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By J. Bradford De Long and Lawrence H. Summers*

Stephen King's comment on our papers (Bradford De Long and Lawrence Summers, 1986a, b) challenges our conclusion that over the range which is empirically relevant for economies like that of the United States, increases in price flexibility are likely to be destabilizing. He raises two main issues. First, King alleges that our results are highly sensitive to the particular modeling strategy we employed in considering changes in the degree of wage and price flexibility. Second, King argues that sufficiently prudent monetary policies could vitiate our results: increased wage and price flexibility would be stabilizing in the presence of "optimal" monetary policies. We treat these points in turn. Neither leads us to modify our views on the issues at hand.

I. Modeling Wage and Price Rigidity

In De Long and Summers (1986a) we explored the effects on economic stability of changes in the degree of wage flexibility within the context of John Taylor's (1979) model of overlapping contracts.[1] We reached similar conclusions—that increases in price flexibility could be destabilizing—regardless of whether we modeled decreased price stickiness by reduced contract lengths, increased sensitivity of wages to changes in output, or reduced amount of calendar time represented by a single period in the model. Nonetheless, King claims that our major result regarding the destabilizing effects of increased price flexibility is "not robust to... an alternative formulation of price stickiness."

King's preferred alternative formulation postulates that the economy is comprised of a contract sector, in which a fraction θ of all workers are located, and a "spot-market" sector, in which the remaining fraction of workers are located. In the spot-market sector nominal wages are proportional to the aggregate price level and depend positively on contemporaneous total output. King does not describe how the "spot" and "contract" sectors coexist. If an economy did contain a true spot market for labor, employment fluctuations could not be observed—workers laid off in the contract sector would simply present themselves in the spot-market sector's marketplace. Alternatively, it might be assumed that labor is immobile between the spot and contract sectors. In this case employment fluctuations are possible, but wages in the spot-market sector would not depend on *total* output.

There is a more profound difficulty with King's approach. In his spot sector wages are not predetermined over any time period, no matter how short. Wages move discontinuously and unexpectedly, and so they can adjust without ever causing any change in *ex ante* real interest rates. The channel through which price flexibility might be destabilizing—the impact of anticipated price changes on real interest rates—is simply assumed away. Bennett McCallum (1983) has already made the point that destabilizing inflation simply cannot occur if one ignores the process of price adjustment and simply postulates instantaneous market clearing. It is only a small leap to King's conclusion that increasing the share of the economy in which the problem of price adjustment is assumed away makes the economy more stable in the face of shocks.

To see that King's conclusions depend not on the reduction in the number of multiperiod contracts but on the removal by as-

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[1] We would have reached very similar qualitative conclusions had we chosen Fischer or Calvo's overlapping contracts model. See De Long (1987b) and Binky Chadha (1987).

TABLE 1—BLOCK IV OF KING'S TABLE 2 WITH (4′) IN PLACE OF (4)

	$A = 2.0$, $k = 2.5$			
	θ			
	1.0	0.9	0.8	0.7
$g = 0.2$:	103	106	109	113
0.4:	113	117	121	126
0.6:	119	124	129	134
0.8:	124	129	135	141
1.0:	128	134	140	146

TABLE 2—KING'S TABLE 2, BLOCK I, MINUS KING'S TABLE 4, BLOCK III

	$A = 1.0$, $k = 20.0$			
	θ			
	1.0	0.9	0.8	0.7
$g = 0.2$:	23.4	24.2	24.7	25.2
0.4:	27.1	27.5	27.5	27.0
0.6:	29.8	29.6	28.5	26.7
0.8:	31.9	30.9	28.7	25.7
1.0:	33.7	31.5	28.2	24.3

sumption of the process of price adjustment as a potential disturbing factor, consider a variant of King's model in which instantaneous price-level jumps are not allowed. Replace King's equation (4) with the following (4′)

$$(4') \qquad W_t^s = E_{t-1}(p_t + g(y_t)).$$

This equation holds that the nominal wage is predetermined with respect to contemporaneous disturbances in the economy. It corresponds to the treatment of wage and price setting that is standard in Keynesian textbooks (for example, Frederic Mishkin, 1986, or Robert Hall and John Taylor, 1986) and which was employed by Thomas Sargent and Neil Wallace (1975) in their analysis of the effects of monetary policy.

Table 1 reports the results of redoing the calculations in King's Table 2 that were least favorable to our conclusions using equation (4′) rather than his (4). Increases both in the sensitivity of prices to output and in the spot-market sector's share of the economy are destabilizing.

There is a logically distinct point supporting our conclusion that price flexibility is likely to be destabilizing. We focused on the possibility that price flexibility could be destabilizing through its effect on real interest rates. An equally plausible line of argument suggests that price flexibility is destabilizing because of the financial strains it creates. Ben Bernanke (1983) makes a persuasive case that past unexpected price-level declines have an important effect on demand because of their impact on the solvency of the banking sector. If this debt-deflation channel is important in addition to or in place of the *ex ante* real interest rate, then King's major point is without force.

II. Monetary Policy

King makes the well-known point that properly set monetary policy can eliminate anticipated business fluctuations and leave only uncorrelated and unanticipated deviations of output from trend. In such an environment in which demand fluctuations never cause persistent output movements, King is correct that price flexibility would be stabilizing in our models if monetary policy were optimal. But in the real world demand fluctuations do cause persistent output fluctuations. King's appeal to an optimal monetary policy thus appears to be of little relevance in practice. Serially correlated fluctuations in output and employment are a ubiquitous feature of historical experience.

An interesting facet of King's analysis is that it implicitly suggests that flexible monetary policy and flexible wages might be complements. Flexible monetary policy is usually thought of as an alternative to flexible prices: if prices were more flexible, monetary policy could be more rigid. But in King's analysis increased price flexibility can make it more, not less important that monetary authorities take action to stabilize real demand.

This can be seen by examining our Table 2, which simply subtracts block III of King's Table 4 from block I of King's Table 2. This difference is a measure of the amount by which business cycle variance is reduced as a result of a move from an inappropriate to an optimal monetary policy rule. Over a range, as θ increases the effect on business cycle size of the shift to proper monetary policy

increases. Increasing price flexibility raises the importance of aggregate demand management. If prices are more flexible, then the macroeconomic losses from relying not on nominal money stock but on price-level changes to stabilize the real money stock can be amplified: price-level changes affect the real interest rate, while nominal money stock changes do not.

III. Observations

It is clear that models can be constructed in which increases in price flexibility are destabilizing. At this point, the interesting issues are empirical. A variety of considerations suggest to us that destabilizing price flexibility is more than just a theoretical possibility.

First, the post-World War II period has seen fewer violent economic fluctuations and less "Walrasian" labor and product markets than did the pre-World War II period. As our (1986a) paper demonstrates, stabilization cannot be easily traced either to the effective use of countercyclical fiscal policy or to a lower variance of surprise changes in the money stock.[2]

Second, countries (like those in Latin America) where prices and wages are extremely flexible—where high inflation should have ironed all nominal rigidities out of the economy—appear experience business cycles just as volatile as other countries. Lawrence Summers and Sushil Wadhwani (in preparation) find no noticeable relation between the magnitude of a nation's business cycle and various measures of the extent of nominal wage rigidity even after controlling for the variance of nominal shocks and for a variety of other factors. It is noteworthy that in the post-World War II period Japan has had output fluctuations about trend much more volatile than the United States despite Japan's high degree of wage flexibility. De Long's (1987a) comparison of the French and British returns to gold in the 1920s suggests a similar conclusion. Although France had more flexible prices, it suffered a sharper recession as a consequence of the monetary austerity associated with returning to gold.

Third, the experience of the Great Depression suggests that halting deflation was a prerequisite for, not a consequence of the beginning of recovery. (Recovery began after, not before, the announcement of the NRA —a broad-based program to halt the decline in the general-price level.) In an accounting sense *all* of the Great Depression was due to a collapse in monetary velocity that cannot implausibly be traced to deflation: recall that real broad money balances (M2) did not decline between 1929 and 1932.

Fourth, our own attempts (1986b) to use var systems found that price shocks are positively associated with future output movements in systems with more than two variables.[3] The fact that decreases in prices Granger cause decreases in output fits naturally with the view that deflation is a cause as well as a consequence of deficient real aggregate demand.

This set of empirical considerations is hardly conclusive. On the other hand, despite its status as conventional wisdom, we are aware of no empirical demonstrations that greater price flexibility is associated with reduced output variability. At this point, it seems fair to shift the burden of proof to those who continue to regard this proposition as self-evident.

[2] Christina Romer's (1986) revisions of pre-World War II output data cannot be used to challenge the conclusion that, taken as a whole, the pre-World War II period saw larger business cycles than the post-World War II period has seen. Claims that there has been no stabilization of the U.S. economy assume that the Great Depression—the largest single piece of evidence that the pre-World War II economy was unstable—was a freak event that carries no information about the properties of the underlying structure generating business cycles before World War II.

[3] Similar results were found by Charles Calomiris and Glenn Hubbard (1985).

REFERENCES

Bernanke, Benjamin, "Nonmonetary Influences of the Financial Crisis in the Propagation of the Great Depression," *American Economic Review*, March 1983, *73*, 257–76.

Calomiris, Charles and Hubbard, R. Glenn, "Price Adjustment, Credit Availability, and Economic Fluctuations: Evidence from the United States, 1879–1914," NBER Working Paper No. 1757, March 1985.

Chadha, Binky, "Is Increased Price Inflexibility Stabilizing? Some Analytical Results," New York: Columbia University, Xerox, 1987.

De Long, J. Bradford, "Returning to Gold in the 1920s," unpublished doctoral dissertation, Harvard University, Cambridge, 1987a.

_____, "Drawbacks of Aggregate Price Flexibility," Cambridge: Harvard University, Xerox, 1987b.

_____, **and Summers, Lawrence H.,** "Is Increased Price Flexibility Stabilizing?," *American Economic Review*, December 1986a, *76*, 1031–44.

_____, **and Summers, Lawrence H.,** "The Changing Variability of Economic Activity in the United States," in Robert J. Gordon, ed., *The American Business Cycle*, Chicago: University of Chicago Press, 1986b.

Hall, Robert and Taylor, John, *Macroeconomics*, New York: W. W. Norton, 1986.

McCallum, Bennett, "The Liquidity Trap and the Pigou Effect," *Economica*, November 1983, *50*, 395–405.

Mishkin, Frederic, *The Economics of Money, Banking, and Financial Markets*, Boston: Little, Brown, 1986.

Romer, Christina, "New Estimates of Gross National Product in the United States," Cambridge: NBER Xerox, 1986.

Sargent, Thomas and Wallace, Neil, "'Rational' Expectations, the Optimal Monetary Instrument, and the Optimal Money Supply Rule," *Journal of Political Economy*, April 1975, *83*, 241–54.

Summers, Lawrence H. and Wadhwani, Sushil, "Wage Rigidity and Cyclical Variability," in preparation.

Taylor, John, "Staggered Wage Setting in a Macro Model," *American Economic Review Proceedings*, May 1979, *69*, 108–113.

Wadhwani, Sushil, "The Macroeconomic Implications of Profit Sharing," *Economic Journal*, 1986 Annual Supplement, *97S*, 171–83.