Globalization, Wage Inequality and Unemployment

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Using the assumption that the vertical multinationals ship capital and intermediate goods from parent in Taiwan to subsidiaries in less-developed countries, this paper extends the Harris-Todaro model to analyze the impacts of globalization on wage inequality and unemployment. We find that an increase in the flows of capital from the parent country to the host country decreases the wage inequality of the parent country. In addition, we prove that an increase in the flows of capital discourages the urban unemployment of the parent and host countries.

Keywords: wage inequality, vertical multinationals, unemployment

JEL classification: E24, F21, F23

1 Introduction

The impacts of globalization on wage inequality and unemployment have in recent years received considerable attention. Many studies have analyzed the enormous extension of wage inequality between skilled and unskilled U.S. workers since the
late 1970’s. Meanwhile, some studies have also documented the phenomenon of an increase in wage inequality for skilled workers in the U.S. trading partners, such as Mexico and Chile. Feenstra and Hanson (1997) argue that growth in foreign direct investment (hereafter FDI) is positively correlated with the relative demand for skilled workers and hence wage inequality has increased in Mexico. Beyer et al. (1999) explore the relationship between trade and wage inequality in Chile. They find that trade liberalization leads to a fall in the relative price of labor-intensive goods and an increase in Chile’s wage inequality. Contrary, the wage inequality of another U.S. trading partner, Taiwan, has presented a declining trend since the mid-1980’s. Chan et al. (1999), Chen and Hsu (2001) and Liang and Mai (2003) argue that the vertical multinationals (hereafter MNEs) ship capital and intermediate goods from parent in newly industrializing economy (hereafter NIE), Taiwan, to subsidiaries in less developed countries (hereafter LDCs), and hence lead to a decrease in Taiwan’s wage inequality. In addition, Huang and Kao (2005) indicate that the time series data for Taiwan’s employment exhibits an upward trend since the mid-1980’s. Therefore, we hope to extend the Liang and Mai (2003) model to explain why Taiwan’s wage inequality and unemployment have declined.

In a pioneering work, Harris and Todaro (1970) construct a simple general equilibrium model of two sector of rural-urban migration. To proceed further, they tend to explain the coexistence of urban unemployment and rural-urban migration in NIE and LDCs. The basic Harris and Todaro model (hereafter HT model) has been extended by many trade theorists including Bhagwati and Srinivasan (1974), Corden and Findlay (1975), Fields (1975), Khan (1980), Neary (1981), Batra and Naqvi (1987), Beladi and Naqvi (1988), Hazari and Sgro (1991), Marjit (1991), Gupta (1993), Yabuuchi (1993), Chao and Yu (1996), Din (1996), Basu (2000), Beladi and Yabuuchi (2001), Chaudhuri (2003), Marjit and Beladi (2003), Chaudhuri (2007), and Yabuuchi (2007). However, the basic HT model considers the homogeneous workers, but there are heterogeneous workers in the real word, that is, skilled and unskilled workers. The unemployment rate is different among heterogeneous workers. In particular, the unemployment of unskilled workers is an important issue for policy-makers in NIE and LDCs. Further, extensive movement of capital across
Globalization, Wage Inequality and Unemployment

countries in the form of vertical MNEs has been observed by Chan et al. (1999), Chen and Hsu (2001), Markusen (2002) and Liang and Mai (2003). Therefore, it is interesting to explore the impacts of the flows of capital in the form of vertical MNEs on wage inequality and unemployment.

This paper can be viewed as an extension of Liang and Mai (2003). We introduce the viewpoint of the capital flows in the form of vertical MNEs into the basic mobile-capital HT model developed by Corden and Findlay (1975), Chaudhuri (2007), and Yabuuchi (2007). We prove that an increase in the flows of capital from the parent country to the host country decreases the wage inequality of the parent country. At the same time, we can also find that the impact of the capital flows on the wage inequality of the host country depends on the good’s factor intensities. In addition, we prove that an increase in the flows of capital discourages the urban unemployment of the parent and host countries.

The structure of the paper is as follows. Section 2 sets up a two-country HT model. Section 3 examines the impacts of globalization on wage inequality and unemployment. Section 4 concludes the paper.

2 The Model

In this section, we will construct a theoretical framework to discuss the effects of the flows of capital in the form of vertical MNEs on wage inequality and urban unemployment. Consider that the world economy is composed of three parts: the parent country of vertical MNEs (Taiwan), the host country of vertical MNEs (the LDC), and the rest of the world (the developed countries). Suppose that the parent and host countries of vertical MNEs are small open economy relative to the rest of the world. Assume that the parent country (Taiwan) is divided into an urban sector and a rural sector. The urban sector is subdivided into two sub-sectors. There are three sectors in parent country. The rural sector employs the unskilled labor ($L_r$) and land ($T$) to produce the agricultural good ($X$). One sub-sector of the urban sector produces the manufactured good ($Y$) using the skilled labor ($S$) and capital ($K_r$), and the other sub-sector requires the unskilled labor ($L_u$) and capital ($K_u$) to produce the intermediate good ($M$). Liang and Mai (2003, p.608) point out that, “…the intermediate good employs, from Taiwan’s perspective, unskilled workers,
but, from the LDC’s perceptive, is more skilled-labor-intensive than its counterpart final good, which is the subsidiary-produced good in the LDC.” We will adopt the same viewpoint of Liang and Mai. The production functions which are assumed to be constant returns to scale could be written as follows:

\[ X = X(L_x, T), \]
\[ Y = Y(S, K_y), \]
\[ M = M(L_u, K_u). \]

Capital, land and skilled labor are fully utilized, but unskilled labor is fully utilized only in the rural sector, where the real wage \( w \) is flexible. However, the unemployment of the unskilled labor of the urban sector may exist because the real wage \( \bar{w} \) of the unskilled labor of the urban sector is exogenously given. Thus, \( \bar{w} \) represents the minimal wage rate of the unskilled labor of the urban sector. Let markets be perfectly competitive. By choosing good \( X \) to be the numeraire, the zero-profit conditions can be expressed as follows:

\[ C^i(w, \tau) = 1, \]  
(1) \[ C^i(w, r) = P_i, \]  
(2) \[ C^u(\bar{w}, r) = P_u, \]  
(3)

where \( C^i() \), \( i = X, Y, M \), denotes the unit cost function of good \( i \). \( w \) represents the real wage of the skilled labor, \( \tau(r) \) represents the rental rate of land (capital), \( P_i, i = Y, M \), is the price of good \( i \).

The special feature of the HT model is that, in unskilled labor market equilibrium, \( w \) is equal to the expect wage of the unskilled labor of the urban sector, which is by definition \( \bar{w} \) times the probability of finding a job in the urban sector. Assume that \( L_u \) and \( L_m \) represent unemployed and employed unskilled labor in the urban sector, respectively. The probability of finding a job is \( L_u / (L_u + L_m) = 1/(1 + \lambda) \), which also can be viewed as the rate of employment, where \( \lambda = L_u / L_m \). Therefore, the expect wage of the unskilled labor of the urban sector is \( \bar{w}/(1 + \lambda) \). The migration equilibrium condition of the unskilled labor market can be described as:

\[ w = \frac{1}{1 + \lambda} \bar{w}. \]  
(4)
Globalization, Wage Inequality and Unemployment

A typical example of vertical MNEs is when a company ships capital or skilled labor intensive parts to an assembly plant in a low wage country, see Markusen (2002). Following Liang and Mai (2003), we assume that there is a flow of capital (\( K_j \)) from the parent country to the host country. Thus, the employment condition in factor markets can be expressed as:

\[ C^T_i (w, r)X + (1 + \lambda)C^M_j (\bar{w}, r)M = L, \]
\[ C^T_i (w, r)X = T, \]
\[ C^T_i (w_i, r)Y = S, \]
\[ C^T_i (w_i, r)Y + C^M_j (\bar{w}, r)M = K - K_j, \]

where \( C'_i(\cdot) \) represents the derivative of the unit cost function of good \( i \) with respect to \( j^{th} \) argument. \( L(S) \) denotes the endowment of unskilled (skilled) labor. \( K \) and \( T \) are the endowments of capital and land, respectively.

According to the aforementioned view, we could set up the subsystem for the host country (LDC). The variables of host country are indicated with an asterisk ('*'). We also assume that there are three sectors in host country. The rural sector employs the unskilled labor (\( L'_x \)) and capital (\( K'_x \)) to produce the agricultural good (\( X' \)). One sub-sector of the urban sector produces the manufactured good (\( Y' \)) using the skilled labor (\( S' \)) and capital (\( K'_x \)), and the other sub-sector requires the unskilled labor (\( L'_z \)), the intermediate good (\( M \)) and capital (\( K'_y \)) to produce the subsidiary-produced good (\( Z' \)). Consider that the subsidiary-produced good is produced in the duty-free zones where domestic capital is prohibited. Thus, the inputs of good \( Z' \), the intermediate good and capital, are provided solely from the parent country, see Markusen (2002) and Liang and Mai (2003). The production functions which are assumed to be constant returns to scale could be specified as follows:

\[ X' = X'(L'_x, K'_x), \]
\[ Y' = Y'(S', K'_y), \]
\[ Z' = Z'(L'_z, M, K'_y). \]

To simplify the analysis, following Gupta (1994), Chaudhuri (2000, 2003), Liang and Mai (2003) and Chaudhuri et al. (2006), we assume that the production function of the subsidiary-produced good is fixed proportions. Therefore, we could
describe the following relationship:

$$Z' = M = L_x' = K_x'. \quad (9)$$

Let markets be perfectly competitive. By choosing good $X'$ to be the *numeraire*, the zero-profit conditions can be expressed as follows:

$$C^X (w, r') = 1, \quad (10)$$
$$C^Y (w'_s, r') = P_y', \quad (11)$$
$$C^Z (\bar{w}, P_u, r) = P_z', \quad (12)$$

where $C^i(\cdot), (i = X', Y', Z')$, denotes the unit cost function of good $i$. $P_y'$ and $P_z'$ represent the prices of good $Y'$ and good $Z'$, respectively. However, $P_z'$ is endogenously determined since the good $Z'$ is produced solely from the parent country. The variable $w'_s$ represents the real wage of the skilled labor. The variable $w'$ represents the real wage of the unskilled labor of the rural sector. The variable $\bar{w}'$ is the minimal wage rate of the unskilled labor of the urban sector and $r'$ is the rental rate of capital.

The migration equilibrium condition of the unskilled labor market can be described as:

$$w' = \frac{1}{1 + \bar{x}} \bar{w}', \quad (13)$$

where $1/(1 + \bar{x})$ represents the rate of employment. Let $\bar{x} = L_u'/L_x$ hold, where $L_u'$ is unemployed unskilled labor in the urban sector.

The employment condition in factor markets can be derived as:

$$C^i_y (w, r') X' + (1 + \bar{x}) C^i_s (\bar{w}, P_u, r) Z' = L_x', \quad (14)$$
$$C^y_s (w'_s, r') Y' = S_x', \quad (15)$$
$$C^y_z (w', r') X' + C^z_y (w'_s, r') Y' = K_x', \quad (16)$$

where $L_x'(S_x')$ denotes the endowment of unskilled (skilled) labor. $K_x'$ is the endowment of capital.

Our theoretical framework consists of eighteen equations, (1)–(16).² There

²Equation (9) contains three equations.
Globalization, Wage Inequality and Unemployment

should be one redundant equation, which can be omitted by Walras’ law. Meanwhile, our model contains seventeen endogenous variables: $P_w$, $w$, $w_x$, $r$, $\tau$, $\lambda$, $X$, $Y$, $M$, $P_r$, $w_r$, $w'_x$, $r'$, $\lambda'$, $X'$, $Y'$, and $Z'$. The policy variable of our framework is $K_f$.

3 Wage Inequality and Unemployment

We will analyze the impacts of an increase in the capital flows from the parent country to the host country on the wage inequalities and the unemployment of the two countries. Totally differentiating equation (9), we can find:

$$dZ' = dM = dL_x = dK_f.$$ (17)

Totally differentiating equations (1)-(8), and substituting $dM = dK_f$, by equation (17), we can find the following matrix:

$$\begin{bmatrix}
1 & 0 & 0 & 0 & -\theta_{wK} & 0 & 0 & 0 \\
0 & -\theta_{wL} & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & -\theta_{sx} & 0 & 0 & 0 & 0 & 0 \\
0 & 1 & 0 & 0 & 0 & \lambda/(1+\lambda) & 0 & 0 \\
0 & \theta_{sL}\sigma_L & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & -\theta_{sx}\sigma_x & \theta_{sL}\sigma_L & 0 & 0 & 0 & 1 \\
0 & -\theta_{sx}\sigma_x & \theta_{sx}\sigma_x & 0 & (1+\lambda)\theta_{sx}\sigma_x & \lambda\lambda & \lambda & 0 \\
0 & 0 & 0 & -\theta_{sx}\sigma_x & \lambda & 0 & 0 & \lambda \\
\end{bmatrix} = \hat{K}_f,$$ (18)

where $\delta = \theta_{sx}\sigma_x\lambda + \theta_{sx}\sigma_x\lambda > 0$ and $\delta_i = \lambda_i [1+(K_u / M)] > 0$. $\sigma_i$ ($i = X, Y, M$) represents the elasticity of substitution of good $i$. $\theta_{ij}$ ($i = X, Y, M$; $j = T, S, L, K$) denotes the cost share of factor $j$ of good $i$. $\lambda_i$ ($i = X, Y, M$;
\( j = L, K \) is the fraction of factor \( j \) employed in good \( i \). In addition, \( \lambda_{ij} = K_i / (K - K_i) \) refers to the fraction of capital flows from the parent country to the host country. Let \( \Delta \) be the value of the determinant of the coefficient matrix in equation (18), and the relationship of \( \Delta = \lambda ((\sigma_x + \lambda_{xx}) / (1 + \lambda)) + \theta_{ry} + \theta_{ry} \sigma_x \lambda_{xx} \) > 0 holds. Therefore, the results of comparative-static analysis can be derived as the following equations (19a)–(19h).

\[
\begin{align*}
\hat{p}_M / K_j &= \frac{\theta_{sM}\theta_{rM}\lambda^2}{\Delta(1 + \lambda)}[\sigma_x\lambda_{xx} + (1 + \lambda)\theta_{ry} \lambda_{xx}] > 0, \\
\hat{x} / K_j &= \frac{-\theta_{rx}\sigma_x \lambda_{xx}}{\Delta}(\theta_{sM}\sigma_x \delta_x + \sigma_r \lambda_{rx}) < 0, \\
\hat{y} / K_j &= \frac{-\theta_{ry}\sigma_y \lambda_{yy}}{\Delta}(\theta_{sM}\sigma_x \delta_y + \theta_{ry} \lambda_{yy} + \sigma_r \lambda_{yy}) < 0, \\
\hat{t} / K_j &= \frac{-\theta_{rt}\lambda^2}{\Delta}[\theta_{sM}\sigma_y \delta_t + \theta_{ry} \lambda_{yy} + \sigma_r \lambda_{yy}] < 0, \\
\hat{r} / K_j &= \frac{\theta_{rs}\delta^2}{\Delta(1 + \lambda)}[\sigma_x\lambda_{xx} + (1 + \lambda)\lambda_{xx}] > 0, \\
\hat{w}_s / K_j &= \frac{\theta_{sw}\lambda^2}{\Delta(1 + \lambda)}[\sigma_x\lambda_{xx} + (1 + \lambda)\theta_{ry} \lambda_{xx}] < 0, \\
\hat{w} / K_j &= \frac{-\theta_{sw}\lambda^2}{\Delta}[(\theta_{sM}\sigma_y \delta_x + \theta_{ry} \lambda_{yy} + \sigma_r \lambda_{yy}] > 0,
\end{align*}
\]

The economic intuition on equations (19a)–(19g) should be stated as follows. A rise in \( K_j \) increases the output of \( M \), which will then increase the demand for \( L_M \) and \( K_M \). A rise in \( L_M \) will increase the unskilled wage \( w \), and then attract unskilled workers to shift from \( X \) sector to \( M \) sector leading to the reduction of the output of \( X \). On the other hand, a rise in \( K_M \) will decrease \( K_r \), and then reduce the output of \( Y \), which will reduce the demand for skilled workers \( S \). Thus, the wage of skilled workers \( w_s \) falls. Therefore, the wage inequality of the parent country decreases. Moreover, as \( w \) increases, we find from the zero-profit condition of \( Y \) market that \( r \) will rise to maintain this condition. Likewise, as \( r \) rises, we find from the zero-profit condition of \( M \) market that \( P_M \) will rise. Finally, as \( w \) increases, we find from the zero-profit condition of \( X \) market that \( r \) will decrease.\(^3\) Therefore, as analysis earlier, we can indicate the following proposition 1

\(^3\)This point was suggested by an anonymous referee, to whom we are grateful.
which is identical with the conclusion of Liang and Mai (2003).

**Proposition 1.** An increase in the flows of capital from the parent country to the host country decreases the wage inequality of the parent country.

The influence of the flows of capital on unemployment can be derived as:

\[ \dot{\lambda} / \dot{K} = \frac{(1 + \lambda)\theta_{x}\lambda_{x}}{\Delta} \{ \theta_{x}\sigma_{xx}(\theta_{x}\delta_{x} + \theta_{x}\lambda_{x}) + \sigma_{xx}\lambda_{xx} \} < 0, \]  

(19h)

Since \( 1/(1 + \lambda) \) represents the employment rate of the unskilled labor in urban sector, equation (19h) reveals the main finding, indicating that a rise in the flows of capital will raise the employment rate, or decrease the unemployment rate, of the unskilled labor in urban sector. The economic intuition is quite obvious. A rise in \( K_{x} \) increases the output of \( M \), which will in turn raise the demand for \( L_{u} \) and its wage \( w \). Thus, the unemployment of unskilled labor will reduce, and then the fall in \( \lambda = L_{u} / L_{u} \) emerges.\(^{4}\) Therefore, we can establish the following proposition 2.

**Proposition 2.** An increase in the flows of capital from the parent country to the host country encourages the urban employment, or discourages the urban unemployment, of the parent country.

Next, we will analyze the impacts of the capital flows on the wage inequality and the unemployment of the host country. Totally differentiating equations (10)-(16), and substituting \( dZ^{*} = dK_{x} \) by equation (17), we get the following matrix:

\[
\begin{bmatrix}
1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \hat{P}_{z} \\
0 & -\theta'_{x} & 0 & -\theta'_{x} & 0 & 0 & 0 & 0 & \hat{w}_{z} \\
0 & 0 & -\theta'_{x} & -\theta'_{x} & 0 & 0 & 0 & 0 & \hat{w}_{z} \\
0 & 0 & 0 & -\theta'_{x} & \theta'_{x} \sigma'_{x} & 0 & 0 & 1 & \hat{L}_{x} \\
0 & -\theta'_{x} & \sigma'_{xx} & 0 & 0 & \theta'_{x} \sigma'_{xx} \lambda'_{xx} & \lambda'_{xx} & \lambda'_{xx} & \hat{\lambda} \\
0 & 0 & \theta'_{x} \sigma'_{xx} & \sigma'_{xx} \lambda'_{xx} & 0 & 0 & \lambda'_{xx} & \lambda'_{xx} & \hat{\lambda} \\
0 & 0 & 1 & 0 & 0 & 0 & \lambda' / (1 + \lambda') & 0 & \hat{\lambda} \\
\end{bmatrix}
\]

\(^{4}\)This point was raised by an anonymous referee, to whom we are grateful.
where \( \delta^*_p = \theta'_{zx} \sigma_{z} \lambda_{zx} + \theta'_{zy} \sigma_{y} \lambda_{zy} > 0 \). Let \( \Delta^* \) represent the value of the determinant of the coefficient matrix in equation (20), and the relationship of \( \Delta^* = \delta^*_p \{(1 + \lambda^*) \}(\theta'_{zx} \sigma_{z} \lambda_{zx} + \theta'_{zy} \sigma_{y} \lambda_{zy} + \theta'_{zx} \theta'_{zy} \lambda_{zx} \lambda_{zy}^*) > 0 \) hold. Thus, the results of comparative-static analysis can be derived as the following equations (21a)–(21f).

\[
\begin{align*}
\frac{\dot{p}^*_z}{\hat{K}_f} &= \frac{-\lambda^* \{\theta'_{zx} \theta'_{zy} \lambda_{zx} + \lambda_{zy}[1/(1 + \lambda^*)] \}(\theta'_{zy} \sigma_{y} \lambda_{zy} + \theta'_{zy} \sigma_{y} \lambda_{zy})}{\Delta^*} \\
&\times (\theta'_{zx} \hat{P}_w / \hat{K}_f + \theta'_{zy} \hat{K}_f / \hat{K}_f) < 0, \quad (21a) \\
\frac{\dot{X}^*}{\hat{K}_f} &= \frac{-\theta'_{zx} \lambda_{zx}}{\Delta^*} \{\theta'_{zx} \sigma_{z} \lambda_{zx} + \sigma_{z} \lambda_{zx}^* \} < 0, \quad (21b) \\
\frac{\dot{Y}^*}{\hat{K}_f} &= \frac{\theta'_{zy} \theta'_{zy} \sigma_{y} \lambda_{zy} \lambda_{zy}^*}{\Delta^*} > 0. \quad (21c)
\end{align*}
\]

Equation (21a) shows that an increase in the capital flows from the parent country to the host country will raise the output of good \( Z^* \) since the production function of good \( Z^* \) is fixed proportions, and thus lead to a decrease in the price of good \( Z^* \). Equations (21b) and (21c) indicate the effects on the output of good \( X^* \) and good \( Y^* \). A rise in the output of good \( Z^* \) will lead to a movement of the unskilled labor from \( X^* \) sector to \( Z^* \) sector, and then cause a decrease in the output of good \( X^* \). Meanwhile, a decrease in the output of good \( X^* \) will lead to a shift of capital from \( X^* \) sector to \( Y^* \) sector, and then cause an increase in the output of good \( Y^* \).

The impacts of the flows of capital on the prices of inputs can be derived as:

\[
\frac{\dot{r}}{\hat{K}_f} = \frac{-\theta'_{zx} \theta'_{zy} \lambda_{zx} \lambda_{zy}^*}{\Delta^*} < 0, \quad (21d)
\]

\[
(\delta^* - \hat{\delta}^*) / \hat{K}_f = \frac{(\theta'_{zx} \theta'_{zy} - \theta'_{zy} \theta'_{zy})}{\Delta^*} \lambda_{zx} \lambda_{zy} \lambda_{zy}^*. \quad (21e)
\]
Equation (21d) demonstrates a negative link between the flows of capital and the rental rate of capital. The economic intuition is obvious. As mentioned above, a movement of the unskilled labor from $X$ sector to $Z$ sector will decrease the supply of unskilled labor of $X$ sector. Hence, the real wage of unskilled labor in $X$ sector will rise. On the other hand, the real wage of the skilled labor rises since a rise in the output of good $Y$ leads to a rise in the derived demand for the skilled labor. However, the rises in the real wage of unskilled and skilled labor tend to decrease profits. To restore the zero-profit condition, the rent rate of capital must fall. Further, from equation (21e), we can find that the impact of the capital flows on the wage inequality of the host country depends on the factor intensities of good $X$ and good $Y$. Therefore, we can indicate the following proposition 3 which is identical with the conclusion of Liang and Mai (2003).

**Proposition 3.** An increase in the flows of capital from the parent country to the host country increases the wage inequality of the host country if good $Y$ is capital-intensive, and vice versa.

The influence of the flows of capital on unemployment can be derived as:

$$\dot{K}_j = \frac{\hat{K}_j}{\Delta^2} \theta_{xx} \theta_{xj} \theta_{xx} \hat{K}_j < 0.$$  \hspace{1cm} (21f)

Equation (21f) indicates that a rise in the flows of capital will raise the employment rate, or decrease the unemployment rate, of the unskilled labor in urban sector. As mentioned above, similar economic intuition on equation (19h) applies to equation (21f). Therefore, we can establish the following proposition 4.

**Proposition 4.** An increase in the flows of capital from the parent country to the host country encourages the urban employment, or discourages the urban unemployment, of the host country.

Chaudhuri et al. (2006), Chaudhuri (2007), and Yabuuchi (2007) have recently analyzed the effect of an inflow of foreign capital on urban unemployment. They find that the relative strength of the expansion effect and the migration effect is ambiguous. Further, Yabuuchi (2007) argues that the impact of an inflow of foreign

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5Chaudhuri et al. (2006), Chaudhuri (2007), and Yabuuchi (2007) argue that a rise in the inflows of
capital on urban unemployment depends on the factor intensity of the manufacturing sector. However, we find that an inflow of foreign capital in the form of vertical MNEs will lower the urban unemployment.

4 Conclusion

We extend the HT model to analyze the impacts of globalization on wage inequality and unemployment under the assumption that the vertical MNEs ship capital and intermediate goods from parent in Taiwan to subsidiaries in LDC. We argue that an increase in the flows of capital from Taiwan to LDC decreases the Taiwan’s wage inequality. This paper does not only find the conclusions of Liang and Mai (2003), but also shows the effects of the flows of capital on urban unemployment. That is, we prove that an increase in the flows of capital will lower the urban unemployment of Taiwan and LDC.

Harris and Todaro (1970) and Corden and Findlay (1975) adopt the method of comparative-static analysis to explain the coexistence of urban unemployment and rural-urban migration. Thereafter, using the method of dynamic analysis, Lal (1973) and Stiglitz (1974) find the similar conclusion of the HT model. Therefore, our paper making use of a static general equilibrium model to explore the issues of migration and unemployment is suitable.6

Reference


capital affects the urban unemployment rate through two channels. The first is “the expansion effect” whereby an increase in the inflows of capital will lead to an expansion in the manufacturing sector, and hence new jobs of labor are created in urban sector. This channel tends to reduce the urban unemployment. The second is “the migration effect” whereby migration of the labor from agriculture sector to the manufacturing sector rise as the employment of labor in urban sector rises. It is obvious that a fresh migration will lead to a rise in the urban unemployment. The net effect depends on the relative strength of these two channels.

6This point was raised by an anonymous referee, to whom we are grateful.
Globalization, Wage Inequality and Unemployment


