SOME MACROECONOMIC IMPLICATIONS OF ALTERNATIVE WAGE SYSTEMS*

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Summary

There exists a class of non-conventional wage systems which in effect allow a firm to automatically decrease unit labor costs by increasing production and lowering product prices. Examples include product wages like the "sliding scale" of the early iron and steel industry, profit sharing arrangements like the Japanese system of paying a large fraction of wages in the form of a share of profits, or various formulas like the Scanlon plan which augment wages by an index of revenue per worker. These payment schemes have some very desirable macroeconomic qualities. The paper analyzes the behavior of such alternative wage systems and explains why they possess important structural properties which resist unemployment and inflation.
Introduction

A basic theme of this paper is the idea that some structural reform of wage setting arrangements is necessary to make reasonable price stability compatible with reasonably full employment. In this view even the best designed macroeconomic policies are much too aggregative to get at the heart of the stagflation problem. The ultimate solution involves going inside the black box of a modern capitalist economy and rewiring incentive mechanisms on the level of the firm.

Stagflation represents an especially intractable policy dilemma for macroeconomics. Without a decisive tendency of the economic system to remain near full employment, there is a strong *prima facie* case for fighting recessions by exogenously stimulating aggregate demand. But the usual Keynesian pump-priming policies tend to impart an inflationary inertia that is difficult to choke off. And of course the basic macroeconomic strategy for fighting inflation is to cool down the economy by restricting aggregate demand -- thereby increasing unemployment and closing the vicious circle.

Because the practical macroeconomic policies for dealing with unemployment and inflation are so diametrically opposed, stagflation is a pervasive structural problem whenever the underlying short run tradeoff between unemployment and inflation is basically unfavorable. Economic policy tends to vacillate between expansion of demand to fight unemployment and restriction of demand to fight inflation, polarizing the electorate and distracting society from dealing effectively with its underlying "real" economic problems. Even the difficulty of attaining "external balance" in
foreign accounts is largely a spillover into the international payments arena of an inability to achieve an acceptable "internal balance" between full employment and price stability.¹

Chronic inflation and unemployment are essentially coordination failures among the agents of an economic system (or more accurately of that part of an economic system) which is characterized by division of labor, large scale production, and monopolistic competition.² At the heart of modern industrial capitalism is an incredibly complicated system of overlapping monopolistic competitors, each one producing for its own markets but held back from complete domination by the substitute goods of neighboring firms in the product spectrum. In a hypothetical perfectly competitive economy where any producer can supply a market without influencing prices, the problems of stagflation as we know them would not arise. If an incentive mechanism could be designed to move the large scale firms of the actual market economy in which we live towards full employment and price stability, the competitive fringe would follow.

This paper takes what might be called a comparative systems approach to the problem of stagflation. A starting point is the realization that the coordination difficulty which can cause some modern capitalist economies to suffer involuntary unemployment is not inherent in laissez faire private enterprise per se. It originates in the particular property of a conventional payment system that wages of the individual firm are stuck to an outside numeraire (whether money, or a cost of living index, or whatever else) over which the firm has no effective control. An alternative labor participation system where it is considered perfectly normal for a worker's
remuneration to be tied to an appropriate performance index of his or her firm, by contrast, puts in place exactly the right incentives to automatically resist stagflation.

Generalized Wage Systems

Consider a typical monopolistically competitive firm operating under a more general wage payment formula than is ordinarily treated in conventional theory.

Let $Z_i$ be some performance indicator for firm $i$. Typical candidates might include price of output, profit per worker, or revenue per worker.

Let $\lambda_i$ stand for a wage parameter, whose value is treated as given in the short run, although it is ultimately fixed by the forces of long run competition in the labor market.

The generalized wage function

$$W_i(\lambda_i, Z_i)$$

is a formula describing the monetary remuneration of a worker as a function of the wage parameter and the firm's performance. For the time being it is assumed that the function $W_i(\lambda_i, Z_i)$ is given for each firm, with the properties

$$\frac{\partial W_i}{\partial \lambda_i} > 0,$$  \hspace{1cm} (2)

$$\frac{\partial W_i}{\partial Z_i} > 0.$$  \hspace{1cm} (3)

(All functions in this paper are assumed continuously differentiable.)

A set of generalized wage functions \{\$W_i(\lambda_i, Z_i)\}, one for each firm $i$ in
the economy, defines a wage system. It is easiest at first to think of the
system as exogenously given, whereas parameter values are endogenously
determined within the system by long term competitive forces. Then, later, a
focal point of the analysis will be to compare the macroeconomic properties
of alternative wage systems.

One particular case of a generalized wage function is the
traditional money wage, which is independent of firm performance and can
therefore be written in the special form

\[ W_i(\lambda_i, Z_i) = \lambda_i. \] (4)

In the general case a wage function will typically depend on \( Z_i \), so
that

\[ \frac{\delta W_i}{\delta Z_i} > 0. \] (5)

For the product wage, \( Z_i \) in (1) represents the price of output, or more
generally some price index of outputs. The "sliding scale" of the early
iron and steel industry is a good example of a product wage. Throughout
history, output prices have been sporadically included in wage formulas for
coal miners, textile workers, and workers in other industries.\(^3\) More
recently, GM and the UAW have seriously considered (thus far without taking
any action) the possibility of partially indexing wages of GM automobile
workers to the prices of GM automobiles. In this paper the pure product wage
of the form

\[ W_i(\lambda_i, Z_i) = \lambda_i Z_i, \] (6)

with \( Z_i \) the price of output, will serve as a simple prototype example of a
generalized wage function.
For the case of profit sharing, $Z_1$ would represent some measure of profits per worker. In Japanese industry, on average over 40% of blue collar wages are paid in the form of a biannual profit sharing bonus. As will be shown, it is no coincidence that such a system goes along with a high level of job security.

Under revenue sharing, $Z_1$ would stand for gross sales per worker. Various commission systems pay employees by this formula. The analytical essence of the Scanlon plan is to augment wages by some fraction of the gross value of plant shipments per unit of labor. Some form of revenue sharing by the firm is arguably the most practical scheme for linking wages to current performance in a modern capitalist economy.

Many other examples of wage functions could be given. While various labor remuneration schemes may superficially appear to be non-comparable, this paper will emphasize a generic classification based on common abstract properties.

It is important to realize that there is nothing especially sacred about the functional form (4). A traditional money wage system is a particularly simple example of (1) which happens to have historically evolved in certain places at certain times, but commands no compelling logical or theoretical claims to priority. Actually, as will be shown, a money wage system has comparatively bad macroeconomic properties. By contrast, a system based on (5) possesses good stagflation resisting qualities.

In this paper all uncertainty is embodied in the shift parameter $A$, representing an autonomous state of the world which cannot be observed
directly. For the time being A is treated as a fixed constant. Later, A will be suddenly changed to model the effects of unanticipated random shocks.

Labor is treated as a uniform, homogeneous, freely substitutable factor. The labor $L_i$ working for firm $i$ indirectly determines the performance indicator $Z_i$ by a transformation function

$$Z_i = Z_i(L_i; A).$$

(7)

For example, in a product wage system where $Z_i$ represents price, $L_i$ is transformed into $Z_i$ via production and demand functions. Analogous comments apply to other wage systems.

Substituting (7) into (1), in effect $\lambda_i$ and $L_i$ determine $w_i$ through the reduced form wage function

$$W_i = W_i(\lambda_i, Z_i(L_i; A)).$$

(8)

Under any reasonable assumptions, in the relevant operating range, revenue per unit of output and revenue per worker both decline as more labor is hired. It follows that

$$\frac{\partial Z_i}{\partial L_i} < 0$$

(9)

for the product wage, profit sharing, and revenue sharing systems previously described, and

$$\frac{\partial W_i}{\partial L_i} < 0$$

(10)

from (8), (9), and (5).
Any wage function satisfying (10) will be called a generalized product wage.

A generalized money wage is any wage function obeying
\[ \frac{\partial W_i}{\partial L_i} = 0. \] (11)

An example of a wage function satisfying (11) is the traditional form (4), or any variant thereof with a cost-of-living adjustment that indexes the wage paid by firm i to the price of a representative basket of goods in which the output of i constitutes a negligible proportion. For the purposes of this paper the crucial distinction is whether or not the individual firm can, in effect, lower its unit labor costs by hiring more workers at a given wage parameter value.

The net revenue product function
\[ R_i(L_i; A) \] (12)
describes the maximum net revenue attainable by firm i, before compensating its workers, as a function of a parametrically fixed amount of labor \( L_i \). The revenue product function depends, among other things, upon production functions, demand curves for outputs, and supply curves of non-labor inputs, all taken as given.

The profit function for firm i is defined as
\[ \Pi_i(\lambda_i, L_i; A) = R_i(L_i; A) - W_i(\lambda_i, Z_i(L_i; A)) \cdot L_i \] (13)

Long Run Equilibrium

Consider a hypothetical benchmark state of long run stationary equilibrium. There is no uncertainty. The shift parameter A has been fixed
at the same value for a long time and is expected to remain there indefinitely.

Let

\[ S(W,\{P_i\};A) \]  

be the supply of labor as a function of the wage rate \( W \) and all prices \( \{P_i\} \).

Competition in the tight labor market of a long run stationary state will cause a law of one wage to prevail. The law of one wage is an abstraction of the idea that in the full employment equilibrium of a modern economy with a highly substitutable labor force, no firm can get away with paying a wage lower than the going rate. In long run equilibrium, let firm 1 hire \( L_i^* \) units of labor at wage parameter \( \lambda_i^* \). Let the prevailing wage be \( W^* \), which any single agent is too small to influence. In equilibrium, each firm must satisfy the profit maximizing condition

\[ \Pi_i(\lambda_i^*,L_i^*;A) > \Pi_i(\lambda,L;A) \]  

for all possible values of \( \lambda \) and \( L \) obeying

\[ W_i(\lambda,Z_i(L;A)) > W^*. \]  

At full employment,

\[ \sum_i L_i^* = S(W^*,\{P_i^*\};A). \]  

Conditions (15)-(17) represent only a subset of general equilibrium conditions, not all of which are written out explicitly because they are not all relevant to the issues at hand. For example, the sum of wages and profits feeds back to constitute demand for products, a loop which is implicit in the definition of a revenue function but not stated explicitly. An unwritten condition (whether zero pure profits, or increasing returns, or some other barrier to entry) is preventing any new firms from entering the
market in equilibrium. The usual input-output relations are hidden behind demand and supply curves for materials. In principle the partial equilibrium demand for one firm's products includes the relevant reactions of other firms.

Although only a small subset of equilibrium conditions is needed to make the basic points of this paper, it should be noted that proving the existence of a full monopolistically competitive general equilibrium solution involves some delicate technical issues that have not yet been satisfactorily resolved.

Condition (16) represents an important constraint on the equilibrium behavior of the firm. Having determined \( \lambda_i \), in a tight labor market firm \( i \) is effectively constrained to select values of \( L_i \) not yielding a return to its workers lower than the prevailing norm that could be earned by them elsewhere. The firm in equilibrium cannot think of itself as free to choose \( L_i \) independently of \( \lambda_i \).

Taken together, equilibrium conditions (15) and (16) mean that firm \( i \) maximizes profits over all values of \( \lambda_i \) and \( L_i \), given that in long run equilibrium its workers must be compensated by as much as they could earn anywhere else. In principle, one could imagine a dynamic mechanism by which firm \( i \) gropes its way toward \( (\lambda_i^*, L_i^*) \) by experimenting with different values of \( \lambda_i \), then observing what amounts of labor \( L_i \) can be retained, and discovering that \( \lambda_i = \lambda_i^*, L_i = L_i^* \) yields the greatest feasible profit. If (whether by union pressure or in a short sighted attempt to lure more labor) the firm were to set its wage parameter \( \lambda_i \) above \( \lambda_i^* \), it would soon find itself attracting more workers but making less profits.
It turns out that, for the same economy, the long run equilibria of all generalized wage systems are isomorphic to each other in the sense that a solution to any one system is a solution to any other. In the stationary state nothing of substance depends upon the wage system, which merely veils the real economy. An outside observer could not tell the difference between any two generalized wage systems from the prices or quantities prevailing in the long run.

With all generalized wage systems, the firm hires an equilibrium amount of labor to the point where the marginal revenue product of an extra worker is equated to the prevailing wage. The intuition behind this result is the idea that, in equilibrium, any firm in any system ends up paying a money wage no less than $W^*$ per worker. Therefore, the firm's reduced form equilibrium problem is just like the standard monopoly problem with money wage $W^*$.

**Theorem 1:**

For any generalized wage system (1), the equilibrium solution of (15), (16) is

$$R'_1|_*= W^*$$  \hspace{1cm} (18)

**Proof:** Under ordinary continuity conditions on demand and production, (15), (16) is a well defined problem. Viewing $\Pi_i$ defined by (13) as a partial function of $\lambda_i$ given $L_i = L_i^*$, from (2) it is obvious that the profit maximizing value of $\lambda$ in (15), (16) must obey

$$W^*(\lambda_1^*, Z_1(L_1^*; A)) = W^*$$  \hspace{1cm} (19)

Since (19) must hold at the optimum, without loss of generality (15), (16) becomes:

$$\Pi_i(\lambda_1^*, L_1^*) = \max \{\Pi_i(\lambda, L)\} \text{ subject to: } W_1(\lambda, Z_1(L; A)) = W^*$$  \hspace{1cm} (20)
Plugging (13) into (20) and substituting \( W^* \) for \( W_1(\lambda, Z_1(L; A)) \)

\[
\Pi_i(\lambda_i^*, L_i^*; A) = \max_L \left\{ R_i(L; A) - W^* L \right\}.
\]  

(21)

Assuming the first order maximization conditions are valid,

\[
R_i'|_* = W^*_i = W^*. \tag{22}
\]

By Theorem 1, the stationary properties of all generalized wage systems are identical, so that one system is essentially the same as another in the long run. But the short run is another story altogether. The wage system by which factor payments are denominated can very much matter outside of equilibrium. There may be significant differences between the abilities of various systems to maintain full employment when disturbed by a disequilibrating shock. Whether an economy is anchored by sticky money wages or by sticky product wages can have critical implications for economic performance.

It turns out that the basic tendency of a firm's response to small disturbances can be inferred from the following result:

**Theorem 2:**

\[
\frac{\partial \Pi_i}{\partial L_i}|_* = -L_i^* \frac{\partial W_i}{\partial L_i}|_*.
\]  

(23)

**Proof:** Differentiating (13),

\[
\frac{\partial \Pi_i}{\partial L_i}|_* = R_i'|_* - W^*_i - L_i^* \frac{\partial W_i}{\partial L_i}|_*
\]  

(24)

Now use (22) to cancel the first two terms of (24), yielding (23).\[\Box\]

Equation (23) means that when (10) holds the firm would find it profitable to expand production and hire more workers at the existing wage parameter, if only it could locate more labor and if the going wage constraint (16) could be disregarded. This is because every additional
worker lowers (marginally) the labor cost of the previously hired workers. In effect, the firm can debase the currency in which its workers are paid by hiring more of them.

Theorem 2 implies that any generalized product wage system in some sense equilibrates at strictly positive excess demand for labor. If the Walrasian auctioneer calls out equilibrium values of the wage parameters \( \lambda^* \) and asks the firms how much labor they wish to employ, total demand for labor exceeds supply. Only in the special case where (11) holds does the system equilibrate at exactly zero excess demand for labor.\(^4\)

**Disequilibrium**

Suppose a given generalized wage system is initially at rest in a stationary state with the autonomous shift parameter fixed at some value A. Suddenly and unexpectedly A shifts slightly to a new value \( A + \varepsilon \) for some small \( \varepsilon \). The generalized wage system is thrown into a temporary state of disequilibrium. The methodology for analyzing disequilibrium responses in this paper is to determine the short run reactions to small shocks in the neighborhood of an equilibrium position.

In effect, the performance of alternative wage systems is compared over a three period approximation to a dynamic adjustment path: (old equilibrium–disequilibrium–new equilibrium). Since all wage systems can be thought of as starting from a common old equilibrium and ending at a common new equilibrium, in principle it is sufficient to focus on comparing short run disequilibrium properties.

Of course disequilibrium behavior depends upon assumptions about
adjustment speeds. In my opinion the relevant assumption is that \( \lambda_i \) and \( L_i \) both change gradually, reflecting real world frictions and inertias, but \( \lambda_i \) is stickier than \( L_i \). Wage parameters are determined by long run competitive forces, while the employer specifies the employment level in the short run. I think of the firm as negotiating \( \lambda_i \) once a year, but selecting \( L_i \) once a month. In the short run almost any negotiated wage parameter is going to stick to the numeraire which defines it, while the firm first reacts to shocks by adjusting other variables. The remainder of the paper explores the implications of this assumption.

There are virtually no basic economic principles at stake in choosing relative adjustment speeds. When it gets right down to it, a purposeful use of implicit contract theory, along with the right assumptions, can be used to rationalize almost any adjustment story. From the perspective of this paper, the relevant issue is neither to justify nor to contest the fact of a sticky wage parameter, but to use it in choosing a generalized wage system with good disequilibrium properties.

At full employment stationary equilibrium, slow moving forces of long term competition in the labor market constrain each firm \( i \) to select values of \( \lambda_i \) and \( L_i \) paying at least the going wage, and therefore (16) holds. But if there is unemployment, the going wage constraint (16) is inoperative and other, short term, forces determine allocation decisions. With unemployed labor available to be hired, the firm's only commitment is to the wage schedule \( W_i(\lambda_i, Z_i) \), where \( \lambda_i \) is effectively fixed in the short run.

The distinction between (16) "holding" in equilibrium and "not holding"
in disequilibrium is an excessively sharp razor’s edge characterization. Of course the real world is much fuzzier than this. The presence or absence of condition (16) reflects, in the traditional overly crisp formalism of economic theory, the idea that as a labor market becomes tighter the concept of a "prevailing wage" represents an increasingly binding constraint on what the firm must pay its workers.

Unemployment

The prototype thought experiment for testing disequilibrium properties is to throw an extra worker on the market and observe how the system reacts to a pure positive shift in the supply of labor function. Strictly speaking, when a new person enters the labor market a disequilibrium situation is created and (16) is rendered temporarily inoperative.

By Theorem 2, the immediate profit maximizing response of the generalized product wage firm is to eagerly offer employment at the prevailing sticky wage parameter. After soaking up all involuntarily unemployed workers, a generalized product wage system will eventually adjust wage parameter values to reestablish long run equilibrium. The point is that the unemployed worker is immediately absorbed in the short run, without having to wait for the outcome of what may be a difficult long run adjustment process.

By contrast, in the stationary state of a generalized money wage system, the net value of extra labor to the firm is negative. There is no automatic short run tendency to absorb unemployed workers into a system where wages are indexed to money, to a representative basket of consumer goods, or to any
other numeraire beyond the control of the individual firm. Only a complicated and extremely problematical long term roundabout adjustment of real wage rates will cause a generalized money wage system to absorb unemployed workers.

A generalized product wage system looks very much like a "labor shortage" economy. Firms cruise around, searching in nooks and crannies for extra workers to hire at existing wage parameter values. Such an economy is inherently recession resistant. Every firm wants to hire more workers at the equilibrium parameter rates, making temporary additional profits by absorbing any incipient pockets of unemployment that arise or can be found, and lowering the wage costs of previously hired workers. The profits from assimilating a new source of unemployed workers are temporary, because in the long run they will eventually be squeezed out by rising wage parameter rates and by workers transferring to other firms. This kind of equilibrium, in which all firms are actively seeking to employ more workers at existing wage parameter rates, is strikingly different from a generalized money wage system, in which there is zero demand for unemployed labor.

Modern industrial capitalism is extremely aggressive on the product market side. Monopolistically competitive firms are forever eager to find new customers and to sell more output at existing prices. The ultimate solution to stagflationist tendencies may involve redesigning incentives so that firms are equally aggressive on the factor market side in the analogous sense of seeking continually to hire more labor at existing wage parameter values.

The analysis of more complicated shocks is analogous to the prototype
example of a pure shift in labor supply. In each case the central feature is the same. A generalized product wage economy equilibrates at positive excess demand for labor and, by continuity, remains at a level of positive excess demand even after undergoing a small disequilibrating shock. A generalized money wage system equilibrates at zero excess demand for labor, and therefore does not exhibit any correspondingly strong tendency to absorb unemployed workers in short run disequilibrium.

Consider how a generalized product wage system automatically cushions first round deflationary demand shocks, even before existing wage parameter rates can be changed. Suppose the demand for a firm's output declines exogenously. If the firm were forced to obey (16), it would no longer wish to hire as many workers, so the effect is 'as if' there is unemployment, and the wage constraint (16) can no longer be operative. But then the firm will react to a moderate fall in demand by maintaining production and lowering prices. If the decline in demand is particularly acute in one sector, firms there may lay off workers. But in principle the newly unemployed workers can find jobs in the less severely afflicted sectors of the economy which continue to have excess demand for labor. The basic point is that the positive excess demand for unemployed labor in the generalized product wage system as a whole provides a safety margin for automatically reacting to changed conditions by maintaining full employment even out of equilibrium. The money wage firm, on the other hand, reacts to a decline in demand by decreasing output and employment, with ambiguous effects on price (price is unchanged, for example, when there is constant marginal cost and a constant elasticity of demand).
While a generalized product wage system can lower the pay of a sub-class of tenured workers in particular industries hit by deflationary shocks, the system undoubtedly benefits the working class as a whole. A generalized product wage economy makes full use of labor resources over the business cycle, and hence pays out a higher total income to labor than a generalized money wage system. This can most easily be seen for the case of a pure product wage with output proportional to labor. In a money wage system the employment level fluctuates while money pay per employed worker is constant. In a product wage system, employment is steady while money pay varies. Since the monopolistically competitive firm must have an elasticity of demand greater than one in equilibrium, the firm pays out more money to labor under a product wage system than under a money wage system. Other things being equal, a union representing the entire potential working class of a firm (as opposed to a high seniority sub-group of tenured workers) would opt for a generalized product wage contract over a generalized money wage contract.6

It would be misleading to attribute the recession fighting qualities of a generalized product wage system to a kind of surrogate wage flexibility which in effect automatically maintains equilibrium. Every wage system exhibits some friction or inflexibility in its wage parameters. A generalized product wage system is no less disequilibrated by shocks than is a generalized money wage system. The point is rather that the form of disequilibrium response is different. The short term response of a generalized product wage system holds labor at full employment, with the disequilibrium showing itself on the value side. Generalized money wage systems, on the other hand, tend to respond to deflationary shocks by holding
equilibrium values in line while employment declines. In the long run both systems converge to the same equilibrium, but their disequilibrium behavior is completely different.

From (23), the degree of excess demand for labor by firm i is related to the elasticity measure:

\[
\frac{\partial W_i}{\partial L_i} \cdot \frac{L_i}{W_i}
\]

In that sense, a generalized wage function has more desirable macroeconomic properties when the fixed payment component is small and there is a relatively strong feedback loop connecting higher employment back to lower wage costs. At least in principle, various wage systems could be ranked by their short run ability to absorb unemployed labor.

A generalized money wage system (11) has the weakest possible unemployment absorption capacity because the excess demand for labor is precisely zero in equilibrium. Any generalized wage system based on a feedback mechanism slightly to the other side of (11) from (10), i.e.,

\[
\frac{\partial W_i}{\partial L_i} > 0,
\]

could not exist; it yields a negative excess demand for labor and would implode into a bottomless depression. Generalized money wage systems have borderline employment stabilizing properties, being boundary points between stable and unstable regimes.

It is interesting to think about a mixed system, where some firms pay generalized product wages and others pay generalized money wages. If the fraction of all monopolistically competitive firms covered by generalized
product wage contracts is in some sense sufficiently large relative to the unemployment rate, the generalized product wage firms should be able to lead the rest of the economy out of a recession.

Inflation

There are several good reasons for believing that a generalized product wage system should have more of an anti-inflationary bias than the corresponding generalized money wage system.

Economists are accustomed to thinking of recovery expansion as a potentially inflationary process, but the opposite is more nearly true with a generalized product wage system. In the money wage system, expansion out of recession is typically stimulated by increased aggregate demand. But in a generalized product wage system, the absorption of unemployed labor originates primarily on the supply side, which puts downward pressure on output prices. Firms in product wage equilibrium would like to decrease their prices by producing more output, but are held back because they cannot find any involuntarily unemployed labor to hire.

Consider the short run effects of a pure supply side shock which exogenously increases the cost of some raw material complementary with labor (e.g., imported oil). The generalized money wage firm will respond by laying off workers, decreasing output, and raising prices. The generalized product wage firm will react by holding the same levels of employment, output, and price. The long run adjustment of both systems is identical, involving basic changes in relative prices and resource allocation patterns, but in the short
run a generalized product wage system absorbs supply side shocks without causing unemployment or inflation.

Consider the effect of exogenously raising the wage parameter $\lambda_i$ above its equilibrium value $\lambda_i^*$. With a generalized money wage function, if firm $i$ is forced to pay a higher wage it will decrease employment and raise the price of output. With a generalized product wage function and (16) holding as a binding constraint, the profit maximizing firm would offset any exogenously imposed increase in $\lambda_i$ by hiring more labor, increasing output, and lowering price. Of course profits are also decreased if $\lambda_i$ is raised above $\lambda_i^*$, so that the long term response of the firm in any wage system may well be to go out of business. This consideration aside, however, a generalized product wage firm does not pass through an artificial wage parameter increase into higher prices, whereas a generalized money wage firm does.

Finally, to the extent that a generalized product wage system helps to lower unemployment, in any way, it automatically gives the government more freedom to treat inflation without having to worry quite so much about the adverse effects on employment.
Conclusion

In this paper I have argued there are strong theoretical reasons for believing that were a generalized product wage system in effect for large firms, the average worker, as well as the economy as a whole, would be better off because of a built-in bias toward eliminating unemployment, expanding production, and lowering prices. A generalized product wage system for large scale firms represents a structural reform of capitalism that eliminates the worst features of stagflation by, in effect, restoring the direct link between prices and wages characteristic of atomistic self-employed enterprises. If such an approach truly represents a way of getting a strong grip on stagflation, it would seem to be well worth consideration.
Footnotes

1 The case that the battle over stagflation dominates the current economic agenda has been forcefully stated by Meade [1978], [1982].

2 These views are detailed in Weitzman [1982].

3 See, for example, Schloss [1892].

4 A system of producer cooperatives, not treated in this paper, also equilibrates at zero excess demand for labor.

5 This kind of behavior is vividly illustrated by the example of a door to door sales company which pays its free lance sales people entirely on commission and is always keen to enlarge its staff.

6 This sort of assertion could be formalized, and proved, in the vocabulary of implicit contract theory. The present paper concentrates on the direct first order effects of alternative wage systems, abstracting away from secondary issues involving effort, risk, etc.

7 In this age of computerized accounting, it would be a small technological matter to automate the calculation and printing of pay checks linked to some relatively well defined index of current company performance. An arrangement like the following might be envisioned. Labor and management, guided by the invisible hand of competition and the visible hand of collective bargaining, agree on a quasi-fixed proportion of gross revenues to be set aside in future periods as a wage payment fund. Each job category is then remunerated by the predetermined number of fund shares. The actual wage received by a given worker is the number of his or her fund shares times the size of the current wage payment fund divided by the total number of shares outstanding. Such a scheme strikes me as eminently practical; but even if the opposite were held to be true, that charge would have to be weighed against the damage done by the stagflationary alternative. Actually, it is not technological feasibility, so much as a change in attitudes that is needed for a solution along the lines suggested here. There needs to be widespread social acceptance of the principle that important externalities make everyone benefit when labor and management share more directly in the gains and losses of an enterprise.
References


