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Can Recession Feed Inflation? A Conflicting Claims Framework

LEONARDO V. VERA
School of Economics, Universidad Central de Venezuela, Caracas, Venezuela

ABSTRACT *This paper develops a rationale for the recession-induced inflation hypothesis. Within a conflicting claims framework we present a model in which both price leaders and organized workers set their nominal prices on the basis of a desired profit rate and a real wage target respectively. We argue that an absolute cost advantage in concentrated industries (for instance in fixed costs) may provide oligopolistic leaders sufficient margin to raise prices and restore a desired level of profitability during a recession. The resultizng unstable income distribution will set off an inflationary spiral if the firm's advantage in selling its output imparts an upward bias to the flexibility of input prices (specifically wages). Taking into consideration different scenarios for workers' bargaining power we present a simple simulation experiment to analyze the inflation and real wage paths of the economy after a negative output shock. When we endogenize output, we show that for a high degree of the bargaining power, output is likely to converge to a higher steady-state value.*

1. Introduction

Conflict theories of inflation, despite the considerable attention that has been devoted to them in recent years, do not share a common underlying mechanism to explain how market power is distributed during slumps or expansions. Early contributions (for example Keynes, 1940; Smithies, 1942; Holzman, 1950) took account only of the resistance of economic groups to loss of real income when all resources are fully employed. In these discussions generally, an autonomous rise of wages or prices produces an unstable distribution of income that in turn leads to a continuous increase in money (not real) income. More recent contributions are based on the supposition that unemployment and excess capacity regulate the degree of market power. When there is a large amount of excess capacity, firms will not raise prices for fear that competitors will invade their markets. Similarly, unemployment imposes 'discipline' in the labor market, diminishing the possibility of upward adjustments in wages (see Rowthorn, 1977; Sawyer, 1982, 1995; Burdekin & Burkett, 1989; Sarantis, 1991; Dutt, 1992). A third and

Correspondence Address: Leonardo V. Vera, Universidad Central de Venezuela, FACES, Escuela de Economía, Caracas 1051, Venezuela. Email: lvera@cantv.net

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much less explored approach contends that the forces generating inflationary thrust in the system are resistant to the disciplinary impact of unemployment and excess capacity (Sherman, 1976; Scitovsky, 1978; Rapping, 1979; Kotz, 1982). This implies that economic actors will be able, to some extent, to exercise market power even in times of general unemployment and underutilization of capacity. This idea has some appeal and has more or less been implicitly assumed in some interesting (and neglected) literature on 'recession wage-price behavior'. The thesis of 'perverse flexibility' during recessions was advanced and tested by Blair (1972, 1974) as an 'anomaly' that first revealed itself in the US economy during the recession of 1954–58. Wachtel & Adelsheim (1976, 1977) corroborated these findings in a study which showed that mark-ups in the high-concentration sector increased in all but one of the recessions of the post-war period. An intuitive version of this same argument that recession itself contributes to inflation was presented by Means *et al.* (1975). When the economy is exposed to a negative output shock, unit costs in the corporate sector rise with falling output, so that firms must raise prices in order to preserve the 'normal' level of profitability. If workers react by demanding higher wages, a continuing succession of reactions to reactions will unfold as an inflationary process.

In this paper we examine in detail the arguments that led support to the hypothesis of a close casual link running from recession to inflation. This link can easily be established if we pay attention to what has been described by Panic (1976, 1978), Rowthorn (1977) and Hirsch (1978) as the 'aspiration gap' (i.e. the excess of income claims over available income), and then analyze how the market power of various groups is affected by the slump. Specifically, when the estimated level of profitability of the corporate sector is threatened by the failure of growth, the aspiration gap opens. If the market power of dominant firms in the corporate sector is increased by the slump, then output prices will start to rise. A recession will trigger an inflationary process if the power of various economic groups is such that the new distribution of income is unstable, i.e. if reactions occur. As wage earners attempt to maintain their standard of living, they lay claim to an unchanged or possibly larger share of the declining social product. Thus, resistance by economic groups to the erosion of their real income propels the inflationary process. It is apparent that this argument depends, to a certain extent, on the intriguing matter of how market power emerges during recessions. We will investigate this apparent mystery by emphasizing the role that entry barriers play in market structures characterized by price leadership.

The next section briefly presents the notion of the aspiration gap in a conflicting claims framework in order to show how ex-post adjustments in nominal income after a slump may involve changes in prices rather than changes in income aspirations or output. Section 3 presents a simple theory of price-setting firms rooted in the limit-price principle and target return pricing. We show that during a recession a difference in fixed costs between an incumbent firm and an entrant is sufficient to raise entry barriers and increase the incumbents' market power. In Section 4 we discuss the determination of wages using a version of the target real wage hypothesis. We argue that after a slump, inflation dynamics will develop once we qualify the argument that sees unemployment as a disciplinary instrument that weakens

either the bargaining position or the income aspiration of workers. Section 5 presents a simulation model in which the inflationary process converges to a steady-state value, although the time to convergence depends on workers' bargaining power. Here also we encounter a most interesting result which goes a long way toward explaining how high levels of workers' bargaining power may help the economy recover from the slump and reach a higher steady-state level of output.

2. The Aspiration Gap

Panic (1976, 1978) and Rowthorn (1977) introduced the notion of the aspiration gap to capture the preoccupation of social groups with their relative standard of living. Panic (1976, pp. 5–6) defines it as 'the gap between the standard of living and the status which people have and those that they would like to have ....' Whether the gap ought to be defined as a 'relative' or 'absolute' aspiration is not a matter that we can discuss here; it will be convenient to assume that the economic groups are more concerned with their own absolute performance than with their relative income share.

This notion of the aspiration gap can be easily understood in terms of the national income identity. Defining aggregate national income (in nominal terms) as a set of ex-post receipts of the different economic actors, and assuming for simplicity that the two economic groups in conflict are workers and capitalists, we have:

$$Y = W + P + F \tag{1}$$

where W represents total nominal wages available, P represents total nominal profits available, and F is gross income received by the owners of the factors other than labor and capital.[1] If each class formulates a nominal income aspiration to be achieved over a certain period of time (ex-ante claims), then the total claim is:

$$Y^c = W^c + P^c + F^c \tag{2}$$

Let us assume that $F = F^c$ is always accomplished, leaving $Y - F$ available for distribution to workers and capitalists in the private sector.

Axelrod's notion of conflict of interest as a state of incompatibility of goals of two or more actors may allow us to see the essence of the problem (Axelrod, 1967). The ratio $A = Y^c/Y$, $0 < A < \infty$, as in Rosenberg & Weisskopf (1981), is the ratio of total claims to total available income; it denotes the aspiration gap, and as we will show below it can be defined for each economic group. The basic premise of the conflict inflation approach is that at values of A greater than one, prices will be rising more than anticipated by economic actors in their ex-ante claims, and this in turn will set the conditions for inflation (Isaac, 1991). In these circumstances, unanticipated inflation in any period is the direct consequence of an imbalance between ex-ante claims and ex-post available income. Actor claims on income and resources are to a large extent shaped,

[1] In Holzman (1950) F is a residual money income comprising mainly rent, royalties and interest payments.

negotiated and regulated through concrete institutionalized arrangements between employers and workers. A complex pattern of pricing rules, management-labor negotiation frameworks, market and administrative power factors, and indexation and other contractual clauses defines the opportunities for actors in different sectors of the economy to achieve relative price adjustments when their incomes fall below their aspirations.

Two points can be made regarding A. This variable may increase as a result of higher income aspirations, or as a consequence of a fall in available income. Early theories of conflict inflations, strongly influenced by the vicissitudes of a war economy, assumed an economy working at full employment and full capacity, that is $Y = Y_f$. As Holzman (1950, p. 150) notes:

> At full employment . . . the share of one group in the national output can only be increased at the expense of another. Resistance by economic groups to loss of real income which comes about through different cost-price rises, rather than the multiplier process of the Keynesian approach, is the dynamic element in the inflationary process.

Later theories of conflict inflation assume that in an economy below full employment the aspiration gap may arise as a consequence of burden effects that reduce the share of income available for wages and profits. Demand may affect income distribution but acts as a regulator of conflict by imposing a discipline on the private sector:

> Demand functions as a regulator of class conflict. On the workers' side a low level of demand isolates militants from the mass of workers and strengthens the hand of 'moderate' leaders against dissenting elements. On the employers' side it reduces their ability to raise prices and may force them to revise downwards their target profit margins. (Rowthorn, 1977, p. 237)

But different scenarios may unfold in a prolonged slump if certain conditions are present. In fact, if output and income are constrained by the recession, the aspiration gap increases and ex-post adjustments in nominal income may involve changes in prices rather than income aspirations or output. It is clear that how things will play out depends on the ability and willingness of economic actors to exercise market power over the cycle. Some heterodox economists have pointed out that the puzzles surrounding the relationship between prices and wages over the cycle have not been fully explored and that price and wage increases during recessions may be linked to the evolution of market concentration and market power. For instance, Wachtel & Adelsheim (1976, p. 9) argue that 'unemployment is inflationary whenever economic concentration leads to adjustment of the price markup to attain a target rate of profit.'

Here we will present a model that explains why the simultaneous occurrence of unemployment and inflation can be a logical outcome of normal business and labor behavior rather than an anomaly.

3. Profits and Pricing

We start by assuming a simplified capitalist economy comprised of two types of productive sectors. The first is an oligopolistic sector in which the price leader has the power to set prices. The second is a competitive sector in which each capitalist is forced to accept the market-determined price. We shall draw on the model set out by Kotz (1982) in the sense that each sector is also assumed to have a particular desired (or target) rate of profit. The desired rate of profit of the economy, r^d, is a weighted average of both:

$$r^d = \delta r_o^d + (1 - \delta) r_c^d \tag{3}$$

where the weight δ represents some measure of the degree of concentration of the economy (such as the market share of the oligopolistic sector in the economy) and r_o^d and r_c^d are the desired profit rates of the oligopolistic and competitive sector respectively.

Capitalists in the competitive sector are unable to control the value of the rate of profit (since they are price-takers); therefore, they will not form expectations of having profit rates above the market-determined rate. Thus, $r_c^d = r_c$, where r_c is the market-determined or normal profit rate of the competitive sector whose value is given by the process of competition.[2] Its value can be considered exogenous in our system.

In the oligopolistic sector the story is quite different. Price leaders are aware of their ability to control the rate of profit and under certain circumstances they could desire a profit rate whose value might not coincide with the *achievable* profit rate. Thus, the desired and the achievable rate of profit can differ depending on systemic forces linked to the level of economic activity and the willingness of firms to exercise market power.

The desired or target rate of profit in oligopolistic industries tends to change very slowly, and, as Means (1962, p. 237) has argued, 'target rates of return and the standard operating rates to be use for pricing purposes can remain unchanged for years and even decades.' Conversely, the *achievable* rate of profit can vary cyclically with the change of the cost structure of the firm and with the level of output. Ex-post adjustment of the achievable and desired profit rates will not happen without consequences, as we will see later.

Given the value of the economy's capital stock K, the total profits claim of the economy can be specified as:

$$P^c = Kr^d \tag{4}$$

Similarly, total available profits can be expressed as:

$$P = Kr \tag{5}$$

[2]Competition is defined here as the force that redistributes profits by adjusting prices so as to equalize profit rates.

where

$$r = \delta r_o + (1 - \delta) r_c \tag{6}$$

Here r stands for the weighted average of the achievable rate of profit of both the competitive and oligopolistic sector.

A more precise description of the aspiration gap can be identified by looking at the ratio of income claims and actual income of the capitalist class, i.e. dividing equation (4) by (5). The aspiration gap of the capitalist class may be expressed as:

$$A_r = \frac{P^c}{P} = \frac{(Kr^d)}{(Kr)} = \frac{r^d}{r}$$

where

$$\frac{r^d}{r} = \frac{\delta r_o^d + (1 - \delta) r_c^d}{\delta r_o + (1 - \delta) r_c} \tag{7}$$

but since $r_c^d = r_c$, then $(1 - \delta) r_c^d = (1 - \delta) r_o^d = \theta$ which in turn implies

$$A_r = \frac{r^d}{r} = \frac{\delta r_o^d + \theta}{\delta r_o + \theta} \tag{7a}$$

We can see from the above that the aspiration gap of the capitalist class is affected only by the discrepancies between the desired and the achievable rate of profit of the oligopolistic sector.

A natural question to ask is whether we should leave the desired rate of profit unspecified. It is clear at least that we must provide some explanation of how the desired rate of profit is determined. In principle, we can say, along the lines developed by Means (1962), that this rate is the highest return on capital consistent with corporate growth. Wachtel & Adelsheim (1977) contend that stockholders become accustomed to a certain (real) rate of profit attained in the past (at a standard level of operation), and that they evaluate corporate executives according to how effectively they achieve it. Post-Keynesians believe that this target rate is governed by the planned level of investment spending (Blair, 1972; Wood, 1975; Eichner, 1976). This last explanation has the merit of linking changes in mark-ups to **Q1** long-run strategic considerations of firms. Some of these ideas complement one another, but all of them are in conflict with the neoclassical notion of short-run profit maximization.[3]

Once the desired rate of profit is specified, capitalists in the oligopolistic sector act on their aspirations by setting the price for their output. In this way a relationship between the profit rate and the price of output is established. This pricing decision is affected by potential entry: if the price set by the leader is above a certain threshold, potential rivals, who treat the price set by the leader

[3]However, we should note that if planned investment is considered to be a function of capacity utilization (as some Post-Keynesians would argue), our assumption of a relatively stable and unchangeable profit rate target would be undermined.

as a basis for the calculations of their own profits, will have a better chance of overcoming the barriers to entry.

Since potential entry affects the pricing decisions of the price leader, profitability cannot be the sole criterion for pricing decisions. Kotz (1982) adopts Bain's limit pricing principle to model the connections among entry, profitability and pricing decisions of both the leader and the potential entrant. The limit price principle states that entry barriers enable incumbent price leaders to raise price above long-run average cost without attracting new competition from outside; but, if the price is set above the entry inducing level, new competition reduces the market share of the leader. Entry barriers then provide market power. Following Kotz, if we assume that the barrier to entry is a cost advantage, i.e. a technological barrier, then as output and capacity utilization change at the industry level, differences in unit cost between potential entrants and the established leader will lead to variations in the degree of entry barriers, since the latter are affected by unit costs.[4]

Let UC_o be the unit cost of the oligopolistic price leader, and UC_e the unit cost of the potential entrant. The technological barrier can be expressed as $UC_o < UC_e$. The ratio $UC_e/UC_o = h$ is called the 'height of entry barriers.' Differences in cost curves may be attributed to the lower level of fixed costs with which the incumbent firm operates. Our hypothesis is that as industry output and capacity utilization decline, h will increase to the extent that the leaders are able to spread fixed costs such as marketing, licenses, patents and research, over a much larger sales base than their actual or potential competitors. Moreover, patents and licenses can confer a big competitive advantage as output falls. This is consistent with the idea that as product markets expand, competitors will inevitably emerge around the new idea and product. Then, an absolute fixed cost advantage, that is, a difference in the level of fixed cost incurred by the potential competitor with respect to the incumbent firm's fixed cost generates distinct patterns of behavior of unit costs (see Figure 1).

The curves in Figure 1 are similar to those suggested by the industrial organization literature. We may assume that both incumbents and potential competitors can make reliable cost comparisons at the same output level. But sometimes it is far more reasonable to assume that reliable comparisons of the two cost curves can be made if we measure output in engineer-rated capacity (ERC) units since the resulting analysis can be generalized regardless of what a firm's actual output capabilities may be. For production levels below 100% of ERC, the average variable cost remains constant but the average fixed cost will, of course, decline as the level of output increases. Following Eichner (1976) we may suppose that in the general case, corporate firms aim to operate at a normal level, say, 80% of its ERC as shown in the figure. The level at which firms plan to operate in normal

[4]In practice, technological barriers seem to play a major role in oligopolistic industries with a relatively homogeneous output. In oligopolistic industries with differentiated products the main barrier to entry is the cost of sales promotion and advertising. Sylos Labini (1984, p. 124) calls the former situation 'homogeneous' or 'concentrated' oligopoly, and the latter 'differentiated or 'imperfect' oligopoly. In addition to technological and commercial barriers, the industrial organization literature identifies the following as important impediments to entry: intensive R&D, vertical integration, sales networks, finance, and patents and exclusive licenses.

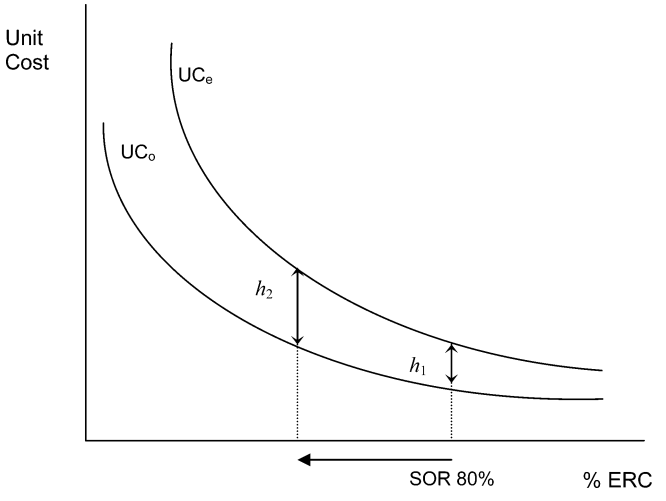

Figure 1.

Q5

times is referred to as its standard operating ratio (SOR). Plant design may be such as to incorporate a target level of excess capacity. Firms can determine the average total cost at the SOR level when planning the size of their plants. The incumbent firm gets to be the first to choose and commit itself to a certain production level, thereby obtaining what is commonly called a first-mover advantage.

If both firms make notional cost comparisons at the same ERC, and the leader sets its price below the entry deterring level, a fall in output will increase the ratio UC_e/UC_o (the height of entry barriers) and consequently will cause the profit rate (and the mark-up) of the potential entrant to fall more than the profit rate of the incumbent firm.[5] Of course the same will happen if both firms make notional

[5]Linear versions of the incumbent and potential entrant cost functions are

$$C_1(q) = \alpha q + F_1$$
$$C_2(q) = \alpha q + F_2$$

where α is the unit variable (and marginal) cost, F is fixed costs and output is q. Production is subject to the constraint that output cannot exceed installed capacity. The subscript 1 denotes the potential entrant and the subscript 2 denotes the incumbent firm. Crucial to our analysis is the assumption that $F_1 > F_2$. Dividing both expressions by q, the unit cost functions are

$$UC_1 = \alpha + \frac{F_1}{q}$$
$$UC_2 = \alpha + \frac{F_2}{q}$$

By definition h (the height of entry barriers) is

$$h = \frac{\alpha + (F_1/q)}{\alpha + (F_2/q)}.$$

comparisons at the same output level. This idea is crucially important in our analysis since it implies that the typical entrant will be more severely damaged by a contraction in output than the oligopolistic leader.

To see this point more clearly let us suppose that both firm 1 (the potential entrant) and firm 2 (the incumbent) evaluate their profitability at the same level of output (the standard operating ratio) and capital invested per unit of output, that is, $q_1 = q_2$, $K_1 = K_2$ and therefore $K_1/q_1 = K_2/q_2$. The incumbent will set an entry-preventing price, p^*, in accordance with the limit-pricing principle. Therefore at the SOR, q_n, its profit rate will be the maximum profit rate compatible with deterring entry. Under these circumstances, $p^* = p_2 = p_1 = p$ and at any price p set by the incumbent, a potential entrant would gain the following potential rate of profit

$$r_1 = \frac{R_1 - C_1}{K_1} \tag{8}$$

where $R_1 = p_1 q_1 = R_2 = p_2 q_2$, and $C_1 = UC_1 q_1$ represent the total revenue and total cost of the potential entrant for a given level of output (measured, for instance, in ERC) units).

Dividing equation (8) by q_1 we get

$$r_1 = \frac{p - UC_1}{K_1/q_1} \tag{9}$$

The achievable rate of profit of the price leader is similarly given by:

$$r_2 = \frac{p - UC_2}{K_2/q_2} \tag{10}$$

Now we may calculate the ratio between r_1 and r_2 to obtain

$$\frac{r_1}{r_2} = \frac{(p/UC_1) - 1}{(p/UC_2) - 1} = \frac{(\mu_1 - 1)}{(\mu_2 - 1)} \tag{11}$$

where μ_1 and μ_2 are the realized mark-ups of the potential entrant and the incumbent firm respectively. It is clear from expression (11) that a fall in output will unambiguously exert a higher downward pressure on the profit rate of the potential entrant and consequently generate a fall in the ratio between r_1 and r_2.

The story suggests that after a fall in output the price leader may incur a temporary decline in profits. But higher costs may cause the incumbent firm to raise

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Evaluating the differential of h with respect to q we find

$$\frac{\mathrm{d}h}{\mathrm{d}q} = \frac{\alpha(F_2 - F_1)}{[\alpha + (F_2/q)]^2}$$

which is unambiguously negative implying that a fall in output will be associated with an increase in entry barriers.

price to the now higher entry-preventing level, and when it does this the incumbent firm's profits may return to the earlier higher rate.[6]

The process just described can be also grasped by recalling that price leaders follow a target return pricing policy. The target return pricing technique was a major finding in a survey conducted by the Brookings Institution (Kaplan *et al.*, 1958), and over the years has come to be widely accepted as the main method by which corporations make pricing decisions (see Lanzillotti, 1958; Blair, 1959; Means, 1962; Eckstein, 1964; Eckstein & Fromm, 1968; Sylos Labini, 1984). **Q2**

Rearranging equation (10) gives the expression for the target return pricing

$$p = \frac{r_o K_o}{q_n} + \alpha + \frac{F_o}{q_n} \tag{12}$$

where the term $r_o K_o / q_n$ represents a predetermined target profit per unit of output added to unit cost in order to set the output price, and α and F/q_n are average variable cost and unit fixed cost respectively. The firm estimates a product's unit cost on the basis of the standard output level that represents a normal rate of capacity utilization.

Then, the profit rate is calculated at the standard level of operation. In a recession the typical incumbent firm produces and sells less than the normal volume; as a result, the profit rate falls short of the target, both because unit fixed costs rise (reducing profit per unit produced) and the number of units sold falls (reducing total profits for any level of unit profits). In this case, the desired profit rate can be restored only by raising the price. Since entry becomes much more difficult during recessions (h increases), the oligopolistic price leader will gain market power and will find that conditions are more favorable to increasing its price. A recession can therefore be a potential trigger for price increases in concentrated industries.

4. Wages and Collective Bargaining

Post-Keynesian economists, following Keynes, maintain that money wages are the main concern of organized workers in their bargaining activities. It does not mean that real wages are unimportant. An important determinant of the nominal wage objectives of trade unions is some target real wage (Sawyer, 1982), but money wages are the explicit focus of their negotiations. Besides, the money wage objective is also a function of the changes in the price level expected to prevail at time of negotiation. Whether these aspirations are achieved depends on workers' bargaining power. Thus, the resulting money wage bargaining equation can be modeled as a mix of Post-Keynesian and radical ideas:

$$w = \phi w_{t-1} \left(\frac{T}{w_{t-1}/p_{t-1}} \right) \left(\frac{p^e}{p_{t-1}} \right) \tag{13}$$

[6]It is likely that the onset of a recession would make demand for the typical product less elastic. A recent interview study of price-setting in business found that almost 60% of respondents accepted the premise that the elasticity of demand varies procyclically (Blinder *et al.*, 1998).

where w stands for the achievable money wage rate, w_{t-1} is the current money wage rate (at time of negotiation), p^e is the price level expected to prevail in time t (after negotiation), p_{t-1} represents the price level (at time of negotiation), T is the ex-ante real wage target, (w_{t-1}/p_{t-1}) is the real wage at time of negotiation, and ϕ is a coefficient reflecting workers' ability to achieve their aspirations (or the 'bargaining power' of organized workers). Deviations of actual real wages (w_{t-1}/p_{t-1}) from the target level T and deviations of the current price level p_{t-1} from the expected price level p^e will lead to pressures on money wages, and the terms in brackets and parenthesis capture these impacts. Under adaptive expectations, equation (14) becomes:[7]

$$w = \phi w_{t-1}\left(\frac{T}{w_{t-1}/p_{t-1}}\right)\left(\frac{p_{t-1}}{p_{t-2}}\right) \tag{14}$$

Further discussion of the target real wage T and the bargaining power coefficient ϕ is in order. The target real wage hypothesis is now a common element in Post-Keynesian attempts to derive a wage change equation in a context of collective bargaining (see Cripps & Godley, 1976; Sawyer, 1982; Marglin, 1984; Arestis, 1986; Palley, 1996).[8] The concept arises from normative notions of what constitutes a 'fair' wage (see Wood, 1978; Sawyer, 1982). The hypothesis, however, was originally developed by Sargan (1964) who argued that a 'target real wage' determines workers' ex-ante disposable real wage claim. Scitovsky (1978, p. 224) has lent support to this view by claiming that that 'wage adjustments conform ... and are better explained by "fairness" as a market force than by the economist's more orthodox explanations.'

A unified approach to the factors that determine this target real wage is lacking, however. Henry *et al.* (1975), for instance, postulate that the target real wage grows over time at a constant rate. Arestis & Biefang-Frisancho (1995) claim that workers' aspirations may also be influenced by changes in taxes and the terms of trade. Sawyer (1982) and Taylor (1991) argue that the target will evolve over time in light of changing bargaining positions, government policy and the employment situation. But Cripps & Godley (1976) doubt that unemployment exerts much influence on it.[9]

The bargaining power coefficient ϕ, just as in Rosenberg & Weisskopf (1981), reflects the relative strength of the working class. We conceive, however, that wage negotiations take place in money terms and not, as they

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[7]Under adaptive expectations wage-earners expected price level is $p^e = p_{t-1}[1 + ((p_{t-1} - p_{t-2})/p_{t-1}]$ and substituting this expression into equation (13) yields equation (14).

[8]The target real wage hypothesis has been integrated in orthodox models in which the equilibrium employment level (corresponding to the NAIRU) is determined by means of a price-setting and a wage-setting function (see for instance, Blanchard, 1986; Layard & Nickell, 1986; Carlin & Soskice, 1990). In these models if the real wage target depends on the unemployment rate, there will be only one particular unemployment rate that will allow compatibility between the real wage claimed by unions and the given mark-up.

[9]Indeed Cripps & Godley (1976, p. 342) state that 'The factors determining the target real wage cannot be formulated with any precision. In particular it has not been perceptibly influenced by the level of unemployment.'

have it, in real wage terms. Kotz (1982) suggests that labor bargaining power could in principle be a function of three elements: (a) the degree of organization of labor, (b) the role of the State in economic conflict, and (c) the extent of unemployment. Rowthorn (1977), adopting a more orthodox approach, appeals exclusively to the disciplinary effect of unemployment on the bargaining positions of trade unions. Since unemployment is the only determining element that seems to change as a consequence of variations of output, it may be useful to pay especial attention to it.

The central fact that most discussions of the determinants of the real wage target and the bargaining power of workers wish to capture is the impact of the unemployment rate on wage negotiations. In terms of equation (14) this implies either that the real wage target depends on labor market conditions or that T is exogenous and ϕ depends on the unemployment rate. In our specification it is not necessary to make both T and ϕ depend on labor market conditions.

Though many Post-Keynesian and Marxist economists are in agreement with the conventional idea that a fall in output results in a larger surplus of labor, (which in turn makes the bargaining position of workers relatively weaker), this association also has drawbacks. The argument ignores the fact that capitalists are more likely to accept workers' demands for increases in money wages the more easily they expect to be able to increase output prices. If oligopolistic price leaders gain market power in the phase of a recessionary period as we have argued, then decreased bargaining power caused by the larger reserve army can be offset by the improved conditions in the goods market. Moreover, the distribution of unemployment among the working population, and the ways unemployment benefits, family support and other institutional mechanisms are provided are also likely to be important influences on workers' bargaining position. Therefore, if compensatory income mechanisms prevail in the economy, it seems more accurate to assume that the net effect of unemployment on the relative bargaining power of workers is unknown.[10]

To consider models in which higher unemployment weakens the bargaining position of workers, we need to suppose procyclical real wages, or a lower rate of increase in money wages (or even downward flexibility) in response to increases in unemployment. Empirical studies do not support any of theses assumptions, however. Abraham & Haltinwanger (1995, p. 1962) present a systematic review of the evidence on real wage cyclicality in the business cycle literature and conclude that 'correcting for all of the measurement problems, estimation problems and composition problems does not lead to a finding of systematically procyclical or countercyclical real wages.' Basu & Taylor, in their recent survey of the empirical studies and the historical data on business cycles, arrive at the same conclusion and urge theorists 'to consider models that can produce wage patterns that are procyclical, countercyclical, and sometimes acyclical' (Basu & Taylor, 1999, p. 63). We face problems also in explaining downward flexibility in nominal wages

[10]In addition, contract and bargaining models make things more complicated by suggesting that there may not be a tight contemporaneous relationship between employment and the desired real wage; see Blanchard & Fisher (1993) for a survey of these models. **Q3**

during the contractionary phase of the cycle. In a study of the US economy Hamermesh (1972) found strong evidence that in concentrated industries the rate of increase in money wages was relatively insensitive to unemployment. Using quarterly manufacturing data from 1960:2 to 1996:2 Estevao & Wilson (1998) have found a negative correlation between wages and production worker hours (a measure of labor input). Their findings predict nominal wage rigidity in response to an output fall. Henry et al. (1976) and Arestis (1986) obtain the same result for the UK.

We might anticipate from earlier discussion that the factors affecting the money wage claim may be interpreted as indicating how the workers' aspiration gap arises. Workers will compare the current real wage w_{t-1}/p_{t-1} with the target real wage T. The ratio is called the 'real wage aspiration factor.' The aspiration gap of the working class will be equal to that real wage aspiration factor if no inflation is expected during period t. But if inflation is expected to rule over the whole of the next period, then the real wage aspiration factor will be multiplied by the 'expected inflation factor' p_{t-1}/p_{t-2} (assuming adaptive expectations), and we obtain the following expression:

$$A_w = \frac{T}{(w_{t-1}/p_{t-1})}\frac{p_{t-1}}{p_{t-2}} \tag{15}$$

5. The Dynamics of Conflict

The previous discussion describes a model of the determination of prices and wages by oligopolistic industries and organized workers. The model indicates how a slowdown in output can result in a one-time increase in prices provided that oligopolistic price leaders gain market power and try to close their aspiration gap by restoring profitability. However, a possible slowdown in output and the resultant change in the distribution of income are not sufficient conditions to set off a continuing dynamic process. It is also necessary that the various economic groups react to the events. In principle, it is clear that a one-time increase in the price level will leave the wage earners as the main victims. In a second round, if workers' ability to act on their aspirations is sufficiently large, they will demand compensation. The induced increase in nominal wages, of course, raises unit costs, leading to a further rise in output prices and profit rates. This will in turn require another round of compensating wage increases and so on.

A simple simulation experiment allows us to consider not only the price-wage adjustment process generated by a prolonged slump but also the path of some endogenous variables, specifically the price inflation and real wage paths. Equations (12) and (14) determine the dynamics of the adjustment process. Thus, given some initial values for the exogenous variables we may employ a numerical exercise and find the values of the endogenous variables over time. The structure of may be summarized as follows

$$r^d K_o = I \tag{16}$$

$$p = (r^d K_o/q_n) + \alpha + F/q \tag{12}$$

$$\alpha = w_{t-1}v \tag{17}$$

$$w = \phi w_{t-1}[T/(w_{t-1}/p_{t-1})](p^e/p_{t-1}) \quad (17)$$

$$p^e = p_{t-1}(1 + \pi) \quad (13)$$

$$\pi = (p_{t-1} - p_{t-2})/p_{t-2} \quad (19)$$

$$w/p = [(w_t + w_{t-1})/2]/p_t \quad (20)$$

Following Post-Keynesian considerations, the first of these equations shows the expected or desired level of profitability $r^d K_o$ as a function of nominal planned investment, I. The pricing behavior of oligopolistic firms can be explained and is governed by the demand for funds from internal sources for purposes of investment expenditure. As we argued above, the output price p in equation (13) is set after the predetermined target profit per unit of output, $r_o K_o/q_n$, has been added to variable and fixed unit costs α and F/q_n. The firm estimates a product's unit cost on the basis of the standard output level that represents a normal rate of capacity utilization. Equations (19) and (20) represent respectively the rate of inflation and the average real wage during a contract period. The endogenous variables and the initial values for the exogenous variables above may be brought together in the summary in Table 1. A control variable, the labor bargaining power coefficient ϕ, is used in order to explore different scenarios for price inflation and the real wage path.

Before considering the simulated price and wage response to a slump, it may be useful to state some further assumptions. First, we should note that unit costs in our simulation model have been split into two components: average direct cost, $w_{t-1}L/q$, and average fixed cost F/q. For simplicity, the average direct cost consists only of labor inputs and is sensitive to changes in nominal wages, but the reader should note that with the fall in output average fixed costs will undergo a discrete increase. The labor input, coefficient $v = L/q$ is assumed to be constant regardless of output level, a feature that is consistent with the standard Post-Keynesians assumption of a horizontal average direct cost curve. Second, the price level expected to prevail in time t is assumed to depend on a simple adaptive expectations hypothesis. Third, prices are marked up instantaneously while wage earners wait until the end of each period to negotiate new contracts. Finally, we assume that price and wage inflation are initially at zero.

Table 1. **Q5**

Exogenous Variables – Initial Values	Endogenous Variables
$I = 50$	p (price level at time t)
r^d (desired rate of profit) = 0.1	p^e (expected price level)
K_o (Value of the capital stock) = 500	α (average variable cost)
q_n (output at the normal level) = 30	w (money wage)
F/q (average fixed cost) = 1	π (price inflation rate)
w_{t-1} (prevailing money wage rate) = 2.5	w/p (feasible real wage)
$v = L/q$ (labor output ratio) = 0.6	
T (real wage target) = 0.6	

As indicated earlier, once a recession starts, the fall in output lowers firms' profitability. For our simulation model we consider a small reduction in output (from 30 to 25) that results in an overall increase in average fixed costs of 20% (from \$1.00 to \$1.20) and a fall in revenues. At the current price level both factors will contribute to a decline in the achievable profit rate. Over time, however, the price leader will restore its desired profit rate (0.1) provided the height of entry barriers increases with the slump.

We examine the price-wage spiral and the evolution of inflation (π) and the real wage (w/p) under four scenarios. The scenarios are based on different assumptions about the value of the bargaining power coefficient. Figure 2 presents the price inflation and real wage paths for $\phi = \{0.75, 1.00, 1.25, 1.50\}$. Whatever the value of the bargaining power coefficient, the rate of inflation always converges to the stationary state. However, the higher the value of ϕ the faster is convergence. The model also predicts roughly procyclical, acyclical or countercyclical real wages depending on the value of the bargaining coefficient.

We now consider the impact of changes in real wages and profits on output. In the model just presented output is entirely exogenous and any output shock is explained by variables outside the model. That assumption is obviously questionable when applied to an economy in which unemployment and excess capacity are present.

From equation (1) we know that national income (in nominal terms) breaks into total labor income, profit income and gross income received by factors other than labor and capital: $Y = W + P + F$. Given the classical assumptions that workers do not save and capitalists save all their income we have

$$wL = C \tag{21}$$

$$S = P = rK = I \tag{22}$$

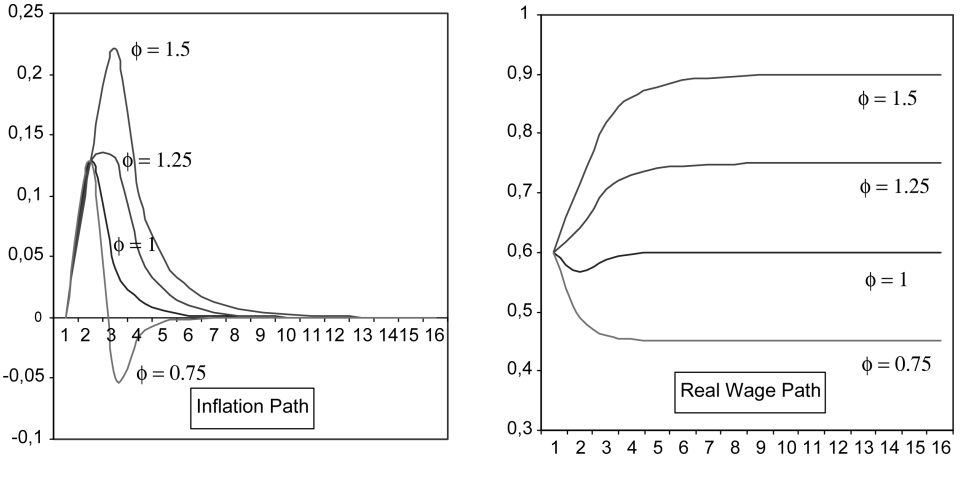

Figure 2.

Q5

where C, S and I represent nominal consumption, savings and investment respectively, and $r = r^{d}$. The decision regarding what price to charge (and what profit rate to obtain) is still closely tied to the planned level of investment.

If $Y/p = q$, the goods market-clearing equation may be written as equation (23) below

$$q = \frac{w}{p}L + \frac{I}{p} + \frac{F}{p}q \tag{23}$$

We know that $v = L/q$, so substituting this expression into equation (23) we can derive the equilibrium level of output as equation (24)

$$q = \frac{[(I/p) + (F/p)]}{(1 - (w/p)v)} \tag{24}$$

We can see from equation (24) that we have a system in which both real profits and the feasible wage rate influence the level of output. (For the sake of

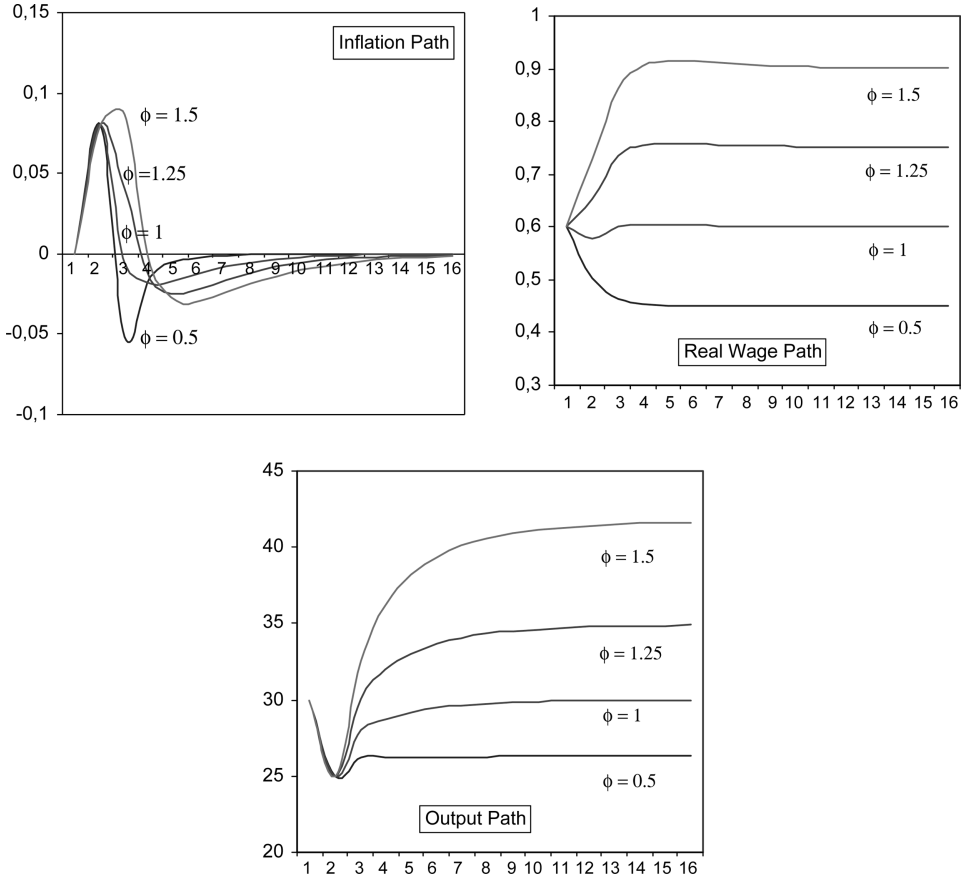

Figure 3.

Q5

simplicity we have assumed that gross income received by factors different from labor and capital does not change in real terms as price rises.) The multiplier is equal to $1/[1 - (w/p)v]$, and is higher the higher the real wage.

We may now re-examine the price-wage spiral and the evolution of inflation (π) and the real wage (w/p) under the same four scenarios (see Figure 3). Again we consider a small reduction in output (from 30 to 25) that results in an overall increase in average fixed costs of 20% (from \$1.00 to \$1.20) and a temporary fall in revenues. The introduction of feedback effects from income distribution to output appears not to affect the results dramatically. The initial inflation wave is less intense and, again, the higher the value of ϕ the shorter the time to convergence. Most significantly, the analysis shows that for high values of the workers' bargaining power coefficient the recession can be overcome very quickly. In cases of high ϕ, output will converge toward a higher steady state and the increasing size of the cake allows price-setters to obtain their target level of profitability while enabling workers to achieve higher real wages.

An array of policy options are opened by this analysis. These options relate to concentration, entry barriers, lack of competition and institutional designs affecting workers' bargaining power. In short, as market power becomes more severe in the economy over the recessive phase of the cycle, the tendency of recession to feed inflation becomes greater, making it even more difficult to use traditional contractionary demand-side policies to alleviate inflation. Only when firms encounter an elastic response to their pricing policies will traditional demand policy toward inflation work, and that may take a long time.

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Queries

Leonardo V. Vera

Q1 Wood (1975) in text but 1978 in References.

Q2 Blair (1959) is not in the References. 1972? 1974?

Q3 Blanchard & Fisher (1993) is not in the References.

Q4 Blanchard & Fischer (1989) and Dalziel (1990) are not cited in the text.

Q5 Figure and Table captions required.