

Lecture 13: Central Bank Independence

I. OVERVIEW

- The Barro/Gordon papers showed that a policy rule was superior to discretionary policy, in terms of providing a lower equilibrium inflation rate in the economy. Barro/Gordon also showed that even considering the reputation of the policy maker, the economy, while improving on the discretionary outcome, could not achieve the rule outcome. The Barro/Gordon result was dependent upon the notion that the central banker was shooting for a level of inflation that was lower than the natural rate.
- Subsequent work has focused on how best to prevent policymakers from shooting for a level of unemployment that is below the natural rate (i.e. prevent the policymaker from creating surprise inflation).
- One possible response is to appoint better policymakers. Work by Rogoff showed that the problem of high inflation under discretion could be mitigated, or even avoided, by appointing a central banker who is “conservative”, i.e. one who has a distaste for inflation. We do not consider Alan Greenspan to be the type of central banker who tries to reduce u below the natural rate. In fact, given the volume of literature on the subject, it is difficult to conceive of a central banker who would try to move the economy to a level of unemployment below the natural rate unless he/she had a very short horizon.
- Barro/Gordon counter this criticism by pointing out that the push to move u below the natural rate may come from the government, not directly from the central bank. If one buys this argument, then a significant case can be made for the importance of an independent central bank. An independent central bank will be insulated from government intervention, will not seek to push u below the natural rate of unemployment and therefore will not suffer from high inflation even under discretionary policy.
- This section examines the empirical evidence on the relationship between central bank independence and the level and variability of inflation. The main paper in this section is by Cukierman, Webb and Neyapti.

II. CENTRAL BANK INDEPENDENCE

- Central bank independence (CBI) exists on two dimensions: goal independence and instrument independence. Goal independence is the freedom that the central bank has to select the objectives of monetary policy, whether it be low inflation, the target rate of unemployment, the level of GDP etc. Instrument independence is the freedom that the central bank has to pick the appropriate policies that produce a certain outcome in the economy.
- It is possible for a central bank to have instrument independence without goal independence, or to have goal independence without having instrument independence (although this is much rarer). For example, a group of countries that practice what is known as inflation targeting have instrument independence but not goal independence: they have a target inflation rate that is typically assigned to them by the government but they are allowed to pick the best policy choices to get them to the targeted rate of inflation.

- Economists believe that central banks should have instrument independence, not goal independence. The basic argument is that in a democratic country, the Federal Reserve should also be accountable to the people. Therefore, representatives of the people (i.e. politicians) should have some say in laying out the goals of policy, but enough freedom must be given to the central banker to allow for the attaining of those goals and also to ensure good long run performance of the economy.
- Any paper on central bank independence must answer two questions
 1. How do we measure CBI?
 2. What is the impact of CBI on macroeconomic performance?
- The Cukierman, Webb and Neyapti (CWN) paper presents a detailed description of how one might go about measuring CBI: CWN present three different measures of CBI: an index of legal independence, a measure of the rate of turnover of governors of central banks, and an index based on the answers to a questionnaire that CWN constructed and administered to monetary policy makers in a sub-sample of countries.
- CWN point out that this is often needed because an index that is only based on legal measures of CBI are flawed because they either are not implemented in the same manner as the laws appear in the books or because the written law is incomplete: they do not specify the exact nature of the institutional structure of the central bank.
- CWN develop a measure of CBI based on these different approaches for 72 countries. They then rank countries by the degree of CBI and examine the relationship between CBI and inflation outcomes in the economy.
- CWN find that legal measures of CBI are important determinants of low inflation in developed countries but not in developing countries. Conversely, low turnover of central bank governors turns out to be strongly correlated with low inflation in developing countries.

III. MEASURING CENTRAL BANK INDEPENDENCE

Legal Independence

- CWN measures of legal CBI follows two basic principles: they concentrate on the letter of the law and not the application of the law; second they looked at a few narrowly defined categories relating to the CEO of the bank, the formulation of policy, the goals of the central bank and the relationship between the central bank and the public sector, in particular the area of lending.
- CWN look at the answers to 16 questions. The 16 questions fall into 4 categories as follows:
 1. Questions about the Chief Executive Officer of the central bank (4)
 2. Questions about formulating monetary policy (3)
 3. Questions about the objectives of monetary policy (1)
 4. Questions about lending practices (8)
- The specific questions that fall into these 4 categories are

I . CEO [20% of index]

- a) How long is the term of office for the governor of the central bank?
- b) Does the government appoint the governor of the central bank?
- c) Does the government dismiss the governor of the central bank?
- d) Is the chairman allowed to hold other offices?

II FORMULATION OF POLICY [15% of index]

- a) Who formulates monetary policy decisions?
- b) Who has final authority over monetary policy decisions?
- c) Does the central bank play a major role in formulating the government budget?

III OBJECTIVES OF POLICY [15% of index]

- a) Is price stability an explicit mandate for monetary policy makers to achieve?

IV LENDING FROM CENTRAL BANK TO THE PUBLIC SECTOR [50% of index]

- a) Are their limits on advances from central bank to the government? [15% of index]
- b) Are their limits on lending from central bank to the government? [10% of index]
- c) How many agencies/people can borrow from the central bank? [10% of index]
- d) Who controls lending terms for loans? [5% of index]
- e) Is there a lending limit? [10 % for e) through h) combined]
- f) How long are the loans for?
- g) Are their restrictions on the interest rates that can be charged on loans?
- h) Is there a ban on buying/selling government bonds on the primary market?

- Each of the answers to these 16 questions is given a point value ranging from 0 to 1. For example, the answer to question 1 in the CEO category can be 1 (if the CEO serves > 8 year term), 0.75 (6-8 year term), 0.50 (5 year term), 0.25 (4 year term) or 0 (under 4 year term). Specific details for the other variables can be found in Table 1 of the CWN paper.
- The answers to these 16 variables are then aggregated at a couple of different levels. First, the 16 variables are converted into 8 variables as follows. First, the 4 CEO questions are averaged out to get a single variable. The three policy formulation variables are aggregated by taking a weighted average of the answers to the questions (0.5 for the final authority question and 0.25 for the other 2). The objectives question is taken as is. Finally, the public sector lending variables are collapsed into a group of 5 (the first 4 variables are treated as is, while the last 4 are collapsed into a single variable by taking the average).
- The second level of aggregation is then to collapse these 8 legal measures of CBI into a single legal measure. Basically the values for each category are multiplied by the weight for that category. The highest value for the CBI index is 1 (indicating a very independent central bank), while the lowest value is zero (indicating a very non-independent central bank).
- The ranking of countries according to legal CBI is presented in Table 2 of the paper. The highest rating is given to Germany (0.69) followed by Switzerland (0.64), Austria (0.61), Greece (0.55), Denmark (0.50) and Egypt (0.49). The lowest ratings are given to Poland (0.10), Morocco (0.14), Yugoslavia (0.17), Belgium (0.17) and Norway (0.17).

- Some of the results are very surprising and may be indicative of the problems of legal CBI. For example, Kenya (0.44) and Turkey (0.46) have central banks that are almost as independent as the U.S. (0.48). Similarly, Egypt's central bank seems to be more independent than the U.S. central bank is. This is very surprising to anyone who has any anecdotal evidence about the conduct of monetary policy in these countries.

Turnover

- Given the potential problems faced by CWN's measures of legal CBI, they turn to measuring the actual turnover rates for central bank governors in these countries. CWN cite the classic example of Argentina, where the legal term of office for the governor is 4 years but where the actual term of office is about 1 year because governors typically leave when the government or the minister of finance changes.
- Therefore an alternative to the legal measure of CBI would be to concentrate on actual frequency of change of governors of central banks. The prior belief about the relationship between the turnover of the governor of the central bank and central bank independence is a fairly complex one.
- For example, frequent turnover certainly seems to indicate a less independent central bank: either because the government is firing central bankers who do not accede to their will or because they get plenty of opportunities to find bankers who are willing to be sympathetic to the government.
- Furthermore, a shorter actual term of office will destroy the central bankers ability to have a longer horizon and make her less interested in acquiring a good reputation: both results that have deadly consequences for inflationary performance in the economy.
- However, the converse (a low turnover means a more independent central bank) does not always hold true. For example, if a government finds a relatively servile central banker it may want to keep him around for many years. It may even be possible that the central banker survive several changes of government if he is particularly dependent on the government for non-ideological reasons.
- CWN provide the actual turnover rates for governors of the central banks of different countries in table 3. The results are presented for the period 1950-80 as well as for 4 different sub periods within. The range is large: Iceland has a turnover rate of 0.034 indicating an average tenure rate of 29 years (average tenure is the reciprocal of the turnover rate). Argentina has the highest turnover rate of 0.93, indicating an average tenure of about 1 year.
- There is a clear difference between developed and developing countries: developing countries have much higher turnover rates on average. CWN also point out that the spread is much narrower among developed countries: indicating that tenure rates are similar. Therefore, CBI may not depend much on tenure in developed countries. However, for the developing countries, where some of the most puzzling indicators of legal CBI emerged, there is a much wider range of turnover figures indicating that actual turnover may be a more realistic indicator of CBI than the legal measures.
- For example, countries like Turkey have an average tenure of about 2.5 years vastly different from the value of 7.5 years in the United States even though the legal measures of CBI for the two countries seemed much closer.

Questionnaire

- The final measure of CBI is constructed using the results from a questionnaire administered by CWN to a selected group of monetary policy makers in 23 different countries. The questions are focused on the practice rather than the letter of the legal variables described earlier.
- Specific details of the questions are provided in Table 4. The answers to the questions are assigned a numerical score and tallied up in a fashion similar to the legal index. Details of the aggregation are also provided in Table 4.
- The actual ranking of countries according to the questionnaire index is provided in table 5. The values range from 1 for Germany (the most independent) to 0.14 for Ethiopia (the least independent). The questionnaire has many potential problems including the fact that there may be incentive for policy makers to exaggerate the level of independence they have, especially if the administering of the test is being done by World Bank researchers doing a study on central bank independence!

IV. IMPACT OF CBI ON MACROECONOMIC PERFORMANCE

- CWN provide some interesting evidence that shows that the correlation between the different measures is very low for the developing countries (i 6% for any given pair). This illustrates the major problem of examining the importance of CBI: different measures of CBI tend to give different answers as to how independent a particular central bank is.
- The regression results, shown in Tables 7 and 8, attempt to get at the relationship between CBI and economic performance. CWN use the depreciation rate of money, $\frac{\pi}{1+\pi}$, as a measure of inflation because it has a compressed range of values, allowing for easier comparison of high and low inflation countries.
- You can think of the depreciation rate of money as being a measure that is very similar to inflation: when inflation is zero, the depreciation rate is 0, as inflation increases, the depreciation rate of money increases. It is used because it has a compressed range of values, allowing for easier comparison of high and low inflation countries. For example, think of two countries one that has an inflation rate of 2% and another with an inflation rate of 100%. The depreciation rate of money for the two economies are 0.02 and 0.5, a much smaller range. Since large outliers can throw regression results off kilter this transformation is useful.
- The results in Table 8 are the most useful for our purposes. The results show that there is strong negative relationship between the legal CBI and inflation in developed countries and a strong positive relationship between turnover and inflation in developing countries. In other words, legal CBI matters little for developing countries, instead turnover is the more important indicator of inflation. These results are even more clearly evident in the graphs shown on figure 1 which show that different measures of CBI may be useful for developed and developing countries: a result that is fairly intuitive.
- CWN address some other issues in their paper as well. First they consider the possibility of there being “two-way causation” between inflation and CBI, i.e. countries with high inflation may gradually lose CBI because the government, which is often punished for bad economic performance exerts more influence on the central bank. Furthermore, public opposition to eroding the independence of the central bank may also diminish as macroeconomic performance worsens.

- CWN try to correct for the possibility of two-way correlation in a couple of ways: they use instrumental variables and show that the results are unchanged. However, they also run Granger Causality tests that show that there is a close link between these two variables greater independence seems to lead to lower inflation and lower inflation seems to lead to greater independence.
- CWN also run tests on the impact of CBI on the variability of inflation. The results of these tests are shown in Table 9 of the text. The results show that turnover is positively correlated with variability in developing countries and that the legal index is negatively correlated with inflation variability in the developed countries.