Currency devaluation in an open-shop union

Ching-chong Lai\textsuperscript{a}, Juin-jen Chang\textsuperscript{b,},*\textsuperscript{,} Wen-ya Chang\textsuperscript{b}

\textsuperscript{a}Sun Yat-Sen Institute for Social Sciences and Philosophy, Academia Sinica, Taiwan, ROC
\textsuperscript{b}Department of Economics, Fu-Jen Catholic University, Hsinchuang, Taipeh 24205, Taiwan, ROC

Received 10 May 1999; revised 11 December 1999; accepted 29 April 2000

Abstract

This paper sets up an efficient wage–employment bargaining model embodying both styles of closed- and open-shop union in the context of an open economy. The paper’s main purpose is to highlight the impacts of a domestic currency devaluation on the labor market and aggregate output. It is found that the effects of currency devaluation, in general, are not unequivocal. Particularly, owing to the influence of the membership effect, its impacts are crucially related to the operation style (closed shop or open shop) of the union. © 2001 Elsevier Science Inc. All rights reserved.

\textit{JEL classification: J51; F31}

Keywords: Currency devaluation; Wage–employment bargaining; Open-shop union

1. Introduction

There has been a surge of interest and concern discussing whether currency devaluation has an expansionary impact on domestic output in the field of international finance. In the theoretical literature, Meade (1951), Takayama (1969), and Tsiang (1961) suggest that devaluation will definitely stimulate domestic output. However, Gylfason and Schmid (1983), Krugman and Taylor (1978), and Salop (1974) set up models to argue that the impact of devaluation on output could be contractionary. In empirical studies, evidence also reveals mixed results. Barbone and Rivera-Batiz (1987), Edwards (1986), Ghura (1995), and Gylfason and Schmid (1983) find that devaluations have an expansionary effect on output,
whereas, Branson (1986), Gylfason and Risager (1984), and Upadhyaya (1999) estimate data to highlight the adverse result.

According to Agénor and Montiel (1996) and Lizondo and Montiel (1989), currency devaluation will affect output via two avenues: the demand channel and the supply channel. Among the literature, Findlay and Rodríguez (1977), Marston (1982), and Sachs (1980) highlight that currency devaluation can influence output from the viewpoint of supply side. Departing from studies that emphasize the supply channel, this paper focuses on the impact of labor institutions on economic performance after devaluation from the perspective of international labor economics. Specifically, this paper proposes the wage-setting behavior in the trade union framework to investigate the relationship between currency devaluation and the supply of domestically produced goods.

Such research is useful in three perspectives. First, wage-bargaining theories are now widely accepted as a theoretical basis for the persistence of a high level of unemployment. Our work provides a useful step to clarify the specific impact of union labor structure (e.g., Nordic countries with high unionization)¹ on the response of an economy to a currency devaluation.²

Second, OECD (1991, p. 109) reports that unions in the manufacturing sector are of crucial importance to overall economic influence. In particular, in the manufacturing industry of South Korea and Japan, large unionized organizations often play an important role in substantially improving wages.³ (See Frenkel & Kuruvilla, 1999; Wilkinson, 1994.) In view of these facts, our work seems to be particularly important and convincing for the assessment of nominal shocks resulting from large currency devaluations (e.g., in the aftermath of the Asian and Latin American financial crisis) and, to a lesser extent, other crisis episodes (e.g., the wreck of Europe’s Exchange Rate Mechanism).

Third, until now, almost all union models have focused on both wage and employment determination within a closed-shop framework.⁴ In the closed-shop union, only union members are eligible for employment, hence, the level of membership is fixed. This type of modeling obviously cannot apply to all operations of membership. According to the figures provided by Brown and Wadhwani (1990), in Sweden, more than 80% of employees joined unions over the period of 1980–1985, hence, the closed-shop union is a plausible assumption for such a situation. However, since government legislation (e.g., the Right-To-Work Act in US) has increasingly restricted the operation of the closed-shop union in many countries, there is a dramatic fall in aggregate union density through the 1980s (OECD, 1991). In both the US and France, less than 30% of employees are unionized, and in New

¹ See OECD (1991) for details.
² Recently, Agénor and Santaella (1998), Andersen (1998), and Lai and Chang (1997) examine the possible transmission process of the labor market in response to an exchange-rate-based stabilization program.
³ According to the report of Jomo and Patricia (1994, p. 25), in Malaysia “there has been a tremendous increase in the number of Malays entering wage employment, especially during the 1970s.” This structural change has had a profound effect on the dispute issue of wages in strikes since the 1980s. Southall (1988, p. 3) also claims “[t]his ‘new international labour studies’ notwithstanding, the role of trade unions in the third world has recently been coming under renewed scrutiny . . . .”
⁴ Oswald (1985) and Ulph and Ulph (1990) provide comprehensive surveys on the closed shop union.
Zealand, the union density even declines to 17.7% in 1998. An open-shop union with variable membership turns out to be a more reasonable presumption for model setting. Linneman, Wachter, and Carter (1990) argue that the large decline in unionization apparently challenges the economic explanation to the determination of wages and employment. This paper thus constructs an efficient bargaining model, which is able to describe both closed-shop and open-shop unions. In this framework of international labor economics, we not only examine the effect of currency devaluation on equilibrium wages, employment, and domestic output, but also investigate how the impact of a currency devaluation on the economy is affected by different operations (closed shop or open shop) of the trade union. We find that whether the union is closed or open may constitute a potential vehicle for solving the devaluation controversy. Moreover, owing to different operations in the trade union, currency devaluation also creates different effects on equilibrium wages and employment.

The remainder of the paper proceeds as follows. Section 2 derives the membership function by analyzing the individual membership decision. Section 3 sets up a theoretical model embodying the essential features of efficient bargaining, and then examines the effect of a currency devaluation on wages, employment, and domestic output. Finally, concluding remarks are presented in Section 4.

2. A social custom model of union membership

Any theory of union membership decisions must deal with the free rider problem. If a worker’s decision over joining the union is voluntary, the union-set wage is a public good applying to all workers regardless of their union status. A question naturally arising under this circumstance is the following: If the member of a union needs to pay membership costs, why do workers join the union instead of taking a free ride? One plausible answer to this question is that the union provides some incentive and exclusive goods available only to union members. According to Booth (1985), Booth and Chatterji (1993), and Naylor (1989, 1990), the most important incentive is the reputation enjoyed by union members as compared with other non-unionized workers. In this section, we follow this line of thinking to set up the model of an open-shop union.

In an open economy, workers can consume both domestic goods and imported goods. The relevant price index for them is thus the general price level \( g \), which is defined to be a weighted average of domestic and foreign prices (Eq. (1)):

\[
g = \alpha E p^* + (1 - \alpha) p,
\]

where \( E \) is the exchange rate defined to be the price of foreign exchange in terms of the domestic currency, \( p^* \) the foreign currency price of imports, \( p \) the price of domestic output, and \( \alpha \) the fraction of expenditure spent on imports.

---

5 Some articles, including Goerke (1997), Holmlund and Lundborg (1999), and Moreton (1998), address the subject that the operation of the open-shop trade union could have a decisive impact on policy implication.
Following Naylor (1989, 1990), the utility of the representative worker \( i \), \( v_i \), is assumed to be additionally separable in his real disposable income and benefits belonging to social custom, i.e.,

\[
v_i = \frac{w - cs}{g} + \delta_i ms,
\]

where \( w \) and \( c \) denote the nominal wage and membership fees, respectively. The term \( \delta_i \) is the worker’s subjective sensitivity to the reputation benefit stemming from participating in the union. The term \( s \) is the worker’s status variable: \( s = 1 \) if the worker joins the union and \( s = 0 \) if the worker does not join the union. In addition, \( m \) is defined to be the union density with \( 0 \leq m \leq 1 \). Given that the pool of workers in the economy \( N \) is fixed and normalized to unity, \( m \) thus can be treated as both the size and the density of the union.

Let \( v_i^j \) stand for the total utility of a union member \( i \) in employment. From Eq. (2) with \( s = 1 \), we then have:

\[
v_i^j = \frac{w - c}{g} + \delta_i m.
\]

In Eq. (3), \( \delta_i m \) captures the reputation benefit of the union member. The reputation benefit is specified to be an increasing function of the density of the union \( m \). This specification is to reflect the plausible assumption in the literature of social customs: The larger the fraction of the sector unionized is, the higher is the individual’s reputation within the group from joining the union. Furthermore, workers are assumed to be heterogeneous with respect to their subjective sensitivity to the solidarity-derived utility, given by \( \delta_i \). The sensitivity \( \delta_i \) exhibits a uniform distribution on the interval \([0, 1] \), and its probability density function is given by \( f(\delta_i) \). It is easily derived that the cumulative distribution function is \( F(\delta) = \delta \).

On the other hand, let \( v_i^{nj} \) represent the total utility of a non-member \( i \) in employment. It then follows from Eq. (2) with \( s = 0 \) that:

\[
v_i^{nj} = \frac{w}{g}.
\]

Comparing Eq. (4) with Eq. (3), it is clear that the non-member does not pay membership fees and takes a free ride, but cannot enjoy the reputation benefit.

The \( i \)'th worker joins the union if and only if \( v_i^j \geq v_i^{nj} \), i.e.,

\[
\delta_i m \geq \frac{w}{g} - \frac{w - c}{g} = \frac{c}{g}.
\]

Eq. (5) states that the worker joins the union when he evaluates that the reputation gained from complying with the social custom surmounts the loss from paying membership fees. Consequently, in line with Booth (1985) and Jones and McKenna (1994), it is plausible to specify that the union member will adjust in the following manner:

\[
m = k(\delta m - \frac{c}{g}); \quad k > 0,
\]
where an overdot indicates the rate of change with respect to time and \( k \) is the speed of adjustment. Eq. (6) states that the membership will grow whenever the utility of the union member exceeds that of the non-member.

In addition, the density of the union \( m \) is closely related to the distribution of \( \delta \). As \( \delta \) displays a uniform distribution on the interval \([0, 1]\), we then have:

\[
m = \int_{\delta}^{1} f(\delta) d\delta = 1 - \delta. \tag{7}
\]

Putting Eqs. (6) and (7) together yields:

\[
\dot{m} = k \left[(1 - m)m - \frac{c}{g}\right]. \tag{8}
\]

From Eq. (8), we can easily derive that the stability condition requires \( m > 1/2 \), or equivalently \( m/\delta > 1 \).

A graphical illustration proposed by Naylor (1990) will be helpful to our understanding of the stability condition. The pairs of \( \delta \) and \( m \) that satisfy \( m = 0 \) in Eq. (6) can be depicted by the \( m = 0 \) schedule in Fig. 1. It is easy to see that the \( m = 0 \) curve is a rectangular hyperbola (Eq. (9)):

\[
\frac{\partial m}{\partial \delta} \bigg|_{\dot{m}=0} = -\frac{m}{\delta} < 0. \tag{9}
\]

The relation \( \partial m/\partial \delta = km > 0 \) implies that membership will rise (fall) and the vertical arrows point north (south) in the area which is to the right (left) of the \( m = 0 \) schedule.

On the other hand, in Fig. 1, the distribution schedule (DS) traces all combinations of \( \delta \) and \( m \) that fulfill Eq. (7). It is clear from Eq. (7) that the slope of the DS locus is defined in Eq. (10):

\[
\frac{\partial m}{\partial \delta} \bigg|_{\text{DS}} = -1 < 0. \tag{10}
\]

As described in Fig. 1, the \( m = 0 \) schedule and the DS schedule intersect twice at \( Q \) and \( H \). There are thus two potential stationary equilibria. As Eq. (7) represents a definitive relation between \( \delta \) and \( m \), it should be satisfied at all times. Hence, the economy is not allowed to deviate from the DS schedule. As indicated by the arrows in Fig. 1, given that \( m \) will rise (fall) for points to the right (left) of the \( m = 0 \) locus, it is

\[6\] Given the relation \( \delta = 1 - m \) in Eq. (7), \( m > 1/2 \) can be alternatively expressed by \( m/\delta > 1 \).
clear that point $Q$ is a stable equilibrium while $H$ is an unstable one. At point $Q$, the $m=0$ curve is steeper than the DS schedule, implying that the stability condition requires $m/d > 1$.

Given that $m > 1/2$, it follows from Eq. (8) with $m = 0$ that the stationary membership $\dot{m}$ exhibits the following functional form:

$$\dot{m} = \dot{m}(c, E, p, p^*)$$

where Eqs. (11a)–(11d) hold true.

$$\dot{m}_c = 1/g(1-2m) < 0,$$

$$\dot{m}_E = -c\omega^*/g^2(1-2m) > 0,$$

$$\dot{m}_p = -(1-\alpha)c/g^2(1-2m) > 0,$$

$$\dot{m}_p = -c\omega E/g^2(1-2m) > 0.$$

Eq. (11a) indicates that an increase in membership costs will lower the relative benefit from joining the union, and hence induces a lower number of workers to join the union. Eq.

---

7 Naylor (1990) points out that the equilibrium is unstable if both the $m=0$ locus and the DS schedule are tangent.
(11b) states that a currency devaluation has a positive impact on the union density. This result stems from the fact that if $c$ is fixed, in response to a devaluation’s inflationary impact, the real cost of joining a union will fall. This induces an entry into the open-shop union and hence increases union density. The same reasoning can be applied to highlight changes in domestic product price and price of imports.\(^8\)

Before we end this section, some points are worth mentioning. First, to avoid the undercutting problem of non-union members, the union formally does not attempt to target a union-negotiated wage to union members only. Therefore, the union-set wage is a public good applying to all employees regardless of their union status. (For details, see Booth, 1985.) Owing to the fact that a change in the union wage does not affect the relative utility between union member and non-member, in Eq. (11), membership has nothing to do with the union wage.\(^9\) Second, union membership is fixed in the context of the closed-shop union. This implies \(\hat{m}_c = \hat{m}_E = \hat{m}_p = \hat{m}_p^* = 0\) in Eq. (11). Third, it is quite straightforward from Eq. (7) to infer that the stationary values of \(\delta\) and \(m\), namely \(\hat{\delta}\) and \(\hat{m}\), have the following relation:

\[
\hat{\delta} = 1 - \hat{m}. \tag{12}
\]

3. The efficient wage–employment bargains

So far, we have examined union membership, treating the wage as an exogenous given variable. In this section, the union–firm bargaining over wage and employment will be modeled. For analytical convenience, we assume that the union executive seeks to maximize the sum of the expected utilities of each of its individual members. We first define the expected utility of the union member.

Let \(n\) stand for the probability of being employed and let \(1 - n\) represent the probability of being unemployed, when workers are selected at random from the entire pool of workers in the economy. It should be noted that, given that the pool of workers \(N\) is normalized to unity, \(n\) can be treated as both the probability of employment and the total amount of labor employed. Moreover, in line with Booth and Chatterji (1993, 1995), we assume that a member will leave the union when he is unemployed,\(^{10}\) and that

\(^8\) However, if the costs \(c\) can be fully indexed to the general price level \(g\) by the union, the impact of a currency devaluation on union membership will disappear. In reality, the subscription costs seem to have rigidity to some extent.

\(^9\) We should recognize that union membership may vary positively with the wage rate in some circumstances. First, when the union attempts to target a union-negotiated wage to union members only, the union membership is positively related to wages. Second, if the union’s members are risk averse (rather than risk neutral), a higher wage could lead to more membership due to the diminishing marginal utility (see Booth & Chatterji, 1993, 1995). However, such a specification does not alter qualitatively our main results. We are grateful to an anonymous referee for bringing this point to our attention.

\(^{10}\) For supporting evidence, see Barker, Lewis, and McCann (1984).
membership fees are refunded to him if he leaves the union. Let $b$ be the real unemployment benefit.\(^\text{11}\) The expected utility of union member $i$, namely $\varepsilon v_i^j$, can be expressed as (Eq. (13)):

$$
\varepsilon v_i^j = n \left( \frac{w - c}{g} + \delta_i \hat{m} \right) + (1 - n)b.
$$

Letting $\Omega$ be the sum of the expected utility of all union members, it can be written as:

$$
\Omega = \int_0^1 \left[ n \left( \frac{w - c}{g} + \delta \hat{m} \right) + (1 - n)b \right] d\delta.
$$

Recalling $\delta = 1 - \hat{m}$ in Eq. (12), Eq. (14) reduces to:

$$
\Omega = \hat{m} \left\{ n \left[ \frac{w - c}{g} + \frac{1 - (1 - \hat{m})^2}{2} \right] + (1 - n)b \right\}.
$$

Next, consider the behavior of the firm. Defining $y$ to be real output, the firm then has a short-run production function $f$ (Eq. (16)):

$$
y = f(n); \quad f_n > 0, f_{nn} < 0.
$$

The representative firm attempts to maximize the following profit function $\pi$:

$$
\pi = pf(n) - wn.
$$

We now proceed to discuss the joint determination of wage and labor employment. In line with Booth (1995) and McDonald and Solow (1981), the generalized Nash bargaining solution is expressed as:

$$
\max_{n, w} L = (\Omega - \Omega_0)^\beta (\pi - \pi_0)^{1-\beta}; \quad 0 \leq \beta \leq 1,
$$

where $\beta$ and $1 - \beta$ represent the bargaining power of the union and the firm, respectively, and $\Omega_0$ and $\pi_0$ are respectively fall-back positions for the union and the firm if no bargain is reached. Following a common specification in the open-shop trade union model (e.g., Booth & Chatterji, 1995; Holmlund & Lundborg, 1999), the union is assumed to be strong enough

\(^{11}\) The real unemployment benefit $b$ is treated as a constant value throughout the paper. This specification can be justified by assuming that the unemployment benefit offered by the government is completely indexed to the general price level. In other words, $b$ remains unchanged in response to a change in $g$. Related studies adopting a similar assumption are Creedy and McDonald (1992), Sampson (1986), and Yip (1988).
to ensure that no worker will offer his labor service to the firm.\textsuperscript{12} This implies \( n = 0 \), and, hence, it follows from Eqs. (15) and (17) that \( \Omega_0 = \hat{m}b \) and \( \pi_0 = 0 \) if no contract is signed.

Substituting Eqs. (11), (15), and (17) into Eq. (18) and recalling \( \Omega_0 = \hat{m}b \) and \( \pi_0 = 0 \), we have:

\[
\max_{n,w} L = \left\{ \hat{m}(c,E,p,p^*) \left[ \frac{w - c}{g} + \left( \frac{1}{2} (1 - \hat{m}(c,E,p,p^*))^2 \right) - b \right] \right\}^{\frac{\beta}{p}} \rho_f(n)
\]

The first-order conditions to the maximization problem reported in Eq. (19) can be expressed as:

\[
w = \beta \frac{pf}{n} + (1 - \beta)pf_n, \tag{20}
\]

\[-g \left[ \frac{w - c}{g} + \frac{1}{2} (1 - \hat{m})^2 - b \right] = pf_n - w. \tag{21}
\]

Eq. (20), which is named the power locus by Creedy and McDonald (1991), indicates that the union wage is equal to a weighted average of the average and marginal revenue products of labor.\textsuperscript{13} In Eq. (21), the left-hand side is the slope of the union’s indifference curve and the right-hand side is the slope of the firm’s iso-profit curve. Eq. (21) thereby denotes, as from the usual definition in the efficient bargaining model, that the contract curve as the locus of points at which the union’s indifference curve and the firm’s iso-profit curve are tangent.

Eqs. (20) and (21) can be simultaneously solved to determine the level of employment \( n \) and the union wage \( w \). For notational simplicity, in what follows, we assume that \( p = p^* = E = 1 \) (and, hence, \( g = 1 \)) initially. Totally differentiating Eqs. (20) and (21) yields:

\[
\begin{bmatrix}
1 & -1/n \left[ \beta (f_n - \frac{c}{n}) + (1 - \beta)nf_{nn} \right] \\
0 & -f_{nn}
\end{bmatrix}
\begin{bmatrix}
dw \\
dn
\end{bmatrix}
= \begin{bmatrix}
[\beta \frac{c}{n} + (1 - \beta)f_n] dp \\
[(1 - \hat{m}) \hat{m}E - \alpha(f_n - c)] (dE + dp^*) - [1 - (1 - \hat{m}) \hat{m}c] dc \\
+ [f_n + (1 - \hat{m}) \hat{m}p - (1 - \alpha)(f_n - c)] dp
\end{bmatrix}. \tag{22}
\]

\textsuperscript{12} This simplicity seems to be realistic owing to the credibility of a strike and lockout threats. See Kiander (1991) for a detailed discussion. It is possible, of course, for the firm to allow the remaining insiders to work and to pay them wages in the disagreement case. Corneo (1995) adopts this alternative specification. Nevertheless, the qualitative main result of our paper is still valid.

\textsuperscript{13} Booth (1995, p. 132) refers to it as the rent division curve.
By Cramer’s rule, from Eq. (22), the impacts of a currency devaluation on labor employed and wages are given by:

\[
\frac{\partial n}{\partial E} = \left[ \alpha (f_n - c) - (1 - \hat{m})\hat{m}_E \right] / fnn \geq 0, \quad \text{if } \alpha (f_n - c) \geq (1 - \hat{m})\hat{m}_E; \quad (23)
\]

\[
\frac{\partial w}{\partial E} = \left[ \beta \left( f_n - \frac{f}{n} \right) + (1 - \beta)nf_{nn} \right] \times \left[ \alpha (f_n - c) - (1 - \hat{m})\hat{m}_E \right] / nfnn \geq 0, \quad \text{if } \alpha (f_n - c) \geq (1 - \hat{m})\hat{m}_E. \quad (24)
\]

It is clear from Eqs. (23) and (24) that a devaluation of domestic currency will definitely depress the amount of labor employed, but will increase wages in the closed-shop union case (i.e., \( \hat{m}_E = 0 \)).\(^{14}\) The rationale is as follows. Under the closed-shop union case, the effect of union membership is fixed. In such a circumstance, a currency devaluation will lower workers’ real wages, and hence lead the union to have more concern for members’ wages and less concern for membership employment.\(^{15}\) Consequently, the union is willing to accept a lower level of employment in return for a higher level of wages in the bargaining contract.

A currency devaluation will govern the change in the wage rate and employment through two conflicting effects under the open-shop union case. The first effect, which is addressed in a closed-shop union with fixed membership, is that the union inclines to have more concern for members’ wage and less concern for employment. The second effect is related to the nature of endogenous membership in the open-shop union. If membership costs are fixed, the real costs of joining a union must fall due to the inflationary impact of devaluation. As a result, a currency devaluation will expand a union’s membership. In response to a higher union density, the union will raise its relative marginal utility between employment and wages.\(^{16}\) The union thus has an incentive to give more weight to employment in the bargaining process.

\(^{14}\) It seems sound to postulate that Eq. (20) is satisfied regardless of the value of \( \beta \), and that membership costs \( c \) are less than the money wage \( w \). Given \( p = 1 \) initially, it follows from Eq. (20) with \( \beta = 0 \) that \( w = f_n + c \). Accordingly, in what follows, we reasonably assume that \( f_n > c \).

\(^{15}\) From Eq. (21), it is clear that the slope of the union’s indifference curve, namely IC, is downward sloping, with the slope described by:

\[
\frac{\partial w}{\partial n} \bigg|_{\text{IC}} = -\frac{\partial \Omega / \partial n}{\partial \Omega / \partial w} = -g \left[ \frac{w - c + 1 - (1 - \hat{m})^2}{2} - b \right] / n.
\]

Differentiating the above equation with respect to the exchange rate, we have:

\[
\frac{\partial}{\partial E} \left[ \frac{-\partial w}{\partial n} \bigg|_{\text{IC}} \right] = \frac{\partial}{\partial E} \left[ \frac{\partial \Omega / \partial n}{\partial \Omega / \partial w} \right] = \left[ (1 - \hat{m})\hat{m}_E - \alpha (f_n - c) \right] / n \geq 0, \quad \text{if } \alpha (f_n - c) \geq (1 - \hat{m})\hat{m}_E.
\]

In the closed shop union (\( \hat{m}_E = 0 \)), it clearly indicates, that for the union, the relative marginal utility of employment to wages will decrease in response to a currency devaluation.

\(^{16}\) See footnote 14.
Given these two conflicting effects, we can conclude that a currency devaluation thereby has an ambiguous impact on the level of wages and labor employed. This ambiguous result is consistent with the empirical observations of Torres (2000) in the *Wall Street Journal*: For some countries, such as Brazil and Mexico, a currency devaluation could cut wages and have an expansionary effect on employment, whereas for other countries, such as Argentina, it could have the adverse effect on wages and employment.

Given that the production function displays a positive relation between output and employment, we then can conclude that a devaluation of domestic currency definitely depresses the supply of domestic output in the closed-shop union. However, the effect of the currency devaluation on output is not unequivocal in the open-shop union.

It may be interesting to note that when the union’s endogenous membership effect is dominant, then currency devaluation will lead to higher employment and output and to lower wages. This result is intriguing for policy makers concerning GDP growth and low inflation (due to a lower unit labor cost) in relation to the specific features of union membership and dominance. This result also endows a possible implication whereby the economy could create an automatic stabilizer to lead countries to recover from the shock of an international financial crisis.

### 4. Concluding remarks

Compared to existing studies on efficient bargaining, this paper possesses two specific features: the open economy and the open-shop union. Such a framework is useful not only to provide a possible solution for the devaluation controversy in the literature, but also to clarify the impact of the labor institution on economic performance after a currency devaluation. It is found that, if subscription costs of membership are fixed, the real cost of joining a union must fall due to the inflationary impact of devaluation. This would lead to an increase in union membership. It is also found that a domestic currency’s devaluation will definitely depress the supply of domestic goods when the closed-shop union and the firm negotiate an efficient wage–employment contract. However, a currency devaluation may stimulate the supply of domestic output when the open-shop union and the firm negotiate an efficient wage–employment contract.

The whole discussion in the present paper obviously refers to a case of an unanticipated currency devaluation. However, it also is an interesting case related to the anticipated devaluation in the union-dominance economy due to the observation of currency devaluation risk index, for instance, the Morgan Stanley type. Once currency devaluation can be anticipated, expectations of a forthcoming devaluation may alter its effects on the labor market and the aggregate output. Therefore, a dynamic wage

---

17 Upadhyaya (1999, p. 197) estimates the effect of a currency devaluation on output in six Asian countries. He suggests that a devaluation seems to be neutral in the long run, while in some cases, it has a contractionary effect.

18 This implication was pointed out to us by an anonymous referee, to whom we are grateful.
bargaining model, e.g., Jones and Mckenna (1994) and Kidd and Oswald (1987), is useful to be extended and to utilize it to examine the effects of an anticipated currency devaluation. This direction of extension is worthwhile for further investigation in our future research.

Acknowledgments

The authors are grateful to two anonymous referees for their insightful suggestions and comments on an earlier version of this paper. Of course, we alone are responsible for all viewpoints and remaining shortcomings. The first author gratefully acknowledges financial support from the National Science Council, Taiwan.

References


