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Perceived Corruption in Ukraine:
A National Analysis Using Individual Level Data from 2012-2014

by
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Submitted in partial fulfillment of requirements for the degree of
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Abstract

This study examines the relationship of perceived corruption in Ukraine and the factors that influence that perception. In particular, this paper investigates the idea that an influential Russian presence affects the perception of governmental corruption amongst Ukrainian business owners and managers. An Ordered Logistic Regression is utilized to estimate how business ownership and business environment characteristics affect the likelihood of how severely corruption is perceived. Using a sample of 1207 respondents from the Business Environment and Enterprise Performance Survey (BEEPS) obtained by the European Bank of Reconstruction and Development (EBRD), a combination of quantitative and qualitative variables is utilized. Speaking Russian at work in Ukraine has a weak but positive statistically significant effect on the severity of perceived corruption within the government. Working in industries such as chemical, construction, wholesale, and transportation has a strong statistically significant impact on the severity of perceived corruption of respondents within these sectors. In comparison, working in white-collar industries such as electronics and information technology shows no evidence of affecting perception of corruption. In addition, the percentage of a business that is foreign-owned affects the likelihood of how severely corruption is perceived, while the size of a business and the size of the city in which it is located have no effect. This paper also evaluates how these coefficients change when looking at Russian-speaking Ukrainians versus Ukrainian-speaking Ukrainians.

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Introduction

Corruption is the unlawful or immoral misuse of public resources by government officials for personal or illegal gain. Although the meaning of corruption can vary greatly from institution to institution or person to person, corruption has generally been looked upon as a detriment to the economy and society as a whole. Corruption can take many forms such as bribery, extortion, time-wasting, dishonesty, or self-service to misuse public resources. Due to the difficulty in measuring and acquiring data on such an illicit topic, this paper examines the perception of corruption as a proxy for corruption.

In addition to the obvious moral concerns, it is important to eliminate the perception of corruption within a country's government in order to increase the trust of its citizens and of foreign governments. Diplomacy and politics appear more predictable and stable both within domestic political parties and with foreign governments with the reduction of perceived corruption.

In order to begin the process of eliminating perceived corruption we must first understand its causes. When examining Ukraine, we must consider the presence of Russian influence as a determinant of perceived corruption of Ukraine's government. This influence is embedded within the psyche of Ukrainian culture today through media, economics, and politics. In addition to navigating the Russian influence, Ukraine has had to manage the tumultuous changes within its own history; ranging from the times of the Crimean Hordes, to the Kievan Rus, to the incorporation into the U.S.S.R and its return to independence. The dynamic between Russia and Ukraine has created a tense and uncertain future for the latter as many of its politicians and policymakers are caught between Western and Russian values.

According to Transparency International, a global organization that measures and ranks national perceived corruption, in 2014 Ukraine had the 33rd highest perception of corruption out of 174 participating countries. Within that same index, it only scored one point lower (26) on a hundred-point scale than its former socialist republic sister Russia (27). Figure 1 shows how Ukraine's perception of corruption has changed from 2008 to 2014, illustrating that Ukraine has had very little success in changing its perceived corruption over those 7 years. The lack of improvement in this low rating suggests that market and government reforms have failed to become more transparent. Other former socialist republics of the U.S.S.R such as Moldova, Armenia, Azerbaijan, Belarus and Georgia all ranked better than Ukraine in perceived corruption in 2014. In addition to having similar government and economic structures when compared to these countries, Ukraine also has several unique factors beneficial to economic growth, such as proximity to the European Union, easy access to the Mediterranean Sea through the Black Sea and Bosphorus Sea, and its former role as the U.S.S.R industrial zone. This raises the question as to why Ukraine, despite these seemingly beneficial factors, has had such poor economic growth. According to the World Bank, the annual GDP per capita growth rates in Ukraine for 2012, 2013, and 2014 were 0.239%, -0.027%, and -6.553% respectively. The high perception of corruption in Ukraine as reported by Transparency International may suggest that government inefficiencies negatively influence the rate of economic reform and thus economic growth.

Figure 1: Transparency International: Corruption Perception Index (CPI) 2008-2014

Year	Score (Base 100, 100 is no perceived corruption)	Year over Year % change in score
2008	25	-
2009	22	-12%
2010	24	9.09%
2011	23	-4.17%
2012	26	13.04%
2013	25	-3.85%
2014	26	4%

Source: Transparency.org

In recent history, Ukraine has experienced notable governmental change with the intention to establish growth in its economy. Whitmore (2014) notes that Ukraine has changed or readopted its constitution several times since its independence from the U.S.S.R in 1991. While a country going through such a radical government transition would be expected to make political and policy changes, too many constitutional changes in a very short time period can create uncertainty and unpredictability. Unpredictability continues to be a factor in society as Ukraine moves away from the policies of its former centralized government and transitions into an open-market economy. Since Ukraine gained independence from the U.S.S.R, the westernization of its economy after years of socialism has caused the GDP per capita to drop by over 50%.¹ Figure 2 shows Ukraine's GDP per capita from 1991 to 2014. The huge decline and slow recovery of GDP per capita has caused economic unpredictability and civil unrest. As Ukraine looks to shed the remnants of its planned economy and grow its four-digit U.S. dollar GDP per capita, it is imperative for policy-makers to reduce this uncertainty and unpredictability. Some Ukrainians

¹ Source: The World Bank. "Ukraine." *The World Bank Data*, The World Bank, 2018, data.worldbank.org/country/ukraine?view=chart.

believe that realigning their interests with Russia will best serve their country and bring forward economic stability. This is illustrated by the ongoing rebellion in Luhansk and Donetsk backed by pro-Russian rebels. Other Ukrainians feel that closer economic ties with Europe will help repair their stagnating economy. In 2013, pro-European Ukrainians took to the streets in the Maidan Square protest to display their dissatisfaction with the pro-Russian government and former President Yanukovich's intention to solidify their dependence on Russia; this ultimately forced him from office. Soon after, Russia annexed Ukraine's Crimea in 2014 claiming that it was the will of the Russian speakers to return to Russia's sovereignty. These events fueled the discord amongst the pro-Russian and pro-European Ukrainians. Such conflicts have deep-rooted complexities that delve into Ukraine's history, culture, geography and diplomacy that can affect how the citizens feel their government is performing. Rational citizens then react according to how they expect their government and economy to perform. Therefore, the perception of corruption in this time of uncertainty is vital for determining Ukraine's short-term economic growth.

Figure 2: GDP per capita in constant 2010 USD



Source: World Bank

The perception of corruption can have lasting effects on a country's government, varying from country to country, but this study aims to specifically examine which factors influence that perceived corruption within Ukrainian businesses. Specifically, we use individual level data obtained by the European Bank for Reconstruction and Development to identify which factors contribute to business managers' perception of corruption in the Ukrainian government. Although the data acquired is from a niche sample of the population, it gives us the ability to examine perceived corruption from those in the business sector. Thus, the main focus of this paper is to determine whether Russian influence is among one of the many factors that alter one's perception of corruption.

As it is difficult to directly account for Russia's influence on the Ukrainian society, we make the assumption that those who speak Russian are more likely to be influenced by Russian culture, media, politics, and ideals. There has been evidence demonstrating that those who speak Russian abroad will be a focus of Russian foreign policy. President Putin of Russia has publicly stated that it is his duty to protect Russian speakers no matter where they reside. This is one of the ways he justified Russia's annexation of Crimea. Such actions do not guarantee that Russian speakers are influenced by Russia; however, Russian is spoken throughout Ukraine as one of its official languages. Therefore, this study uses Russian language as a proxy for Russian influence.

The first section of the paper reviews the previous literature on perceived corruption and how it ties into economic growth. Section two explains the data and type of test that is used in this study. Section three derives an equation from previous studies. Section four takes a brief look at the raw results of the paper. Section five contains an analysis of the results and what steps can be taken to reduce perceived corruption in Ukraine. Finally, section six offers a conclusion to the study.

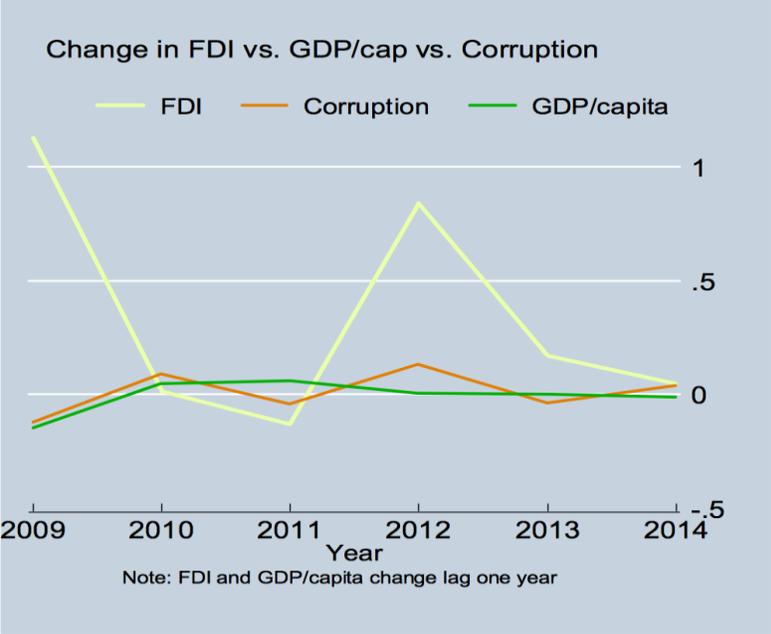
I. Previous Literature

The effect corruption has on an economy has been studied with ambiguous findings. Mauro (1995) finds evidence that a more efficient bureaucracy tends to lead to an increase in investment inflows. Mauro created this bureaucratic efficiency index (BI) to standardize how well a government performs its duties. Mauro notes that while a low BI score does not exclusively mean corruption is the problem, a high amount of corruption can cause a low BI score. Levine and Renelt (1992), along with many others such as Root and Ahmed (1979), and Borensztein et al. (1997), find that investment inflows such as foreign direct investment (FDI) increase economic growth. This growth can occur by eliminating market barriers, incentivizing technological growth, and/or allowing the creation of more competition. Mauro's assessment of efficient governments and increased investment flows, paired with the finding that an increased investment inflow rate tends to increase economic growth can lead us to conclude that sustained levels of corruption can indirectly lower the overall economic growth rate. Research done by Azman-Saini et al. (2010) adds that a certain threshold of technology and human development must be present in the country for foreign or domestic investment to have a positive impact on economic growth. Ukraine is not far behind the West in terms of access to technology; there are 1.4 mobile telephone subscriptions per citizen, indicating that nearly all of its citizens have access to mobile phones, and approximately half its citizens have internet access. However, Ukraine's Human Development Index (HDI) provided by the UN indicates that it may not be at the necessary threshold as it ranks 84th out of 194 countries and has consistently stayed near this level since 1991.² Given this mediocre level of HDI, Ukraine has incentives to increase its

² Source: Jahan, Selim. "Human Development Reports: Ukraine." *2014 Human Development Report*, United Nations Development Programme, 2015, hdr.undp.org/en/countries/profiles/UKR#

overall human development in order to attract more investment as well as increase the marginal benefit of those investments. Figure 3 shows the change in payments of FDI into Ukraine, GDP per capita growth, and change in perceived corruption from 2008-2014. Ukraine’s geopolitical affairs have caused volatile shifts in FDI while GDP per capita and perceived corruption have barely fluctuated. A potential solution to a more reliable inflow of FDI is to increase its BI by reducing the amount of perceived corruption in its government.

Figure 3: Percentage Change in FDI, GDP per capita, Corruption



Source: World Bank, Transparency International.

In order to get a more complete picture of corruption we must acknowledge that in certain circumstances corruption may be efficient for a particular institution. Papers from Dzhumashev (2014) and Huang (2015) dispute, in part, that corruption always inhibits economic growth and in fact find evidence that there are levels of corruption that can be optimal for government efficiency. Dzhumashev makes the case for corruption existing in government to the extent in which it mitigates complex institutions and serves as a tool to bypass inefficient red

tape. For example, a business that wants to build infrastructure may pay off a local official in order to sidestep building permits and legal building codes required by a slow, ineffective, or distant government to formally approve their plans so that it may enter the market more quickly. In these instances, it may be economically or bureaucratically efficient to tolerate systematic corruption. Corruption can be used to lessen the weight of heavy-handed governments that have grown too large to operate efficiently. Huang used cross-country analysis to determine that even a country as developed and democratic as South Korea can become more bureaucratically efficient with a sustained level of corruption. This “greasing the wheels” example runs counter to the argument that all corruption should be eliminated for the benefit of economic efficiency.

Outside of the institutional realm, corruption can be viewed as a problem that moral citizens would like to eliminate on principle. If left unchecked within an institution, corruption can become pervasive and accepted over time. In a two-player individual pay off game, Ghatak and Iyengar (2014) suggest corrupt behavior by one player can influence others to act corruptly. This leads to a feedback effect, whereby initial corruption or perceived corruption continues to thrive or even grow. While in reality, there are often more than two players and a wide variety of different types of “games”. Ghatak’s and Iyengar’s findings can still apply by the same process and reasoning as the two-player pay off game. In a government that has allowed corrupt officials to work in public office, corruption could become a phenomenon or possibly increase in severity if steps to deter it are not put into place. Morris (2006) investigates whether or not there is a variation in perceived corruption within Mexican states. Our paper follows a similar approach in the context of Ukraine. His findings show that traditional macroeconomic characteristics such as income growth, economic development, and federal direct investment as well as individual characteristics such as schooling, ethnicity, and interpersonal trust did not alter the perception of

corruption over a span of three years. He does, however, find that the perception of corruption in previous years was significant in determining the perception of corruption in later years. This empirical finding from Morris agrees with the theoretical work of Ghatak and Iyengar suggesting that previously perceived corruption can influence future perceptions.

Corrupt behavior can coerce others into acting corruptly if there is a system in place that allows it to occur and continue. Levine and Satarov (2000) examine how institutional norms and organizational and political culture allow corruption to exist in Russia. They suggest that implicit attitudes and understandings exist amongst public officials that are conducive to allowing corruption and bribery to take place. They also illustrate the complexities of how politicians insert themselves into private businesses, creating a dynamic that often mixes political backchanneling with business deals. For example, a business that requires recurring drilling permits may build a relationship with a public official who personally benefits from fast tracking drilling permits. This could happen within an institution as well, driven by a combination of the institution's lack of law enforcement and employees who do not want to disrupt the acceptable status quo. During a short-term period, whether in game theory or reality, it's possible that corrupt behavior can create future corrupt behavior purely by influencing others' actions. Without a mechanism or process to address the perpetuation of corruption, this behavior can become fully sustained resulting in long-term corruption.

Shleifer and Vishy (1993) conclude that weak and transitioning central governments are more susceptible to costly corruption. They use an example in post-communist Russia where a foreigner (non-Russian) who tries to invest in a Russian business has to pay bribes to institutions throughout the entire investment process (such as minister of industry, foreign investment office, executive branch and so on). This type of corruption reduces incentives for foreigners to invest in

that country. A cohesive federal government will be elusive if branches of central government act independently and unilaterally. Institutions who act to further their own self-interest without transparency or interference from other agencies allow bribery and corruption to thrive. This is evident in Ukraine where the federal government is in the midst of a slow transition and corruption still appears to be a problem. The corruption and bribery that fuel this process is likely to perpetuate corruption until a transitioning government can show it will protect foreign and domestic investors. If the government lacks central authority, accountability, and transparency, then current corruption can be an indicator of future corruption.

While it appears that the Ukrainian government has failed to implement proper reforms to shift the economy to a more decentralized market, it has created some opportunities for entrepreneurship. Businesses could fill the gaps in the economy where the central government has failed (Smallbone, Welter, Voytovich, & Egorov 2009).³ When the government begins transitioning from a planned economy to an open market it creates a new paradigm. Smallbone et al. explains that there is potential for black markets that existed during the planned economy to become legitimate and enter into the free market. It is in the nature of change that some industries and businesses will adapt to the transition while others will fail or become irrelevant. The struggles of some private industries compared to the success of others have the potential to create opposing viewpoints among Ukrainians on the business environment and economic transition process.

Along with opportunities for entrepreneurship, economic and government reforms also bring new challenges. Blake and Morris (2009) note that with open market reforms and the democratization of government, there can be new areas and opportunities for corruption to occur.

³ For example, a state-run distribution center turned privately owned.

They also suggest that a longer and slower reform process may also give rise to corrupt practices. As a symptom of a long transition, the demand for accountability and transparency fails to adhere as complacency sets in for citizens and institutions, creating a new breeding ground for corruption. This is in line with Braguinsky (1996) who suggests that corruption in capitalist environments is transitory in that corrupt events ebb and flow as the market and policies catch up with the demands of agents. In comparison, a more controlled market or totalitarian environment produces long-term corruption that becomes systemic. The logic behind Braguinsky's finding suggests that when an open-market economy demands equilibrium revolving around constantly changing factors, those who exhibit corrupt behavior must constantly adapt to hide from the procedures, laws, and institutions that evolve with the changing economy. In contrast, a totalitarian environment does not encourage change within the government and a planned market requires massive policy shifts in order to change the dynamic of the economy. This is conducive to long-term corruption, where it can be sustained and does not have a reason to be addressed.

In addition to identifying systematic factors that contribute to the perception of corruption, there are individual factors that may contribute as well. Swamy (2001) ignites a debate over gender and corruption during an era where women are still trying to reach equality in the majority of the world. He suggests that more women in government office leads to less bribery given certain economic conditions. Wangnerud (2011) builds on this premise set by Swamy and takes it a step further, showing evidence that women are inherently less corrupt. If gender has an effect on corruption, an argument could be made that other implicit individual characteristics can play a role in determining how we perceive corruption.

II. Data

The data used in this study was provided by the European Bank for Reconstruction and Development (EBRD). The dataset contains information from surveys sent to businesses to get an overall measurement of qualitative and quantitative characteristics of the economy. The survey used is called the Business Environment and Enterprise Performance Survey, also referred to as the BEEPS. The BEEPS has been performed in five waves, allowing access to data from different time periods. This study uses panel data that combines BEEP IV-V, the two most recent waves of the survey that was distributed between 2012 and 2014 and reflects data from that time range. BEEPS is an expansive dataset that provides industry level data and gives researchers access to information that is obtained from thousands of individual sources. This study uses a sample of 1207 survey respondents consisting of business managers and owners in Ukraine.

The BEEPS diversity and depth of information allows researchers to answer questions that have previously been difficult to answer empirically. It contains questions that cover topics related to corruption, productivity, demographics, and business environment. In an illicit topic such as corruption, the BEEPS provides consistent and standardized data which allows researchers to examine corruption with accuracy and consistency. Papers such as De Rosa et al. (2010) use the BEEPS to determine the effect of bribes (“bribe tax”) on productivity compared to the effect of following the proper channels of government (“time tax”) on productivity. Using cross-country analysis, they find that the bribe tax has a negative impact on a country’s productivity while the time tax has no effect. They also find the bribe tax is more harmful to European Union (EU) countries when compared to non-EU countries. This suggests that

economic conditions and macroeconomic policy do in fact affect how corruption impacts the economy.

Blagojevic and Damijan (2013) also use the BEEPS II-IV panel data, which combines three waves of BEEPs from 2002-2009, to determine how demographic ownership affects how likely a business is to partake in informal bribery. They suggest that foreign-owned businesses benefit from bribery more than domestic-owned businesses. Similarly, Bondarev (2014) uses the BEEPS II-IV dataset to perform a maximum likelihood regression on an instrumental variable for foreign-ownership to find that a relationship exists between foreign-ownership of businesses in Ukraine and perceived corruption.

III. Methodology

An ordered logistic regression method (Ologit, a procedure in STATA) and a variety of factor variables are used to determine the effect of Russia's influence on the severity of perceived corruption of Ukraine's government. The analysis measures how specific variables affect the likelihood of each of the five degrees of corruption, ranging from none (0) to severe (4). Appendix I shows the distributions of perceived corruptions from the BEEPS IV-V panel data.

The estimation equation is based on a combination of results from previous studies and current events happening in Ukraine. Before assembling the equation, the following statements should be considered:

1. “Perceived corruption”, the dependent variable in this study, is used as proxy for actual corruption. Corruption in its truest form can be incredibly hard to directly measure as it is very subjective and abstract.
2. Although the definition of corruption can vary by respondent, their answers reflect a standardized measure of perceived corruption (i.e. none, minor, moderate, major, severe). The survey measures the severity of corruption by asking how it affects each respondent’s day-to-day business operations.
3. The perceptions of business owners and managers are assumed to represent how corruption impacts the business and economic environment. While this does not best represent the full scope of all corruption, it should provide a relatively more precise reflection of the economic impacts of perceived corruption.
4. This paper measures how likely a respondent is to perceive corruption of the Ukrainian government on a scale from 0 (none) to 4 (severe). For analysis purposes, this paper assumes that the more severely respondents are impacted by corruption, the more likely they are to perceive the government as corrupt.
5. Ukraine has two primary languages; Ukrainian and Russian. The language in which each respondent spoke during the survey was recorded as either the local language (Ukrainian) or Russian. This information was utilized to obtain the Russian language variable. In this paper the base language is Ukrainian and the dummy variable is set to 1 when a respondent speaks to Russian.

-Dependent Variable

This model will build on previous studies to identify which factors affect perceived corruption. Our dependent variable, perceived corruption, is measured by severity and answers the question “how severe of an obstacle is corruption to your day-to-day operations?” As illustrated in consideration #2 from the Methodology section, this survey question provides a standardized way to measure respondents’ general assessment of corruption without having specific insight on the inner-workings of government.

-Control Variables

Dollar et al. (2001) investigates a controversial factor in determining perceived corruption: Does the gender of those in public office affect the perceived corruption of that office? In this niche area of study, they determined that gender does affect corruption. Their cross-country analysis shows that when more women are elected into office there is less perceived corruption. Swamy, Knack, Lee, & Azar (2001) reinforces this premise in his findings that an increased female presence within the government lowers the incidence of bribery when specific economic conditions are met. In a more recent study, Esarey & Chirillo (2013) performs cross-country analysis to look at a gender’s impact on corruption and finds that it varies depending on an institution’s cultural and social norms. The data utilized in our estimation equation does not include the gender of the respondent but does include a dummy variable that represents whether females have a stake in the respondent’s business. This dummy variable will act as a control for inherent attitudes or perceptions within a business brought about by its female owner(s). In addition to female ownership, a variable to account for the percentage of a business that is foreign-owned is used in the estimation equation. If female owners have an impact on

perceived corruption due to some inherent quality, then a similar argument can be made for foreign owners.

Since Ukraine's independence in 1991, the country's parliamentary election process has changed seven times (Whitmore 2014). As stated in the introduction, Whitmore points out that there have been numerous constitutional changes and re-adoptions that have contributed to political instability. The BEEPS evaluated the respondent's answers in relation to how severely political instability impacts their day-to-day business operations. This variable, political instability, is utilized in the estimation equation. It can be interpreted in a variety of ways and is left to the respondent to determine how it affects their business operations. Political instability is measured on the same scale as our dependent variable ranging from none (0) to severe (4).

Taxes are one of the more pervasive factors that can affect an economy. The estimation equation includes the perceived effect of tax rates on daily business operations as a control variable. This controls for the respondent's perspective on how mandatory factors such as tax rates affect their daily business operations versus subversive factors such as political instability. The variable for tax rates is in the same format as our dependent variable. Respondents were asked to evaluate how severely tax rates affect their day-to-day business operations and they provide an answer ranging from none (0) to severe (4).

Although Wangnerud (2011) focuses on determining the impact of gender on corruption, her model also includes population as a contributing factor in determining the variation of corruption. The BEEPS dataset provides a range of population for the city in which a business is located. In addition to the geographical population, the estimation equation will also include a variable that accounts for the size of the business (number of employees). The use of this variable can be viewed in two ways. Firstly, the size of a business may influence the frequency

of interactions with public officials and secondly, the size of a business may impact perception of how corruption affects an individual within that business.

The final control variable in this estimation equation is the type of industry in which the respondent is employed. The industry variable is included to control for industry-specific practices and behaviors that impact its relationship with the Ukrainian government. For example, a mining company that regularly needs to obtain licenses for drilling, the food industry that interacts with health inspectors annually, or the shipping industry that decides to put its headquarters near the Ministry of Economic Development and Trade of Ukraine may all have varying levels of government interactions that influence their perceptions of corruption.

The equation estimated using maximum likelihood is:

$$\text{corruption} = \beta_0 + X_1 \beta_1 + \chi_2 \beta_2 + \chi_3 \beta_3 + \chi_4 \beta_4 + \chi_5 \beta_5 + \mu_i$$

where the dependent variable is severity of perceived corruption and β_n is the coefficient of its corresponding χ_n variable; X_1 is a vector of indicator variables that include type of industry, size of the city of the business location, the severity of effect of tax rates on business operations, the severity of effect of political instability on business operations; χ_2 is number of employees a business; χ_3 is a dummy variable for Russian language, the variable used to determine if there exists a Russian influence on corruption; χ_4 is a dummy variable for any degree of female ownership; χ_5 is the percentage of business foreign-owned; and μ_i is the error term. A list of the variables and their statistical means are listed in Table 1. Since ordered logistic regression measures likelihood, it measures the change in likelihood relative to a given set of circumstances. All of the variables in this paper are formatted so that the data is reported linearly by magnitude

or is a dummy, with the exception of industry, which is categorical and all measurements of industry are relative to non-specialized manufacturing sector.

IV. Results

Table 2 shows initial results. A condition of using this ordered logistic regression technique is that its output is not interpretable in terms of a specific coefficient's magnitude and direction. However, we can see which variables are statistically significant. Compared to the base perceived corruption of a non-specialized manufacturing company, there are a number of industries that are statistically more likely to view corruption differently, with construction, transportation, and wholesale having a p-value of 0.01 or less. Political instability, tax rates, and percentage of foreign ownership are also below the 0.01 p-value. Our main variable, Russian language is significant at the 0.10 level.

In order to determine the variable's effect on the likelihood of perceived corruption, there needs to be a calculation of the average marginal effect (AME). This will create an interpretable average effect of each variable across all possible dependent variable outcomes. The AME for all control variables can be found in Table 3. The AME in this study is calculated at the means of each variable.

Overall, the Russian language variable has a p-value below 0.10, which is weakly significant. Its average marginal effect is 0.0233. This means that a Russian-speaking respondent is 2.33% more likely to report a higher level of corruption in the Ukrainian government. Additionally, tax rates and political instability have a strong statistically significant and negative effect on the severity of perceived corruption. This indicates that an increase in the

level of severity of the effects of tax rate or political instability lowers the likelihood that corruption affects their day-to-day business operations. An increase in a level of severity of the effects of tax rate and political instability reported by each respondent decreases the likelihood of reporting a higher level of corruption by 0.0535 and 0.0785 respectively.

Notably, the dummy variable for female ownership is not statistically significant while the foreign-ownership variable is significant at the 0.01 level. For every percentage point increase in foreign-ownership, it is 0.09% less likely that the respondent will report a higher level of corruption. This is notable because it may indicate that environmental factors such as where an individual was raised and their cultural upbringing may affect one's expectation of corruption, while inherent factors such as gender may not. This result may be specific to Ukraine where societal expectations and the institutionalization of women are different than in other countries, as Morris (2009) and Wangnerud (2011) pointed out.

The type of industry a respondent works in impacts their perceived corruption. The most statistically significant industries are transportation (-0.1548 AME), chemicals (-0.1380 AME), construction (-0.1084 AME), and wholesale (-0.1005 AME). These industries are statistically significant in relation to a non-specialized manufacturing business.

Table 3 also lists the AME of each variable when Russian language is set to 0 and 1. One variable that stands out is the percentage of a business that is foreign-owned. When the Russian language dummy variable is set to 1, the AME of percentage of business foreign-owned is -0.0008 while when Russian language is set to 0, the AME is -0.0009. It can be extrapolated that the expectations of corruption of those businesses that are foreign-owned may be determined by external factors. The upbringing, experience, and morals of foreign business owners may bestow

different organizational culture and expectations on their businesses that are independent of Russia's influence on Ukraine.

In Table 3, there is a notable difference in the AME between Russian speakers and Ukrainian speakers when comparing the effect of political instability on perceived corruption. An increase in the severity of the effect of political instability reported decreases the Russian speaker's likelihood to perceive a higher level of corruption by 0.0729, while the likelihood for Ukrainian speakers decreases by 0.0803. This implies that if a Russian speaker and a Ukrainian speaker perceive there to be the same amount of political instability, the Russian speaker is more likely to perceive the government as more corrupt.

V. Analysis

Despite reform efforts by Ukrainian citizens such as the Orange Revolution of 2004 and the Euromaidan Protest in 2013, Ukraine's government has been stubbornly ineffective in following through on implementing anti-corruption measures (Herbst 2017). The European Union has encouraged Ukraine to crackdown on corruption and has asked them to signed an Association Agreement.⁴ This push to end corruption shows that many observers inside and outside of Ukraine view corruption as a factor that produces inefficiency, lowers investment, and must be reduced to ensure long-term economic growth.

⁴ Source: Emmott, Robin. "What is Ukraine's Association Agreement with the EU?" *Thomas Reuters* 27, June, 2014 <https://www.reuters.com/article/us-ukraine-crisis-eu-factbox/what-is-ukraines-association-agreement-with-the-eu-idUSKBN0F20RM20140627>

A rank ordered correlation test using data from BEEPS IV-V shows that Russian language and location⁵ are strongly correlated. Appendix II shows that locations with primarily Russian-speaking respondents not surprisingly tended to vote for pro-Russian parliamentary candidates. Of the 908 respondents speaking Russian, 555 of them were located where the pro-Russian “Party of Regions” had won the local 2012 parliamentary election. In comparison, all but 5 of the 208 of those who responded in the local language (Ukrainian) were located where the pro-European “All-Ukrainian” party won the 2012 parliamentary elections. This data supports the decision to use the Russian language variable as a proxy to measure the impact of Russian influence.

The results of this study show that speaking Russian in Ukraine had weak but statistically significant effect on perceived corruption. Despite its low marginal significance, there can be implications from this result. We can speculate whether speaking Russian in Ukraine leads to this effect on perceived corruption due to direct or indirect influences by Russia.

Russia has been trying to increase its sphere of influence on some of its former sister socialist republics. It has inserted itself into wars with Georgia after the dissolution of the U.S.S.R and has illegally annexed Crimea, claiming it was the desire of its people. Russia also has a hugely popular pro-government state-run television channel that generally reports on the success and good intentions of its foreign policy. Russia has also given former Ukrainian President Viktor Yanukovich refuge after his removal as President. This can be interpreted as Russia actively protecting its interest within Ukrainian politics. Ukraine’s proximity to Russia and its large Russian-speaking population make it a hotbed for nationalists and Russian

⁵ Appendix II cross-references the geographic location of each Oblast with the political party that won the 2012 parliamentary elections.

sympathizers to dispute the two nations' place in world affairs. As of 2017, almost 10,000 Ukrainian civilians have died amongst heavy fighting from the ongoing crisis in eastern Ukraine involving Russian-backed separatists trying to secede from Ukraine.⁶ Russia has provided weapons and aid for the rebels fighting against the Ukrainian government and has moved thousands of military soldiers onto its borders with Ukraine.⁷ With Russia inserting itself in so many of Ukraine's national affairs, it is possible that direct actions from Russia may be biasing the expectations and perception of the Ukrainian government.

Indirectly, Russian values, culture, and expectations may be influencing perceptions as well. Those born in Russia or to ethnic Russian families within Ukraine may grow up with certain expectations of Russia. For example, a person born in Soviet Russia may remember their homeland as a place of power and might, but now resides in a struggling Ukraine. Both governments are equally corrupt according to Transparency International, but the expatriate experiences Ukraine with a stagnated economy, weak central government, and a weak military. This leads to the Russian speaker to speculate as to why Ukraine's government is ineffective and inferior to their expectations. The Russian-speaking respondent may perceive a failed government in comparison to Russia. Perceived corruption is a relative variable and a respondent's expectations are factors that contribute to their interpretation of corruption, and thus their perception. In addition to expectations, a respondent's culture may indirectly influence their perception of corruption. Until 2017, the largest social media platform in Ukraine was the

⁶ Source: *Report on the Human Rights Situation in Ukraine 16 February to 15 May 2017*. United Nations, 2017, United Nations Human Rights Office of the High Commissioner, www.ohchr.org/documents/countries/ua/uareport18th_en.pdf

⁷ Source: Herszenhorn, David M, and Peter Baker. "Russia Steps up Help for Rebels in Ukraine War." *The New York Times*, 25 July 2014, <https://www.nytimes.com/2014/07/26/world/europe/russian-artillery-fires-into-ukraine-kiev-says.html>

Russian version of Facebook called “VKontakte”.⁸ Social media has become more pervasive and intrusive in our daily lives and with a Russian-based platform being the primary one in Ukraine, it is possible that Russian-speaking citizens were exposed to biased marketing and information. In 2017, the Ukrainian government banned VKontakte amongst other Russian websites for fear of direct and indirect propaganda.⁹ The indirect effect of Russia’s bias on Ukraine may be more damaging in the long-term than the direct effects. Russian-speaking Ukrainians’ perception of Russia can create divisions in politics, trade, and government as well as in society amongst the citizens.

This study supports the idea that the indirect effects of Russian influence is stronger than the direct effects. This is shown by the marginal results for the percentage of a business foreign-owned variable. The higher the percentage of a business that is foreign owned, the less likely the respondent will perceive corruption at a higher level, meaning the more invested a foreigner is in a business, the less corrupt they perceive the government to be. This supports the theory that different nationalities or cultures may have different expectations of government. There is a question of casualty in this theory. Do foreigners invest in Ukraine because they perceive less corruption, or is corruption low because foreigners who are invested perceive it that way? Despite the foreign-owned variable having the opposite effect that the Russian variable has on perceived corruption, it does lend credence to the idea that a respondent’s previous expectations are playing a role. The data does not provide which nationality the owners are from, so it is

⁸ Source: Sharkov, Damion. “Ukrainians Join Facebook by the Millions After Russian Social Media Ban.” *Newsweek*, 20 June 2017, www.newsweek.com/ukrainians-join-facebook-millions-russian-social-media-ban-627488.

⁹ Source: Sharkov, Damion. “Ukrainians Join Facebook by the Millions After Russian Social Media Ban.” *Newsweek*, 20 June 2017, www.newsweek.com/ukrainians-join-facebook-millions-russian-social-media-ban-627488.

difficult to extract any specific information about these expectations versus Russian speaker's expectations. A study by Bondarev (2014) uses an earlier BEEPS to determine that foreign-ownership of a business in Ukraine has a positive link with corruption. Bondarev using an instrument to control for endogeneity of foreign-owned business and corruption, determines that an increase in foreign-ownership of a business increases the likelihood of higher corruption. His study and ours vary in multiple ways including; time frame, control variables, and method of testing, all which could attribute to the differing results. However, both studies find that foreign-ownership is a significant factor in perceiving corruption in Ukraine.

A struggling nation trying to create stability and economic growth can be easily influenced. Both Russia and the EU have attempted to align Ukraine with their respective values. This study illustrates the potential impact of Russian culture on perceived corruption. The impact Russian speakers have on the perception of the Ukrainian government is important because Russian speakers make up a large proportion of the country. If Ukraine can mitigate the Russian influence, it can begin to create its own unbiased perceptions. This could help attract new investments and economic aid from European neighbors.

It is important to note that the Russian-speaking Ukrainians' increased likelihood of perceiving corruption can have consequences. A respondent's actions may be implicitly affected by their perceived corruption. A respondent who feels the government is highly corrupt may be less likely to trust or rely on the government to perform its duties. This can impact the economic decisions taken by these respondents and have tangible effects on the economy, the government, and other people.

- Limitations of Study

Firstly, this study uses the BEEPS dataset which, while groundbreaking, still relies on self-reporting of illicit activities. Secondly, this study assumes that Russian language is an instrument for the influence that Russia is imparting on Ukraine. While it is difficult to empirically measure a foreign influence in a country, there may be more than one way to control for it. Thirdly, this study does not address endogeneity that the female and foreign ownership may have with perceived corruption.

The scope of this study only examines perceived corruption of respondents who are employed. A larger demographic can be used to get more inclusive determination of the factors that contribute to perceived corruption.

While this paper asserts that Russian-speaking Ukrainians are than 2.33% more likely to have a higher level of perceived corruption than non-Russian-speaking Ukrainians in the same circumstances, its results rely on perceived corruption being a truly accurate proxy for actual corruption. Do those respondents influenced by Russia perceive actual corruption differently, causing them to report a higher rating of corruption? Or are their perceptions derived from other factors that are not related to corruption? The latter is possible if perceived corruption is not an accurate proxy for actual corruption.

Future studies of perceived corruption in Ukraine could add additional elements such as merging previous BEEPS datasets together to determine how stock perceived corruption affects current perceived corruption. Future research could add other variables such as political alignment, permit and licensing effects, and tax administration effects, although they must account for endogeneity of those variables. A more rigorous model can be created with a more

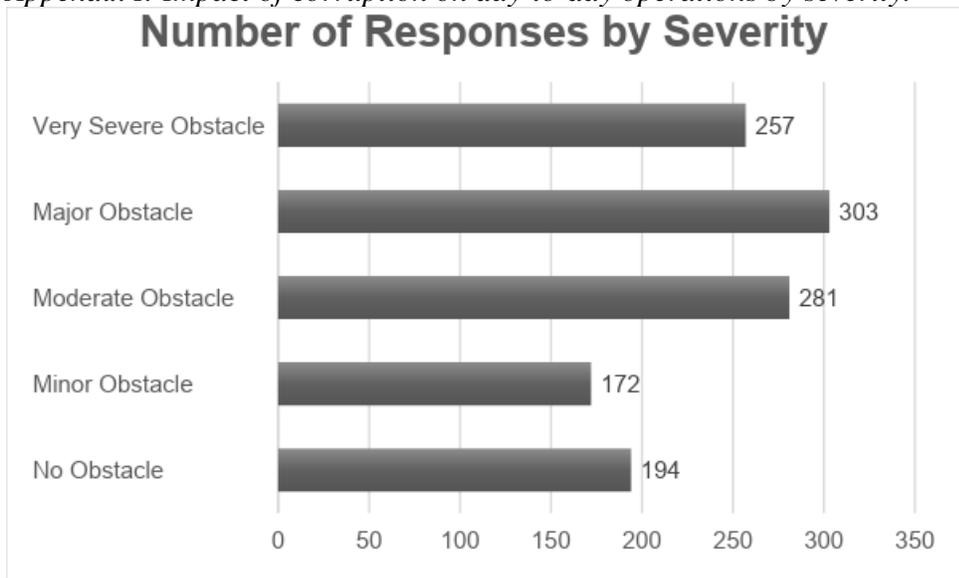
detailed dataset including: a variable for the nationality of business owners, reliable export/import data, and data of ownership demographics. Further studies on corruption within specific countries could yield results showing that corruption is caused by either systematic factors, relative factors, or a combination of both. In Ukraine perceived corruption is perpetuated by a combination of a relative factor, Russian influence, and common systemic factors such as different expectations of foreign-owned business and political instability. Further study on this subject could examine if Russian-speaking Ukrainians behave or act differently due to their higher likelihood to perceive corruption. Do they make different economic choices? Do they perceive other economic variables differently? A wider scope study can potentially provide some answers.

VI. Conclusion

The Russian influence on Ukrainian politics is unlikely to dissipate in the near future given their history and geography. Ukraine needs to take a variety of steps to ensure economic certainty and sustainability, which is not a short-term process. In the short-term however, there are actions Ukrainians could take collectively to lessen Russian influence and its effect on perceived corruption. For example, Ukrainian politicians should form more stable and concrete political parties. Whitmore (2014) notes that before being elected President, Petro Poroshenko switched political allegiances four times, one of which was to the pro-Russian Party of Regions. With clearly established political parties, Russian-speaking Ukrainians may identify the Ukrainian political system as being more stable. Giving more autonomy to the Oblasts, regions in Ukraine, would lessen the federal government's impact on local economies. This might shift policies toward ones that are more beneficial to local populations, increasing satisfaction among

those who feel the government is corrupt. Observation of industry and the interactions each sector has with the government can provide insight as to why specific industries feel government is more corrupt than others. Ukraine has a road map to the European Union if they choose to follow the path of Croatia, Bulgaria, and their neighbor Romania. Ukraine's unique geopolitical situation lends extra importance for the need to create a stable and reliable government. Russian-speaking Ukrainians may always be a part of Ukrainian society and changing their perception on corruption may be a hugely difficult task. However, reducing this perceived corruption could be a big step for Ukraine towards encouraging investment and long-term economic growth.

Appendix I: Impact of corruption on day-to-day operations by severity.



Source: BEEPS 2012-2014, European Bank for Reconstruction and Development

Appendix II: Location of Ukrainian Oblasts (States) and Political Party Elected in 2012 Parliamentary Elections

Location								
Capital	Kyiv (AU)	Kyivska (AU)						
North	Vinnystia (AU)	Kivorohardska (AU)	Poltava (AU)	Cherkasy (AU)	Chernihivska (AU)			
South	Crimea (POR)	Mykolaiv (POR)	Odessa (POR)	Kherson (POR)	Sevastopol (POR)			
East	Dnipropetrovsk (POR)	Donetsk (POR)	Zaphorizka (POR)	Sumska(AU)	Luhansk (POR)	Kharkiv (POR)		
West	Volynska (AU)	Zakarpatska (SPLIT)	Ivano-Frankivska (AU)	Khmelnystka (AU)	Chernivetska (AU)	Lviv (AU)	Ternipol (AU)	Rivne (AU)

POR- Party of Regions, Pro-Russian

AU- All-Ukrainian Party, Pro-European

Source: Ukraine Central Election Commission,

<http://www.cvk.gov.ua/pls/vnd2012/wp005E?PT001F01=900>

Table 1: Descriptive Statistics

	Mean	Standard Deviation
Dependent Variable		
Severity of Corruption	2.212925	1.358066
Explanatory Variables		
Russian Language	.7522784	.4318682
Industry	7.435791	4.53426
Relative City Size	3.193869	1.12952
Female Ownership	.4217067	.4940368
Foreign Ownership %	3.75145	17.02621
Business Size	87.52527	237.6978
Severity of Tax Rate	2.290804	1.321756
Severity of Instability	2.333057	1.385219
<i>N</i>	1207	

Table 2: Results from Ordered Logit Regression

	Corruption
Other Manufacturing	0 (.)
Food	0.619** (0.025)
Textile	-0.245 (0.703)
Garments	0.655** (0.018)
Chemicals	1.510** (0.030)
Plastic/Rubber	-0.269 (0.682)
Metal Minerals	0.660** (0.029)
Basic/Fabricated Metal	0.287 (0.449)
Machine & Equipment	0.481* (0.079)
Electronics	0.387 (0.618)
Construction	1.092*** (0.009)
Other Services	0.289 (0.480)
Wholesale	0.993*** (0.009)
Retail	0.674**

	(0.017)
Hotel/Restaurant	0.678
	(0.122)
Transport	1.798***
	(0.004)
IT	0.632
	(0.325)
Size of City	-0.0371
	(0.459)
Russian Language	-0.239*
	(0.066)
Female Dummy	-0.114
	(0.312)
Foreign Ownership %	0.00934***
	(0.005)
Firm Size	-0.000362
	(0.115)
Tax Rate	0.548***
	(0.000)
Political Instability	0.805***
	(0.000)
<hr/>	
cut1	
Constant	0.978***
	(0.005)
<hr/>	
cut2	
Constant	2.165***
	(0.000)
<hr/>	
cut3	
Constant	3.626***

	(0.000)
<hr/>	
cut4	
Constant	5.255***
	(0.000)
<hr/>	
Observations	1207
<hr/>	

p-values in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Average Marginal Effects at means of Factor Variables on Corruption Overall, with Russian Only, and Local Language Only Using Ordered Logit Regression

	AME Corruption	AME Corruption Russian Language	AME Corruption Local Language
	b/se	b/se	b/se
Other Manufacturing	0.0000 (.)	0.0000 (.)	0.0000 (.)
Food	-0.0670** (0.03)	-0.0627** (0.03)	-0.0683** (0.03)
Textile	0.0304 (0.08)	0.0288 (0.08)	0.0309 (0.08)
Garments	-0.0704** (0.03)	-0.0659** (0.03)	-0.0718** (0.03)
Chemicals	-0.1380*** (0.05)	-0.1277*** (0.05)	-0.1412*** (0.05)
Plastic/Rubber	0.0336 (0.08)	0.0318 (0.08)	0.0341 (0.09)
Metal Minerals	-0.0709** (0.03)	-0.0664** (0.03)	-0.0723** (0.03)
Basic/Fabricated Metal	-0.0329 (0.04)	-0.0309 (0.04)	-0.0335 (0.04)
Machine & Equipment	-0.0533* (0.03)	-0.0500* (0.03)	-0.0543* (0.03)
Electronics	-0.0436 (0.08)	-0.0409 (0.08)	-0.0444 (0.08)
Construction	-0.1084*** (0.04)	-0.1008*** (0.04)	-0.1107*** (0.04)
Other Services	-0.0330 (0.05)	-0.0310 (0.04)	-0.0336 (0.05)
Wholesale	-0.1005*** (0.04)	-0.0936*** (0.04)	-0.1026*** (0.04)

Retail	-0.0722** (0.03)	-0.0676** (0.03)	-0.0736** (0.03)
Hotel/Restaurant	-0.0727 (0.05)	-0.0679 (0.04)	-0.0741 (0.05)
Transport	-0.1548*** (0.04)	-0.1428*** (0.04)	-0.1586*** (0.04)
IT	-0.0683 (0.06)	-0.0639 (0.06)	-0.0696 (0.07)
Size of City	0.0036 (0.00)	0.0034 (0.00)	0.0037 (0.01)
Russian Language	0.0233* (0.01)	0.0217** (0.01)	0.0239* (0.01)
Female ownership	0.0111 (0.01)	0.0104 (0.01)	0.0114 (0.01)
Percentage of Foreign Ownership	-0.0009*** (0.00)	-0.0008*** (0.00)	-0.0009*** (0.00)
Firm Size	0.0000 (0.00)	0.0000 (0.00)	0.0000 (0.00)
Tax Rate	-0.0535*** (0.00)	-0.0497*** (0.00)	-0.0547*** (0.00)
Political Instability	-0.0785*** (0.00)	-0.0729*** (0.01)	-0.0803*** (0.01)
Observations	1207	1207	1207

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