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On Money Wages: Keynesian and
Monetarist Critiques of Keynes's
Closure of the Labor Market*

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"In equilibrium" writes Keynes in his *Treatise on Money*[1], "the factors of production are fully-employed" (JMK, V, p. 137). In a rare reference to unemployment in that same book, he describes the effect of an increase on interest rates and argues that one of the consequences would be "a diminution in the level of the employment which [employers] offer to the factors of production at the *existing rates of earnings*"; he adds that the process would continue until, "[f]inally, under the pressure of growing unemp1oyment, the rate of earnings – though, perhaps, only at long last – will fall" (JMK, V, pp. 184-5; emphasis added). These passages suggest that unemployment is the result of rigid wages and, at the same time, that falling money wage rates, though only "at long last", can lead to a higher level of employment. In the General Theory, Keynes characterizes 'voluntary' unemployment as being "due to the refusal or inability of a unit of labor ... to accept a reward corresponding to the value of the product attributable to its marginal productivity" (JMK, VII, p. 6)[2]. There is little doubt that in 1936 Keynes would have characterized the type of unemployment described in the Treatise as 'voluntary'.

In the General Theory Keynes argued for the possibility of 'unemployment equilibrium' (JMK, VII, p. 249) and 'involuntary unemployment' (JMK, VII, pp. 15-7). The former refers to the possibility of an equilibrium characterized by unemployment for a given money wage rate; the latter, to the fact that workers' willingness to accept a lower real wage – which they can only express by taking a lower money wage rate – or simply 'market clearing' changes in money wages do not necessarily imply a movement towards full employment.

In the 1970's the debate over macroeconomic issues focused on the causes of deviations from full employment – or the 'natural rate of unemployment. The arena for the debate was the behaviour of the labor market and the stability of the Phillips curve. Two major strands of thought can be identified. On the one hand, there were the 'Keynesians' who attributed the cause of unemployment to rigid money wages – Solow (1979, 1980), Tobin (1972, 1980) and Fischer (1977) are the most prominent examples of this group. On the other hand, following Friedman's (1968) approach, there were the 'monetarists' for whom imperfect information and expectational errors leading to money illusion (particularly on the part of workers) were the main sources of deviations from the natural rate of unemployment – Barro (1976), Sargent & Wallace (1975) and Lucas (1981) are the exponents here. By the end of the decade, there was agreement amongst orthodox macroeconomists (Keynesians

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[1] Throughout the text, reference will be made to A Treatise on Money and The General Theory of Employment, Interest and Money as, respectively, the Treatise and General Theory. All references are to The Collected Writings of J. M. Keynes (abbreviated to JMK) followed by the volume and page number.

[2] The "refusal or inability" may be due to "human obstinacy" or either "to legislation or social practices or of combination for collective bargaining" (JMK, VII, p. 6). Both causes of rigidity – that arising from the individual worker's decision or that due to decisions for which he is not directly responsible for – characterize 'voluntary' unemployment. To associate institutional causes with 'involuntariness' from the individual worker's perspective seems to constitute a misinterpretation of the concepts of the General Theory.

and monetarists alike) that if wages were flexible, information was perfect and agents had rational expectations the system would be continuously in full employment equilibrium.

In what follows we will develop two arguments: first, that the (in)effectiveness of 'market clearing' changes in money wages differentiates the General Theory from the approaches of Keynesians and monetarists alike; and second, that although both the Keynesians and monetarists approaches have enriched the catalog of causes of 'voluntary' unemployment, they fall to address the core of the General Theory – the notion of 'involuntary' unemployment. In order to develop these arguments, the paper is organized as follows. Section 1 provides an interpretation of Keynes's closure of the labor market in the General Theory. In sections 2 and 3 the Keynesian and monetarist approaches are discussed respectively.

1.   The General Theory's Closure of the Labor Market

In the General Theory, the demand for labor follows directly from Keynes's acceptance of the first classical postulate: "[t]he [real] wage is equal to the marginal product of labour" (JMK, VII, p. 5)[3]. Assuming that firms are continuously in equilibrium, profit maximization *cum* perfect competition implies the following labor demand curve:

$$N^{\mathrm{D}}{:}\frac{w}{p} = e(N) \tag{1}$$

The assumption of decreasing marginal returns implies that N^{D} is a decreasing function of the real wage.

Keynes rejects the second classical postulate: that "[t]he utility of the wage when a given volume of labour is employed is equal to the marginal disutility of that amount of employment" (JMK, VII, p.5). It is not that Keynes rejects the existence of a labor supply function but rather that workers cannot enforce the satisfaction of such a function. The key to understanding this idea is the independence of the determination of the money wage from the existence of a labor supply function reflecting workers' preferences.

According to Keynes, the second postulate is subject to two major criticisms. The first objection

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[3] Keynes's acceptance of the 'first classical postulate', which embodies the principles of decreasing returns and profit maximization, has important consequences for the relation between Keynes's theories of employment and distribution. The assumption of perfect competition together with these principles implicitly makes distribution endogenous and technologically determined thus precluding any systematic discussion of the determinants of the real wage and the study of distributional effects on the principle of effective demand. In his article "Relative Movements of Real Wages and Output" (1939), Keynes admits that the principle of decreasing returns was a "dogma confidently accepted by [his] generation" which was in accordance with the "more fundamental generalizations that industry is subject to increasing marginal costs" (p. 398).

is that during the bargaining process, workers cannot determine the real wage, but only the money wage, as the price of wage-goods depends on the level of aggregate demand on which worker' will have little influence (JMK, VII, pp. 11-13). The other objection is that while workers may consider the expected price level when determining the wage, it is not reasonable to suppose that they will "withdraw their labor whenever there is a rise in the price of wage goods" (JMK, VII, p. 9). Here is where the idea of independence comes in: workers do fix the money wage with the intention of maintaining (or raising) the real wage and satisfying their preferences, but once the wage is set the supply function only determines the *maximum* amount of labor units forthcoming.

Keynes's concept of the supply of labor implicitly assumes that workers prefer to work rather than not work and that they will adhere to a contract (specified in terms of a money wage rate and a given 'working day') for a *range* of real wages. Alternatively, in other words, employed workers will stick to their contracts even if there is a slight increase in the price level of wage-goods[4]. These assumptions can be represented by a *discrete* labor supply curve such as the one depicted in figure 1.
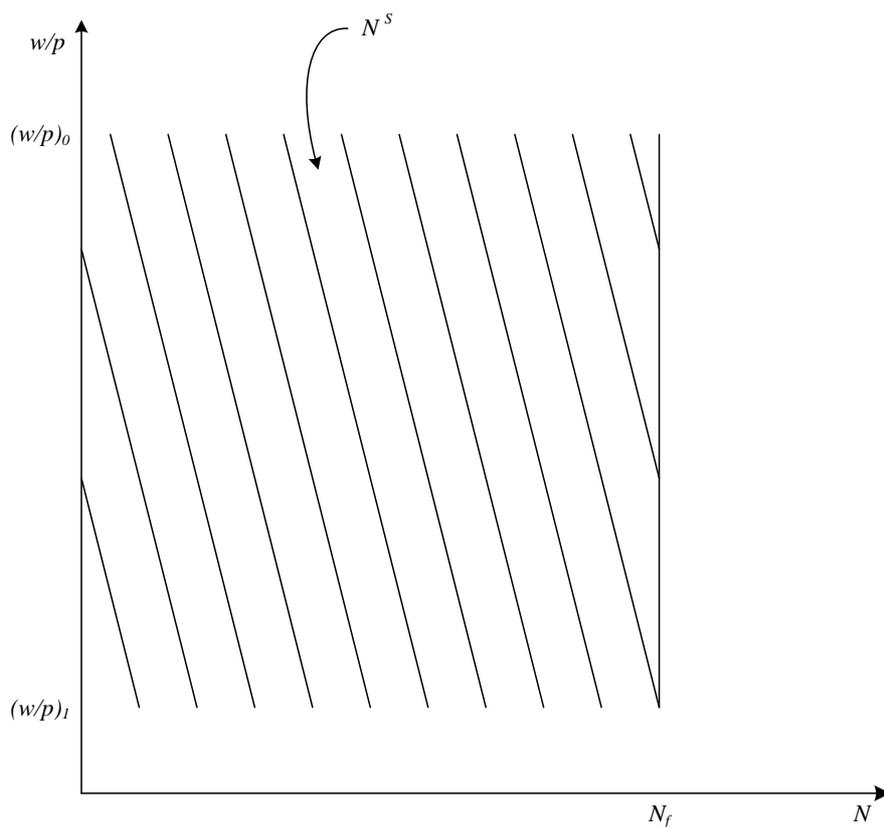

Figure 1

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[4] Keynes's argument can also be made as follows: "Every trade union will put up some resistance to a cut in money-wages, however small. However, since no trade union would dream of striking on every occasion of a rise in the cost of living, they do not raise the obstacle to any increase in aggregate employment, which is attributed to them by the classical school" (JHK, VII, p. 15).

In the figure, N_f stands for full employment. For wages below $(w/p)_1$, workers may refuse to work – say they go on strike. For wages higher than $(w/p)_0$ they may work over time. However, these are abnormal situations and, therefore, we shall assume the shaded area in the figure to be the labor supply *set*[5]. If we now superimpose the demand curve, there is a potential range of equilibria corresponding to the segment of the N^D curve for $N < N_f$. This is depicted in figure 2.
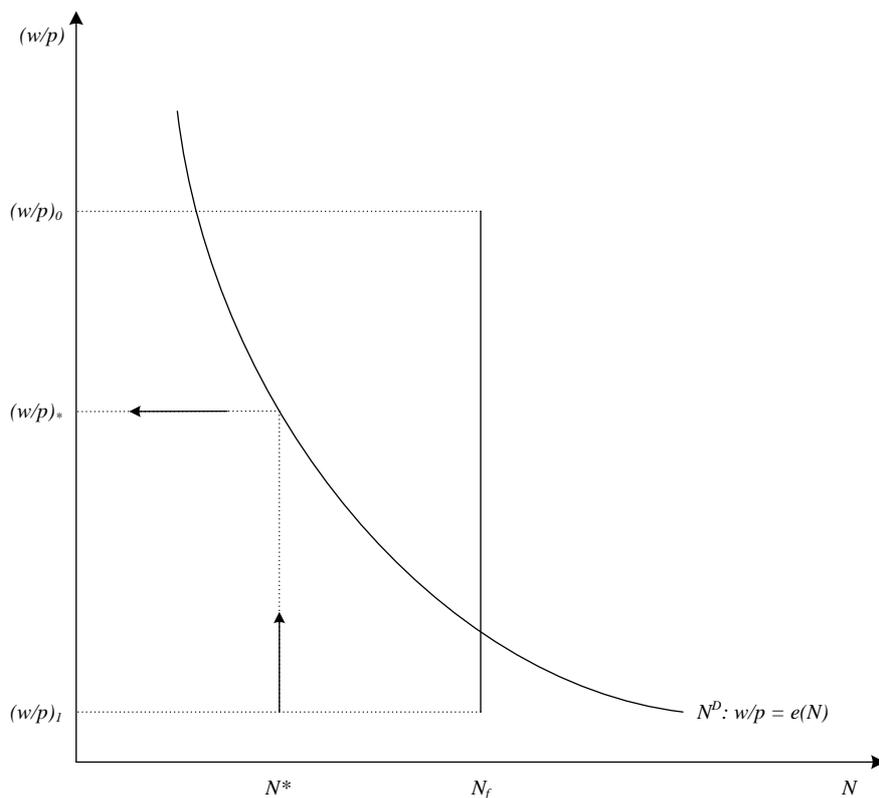

Figure 2

The equilibrium level of employment is thus *underdetermined*: an additional equation is needed to close the system. This is provided by the principle of effective demand, which determines the level of employment as a function of investment expenditure (I) and the multiplier (m) for each level of the money wage:

$$N^*(\underline{w}) = \Omega[I(\underline{w}); m(\underline{w})] \tag{2}$$

where N^* is the equilibrium level of employment associated with $w = \underline{w}$. The equilibrium configuration is given by $<N^*, (w/p)^*>$.

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[5] For similar interpretations of Keynes's supply of labor, see Chick (1983, ch. 7), Marglin (1984, ch. 4), and Davidson (1984).

2.   Money Wage Rigidity

Up to this point, we have been discussing the determination of 'equilibrium unemployment'; let us now turn to the notion of 'involuntary unemployment'. One could argue that the equilibrium level of employment (N^*) as determined above is quite peculiar since the existence of unemployed workers would set equilibrating forces into action and a movement towards full employment would begin. In particular, so the argument would continue, if money wages fell whenever there were unemployment, a systematic tendency to full employment would exist. The argument can be summarized by saying that a 'market clearing' adjustment of money wages such as the one following would guarantee such a 'systematic tendency':

$$\frac{\Delta w}{w} = f\left[\frac{(N_f - N)}{N}\right], f' < 0 \tag{3}$$

The General Theory is today often regarded as a theory of employment, which assumes either money wage rigidity or 'money illusion' on the part of workers. Both approaches depend essentially on the 'systematic tendency' to full employment, which, it is supposed, equation (3) provides. Since no such systematic tendency holds in the General Theory, both interpretations are incorrect.

We shall first study the wage rigidity interpretation according to which if wages were flexible the notions of unemployment equilibrium and involuntary unemployment would be meaningless. Keynes devotes chapter 19 of the General Theory to a discussion of "changes in nominal wages" which makes any interpretation based on rigidity of wages peculiar to say the least. Keynes begins by studying the conventional effect, according to which, if wages fall, *given* the price level, profit maximization implies a higher level of employment. Keynes's argument is that a fall in wages will tend to shift the aggregate supply curve in such a way that prices will also fall. Therefore, unless the price level is fixed exogenously, the effect is ambiguous (JMK, VII, pp.258-60).

Keynes then goes on to the effective demand effects. The question here is how changes in money wages affect the determinants of effective demand – the propensity to consume, the rate of interest and the marginal efficiency of capital (MEC)? If a reduction in wages represents a distribution of income in favour of non-wage earners, assuming the latter have a smaller propensity to consume than wage earners, the overall effect would be a reduction in the average propensity, The effect on the MEC is ambiguous: if capitalists expect wages to continue falling, the cost of production of capital goods will be lower in the future, implying a reduction in the MEC. If, on the contrary, wages are not expected to continue falling, the effect is an increase in the MEC. The interest rate will increase in the real supply of money provided the nominal supply is kept constant.

Keynes studies other effects, particularly those associated with an open economy. The message, however, is always the same: there is no systematic relation between changes in money wages and effective demand. That is, the function $N = \Omega[I(w); m(w)]$ relating the level of employment to the money wage rate has no definite slope. Its slope depends, among other things, on the elasticity of the interest rate with respect to changes in the supply of money; current expectations about future changes in wages; and the strength of the distribution effect on the propensity to consume.

The effect through the interest rate, Keynes argues, is the one on which "[t]hose who believe in the self-adjusting quality of the economic system must rest the weight of their argument" (JMK, VII, p. 266)[6]. However, the nowadays-conventional effects for the self-adjustment argument were not mentioned in the General Theory: the 'real balance effect' and its variations[7]. Both the interest rate and real balance effects provide a good argument for the wage rigidity approach, as both support the idea that, if wages were to fall, the level of employment would increase. The ambiguity introduced by the other effects is never mentioned; as a matter of fact, those effects do not appear in the catalog of relevant effects in modern orthodox macroeconomics.

In sum, rigid money wages are not a factor in explaining unemployment within the framework of the General Theory, Those who do stress rigidity either must assume the effective demand effects to be unambiguous or then refer to 'voluntary' rather than 'involuntary' unemployment. Eminent Keynesians such as Solow and Tobin make of rigidity the main cause of unemployment[8]. From the perspective of the General Theory, it is unfortunate that they take this 'ímperfectionist' argument as a weapon against the attack on Keynes's theory of employment by monetarists in the post-Phillips curve period. We shall argue in the remainder of this paper that such a strategy is not a legitimate representation of Keynes's premises and results in the General Theory. Furthermore, it is a defensive strategy, which is confined to a domain of discussion set by the adversary, i.e, the debate over 'voluntary' rather than 'involuntary' unemployment.

3.   Money Illusion

The second line of attack to the General Theory's closure is provided by the post-Phillips curve

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[6] As for objections to the interest rate effect Keynes pointed out that, the supply of money may be endogenous (JKK, VII, p. 266) that the interest rate say be rigid at a 'safe' level (JMK, VII, p. 172) and that investment expenditure say be insensitive to changes of the interest rate, particularly during recessions (JMK, XIII, p. 364).

[7] See Patinkin (1956) for the 'real financial effect' and Leijohhuvud (1968, ch. V) for an excellent survey of the effects and the objections to them.

[8] In the General Theory, Keynes refuses to attribute to rigidity the cause of unemployment. Indeed, he argues that the "Classical Theory has been accustomed to rest the supposedly self-adjusting character of the economic system on an assumed fluidity of money-wages; and, when there is rigidity, to lay on this rigidity the blame of maladjustment" (JMK, VII, p. 257).

literature. Friedman (1968) initiated an indirect critique based on the notion of 'money illusion' on the part of workers. This line of argument has been followed by the rational expectations contributors. The critique is misplaced since both the Keynesians who contributed to this debate [e.g., Fischer (1977)] and monetarists (such as Friedman himself) are actually discussing causes of 'voluntary' unemployment under a very restricted theoretical framework, paying no attention whatsoever to Keynes's notion of 'involuntary' unemployment. Our aim is to argue that this approach requires – as much as the 'rigidity' argument does – 'market clearing' changes in moneywages   to   have   an unambiguous effect on the level of employment and that since the latter does not follow from the General Theory's framework, the critique must be qualified.

The post-Phillips curve literature does not recognize the principle of effective demand. In particular, no attention is paid to thefunction relating changes in money wages to the level of employment through the determinants of effective demand. Apart from the conventional labor demand function, three other relations constitute the standard model: 1) the supply of labor as a function of the expected real wage; 2) 'market clearing' changes in money wages – equation (3) above; and 3) a version of the quantity theory of money in which there is a systematic relation between the money supply and the price level, causality running from the former to the latter.

It is worthwhile to note that the only departure from the General Theory is the substitution of the quantity theory of money for the principle of effective demand. The other two relations are perfectly consistent with the General Theory. This substitution has dramatic consequences for the analysis: it implies that the price level is fixed exogenously by the monetary authorities and that the quantity of money becomes the all-important exogenous variable of the systems.

Let us examine how Friedman's (1968) model works. His specification of the labor supply curve (relation 1 above) can be formally represented as follows:

$$N = N_f - b\left[\frac{w}{E_w(p)} - \frac{w}{p}\right] \tag{4}$$

Where $E_w(p)$ = workers' expected price level;

p = actual price level;

b = slope of the supply curve.

Equation (4) says that if workers have rational expectations, $E_w(p) = p$, the supply of labor and the level of employment correspond to full employment. If, however, workers make 'expectational errors' – the source of 'money illusion' in this particular model – the actual level of employment will deviate from full employment.

Suppose there is a reduction in the money supply, which, through the quantity theory of money, leads to a reduction in the price level. Friedman assumes that workers do not realize the reduction in prices and overestimate next period's price level – $E_w[p_1] = p_0 > p_1$ where 0 and 1 stand for

calendar periods. Firms, on the other hand, immediately realize the change. Refer to figure 3. The top graph has money wages on the vertical axis and the bottom one has real wages.
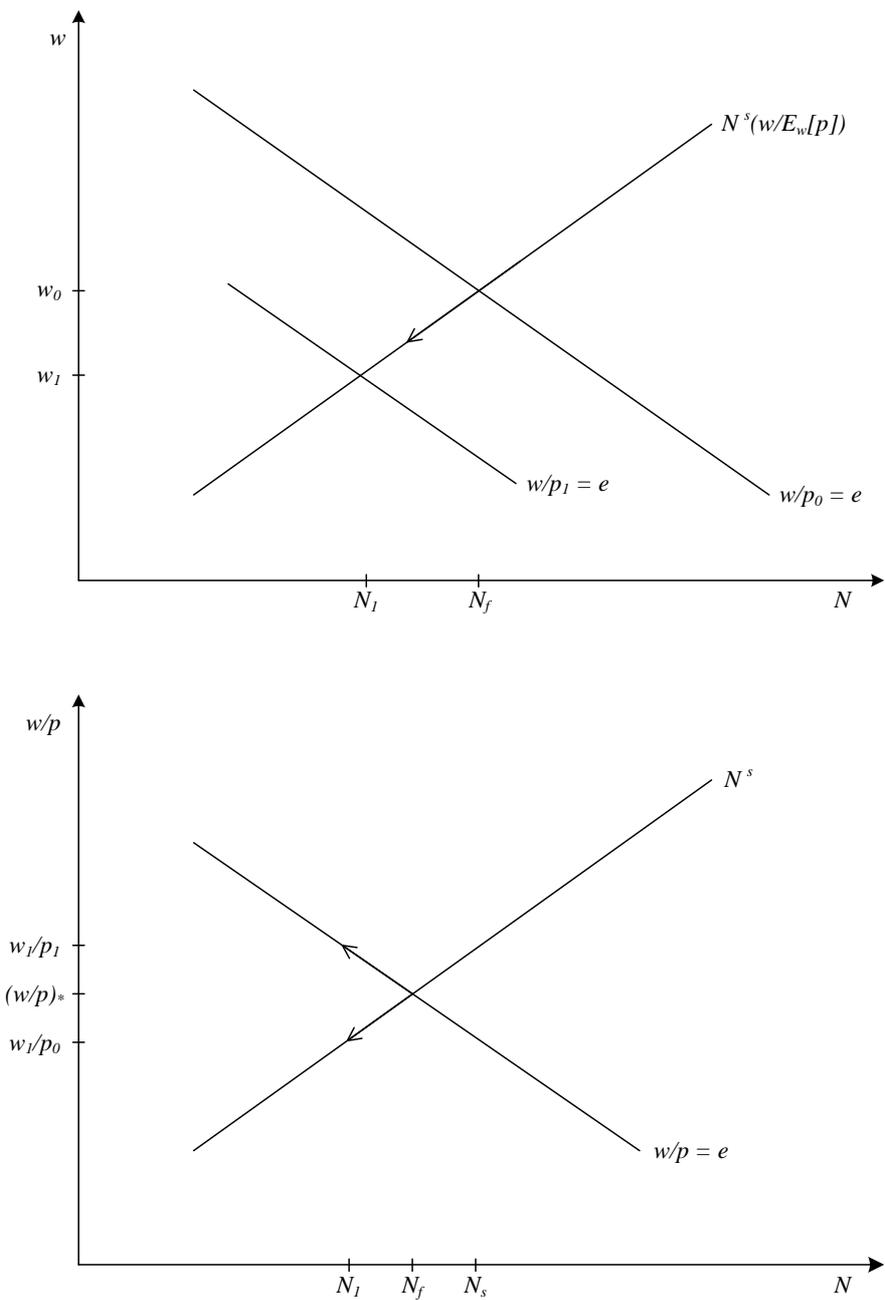

Figure 3

When prices fall from p_0 to p_1, the labor demand curve on the top graph shifts inwards. The supply curve does not change. The money wage falls from w_0 to w_1 and the level of employment falls from N_f to N_1. On the bottom graph, firms are in equilibrium and workers mistakenly believe they are in equilibrium. However, obviously they are not: at the actual real wage $[w_1/p_1]$ the 'notional' labor supply is N_s. The adjustment process begins when workers recognize the actual real wage and realize that, at this wage, there are $(N_s - N_f)$ units of labor unemployed. 'Market clearing'

changes in the money wage enter the scene: the supply curve on the top graph would begin to shift outwards (not illustrated above). The money wage begins to fall and the level of employment converges to N_f.

Friedman's seminal article has been catalogued as an analysis of short period disequilibrium due to 'expectational errors'[9]. If rational expectations on the part of workers and firms were assumed, the System would never deviate from full employment. Other models designed to explain deviations from full employment or the 'natural rate of unemployment' – have subsequently appeared. Even assuming rational expectations, if there are 'unexpected shocks' due to imperfect Information, fluctuations will occur [see Barro (1976)]. Another explanation has been proposed by Fischer (1977) who assumes that workers have rational expectations but engage in wage contracts denominated in nominal terms (supposedly the Keynesian flavour) which can only be altered in discrete or 'finite' periods. If the monetary authorities change the 'monetary rule' during the period of the contract, workers will be off their 'notional' supply curve. In Fischer's model, the supply curve would be given by:

$$N = N_f + b[(w/p_0) - (w/p_a)] \tag{5}$$

Where

w = money wage fixed by contract;

p_0 = price level based on which workers made the contract;

p_a = actual price level determined by money supply.

For $p_0 > p_a$, the system will deviate from full employment and then adjust through falling money wages just as in Friedman's model. Mote that in both models unemp1oyment stems from money wage stickness due to either expectational errors or institutional arrangements (i.e. contracts). Just as in the Treatise, unemployment is 'voluntary'.

What differentiates these models from the General Theory is the nature of unemployment, not the particular assumptions about expectations, the existence of contracts, or lack of information. All of these are consistent with the General Theory although they do not play any significant role in Keynes's analysis in the General Theory. Indeed, in the General Theory workers may be assumed to have rational expectations, for example, and to fix the money wage to ensure full employment. Assuming rational expectations means that they know the function $\Omega[I(w); m(w)]$ relating money wages to the level of employment; or, in the terms of the rational expectations literature, they know the 'true' model of the economy. That is to say, with rational expectations, $E_w\{\Omega[I(w); m(w)]\} = \Omega[I(w); m(w)]$ and workers can fix w^* such that $N^* = E_w\{\Omega[I(w^*); m(w^*)]\} = N_f$.

Consider a model in which the 'true' set of functional relations representing the economy is no

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[9] See Fischer (1977) for an account of Friedman's contribution and of the post-Phillips curve literature.

longer the quantity theory of money bat the principle of effective demand. In addition, suppose the economy is in an equilibrium full employment position. An 'unexpected shock' occurs; a change in capitalists' long-period expectations leads to a fall in the level of employment. In comparison with Friedman's model, this assumption is analogous to his fall in the supply of money. It is only in the next step that the difference lies. According to the post-Phillips curve models, the price level is exogenously determined by the monetary authorities. If there is unemployment, a fall in money wages automatically reduces real wages, which, in turn, given the profit maximization assumption, implies a higher level of employment. In the General Theory's model, falling money wages will not necessarily lead to a higher level of employment. Suppose that in the particular historical situation we are considering, a reduction in money wages reduces the level of employment. How would 'market clearing' changes in money wages help? They would not: instead of leading to a higher level of employment, falling money wages would take the System further away from full employment. That changes in money wages have no unambiguous effect on employment is clearly the message of chapter 19 of the General Theory.

It would seem, therefore, that the differences between the General Theory and models in the Friedman tradition do not depend so much on the causes of deviations from full employment but on the adjustment mechanism once the system deviates. Falling money wages are not inconsistent with the General Theory; what is the notion that failing money wages will necessarily employment. The post-Phillips curve literature enriches of the causes of 'voluntary' unemployment; it hardly core of the General Theory, the notion of 'involuntary' unemployment.

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