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TWO KEYNESIAN MODELS OF SIMULTANEOUS INFLATION  
AND UNEMPLOYMENT: COMMENT

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In his article J. Kirker Stephens<sup>1</sup> demonstrates the possibility of simultaneous inflation and unemployment in a simple Keynesian model by relaxing the assumption of labor homogeneity. As he correctly points out, most graphical and algebraic presentations of Keynesian models have not been used before to illustrate this empirically important phenomenon. On the other hand, Professor Stephens does not explain how the problem has been analyzed before, albeit verbally, in the traditional Keynesian framework.<sup>2</sup> Consequently, it may not be readily apparent that complicating this framework with the assumption of diversified labor violates a venerable methodological rule: *pluralites non est ponenda sine necessitate*.<sup>3</sup>

Apparently, Professor Stephens breaks the rule of simplicity because he thinks that the assumption of labor homogeneity is not “reasonable” in a developed economy. This alleged discrepancy between assumptions and the real world is immaterial, however, if the assumptions are sufficiently good approximations for predicting or explaining economic behavior. The new assumption of labor diversity may be useful in models of limited applicability suggested by Professor Stephens, but that remains to be seen. Meanwhile, the assumption hardly seems necessary to explain the recent inflation and unemployment occurring in the American economy. Indeed, an adequate graphical explanation of recent problems follows from applying the theory in a book Professor Stephens cites.<sup>4</sup>

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<sup>1</sup>J. Kirker Stephens, “Two Keynesian Models of Simultaneous Inflation and Unemployment,” *Nebraska Journal of Economics and Business*, vol. 9 (Winter 1970), pp. 18-26.

<sup>2</sup>For instance, see Abba P. Lerner, “Inflationary Depression and the Regulation of Administered Prices,” *The Relationship of Prices to Economic Stability and Growth: Compendium of Papers Submitted by Panelists Appearing before the Joint Economic Committee*, 85th Cong., 2d sess. (Washington: U.S. Government Printing Office, 1958), pp. 257-268.

<sup>3</sup>This statement of “Ockham’s razor” is translated: “Plurality is not to be posited without necessity.” See *Ockham: Philosophical Writings*, edited by Philotheus Boehner (London: Nelson, 1957), p. xxi.

<sup>4</sup>R. H. Scott, *Problems in National Income Analysis and Forecasting* (Glenview, Ill.: Scott Foresman and Company, 1966), pp. 49-54.

This comment is not intended to offer any better explanation of actual economic phenomena. It simply points out that a strictly-Keynesian model can be used to illustrate simultaneous inflation and unemployment without Professor Stephens's assumption of labor diversity. At the same time another of his conditions for inflationary depression is shown to be superfluous. This condition maintains that "If inflation is to occur, the money supply must be permitted to grow at such a rate as to allow it."<sup>5</sup>

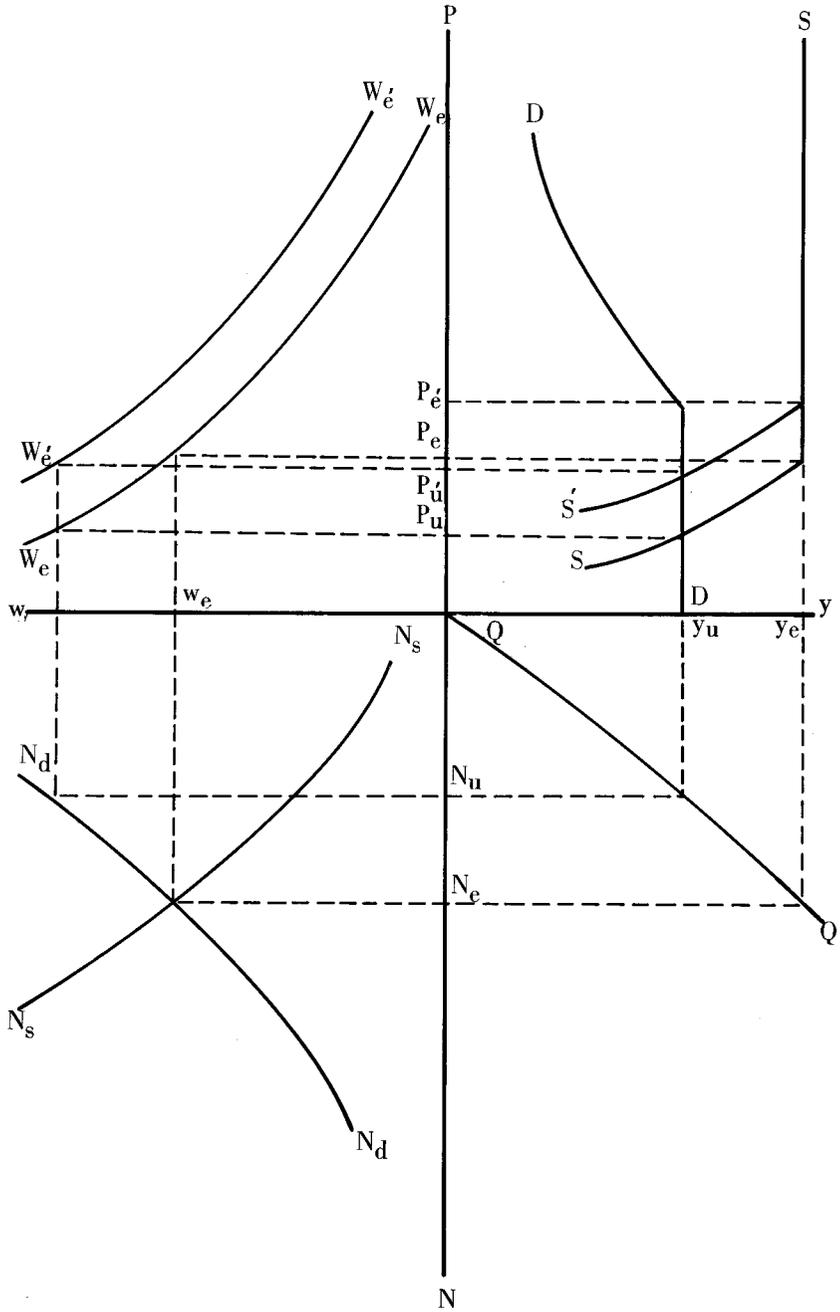
As an illustration of these points, consider the familiar Keynesian model which distinguishes between economic forces on the basis of their effect on the demand or the supply of total goods and services.<sup>6</sup> The intersections of different Hicksian IS and LM functions give the real output ( $y$ ) that will be demanded at various price levels ( $P$ ). By plotting the resulting equilibrium pairs of  $y$  and  $P$  in the northeast quadrant of the accompanying figure, one obtains an aggregate demand function ( $DD$ ). The function has a negative slope as long as decreases in prices cause the intersection of IS and LM functions to shift to higher levels of income. As Keynes noted, however, there are three situations in which decreases in the level of prices cannot result in any additional increase in the aggregate demand for goods and services. When investment expenditures do not respond to lower interest rates, or when they are insufficient to sustain a full-employment level of income even at their maximum level, or when the asset demand for money is perfectly elastic at low levels of interest, the aggregate demand function loses its negative slope and becomes perfectly inelastic with respect to the price level.

On the supply side of the Keynesian model one finds a production function ( $QQ$ ) that, with capital fixed in the short run, shows the relationship between real income produced ( $y$ ) and employment ( $N$ ). Both the demand for labor ( $N_dN_d$ ) and the supply of labor ( $N_sN_s$ ) are functionally related to the real wage ( $w$ ). The real wage is equal to the money wage ( $W$ ) deflated by the price level ( $P$ ). Placing the supply and demand for labor in the southwest quadrant of the figure, one finds the equilibrium level of employment ( $N_e$ ) and real wages ( $w_e$ ) at the point of their intersection. Reference to production function  $QQ$  in the southeast quadrant tells us the full-employment level of income ( $y_e$ ).

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<sup>5</sup>Stephens, *op. cit.*, p. 26. Curiously, this change in a parameter, implicit in Professor Stephens's algebra but explicit in his discussion, occurs despite his initial assurance (p. 18) that simultaneous inflation and unemployment would be produced "with all parameters constant."

<sup>6</sup>The construction of this particular model is described in Boris P. Peseck and Thomas R. Saving, *Money, Wealth, and Economic Theory* (New York: The Macmillan Company, 1967), pp. 3-11.



If money wages are perfectly flexible then the same amount of real output ( $y_e$ ) will be forthcoming at any price level. But suppose money wages will not fall below the level indicated by the rectangular hyperbola  $W_e W_e$  in the northwest quadrant of the figure. Then at prices below  $P_e$  the real wage increases, causing producers to employ fewer workers and supply less output. Therefore, the aggregate supply function assumes the shape of  $SS$  in the northeast quadrant. If the aggregate demand function should fall to the level shown by  $DD$ , it will intersect the aggregate supply function in its positively sloped segment below  $P_e$ . As a result, the economy is in equilibrium at  $y_u$  with less than full employment ( $N_u$ ).

It is now purposeful to note that inflation may accompany this unemployment. Indeed, a rise in the price level may be attributed to precisely the same Keynesian condition which contributes to unemployment. For according to Keynes, one reason why the economic system "seems capable of remaining in a chronic condition of sub-normal activity"<sup>7</sup> is the stickiness of prices and wages arising out of the imperfections of competition.<sup>8</sup> Furthermore, the economic power inherent to this imperfect competition may imply more than the ability to resist wage and price cuts dictated by market forces. Lerner, for instance, has written that even in a state of unemployment

When we have strong trade unions with the power to raise wages, strong corporations with the power to set prices administratively, and a general atmosphere in which it is considered normal, natural and only fair for wages to be increased regularly, and by amounts greater than the average increase in productivity or in the share of the product that labor can obtain, prices increase . . .<sup>9</sup>

It is possible to show the effect of such an administered increase in prices and money wages in the figure by raising the money wage level to  $W_e' W_e'$ . As a result the minimum price at which the full-employment level of real output would be forthcoming rises from  $P_e$  to  $P_e'$ , and the elastic portion of the aggregate supply function shifts up. Aggregate supply is now  $SS'$  and the equilibrium price level rises from  $P_u$  to  $P_u'$ . At the same time output and employment maintain their low levels, producing a situation of simultaneous inflation and unemployment. Because there is no further decrease in output or employment as long as prices increase along

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<sup>7</sup>John M. Keynes, *The General Theory of Employment, Interest, and Money* (New York: Harcourt, Brace, and World, 1936), p. 249.

<sup>8</sup>John M. Keynes, "Relative Movements of Real Wages and Output," *The Economic Journal*, XLIX (1939), pp. 47, 49.

<sup>9</sup>Lerner, *op. cit.*

the inelastic segment of DD, no further market pressure arises to force prices and wages back down. Indeed, this may be the only situation in which a cost-push theory of inflation completely explains a sustained increase in prices. Moreover, this model of simultaneous inflation and unemployment requires no monetary expansion since the increase in nominal expenditures can be financed through reduction of idle money balances so long as the economy remains in one of the Keynesian special cases.