Corruption, Monetary Policy, and Inflation: A Cross-Country Examination

Teymur Rahmani and Hana Yousefi

Abstract

There has been a consensus in macroeconomics that inflation is a monetary phenomenon (that is; the result of the growth rate of money in excess of potential output) in the long-run. Of course, this does not mean that nothing else affects inflation, especially in the short-run. Although inflation has been under control for two decades in developed and many developing countries, inflation has been continuing as a big problem, especially in some developing countries. There could be a political economy explanation for the effect of corruption and rent-seeking on inflation. Our empirical results show that there is a positive effect from corruption on inflation in a cross-country study, even when the growth rate of money supply is included in the regression. However, those countries which have higher inflation rates have higher money supply growth rates. Therefore, corruption mainly provides an explanation for higher money growth rates.

I.   Introduction

There has been a consensus in mainstream macroeconomics since 1970s that inflation is the effect of money expansion in excess of potential output in the long-run. In effect, many events such as the increase in wages, the prices of raw materials, the price of oil and other costs of production influence the price level and inflation rate(cost-push theory of inflation). On the other hand, some demand-pull factors such as the increase in government expenditures, the tax cuts, the increase in consumption and investment expenditures, and the increase in net exports could influence the price level and inflation rate. But, the main contention of monetarism is that all these factors influence the price level in the short-run and their effects are negligible and do not persist. The inflation in the long-run is a monetary phenomenon and is caused by the growth in the money supply in excess of the growth rate of trend output. The new generation of Keynesian macroeconomists agrees to this contention more or less.

If there is such a consensus, there must be an explanation for the high growth rates of money supply. Time inconsistency (Kydland and Prescott, 1977) of optimal planning and political business cycles theories (Nordhaus, 1975; Hibbs, 1977) have provided an explanation for the high inflation rates

compared with social optimal rate of inflation. Although those theories explain the high money growth rates and therefore high rates of inflation for developed countries with established democracies, but can not provide an appropriate explanation for high inflation rates in many developing countries. Corruption and rent-seeking could be an explanation for the persistence of high inflation rates in those countries. Although the negative effects of rent-seeking and corruption on economic growth have been examined for two decades, the effects of rent-seeking on inflation have not been studied enough. The main hypothesis in this study is that more corruption causes the inflation rate to be higher. To examine this hypothesis empirically, we have used a cross-country data set. Our empirical study is in line with the monetary theory of inflation, but with adjustment for the inclusion of some other short-run developments and also for the effect of corruption on money supply growth and inflation.

The paper is organized as follows. The next section is the theoretical back ground of the relationship between inflation and money growth and the effect of corruption in this linkage. Section III is a review of empirical literature on the corruption and economic performance. Section IV presents the empirical model and the data. Finally, Section V concludes.

II.   Theoretical Background

Macroeconomic theory was demand oriented until 1970s. This means that macroeconomic fluctuations were considered as the effects of the shifts to aggregate demand. The mainstream Keynesian macroeconomists viewed inflation as the effect of inflationary gap that could be brought about by the increase in aggregate demand when the economy is in full employment. However, cost-push inflation and especially wage-push inflation could be included in the Keynesian explanation of inflation. In effect, Post-Keynesian macroeconomists considered both inflation and money supply increase as the effect and not the cause of wage increase (Davidson and Weintraub, 1973). With the rise of monetarism in 1960s and 1970s, the demand-pull inflation was strengthened. Monetarists contend that the macroeconomic fluctuations are mainly the results of the increase in aggregate demand and the increase in aggregate demand is mainly the result of the increase of money supply (Friedman and Schwartz, 1963; Friedman, 1968; Friedman, 1970). The first generation of monetarists believed that since prices adjust gradually and according to some kind of adaptive expectations, the increase in money supply influences both prices and output in the short-run but only the prices in the long-run. Therefore, there could be an inflation rate equal to

the difference between the growth rate of money supply and the growth rate of potential or trend output in the long-run. It was the background for the x-percent growth rate of money supply rule suggested by monetarists, where x is the rate of growth of potential output. The second generation of monetarists had the same explanation for inflation and the same rule for the growth in the money supply in the long-run. The difference was the inclusion of rational expectations and misperceptions of producers and suppliers to explain the real short-run effects of unanticipated money supply growth (Lucas, 1972; Sargent and Wallace, 1975; Barro, 1978). The body of macroeconomic literature that is known as New-Keynesian macroeconomics does agree with the contention that inflation is the result of the excessive money supply growth in the long-run. The main difference is the outcome of contracts and wage and price rigidities as rational phenomena and other imperfections for the real effects of money supply in the short-run and therefore the possibility of discretionary policies to tame macroeconomic fluctuations (Fischer, 1977; Taylor, 1980; Mankiw, 1985). Although the adverse supply shocks of the 1970s provided some explanation for macroeconomic fluctuations and inflation and Real Business Cycles theory caused macroeconomists to pay attention to real and supply-side factors in the explanation of macroeconomic fluctuations (Kydland and Prescott, 1982; Long and Plosser, 1983) and even an endogenous explanation of money supply changes (King and Plosser,1984), the main conclusion is left that the high growth rates of money supply is the determinant of inflation in the long-run.

If there is such a consensus in macroeconomics, it is paradoxical why there is higher than social optimal rate of inflation (for example, a zero inflation rate) in developed and democratic societies. One of the explanations for the high money supply growths and high inflation rates is political business cycles theory. Nordhaus (1975) argued that under an expectations-augmented Phillips curve and with some kind of adaptive expectations, there could be higher than social optimal inflation rate in the long-run and cyclical behavior of inflation in the short-run as a result of opportunistic behavior by political parties that are in office and try to influence myopic voters for reelection. Hibbs (1977) attributed the cyclical behavior of the economy and therefore inflation as the result of ideological and class differences of political parties that come to power alternately. Both of these theories were revised as the result of the introduction of rational expectations in macroeconomics (Alesina, 1987 and 1989; Rogoff and Sibert, 1988).

Another line of research to explain the high rates of money supply and inflation rates was pioneered by Kydland and Prescott (1977). Their

explanation was the time inconsistency of optimal planning as the result of the game between monetary authorities and the private sector agents. Although a low inflation rate (for example, a zero inflation rate) may be socially optimal and preferable, policy-makers have an incentive to do discretionary monetary policies to lower unemployment or to increase real output. Since the private agents are aware of this incentive, they do not trust monetary policy rules unless some kind of strict commitments do exist. Barro and Gordon (1983a, 1983b), Backus and Driffill (1985), Rogoff(1985), and others have explained the high money supply growth and inflation rates by using game theory and proposed reputation and delegation as the solutions that will lower money growth and inflation rates.

The third explanation for high money growth and inflation rates is seigniorage. The theory of optimal taxation (Phelps, 1973) contends that the government tries to equate the marginal cost of inflation tax with the marginal cost of output taxes in order to minimize the distortions of taxation. Therefore, the government may choose to use seigniorage as a way to finance public expenditures and budget deficit. When there is possible for the government to use seigniorage to finance government expenditures and budget deficit, it is easier to increase government expenditures compared with the situation that government has to raise taxes to finance government expenditures. Governments, especially in developing countries, try to obtain revenue from printing money by creating inflation as a way to finance budget deficit. Alesina and Summers (1993) showed that inflation and money supply growth are higher when central banks are less independent. This could explain that central bank independence is a way to lower seigniorage effect. Alesina and Perotti (1995) discuss the political economy of budget deficit. Fischer et al (2002) discuss the effects of budget deficit, seigniorage, and some other determinants of modern hyper and high inflations. Catao and Terrones (2005) examine the relationship between inflation and budget deficit. Woo (2003) examines the determinants of public deficits and Aisen and Veiga (2006, 2008) examines the effect of political variables on seigniorage and inflation. Although seigniorage can explain the high rates of inflations in many developing countries, but it does not analyze the underlying forces that are behind budget deficits and inflation while they are not socially favorable. Corruption and rent-seeking provide to some extent the economics of budget deficit, money supply growth, and inflation.

The adverse effects of rent-seeking and corruption on economic performance and economic growth have been under study for two decades. Although the economic analysis of rent-seeking has been of interest since the 1960s, its

negative effects on economic growth have been studied since early 1990s (Baumol, 1990; Murphy, Vishny, and Schlifer, 1991; Acemoglu, 1995; Mauro, 1995; Baumol, 2004). It is argued that with the presence of rent-seeking and corruption some of the economy's resources are devoted to unproductive activities in the form of time and other resources that are allocated to obtain rents and to protect the output from rent-seekers and corrupt government officials. Therefore, less output could be produced. An important conclusion of these studies is that technological improvements that are the main driver of economic growth are the results of the activities of highly talented people. So, when those people choose to be rent-seekers and not producers because of reward structure in the economy, there will be less innovation and technological progress and therefore less economic growth. Empirical studies have shown the negative effect of rent-seeking and corruption on economic growth. Also, the effects of institutions on the economic growth and development have been examined in line with this explanation of economic growth. Although the same forces that explain the negative effects of rent-seeking and corruption on economic growth could explain the positive effect of corruption and rent-seeking on inflation, it is not examined theoretically and empirically with the same emphasis.

Our main goal in this research is to provide theoretical and empirical explanations of the effects of corruption and rent-seeking on inflation. It is an established proposition that inflation is a monetary phenomenon in developing countries as it is in the developed countries. There have been some explanations for inflation among developing countries economists such as structural inflations and inflations due to the lack of economic infrastructures, exchange rates fluctuations, cost-push factors and many other factors in case studies. But, it is now confirmed that inflation can persist only when there is excessive money supply growth (Fischer et al, 2002). It is true that time inconsistency, political business cycles, and seigniorage explanations for high rates of money supply growth and inflation can help in understanding the situation in developing countries. However, there could be an additional explanation due to high level of rent-seeking and corruption in developing countries. Now, we turn to this explanation.

Although there is sometimes a distinction between corruption and rent-seeking (for example, rent-seeking can take the form of lobbying in parliament to approve a bill that benefits special groups and corruption may take the form of bribery by officials), we do not focus on this distinction and treat both in the same way. What is of main interest here is the rent-seeking or corruption in the public expenditures. If there is rent-seeking or

corruption in public or government expenditures, it can help in understanding budget deficit and growth in money supply. As noted, time inconsistency and political business cycles explanations for high growth rates of money supply and high rates of inflation can help mainly for developed countries. As noted, the main explanation for developing countries is seigniorage and using money printing as a tax to finance higher public expenditures.

In developing countries with fragile and without established democracies and in many cases without democracy, high rates of inflation as a result of the game between central bank and private sector or as a result of political incentive to influence voters are not the full story. In fact, there are rent-seekers that have private sector businesses but do business with the government. Examples are selling of goods and services to the government offices and departments, contracting and implementing development projects, producing goods and services by using subsidized loans and foreign exchanges. When rent-seekers lobby, especially for selling goods and services to the government and implementing public sector projects, they try to persuade officials for buying more goods and services and approving and implementing more projects. At the same time, there are corrupt officials who benefit from the mentioned lobbying, especially among three or lower grade government officials who are practically engaged in doing business with private sector enterprises. When there is a centralized rent-seeking and corruption network like what has been prevalent in the South-East Asia, it is less harmful for economic growth (Kang, 2002; Haggard, 2004; Rock and Bonnett, 2004) and therefore for inflation. In fact, in such an environment organized and centralized corruption and rent-seeking network internalize the costs of harmful effects of rent-seeking and corruption on economic growth and inflation, and extends corruption until the marginal benefit and the marginal cost of corruption equal. Since there could be a Laffer's curve effect of corruption and therefore economic growth and inflation on corruption network payoff, there is an incentive not to allow for corruption to be too high.

On the other hand, when there are many independent rent-seeking and corruption bodies, it is not easy to internalize the adverse effects of rent-seeking on economic growth and inflation. In effect, there could be a destructive competition among rent-seekers to obtain more rents (Bjorvatan and Selvik, 2005). When there is widespread rent-seeking and corruption, there is no coalition solution for rent-seeking. In this case of gain-loss game, every body of rent-seekers tries to be winner and sell more goods and services to the government as a way to collect the underlying rent. The only

way to guarantee the rent is to persuade the officials for more government activities and more government expenditures. Since there is negative externalities from more government expenditures that have been pursued by rent-seeker incentives, the government expenditures are much higher than the optimal level. It is the well-known adverse effect of government size on economic growth (Barro, 1991).

There is a tax base and an optimal tax rate to finance government expenditures. When government expenditures are too high, it is difficult to finance them through tax revenues. Then, the budget deficit is the natural outcome of higher government expenditures. On the other hand, the tax capacity is low in many developing countries. So, the routine way to finance government expenditures is inflation tax and seigniorage. As mentioned, the extent of seigniorage and inflation tax and therefore inflation rate is an increasing function of the extent of corruption and rent-seeking.

Thus, when there is widespread corruption and rent-seeking, especially when there is corruption and rent-seeking in government expenditures for goods and services purchased from business sector and for implementing public projects, rent-seekers lobby for increased government expenditures because it is a way to collect rent. Since rent-seeking is a profitable business, there is incentive for entry with the natural outcome of more government expenditures, more budget deficit, and higher growth rates of money supply and higher inflation rates.

 Rent-seeking and corruption in many developing countries, especially in the form of unnecessary increased government expenditures that is imposed on the budget, is not the outcome of politically motivated manipulation in the allocation of resources and even is not a diversion to benefit a political group or party. Many rent-seekers do not belong to a political party and group and seek rents under different governments with different ideological backgrounds. They just lobby for rents in government expenditures and their attempts cause the government expenditures to increase. Of course, when a new party or cabinet come to power, there will be new opportunity for some people to engage in rent-seeking and corruption. What is of importance for understanding the effect of corruption on government expenditures, budget deficit, money supply, and inflation is the fact that rent-seekers are able to continue their connections with corrupt officials under different cabinets and different parties being in power. When there is the opportunity to make money via rent-seeking, there is incentive for good talented people to allocate some of their time and other resources to create and hold connections with corrupt officials and persuade officials and legislators for higher government expenditures to ensure the continuation of their rents. It

is why corruption can not be ended or even weakened when there are big changes in cabinets and officials and why the efforts to end corruption do not succeed. The persistence of corruption is a characteristic of many developing countries with big political changes and official turnovers.

It must be added that corruption cause inflation to increase directly by increasing government expenditures and therefore budget deficit that is financed by printing money. However, there is an indirect channel through which corruption increase inflation rate. Since the growth rate of GDP is lower when corruption and rent-seeking is higher and since the inflationary effect of the growth in the money supply is higher when the growth rate of GDP is lower, the higher the inflation rate the higher corruption.

Therefore, corruption is not a cultural or political phenomenon, although cultural, political, institutional and even religious environment can influence its extent. It is an economic phenomenon and the result of rational economic behavior to take advantage of the opportunity that is provided by too much government interference in the economy.

Although there is more or less corruption in every country and there is an adverse effect from corruption on the growth of money supply and inflation, the problem is more prevalent for developing countries and especially for those countries that have fragile democracies and unstable dictatorships.

III. Review of empirical literature.

Empirical examination of the effects of rent-seeking and corruption on the economic performance has begun since early 1990s. Barro (1991) examines the relationship between economic growth and government consumption and political coups as indications of rent-seeking and finds an adverse effect. Baumol (1990) provides historical evidence on the adverse effect of rent-seeking on entrepreneurship and economic growth and attributes the adverse effect of rent-seeking to the choice of rent-seeking by the most talented people when reward structure is against production and entrepreneurship. Murphy et al (1991) contribute to the Baumol's work by introducing different degrees of increasing returns to talent in production and rent-seeking and providing empirical evidence based on the data of the ratio of students in law and engineering in the US. They conclude that rent-seeking is harmful for economic growth.

Brumm (1999) examines the effect of rent-seeking on economic growth by using data on government employment, legal services employment, and an index of lobbying law restrictions for the US states as proxies for rent-seeking activities and finds negative effects on economic growth. Cole and

Chawdhry (2002) use the same approach as Brumm's in measuring rent-seeking. But instead of using legal services employment and the index of lobbying law restrictions, they use the raw numbers of interest organizations registered to lobby in a state's legislature and the interest organization density which takes account of the numbers of organizations in relation to the size of a state's economy. They find direct negative effects of rent-seeking on economic growth and also indirect negative effects by exerting adverse effects on both public physical investment and public services.

Shleifer and Vishny (1993) provide two broad reasons for the adverse effects of corruption on economic growth and development, by describing some historical and recent cases like post-Communist Russia, the Philippines under Marcos, and Africa after independence. First, competing bureaucracies in countries with weak governments impose independent and high levels of bribes on private businesses and hamper investment and growth. Second, the necessity of secrecy of corruption can shift public investment from high value projects to useless projects if the latter have better opportunities for secret corruption. Mauro (1995) uses a data set from Business International with indices for corruption and other institutional and political variables like political stability, legal system, and bureaucracy for a cross-section of 68 countries over 1980-83 and finds negative effects for corruption and other unfavorable institutional and bureaucratic indices on investment and economic growth.

Guetat (2006) examines the determinants of economic growth for a sample of 90 countries in the time period 1960-2000 with a focus on the effects of corruption on economic growth via investment and human capital in the Middle East and North Africa (MENA) and finds more significant negative effects in MENA which suffer from bad institutions.

Rock and Bonnett (2004) analyze the role of politics and corruption on economic growth with a special attention to the East Asian Paradox. Their empirical results show that corruption is likely to be much more damaging to investment and growth in small as opposed to large developing countries and also corruption tends to lower economic growth in most developing countries except in the large East Asian newly industrialized countries. The reason for the existence of high levels of corruption and high sustained economic growth in the East Asia is attributed to the specific patrimonial patron-client networks and the distribution of power between government patrons and clients in civil society. In these economies state patrons are strong relatively to their clients in civil society and corruption networks are organized and managed by a strong centralized state. Therefore policies made protect new growth enhancing property rights. Also MacIntyre (2000)

and Kang (2002) attribute the good economic performance of Indonesia under Suharto and South Korea, respectively, to the similar explanation.

Although there has not been notable empirical investigation on the effect of corruption on inflation directly, there could be some evidence from the studies that have focused on the political economy of budget deficit. Edwards and Tabellini (1991) and Cukierman et al (1992) are among the studies that have paid attention to the effect of political economy of budget deficit and seigniorage on inflation. Fischer et al (2002) find strong relationship between the growth rates of money supply and inflation, between budget deficit and inflation, and between seigniorage and budget deficit for countries with high inflation rates. Since many of countries with high inflation rates are countries with high corruption, their results could be interpreted as evidence for the effect of corruption on inflation. Aisen and Veiga (2006) examine the effect of political instability on inflation for a data set covering more than 100 countries and find a positive effect. When there is political instability there is more corruption and therefore more government expenditures and budget deficit that could be financed by printing money. Therefore, political instability could be an indication of more corruption although the authors do not consider this aspect in their empirical analysis. Aisen and Veiga (2008) also examine the relationship between political instability and seigniorage for the same data set and find a strong positive relationship. Once again, the strong relationship could be an indication of the effect of corruption on government expenditures and budget deficit.

Al-Marhubi (2000) examines the effect of corruption on inflation for 41 countries over 1980-95 by including indices of corruption in the regression. In addition to indices of corruption he includes per capita GDP, the degree of openness, the turnover of the central bank governor and dummies for Asia and Latin America. He finds a strong positive effect of corruption on inflation.

As we know there is no other study to examine the effect of corruption on inflation and as mentioned most studies have not examined the relationship directly. Therefore, we try to provide some evidence on this relationship by empirical examination of cross-country data set.

IV. Data and Empirical Results

As mentioned, our empirical examination is in line with monetary explanation of inflation that is an empirically established proposition. Therefore, the main determinant of inflation is the growth rate of money

supply. To test the effect of corruption on inflation, we include an index of corruption in the regression. Also, per capita GDP growth is included that is in line with monetary theory of inflation. To capture the effect of globalization in taming inflation an index of openness is included too. The data for INF or inflation rate (the annual rate of increase of consumer price index), GPGDP or per capita GDP annual growth rate, and OPENNESS or the ratio of (exports plus imports) to GDP are from World Development Indicators (2007), World Bank website, and IMF website. GM2 or the growth rate of M2 is from World Development Indicators (2007). CPI or the index of corruption is from Transparency International. The sample includes 97 countries (from developed and developing countries) and covers 2003-2005. We have used OLS regressions but corrected for heteroskedasticity because it could be a problem for cross-section studies. The variables are the average for the period under study. The time period and countries were chosen according to the availability of data. The dependent variable is the average inflation rate. The independent variables are CPI, GPGDP, OPENNESS, and GM2. The main difference from Al-Marhubi's regression is the inclusion of GM2 instead of turnover of the central bank governor. Therefore, our empirical results are in line with the established proposition of the monetary theory in macroeconomics.

The results for the whole sample are presented in table 1. It is clear that the results are consistent with the monetary theory of inflation. GM2 has expected positive and highly significant coefficient, implying that an increase in GM2 by one percentage point will increase the inflation rate by 0.319 percentage point for the whole sample. Since the time-period is too short, the coefficient can be interpreted as the short-run effect of the growth in money supply and not its long-run effect that is expected to be much higher. The coefficient on CPI or the index of corruption has the right sign and is highly significant. It implies that higher the index of corruption (that means lower corruption because the index is in the range 0-10 in which 10 indicates no corruption), the lower will be the inflation rate. Therefore, the results imply that corruption is significant in the explanation of inflation even when the growth rate of money supply is included in the regression.

The coefficient on GPGDP or the growth rate of per capita GDP has the expected sign and is highly significant, implying that the higher the growth rate of per capita GDP the lower inflation rate. This result is in accordance to monetary explanation of inflation.

The coefficient on OPENNESS has the right sign but is not significant. Therefore, openness does not have a significant effect on inflation for the sample under study. So, we have reproduced the regression by eliminating

OPENNESS. The results are presented in Table 2. As is shown, there is no significant difference.

Table 1. Determinants of inflation rate: the whole sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.714	1.228	4.653	0.000001
CPI	-0.595	0.149	-3.995	0.00013
GPGDP	-0.594	0.217	-2.740	0.0074
OPENNESS	-0.0008	0.006	-0.139	0.8898
GM2	0.319	0.066	4.840	0.0000005
R-squared	0.45	Mean dependent var		6.1403
Adjusted R-squared	0.426	S.D. dependent var		5.347
S.E. of regression	4.051	Akaike info criterion		5.6871
Sum squared resid	1477.09	Schwarz criterion		5.8215
Log likelihood	-265.137	F-statistic		18.4387
Durbin-Watson stat	2.0417	Prob(F-statistic)		0.000000

Therefore, the contribution of this study is that corruption is of importance as a determinant of inflation and it is significant even after taking into account the effect of the growth in money supply. Since the effect of higher corruption is higher money supply growth rate, its effect can be shown by using a cross-section and not a time-series data set. Although the main determinant of inflation in the long-run is the growth of money supply in excess to potential output growth, corruption is an important factor for the explanation of inflation in a cross-country study. This is consistent with the contention of the present study that corruption is of importance in explaining the growth rate of money supply.

We have plotted the relationship between the growth rate of broad money supply or GM2 and the index of corruption or CPI for the sample under study in Figure 1. Each point in the graph is the coordinates for the average growth rate of M2 and average level of the index of corruption for each country over 2003-2005. As is shown, there is more or less a negative relation between these two variables, implying that there are lower growth rates of money supply for countries that have higher index of corruption

(that is; countries that have less corruption). As argued more corruption causes the government expenditures and budget deficit to increase. Using central bank power to print money to finance budget deficit causes the growth rate of money supply to be higher. The higher the growth rate of money supply, the higher will be the inflation rate. This is our political economy explanation for the effect of corruption on inflation and we have gotten preliminary empirical support for that contention.

As we know there is no empirical study on the relationship between corruption and inflation that is in line with the monetary theory of inflation taking into account the political economy explanation of the relationship between corruption, government expenditures, budget deficit, money supply, and inflation. We are working on a model to take into account a longer time period and some other determinants of inflation in the short-run and also by using more complicated econometric methods that are absent in this study. Of most importance for the present study is to provide some empirical evidence on the linkage between inflation and corruption that has not been examined in the political economy of inflation and has not been considered as one of the driving forces of budget deficit and the growth of money supply.

Table 2. Determinants of inflation rate: the whole sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.685	1.187	4.790	0.0000006
CPI	-0.603	0.137	-4.396	0.000002
GPGDP	-0.599	0.198	-3.028	0.003
GM2	0.319	0.065	4.927	0.0000003

R-squared	0.45	Mean dependent var		6.14
Adjusted R-squared	0.43	S.D. dependent var		5.347
S.E. of regression	4.029	Akaike info criterion		5.666
Sum squared resid	1477.26	Schwarz criterion		5.773
Log likelihood	-265.142	F-statistic		24.85
Durbin-Watson stat	2.04	Prob(F-statistic)		0.0000000

Figure 1. The Relationship between GM2 and CPI
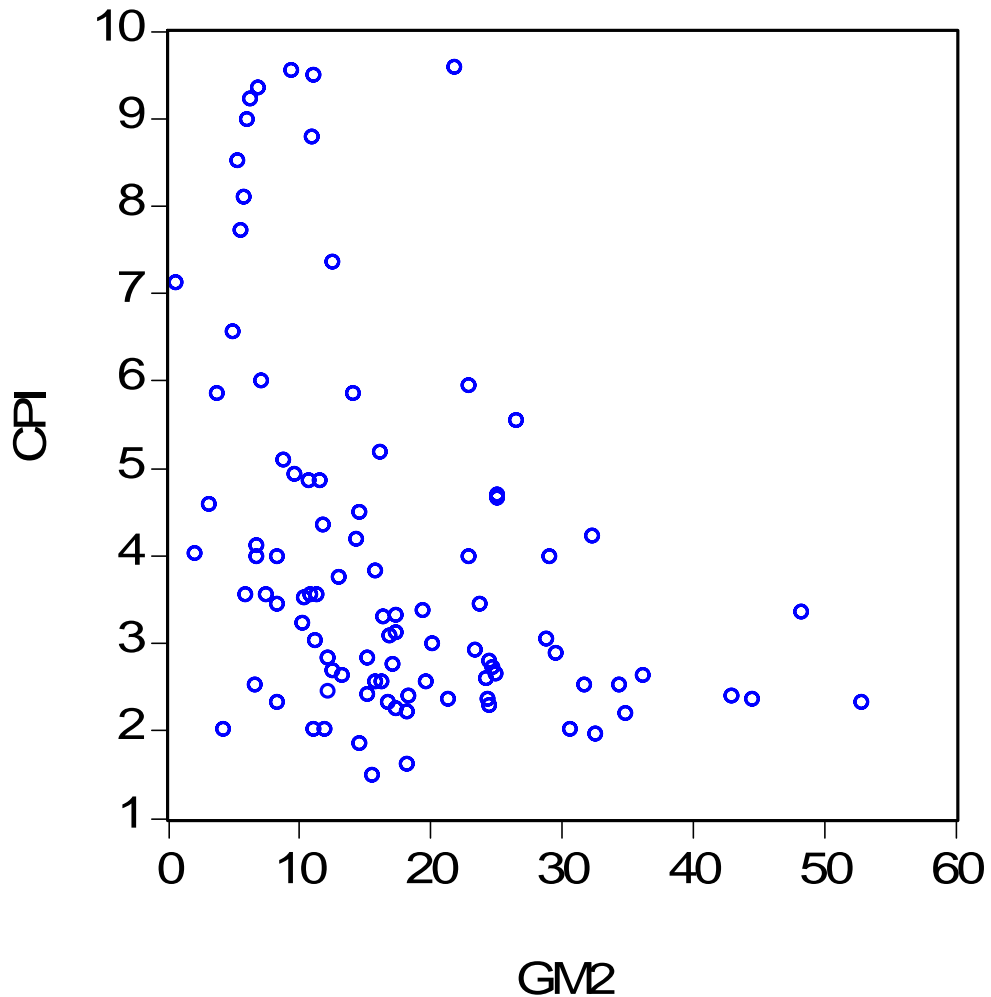
V. Summary and Conclusion

There is a consensus in macroeconomics that inflation is a monetary phenomenon and the result of the growth of money supply in excess to the growth of potential or trend output in the long-run, although there are many factors affecting inflation in the short-run. Therefore, the high inflation rates can be brought about only by high growth rates of money supply in the long-run. If there is such a consensus about the determinant of inflation, there must be some explanation for the high rates of money supply growth. Three explanations that have been of interest in the literature are time-

inconsistency of optimal planning in the conduct of monetary policy, the political business cycles theories, and seigniorage. Although all these explanations are helpful in understanding the higher than optimal inflation rates, they do not provide a good explanation of the growth of money supply, especially in developing countries.

We examine and provide some preliminary evidence for the contention that corruption can help in understanding the use of seigniorage and therefore the effect of corruption on inflation. Our results show that there is a significant effect from corruption on inflation even by taking into account the effect of the growth rate of money supply. So, there is empirical support for the contention that countries with higher corruption have on average higher rates of money supply growth and higher inflation rates.

References:

Acemoglu, D., 1995. Reward Structures and the Allocation of Talent. European Economic Review 39, 17-33.

Aisen, A., Veiga, F. J., 2006. Does Political Instability Lead to Higher Inflation? A Panel Data Analysis. Journal of Money, Credit and Banking 38(5), 1379-1389.

Aisen, A., Veiga, F. J., 2008. The Political Economy of Seigniorage. Journal of Development Economics 87, 29-50.

Alesina, A., 1987. Macroeconomic Policy in a Two-Party System as a repeated Game. The Quarterly Journal of Economics 102(3), 651-678.

Alesina, A., 1989. Politics and Business Cycles in Industrial Democracies. Economic Policy 4(8), 57-98.

Alesina, A., Summers, L., 1993. Central Bank Independence and Macroeconomic Performance: Some Comparative Evidence. Journal of Money, Credit and Banking 25(2), 151-162.

Alesina, A., Perotti, R., 1995. The Political Economy of Budget Deficits. IMF Staff Papers 42, 1-31.

Al-Marhubi, F. A., 2000. Corruption and Inflation. Economic Letters 66, 199-202.

Backus, D., Driffill, J., 1985. Inflation and Reputation. The American Economic Review 75(3), 530-538.

Barro, R. J., 1978. Unanticipated Money, Output and the Price Level in the United States. Journal of Political Economy 86(4), 549-580.

Barro, R.J., 1991. Economic Growth in a Cross Section of Countries. Quarterly Journal of Economics 106(2), 407-443.

Barro, R. J., Gordon, D. B. , 1983a. A Positive Theory of Monetary Policy in a Natural Rate Model. Journal of Political Economy 91(4), 589-610.

Barro, R. J., Gordon, D. B., 1983b. Rules, Discretion and Reputation in a Model of Monetary Policy. Journal of Monetary Economics 12, 101-121.

Baumol, W.J., 1990. Entrepreneurship: Productive, Unproductive, and Destructive. Journal of Political Economy 98(5), 893-921.

Baumol, W.J., 2004. On Entrepreneurship, Growth and Rent-seeking: Henry George Updated. The American Economist 48(1), 9-16.

Bjorvatan, K., Selvik, K., 2005. Destructive Competition: Oil and Rent Seeking in Iran. Unpublished Paper.

Brumm, H.J., 1999. Rent Seeking and Economic Growth: Evidence from the States. Cato Journal 19(1), 7-16.

Catao, L., Torrenes, M., 2005. Fiscal Deficits and Inflation. Journal of Monetary Economics 52, 529-554.

Cole, I.M., Chawdhry, M.A., 2002. Rent-Seeking and Economic Growth: Evidence from a Panel of U.S. States. Cato Journal 22(2), 211-225.

Cukierman, A., Edwards, S., Tabellini, G., 1992. Seigniorage and Political Instability. American Economic Review 82(3), 537-555.

Davidson, P., Weintraub, S., 1973. Money as Cause and Effect. The Economic Journal 83, 1117-1132.

Edwards, S., Tabellini, G., 1991. Explaining Fiscal Policy and Inflation in Developing Countries. Journal of International Money and Finance 10, S16-S48.

Fischer, S., 1977. Long-Term Contracts, Rational Expectations, and the Optimal Money Supply Rule. Journal of Political Economy 85(1), 191-205.

Fischer, S., Sahay, R., Vegh, C., 2002. Modern Hyper- and High Inflations. Journal of Economic Literature 40(3), 837-880.

Friedman, M., 1968. The Role of Monetary Policy. American Economic Review 58(1), 1-17.

Friedman, M., 1970. A Theoretical Framework for Monetary Analysis. Journal of Political Economy 78(2), 193-238.

Friedman, M., Schwartz, A. J., 1963. A Monetary History of the United States, 1867-1960. Princeton University Press.

Guetat, I., 2006. The Effects of Corruption on Growth Performance of the MENA Countries. Journal of Economics and Finance 30(2), 208-221.

Haggard, S., 2004. Institutions and Growth in East Asia. Studies in Comparative International Development 38(4), 53-81.

Hibbs, D. A. Jr., 1977. Political Parties and Macroeconomic Policy. The American Political Science Review 71(4), 1467-1487.

Kang, D.C., 2002. Bad Loans to Good Friends: Money Politics and the Developmental State in South Korea. International Organization 56(1), 177-207.

King, R., Plosser, C. I., 1984. Money, Credit, and Prices in a Real Business Cycle. The American Economic Review 74(3), 363-380.

Kydland, F. E., Prescott, E. C., 1977. Rules Rather Than Discretion: The Inconsistency of Optimal Plans. Journal of Political Economy 85, 473-493.

Kydland, F. E., Prescott, E. C., 1982. Time to Build and Aggregate Fluctuations. Econometrica 50(6), 1345-1370.

Long, J. B., Plosser, C. I., 1983. Real Business Cycles. Journal of Political Economy 91(1), 39-69.

Lucas, R. E., 1972. Expectations and the Neutrality of Money. Journal of Economic Theory 4(2), 103-124

MacIntyre, A., 2000. Funny Money: Fiscal Policy, Rent-seeking and Economic Performance in Indonesia, In Rents, Rent-Seeking and Economic Development: Theory and Evidence in Asia, edited by M. H. Khan and K. S. Jomo.

Mankiw, N. G., 1985. Small Menu Costs and Large Business Cycles: A Macroeconomic Model of Monopoly. The Quarterly Journal of Economics 100(2), 529-538.

Mauro, P., 1995. Corruption and Growth. The Quarterly Journal of Economics 110(3), 681-710.

Murphy, K.M., Shleifer, A., Vishny, R.W., 1991. The Allocation of Talent: Implications for Growth. The Quarterly Journal of Economics 106(2), 503-530.

Murphy, K.M., Shleifer, A., Vishny, R.W., 1993. Why is Rent-Seeking so Costly to Growth? The American Economic Review (Papers and Proceedings) 83(2), 409-414.

Nordhaus, W. D., 1975. Political Business Cycle. The Review of Economic Studies 42(2), 169-190.

Phelps, E., 1973. Inflation in the Theory of Public Finance. Swedish Journal of Economics 75, 67-82.

Rock, M.T., Bonnett, H., 2004. The Comparative Politics of Corruption: Accounting for the East Asian Paradox in Empirical Studies of Corruption, Growth and Investment. World Development 32(6), 999-1017.

Rogoff, K., 1985. The optimal Degree of Commitment to an Intermediate Monetary Target. Quarterly Journal of Economics 100(4), 1169-1190.

Rogoff, K., Sibert, A., 1988. Elections and Macroeconomic Policy Cycles. The Review of Economic Studies 55(1), 1-16.

Sargent, T., Wallace, N., 1975. "Rational" Expectations, The Optimal Monetary Instrument, and the Optimal Money Supply Rule. Journal of Political Economy 83(2), 241-254.

Shleifer, A., Vishny, R.W., 1993. Corruption. The Quarterly Journal of Economics 108(3), 599-617.

Taylor, J. B., 1980. Aggregate Dynamics and Staggered Contracts. Journal of Political Economy 88(1), 1-23.

Woo, J., 2003. Economic, Political, and Institutional Determinants of Public Deficits. Journal of Public Economics 87, 387-426.