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COMMENTS

'International Adjustment with Wage Rigidity' by Branson and Rotemberg

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In '*International Adjustment with Wage Rigidity*', William Branson and Julio Rotemberg turn our attention to the recent trans-oceanic debate over macroeconomic policy. Since 1974, when the industrialized countries entered the 'Great Recession', the U.S. has been urging expansionary monetary and fiscal policy in Japan and the European countries. Most of these countries have been adamant in rejecting the U.S. advice. The different countries' choices reflect more than different tastes for inflation and unemployment in the short run. Branson and Rotemberg share the view of Giersch (1979) and Bruno and Sachs (1979) that the U.S. has chosen expansionary policy because it works in the U.S., while the same policy is likely to cause inflation and little else in the other economies.[1]

As in the earlier papers, Branson and Rotemberg point to the labor market as the source of this difference. In countries with nominal-wage rigidity, expansionary policy can reduce the real wage and thus increase aggregate supply; in rigid real-wage countries, *ipso facto*, it cannot. Their empirical work is devoted to finding which countries are in which category. In all their regressions, the U.S. comes through as a rigid nominal-wage economy.

The spirit of their approach is just right. Their focus on excessive real wages after 1973 is appropriate. I concur in the view that industrialized economies behave differently, and that economists must continue to sort out those differences. However, I suspect that Branson and Rotemberg's empirical work needs more sorting out itself. While they ask the broad questions correctly, they do not specify the narrow empirical questions with

[1] In Bruno and Sachs (1979, p. 45) we wrote: 'We suspect that much of the difference in the macro-economic policy recommendations of American and European economists stems from the difference in the behavior of their respective economies reflected in γ. [a parameter of nominal-wage rigidity]. In the United States monetary policy *is* effective, while in most European economies, monetary policy probably operates chiefly on prices and not on output.'

sufficient care. And when they try to answer the empirical questions, their results are diminished by econometric difficulties.

The theoretical model in the paper traces out the role of real wages in aggregate supply, along familiar lines. The empirical work seeks to answer two key questions about wage setting. The first is whether real-wage growth can vary fast enough to keep the wage approximately equal to the marginal product of labor at full employment. The second is whether expansionary policy, by raising the price level, can reduce the real wage and expand aggregate output.

On the first question, the authors do not attempt to compare wage movements directly with marginal labor productivity. Rather, they test whether the adjustment of real wages to a target level is rapid, and whether the target itself is a function of aggregate demand. They conclude that real-wage adjustment in Europe and Japan is sluggish, and that the target does *not* depend on aggregate output. In sum, they find that real-wage growth since 1971 is fairly constant. Their findings, I think, are hindered by problems in the empirical work, to which I return. A glance at the data should be enough to dissuade us from their simple rigid real-wage model. In table 1, I show the growth rates of real hourly compensation and real hourly earnings for the seven large industrial countries. The striking aspect of the table for Europe and Japan is not the fixity of real-wage growth, but the opposite. A real-wage explosion hits Europe and Japan during 1969–73, while during the recent recession, real-wage growth falls sharply. In every country outside of North America, high unemployment severely curtails the rise in real hourly compensation after 1975.

Table 1

Annual growth rates of real hourly compensation and real hourly earnings in manufacturing, 1962–78.[a]

	Real hourly compensation				Real hourly earnings			
Country	1962–69	1969–73	1973–75	1975–1977	1962–69	1969–73	1973–75	1975–77
Canada	2.9	3.4	3.8	4.3	2.6	3.6	3.4	4.2
France	4.2	5.9	6.4	4.9	4.1	5.4	4.4	4.8
Germany	5.1	7.9	7.2	4.1	4.8	5.3	3.2	2.8
Italy	6.2	11.7	7.4	2.1	4.4	11.2	5.1	6.4
Japan	7.6	9.8	8.2	0.0	8.0	10.1	4.3	0.3
U.K.	2.9	4.3	6.0	1.8	3.1	5.0	2.8	3.1
U.S.	1.9	1.5	0.8	2.2	1.4	1.4	1.2	2.1

[a]*Source:* Nominal hourly compensation and hourly earnings from U.S. Department of Labor, Bureau of Labor Statistics, Office of Productivity and Technology, 'Estimated Hourly Compensation of Production Workers in Manufacturing, Ten Countries, 1960, 1965–1978', and other publications of the Office of Productivity and Technology. The consumer price index is from the IFS.

The deceleration in real wages does not vitiate the concern over excessive wage levels, but only the simple test of wage rigidity in the paper. In fact, real-wage growth did not drop fast enough after 1973 to match the slower growth of the full-employment marginal product of labor. Almost all of the industrialized countries faced a severe drop in total productivity growth and an adverse terms-of-trade shift after 1973.[2] These disturbances have required a slowdown in real hourly compensation growth of at least one to two percentage points a year since 1973. In fact, the slowdown in compensation only came with a long lag. Consequently the cyclically adjusted share of labor compensation rose almost everywhere following the oil shock, and profits were squeezed, with the implications for aggregate supply and employment that Branson and Rotemberg describe. In table 2, I show the share of labor compensation. In France, Germany, Japan and the United Kingdom, labor's share rises markedly during 1973–76.

Table 2

Share of labor compensation in manufacturing value-added, cyclically adjusted.[a]

	1962–64	1965–69	1970–73	1974	1975	1976	1977	1978
Canada	0.65	0.68	0.69	0.68	0.66	0.69	n.a.	n.a.
France	0.53	0.52	0.51	0.54	0.53	0.53	0.53	0.52
Germany	0.64	0.62	0.66	0.71	0.72	0.73	0.74	n.a.
Italy	0.64	0.65	0.73	0.73	0.73	0.70	0.68	0.65
Japan	0.52	0.50	0.54	0.58	0.52	0.55	0.58	0.60
U.K.	0.69	0.72	0.75	0.86	0.82	0.80	0.75	n.a.
U.S.	0.77	0.78	0.80	0.81	0.81	0.80	0.80	0.81

[a]*Source*: The share of labor compensation is calculated as the ratio of employee compensation to gross domestic product originating in manufacturing, measured at factor cost. An adjustment is made by multiplying the share by the ratio of output per manhour to potential output per manhour, calculated by Artus (1977), and updated by the IMF. The underlying compensation and GDP data are from the U.S. Bureau of Labor Statistics, Office of Productivity and Technology.

Branson and Rotemberg correctly ask what the role of policy might be in the face of excessive real wages, the second issue raised above. Their model suggests that nominal-wage stickiness gives scope for policy. Again, their empirical specification does not face the question at hand. In their 'static' model (section 4), they test the long-run neutrality of the real wage with respect to the price level; in the dynamic case, it is the neutrality of the real wage with respect to the inflation rate. In both cases, nominal-wage stickiness is made synonymous with a long-run Phillips curve trade-off. But surely the issue of nominal-wage rigidity is a matter of short-run stickiness in

[2]Artus (1975) has estimated a decline in total factor productivity of 2.6% for the large industrial economies. For alternative estimates of the productivity decline, and measures of the terms-of-trade shift, see Sachs (1979).

nominal-wage change, perhaps due to long-term contracts, rather than a proposition about the long-term determination of the real-wage level. Because the Branson Rotemberg tests of wage sluggishness do not allow for short-run rigidities and long-run inflation neutrality, their conclusions should not be directly compared to the results in Bruno and Sachs (1979).[3]

Why do Branson and Rotemberg find so little effect of demand on real wages in the 1971–78 period, even though high unemployment led to a clear real-wage deceleration after 1975? The answer is not clear, though is probably related to the econometric procedures. First, the authors use GNP (with a time trend) to proxy for labor market activity. This is unwarranted. During a period of stable productivity growth, Okun's law allows us to translate unemployment to GNP, but during a period of declining productivity growth, the GNP variable will indicate looser labor markets than indeed exist.

More importantly, the estimation is subject to biases. How do we know that the regression of wages on output identifies a labor-supply schedule, with a positive coefficient on output, rather than an output-supply schedule, with a negative coefficient? Presumably, the answer is the instrumental variables procedure. But the choice of instruments is suspect. In the first stage of estimation, quarterly GNP data is fit with *thirteen* instruments, including four lags of GNP. The lagged values of GNP are almost surely not valid instruments (serial correlation in the wage equation bars their use), and the over-fitting of the first stage probably contributes to inconsistency. The concern over simultaneous equation bias is not a cavil, since so much of the authors' theory relies on the negative link of wages and output supply. Also, the equation is estimated with a lagged dependent variable, but with no attention to serial correlation. Our concern here is justified. The authors' theory suggests that the coefficient on $W_{t-1} - P_{t-1}$ should be between zero and one; this is in fact so for only three of the ten regressions. The suspicion of misspecification is heightened by Durbin–Watson statistics generally far from 2.0, and the unexplained instability of the regression coefficients across sub-periods.

I believe that econometric equations will take us only part way in elucidating the differences in wage determination among countries. We should spend more time trying to link observable institutions with wage outcomes. For instance, nominal-wage sluggishness in the U.S. is consistent with the preponderance of long-term overlapping contracts, as shown in the theoretical work of Fisher (1977) and Taylor (1979). The absence of discernible nominal-wage stickiness in Germany, on the other hand, probably

[3] The empirical estimates in Bruno and Sachs (1979) the wage equation is specified so that the real economy is neutral with respect to the steady-state rate of inflation. In Sachs (1979), statistical tests fail to reject the hypothesis of long-run neutrality in the wage equation for the seven large OECD economies.

results from short-term contracts, negotiated at branch levels, in the context of the 'Concerted Action' policy. Similarly, institutional detail can help us to explain the sharp deceleration in real wages after 1975 in countries such as the U.K., where income policies contributed, along with high unemployment, to the real-wage deceleration.

Branson and Rotemberg have shown us why the issue of wage determination is important. I look forward to further empirical application of their model.

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