

Lindbeck, Assar; Snower, Dennis J.

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Macroeconomic implications of insider power

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**MACROECONOMIC IMPLICATIONS OF
INSIDER POWER**

Assar Lindbeck and Dennis J Snower



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Centre for Economic Policy Research
6 Duke of York Street
London SW1Y 6LA
Tel: (44 1) 930 2963

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ABSTRACT

Macroeconomic Implications of Insider Power

The paper constructs a simple macroeconomic model that contains a labour market in which insiders have power in wage negotiations. Wage and employment decisions are assumed to be made before business conditions are known; thus these decisions depend on both the hiring costs and expected dismissal costs. The paper analyses the short- and long-term implications for the effectiveness of various government policies on production, employment, and pricing. Hysteresis is shown to be a special case in a continuum of symmetric long-term policy effects. A rationale for asymmetric policy effects is presented as well.

JEL classification: 023, 026, 131, 821, 832

Keywords: insider-outsider theory, demand management, supply-side policies, hysteresis, symmetric and asymmetric persistence

Assar Lindbeck
Institute for International
Economic Studies
University of Stockholm
S 106 91 Stockholm
Sweden
(46 8) 16 30 78

Dennis J Snower
Department of Economics
Birkbeck College
7 Gresse Street
London W1P 1PA
(44 1) 631 6408

NON-TECHNICAL SUMMARY

This paper examines the short- and long-term effects of government policies on production, employment, and pricing in the context of a macroeconomic model which contains a labour market characterized by insider-outsider conflict. We examine conditions under which supply- and demand-side policies are capable of stimulating production and employment and the conditions under which their effects fall predominantly on prices. Our analysis provides a simple explanation of how policy shocks can have persistent real effects and identifies sources of this persistence. We show that hysteresis is a special case on a continuum of symmetric long-term policy effects. We also present a rationale for asymmetric persistence, in the sense that unfavourable policy shocks have a greater impact on employment than favourable shocks. It is argued that under asymmetric persistence there is a particularly strong case for policy actions to counteract the effect of contractionary shocks.

This paper complements a previous CEPR Discussion Paper, 'Demand- and Supply-Side Policies and Unemployment', No. 329. There we considered the short-term effectiveness of government policies in a deterministic context and we analysed wages as the outcome of bargaining between firms and their insiders. In this paper we investigate both short- and longer-term policy effectiveness under uncertainty. In particular, wage and employment decisions are assumed to be made before business conditions are known. Thus, the firms' hiring decisions depend not only on the costs of hiring, but also on the costs of subsequent firing, should business conditions turn adverse in the future. Wages are assumed to be set by firm-specific unions of insiders.

The wage decision within a firm depends not only on the costs of hiring and firing but also on the size of the firm's initial insider workforce. This workforce is given by an 'insider membership rule', which determines the proportion of new recruits hired in the previous period who become insiders in the current period and the proportion of the insiders fired in the previous period who lose all power in wage determination. The larger the initial insider workforce, the lower the equilibrium wage. The lower the wage (other things being equal), the greater the level of employment and production. Given the product demand schedules (which relate the levels of product demand to product prices), the price level may be determined.

In this context, it is shown that supply-side policies may stimulate employment in the short run, that is taking the initial insider workforce as given, by shifting the labour demand function (which relates firms' labour demands to the real wage) or the wage setting function (which relates the equilibrium real wage to the initial insider workforce). By contrast, for demand management policies in the product market which only give rise to elasticity-preserving shifts of the product demand

schedules, there are no effects on equilibrium production and employment. Expansionary policies of this sort are simply inflationary (given wage and price flexibility).

The degree to which the policies above have longer-term effects is shown to depend on the slope of the 'employment dynamics function', which relates current employment to its past level. This slope, in turn, depends on the effect of past employment on the insider workforce; the effect of the insider workforce on wage determination; and the effect of the real wage on labour demand. The greater these effects, the more persistent are the policy effects on employment. Only in the extreme case where the slope of the employment dynamics function is equal to unity does the labour market display hysteresis, so that temporary policy shocks have permanent effects on employment. It is also shown that the employment dynamics function may be kinked (say, due to a kink in the insider membership function), and consequently symmetric shocks may have asymmetric employment effects.

The more persistent the effects of temporary shocks, the greater the need for policy actions to smooth the employment and production trajectories. Furthermore, whenever the persistence is asymmetric, the case for these policies is particularly strong, since negative shocks have more powerful employment effects than positive shocks.

This paper constructs a simple macroeconomic model containing a labor market characterized by insider-outsider conflict and, in this context, the short- and long-term effectiveness of various government policies are examined. We analyze the circumstances under which the effects of policy shocks will persist through time. Hysteresis is shown to be a special case in a continuum of symmetric persistence effects. A rationale for asymmetric persistence effects is provided as well. We argue that when the persistence is asymmetric - in the sense that unfavorable shocks have a greater impact on employment than favorable shocks - there is a particularly strong case for policy actions to counteract the effect of contractionary shocks.

In the insider-outsider theory of employment and wage formation (see, for example, Lindbeck and Snower (1989)), "insiders" (incumbent employees whose jobs are protected by labor turnover costs) are assumed to exercise market power in the wage determination process, taking greater account of their own interests than those of the "outsiders" (workers who are unemployed or whose jobs are not protected by labor turnover costs). These assumptions appear to be reasonable not only for many Western European countries, but also for the US. After all, whenever the dismissal of established employees would impose costs on their employers, these employees should be able to gain some influence over their wages. Unionization helps, but is not crucial in this regard.

In this context, we argue that a variety of "supply-side" policies in the labor market can stimulate production and employment without raising prices. However we show that, in the absence of wage or price sluggishness, demand management policies can do this only

under special conditions, namely, when they succeed in raising the marginal product of labor, encouraging the entry of new firms, or raising the price elasticity of product demand. Otherwise, expansionary demand-side policies merely induce price increases without stimulating real economic activity.

I. The Model

To provide a formal rationale for our policy guidelines, we begin by constructing a simple one-period macro model. Our economy contains a fixed number (J) of firms, a fixed number (K) of households, and a government. Each firm produces a nondurable product by means of labor and distributes its profits to the households. The products are differentiated, with each firm producing a different one (a la Dixit-Stiglitz). Given the nominal wage, each firm makes its decisions about production (Q), price (P), and employment (L_I insiders and L_E new entrants). The firms face the same revenue and cost functions; thus each firm sets the same price, production and employment levels.

The government buys goods (G_i , $i=1, \dots, J$) from the firms and distributes them (free of charge) as public goods to the households.¹ It also employs workers (L_G) at the prevailing wage, receives taxes net of transfers ($K \cdot T$) to the households, and prints money (ΔM). Its budget constraint is $P \cdot (G_1 + \dots + G_J) + W \cdot L_G = K \cdot P \cdot T + \Delta M$.

Each household supplies labor (λ), consumes the firms' products (C_i , $i=1, \dots, J$), holds real money balances (M/P) as a store of value, receives real profit income (Π/P), and pays lump-sum taxes net of transfers (T). Each household maximizes its utility function $U=U(C_1, \dots, C_J, \lambda, (M/P))$ subject to its budget constraint $(C_1 + \dots + C_J) + (M/P) = (W/P) \cdot \lambda + (\Pi/P) - T + (M_{-1}/P) = Y - T + (M_{-1}/P)$, where Y is its real income, and M_{-1} are its money balances inherited from the previous period. Assuming that work is a discrete variable ($\lambda=0,1$), the

household's consumption demand for product i is $C_i = C_i [Y + (M_{-1}/P)]$.

Total product demand facing firm i is $Q_i = K \cdot C_i [Y - T + (M_{-1}/P)] + G_i$.

Let A_i be a shift parameter representing instruments of demand management policy in this product market (G_i and T). Then the product demand function may be rewritten (omitting subscript i henceforth)

$$(1) \quad P = P(Q, A).$$

This function is illustrated in Fig. 1a.

Each firm is subject to productivity shocks. Its production function is $Q = B_1 \cdot g(L)$ (where $L = L_I + L_E$ and $g' > 0$, $g'' < 0$) in a "bad state" and $Q = B_2 \cdot g(L)$ in a "good state", with $B_1 < B_2$. B_1 occurs with probability θ , and B_2 occurs with probability $(1 - \theta)$. The production function in the good state is illustrated in Figure 1b.

Decisions in the labor market are made in the following sequence. First, given the initial insider workforce m , the wage is set (through a process described below). Second, given the wage, each firm makes its initial employment decision L^* . Third, the productivity shock is observed. If a bad shock has occurred, the firm has the opportunity to fire some of its employees, so that its ex post employment (l^*) may fall short of L^* .² We will consider these decisions in reverse order.

To fix ideas, we assume that the good-state productivity B_2 is sufficiently large relative to the bad-state productivity B_1 so that, given the wage setting process described below, some entrants are hired in the good state ($L^* > m$) and some insiders are fired in the bad state ($l^* < m$). The firm faces a real hiring cost of $h \cdot L_E$ and a real firing cost of $f \cdot (L - l)$, where h and f are positive constants. The firm's employment decision in the bad state (l^*) is made so as to maximize the difference between its revenue and its variable costs: $B_1 \cdot P[g(L_I), A] \cdot g(l^*) - W \cdot l^* - f \cdot P \cdot (L^* - l)$. Thus,

$$(2a) \quad l^* = k \left[\frac{w \cdot f}{B \cdot (1 - e)} \right]$$

where $k=(g')^{-1}$, the real wage is $w=(W/P)$, and $e=(1/\eta)$ is Lerner's index of the firm's monopoly power, with η being the price elasticity of the firm's product demand.

Before the productivity shock is observed, the firm's expected profit is $\pi = \theta \cdot \{B_1 \cdot P[g(l_I^*), A] \cdot g(l_I^*) - W \cdot l_I^* - f \cdot P \cdot (L - l_I^*)\} + (1-\theta) \cdot \{B_2 \cdot P[g(L), A] \cdot g(L) - W \cdot L - h \cdot P \cdot L_E\}$. Thus, the ex ante employment level is

$$(2b) \quad L^* = k \left[\frac{w + h + (\theta/(1-\theta)) \cdot f}{(1-\theta) \cdot B_2 \cdot (1-e)} \right]$$

This labor demand function is denoted by LD in Fig. 1c.

In a good state, the firm utilizes its entire ex ante workforce L^* (in (2b)); in a bad state, the firm only uses the insider workforce l_I^* (in (2a)) that remains after the firing decision is implemented.

Now turn to the wage determination process. To bring the effects of insider power into sharp relief (without distorting our main policy message), we assume that the insiders set the nominal wage (W) in each firm so as to maximize their expected real wage income:

(3) Maximize $\phi = \theta \cdot (W/P_c) \cdot l_I + (1-\theta) \cdot (W/P_c) \cdot L_I$, subject to $L_I \leq m$, where P_c is the exogenously given consumer price index. (Yet it is important to note that our qualitative conclusions merely require that insiders have *some* market power in wage determination.) If all insiders are retained in the good state ($L_I=m$), the real wage is

$$(4) \quad w^* = B_1 \cdot (1-e) \cdot g' \left[\frac{(1-\theta) \cdot m}{\theta \cdot (1-e)} \right] + f$$

where the elasticity of labor demand, $\epsilon = -(dL/dw) \cdot (w/L)$, is assumed constant and must be less than unity at an interior optimum. This wage setting function is denoted by WS in Fig. 1e. (Note that since $\epsilon < 1$, the wage is set so that all insiders are retained in a good state.)

Finally, consider the determination of the initial insider workforce (m). If there was net hiring in the previous period ($L_{-1} > m_{-1}$), this workforce is equal to the number of last period's insiders who have not quit the firm ($(1-s) \cdot m_{-1}$, where s is the quit

rate) plus the number of last period's entrants who have turned into insiders ($\alpha \cdot (1-s) \cdot (L_{-1} - m_{-1})$, where α is a constant). We assume that only some of last period's entrants gain insider status in the current period (i.e., $\alpha < 1$ for $L_{-1} > m_{-1}$). If there was net firing in the previous period, the initial insider workforce is equal to the number of last period's insiders who have not quit the firm minus the number of last period's insiders who were fired and who would otherwise have survived to the present ($\alpha \cdot (1-s) \cdot (m_{-1} - L_{-1})$ for $m_{-1} > L_{-1}$). We assume that all insiders who are dismissed lose their influence in wage determination (i.e., $\alpha = 1$ for $L_{-1} < m_{-1}$). Thus, the insider membership function is

$$(5) \quad m = (1-s) \cdot m_{-1} + \alpha \cdot [(1-s) \cdot (L_{-1} - m_{-1})].$$

This function is denoted by IM in Fig. 1f. Since $\alpha < 1$ for $L_{-1} > m_{-1}$ and $\alpha = 1$ for $L_{-1} < m_{-1}$, the function is kinked at m_{-1} .

Combining the good-state labor demand function LD (in Fig. 1c), the wage setting function WS (in Fig. 1e), and the insider membership function IM (in Fig. 1f), we obtain the "employment dynamics function" in a good state, denoted by $D_0 D_0$ in Figure 1d.³ This phase diagram shows how employment evolves from one period to the next. Given current employment, the production function (in Fig. 1b) yields current output, and the product demand function (in Fig. 1a) yields the price level.

Since our economy consists of a fixed number of firms making identical employment, production, and pricing decisions, Figures 1 may be used to describe economic activity both on the micro level of the firm (as we have done above) and on the macro level. The macro interpretation is convenient for the purposes of the policy analysis which follows.

II. Short-term Policy Implications

For the moment, we restrict our attention to the effect of various

policies on current wages and employment, *given* the initial insider workforce. For this short-run analysis, the insider membership function clearly has no role to play. Then there are only two ways whereby government policies can stimulate employment: (i) they may raise the demand for labor corresponding to any real wage, thereby shifting the labor demand function LD upward (in Fig. 1c), or (ii) they may dampen insiders' wage demands for a given initial insider workforce, thereby shifting the wage setting function WS leftward (in Fig. 1e). In either event, the employment dynamics functions shifts upwards. We consider first demand-side, then supply-side, policies.

It is convenient to divide the *demand-side policies* into (a) those which affect the labor market directly (viz, changes in government employment, ΔL_G) and (b) those that do so indirectly, particularly via the product market. For simplicity, we assume that these policy actions are financed through money creation.

The immediate impact of a rise in government employment (at the prevailing wage) is to shift the labor demand function upwards (in Figure 1c) and thereby to stimulate employment. There may also be indirect effects operating via the product market.

We represent demand management in the product markets by a change in the parameter A of the product demand function (1), i.e. a change in government product demand (G_1) or a change in taxes net of transfers (T). The immediate impact of these policies is to shift the product demand function rightwards (in Fig. 1a). Observe, however, that the parameter A does not enter the labor demand function. This means that, for demand-side policy impulses whose only impact effect is an elasticity-preserving shift of the product demand function, labor demand at any real wage remains unchanged.⁴ Moreover, the parameter A does not enter the wage setting function (4) either. Consequently, the employment dynamics function (in Figure 1b) remains

unchanged. In other words, given the level of past employment L_{-1} , current employment is unaffected. So is current production. By implication, these demand-side policy impulses have no real effects under the imperfectly competitive conditions above; they are simply dissipated in price increases.

In order for product demand policies to be effective in this context, they must operate through one or more of the following channels:⁵ [a] They may raise the marginal product of labor, which shifts the labor demand curve upwards. This could occur through government investment in industrial infrastructure (e.g. investment in roads, railways, harbors, and sewage systems) or, when there is excess capital capacity, through product demand increases which raise the rate of capital utilization. [b] They may induce the entry of new firms, thereby stimulating aggregate labor demand at any real wage.⁶ [c] They may raise the price elasticity of product demand (η) that individual firms face - say, by encouraging entry of firms - and thereby reduce firms monopoly power (ϵ) and shift the labor demand function upwards. As shown below, each of these channels has a supply-side counterpart and thus we will analyze them in connection with supply-side policies.

The *supply-side policies* may be divided into three categories: (i) *employment-promoting policies* in the private sector, whose proximate effect is to raise the private-sector profitability of all workers, (ii) *power-reducing policies*, designed to diminish the insiders' market power, and (iii) *enfranchising policies*, whose immediate impact is to encourage hiring of outsiders, thereby "enfranchising" them in the wage setting process. Although all these policies may ultimately stimulate employment, the distinction among them lies in their proximate effects.

Employment-promoting policies can come in many forms, of which we

consider two examples. The first is *government infrastructure investment*. Provided that this policy raises the marginal product of labor, its effects may be captured by a rise in the productivity parameters B_1 and B_2 . The second covers *domestic competition-promoting policies* and *measures to open the economy to foreign competition* (e.g. tariff reductions or easing of administrative restrictions on import flows). These may be expected to raise the price elasticity of product demand, η , thereby reducing the index of monopoly power, ϵ , and raising the marginal value product of labor.

Both of these policies have same qualitative effects: (i) they shift the labor demand relation LD upward, and thereby (2) they induce the insiders to raise their wage demands, so that the wage setting function WS shifts rightwards. Consequently, while these policies lead to an unambiguous rise in the real wage (w), employment and production will be stimulated only if the labor demand function is more responsive than the wage setting function. (It can be shown that these policies will in fact raise employment whenever the marginal value product of labor in a good state exceeds that in a bad state.) Clearly, the effect on the price level depends on the relative size of the shift in the employment dynamics and the product demand functions.

The *power-reducing policies* are also quite varied in practice; they may, for example, involve relaxing existing job-security legislation (e.g. a reduction of severance pay or a simplification of legally mandated firing procedures). In our analysis, the effects of these policies may be illustrated by a reduction in the firing cost f . Clearly, this raises the expected marginal value product of labor (net of the expected firing cost) and therefore shifts the labor demand function LD up. In addition, it reduces insiders' wage demands (for the lower the firing cost, the more insiders are dismissed in the bad state, *ceteris paribus*), and consequently the wage setting function WS

shifts to the left. On both counts, the employment dynamics function shifts up, so that employment and production are stimulated. Since power-reducing policies do not affect the position of the product demand function, there is downward pressure on the price level.

It is worth noting, however, that power-reducing policies are not Pareto-improving: they benefit the outsiders at the expense of reducing insiders' real wages and job security. For this reason, the current insiders have an incentive to resist their implementation by performing a variety of rent-creating activities. For example, if the insiders engage in more litigation over firing decisions, the expected firing cost f will rise. Then the power-reducing policies will succeed in stimulating employment only if the direct effect of these policies on the firing cost is greater than the countervailing, indirect effect via insiders' increased rent creation.

Finally, there are the *enfranchising policies*, which are designed to raise the potential marginal value products of the outsiders. One example concerns *government measures to reduce barriers to the entry of new firms* (say, through appropriate changes in the tax system, legal measures to reduce the coverage of union wage agreements, or policies to increase competition among financial institutions so as to reduce credit restrictions on new firms). This policy may stimulate employment (a) directly, by raising the number of firms in the economy, and (b) indirectly, by reducing firms' monopoly power (and thereby raising the marginal value product of labor).

Another example is government subsidies for *vocational training schemes*. It is easy to show that these have the same qualitative effects as government infrastructure investment which raises the marginal product of labor: both raise insiders' wage claims and stimulate the demand for labor at any given wage, with an ambiguous net effect on employment.

Yet another example is *profit-sharing schemes*, which reduce the potential marginal cost of employing outsiders and thereby stimulate employment in an insider-outsider context (see, for example, Lindbeck and Snower (1989b), confirming Weitzman (1987)). Note, however, that such policies - like the power-reducing ones - may make the insiders worse off and thus may provoke more rent-creating activity.

Our analysis suggests that supply-side policies have a role to play in making demand-side policies effective. For example, government measures to reduce the barriers to the entry of new firms may enable demand management to stimulate such firm entry.

III. Longer-term Policy Implications

We now turn to the question of whether the policies above have persistent effects on employment. Our first longer-term policy conclusion is that *permanent* policy impulses do have *permanent* effects in the above context. These effects may be pictured in the phase diagram of Fig. 1d. We assume, for the moment, that the slope of the employment dynamics function is less than unity, and thus - in the absence of a productivity shock - the level of employment tends towards a unique long-run equilibrium. To fix ideas, suppose that the economy is initially at the long-run equilibrium point E_0 , given by the intersection of the employment dynamics function D_0D_0 and the 45° degree line. Suppose furthermore that a contractionary demand- or supply-side policy action is then taken, *permanently* shifting the employment dynamics function downwards to D_1D_1 . Then the long-run equilibrium point moves to E_1 . It is clear that the long-term employment effect of the policy is greater, the greater is the slope of the employment dynamics function (i.e. the greater is the effect of (a) past employment on the insider workforce, (b) the insider workforce on the real wage, and (c) the real wage on labor demand).

The second intertemporal policy conclusion is that *temporary*

policy shocks have *persistent* (i.e. long-lasting) effects on employment. To see this, suppose that the economy is initially at the long-run equilibrium point E_0 . Then a temporary policy shock occurs, shifting the employment dynamics function from D_0D_0 to D_1D_1 for only a single period of time, after which it returns to D_0D_0 . In response, as Fig. 1d shows, the level of employment drops from E_0 to E_3 in the course of one time period, but its return to the initial equilibrium E_0 takes many time periods. In other words, the temporary shock may affect employment for long after the shock has disappeared.

The greater the slope of the employment dynamics function, the more persistent the policy effects on employment are, i.e. the longer it takes to return to a given neighborhood of the initial equilibrium. Only in the extreme case where the slope of the employment dynamics function is equal to unity does the economy display *hysteresis*,⁷ so that *temporary* policy shocks have *permanent* effects on employment. In particular, suppose that the economy is initially at the long-run equilibrium point E_0 on an employment dynamics function given by DE_0D_0 , and that this function shifts downwards for one period and then returns to its initial equilibrium. Then the economy moves from point E_0 to E_3 and remains there permanently.

Our final conclusion is that *symmetric* shocks may have *asymmetric* employment effects. For instance, the upward shift of the employment dynamics function from D_0D_0 to D_2D_2 raises the level of employment from E_0 to E_2 ; but the equal and opposite downward shift of this function from D_0D_0 to D_1D_1 has a much more powerful impact on employment, since employment falls from E_0 to E_1 . The reason underlying this result is that the employment dynamics function has been portrayed as kinked. In our model, this is due to the kink in the insider membership function, but Lindbeck and Snower (1988, 1989a) show that it may also be due to a kinked wage setting function.

Our analysis suggests a case for countercyclical policy actions. The more persistent the effects of temporary shocks, the greater the need for the such policy actions to smoothe the employment and production trajectories. Furthermore, whenever the persistence is asymmetric, as described above, the case for these policies is particularly strong, since negative shocks have more powerful employment effects than positive shocks.

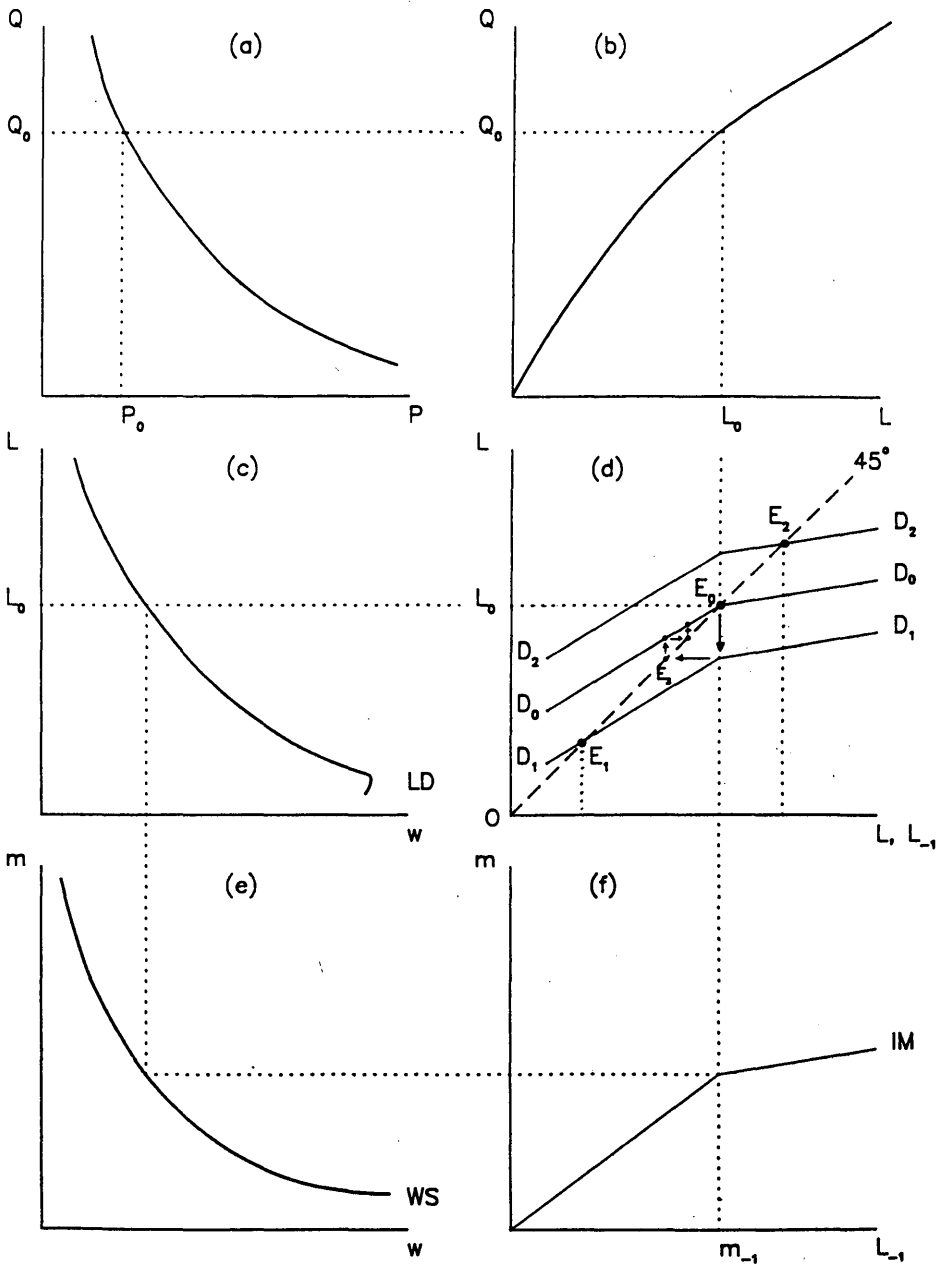
In sum, our analysis (a) points to the need for more than the customary reliance on supply-side policies to stimulate employment and production without raising prices, (b) specifies channels whereby demand-side policies can have real effects, (c) identifies supply-side policies which augment the real effects of demand-side policies, and (d) provides a new case for countercyclical policy.

FOOTNOTES

1. The public goods are assumed to be neither substitutes for nor complements to private consumption.
2. For simplicity, we assume that firing can occur instantaneously whereas hiring requires time; thus, once the shock has been observed, the firm is able to fire current employees (in a bad state) but not to hire more entrants (in a good state) than it initially employed.
3. The employment dynamics function in a bad state - derived from the bad-state labor demand function (2a) along with the wage setting and insider membership functions - has a similar shape and similar policy implications. Thus, it has been omitted from Fig. 1d.
4. This result is quite general and has been rationalized elsewhere, e.g. Lindbeck and Snower (1987).
5. For a detailed analysis, see Lindbeck and Snower (1987).
6. This holds in the long-run equilibrium, but the real wage must fall during the process of adjustment.
7. See Blanchard and Summers (1986).

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FIGURES 1: The Imperfectly Competitive Equilibrium