

Revisiting the Case for a Populist Central Banker: A Comment*

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1. Introduction

Francesco Lippi (2000) has insightfully discovered a mistake in the analysis of our earlier paper. Correcting that mistake adds complexity and richness to the analysis, and qualifies some of our results. It does not, however, invalidate the general thrust of the analysis.

In Guzzo and Velasco (1999) we argued that, if wage setters are non-atomistic and they dislike inflation, several tenets of the conventional wisdom on the benefits of “conservative” central bankers need not hold. In particular, we showed that:

a) A more conservative central bank (CB) can yield lower employment and output in equilibrium.

b) Inflation can be hump-shaped in the degree of *central bank conservativeness* (CBC), with intermediate CBC yielding the highest levels of inflation.

c) A populist central banker who does not care at all about inflation can maximize the welfare of the representative worker by delivering low inflation and a first-best level of output.

All three results can still hold in the amended model, though in more qualified form. The first one holds if a simple and intuitive condition regarding the elasticity of a single union’s labor demand with respect to aggregate real wages is satisfied.

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And, in a result not present in our previous paper, it can hold even if workers and unions do not care about inflation. The reason is that the degree of CBC now matters for the elasticity of labor demand, which was not the case in our earlier analysis.

The second result can also hold in some cases, but not others. We show below that inflation is likely to be hump-shaped in CBC whenever there are few unions whose workers care strongly about the costs of inflation.

The main change has to do with the third result. While in our earlier paper the populist central banker always delivered the highest welfare levels, that result only holds in unconditional form in the case of a monopoly union. If there are several unions, a populist central banker can still be preferred, but only for certain parameter constellations. For others, low, medium or high CBC can be best.

Since Lippi (2000) only analyzes the limiting case of a maximally populist CB, we begin below by providing a more general analysis of the amended model. As we go along we show under what conditions the results of interest hold. For the sake of brevity and concreteness, we focus only (as does Lippi) on the effects of varying the degree of CBC. The interested reader can compute easily the effects of varying the number of unions holding CBC constant.

2. New Equilibrium Conditions

The following are the key building blocks in the equilibrium to the game among the CB and the n unions in this economy. The notation is the same as in Guzzo and Velasco (1999) and Lippi (2000). In symmetric equilibrium, the elasticity of labor demand with respect to the real wage of all workers i in union j , holding the nominal wages of all workers not in j constant, is

$$\psi \equiv \sigma - \left[\frac{\sigma(1-\alpha) - 1}{(1-\alpha)} \right] \left(\frac{(1-\alpha)^2 \beta_g}{(1-\alpha)^2 \beta_g + \gamma(n-1)} \right) \quad (2.1)$$

Notice that ψ , the absolute value of this elasticity, is a function of β_g , the weight the CB places on inflation in its objective function. This was not the case in our earlier paper, and is the main change arising from Lippi's amendment of our analysis. Note that ψ is decreasing in β_g whenever $\sigma(1-\alpha) < 1$, and vice-versa.¹

¹The paper shows that the term $\frac{\sigma(1-\alpha)-1}{1-\alpha}$ determines whether individual labor demand (for, say, a worker i in union j) is decreasing or increasing in the aggregate real wage. If $\sigma(1-\alpha) < 1$

The equilibrium level of output for the representative worker and for the economy as a whole is

$$\log Y = \left(\frac{\alpha^2}{\gamma} \right) \phi \quad (2.2)$$

where $0 < \phi \equiv 1 - \frac{(1-s)(1-\alpha)\beta_g}{\psi(1-s)(1-\alpha)\beta_g + s\beta_p} \leq 1$. The coefficient $s \in [0, 1]$ (as in Lippi) is the elasticity of inflation with respect to the nominal wage of one union, holding the nominal wages of other unions constant, and is itself decreasing in β_g .

Notice that ϕ is increasing in ψ : the larger the absolute value of the elasticity of labor demand, the less market power unions have, so that output is naturally also increasing in ψ . Notice also that even if $\beta_p = 0$, ϕ and hence Y depend on β_g via s . That is, CBC matters for output even if unions do not care about inflation. This was not so in our paper.

Inflation is

$$\pi = \left(\frac{\alpha}{1-\alpha} \right) \left(\frac{1-\phi}{\beta_g} \right) \quad (2.3)$$

The welfare level for the representative worker is

$$U_i = \left(\frac{1}{2} \right) \left(\frac{\alpha^2}{\gamma} \right) \left[\phi(2-\phi) - \frac{\beta_p \gamma (1-\phi)^2}{(1-\alpha)^2 \beta_g^2} \right] \quad (2.4)$$

which, for a given β_p and β_g , is maximized at $\phi = 1$.

3. Comparative Statics

Notice the crucial parameter ϕ depends on β_g both directly and through the elasticity ψ . It is useful to re-write ϕ as

$$\phi \equiv \frac{(\psi-1)(1-s)(1-\alpha)\beta_g + s\beta_p}{\psi(1-s)(1-\alpha)\beta_g + s\beta_p} \quad (3.1)$$

so that, holding ψ constant, one can readily see that ϕ is decreasing in β_g , so that a more conservative CB, *ceteris paribus*, reduces employment and output.

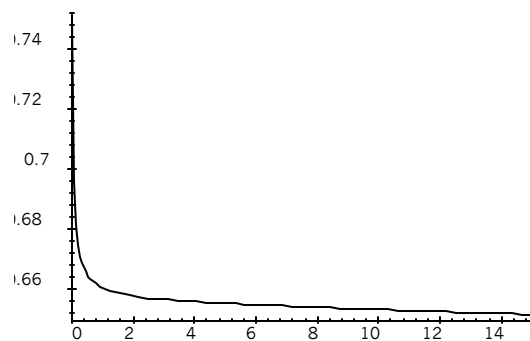
and therefore the absolute value of the elasticity of labor demand is decreasing in β_g , a less elastic labor demand schedule causes monopoly unions to act more aggressively, with the result that output is lower. The opposite occurs when $\sigma(1-\alpha) > 1$, so that the elasticity of labor demand is increasing in β_g .

The intuition for this effect is as follows. The less conservative is the CB, the more it inflates for every level of employment and output. Monopoly unions understand that their actions have an impact on the aggregate real wage, and hence on other aggregate real values. If they care about inflation this will lead them to moderate their wage-setting behavior, for the more aggressively they behave the lower will be employment, and hence the higher will inflation be. And, of course, this moderating mechanism is more powerful the less conservative the monetary authority is.

A full comparative statics analysis must take into account this and the other effect (through the elasticity ψ) of CBC on inflation and output. Rather than attempt a full analytic treatment we rely on simulations to make a few simple points. For that we use a benchmark case of $n = 10$, $\alpha = 0.75$ and $\gamma = \beta_p = 1$.

3.1. CBC and Output

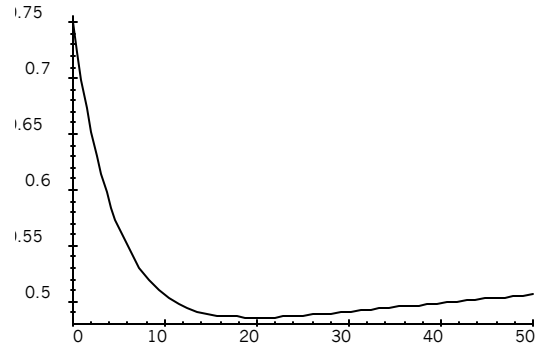
Start with the relationship between CBC and employment and output. The simple case is that in which $\sigma(1 - \alpha) > 1$, so that ψ is decreasing in β_g , and therefore ϕ (and employment and output) is clearly also decreasing in CBC. The fall is particularly sharp if β_p is small. If $\sigma = 8$, for instance, we have



Log employment and CBC: high σ , low β_p .

If, on the other hand, $\sigma(1 - \alpha) < 1$, so that ψ is increasing in β_g , it can still be the case that ϕ is decreasing in β_g (at least for a range) so that in that range output and employment fall as the CB becomes more conservative. In this case we can have a *u*-shaped relationship between employment and CBC. The positive effect of greater CBC on labor market competition only prevails at high levels of β_g . The effect of changes in β_p is basically to shift the minimum point, with

more inflation-averse unions having the effect of shifting the u to the right. For instance, if $\sigma = 2$, $\beta_p = 10$ and $n = 4$ we have:

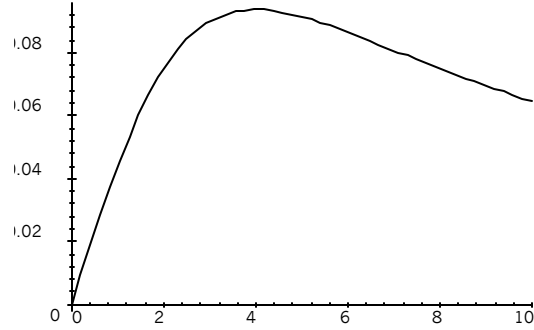


Log employment and CBC: low σ , high β_p

3.2. CBC and Inflation

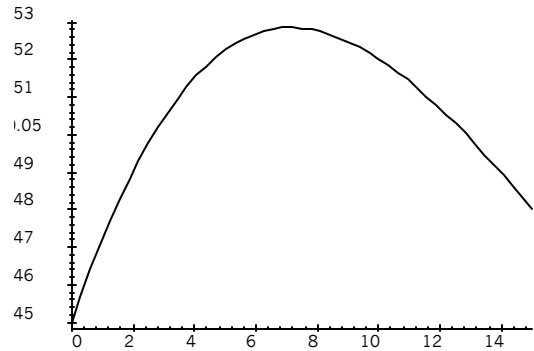
The relationship between inflation and β_g is also more complex. Clearly, the direct effect is still there, with a higher β_g meaning that the CB inflates less for every level of employment and output. But the indirect effect operates in a more powerful way, since (if $\sigma(1 - \alpha) > 1$) there can now be two mechanisms through which a more populist CB can raise employment and output, tending in turn to lower inflation. The number n of unions also matters, for with a large n unions tend to internalize a smaller portion of the inflationary consequences of their actions.

An interesting case is that of the monopoly union. As Lippi (2000) points out, in this case inflation is zero when the CB is perfectly populist ($\beta_g = 0$), for in that case output is at its first best level regardless of what nominal wages the unions sets, and the union understands it gains nothing from engaging in inflationary wage settlements. What Lippi (2000) does not show is that in this case inflation is hump-shaped in CBC, as we had argued in our previous paper. The following is for the case of $\sigma = 8$ and $\beta_p = 1$:



Inflation and CBC: monopoly union

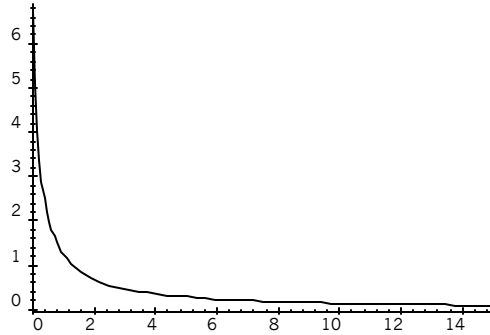
But the case of the monopoly union is not anomalous. A hump-shaped relationship between inflation and CBC can also happen for $n > 1$, but not too large. It helps also if σ is small, so that so that ψ is increasing in CBC, and β_p is large, so that inflation aversion by unions does play a significant role. We know from the above simulations that with a small σ output falls sharply as CBC increases from a low level, but then increases starting at a given level of CBC. This means that for low β_g the indirect effect will tend to push inflation up as CBC increases, but then this relationship will be reversed for high β_g . The direct effect, of course, still has CBC and inflation moving inversely with each other. The net effect can be a hump-shaped relationship between inflation and CBC. The following is for $n = 4$, $\beta_p = 50$ and $\sigma = 2$:



Inflation and CBC: low n , high β_p

The final possibility is for inflation to be monotonically decreasing in CBC. Such a case will arise if n is larger and if β_p is small, so that inflation aversion

on the part of unions does not play a role. The following is for $\sigma = 8$ and $\beta_p = 1$. The setting of σ does not make any difference for the qualitative features of the plot, so we have kept it at $\sigma = 2$.

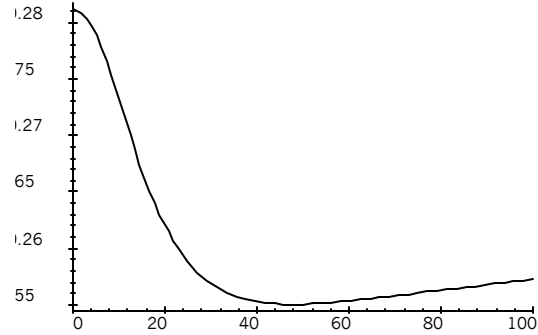


Inflation and CBC: high n , low β_g

3.3. CBC and Welfare

Turn finally to the relationship between welfare and CBC. As Lippi (2000) points out, the strong result that a maximally populist CB maximizes welfare by delivering first-best employment and output levels, plus zero inflation, holds unconditionally (for any parameter values) only for the single-union case ($n = 1$). In this case welfare is u -shaped in CBC, with welfare converging to a constant as β_g goes to infinity.

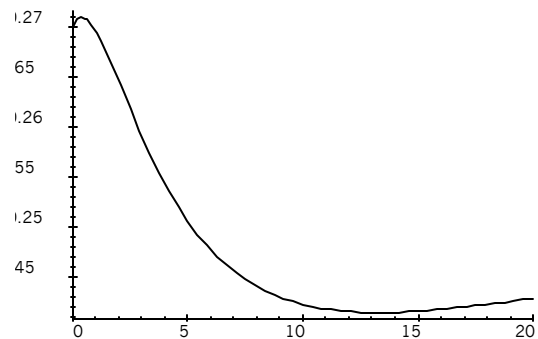
For $n > 1$ matters are more complicated. But the result that welfare is maximized when $\beta_g = 0$ can still hold. For that to be the case it is key that unions be quite inflation averse. The following is for the same parameters as in the previous example, except that now $n = 4$ and $\beta_p = 10$:



Welfare and CBC: High β_p

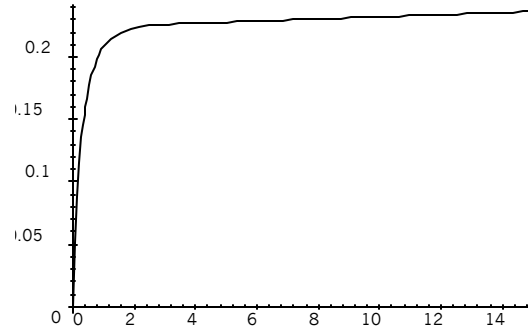
Notice that the requirement that β_p be high in order for $\beta_g = 0$ to be welfare-maximizing might seem counter-intuitive, but upon further reflection it is not: the high cost of inflation causes unions not to be aggressive in wage-setting, which in turn causes output and employment to be high and inflation to be low in equilibrium.

As one reduces β_p holding the other parameters constant, it is possible to find two other configurations. The first is one in which the relationship between CBC and welfare is now *s*-shaped, with welfare being maximized for a β_g that is low but strictly larger than zero. The following is for $n = 4$ and $\beta_g = 5$:



Welfare and CBC: Intermediate β_p

The second is the one that captures the conventional wisdom: a conservative central banker maximizes social welfare. In this case welfare is monotonically increasing in β_g . The following is for $n = 4$ and $\beta_p = 1$:



CBC and Welfare: Low β_p

4. Conclusions

In our earlier paper (Guzzo and Velasco, 1999) we hoped to show that introducing monopoly unions into the standard monetary policy game can have unexpected consequences. In particular, we hoped to show that the conventional wisdom –that a conservative central banker delivers low inflation while leaving employment and output unchanged, and therefore is best for welfare– need no longer hold. In proving our results we failed to include one aspect of the wage-setting game. Lippi (2000) has corrected that mistake, and in doing so has rendered this previous framework richer. The elasticity of labor demand with respect to the real wage is now dependent on the degree of CBC. One consequence of the amendment introduced by Lippi is that the model can now deliver a broader set of results, including interesting implications on the non-neutrality of monetary policy even in the case in which workers are indifferent to inflation. Another consequence is that some of our earlier results may now only hold under specific parameter configurations. But the basic thrust of the argument still stands: if wage setters are non-atomistic, then mechanically advocating a very conservative CB no longer makes sense. Depending on parameter values, central banks with different preferences, including a maximally populist CB, can be best for welfare.