

THE INFLATION-CENTRAL BANK INDEPENDENCE NEXUS

WHERE DO MENA COUNTRIES STAND?

*Mohamed Sami Ben Ali, Etienne
Farvaque, and Muhammad
Azmat Hayat*

Inflation and its dynamics have been always capturing the attention of economic scholars and policymakers worldwide. Numerous theories in economic literature tried to define the concept of inflation by suggesting different sides of the phenomenon—by evoking the *cost-push* inflation side, the *demand-pull*, or both sides. Potential determinants of inflation discussed in the literature are diverse (see, e.g., Ben Ali and Ben Mim, 2011). The general consensus is to define inflation by its symptoms, as a persistent rise in the general price level in a given economy.

From a country setting and historical side as well, it's obvious that inflation rates are different across countries and over time. Different inflation periods had characterized both developed and developing countries, mainly in the mid-1970s and 1980s.

There has been a growing body of literature over many decades, asserting the damaging impact of high inflation levels on economic performance and social welfare (Fischer et al., 2002). As a result, policymakers set price stability as one of the main goals of their economic policies. More particularly, the importance given to the price stability in both developed and developing countries is seen as the prime challenge for central bankers committed to maintain prices under control. Given these harmful effects, why do some central bankers still have incentives to inflate? The answer can be embedded

in the *time consistency* dilemma (Kydland and Prescott, 1977; Barro and Gordon, 1983). Monetary authorities may use loose short-term enhancing monetary policies by financing fiscal deficit and misusing a negative relationship between inflation and unemployment. Such policies, which are most likely to be pursued in developing countries lacking a sound institutional framework, cause inflation and, at the same time, problems of inconsistency. A monetary policy's reliability can mainly be proven by its ability to bring down inflation rates by instituting an efficient and credible framework based on greater central bank independence. Rogoff (1985) empirically shows that a loss function weighing the deviation of output and inflation from their socially optimal levels induces higher inflation rates. According to Rogoff, this loss could be reduced by the existence of a "conservative and independent" central banker, giving rise to a stable inflation rate. It is obvious also that from an economic point of view, stable growth can be achieved only by accelerating the progress of productivity and lengthening the investors' forecast. Inflation dynamics brings a slump in the extent of these two factors, introducing unpredictability in an economy's stability. For a policymaker, it is therefore crucial to capture the dynamics of inflation in order to craft a consistent macroeconomic situation.

After a relatively long period of price stability in the Middle East and North Africa, inflation has reemerged as a primary challenge for policymakers and academicians in this region and worldwide. This chapter thus addresses the relationship between inflation and central bank independence in MENA countries (considered here under an extensive definition).

CENTRAL BANK INDEPENDENCE AND INFLATION REDUX

This section provides a brief introduction to the theoretical arguments on which the case for an independent central bank has been built, and to the way the degree of independence can be measured through *de jure* or *de facto* indices.

Why Is Central Bank Independence Desirable?

Understanding the case for central bank independence basically means finding an answer to the following question: why would politicians agree to delegate monetary policy to an authority that could stand beyond their reach (read influence)?

The most common answer to this question is that a central bank should be better insulated from fluctuations arising in the political world than the elected politicians can be. This argument, which can be traced down to the way American political philosophy justifies the independence of judges (Farvaque, 2007), is often given by central bankers themselves (see Blinder, 1998, for an example).

In modern literature, the argument dates at least back to Kydland and Prescott (1977), who study the case of a decision maker facing a potential tradeoff between inflation and unemployment. If one assumes that the inflation rate is higher than what had been expected, this implies that real wages decrease proportionally to the difference between actual inflation and expected inflation. All things being equal, this induces an increase in the labor demand of firms, and reduces unemployment. Manipulating the rate of inflation (by, for example, the emission of an extra quantity of money) then allows the decision maker to change the unemployment rate, even though, initially, this decision maker would have preferred a lower inflation rate. This example is a typical case of time inconsistency, and is explained by the reduced weight of the future (inflation) compared to the present (the increased employment level and its potential impact on the probability of re-election). Barro and Gordon (1983) show that, in such a theoretical framework, voters cannot be wrong all the time (an argument that is reminiscent of Lucas' own (Lucas, 1972)). Hence, they know that the decision maker has an incentive to create inflation, which then negates any positive effect on wages and employment. As far as the incentives of the decision maker remain unchanged, any attempt to manipulate inflation can only result in a higher rate of inflation (the so-called inflationary bias) without any gain in jobs.

This problem of the time inconsistency of the preferences of elected officials has led the economic literature to propose a number of solutions, including granting independence (from the government) to central banks. We owe much to Rogoff (1985) for having shown that the need to balance the credibility of monetary institutions (in terms of low inflation) and their ability to respond to macroeconomic shocks can be satisfied through a central bank whose mandate is focused on the fight against inflation. In other words, if the central banker is "conservative," in the sense that their preferences reflect an aversion to higher inflation than in the average of the company, then the inflation bias can be reduced, and potentially eliminated.

This idea was then taken up and developed, including the analysis of contracts between the central banks and governments, in the context of inflation targeting regimes (as in Walsh, 1995), but also to understand

the duration of the contracts between the central bankers. For example, in the model of Waller and Walsh (1996), the economy is composed of several productive sectors, whose desired inflation rates differ, while the government represents the preferences of the median voter. If, after each election, the newly elected government appoints a new central banker, the variability of voter preferences will be forwarded to the central bank's policy, monetary policy would become more difficult to predict, and therefore less credible. These authors show that the optimal duration of the mandate of the central bank is obtained by equating the marginal value of the reduction of economic fluctuations obtained by increasing the tenure of the central banker and the social cost of the difference between the central bank's preferences and those of the median voter. Then, if the median voter's preferences are relatively constant in time, and if the inflationary bias is relatively high, then the society's interest is to give the central banker a long term.

Another way to justify the independence of central banks and monetary policy mandates focused on price stability is based on the approach developed by Maskin and Tirole (2004), who compare the powers of elected decision makers—who are thus accountable to the electorate—to those of unelected decision makers (technicians or experts, the authors taking the case of judges as a leading example). They show that the delegation of policy to technicians or experts is preferable when the following three conditions are satisfied: (1) if the elected decision maker has little information on the optimal policy to implement; (2) if acquiring information on the topic is expensive; and (3) if it is not easy to check whether past decisions have had positive or negative effects. According to these authors, technical decisions are more likely to verify these conditions, and monetary policy is among those that justify the delegation.

The logic underlying these mechanisms is just one of a relatively long horizon contract between a society (and its decision makers) and the central bank. The distant horizon is enough to remove any incentive for the decision maker to play on the short-term trade-off between output (unemployment) and inflation, thereby reducing the money supply (and therefore, we have seen above, the level of future prices).

Measuring Central Bank Independence in Emerging Countries

We owe to Cukierman's (1992) famous book the method to measure the degree of central bank independence, using legal texts and coding

them to weigh the relations the central bank has (or not) with the government. Cukierman's index has since been very frequently used as a proxy to measure central bank independence, providing a *de jure* measure of the choice a society has made to insulate itself from the upheavals of the political scene.

However, as stated already by Cukierman et al. (1992), and further argued by, for example, Fuhrer (1997), measuring central bank independence through legal texts relies on the assumption that they are enforced (at least, that the public believes that their implementation will have the expected impact). It also assumes that the institutional context does not matter, an argument that the literature has proven too far-fetched (Moser, 1999, Farvaque, 2002).

In fact, the real (*de facto*) degree of central bank independence can differ strongly from what a textual analysis would have implied in countries where the letter of the law is not fully enforced or believed. Hence, even though the empirical literature has tended to support the (negative) link between the degree of central bank independence and inflation (see, e.g., Eijffinger and de Haan, 1996, Berger et al., 2001), the relation seems to be driven by the situation in developed countries, where institutions are older and laws tend to be better respected. Moreover, even among the developed countries, it has been argued that the relationship is weaker than observed, due to either hidden factors (demography being a case in point, see Farvaque et al., 2010) or measurement issues (Forder, 1998). On econometric grounds, Brumm (2002; 2006) argues that the difference between the two types of measures (*de jure* and *de facto*) of central bank independence is due to measurement error, which can lead to anomalous, if not spurious, results, if they are not considered carefully.

As a consequence, especially for emerging and developing countries, and also to get a better view of the real degree of independence, scholars have come to another metric, based on the central banker's turnover rate. The idea here is that if the policymaker wants to use inflation to influence the economy, then they will put pressure on the central bank, either through bashing it (as in Waller, 1989), or by replacing the incumbent central banker with another one, more inclined to follow the politician's will. This measure has been used regularly, leading to results that lie in conformity with the expected results (i.e., a higher turnover, indicating a lower independence, is associated with higher inflation). For a recent example of a study using such data, see, for example, Crowe and Meade (2008). However, it has to be noted that using turnover rate as proxy for central bank

independence may be a double-edged sword, as a higher turnover rate may depict the lack of independence of the central bank but, on the other hand, a very small turnover rate also indicates that central bank governor is never changed by the authorities and legal mandate is never respected.

It is worth noting that during the last two decades, many countries in the MENA region have undertaken significant efforts toward greater central bank independence after the waves of financial liberalization driven by financial institutions and the International Monetary Fund during the 90's. However, the level of independence of these banks in these countries is still much lower compared to developed countries.

The waves of reforms in this region were the most important in Tunisia and Morocco, and less pronounced in Egypt. These countries have introduced important amendments to the statutes of their central banks toward improving independence, such as the establishment of price stability as the primary objective of the central bank. The results of these reforms on the independence and, consequently, on inflation, were discernable in these two countries.

For example, the reforms undertaken in Tunisia to improve the transparency and independence of the Central Bank of Tunisia included the elimination of the supervision and control function of the Central Bank of Tunisia on other banks and replacing them by external audit procedures. These reforms have allowed the Central Bank of Tunisia to have more freedom in the choice of instruments to ensure price stability. Deeper and more structural reforms of the Central Bank of Tunisia have been introduced in the new constitution of 2014. Previously, the governor was appointed directly by the President. However, under the new constitution, the appointment and dismissal of the governor must be approved by Parliament.

In Morocco, following the Arab Spring, the central bank statutes were amended, with a noticeable improvement compared to the preceding 2006 amended legal framework. These reforms have mainly introduced some restrictions on the dismissal of board members, as well as the prohibition of governmental representation with voting power in the central bank board directory. In addition, the appointment of the Governor is assigned to a council with legislative and judicial representation. The central bank board has the power to choose the instruments to ensure stability. In addition, the control of the central bank on the financial sector has been lifted.

In Egypt, the most profound improvement in the statutes of the central bank is related to the objective of the institution: price stability

is now the primary objective of the central bank. Independence, however, remains low, since the power of appointment and dismissal of the governor is still held by the government. The amendments to the constitution in 2012 and 2014 have brought a few insignificant changes to the independence of the central bank in Egypt.

CENTRAL BANK INDEPENDENCE AND INFLATION IN MENA COUNTRIES: EMPIRICAL ANALYSIS

In this section, we first analyze the degree of central bank independence in the MENA countries, before turning to the link it can have with inflation in these countries.

De Facto Indicators of Central Bank Independence for MENA Countries

Table 5.1 displays the data on the legal duration of the mandate of a central banker in the MENA countries, as enshrined in the local legislation, the number of years since the current central banker (i.e., in 2011, due to data availability, for consistency with what follows) has been in office, the difference between the two, as well as the polity score. The latter, collected and organized by the Center for Systemic Peace,¹ captures the democratic degree of a governing regime on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy). As can be seen, the difference is positive in many countries of the sample, indicating that the central banker has been in office for a length of time superior to the official length. This in itself would tend (i) to confirm the presumption of the literature about the (weak) relevance of legislation-based indicators of independence, and (ii) to highlight the need for a turnover-based indicator, which, although imperfect, would probably deliver a better-informed view of reality. In this case, this is confirmed by the polity score, which is quite low on average in these countries, inducing a legitimate suspicion that, with regard to monetary institutions, either they do not respect central bank laws or they repeatedly reappoint the central bank governor.

Table 5.2 contains this information, showing the turnover rate of the MENA countries' central bankers. We also show the irregular turnover, which, as argued by Hayat and Farvaque (2011), provides even better information—and probably a truer view of the way

Table 5.1 Length of mandates, MENA countries, 2011

Country	Time in office*	Legal duration	Difference	Polity Score
Algeria	10	7	+3	+2
Bahrain	6	5	+1	-8
Egypt, Arab Rep.	8	4	+4	-2
Iran, Islamic Rep.	3	5	-2	-7
Israel	6	5	+1	+10
Jordan	1	5	-4	-3
Kuwait	25	5	+20	-7
Lebanon	18	6	+12	+7
Libya	0	5	-5	0
Morocco	8	NA	NA	-4
Qatar	5	5	0	-10
Saudi Arabia	0	5	-5	-10
Syrian Arab Republic	6	NA	NA	-7
Tunisia	0	6	-6	-4
Average	6.86	5.25	1.58	

Source: Authors, update (2012) of Dreher et al. (2010). Polity score from Center for Systemic Peace (<http://www.systemicpeace.org>).

institutions are respected (or not)—than the turnover rate itself. It turns out that for four countries of the sample (namely, Iran, Israel, Jordan, and Libya), there is a difference between the two indicators, revealing that institutions are sometimes respected, sometimes not. For all the other countries, the absence of any difference between the two measures simply reveals that all the turnovers of central bankers have been irregular. Algeria, and then Egypt and Tunisia are typical cases in point, here, as can be seen in Table 5.2. In other words, more often than not, and never for most of the MENA countries, the replacement of a central banker has conformed to what had been enshrined in the legislation. Another important fact is also evident from Table 5.2 that some of the countries have not changed their central bankers even in a decade. For example, there was no turnover in Morocco and Qatar during 1990–1999, in Bahrain during 1980–1989, and in Kuwait during 1990–2011 (that is, in this case, for the last 22 years). This tendency also favors the argument already given that governments and decision makers in this region tend to reappoint the central bank governor.

Thus, in what follows, we will analyze the inflation—central bank independence nexus by relying on the *de facto* measure, as any other method would probably prove ineffectual.

Table 5.2 Central bankers' turnover and Inflation, MENA countries, 1980–2011

Country	1980–1989		1990–1999		2000–2011		Average		Inflation	
	Regular	Irregular	Regular	Irregular	Regular	Irregular	Regular	Irregular	Average	Maximum
Algeria	0	5	0	1	0	1	0.22	0.22	9.89	31.67
Bahrain	0	0	0	1	0	2	0.09	0.09	1.49	11.34
Egypt, Arab Rep.	0	3	0	1	0	2	0.19	0.19	11.72	23.86
Iran, Islamic Rep.	1	2	1	0	0	3	0.22	0.16	19.34	49.66
Israel	0	2	1	0	1	1	0.16	0.09	44.85	373.82
Jordan	0	2	0	1	1	1	0.16	0.13	5.28	25.71
Kuwait	0	2	0	0	0	0	0.06	0.06	3.45	10.58
Lebanon	0	1	1	1	0	0	0.09	0.06	64.40	487.57
Libya	1	2	0	2	3	0	0.25	0.13	5.04	15.52
Morocco	0	2	0	0	0	1	0.09	0.09	4.41	12.49
Qatar*	0	1	0	0	0	1	0.09	0.09	3.85	15.05
Saudi Arabia	0	1	0	0	0	2	0.09	0.09	1.43	9.86
Syrian Arab Rep.	0	2	0	2	0	1	0.16	0.16	11.43	59.48
Tunisia	0	3	0	1	0	2	0.19	0.19	4.81	8.90
Yemen **	NA	NA	0	1	0	1	0.13	0.13	18.62	55.08

*: 1989–2011

** : 1997–2011

Source: Author's calculations. See Table 5.1 for sources. Inflation data from IMF's *International Financial Statistics*.

Central Bank Independence-Inflation Nexus: The Empirical Facts

Figure 5.1 displays the relation between the central bankers' turnovers and the average inflation rate in the MENA countries. As can be seen, the relation is not really conform to what could be expected² and is, at first sight, globally negative. But a positive relationship between higher inflation and turnover appears if one removes Israel and Lebanon from the sample, as both countries have known episodes of very high inflation during this period³, and whose inclusion delivers the negative trend. However, this unexpected relation (i.e., the negative relationship) vanishes once one uses the more relevant indicator, measuring irregular turnovers. As can be seen in Figure 5.2, once this indicator is considered (and removing the two outliers with regard to this dimension: Israel and Lebanon), the relation turns clearly positive, and thus lies much more in conformity with what the theory suggests.

Another interesting measure is the level of maximum inflation that each country of the group has known during the period under review (1980–2011). On this dimension (see Figures 5.3a and 5.4a), it is first interesting to note that the outliers are again Israel and Lebanon, which reveals that their average rate has been driven by the episodes of hyperinflation these countries have known (see also Table 5.2). Second, and interestingly, the relation between the central bankers' rates of turnover (overall and irregular) and the level

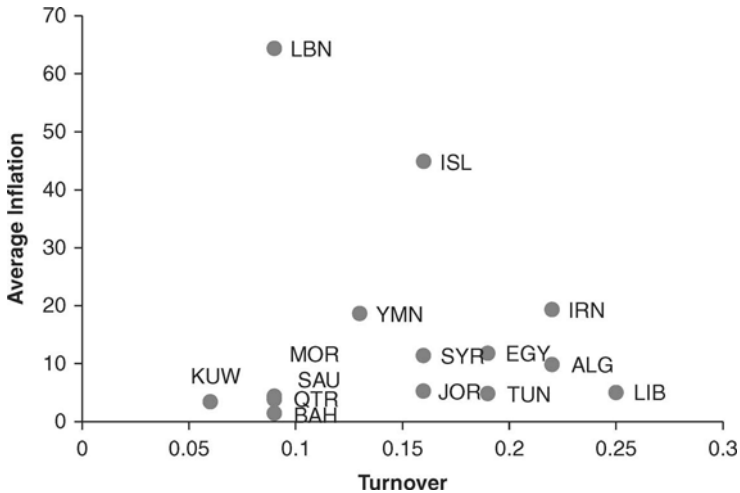


Figure 5.1 Overall turnover and average inflation.

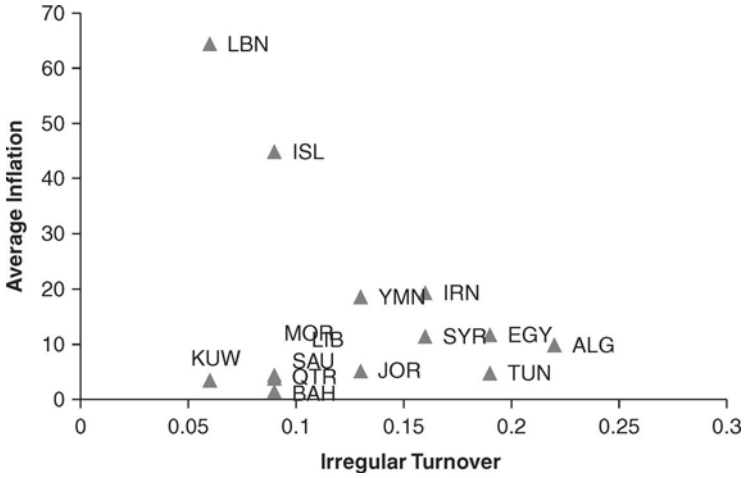


Figure 5.2 Irregular turnover and average inflation.

of maximum inflation is clear-cut, and positive, after removing the outliers (see Figures 5.3b and 5.4b). Once again, this confirms that de facto indicators of turnover provide a better assessment of central bank independence in these countries, and that the evidence tends to back the theory.

Finally, we look at the relationship between central bank independence and the variance of inflation, a measure of uncertainty that has been shown to matter for economic policy definition and macroeconomic performance, either theoretically (Ball, 1992), or empirically (see, e.g., Grier et al., 2004). Interestingly, while Alesina and Summers (1993) could exhibit a strongly negative relation between inflation uncertainty and central bank independence, for OECD countries, the relation is not so apparent, nor negative, in the case of the MENA countries. First, as can be seen from Figures 5.5 and 5.6, if we exclude the first outliers (Israel and Lebanon, as both have very high variances), two new outliers appear in the sample: Syria and Yemen have a large variance of their inflation rate as compared to other countries in the sample. Second, when considering the overall rate of turnover, and eliminating the four outliers (Lebanon, Israel, Syria, and Yemen), a positive relation can be observed (hence, the opposite of what can be observed in the OECD countries). Moreover, this is even reinforced when we use the measure of de facto independence based upon irregular turnovers. In this case, the slope of the relation seems even larger, and positive.

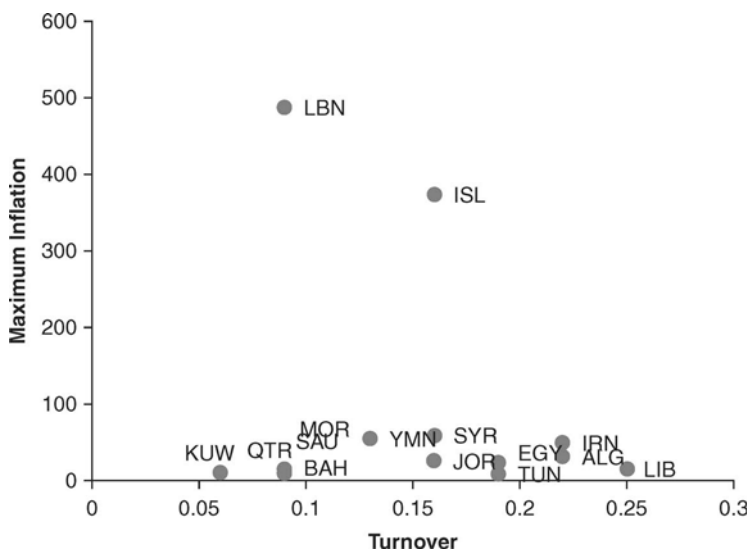


Figure 5.3a Overall turnover and maximum inflation.

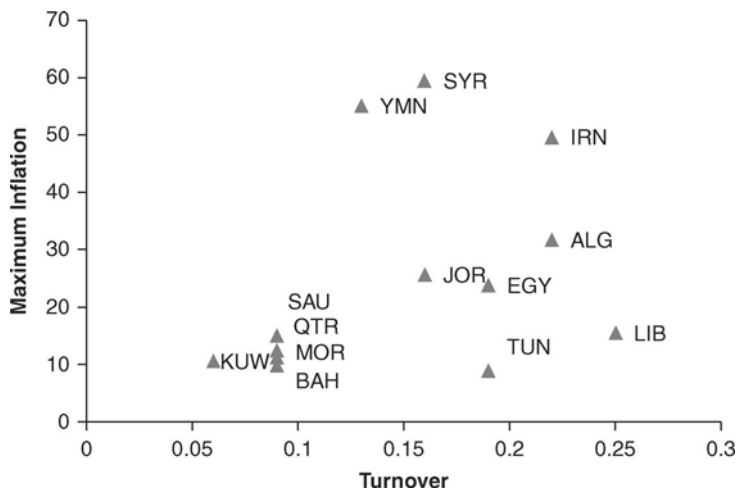


Figure 5.3b Overall turnover and maximum inflation (excluding Israel and Lebanon).

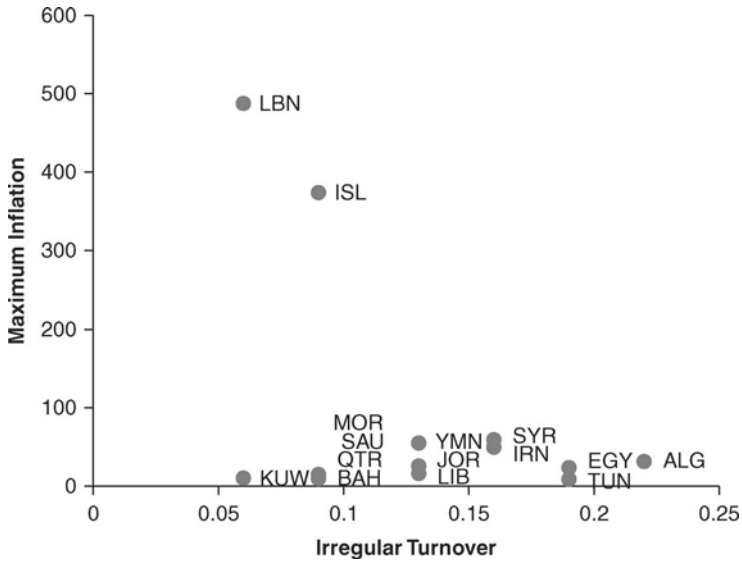


Figure 5.4a Irregular turnover and maximum inflation.

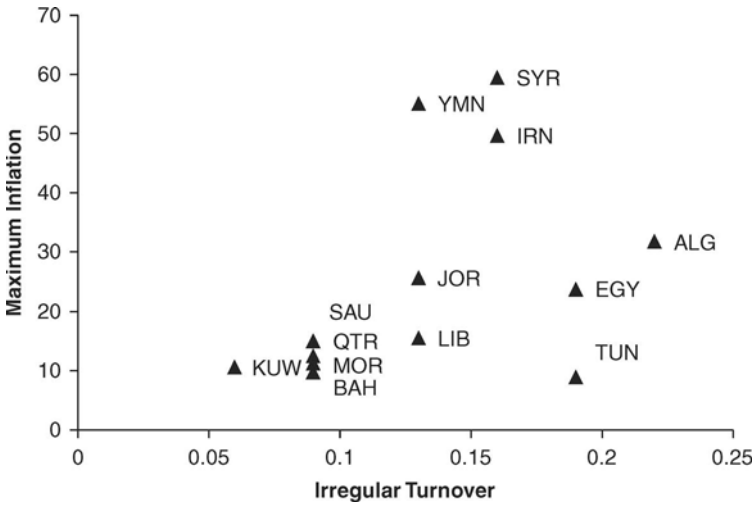


Figure 5.4b Irregular turnover and maximum inflation (excluding Israel and Lebanon).

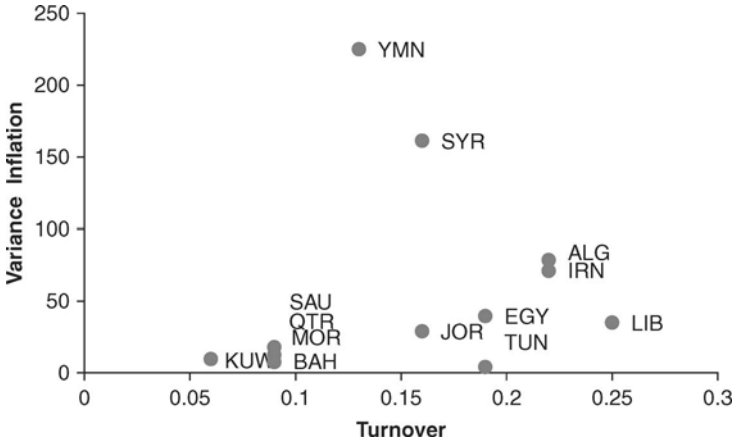


Figure 5.5 Overall turnover and inflation variance (excluding Israel and Lebanon).

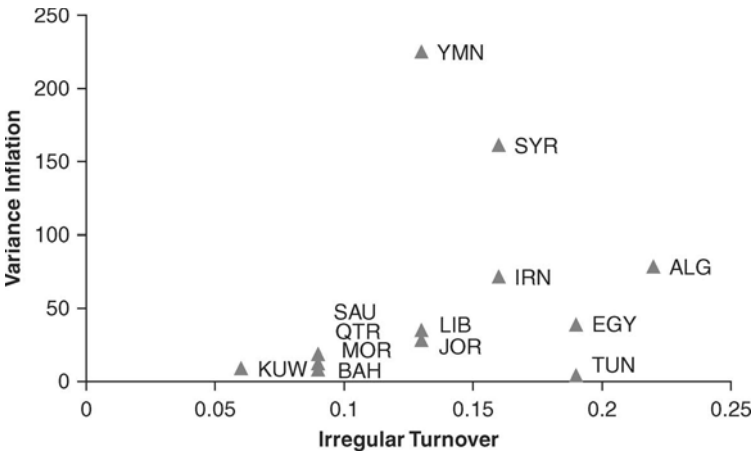


Figure 5.6 Irregular turnover and inflation variance (excluding Israel and Lebanon).

All in all, then, the evidence from the MENA countries tends to support the theoretical case for central bank independence. Given the low respect for legal dispositions in these countries, it is more relevant to use de facto measures of central bank independence. However, an even better view of the way these countries act comes from our measure of irregular turnovers. This measure is positively related to inflation, to the maximum level of inflation, as well as with the variance of

inflation. This reveals, in our view, a weak (to say the least) degree of independence of the central banks in these countries, which induces a lack of control of inflation (as only Bahrain and Saudi Arabia have levels of average inflation over the period that can compare favorably with what OECD countries, for example, have known—see Table 5.2). This points to the need of reforms, although modifying the statutes will not be enough if the rulers themselves do not abide by their edicts.

CONCLUSION AND POLICY IMPLICATIONS

During the past two decades, the *de jure* independence of central banks in several countries in the MENA region, mainly in Tunisia, Morocco, and, to a lesser extent, Egypt, has greatly improved. For other countries in the MENA region, the independence of central banks remains very low, and heavily dependent on government decisions.

Based upon the empirical evidence examined in this chapter, it can be argued that it is even more important to ensure the *de facto* independence of the monetary authority. As official degrees of central bank independence (as enshrined in the legal texts) do not impact the performance of these countries, the real degree of independence of the monetary authority has to be assessed by making use of the turnover rate of central bankers. In addition, as could be expected, a high turnover appears to be related to higher inflation and inflation volatility.

MENA countries thus seem to possess important margins to improve their inflationary performance, conditional upon reforms of their central bank statutes and a stronger respect for the letter of the law. Such improvements would probably require a stable political base, an assurance of greater transparency in the process of appointment and dismissal of the central bank's executives, as well as a greater transparency in the management process, with clear and well-defined objectives and time horizons.

NOTES

1. See <http://www.systemicpeace.org/inscrdata.html>.
2. For a similar analysis, although on a very different sample and period, see Alesina and Summers (1993).
3. See Fischer et al. (2002) for a global analysis and, for Lebanon in particular, Ayoub et al. (2008).

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