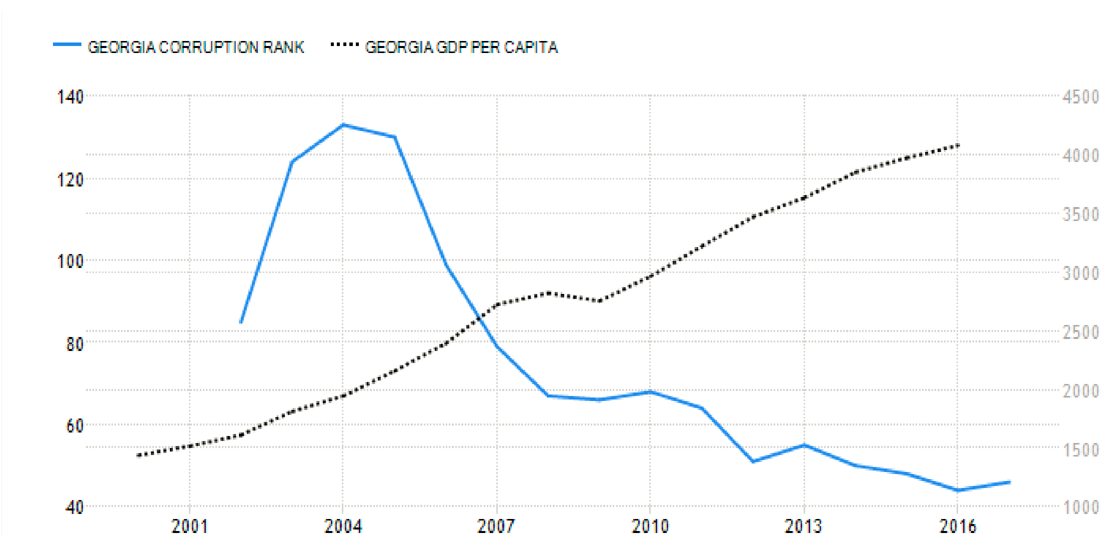
Graph 1: Ukraine Corruption Perception Index vs. GDP



Source: Tradingeconomics.com

Graph 1 shows the fluctuations of Ukraine's nominal GDP per capita. Over the years the corruption perception was very unstable, especially during the years of economic and political unrest. It is interesting to see, that overall both indicators increase overtime. Also, we can note the sudden drop in corruption perception after the 2014 revolution, along with a an increase in GDP.

Graph 2: Georgia Corruption Perception Index vs. GDP



Source: Tradingeconomics.com

On the Graph 2, we can see a complete opposite of Ukraine. Georgian GDP is steadily increasing overtime and the corruption perception is decreasing. This is a logical turn of events, Georgia was pushing for democratization, which main objective is fight against corruption, hence we can see that after the reforms in 2004, CPI is decreasing rapidly, and the country is experiencing economic growth.

II. Index of economic freedom

Index of economic freedom, provided by the Heritage Foundation, is an annual measure which is built on twelve quantitative and qualitative factors. The index is based on how institutions and various policies of a country promote freedom. These measurements focus on personal choices, freedom of exchange, freedom of competition and the safety of private properties, which are all considered to be a valuable part in the modern economies. The measurements are divided into four percentiles: 40% - 50% Repressed; 50% - 60% Mostly Unfree; 60% - 70% Moderately Free; 70%-80% Mostly Free. Reports show that the African, Latin American and post-Soviet countries are in the lower percentiles in terms of economic freedom. It also shows that countries that are in the high percentile, have relatively higher growth rate and better social indicators.

The 2018 Index of Economic Freedom Book divides the measurements into four pillars and each of them have their own indicators:

1. Rule of law (property rights, government integrity, judicial effectiveness)
2. Government size (government spending, tax burden, fiscal health)
3. Regulatory efficiency (business freedom, labor freedom, monetary freedom)
4. Open markets (trade freedom, investment freedom, financial freedom)

In this thesis, I consider all above indicators, with the exception of labor freedom, judicial effectiveness and fiscal health, because there are not enough observations for these indicators, thus we had to leave them out.

Let's take a closer look at these pillars. Authors of "The Effects of Economic Freedom Components on Economic Growth: An Analysis with a Threshold Model" paper focus on the Index's influence on economic growth. The paper describes in detail the four main fields which the Index of Economic Freedom include. The rule of law ensures the safety of property rights, as well as ensuring that the legal structure respects and protects private agents, giving them confidence that the law will guard their private interests. Open markets are focused on reporting voluntary exchange coordinated by markets as well as freedom to enter and compete. Whereas the rule of law, focuses on the effectiveness of governmental policies. This implies that the government is an institution that must ensure the correct operation of the free market, which in return will guarantee economic freedom in the country, thus the size of the government might matter. Regulatory efficiency concerns the inflation stability and consistency of monetary policies in the economy. Particularly it focuses on the inflation volatility and the availability of foreign currencies in the economy. The last pillar is related to what extend the country's economy is open and free. Trade, investment and financial freedom indicators show the level of regulations that the government took to allow or prohibit free market. (Derbel et al, 2011)

Different academic works provide different conclusions as to the extent to which the indicators of economic freedom have on economic growth. The above-mentioned paper concludes that their framework shows the importance of various components of the Index varies according to the development level of the countries. They show that the reduction of the size of government is not always effective and that even though other empirical studies prove the positive influence of economic freedom on economic growth, it does not necessarily mean that there should be a "total disengagement" of the government in the economy.

An alternative study, done by Mohammad Hussain and Mahfuzul Haque in 2016 in their Panel Data analysis of the Impact of Economic Freedom on the Growth Rate, suggest that there is a strong evidence in support of a positive correlation of the growth rate and economic freedom. Their conclusion was that it is important to consider the external business environment and non-economic factors when trying to evaluate economic growth. Particularly, they found evidence of a strong impact of trade, financial, business and labor freedom on economic growth. (Hussain and Haque, 2016)

Why is this index important for us? Ukraine and Georgia are emerging post-soviet economies which are trying to improve their economic freedoms. If we recall some of the reforms that both countries were doing, most of them focused on expanding economic freedom. To improve governmental integrity Georgia decreased the amount of governmental institutions to reduce bureaucratization. Both countries focused on improving the overall image of the government during the reform of the Ministry of Internal Affairs, they made it their point to advertise that they are fighting and punishing corrupt employees which in turn increases the population's trust in the government. If we refer to Figure 5 in the Appendix, we can see that Governmental Integrity in Georgia increased significantly after the reforms were introduced. In 2017, the indicator reached an all-time high 65%. Consequently, in Figure 6, we can see that as of 2017, Ukraine is at 30%, making it a year of higher government integrity (trust in government) for the past 17 years.

Another significant indicator is Business Freedom. This is also the aspect at which both countries were focusing at. Their goal was to ease the way of opening and doing businesses as well as attracting foreign investment. Figures 7 and 8 in the Appendix, for Ukraine and Georgia respectively, show that after the reforms took place (2004 GE and 2015 UA) business freedom began to increase sharply, indicating that these improvements were successful. Figures 9 and 10 show the countries' Investment Freedom index, which also experienced a dramatic increase after the governments started to promote privatization of public property at auctions, and attracting foreign investment.

2. Empirical Model

I. Methodology and Data Source

In this study I used data provided by the World Bank – for the overall economic indicators and the Heritage Foundation – for the indicators of economic freedom. The methodology of this empirical analysis focused on finding influence of economic reforms on the growth rate. This is a time series regression analysis, in which the data used contained 17 observations, from the years 2000 until 2017. Once the graphs were prepared, some trends were noticed. To analyze whether there is a trend and its significance, graphs were created and Dickey-Fuller test was conducted Because time series analysis has to include only stationary data (without a trend), it was necessary to make sure that this trend does not influence the regression, thus first difference of logs of these indicators was taken.

For Ukraine's data, stationary variables were:

1. Tax revenue
2. Trade freedom
3. Investment freedom

For Georgian data, stationary variables were:

1. GDP
2. Tax revenue
3. Governmental integrity
4. Tax burden
5. Government spending
6. Business freedom
7. Trade freedom
8. Investment freedom

For both countries the indicator GDP per capita was transformed into "growth rate per capita", similarly as with the stationary data.

i. Ukraine

To support my hypothesis, that economic reforms influence economic growth, the following ordinary least squares functional form was used:

$$\textit{\textbf{GDP per capita}} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1} d\_l\_Taxrevenue + \boldsymbol{\beta_2} d\_l\_tradefreedom + \boldsymbol{\beta_3} d\_l\_investmentfreedom + \boldsymbol{\beta_4} monetaryfreedom + \boldsymbol{\beta_5} taxburden + \boldsymbol{\beta_E} businessfreedom + \boldsymbol{\beta_7} governmentintegrity + \boldsymbol{\beta_8} governmentspending + \boldsymbol{\beta_9} Unemployment + \boldsymbol{\beta_{10}} Foreigndirectinvestment + \boldsymbol{\beta_{11}} propertyrights$$

*Where **d_l_** stands for **growth rate** (first difference of log)*

To start off, I wanted to see the relationship between the dependent variable Growth rate per capita and the independent variables of the "overall economic performance" indicators, which were: unemployment, FDI, tax revenue and inflation. After running the regression, there was no considerable influence of either overall economic indicators or indicators of economic freedom.

The next step was to mix up the indicators and see if mixing them together can lead to a certain influence on the per capita growth. Below are the results from the regression:

Table 1: Ukraine OLS, using observations 2001-2016 (T = 16)
Dependent variable: d_l_GDPpercapitaconstantLCU

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	−0.77087	0.368127	−2.0940	0.1044	
d_l_Taxrevenue	0.502413	0.178568	2.8136	0.0481	**
d_l_tradefreedom	−2.16908	0.498535	−4.3509	0.0121	**
d_l_investmentfreedom	−0.0578541	0.0421602	−1.3722	0.2419	

monetaryfreedom	−0.0210189	0.00299855	−7.0097	0.0022	***
taxburden	0.00872843	0.00254059	3.4356	0.0264	**
businessfreedom	0.0172133	0.00259598	6.6308	0.0027	***
governmentintegrity	0.0340531	0.00697273	4.8838	0.0081	***
governmentspending	0.00429607	0.00068867	6.2382	0.0034	***
Unemployment	−0.0729399	0.0120726	−6.0418	0.0038	***
Foreigndirectinvestment	−0.0517289	0.0112213	−4.6099	0.0100	***
propertyrights	0.0181512	0.00507145	3.5791	0.0232	**

Mean dependent var	0.029312		S.D. dependent var	0.072502
Sum squared resid	0.002630		S.E. of regression	0.025641
R-squared	0.966646		Adjusted R-squared	0.874924
F(11, 4)	10.53882		P-value(F)	0.017981
Log-likelihood	47.00423		Akaike criterion	−70.00846
Schwarz criterion	−60.73740		Hannan-Quinn	−69.53371
rho	−0.155487		Durbin-Watson	1.986318

Table 1 is the output of the regression when we mix in together both types of indicators. The F-test showes that the model is significant at 95% confidence. To evaluate the significance of the model further, we can see that 96% (87.5% R^2adj) of independent variables explain the changes in the per capita growth rate. We can also notice that all variables are significant, except the growth rate of investment freedom. Specifically, monetary freedom, business freedom, government integrity, government spending, and unemployment and foreign direct investment are significant at 99% confidence level, whereas tax burden, tax revenue and trade freedom at 95% confidence.

The high R^2 can also mean that there is multicollinearity in the data, which is a common issue in economic time series. To tackle this, I checked for the correlation between variables and concluded that there is no correlation between the variables. As well as ran the Breusch-Godfrey (Appendix C, Table 1.1) test for first-order autocorrelation, which also concluded that there is no correlation between the variables. To make sure that this claim is correct, I used Cochrane-Orcutt estimation (Appendix C, Table 1.3) in order to adjust the model in case there is serial correlation. In the output almost all the significant variables remain significant even after the adjustment. Monetary freedom, government depending and unemployment are still significant at 99% confidence, trade freedom, business freedom, government integrity and FDI are significant at 95% confidence and trade freedom, tax burden and property rights are significant at 90% confidence.

ii. Georgia

To support my hypothesis, that economic reforms influence economic growth, the following ordinary least squares functional form was used:

$$\textit{GDP per capita} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1} d\_l\_Taxrevenue + \boldsymbol{\beta_2} d\_l\_tradefreedom + \boldsymbol{\beta_3} financialfreedom + \boldsymbol{\beta_4} monetaryfreedom + \boldsymbol{\beta_5} d\_l\_taxburden + \boldsymbol{\beta_6} d\_l\_governmentintegrity + \boldsymbol{\beta_7} Unemployment + \boldsymbol{\beta_8} inflation + \boldsymbol{\beta_9} Foreigndirectinvestment + \boldsymbol{\beta_{10}} d\_l\_businessfreedom$$

*Where **d_l_** stands for **growth rate** (first difference of log)*

Similarly as for Ukrainian model, at first it was useful to check that there is no significant influence of overall economic indicators and indicators of economic freedom on economic growth in Georgia. The regression results are presented in the table below:

Table 2: Georgia OLS, using observations 2001-2016 (T = 16)
Dependent variable: d_l_GDPpercapitaconstantLCU

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	1.23943	0.234236	5.2914	0.0032	***
d_l_Taxrevenue	−0.0339621	0.0513688	−0.6611	0.5378	
d_l_tradefreedom	−0.113003	0.076096	−1.4850	0.1977	
financialfreedom	0.00767261	0.00172558	4.4464	0.0067	***
monetaryfreedom	−0.0145432	0.00301795	−4.8189	0.0048	***
d_l_taxburden	−0.908017	0.327314	−2.7741	0.0392	**
d_l_governmentintegrity	−0.180353	0.0355723	−5.0701	0.0039	***
Unemployment	−0.0358715	0.00723666	−4.9569	0.0043	***
Inflation	0.0114671	0.00204869	5.5973	0.0025	***
Foreigndirectinvestment	−0.00856137	0.00336446	−2.5446	0.0516	*
d_l_businessfreedom	0.057789	0.113836	0.5077	0.6333	

Mean dependent var	0.065288		S.D. dependent var	0.038620
Sum squared resid	0.001331		S.E. of regression	0.016315
R-squared	0.940512		Adjusted R-squared	0.821536
F(10, 5)	7.905079		P-value(F)	0.017039
Log-likelihood	52.45285		Akaike criterion	−82.90570
Schwarz criterion	−74.40723		Hannan-Quinn	−82.47051
rho	−0.727422		Durbin-Watson	2.899215

Table 2 shows the mixture of both types of indicators in Georgia. The F-test proves the significance of the model at 95% confidence. We can also see that most of the indicators are significant. For instance, growth rate of financial freedom, monetary freedom, government integrity, unemployment and inflation are significant at 99% confidence. Tax burden is significant at 95% confidence, and FDI at 90% confidence.

This model also has a high R^2, meaning the 94% (82% R^2adj) of the independent variables explain the changes in the per capita growth rate. However, to make sure that there is no collinearity, I ran the same tests as for Ukrainian data. Breusch-Godfrey test for first-order autocorrelation concluded that there is no correlation (Appendix C, Table 2.1). The adjusted Cochrane-Orcutt model (Appendix C, Table 2.2) left most of the variables significant with a few exceptions, FDI became significant at 95% confidence, whereas tax burden became insignificant.

II. Comparison and Evaluation of findings

First, let's look at the original OLS (Tables 1 and 2), we can see that these models are highly significant. Particularly, both countries have significant variables which influence the per capita growth rate in two ways For instance, and increase in government integrity influences Ukraine's economy positively, whereas Georgian growth rate is negatively affected. This can be explained with the help of evaluating the indicator. Economic freedom decreases with corruption, insecurity and uncertainty. According to the Heritage Foundation, the index of government integrity takes the raw data from the Corruption Perception Index (CPI) and transforms it to percent. In 2017 Georgia's government integrity was at 61.8% which means that the government is moderately free, however, Ukraine's percentile is only 29%. This shows, that for Georgia, increasing government integrity will not bring a dramatic difference to the country or economy itself, because it is already on a high level. Ukraine is still on a very low percentile, meaning that any increase will influence the economy positively, because currently fight against corruption is one of the main goals of Ukrainian government. Improving government integrity will bring trust of the people into the administration, increasing the amount of businesses in the country.

Similar differences are present with the tax burden index. An increase in the index will influence Ukraine's economic growth positively, and Georgian – negatively. The indicator itself is a measure of tax burden imposed by the government. It includes top marginal tax rates on individual and corporate incomes, overall taxes, including all forms of direct and indirect taxation at all levels of government, as percentage of GDP. Currently, Georgia is at 76.2%(mostly free) and Ukraine is at 51.9% (mostly unfree). So once again we can see that the increase of the freedom from tax burden will influence Ukraine very strongly, meaning that it should be the focus of Ukraine's government, whereas Georgia is a seemingly tax burden free country, meaning that this should not be the main focus of the government, if their goal is to have higher economic growth.

Second, let's compare the adjusted OLS created with the Cochrane-Orcutt model. Both countries still share the significance in variables which the OLS showed. The models share the significance of most of the indicators, however the Cochrane-Orcutt model does not include tax burden as a significant indicator in Georgian model. Overall, the coefficients are very similar, proving the significance of the original model.

If we look at the "overall indicators of economic performance" in the Cochrane-Orcutt model, we can see that some of them have a higher influence on per capita growth rate than others. Particularly, unemployment seems to have a very dramatic influence on the GDP. In Georgia, if unemployment increases by 1%, per capita growth rate with decrease by 4.02%, similarly, in Ukraine 1% increase of unemployment implies a 7.97% decrease in the per capita growth rate. This is an expected outcome, because if unemployment increases, it suggests that smaller portion of population is working, thus their annual income decreases, meaning that the GDP per capita will become smaller.

On the other hand, we can also see that some of the "indicators of economic freedom", also have a high importance in the model. For instance, in Ukraine, government integrity and monetary freedoms also have high coefficients. 1% increase in these two indicators, will cause the per capita growth rate to increase by 3.02% and decrease by 2.05% respectively. It was surprising to find a negative influence of the monetary freedom on the economy. One would assume that if there is higher monetary freedom, there is higher price stability, thus the impact on per capita growth should be positive, but not in this case. The index itself is a measure of price stability with an assessment of price controls, the scores are based on the weighted average of inflation rate and price controls. (The Heritage Foundation) Referring to Figure 12 (Appendix A), we can see that Ukraine's inflation has been experiencing fluctuations of the inflation rate for the past 4 years due to the unstable economic conditions and Figure 13 (Appendix A) shows that during these 4 years, monetary freedom has been rapidly decreasing. This might be related to the government's inflation targeting policies which were implemented in 2016. In 2017 Ukraine's current account is smaller (-3.7%) then it was in 2013 (-9.01%) the decrease occurred because Ukraine's inflation rate increased rapidly, causing for the CA to decrease. This might be one of the reasons, why currently the increase of monetary freedom might have a negative influence on the per capita growth rate.

Georgian model shows that out of all the significant indicators of economic freedom, monetary freedom and government integrity seem to have the highest negative influence on the GDP per capita growth rate. We can interpret them in this way: increase of monetary freedom and government integrity by 1% will decrease the per capita growth rate by 1.55% and 0.18%, respectively. These results suggest, that for Georgia, the improvement of these indexes will not necessarily improve their economic situation.

III. Discussion

A lot of research has been done, to track what policies can affect economic growth. After creation of my models, I can conclude, that for Ukraine the most influential indicators are: business freedom (positive), government integrity (positive), government spending (positive), unemployment (negative) and foreign direct investment (negative). Georgian significant models are: financial freedom (positive), monetary freedom (negative), tax burden (negative), unemployment (negative), inflation (positive), and foreign direct investment (negative).

The negative influence of FDI on economic growth was one of the most surprising outcomes. One would assume that once foreign investors come into the country – economic growth will increase because it is one of the signs of a free market. Curwin and Mahutga (2014) conducted empirical research on studying the relationship between foreign direct investment and economic growth in post-socialist transition countries. Some of the possible effects of FDI are: foreign firms are more productive then domestic firms, foreign firms bring advanced technology, FDI provides access to foreign markets for host economies. My findings are consistent with the authors' findings – increase of FDI reduces economic growth. Some of the possible reasons for this negative effect are weak institutions in the host countries. Indeed, this is the case for Ukraine, because only now the country is establishing efficient governance, and Georgia, which even though 14 years passed after the reforms, is still on track to improving their institutions. Both in Ukraine and Georgia FDI was aligned with mass privatization, the main goal was to increase growth in future years relative to the present, thus it is important to distinguish types of investments. Increase in FDI can lead to both increase and decrease of economic growth, it simply depends on the speed of the investing and into which sector of the economy they invest.

Monetary freedom also seems to have a negative impact on economic growth. This result was very unexpected. The index itself is a combination of inflation rate and price controls. Due to the fact that currently both countries have high inflation rate, which increases the price levels, this means that the government cannot fully give up its control, thus increasing monetary freedom (government playing a smaller role in monetary policies) will decrease the per capita growth rate. Another possible explanation of this result, could be the low number of observations in the model.

Numerous studies have been done to study the influence of economic policies on economic growth, particularly, the influence of economic freedom on economic growth. The panel study by Mohammad Hussain and Mahfuzul Haque (2016) about the impact of economic freedom on economic growth, suggests that there is compelling evidence in support of a positive correlation of the growth rate and economic freedom. Particularly, they found evidence of a strong impact of trade, financial, business and labor freedom on economic growth. In comparison with our model, Ukraine also has a strong impact of business freedom on economic growth, whereas Georgia has a strong impact of financial freedom.

Another study by Hatem, et al. (2011) that was already mentioned in the theoretical model, suggests that the size of government, or rather its reduction, is not always effective, thus “total disengagement” of the government in the economy is not necessarily efficient for every economy. This can support my findings of negative influence of monetary freedom and tax burden in Georgia. Disengaging the government in overlooking the monetary and tax policies might negatively influence Georgia’s economic growth, thus these are some of the policies that, for now, should be under the government’s control.

Both Ukraine and Georgia share the negative influence of unemployment on their per capita growth rate. One of the studies that I found by Casells-Quintana (2012) supports the claim that “high and persistent unemployment has a negative effect on economic growth. However, the study suggests that not only unemployment itself influences economic growth, but also income inequality. This supports the overall notion that high unemployment is “bad”, because once there are less people in the labor force, less people get any income, which in return influences their annual proceeds.

Another study shows that there is strong statistical evidence that developing countries with governments that focused on the provision of political and civil liberties – achieve significantly higher GDP growth rates, then those that have autocratic governments. The research included estimates of various economic indicators, such as growth of economic freedom, indicators of public sector and trade policies. Particularly, similarly to my findings, the study showed convincing indication of a positive effect of economic freedom on economic growth. Overall, this evidence provides proof that freedom and democratic style of government allows for the economy to grow and prosper.

Conclusion

Economic advance and development is a very dynamic and fascinating topic. Economic growth itself has been theorized for decades and to be able to quantify the causes of economic growth is very important. Georgia and Ukraine are countries that embody strength and persistency in their attempts to restore economic growth after several ups and downs. In 2004 Georgia changed its political power and began to focus on democratization of its society. After decreasing the amount of governmental establishments, privatizing state property and liberalizing the economy, the country's growth sharply increased. Even though it has been 14 years since the reforms, it can still be said that these changes transformed the economy and the country for the better.

Ukraine also took some important steps in its attempt to improve and open the economy more. After the reform of public administrations, management of state enterprises, privatizing state property and reforming the police, the country also began to experience an increase in economic growth.

The aim of this thesis was to see the influence that economic reforms has of economic growth. This was done with the help of ordinary least squares. The focus was on the influence of four indicators of overall economic performance and ten indicators of economic freedom. Separately these indicators showed no significant influence on the economic growth, but once they were connected, it resulted in some interesting and unexpected results. Ukraine's per capita growth rate is positively influenced by an increase in tax revenue, tax burden, business freedom, government integrity, government spending and property rights; negatively by an increase of growth rate of trade freedom, monetary freedom, unemployment, FDI and investment freedom. On the other hand, Georgia's growth rate is negatively influenced by the increase of most of its indicators, for instance: monetary freedom, tax burden, government integrity, unemployment and FDI; positively by financial freedom and inflation.

Some of these results were very surprising, specifically the negative influence of FDI in both countries and monetary freedom in Georgia on economic growth. However, similar results were found in another empirical research, which concluded that the negative influence of FDI can be due to weak institutions or investment into the wrong sectors of the economy.

The negative influence of the monetary freedom on the economy of Georgia could be explained by the fact that currently the country has very high inflation, whereas the index of monetary freedom itself, means that the government is playing a limited role in the monetary policies of the country. With high inflation, the government cannot fully give up its control, because without the government's intervention the inflation will not decrease.

Studying what impacts economic growth helps to understand which polices should be implemented if the goal is to increase economic growth. My findings suggest that Ukraine's government should focus more on increasing business freedom, government integrity, and tax burden. The most critical issue is corruption, without tackling this problem it will be impossible to improve the government's image. Also, currently the government pays a lot of attention on attracting foreign investment, however judging from my results, this is not the best area to focus on if Ukrainian government wants to have higher economic growth. On the other hand, Georgian government should be focusing on financial freedom, trying to make an "ideal banking and financing environment" where the government interferes at a minimum level, allowing for the financial sector to freely provide financial services to both individuals and companies.

Overall, the findings allowed to understand how economic reforms influence economic growth. One of the main struggles, was evaluating the impact of Georgian reforms which took place 14 years ago. This suggests that during these years there have been too many other factors which could have contributed to the results achieved. Another implication, was explaining why monetary freedom has a negative influence on economic growth. One of the possible solutions for this issue, could be separating the indicator into its two components: inflation rate and price controls, maybe this would allow us to see the picture in greater detail. Despite these issues, it was fascinating to learn how various factors can influence the economy in completely different ways. Moreover, these results allow to comprehend where the government policies should be focused, where the interference of the state is unnecessary and which areas remained unaffected.

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Appendix A

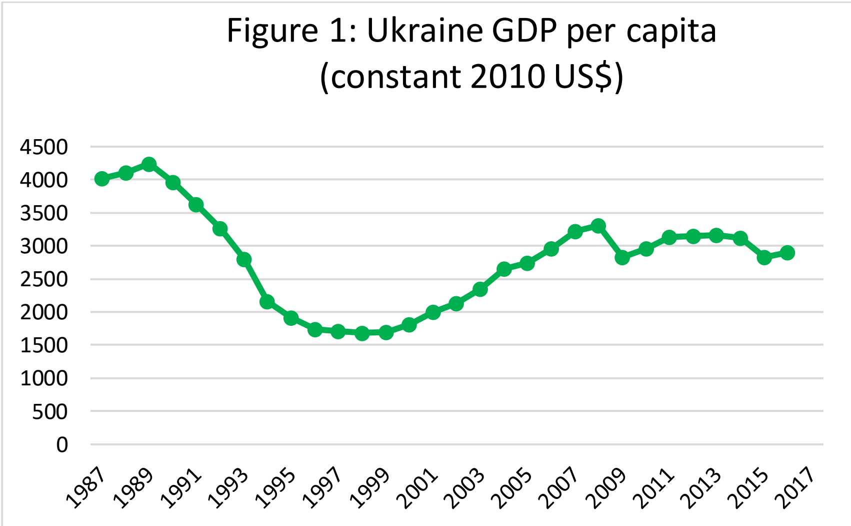


Figure 1: Ukraine GDP per capita
(constant 2010 US$)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
1987 1989 1991 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 2017

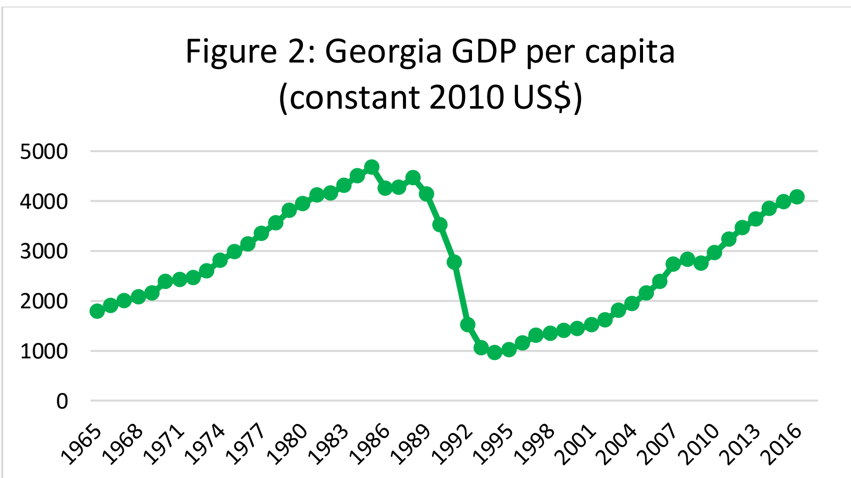


Figure 2: Georgia GDP per capita
(constant 2010 US$)
5000
4000
3000
2000
1000
0
1965 1968 1971 1974 1977 1980 1983 1986 1989 1992 1995 1998 2001 2004 2007 2010 2013 2016

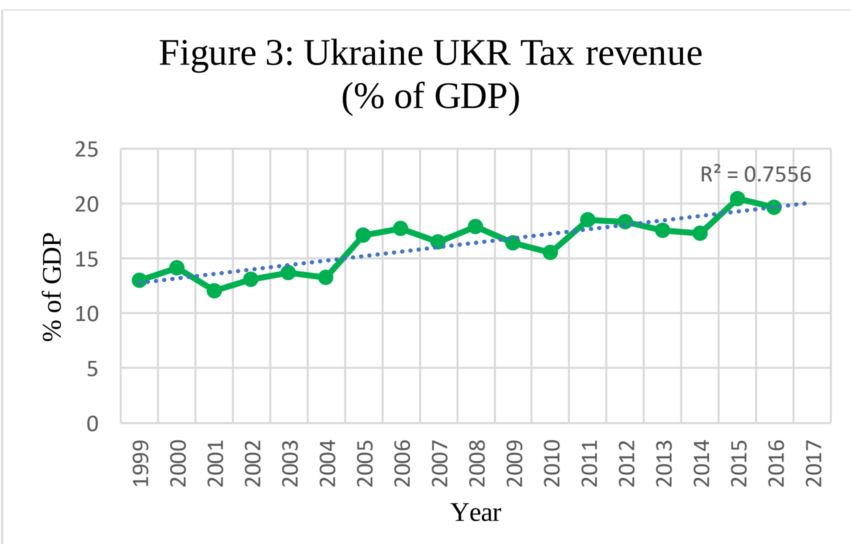


Figure 3: Ukraine UKR Tax revenue
(% of GDP)
R² = 0.7556
25
20
15
10
5
0
% of GDP
1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017
Year

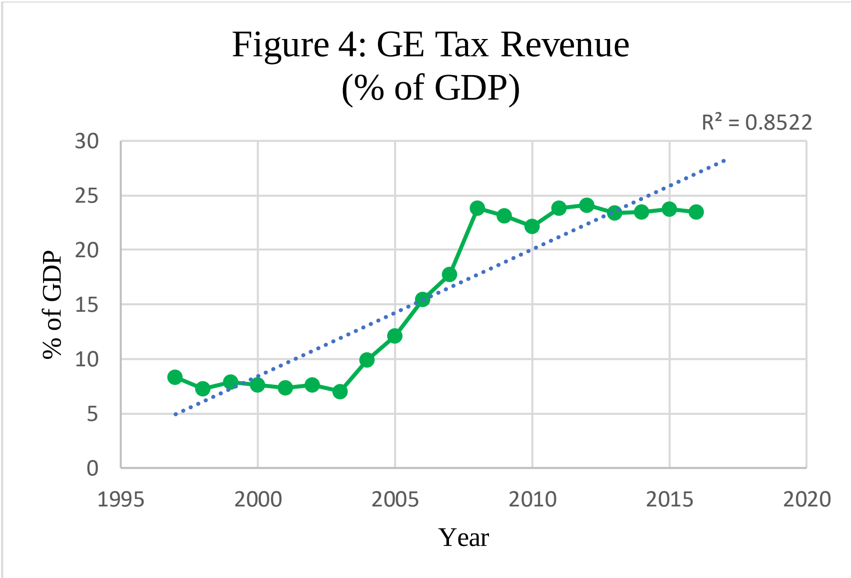


Figure 4: GE Tax Revenue
(% of GDP)
R² = 0.8522
% of GDP
Year
30
25
20
15
10
5
0
1995
2000
2005
2010
2015
2020

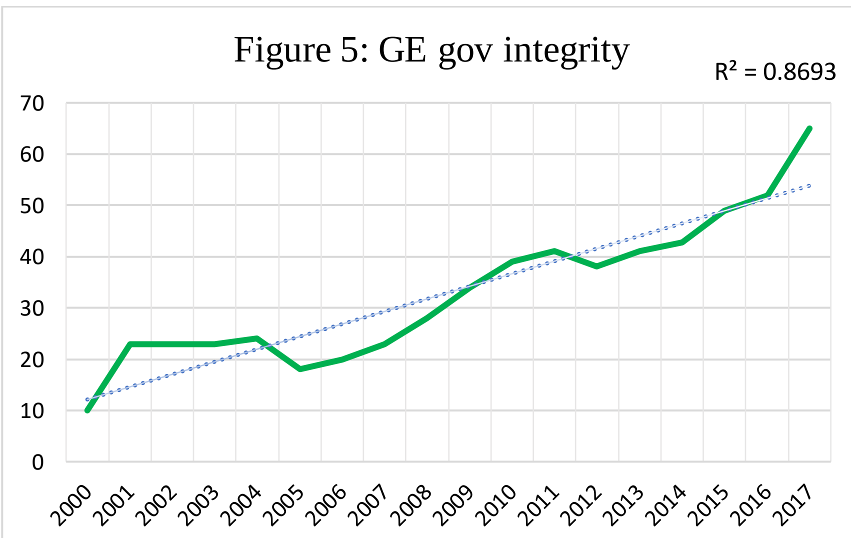


Figure 5: GE gov integrity
R² = 0.8693
70
60
50
40
30
20
10
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017

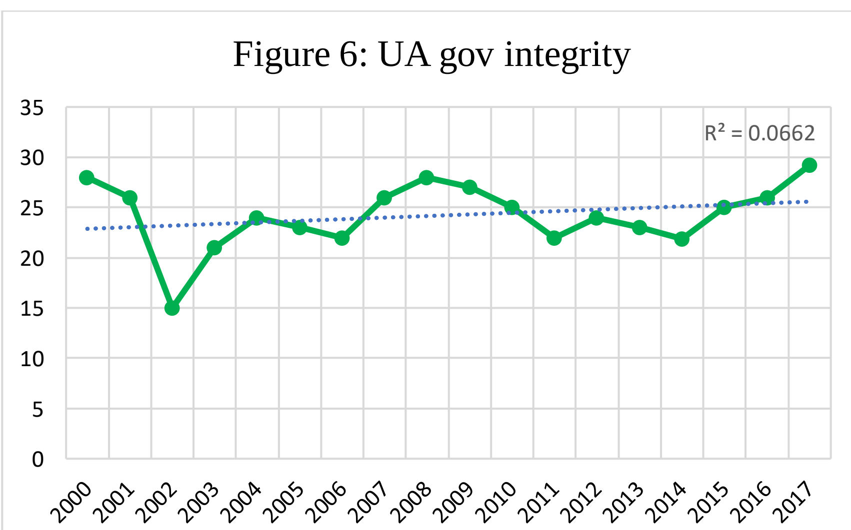


Figure 6: UA gov integrity
R² = 0.0662
35
30
25
20
15
10
5
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017

Figure 7: UA Business freedom

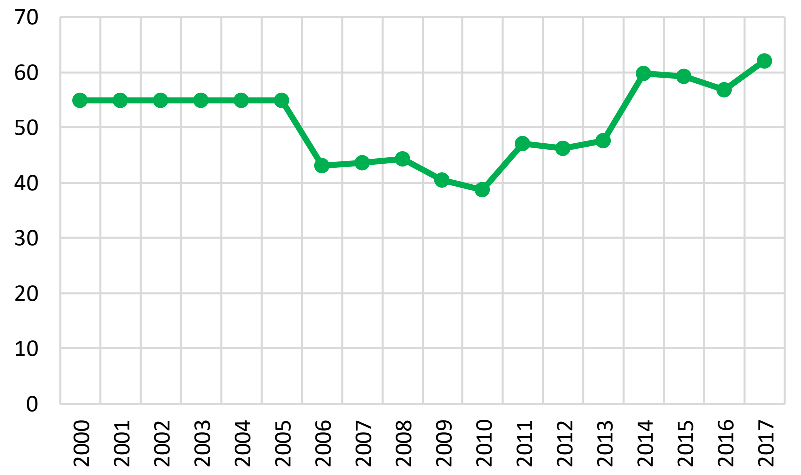


Figure 8: GE gov integrity

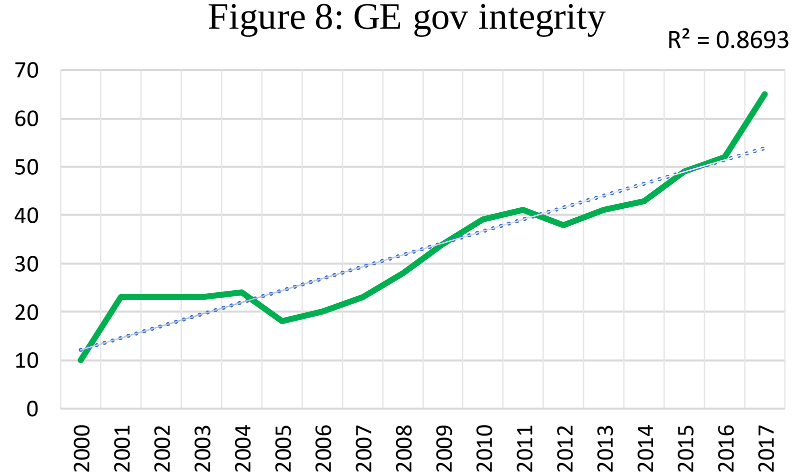
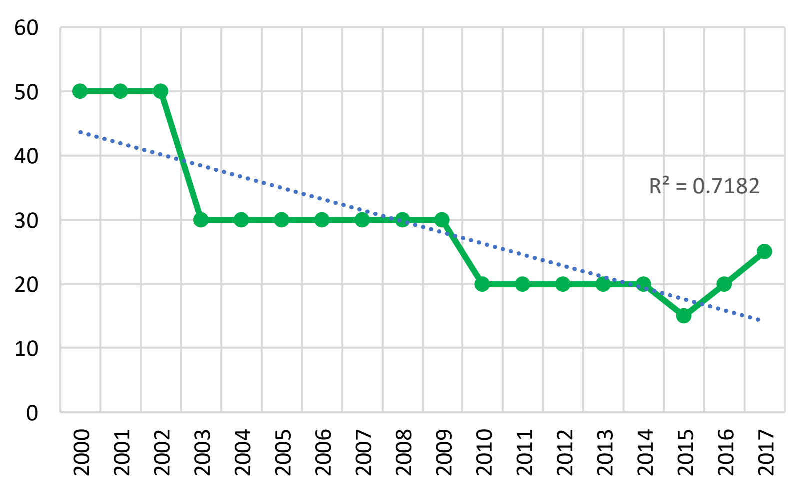
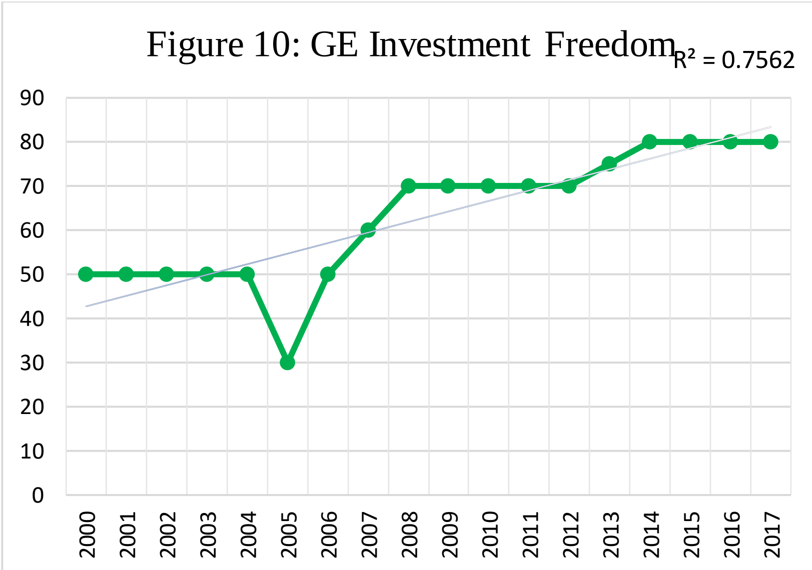
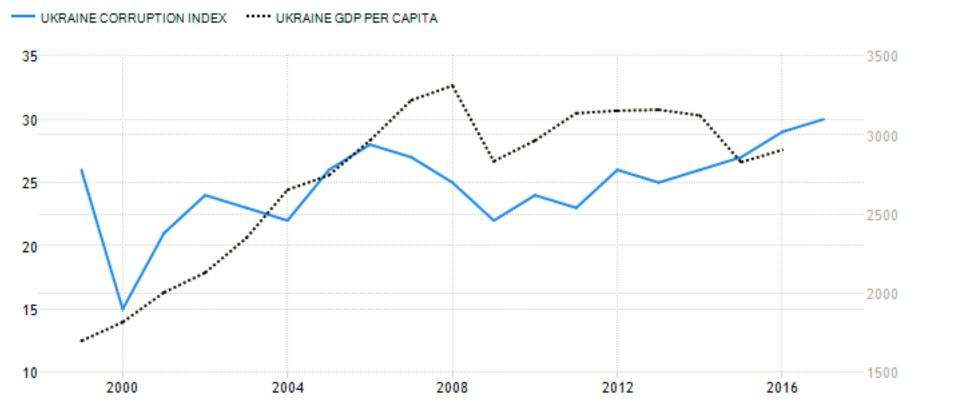


Figure 9: UA Investment Freedom



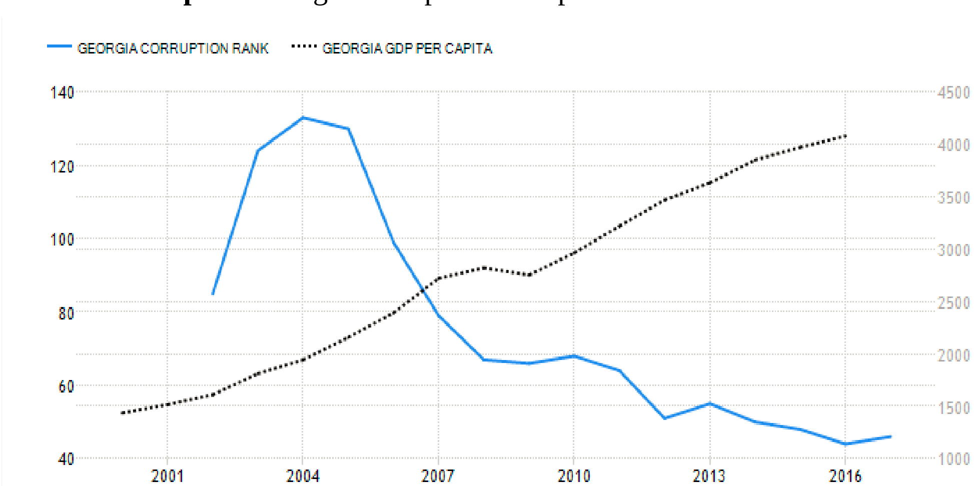


Graph 1: Corruption Perception Index vs. GDP



Source: Tradingeconomics.com

Graph 2: Georgia Corruption Perception Index vs. GDP



Source: Tradingeconomics.com

Figure 11: Georgia Inflation, GDP deflator (annual %)

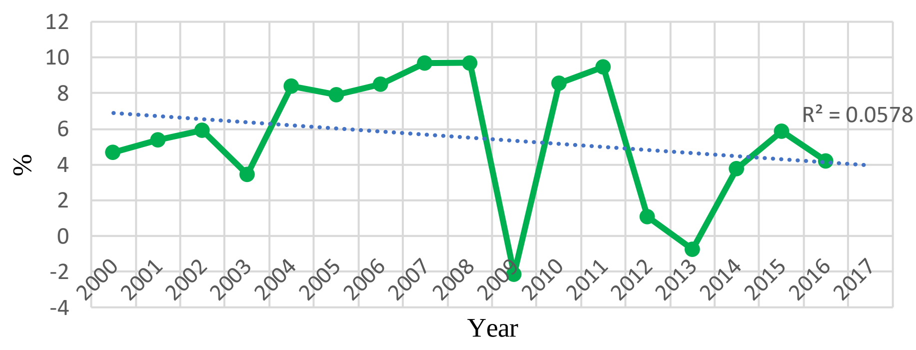


Figure12: Ukraine Inflation, GDP deflator (annual %)

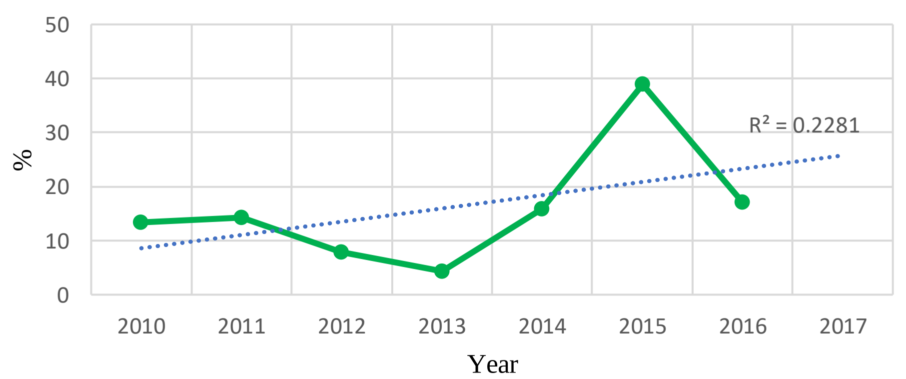
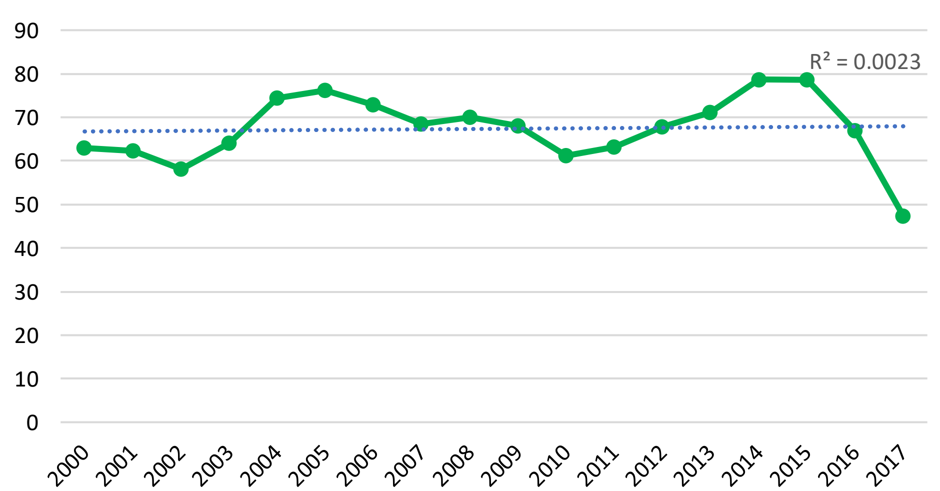


Figure 13: Ukraine Monetary Freedom



Appendix B

Tests for stationarity of indicators

Output A: Ukraine Augmented Dickey-Fuller test for tradefreedom
including 0 lags of (1-L)tradefreedom
(max was 1, criterion AIC)
sample size 17
unit-root null hypothesis: a = 1

with constant and trend
model: (1-L)y = b0 + b1*t + (a-1)*y(-1) + e
estimated value of (a - 1): -0.356704
test statistic: tau_ct(1) = -1.46633
p-value 0.8006
1st-order autocorrelation coeff. for e: -0.122

Output B: Ukraine Augmented Dickey-Fuller test for Taxrevenue
including 0 lags of (1-L)Taxrevenue
(max was 1, criterion AIC)
sample size 17
unit-root null hypothesis: a = 1

with constant and trend
model: (1-L)y = b0 + b1*t + (a-1)*y(-1) + e
estimated value of (a - 1): -0.886637
test statistic: tau_ct(1) = -3.34274
p-value 0.09294
1st-order autocorrelation coeff. for e: 0.014

Output C: Georgia Augmented Dickey-Fuller test for businessfreedom
including 0 lags of (1-L)businessfreedom
(max was 1, criterion AIC)
sample size 17
unit-root null hypothesis: a = 1

with constant and trend
model: (1-L)y = b0 + b1*t + (a-1)*y(-1) + e
estimated value of (a - 1): -0.166296
test statistic: tau_ct(1) = -0.918347
p-value 0.9295
1st-order autocorrelation coeff. for e: 0.260

Output D: Georgia Augmented Dickey-Fuller test for governmentintegrity
including 0 lags of (1-L)governmentintegrity
(max was 1, criterion AIC)
sample size 17
unit-root null hypothesis: a = 1

with constant and trend
model: (1-L)y = b0 + b1*t + (a-1)*y(-1) + e
estimated value of (a - 1): -0.35766
test statistic: tau_ct(1) = -1.26375
p-value 0.8617
1st-order autocorrelation coeff. for e: 0.204

Output E: Georgia Augmented Dickey-Fuller test for taxburden
including 0 lags of (1-L)taxburden
(max was 1, criterion AIC)
sample size 17
unit-root null hypothesis: a = 1

with constant and trend
model: (1-L)y = b0 + b1*t + (a-1)*y(-1) + e
estimated value of (a - 1): -0.869711
test statistic: tau_ct(1) = -3.33642
p-value 0.09391
1st-order autocorrelation coeff. for e: -0.043

Output F: Georgia Augmented Dickey-Fuller test for tradefreedom
including one lag of (1-L)tradefreedom
(max was 1, criterion AIC)
sample size 16
unit-root null hypothesis: a = 1

with constant and trend
model: (1-L)y = b0 + b1*t + (a-1)*y(-1) + ... + e
estimated value of (a - 1): -0.518128
test statistic: tau_ct(1) = -2.45126
asymptotic p-value 0.3528
1st-order autocorrelation coeff. for e: -0.287

Output G: Georgia Augmented Dickey-Fuller test for TaxrevenueofGDP
including one lag of (1-L)TaxrevenueofGDP
(max was 1, criterion AIC)
sample size 18
unit-root null hypothesis: a = 1

with constant and trend
model: (1-L)y = b0 + b1*t + (a-1)*y(-1) + ... + e
estimated value of (a - 1): -0.24481
test statistic: tau_ct(1) = -1.40374
asymptotic p-value 0.8603
1st-order autocorrelation coeff. for e: -0.100

Appendix C

Regression models

Table 1: Ukraine OLS,

using observations 2001-2016 (T = 16)
Dependent variable: d_l_GDPpercapitaconstantLCU

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	−0.77087	0.368127	−2.0940	0.1044	
d_l_Taxrevenue	0.502413	0.178568	2.8136	0.0481	**
d_l_tradefreedom	−2.16908	0.498535	−4.3509	0.0121	**
d_l_investmentfreedom	−0.0578541	0.0421602	−1.3722	0.2419	
monetaryfreedom	−0.0210189	0.00299855	−7.0097	0.0022	***
taxburden	0.00872843	0.00254059	3.4356	0.0264	**
businessfreedom	0.0172133	0.00259598	6.6308	0.0027	***
governmentintegrity	0.0340531	0.00697273	4.8838	0.0081	***
governmentspending	0.00429607	0.000688675	6.2382	0.0034	***
Unemployment	−0.0729399	0.0120726	−6.0418	0.0038	***
Foreigndirectinvestment	−0.0517289	0.0112213	−4.6099	0.0100	***
propertyrights	0.0181512	0.00507145	3.5791	0.0232	**

Mean dependent var	0.029312		S.D. dependent var	0.072502
Sum squared resid	0.002630		S.E. of regression	0.025641
R-squared	0.966646		Adjusted R-squared	0.874924
F(11, 4)	10.53882		P-value(F)	0.017981
Log-likelihood	47.00423		Akaike criterion	−70.00846
Schwarz criterion	−60.73740		Hannan-Quinn	−69.53371
rho	−0.155487		Durbin-Watson	1.986318

Table 1.1: Breusch-Godfrey test for first-order autocorrelation

OLS, using observations 2001-2016 (T = 16)
Dependent variable: uhat

	coefficient	std. error	t-ratio	p-value
const	0.327495	0.718446	0.4558	0.6795
d_l_Taxrevenue	−0.0987479	0.265728	−0.3716	0.7349
d_l_tradefreedom	0.212945	0.670609	0.3175	0.7717

d_l_investmentfr~	0.0159214	0.0546241	0.2915	0.7897
monetaryfreedom	0.000614994	0.00348212	0.1766	0.8711
taxburden	−0.00183278	0.00434066	−0.4222	0.7013
businessfreedom	−0.000297092	0.00290638	−0.1022	0.9250
governmentintegr~	−0.00337276	0.00980807	−0.3439	0.7536
overnmentspendi~	−0.000312519	0.00094590	−0.3304	0.7628
Unemployment	−0.00496497	0.0160422	−0.3095	0.7772
Foreigndirectinv~	0.00592374	0.0163592	0.3621	0.7413
propertyrights	−0.00348669	0.00842886	−0.4137	0.7069
uhat_1	−0.710914	1.28814	−0.5519	0.6195

Unadjusted R-squared = 0.092170
Test statistic: LMF = 0.304584, with p-value = P(F(1,3) > 0.304584) = 0.619
Alternative statistic: TR^2 = 1.474721, with p-value = P(Chi-square(1) > 1.47472) = 0.225
Ljung-Box Q' = 0.322735, with p-value = P(Chi-square(1) > 0.322735) = 0.57

Table 1.2: Ukraine Correlation coefficients

using the observations 2001 - 2016
5% critical value (two-tailed) = 0.4973 for n = 16

d_l_GDPper capita	d_l_tradefre edom	d_l_invest mentfreedo m	Taxrevenue	financialfre edom	
1.0000	0.1117	0.0554	-0.3690	0.4558	d_l_GDPpe rcapita
	1.0000	-0.0888	-0.0257	0.4690	d_l_tradefre edom
		1.0000	0.2396	-0.0994	d_l_invest mentfreedo m

			1.0000	-0.1862	Taxrevenue
				1.0000	financialfreedom
monetaryfreedom	taxburden	businessfreedom	government integrity	government spending	
-0.3268	-0.0576	-0.1735	-0.1254	0.5658	d_l_GDPpercapita
-0.0018	-0.0319	0.0222	-0.0731	0.2165	d_l_tradefreedom
0.1263	0.2130	0.0726	0.1285	-0.1237	d_l_investmentfreedom
0.4775	0.7523	-0.0804	0.3122	-0.5519	Taxrevenue
0.2706	0.2138	-0.1864	0.1579	0.7567	financialfreedom
1.0000	0.4874	0.3212	0.2436	0.0798	monetaryfreedom
	1.0000	-0.4115	0.2688	-0.0949	taxburden
		1.0000	-0.3287	0.0959	businessfreedom
			1.0000	-0.3164	government integrity
				1.0000	government spending
			Unemployment	Foreigndirectinvestment	
			-0.3809	0.4178	d_l_GDPpercapita
			-0.1870	0.1328	d_l_tradefreedom
			-0.0758	0.0693	d_l_investmentfreedom
			-0.4290	0.3189	Taxrevenue
			-0.5130	0.5492	financialfreedom
			-0.2570	0.1377	monetaryfreedom
			-0.7258	0.6069	taxburden
			0.6020	-0.4420	businessfreedom
			-0.2053	0.3567	government integrity

			-0.1115	0.2731	government spending
			1.0000	-0.7167	Unemployment
				1.0000	Foreigndirectinvestment

Table 1.3: Ukraine Cochrane-Orcutt,

using observations 2002-2016 (T = 15)
Dependent variable: d_l_GDPpercapitaconstantLCU
rho = -0.318963

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	−0.469111	0.459932	−1.0200	0.3828	
d_l_Taxrevenue	0.486528	0.173454	2.8049	0.0676	*
d_l_tradefreedom	−2.00801	0.463744	−4.3300	0.0227	**
d_l_investmentfreedom	−0.051434	0.0465694	−1.1045	0.3500	
monetaryfreedom	−0.0205506	0.00324122	−6.3404	0.0079	***
taxburden	0.00819655	0.00271915	3.0144	0.0570	*
businessfreedom	0.0162498	0.00302193	5.3773	0.0126	**
governmentintegrity	0.0302654	0.00806228	3.7540	0.0330	**
governmentspending	0.00420649	0.000717531	5.8624	0.0099	***
Unemployment	−0.0797893	0.0121969	−6.5417	0.0073	***
Foreigndirectinvestment	−0.0511669	0.0127746	−4.0054	0.0279	**
propertyrights	0.014703	0.00571027	2.5748	0.0821	*

Statistics based on the rho-differenced data:

Mean dependent var	0.024728		S.D. dependent var	0.072608
Sum squared resid	0.001648		S.E. of regression	0.023435
R-squared	0.977929		Adjusted R-squared	0.897002
F(11, 3)	15.19242		P-value(F)	0.023104
rho	−0.405030		Durbin-Watson	2.699982

Table 2: Georgia OLS

using observations 2001-2016 (T = 16)
Dependent variable: d_l_GDPpercapitaconstantLCU

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	1.23943	0.234236	5.2914	0.0032	***
d_l_TaxrevenueofGDP	−0.0339621	0.0513688	−0.6611	0.5378	
d_l_tradefreedom	−0.113003	0.076096	−1.4850	0.1977	
financialfreedom	0.00767261	0.00172558	4.4464	0.0067	***
monetaryfreedom	−0.0145432	0.00301795	−4.8189	0.0048	***
d_l_taxburden	−0.908017	0.327314	−2.7741	0.0392	**
d_l_governmentintegrity	−0.180353	0.0355723	−5.0701	0.0039	***
Unemployment	−0.0358715	0.00723666	−4.9569	0.0043	***
InflationGDPdeflator	0.0114671	0.00204869	5.5973	0.0025	***
Foreigndirectinvestment	−0.00856137	0.00336446	−2.5446	0.0516	*
d_l_businessfreedom	0.057789	0.113836	0.5077	0.6333	

Mean dependent var	0.065288		S.D. dependent var	0.038620
Sum squared resid	0.001331		S.E. of regression	0.016315
R-squared	0.940512		Adjusted R-squared	0.821536
F(10, 5)	7.905079		P-value(F)	0.017039
Log-likelihood	52.45285		Akaike criterion	−82.90570
Schwarz criterion	−74.40723		Hannan-Quinn	−82.47051
rho	−0.727422		Durbin-Watson	2.899215

Table 2.1 Breusch-Godfrey test for first-order autocorrelation

OLS, using observations 2001-2016 (T = 16)
Dependent variable: uhat

	coefficient	std. error	t-ratio	p-value
const	0.0350835	0.186681	0.1879	0.8601
d_l_Taxrevenueof~	0.0236438	0.0424598	0.5569	0.6073

d_l_tradefreedom	−0.0206599	0.0612646	−0.3372	0.7529
financialfreedom	0.000103120	0.00137006	0.07527	0.9436
monetaryfreedom	−0.000532664	0.00240942	−0.2211	0.8359
d_l_taxburden	0.0890651	0.263536	0.3380	0.7524
d_l_governmentin~	0.000128012	0.0282232	0.004536	0.9966
Unemployment	−6.66047e-07	0.00574158	−0.0001160	0.9999
InflationGDPdefl~	−0.000736026	0.00166716	−0.4415	0.6817
Foreigndirectinv~	0.000410280	0.00267735	0.1532	0.8856
d_l_businessfree~	−0.0405864	0.0926012	−0.4383	0.6838
uhat_1	−0.881542	0.443946	−1.986	0.1180

Unadjusted R-squared = 0.496412
Test statistic: LMF = 3.942999, with p-value = P(F(1,4) > 3.943) = 0.118
Alternative statistic: TR^2 = 7.942590, with p-value = P(Chi-square(1) > 7.94259) = 0.00483
Ljung-Box Q' = 6.08834, with p-value = P(Chi-square(1) > 6.08834) = 0.0136

Table 2.2 Georgia Cochrane-Orcutt

using observations 2002-2016 (T = 15)
Dependent variable: d_l_GDPpercapitaconstantLCU
rho = -0.834737

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	1.3314	0.201792	6.5979	0.0027	***
d_l_Taxrevenueo fGDP	−0.0251596	0.0396082	−0.6352	0.5598	
d_l_tradefreedom	−0.136857	0.074875	−1.8278	0.1416	
financialfreedom	0.00867402	0.00144468	6.0041	0.0039	***
monetaryfreedom	−0.0155615	0.002547	−6.1097	0.0036	***
d_l_taxburden	−1.1773	0.557194	−2.1129	0.1022	
d_l_governmenti ntegrity	−0.179508	0.043777	−4.1005	0.0148	**
Unemployment	−0.0401769	0.00681093	−5.8989	0.0041	***

InflationGDPdeflator	0.0121809	0.00160245	7.6014	0.0016	***
Foreigndirectinvestment	−0.0105765	0.00336693	−3.1413	0.0348	**
d_l_businessfreedom	0.0786107	0.127589	0.6161	0.5711	

Statistics based on the rho-differenced data:

Mean dependent var	0.066028		S.D. dependent var	0.039858
Sum squared resid	0.000639		S.E. of regression	0.012635
R-squared	0.971620		Adjusted R-squared	0.900670
F(10, 4)	28.75289		P-value(F)	0.002722
rho	−0.591366		Durbin-Watson	3.173453

Table 2.3: Georgia Correlation coefficients

using the observations 2001 - 2016
5% critical value (two-tailed) = 0.4973 for n = 16

d_l_GDPpercapitacurrentUS	d_l_TaxrevenueofGDP	d_l_governmentintegrity	d_l_taxburden	d_l_governmentspending	
1.0000	0.6503	-0.2299	0.1526	-0.1724	d_l_GDPpercapitacurrentUS
	1.0000	-0.2178	0.1166	-0.1406	d_l_TaxrevenueofGDP
		1.0000	0.0016	0.0336	d_l_governmentintegrity
			1.0000	0.1421	d_l_taxburden
				1.0000	d_l_governmentspending
d_l_businessfreedom	d_l_tradefreedom	d_l_investmentfreedom	InflationGDPdeflator	Unemployment	
0.2708	-0.2771	0.0632	0.6821	0.0267	d_l_GDPpercapitacurrentUS
0.4225	0.0304	0.1506	0.6263	0.1434	d_l_TaxrevenueofGDP

0.0542	0.4021	0.3247	-0.0120	-0.1748	d_l_governmentintegrity
0.4901	-0.1045	0.3598	0.2438	-0.1533	d_l_taxburden
0.0443	-0.3433	0.0039	-0.3511	-0.5160	d_l_governmentspending
1.0000	0.1496	0.7191	0.2702	0.1252	d_l_businessfreedom
	1.0000	0.0942	0.0233	0.3816	d_l_tradefreedom
		1.0000	0.1028	0.0395	d_l_investmentfreedom
			1.0000	-0.0646	InflationGDPdeflator
				1.0000	Unemployment
			monetaryfreedom	financialfreedom	
			0.0041	0.0876	d_l_GDPpercapitacurrentUS
			0.1526	0.1835	d_l_TaxrevenueofGDP
			-0.5965	-0.3281	d_l_governmentintegrity
			-0.0654	0.0308	d_l_taxburden
			0.1638	-0.0701	d_l_governmentspending
			0.0184	0.4375	d_l_businessfreedom
			-0.3816	-0.0106	d_l_tradefreedom
			0.0051	0.4167	d_l_investmentfreedom
			0.1078	0.0538	InflationGDPdeflator
			-0.1539	0.4208	Unemployment

			1.0000	0.6634	monetaryfreedom
				1.0000	financialfreedom