The Effect of Income Inequality on Corruption in Selected Countries (1995-2007)

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Abstract

The main purpose of this paper is to investigate the effect of income inequality on corruption according to the country’s economic freedom. Our study advances the existing literature through the countries classification and makes it possible to compare results among the groups. To reach this goal we classify the countries according to their average of economic freedom in four groups (free, mostly free, mostly unfree and unfree countries). Moreover, we enter some variables in our model to eliminate the omitted variable biased. Data for unfree countries was not complete, so we put this group out of the study. The results show that the decrease in income inequality for free and mostly free countries causes corruption decrease, but for mostly unfree countries it causes corruption get worse because of the economic–social-administrative structure of these countries. In mostly unfree countries, first they should implement structural reforms after that, they can use the income equality policies to reduce the corruption.

Keywords: Income Inequality, Corruption, Economic Freedom, Panel Data

JEL Codes: D31, K4 · O57
1. Introduction

Economic research about the relationship between economic inequality and corruption is rather a young issue. The first contribution on this relationship (Alam, 1997) is focused on the effects of income inequality on corruption. There are two basic approaches to these relations. First approach specifies the determinants of corruption and considers income inequality as a factor of corruption. Husted (1999) examines the impact of national wealth, income distribution, government size and four cultural variables on the perceived level of corruption in a country but he doesn’t find any significant correlation between corruption and income distribution. On the other hand, You and Khagram (2005), Chong and Gradstein (2007) and Apergis et al. (2010) find a bidirectional causality relation between corruption and income inequality.

In the second approach the main concentration is on the determinants of income inequality and considers corruption as one of the effective factors. These studies haven’t had the same results. Johanson (1998) concludes that “corruption increases inequality”. Gyimah-Brempong (2002) and Gupta et al. (2002) also get the same results. Li et al. (2000) investigate the relationship between corruption and income distribution for Asian countries, OECD and Latin American countries. They find that corruption affects income distribution in an inverted U-shaped way.

In contrast, Dobson and Dobson (2010) show an opposite result in their study for Latin American countries. They find that lower corruption is associated with higher income inequality. This result is consistent with the idea that in countries with a large informal sector as in Latin America, the corruption–inequality relationship may be different. Begović (2007) briefly reviews the recent theoretical and empirical studies on the relationship between economic inequality and corruption. He concludes that in different studies, corruption as a factor of inequality has been poorly explained.

According to these results, it seems that there is no obvious relationship between corruption and income distribution. But we should mention that these researches have not considered the impact of potential variables, so it might cause omitted variable biased. They also have not used an appropriate classification for countries in their studies.

2. Rationale and Objectives of the Study

This article makes a contribution to the literature on corruption in the way that it investigates the income inequality impact on corruption according to the country’s economic freedom.

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differences. Previous studies have examined the corruption- inequality relationship among heterogeneous countries but we first classify the countries with their average of economic freedom in to four groups [free (FC), mostly free (MFC), mostly unfree(MUFC) and unfree countries(UFC)], then we investigate the income inequality impact on corruption in each group.

Why we use economic freedom for classifying the countries? Here is the answer:
Economic freedom is one of the important determinants of corruption. Chafuen and Guzman (2000), Graeff and Mehlkop (2003), Goel and Nelson (2005) show that economic freedom has a negative impact on corruption. Billger and Goel (2009) demonstrate that among the most corrupt nations, larger governments and greater economic freedom do not appear to reduce corruption. Besides, Mc Cuddy (2010) and Apergis et al. (2012) find a quadratic relationship between economic freedom and corruption. So we guess it would be a good idea to consider the effect of economic freedom on corruption during our study.

Moreover, we use the variables such as unemployment, education level and urbanization rate to eliminate the omitted variable biased.

The aim of this study is to answer two important questions:
1) What is the effect of income inequality on corruption? 2) Does country’s economic freedom affect the relationship between income inequality and corruption?

The paper is organized as follow:
In section 3, we review the theoretical framework and the determinants of corruption. Section 4 and 5 describe the data, methodology and empirical results. And finally, concluding remarks are given in section 6.

3. Theoretical Framework

The fight against corruption in any country, first of all requires an exact knowledge of “what causes corruption”. It is difficult to decide whether corruption is a determinant of other variables or it is affected by conditions and certain features. To reach our goal we study the effect of some important factors on corruption in two following subsections.

3.1. Income inequality as a determinant of Corruption

Income inequality affects corruption through different processes. Figure (1) shows these ways in summary. We put these motives in 5 categories as fallow:
Figure 1: Income inequality and corruption
Source: Research Findings

a) When income inequality increases, rich people find more resources (legally and illegally) to get influenced in public sectors. The rich people can penetrate in legislation processes by legal lobbying and political donations or bribery (the great political corruption). They may use bribe and their widespread communications to penetrate in the process of law performance (administrative corruption) and get their favorable interpretations of law (judicial corruption). When inequality increases, most of the people become relatively poorer and likely demand more comprehensive redistribution through higher progressive taxation. As the redistributive pressures increase, the rich people correspondingly have greater incentives to use political and bureaucrat corruption to reduce the tax rate (You and Khagram, 2005).

b) With high inequality, real income declines and it can’t answer the increasing needs. When material values and needs for services and commodities grow in society, these new needs create new accepted norms. If people can’t reach these new norms due to their low incomes, they would feel deprived and unsatisfied. So they begin illegal activities. The rich people who own the great portion of total wealth are always able to reach their present and future needs but poor people don’t have many assets (which would become more valuable due to inflation) and also they face a
great bulk of unsatisfied needs for services and commodities (even the essential and fundamental ones) which their prices have been increased during the time. A part of this social class (unemployed ones) usually doesn’t have any income. These people would not be able to reach their needs and so they become bereaved. Under these circumstances a great number of poor people exclude from using essential public services like health services and education. Then they attract to small corruption and when they are trying to reach their essential needs, they would be the target of bribery and administrative corruption (Apergis et al, 2010).

c) Discrimination, social inequalities and social class gap create poverty feelings and relative deprivation in people. So, weak people who cannot earn and increase income by legal ways might get involved in corrupt activities. (Helgson and Mickelson, 1995).

d) The middle class and the poor groups generally have motives to monitor, divulge and stop the corruption of the rich and the government. High levels of inequality (and related poverty) repress the capacities of middle-class and poor groups to monitor the corrupt activities of the rich and powerful, with other factors held as equal (McCarthy and Zald, 1997).

e) When corruption grows in society, it makes income distribution more unfair. You and Khagram (2005) present an idea that “in societies with high inequality, the rich people believe corruption is an acceptable method to protect and promote their social position. Therefore, the corruption network develops accordingly. Moreover, in high inequality levels most of the non-rich imagine that the rich people and the government are involved in corruption, so it’s impossible for them to work honestly. When people think the government is not responsible, they adjust their dishonest behavior too. As the rich and the other classes get involved in corruption, the corrupt activities spread and corruption network increase fast. Finally corruption becomes a social norm. Now that corruption has been accepted as a method of doings and spread in society, the corruption norm becomes socialized by the next generation”. On the other hand, corruption has tendency to develop and strengthen the inequality. By facilitating the unequal allocation of wealth and preventing the institutional changes which are threats against gaining profits, corruption causes inequality growth. This continuous relation between income inequality and corruption puts society in a circle of “inequality-corruption-inequality”.

3.2 the Other Economic and Non-economic Determinants of Corruption

In our model we use some important control variables that affect corruption. These variables are:
Education level:

In poor countries with high level of illiteracy, most people don’t have a perfect perception of governmental activities. In this situation, people’s expectation from government is not clear. People think that they should give some gifts to governments for good decisions they have made. So the corruption cannot be assumed as a challenging problem for these societies and it would be a part of their culture and social interactions (Graeff and Mehlkop, 2003). On the other hand, in countries with high level of literacy, people usually have knowledge about how to do illegal activities to gain profits. For example embezzlement, money laundering and the other macro corruption are usually done by people who have a governmental job or work as CEOs in private offices. These people often have high education degrees. According to the different conditions in countries, there is no distinct relationship between education and corruption, so this is an empirical issue.

Urbanization:

When people immigrate from villages to cities and city’s population begins to increase, the citizens get interested in illegal methods to escape from waiting in various queues. Besides, when city’s population increases, the potential opportunity of the interaction between bribe giver and bribe taker increase. Thus, the urbanization growth can increase corruption (Billger and Goel, 2009). On the other hand when urbanization growth accelerates, the society faces new problems; to prevent these problems, the parliament corrects and updates the old laws. When the parliament updates the laws, people’s need to solve difficulties via illegal activities decreases. Reforming the laws is a long-run process and it depends on the flexibility of the national legislation system. These adjustments take time, so in countries with flexible legislation systems we expect corruption not to increase after urbanization growth.

Economic development:

We expect corruption to have a negative relationship with the economic development and GDP per capita growth (Trisman, 2000). But the opposite relation is possible. Andwig et al. (2003) believe that misuse of governmental job is usually observed in countries with high economic development.

Unemployment:

We expect a positive relationship between unemployment and corruption. When people lose their jobs, it’s difficult for them to handle their living costs and so, these people are more likely to get involved in illegal activities.
Economic freedom:

Economic freedom can affect corruption in different ways. Here we mention some of them: When economic freedom increases, government size, bribe and discrimination decrease and most of the complicated laws eliminate (Tanzi, 1998). Whenever government’s intervention in one sector causes an unreasonable profit, the corruption increases. Economic freedom reduces the government’s monopoly power. Moreover, when economic freedom rises and the complicated laws which prevent the entrance of firms into formal economy decreases, the size of informal part decreases. Shrinking the informal sector helps corruption to decrease.

With the economic freedom, the tariffs and limitations on imports decline. Tariffs draw the imports into bribery and also cause the native industry get more monopoly power. To support these industries, the government has to impose high tariffs again (Mauro, 1995). The existence of tariffs causes smuggling and decreases the legal imports. Finally, the decrease of economic freedom makes corruption get worse. Thus, we expect a negative relationship between economic freedom and corruption. It means that free countries have low level of corruption.

4. Model and the Methodology

In this article we use the panel model based on You and Khagram (2005). But here we have some changes. For example they used the economic freedom subcategories like openness and democracy as the control variables but we have contemplated the effects of these variables by classifying the countries according to their economic freedom degrees and so it’s not necessary to inter these variables in our model. Moreover, we use the variables such as unemployment, education level and urbanization in order to eliminate the omitted variable biased. Thus, we have:

\[ \text{COR}_{it} = \alpha_0 + \alpha_1 \text{GINI}_{it} + \alpha_2 \log(\text{GDP})_{it} + \alpha_3 \text{UNEM}_{it} + \alpha_4 \text{ENROL}_{it} + \alpha_5 \text{URB}_{it} + \varepsilon_{it} \]  

(1)

Where:

i is for each country and t is for time series.

The definitions and measurements of these entire variables are in table (1).
Table 1: variables and their definitions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
<th>Measurement</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>COR</td>
<td>Corruption</td>
<td>Inverted CPI</td>
<td>Transparency International (TI) database¹</td>
</tr>
<tr>
<td>GINI</td>
<td>Income Inequality</td>
<td>GINI Coefficient Index</td>
<td>UNU-WIDER database (WIID)²</td>
</tr>
<tr>
<td>lg(GDP)</td>
<td>Economic Development</td>
<td>Logarithm of Per Capita Gross Domestic Product</td>
<td>World Development Indicator (WDI) 2012³</td>
</tr>
<tr>
<td>UNE</td>
<td>Unemployment Rate</td>
<td>Total Unemployment / Total Labor Force</td>
<td>World Development Indicator (WDI) 2012</td>
</tr>
<tr>
<td>ENROL</td>
<td>Education</td>
<td>School enrollments, primary (% gross)</td>
<td>World Development Indicator (WDI) 2012</td>
</tr>
<tr>
<td>URB</td>
<td>Urbanization Rate</td>
<td>total urban pop/total pop of the country</td>
<td>World Development Indicator (WDI) 2012</td>
</tr>
</tbody>
</table>

Here we use Panel data analysis because this kind of model has certain advantages. According to Hsiao (2006) we mention 5 advantages of panel data over cross-sectional or time-series data:

1) Panel data usually contain more degrees of freedom and more sample variability than cross-sectional data.
2) Greater capacity for capturing the complexity of human behavior than a single cross-section or time series data.
3) Controlling the impact of omitted variables.
4) Uncovering dynamic relationships.
5) Providing micro foundations for aggregate data analysis.

The period of each group in this study is short, so it’s not appropriate to use unit root tests (Baltagi, 2008). First we do the cross-sectional dependency test to find out whether the countries in our study have cross-sectional dependency or not. The estimation methods are different in presence and absence of cross-sectional dependency. After that, an inevitable question is, which method should be used?

¹ http://www.transparency.org
² http://www.wider.unu.edu/research/Database/en_GB/database
In this article, the appropriate econometric panel estimation for each group is determined by Brusch-Pagan (1980), Chow (1960) and Hausman (1987) tests.

4.1 Countries Classification

The annual data for economic freedom has been released by Fraser Institute for most of the countries from 1999 until now. Transparency International’s Corruption Perceptions Index (CPI) is available from 1995. According to the data availability, the period of this study is 1995 to 2007. 35 countries are not used in this paper because of their missing data\(^1\).

The Heritage Foundation classifies countries according to their economic freedom degrees. Since the Heritage foundation’s archive was not available for us, we used the Fraser Institute’s data for economic freedom and presented a new classification, just like what Heritage foundation has done. First we calculated the average of economic freedom for each country, then we named the countries with their average economic freedom between 1 to 3.9 as the unfree (UFC), 3.91 to 5.9 the mostly unfree (MUFC), 5.91 to 7.9 the mostly free(MFC) and 7.91 to 10 the free countries(FC). The UFC was excluded from the study because it didn’t have the essential data for some variables. For the other variables different countries have different time restriction. Due to missing observations for some countries, they were not used in this study.

Furthermore, the GINI coefficient is different in the various studies because there is no agreed basis of definition for the construction of distribution data\(^2\). In this study we just use a specific GINI coefficient for each group. Countries in each group are:

**FC:**
Australia, Ireland, United States of America and United Kingdom.

**MFC with disposable income GINI:**
Austria, Argentina, Belgium, Bulgaria, Czech Republic, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Peru, Portugal, Slovak Republic, Slovenia, Spain and Sweden.

**MFC with consumption income GINI:**
Bolivia, Costa Rica, Dominican Republic, El Salvador, Georgia, Guatemala, Honduras, Kyrgyz Republic, Macedonia, Moldova, Panama, Paraguay, Peru, Poland and Uruguay.

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\(^2\) The inequality estimations are based on Income, Disposable income, Gross income, Market income, Factor income, Primary income, Earnings, Consumption and Expenditure for household unit, person, tax unit and family.
MUFC:
Brazil, Colombia, Romania, Russian Federation, Ukraine and Venezuela.
The UFC was not used in this study.

4.2 Data

Data for unemployment, primary enrollment and per capita GDP have been collected from WDI 2012 (World Development Indicator) database. Economic freedom from Fraser Institute¹, GINI coefficients from UNU-WIDER: Database (WIID) and corruption is collected from Transparency International (TI) database. There are three indices for corruption; here we introduce these indices briefly:

1. Corruption Perception Index (CPI): this index is the most complete corruption quantitative index in countries. CPI appraises the probability of bribe acceptance, receiving illegal moneys for the public provisions, the embezzlement in public budget and other same crimes among politicians and government. This index classifies countries from zero to ten. Ten is for clean economy and zero is for corrupted economy.

2. International Country Risk Guide (ICRG): the ICRG rating comprises 22 variables in three subcategories of risk: political, financial, and economic. The method of calculating the composite political, financial, and economic risk rating is as follows. The political risk rating contributes 50% of the composite rating, while the financial and economic risk ratings each contribute 25%. The highest overall rating (theoretically 100) indicates the lowest risk, and the lowest rating (theoretically zero) indicates the highest risk [International Country Risk Guide Methodology (The PRS Group)].

3. Crime statistics: since corruption is defined as the use of public office for private gain, Apergis et al. (2012) used the number of government officials convicted in a state for crimes related to corruption in a year, as a corruption index.

Here we use CPI from Transparency International. But to make the result interpretations easier, we invert this index. To reach this goal we deduce the corruption degree of each country from ten. Thus, increasing in inverted corruption index shows the augmentation of corruption.

In this article two indicators have been used for GINI coefficient. One of them is disposable income GINI and the other is consumption income GINI.

¹ http://www.fraserinstitute.org/programs-initiatives/economic-freedom.aspx
On the basis of existence and non-existence of each indicator and their affluence, we use the disposable income GINI for the FC. We study the MFC in 2 groups (Countries with disposable income GINI and countries with consumption income GINI). For most of the countries in UFC there were only consumption income GINI available.

5. Major Findings and Discussion

It is typically assumed that disturbances in panel data models are cross sectionally independent. This is particularly true of panels with large cross section dimension. Therefore, the first step in panel data analysis is to find out whether there is cross-sectional independency or not. If there is cross-sectional dependency, the OLS can’t be a useful method of estimation. For testing the cross-section dependency, when time series were more than cross sections (T > N) we used Breusch and Pagan (1980) LM test and used Pesaran (2004) test when the cross sections were more than time series (N > T). Results of these tests are shown in the table (2).

We see from table (2) that for all groups, the null hypothesis of cross-sectional independency condition cannot be rejected, so using the usual methods to estimate panel data model would not make any problems.

Table 2: Cross-Sectional Dependency Tests

<table>
<thead>
<tr>
<th>Group</th>
<th>CD statistics</th>
<th>Prob at %5 significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC (1995-2004)</td>
<td>10.239</td>
<td>0.1149</td>
</tr>
<tr>
<td>MFC with disposable income GINI (1998-2006)</td>
<td>-0.706</td>
<td>0.4802</td>
</tr>
<tr>
<td>MFC with consumption income GINI (2000-2007)</td>
<td>-1.362</td>
<td>0.1733</td>
</tr>
<tr>
<td>MUFC (2000-2005)</td>
<td>0.539</td>
<td>0.5899</td>
</tr>
</tbody>
</table>

Notes: FC was estimated by Breusch and Pagan LM test and the other groups were estimated by Pesaran cross-sectional dependency test. (by Stata11 program).

The estimation results of equation (1) for each group are shown in table (3). We analyze the results:
Table 3: The Estimation Results of Equation (1)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>FC $^3$</th>
<th>MFC with Disposable Income GINI $^4$</th>
<th>MFC with Consumption Income GINI $^5$</th>
<th>MUFC $^6$</th>
</tr>
</thead>
<tbody>
<tr>
<td>GINI</td>
<td>FC</td>
<td>0.41365 (2.806391)</td>
<td>0.074311 (4.700571)</td>
<td>0.084602 (8.149092)</td>
<td>-0.060200 (-7.245281)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0096)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Lg(GDP)</td>
<td>MFC</td>
<td>0.851385 (0.757264)</td>
<td>-3.670572 (-14.94174)</td>
<td>-1.135233 (-5.003521)</td>
<td>-0.147959 (-0.534081)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.4560)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.5980)</td>
</tr>
<tr>
<td>UNEM</td>
<td>MFC</td>
<td>0.131056 (-3.07567)</td>
<td>0.060214 (2.766446)</td>
<td>0.042970 (4.382740)</td>
<td>0.064483 (2.513366)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0050)</td>
<td>(0.0062)</td>
<td>(0.000)</td>
<td>(0.0188)</td>
</tr>
<tr>
<td>ENROL</td>
<td>MFC</td>
<td>0.024311 (2.09916)</td>
<td>-0.075291 (-4.720806)</td>
<td>-0.053344 (-3.959872)</td>
<td>-0.006588 (-1.347836)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0461)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.1898)</td>
</tr>
<tr>
<td>URB</td>
<td>MFC</td>
<td>-0.028319 (-7.19057)</td>
<td>-0.000164 (-4.720806)</td>
<td>-0.047162 (-7.539530)</td>
<td>0.026099 (4.973247)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.0000)</td>
<td>(0.9823)</td>
<td>(0.000)</td>
<td>(0.000)</td>
</tr>
<tr>
<td></td>
<td>MUFC</td>
<td>0.80440</td>
<td>0.754772</td>
<td>0.790576</td>
<td>0.880453</td>
</tr>
<tr>
<td>Notes: Estimation by Eviews7.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$^1$ The appropriate econometric panel estimation for each group is determined by Brusch-Pagan(1980), Chow (1960) and Hausman (1987) tests.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$^2$ The numbers in the first parenthesis is t-student statistics and the second parenthesis is the prob statistics. (Significance at the 5% level is denoted).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$^3$ FC is estimated by fixed effect (for period) considering the constant term.</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$^4$ MFC with disposable income GINI is estimated by fixed effect (for period) considering the constant term.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$^5$ MFC with consumption income GINI is estimated by fixed effect (for period) considering the constant term.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$^6$ MUFC is estimated by fixed effect (for period) considering the constant term.</td>
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</tr>
</tbody>
</table>

**FC**

The income inequality coefficient in this group is positive. It means that more (less) income inequality causes more (less) corruption. As people get more financial trouble and the social class gap becomes wider, it’s more possible that they get involved in corrupt activities. This result is coincided with the theoretical framework in pervious sections. You and Khagram(2005), Saha et al. (2009) and Apergis et al. (2012) found the same results in their studies.
The urbanization impact is negative, so it means that these countries have flexible rule-making systems and with updating and reforming their rules they can prevent the bad effects of urbanization. These new rules can encourage people to obey the existent laws. The same results were seen in Lee et al. (2000) and Billger and Goel (2009) studies.

The relationship between unemployment and corruption is positive just the same as what Saha et al. (2009) found in their study. More unemployed people cause more corruption. When somebody loses his job, he faces financial troubles and this can be a motive for him to do forbidden activities.

There is no significant relationship between economic development and corruption in this group and the education impact has become positive. It means that with more education, corruption increases. Since these countries have high degree of freedom and also they are members of developed countries, this result has not economic logic and it might be because of the measurement of education we have used. We just could use the primary enrollment to have the same index for all groups. Primary enrollments can’t be a suitable representative for education in these developed countries. Maybe it would be more appropriate to use both primary and secondary enrollment for education to find the exact relation between corruption and the education level.

According to these results, governments in these countries should help urbanization growth and combat the income inequality and unemployment to make corruption decrease.

**MFC with disposable income GINI**

Just as the previous group, the income inequality impact on corruption is positive. It means that more income inequality causes more corruption. But the magnitude of this coefficient is different from free countries. With comparing these coefficients, we can conclude that when there is less economic freedom, the income inequality impact on corruption decreases.

As Trisman (2000) expects, the relation between economic development and corruption is negative in this group. It means that lower economic development can increase corruption. It’s because the less discount rates of potential bribe takers and bribe givers in wealthier nations, makes them less eager to engage in corrupt practices (Billger and Goel, 2009).

It’s also the same for education. As people become more educated, they might be more eager to follow the rules. Apergis et al. (2012) got the same result for USA. No significant
relation between urbanization and corruption was seen. In these countries the positive and negative effects of urbanization on corruption counteract each other.

Just like the previous group, the positive coefficient of unemployment shows that as unemployment rate goes up, the corruption goes up too.

For this group, governments should help economic growth, supply more education services, perform job creative policies and combat the income inequality to have less corruption.

**MFC with consumption income GINI**

As same as the previous groups, the income inequality and unemployment coefficients are negative, so increases in income inequality and unemployment rate make corruption get worse. The inequality coefficient in this group is really close to last group because they have the same economic freedom degrees.

Corruption is negatively related to economic development and education. It means that in these countries, economic growth and more educated people reduce corruption. The negative coefficient of urbanization shows the flexibility of rule-making systems. [There are same results in li et al. (2000) for Asian, Latin American and OECD countries and Billger-Goel (2009) for 99 countries.]

The only difference between this group and the previous group is how urbanization affects corruption. It’s because of the difference between their rule-making systems.

We suggest this group to help economic growth, have more literacy and try to reduce unemployment and income inequality, after that they can hope for clean economy and safe society.

**MUFC**

In this group, urbanization and unemployment make corruption increase, but other results are different from other groups. As we can see in table (3), in contrast with the MFC there is no significant relation between economic development and corruption. Furthermore, the results show that when income inequality decreases, not only corruption doesn’t decrease, but also it gets worse. We were expecting these odd results because of the economic–social-administrative structure of these countries. Most of these countries are developing countries and some of them have just passed their debt crises and we cannot expect stability in their economies. With low level of economic freedom in this group, government has a huge role in the economy, so the private sector can’t grow properly and makes a slow growing process. Dobson and Dobson (2010) found the same result for the Latin American countries in their study.
Where there is a large informal sector, institutional reform is likely to worsen inequality in countries. Firms in this sector have low operating costs arising from their lack of compliance to rules and regulations; Because of that, informal sector tends to employ the poorest members of society. Furthermore, the actual process of reform requires better trained employees and supporting the infrastructure. Higher costs of production, new taxes and more vigilant policing will have a direct impact on employment in the informal sector.

The other possible explanation for this relation focuses on the impact of reform on redistributive measures. In many developing countries income redistribution policies are promoted by corrupt people in society who has plan for political power (Dobson and Dobson, 2010).

In these countries, the most important action for governments is to improve the administrative structure. They also should revise the labor market policies. It is important to have an efficient business environment which has proper rules. These items eventually provide the tendency to create more jobs and have more economic growth. Moreover, the governments should find some ways to have more regulations in the private and public sectors in order to block the misuses. When these fundamental changes happen, the other suggestions like reducing income inequality can be helpful for fighting corruption.

6. Summary and Conclusion

Economic research about relations between economic inequality and corruption is rather a young issue. There are two basic approaches to these relations. Some of them explore income inequality as one of the factor of corruption and the others focus on the consequences of corruption and consider corruption as one of the income inequality factors.

The contribution of this study is how we put the countries in different groups. Here we investigated the income inequality impact on corruption according to the country’s economic freedom degrees. These groups are free (FC), mostly free (MFC) and mostly unfree countries (MUFC). Since the UFC data was not available, we put them out of the study.

As the results show, in the FC and MFC there are positive relation between income inequality and corruption. This means that when income inequality goes up, it makes corruption get worse. The income inequality coefficients in two groups of MFC are almost similar to each other. According to the difference of economic freedom degrees, the impact of inequality on corruption isn’t equivalent in FC and MFC. As country’s economic freedom decreases, the income inequality impact on corruption weakens, insofar as for MUFC the opposite relationship
has been obtained. Due to the economic–social-administrative structure of these countries, corruption increases as the income equality policies implement. When governments want to do institutional reforms to reduce the income inequality in these countries, the most damages go to poor workers who are not officially employed [as the same as what Dobson and Dobson (2010) mentioned in their study]. So the income equality policies in these countries can not reduce corruption.

According to our findings, we can say that there is a positive relationship between income inequality and corruption, except for the countries which have not high degree in economic freedom. So an initial action for fighting corruption is performing the income equality policies. Since the income inequality coefficients in different groups vary, the answer to the second question of our study is yes. It means that different economic freedom degrees affect the relations between corruption and income inequality. We can say economic freedom and income inequality are two complementary effective variables which affect corruption. Government can’t fight corruption entirely without trying to have free economy and performing the income inequality policies.

(This article was derived from the thesis of one of my students with supervisory of me to receiving Msc degree of Economics at Shiraz University).

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