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Economic Integration and Union Power

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Abstract

The standard utility-maximizing model of the trade union in a closed economy is reformulated for an environment where economic integration is under way or expected to occur soon. In the (European) realistic setting of union-dominated labor markets, domestic wages are shown to be affected by labor market developments abroad. This article provides an explanation of the international transmission of inflation and disinflation

This article is concerned with the decision-making process of centralized trade unions in an environment where full-scale economic integration is under way or expected to occur soon. The standard utility-maximizing problem of the trade union is extended to accommodate the fresh constraints posed by the economic integration process, specifically that pertaining to unification of capital markets.

The very fact that the economic theory of the trade union was originally articulated (see Oswald, 1982) for a closed economy ought to justify such an extension. There has been, of course, much work done where the utility-maximizing trade union is one of the major actors in an *open* economy (see, for instance, Gylfason and Lindbeck, 1986; and Soderstrom, 1985), but without the explicit introduction of any additional decision-constraining variable that a complete economic integration seems to warrant, at least from the point of view of the current authors. The emphasis has been rather on policy effects and accommodation to external shocks in the presence of the standard utility-maximizing trade union, with external targets sometimes entering government objective functions.

In the real world, however, developments abroad impinge heavily on all choices made at home and affect all participants in the open economy. Trade union representatives and their counterparts across the bargaining table are no exception to this rule. Thus the drawing up of the Social Charter of the European Union reflects, among other things, the concern of high-wage countries for competition from the low-wage nations of the periphery. No wonder, then, that the French called it "social dumping" when Electrolux moved to Scotland! The so-called "Edin Norm," which has been hotly debated in Sweden, recommends that the Swedish wage (inflation) should be at par with the average wage in similar (European Union) industrial nations—a recommendation that is, in fact, reminiscent of the central theorem derived in this article assuming utility-maximizing trade union behavior in open economies.[1] The increasing ability of less developed and newly industrializing countries to attract internationally mobile capital is at least partly attributable to their relatively low domestic wage levels. But the literature on trade union behavior is yet to take *explicit* account of this kind of international independence. Hence an attempt to take this situation into account seems worth pursuing.

The starting point for our analysis is the recognition that in an integrated market such as the European Union, where barriers to trade as well as capital flows have been fully dismantled, there is perfect capital mobility.[2] And at least *one* of the determinants of the net inflow would be the difference (or the change in the difference) in the rates of the profitability. While such a specification is commonly accepted for short-term financial flows (Kouri and Porter, 1974, is the standard reference), it is often incorporated even in the explanation of the flow of direct investment funds (see Kouri, 1978). We feel it is reasonable to assume that in the decision to allocate capital between national markets, multinational enterprises are guided at least partly by the differences in profitability. Of course there may be a variety of other reasons such as political stability, tax loss, etc., which are not considered here.

The other building block in the model is the assumption that trade unions are not myopic. Thus, they are cognizant of the possibility that their wage demands will, in the longer run, affect capital formation via inflows, which has implications for total employment in the future. With such a specification, the home union's wage demands are seen to be tempered by moderation in wage setting abroad.

Such an outcome, which would imply eventual equalization of wage inflation, if not of levels, would of course be a trivial matter with perfect *labor* mobility. But such mobility is indeed not the case now, with labor being fairly immobile in practice despite the lowering of formal barriers. Again, the classical Heckscher–Ohlin trade theory predicts equalization of wages, but this outcome occurs in the absence of factor market integration and is portrayed in a world with perfectly clearing labor markets and no unions, a description that is out of place in the European Union. The present article, therefore, continues in the realistic tradition of modeling unions in European labor markets, a feature that has spawned an extensive literature.[3]

1. The nonmyopic utility-maximizing trade union

The trade union modeled in this article is nonmyopic in the sense that it is aware fully of the effect on capital formation via the medium of net investment inflows seeking higher profits of its wage-setting behavior. Hence we consider a longer planning horizon that takes into account the intertemporal nature of the utility function. We set up a model where all members of the labor force are organized by a single trade union, which can set the real wage. The implied cost of labor then determines the employment decisions of profit-maximizing firms. The union sets the real wage to maximize a utility function defined over the real wage and total employment, subject to a demand-for-labor constraint.[4] We assume perfect information and no restrictions on the speed of adjustments, so the real wage objective of the union is always reached.

Formally, we adopt a two-period intertemporal utility-maximizing union along the lines presented in Calmfors and Horn (1985), whose emphasis is, however, on the effects of government policies. Here we ignore the effects of government policies and allow for the accumulation of capital between the first and the second periods. Reduced capital inflows due to relatively lower profitability in the first period, which in turn is the result of comparatively high wage costs, will result in lower employment in the second period, a fact well–digested by our far-sighted trade union. Capital accumulation via inflows as modeled in Kouri (1978) may be considered to be taking place in a shorter time span than that needed for capital stock formation via domestic investment.

The trade union maximizes an intertemporal utility function, which is separately additive across the two time periods:

$$V = U^0(W^0, E^0) + \frac{1}{(1+\delta)}U^1(W^1, E^1), \tag{1}$$

where the superscripts 0 and 1 refer to the two time periods and W represents the wage rate, E the employment level, and δ the rate of time preference. The utility function is assumed to be increasing in both arguments (W, E), and quasi-concave—so that union preferences can be represented by a set of convex indifference curves. Thus we have $U^i_W > 0, U^i_E > 0, U^i_{WW} < 0, U^i_{EE} = 0$, and $U^i_{WE} > 0$, for both periods $(i = 0, 1)$.[5] We abstract from taxes and other variables (thus making net pay equal to gross pay), and we also assume that the aggregate price level is constant. Profit-maximizing behavior with constant returns-to-scale production functions implies the employment functions

$$E^0 = N^0(W^0)K^0 \tag{2}$$

and

$$E^1 = N^1(W^1)K^1, \tag{3}$$

where N^0 and N^1 are employment levels per unit of capital stock and K^0 and K^1 are the capital stocks in the present and the future periods.

2. Capital mobility and wage formation

Accumulation of capital can occur between the two time periods due to capital inflows that depend on relative profitability or wage cost differentials. Thus,

$$K^1 = K^0 + \Delta K \quad \text{with} \tag{4}$$
$$\Delta K = f(Z), \tag{5}$$

where Z is the wage–cost differential in the first period,

$$Z = (W^F - W^0), \tag{6}$$

W^F being the foreign-wage rate in period 0. Clearly, $K_z^1 > 0$.

The trade union maximizes (1) subject to the employment equations (2) and (3), giving rise to the following first-order conditions:

$$\frac{\partial V}{\partial W^0} = 0, \text{ i.e., } U_W^0 + U_E^0 K^0 N_W^0 - \frac{1}{(1+\delta)} U_E^1 N^1 K_Z^1 = 0; \tag{7}$$
$$\frac{\partial V}{\partial W^1} = 0, \text{ i.e., } \frac{1}{(1+\delta)} U_W^1 + \frac{1}{(1+\delta)} U_E^1 K^1 N_W^1 = 0. \tag{8}$$

Totally differentiating (7) and (8) with respect to W^0, W^1, and W^F, we get[6]

$$U_{WW}^0 dW^0 + U_{WE}^0 K^0 N_W^0 dW^0 - \frac{1}{(1+\delta)} U_E^1 K_Z^1 N_W^1 dW^1 = 0, \tag{9}$$
$$\frac{1}{(1+\delta)} U_{WW}^1 dW^1 + \frac{1}{(1+\delta)} U_{WE}^1 K^1 N_W^1 dW^1 + \frac{1}{(1+\delta)} U_E^1 N_W^1 K_Z^1 (dW^F - dW^0) = 0. \tag{10}$$

Equations (9) and (10) may be represented conveniently in the matrix system

$$\begin{bmatrix} U_{WW}^0 + U_{WE}^0 K^0 N_W^0 & -\frac{1}{(1+\delta)} U_E^1 K_Z^1 N_W^1 \\ -\frac{1}{(1+\delta)} U_E^1 N_W^1 K_Z^1 & \frac{1}{(1+\delta)} U_{WW}^1 + \frac{1}{(1+\delta)} U_{WE}^1 K^1 N_W^1 \end{bmatrix} \begin{bmatrix} dW^0 \\ dW^1 \end{bmatrix} = \begin{bmatrix} 0 \\ -\frac{1}{(1+\delta)} U_E^1 N_W^1 K_Z^1 dW^F \end{bmatrix}.$$

To obtain the sign of the terms in the matrix, use the second-order conditions that can be derived from (7) and (8):

$$U_{WW}^0 + U_{EW}^0 K^0 N_W^0 < 0, \tag{11}$$

$$\frac{1}{(1+\delta)}U^1_{WW} + \frac{1}{(1+\delta)}U^1_{WE}K^1N^1_W < 0. \tag{12}$$

From these second-order conditions (11) and (12), the left-hand top-corner and right-hand bottom-corner terms in the matrix are negative, while the remaining two terms are clearly positive. The sign of the determinant

$$\Delta = \left(U^0_{WW} + U^0_{WE}K^0N^0_W N^0_W\right)\left(\frac{1}{(1+\delta)}\right)\left(U^1_{WW} + U^1_{WE}K^1N^1_W\right)$$
$$-\left(\frac{1}{(1+\delta)}\right)^2 \left(U^1_E N^1_W K^1_Z\right)^2$$

will, in fact, depend upon the degree of capital mobility, i.e., the response of international capital flows to changes in relative profitability. Specifically, $\Delta < 0$ when

$$K^1_z > \frac{\sqrt{(1+\delta)\left(U^0_{WW} + U^0_{WE}K^0N^0_W\right)\left(U^1_{WW} + U^1_{WE}K^1N^1_W\right)}}{U^1_E N^1_W}. \tag{13}$$

Equation (13) is, of course, met when capital is perfectly mobile across borders ($K^1_z = \infty$). But it is, in general, likely to hold, since the *multiples* of the *second* derivatives U^1_{WW} and U^1_{WE} will be small relative to U^1_E.[7] Then, with the degree of capital mobility given by (13),

$$\frac{dW^0}{dW_F} = \frac{0 - \frac{1}{(1+\delta)^2}\left(U^1_E N^1_W K^1_Z\right)^2}{\Delta} > 0. \tag{14}$$

Hence, a change in the foreign wage rate causes the domestic wage rate to change in the same direction. In fact, a scrutiny of (14) reveals that the domestic wage change may more or less match the foreign wage rate change in quantitative terms as well.

Equation (14), of course, is dependent on the magnitude of K^1_Z, i.e., the derivative of international capital flows with respect to the wage differential. K^1_Z must be sufficiently large for the result to hold. While this observation is made on the purely theoretical plane, there is ample reason to believe that the sensitivity of international capital flows to wage rate differences is quite high. Countries like India have experienced large capital inflows once institutional barriers to foreign investments have been removed, at least partly due to the relatively low wage rates prevailing there. Again, burgeoning labor costs in Japanese manufacturing have motivated huge investments by Japanese firms in the manufacturing sectors of Southeast Asian countries. It may not be stretching the point to note a similar advantage enjoyed by Ireland as European unification gathered momentum. While other factors such as a skilled labor force with facility in the

English language would have been at play, low wage rates relative to major countries of the Union have been often cited as a prime Irish advantage that attracts foreign capital.

It may be worth noting here that in some macromodels of an open economy—for instance, that of the long-run model of the National Institute of Economic Research in Stockholm—equality of home and foreign inflation rates is specified as a long-run equilibrium condition (see Markowski and Nandakumar, 1993). With international allocation of investible capital, the equality of wage rates (inflation) would seem a natural corollary.

3. Transmission of inflation

The model set out here can also offer an additional explanation for the transmission of inflation between countries. Earlier studies of *cost-push* (as opposed to *monetarist*) transmission of inflation have usually adopted the sociological approach, relying on an "international demonstration effect." Workers in one country observe militant wage demands in other countries, and become themselves more militant.[8] The underlying assumption, of course, is that labor productivity does not differ between countries. If it does differ, then employment would be cut back in the country with lower productivity, and the monopolist union, not being blind to this, would be reluctant to press for wage hikes.

But the value of such an approach has generally been discounted due to its inability to explain why the reverse process does not usually hold well, i.e., trade unions becoming more moderate in wage claims on observing union docility abroad.

The model presented in the present article may be considered to provide an explanation for the international transmission of inflation and disinflation, with the ability to account for the spread of *docility* as well as militancy in wage demands. For if trade unions abroad are toning down wage demands, the centralized trade union in the home country has to follow suit to avoid the disastrous consequences for *future* employment as a result of decreased allocation of internationally mobile capital.

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Notes

1. The Edin Norm was developed by the so-called Edin group, with P.O. Edin, Chief Economist of Landsorganizationen, the largest centrally formed trade union in Sweden, as the chairman, and included other prominent economists from labor market organizations. The Edin Norm did not

work out quite as envisaged, because the norm turned out to become more or less a *floor* for wage increases.

2. However, it may be noted that tests for capital mobility have often turned up surprisingly negative results that are often attributed to the use of a somewhat extreme version of capital mobility, where the formulation requires even purchasing power parity to hold. A case in point is Feldstein and Horioka (1980), an article that gave rise to considerable discussion on the topic.
3. Oswald (1985) provides an early survey of the literature. See also Calmfors (1993) for a later survey and discussion of the application of the concepts.
4. Oswald (1982) shows that if the union has utilitarian preferences, and if its members are risk averse, there exists an increasing, quasi-concave union utility function defined on wages and employment.
5. If individuals are risk averse, which implies that marginal utility is decreasing in wealth, as is the case for concave functions, then $U^i_{WW} < 0$. Also, it is easily shown (see Calmfors, 1982, p. 387) that $U^i_{EE} = 0$. The utility function for each period is derived as a summation of the indirect utility levels of employed and unemployed workers. The utility levels of employed workers depend on the wage rate, while the utility level of unemployed members is derived from government transfers. Since the employment level thus enters the utility expression in scale fashion only, marginal utility is not dependent on it. Assuming a fixed number of members of the trade union M, and a certain utility level $\bar{v}$ received by the unemployed, the expected utility can be written as $U^i = \frac{E}{M}v(w) + (1 - \frac{E}{M})\bar{v}$. Therefore, $U^i_E = \frac{1}{M}(v(w) - \bar{v}) > 0$ and $U_{EE} = 0$.
6. N_{WW}, K_{ZZ}, and U_{EE} are assumed to be zero. Both N_{WW} and K_{ZZ} could be taken to be negative without changing the results.
7. It may be even reasonable to assume that $U^1_{WE} = 0$, since the trade union, while deriving utility from future employment and wage changes, may not be reflecting on this future cross-derivative.
8. See OECD (1970) and the discussion on world inflation in Classen and Salin (1972).

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