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Output-Inflation Tradeoffs and Central Bank Independence

Countries around the world—from the European Community to Mexico to New Zealand—have moved, or are moving, to restructure their central banking laws to increase the political independence of the authorities charged with the conduct of monetary policy. These actions are motivated in part by research results which suggest that a high degree of central bank independence has the potential to yield low average inflation with no detrimental effects on real activity. In particular, research generally concludes that, at least for the world's developed economies, greater central bank independence is associated with lower average inflation and lower inflation variability but not with differences in average GDP growth or its variability. The most common explanation for this finding is that independence allows a central bank to resist political pressure to engage in short-run expansionary policies that would tend to lead to higher average inflation. Others have argued that central bank independence does not cause low inflation directly, but that strong political constituencies favoring low inflation also tend to support central bank independence as one means of achieving their inflation objectives.

Recently, however, several researchers (Debelle and Fischer 1994, Walsh 1994) have suggested that central bank independence may *strengthen* the effects of monetary policy on real activity. In particular, evidence indicates that the real output loss associated with episodes of inflation reduction, that is, the output-inflation tradeoff, has been larger in countries with more independent central banks. And greater central bank independence appears to be associated with larger real effects of changes in nominal income growth. This implies that changes in monetary policy seem to have larger short-run effects on real output and employment in those countries that have more independent central banks.

These results present a puzzle. It is commonly argued that increased central bank independence is likely to lower the costs of disinflation by increasing the credibility of announced poli-

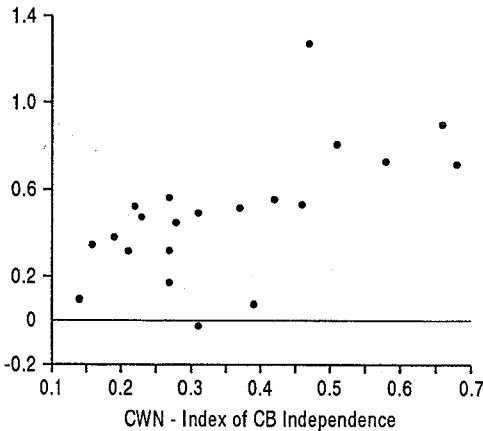
cies to reduce inflation. If a disinflationary policy announced by the central bank is believed, the resulting expectation of lower future inflation should quickly act to moderate wage and price increases, thereby contributing immediately to a reduction in inflation without requiring an economic slowdown and a rise in unemployment. If greater central bank independence is associated with greater credibility, one would expect that disinflations would be less costly in countries with more independent central banks. The puzzle is that we see the opposite. This *Weekly Letter* reviews the results on the relationship between the output-inflation tradeoff and central bank independence, and it discusses some possible solutions to this puzzle.

Tradeoff estimates

Figure 1 illustrates the relationship between the short-run output-inflation tradeoff and a measure of central bank independence for a sample of 21 industrialized countries (see Walsh 1994 for further details). The tradeoff is measured by the fraction of a change in nominal GDP growth that shows up in the short-run as a change in real GDP growth. A value of 0.5, for example, would mean that a policy designed to reduce nominal GDP growth by 4 percentage points would reduce real GDP growth by half of this, or 2 percentage points, in the first year. A large estimated value implies that changes in nominal GDP growth are associated with large real output effects in the short run. In the longer run, changes in nominal income growth caused by monetary policy show up fully in changes in the rate of inflation with no change in average real GDP growth.

The measure of central bank independence is from an index constructed by Cukierman, Webb, and Neyapti (1992; hereafter CWN). Their index, which is commonly used in these and related analyses, is based on extensive data concerning the legal characteristics of central banks for a large sample of developed and developing countries. The data categories range from information

Figure 1
Tradeoff vs. Central Bank Independence
1972–1990



on who appoints the central bank's CEO, term lengths for central bank governors, and the provisions for the CEO's dismissal, to information on the terms of government borrowing from the central bank.

Figure 1 shows that higher values of the tradeoff parameter are clearly associated with greater central bank independence; in statistical terms, the correlation for this sample is 0.62 (which is even higher than the 0.43 correlation reported in Walsh (1994) for 11 European Community countries). Parallel results are found if direct estimates of the output or unemployment costs associated with specific episodes of disinflation are used.

The positive association between the short-run tradeoff and central bank independence might suggest a causal relationship, that is, policies implemented by more independent central banks to reduce inflation—i.e., policies that lead to slower nominal income growth—will cause large reductions in real economic growth and make disinflation costly, while their expansionary policies will have larger real output effects initially, before they eventually led to higher rates of inflation. Thus, while greater central bank independence appears to be associated with greater costs of reducing inflation, it also appears to be associated with the ability to let the money supply expand temporarily without causing the public to fear a rise in future inflation.

Alternatively, this association between the central bank's political independence and the costs of disinflation may not be causal. Instead, it may simply reflect the fact that both central bank in-

dependence and the short-run output-inflation tradeoff are related to common determinants. So the next step is to explore this and other possibilities.

Central bank independence and nominal rigidity

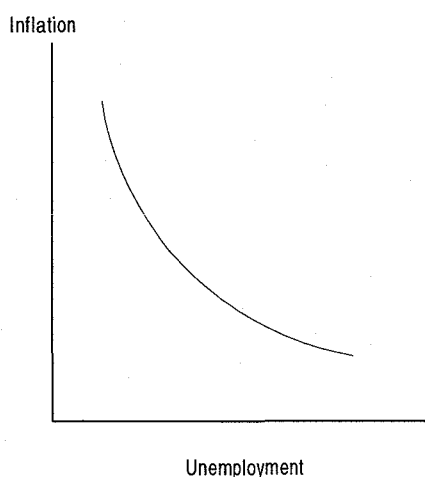
Most discussions of central bank independence have focused on the potential effect on expectations associated with the increased credibility for low inflation that might accompany independence—that is, on the speed with which inflation expectations adjust. In this discussion, however, we will focus on another determinant of the short-run output-inflation tradeoff, namely, the factors determining the slope of the tradeoff for given expectations about inflation—the slope of the short-run Phillips Curve (see Figure 2).

The slope of the short-run Phillips Curve depends on the nature of nominal wage and price rigidities in the economy, and two channels through which the central bank's behavior, and its degree of political independence, might influence the slope of the Phillips Curve suggest themselves. First, New Keynesian models suggest the slope will depend on the average level of inflation. Higher average inflation increases the frequency of price changes, thereby reducing nominal rigidity and producing a steeper Phillips Curve (i.e., changes in nominal growth translate more quickly into inflation and have smaller real output effects). Since independent central banks seem to deliver lower average inflation, central bank independence should be associated with flatter short-run Phillips Curves. Under this hypothesis, it is low average inflation that affects the tradeoff, not central bank independence directly.

Second, the structure of nominal wage contracts will depend on the relative importance of nominal and real economic disturbances. A reduction in nominal variability, as might be associated with increased central bank independence, reduces the need for wage indexation and simultaneously lowers the costs of long-term nominal contracting. If independent central banks tend to generate a more stable economic environment that produces longer nominal wage contracts or less indexation, then the degree of nominal rigidity in the economy will rise. This flattens the short-run Phillips Curve. That is, the nature of contracts may be affected by the conduct of monetary policy.

One way to examine if these hypotheses can account for the evidence is to see whether the index of central bank independence is still associated with the tradeoff estimates once any association with average inflation and inflation volatility is removed. If central bank independence is associated with the tradeoff only through

Figure 2
Phillips Curve



its effect on average inflation or its volatility, removing the effects of these should also remove any association with central bank independence.

When the association with each country's average level of inflation is removed, the correlation with CWN does decline, but only from 0.61 to 0.56. So it is not just through average inflation that central bank independence is associated with the output-inflation tradeoff. For example, countries such as Belgium and Japan, which have dependent central banks but relatively low average inflation, should have large estimated tradeoff parameters if it is just average inflation that matters; they don't.

The association with inflation volatility can also be removed, but CWN continues to be correlated with the part of the tradeoff parameter not explained by inflation variability. Again, central bank independence does not seem to be affecting the tradeoff solely by affecting inflation volatility. When the tradeoff measure's association with both average inflation and inflation volatility is removed, the correlation with CWN is reduced further, but it is still positive (0.41).

The general conclusion is that central bank independence is associated with cross-country variations in the short-run output-inflation tradeoff, even after controlling for average inflation and its variability.

Implications

As with the evidence on the negative correlations between central bank independence and average rates of inflation, the empirical results reported here cast little direct light on the important issue of causality. Does the establishment of central bank independence lead to labor market structures that make reducing inflation more costly and monetary expansions more potent? Or are countries where monetary policy has large real effects more likely to establish independent central banks so that monetary policy is less likely to be exploited for short-term partisan political gain? Flat Phillips Curves make disinflations more costly, but they also raise the temptation to engage in expansionary policies, a factor that tends to boost the inflationary bias of discretionary policy. But these factors might increase the value of an independent central bank that maintains a low average rate of inflation.

If central bank independence plays a causal role in actually affecting the tradeoff, then the findings described here can also be interpreted as revealing an additional benefit of an independent central bank that maintains low average inflation. With monetary policy a more potent tool for affecting economic activity in the short run, an independent central bank is better able to affect the real economy should a recession threaten to become serious.

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