The Investigation of Central Bank Independence on Inflation in Organization of Petroleum Exporting Countries (OPEC)

Abdollah Saeedavi

Department of Economics, Emarat Branch, Islamic Azad University, Emarat, Iran.

ABSTRACT

In developed countries, the central bank has the independence to determine the best way of achieving its policy goals, including the types of instruments used and the timing of their use. This is the most common form of central bank independence. Several researches have shown that independence improve the inflation rate. In this paper, we examine this effect in Organization of Petroleum Exporting Countries (OPEC) zone. Used Regression in this research is panel data for over time 1990-2008. Results showed that central bank independence has negative and significant effect on inflation rate in Organization of Petroleum Exporting Countries (OPEC). In other words, if these countries’ governments interfere in monetary policies, inflation rate may be increased. Also money supply, openness and foreign debts are positive and GDP are negative effect on inflation rate.

Key words: Central Bank Independence, Inflation, Organization of Petroleum Exporting Countries.

Introduction

One of the main subjects of concern for policymakers and economists alike is the behavior of inflation. Empirical evidence for a large number of countries reveals that high and variable rates of inflation are not consistent with sustained economic growth, because they shorten the planning horizon of investors and reduce the rate of productivity growth in the economy [1]. Understanding the main factors that affect the dynamics of inflation is thus crucial to help policymakers design measures to achieve a stable macroeconomic environment, and gain insight about the effects of their policies [2]. Ismihan and Ozkan are skeptical of the presumption that a politically independent central bank is an efficacious device for achieving price stability, particularly in developing countries [3]. They note that while some past studies had found empirical support for a negative relationship between central bank independence (CBI) and inflation for industrialized countries, at least one study found that this relationship is decidedly weaker when the sample is limited to developing countries [4]. Moreover, using samples including both industrialized and developing countries, some recent studies have concluded that the correlation between (CBI) and inflation evaporates—or is even positive. He is skeptical of the latter findings. He argues—and reports evidence to support his argument—that (1) the previous studies which analyzed samples containing both industrialized and developing countries used an econometric methodology that does not account for the inaccuracy of their proxy for CBI, and (2) the use of this flawed methodology is the source of the studies’ spurious results [5, 6]. Employing an alternative econometric technique, and applying it to Campillo and Miron’s and to Jordan’s data, he finds that the strong negative relationship between CBI and inflation is restored [7, 8]. Because Brumm’s samples are a mix of industrialized and developing countries, his finding of a negative correlation between CBI and inflation may be driven, as Ismihan and Ozkan might suspect, by the inclusion of industrialized countries [7, 8]. The contribution of the present paper is to show that this negative correlation holds for a sample limited just to OPEC countries. Cukierman’s measure of central bank legal independence, LVAW (legal variables aggregate unweighted), has frequently been used as a proxy for CBI [9]. However Cukierman et al point out that other proxies for actual CBI have similar limitations [10]. Given the existence of this measurement error problem, empirical results reported in other studies that have not taken it into account should not be accepted uncritically [4]. The original theoretical literature analyses concerning the independence and credibility as appear in the studies of Kydland and Prescott, lies in the problem of temporal incoherence and the good will to solve it, in particular, that

Corresponding Author
Abdollah Saeedavi, Department of Economics, Emarat Branch, Islamic Azad University, Emarat, Iran.
relative to the monetary policy [11]. If such a solution, which consists in adopting a rule-based policy, is relevant under very restrictive hypotheses, it quickly shows its limits especially when the economy is subject to the offer shocks. Some alternatives have been then suggested [12]. After this section, in section 2, literature review is presented. Methodology and data are delivered in section 3. Results will be analyzed in section 4 and finally Conclusion is presented in section 5.

2. Literature Review:

Several similar empirical studies dealing with the same issue have also been carried out, among which are those of Cukierman et al as well as, Jordan who has built up indicators by which they assess the impact of the Central Bank independence from inflation. Their work shows that more independence coincides with weak inflation [8, 13]. In particular, Cukierman et al have found that their legal indicator is significant for the industrialized countries and non-significant for the developing ones, while the rotation rate of the Central Bank governors is significant for the latter countries as well and for all the sample of their study [13]. Campillo and Miron have introduced other explanatory variables in their inflation equation in addition to the independence indicator. However, they have ended up with reverse results: for the former authors, the idea of taking into account other relevant explanatory factors other than the Cukierman legal indicator, leads to the rejection of the idea that having an autonomous Central Bank may reduce the inflation level [7]. Cottarelli et al., however, find that the independence indicator is significant [14]. The sacrifice ratio estimates the deflation cost in economic growth terms. This cost would be higher in the case of independence. This conclusion is, however, contested by Jordan who think that the relationship depends largely on the sample of chosen countries [8].

3. Methodology and Data:

The legal indicator is appreciated in comparison with various jurisdiction criteria within the laws are governing the Central Bank functioning, where every criterion has a weight according to its importance. The first criterion of the legal indicator is that of legal objective assigned to the Central Bank. The Central Bank general mission is to exert the control of monetary circulation and credit distribution. The law assigns to the Central Bank various objectives which can sometimes be controversial. The second criterion concerning the appointment of the Board of Directors’ members of the Central Bank takes the value 0, thus penalizing the government behavior which dominates the appointment process. In fact, all the board’s members are appointed by a presidential decree and this is concerns the three periods. The third criterion relative to the Central Bank board of Directors’ structure takes the value 0.5 for the three indicated periods. This is a consequence of a direct representation Government within the Board. This criterion never takes the value zero due to the absence of the private sector in the Board. The fourth criterion, dealing with the dismissal of the board’s members, takes the value 0.5 for the three refereed periods. Indeed, dismissing at the board’s members is a decision directly taken by a decree or by a governor’s proposal. Fifth criterion relative to the credits allocated to the Government by the Central Bank leads to assigning the value 0.5 to this criterion for the first two periods. However, during the third period, the law of May15, 2006 prohibits the bank any over draft, credit or direct acquisition of bonds issued by the State. Except that article 50 allows the consent of over drafts to the treasury which helps to regulate the functioning and the normal performance of the public expenses. From what we have seen, we can say that this situation has become advantageous for the Central Bank independence process; therefore it is assigned the value 1. The sixth criterion relative to funding the commercial banks next to the Central Bank, the law allows the latter to deliver credits without limiting their amounts and this concern the three periods in question. The value 0.5 is then assigned to this criterion. Concerning the seventh criterion, we can say that the Central Bank is totally independent in using the monetary policy tools in order to achieve the objectives assigned to it, and this all over the whole three periods.

In this regard for investigation of central bank independence on inflation rate in OPEC, we use below model:

\[ \text{INF} = \alpha + \beta_{\text{TOR}} + \beta_{\text{GDP}} + \beta_{\text{OPEN}} + \beta_{\text{DEBT}} + \beta_{M} + \varepsilon \]

Where INF is inflation rate, TOR is central bank independence index, GDP in gross domestic products, OPEN is openness index, DEBT is foreign debts and finally M is money supply.

4. Results:

We first show inflation rate trends in these countries. Figure 1 shows inflation rate dynamics. Due to estimation results, central bank independence (TOR) has negative and significant effect on inflation rate in Organization of Petroleum Exporting Countries (OPEC). This effect means that if these countries’ governments interfere in monetary policies, inflation rate may be increased. Also money supply (M) is significant positive effect on dependent variables. Openness and foreign debts are same effect on inflation rate too. Finally GDP has negative effect on inflation rate. Durbin – Watson statistics shows there are no serial correlation in model residual.
In next step we estimate the regression model using Panel Data approach. In this regard using hausman test we find that this model should be estimated by fixed effect.

Results presents in table1.

Table 1: Regression Results for OPEC over time 1990-2008 using Panel Data.

<table>
<thead>
<tr>
<th>Significance</th>
<th>P-Value</th>
<th>t</th>
<th>Std. Error</th>
<th>Coefficient</th>
<th>Variable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant</td>
<td>0.0000</td>
<td>12.6212</td>
<td>0.2341</td>
<td>2.9541</td>
<td>INTERCEPT</td>
</tr>
<tr>
<td>Significant</td>
<td>0.0128</td>
<td>-2.5199</td>
<td>0.0061</td>
<td>-0.0153</td>
<td>TOR</td>
</tr>
<tr>
<td>Significant</td>
<td>0.0000</td>
<td>-11.8486</td>
<td>0.0106</td>
<td>-0.1250</td>
<td>LGDP</td>
</tr>
<tr>
<td>Significant</td>
<td>0.0001</td>
<td>-4.1214</td>
<td>0.0196</td>
<td>-0.0869</td>
<td>OPEN</td>
</tr>
<tr>
<td>Significant</td>
<td>0.0408</td>
<td>2.0631</td>
<td>0.0090</td>
<td>0.0185</td>
<td>DEBT</td>
</tr>
<tr>
<td>Significant</td>
<td>0.0059</td>
<td>2.7939</td>
<td>0.0071</td>
<td>0.0199</td>
<td>M</td>
</tr>
</tbody>
</table>

$R^2 = 0.88$

$DW = 1.91$

$F = 24.38$

5. Conclusion:

Over the past decade, there has been a trend towards increasing the independence of central banks as a way of improving long-term economic performance. However, while a large volume of economic research has been done to define the relationship between central bank independence and economic performance, the results are ambiguous. In this research, we investigate the effect of central bank independence on inflation rate in OPEC zone. In this regard, we established a panel data regression with annual data for 1990 – 2008 for nine countries of OPEC. Results showed that central bank independence has positive effect on inflation rate. Also, money supply, foreign debts and openness have same effects on inflation. Finally GDP (as economic power) has negative effect on inflation rate in these countries.
References