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The Minimum Wage Economy, Variable Returns to Scale and Welfare**

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I. Introduction

Ever since the pioneering articles by Batra [1968], Jones [1968], Kemp and Negishi [1970] and Herberg and Kemp [1969], several trade theorists have analyzed the welfare implications of international trade in the presence of variable returns to scale. The contributions by Eaton and Panagariya [1979], Panagariya [1980, 1981], Choi and Yu [1984a, 1984b, 1985] explore some positive as well as normative aspects ot trade theory under variable returns to scale. By comparison, absolutely no attempt has been made to analyze the welfare effects of trade intervention in the presence of generalized unemployment and variable returns to scale. In one sence, the problem, being considered here is important because the majority of trading countries, developed as well as developing economies, have suffered from chronic unemployment throughout this century. In a seminal article Brecher [1974a, 1974b] imposed a minimum real wage rate in the economy and analyzed some trade proposition in the presence of generalized unemployment. However, Brecher's model has the properties of the single factor Ricardian model of trade and leads a trading country to *complete specialization*. In order to avoid complete specialization and production indeterminancy, a two-sector, three factor general equilibrium framework is set up to analyze the welfare implications of some protection measures by allowing the presence of variable returns to scale (henceforth VRS-) and unemployment.[1]

In the next section, the model is presented. Section III deals with transformation curve and unemployment under VRS. In section IV, terms of trade and welfare as well

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1. The model adopted in this paper was first developed by Batra and Beladi (1988).

as the welfare consequences of some protection measures are analyzed. Finally, section V offers some concluding remarks.

Ⅱ. Assumptions and the Model

Consider and economy consisting of two sectors, X (manufacturing) and Y (agricultural) where X uses capital and labor whereas Y uses capital, labor and land. The production side of our model is described by the following functions :

$$x=g_x(X)\ F_x(c_x,\ l_x) \quad (1)$$
$$X=g_x(X)\ F_x(K_x,\ L_x)$$
$$y=g_x(Y)\ F_y(c_y,\ l_y,\ \overline{v})$$
$$Y=g_y(Y)\ F_y(K_y,\ L_y,\ V) \quad (2)$$

Where x and y are the output of a typical firm in manufacturing and agricultural sectors respectively ; c_i and l_i are capital and labor employed by the firm in industry i (i=x, y) : X and Y are the total output in each sector ; K_i and L_i are the total capital and labor employment in the ith sector ; $\overline{v}$ is land employed by a typical firm in the agricultural sector whereas V is the total land used in that sector. g_x and g_y reflect the extent of externality and are positive function defined on $[0,\ \infty]$. Following Kemp [1969], Batra [1973] and others, we assume that production function for a typical firm is subject to external economies or diseconomies and F_x and F_y are linearly homogeneous with positive but diminishing marginal productivities of each input. We also assume that the economies of scale are output generated and are external to the firm, but internal to the industry. Let ε_x and ε_y be the output elasticity of returns to scale of the ith industry which is defined on $[-\infty,\ 1]$ and can be written as:

$$\varepsilon_x=(dg_x/dX)F_x=(dg_x/dX)\ (X/g_x) \quad (3)$$
$$\varepsilon_y=(dg_y/dY)F_y=(dg_y/dY)\ (Y/g_y) \quad (4)$$

Where $\varepsilon_i=0$(i=x, y) indicates constant returns to scale (CRS) industry, $\varepsilon_i>0$ reflects increasing returns to scale (IRS) industry and $\varepsilon_i<0$ implies decreasing returns to scale (DRS) industry. Total differentiation of (1) and (2) yield,

$$(1-\varepsilon_x)dX=g_x(F_{KX}\ dK_x+F_{Lx}dL_x) \quad (5)$$
$$(1-\varepsilon_y)dY=g_y(F_{Ky}+F_{Ly}dL_y+F_{Vy}dV) \quad (6)$$

where F_{Ki}, F_{Li} and F_{Vi} are the partial derivative of F_i with respect to capital, labor and land. Taking the product and factor prices as given and since economies of scale are external to the firm and internal to the industry, firms in the manufacturing sector maximize their profit when,

$$w=pg_xF_{lx}=pg_xF_{Lx} \tag{7}$$

and

$$r_x=pg_xF_{cx}=pg_xF_{Kx} \tag{8}$$

were W is the real wage expressed in terms of Y and p is the relative price of X in terms of Y. Similarly profit maximization on the part of agricultural firm's yields,

$$w=g_yFl_y=g_yF_{Ly} \tag{9}$$

$$r_y=g_yF_{cy}=g_yF_{Ky} \tag{10}$$

$$\rho=g_yF_{vy}=g_yF_{Vy} \tag{11}$$

where ρ is the real rental of land and Y is assumed to be numeraire, so that its price equals 1. It is assumed that producers face perfect product and capital markets, factor supplies are inelastic, non-specific factors (capital and labor) are fully mobile and em ployed, but the real wage is rigid in the downward direction, causing unemployment in the labor market. Hence, in the long-run equilibrium,

$$r_x=r_y \tag{12}$$

Let $\overline{K}$ and $\overline{V}$ by the inelastically supplied endowments of capital and land, so that :

$$K_x+K_y=L_xk_x+L_yk_y=\overline{K} \tag{13}$$

$$V=L_yv=\overline{V} \tag{14}$$

where $k_i=(K_i/L_i)$, is the capital labor ratio in the ith sector, and v represents the significance of land in agriculture expressed in terms of labor employed in this sector. We assume that the country under study is a small open economy and faces fixed terms of trade, so that p, the terms of trade, is given exogenously. We also assume that the system is stable and given terms of trade, and increase in the production of any commodity leads to a rise in demand for factors of production. Finally, let I be the real national income, then

$$I=pX+Y \tag{15}$$

This completes the production side of our model. The consumption side of the model is given by a strictly concave utility function :

$$U = U(D_x, D_y) \tag{16}$$

where D_x and D_y are the domestic consumption of commodities X and Y, $U_i > 0$ and $U_{ii} < 0$, ($i = x, y$). It is assumed that part of Y is exported and part of X is imported, therefore,

$$D_y = Y - E_y \tag{17}$$

$$D_x = X + E_x \tag{18}$$

where E_y and E_x represent the exports of Y and imports of X respectively. The balance of payment equilibrium stipulates that the following condition is satisfied,

$$E_y = p\, E_x \tag{19}$$

where $p = (p_x / p_y)$ and (19) shows that in equilibrium the value of exports must equal the value of improts. With this last equation, the demand side of our model is complete.

The model presented in the preceding section can be used to explore the welfare implications of free trade with those of export-promoting policies and import-substituting policies and the welfare consequences of a change in the terms of trade under VRS in a labor-surplus economy.

Ⅲ. VRS, Unemployment and the Production Possibility Curve

In this section, we first derive the slope of production possibility curve in the presence of unemployment and VRS, which may be defined as $X = X(Y)$. From(15) it follows that,

$$\begin{aligned} dI &= dY + pdX \\ &= (g_y / 1 - \varepsilon_y)\,[F_{Ky}dK_y + F_{Ly}dL_y + F_{Vy}dV) + p(g / 1 - \varepsilon_x)\,[F_{Kx}dK_x + F_{Lx}dL_x] \end{aligned} \tag{20}$$

Total differentiation of (13) and remembering that $dL_x + dL_y = dL$, and by appropriate substitutions into (20) and a little manipulation we obtain,

$$(dY / dX) = -\theta(1 - \varepsilon_x)p / (1 - \varepsilon_y) \tag{21}$$

where $\theta = [1 - b]$, $b = [X_L(dL / dX) + (\rho / p)\,(dV / dX)]$ and θ is always positive.[2] It is fairly clear from (21) that in equilibrium the slope of the transformation curve does not equal the ratio of commodity prices. This occurs due to the presence of economies of

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2. In the appendix, we show that $(dX / dp) > 0$ and $(dY / dp) < 0$.

scale and unemployment which are indicated by the ε_i's and the term b respectively. At this point, it must be emphasized that in our model the total employment of labor is variable, so that as employment changes, then for the new employment level, a new production possibility curve can be constructed. Since [1-b] is always positive, it follows immediately from (21) that $\theta \lesseqgtr 1$ if $b \lesseqgtr 0$. It is also obvious from (21) that $(dY/dX) \gtrless p$ as $\varepsilon_x \gtreqless \varepsilon_x$ and $\theta \gtrless 1$. This indicates that for any given level of employment, the slope of transformation curve is greater (less) than the commodity price ratio as the elasticity of returns to scale of the agricultural sector is greater (less) than that of the manufacturing sector.[3]

Free trade is defined as a situation in which there is no difference between local and the world prices of all traded goods in the absence of any frictional costs, Samuelson [1939]. Differentiating the social utility function [16], we obtain,

$$dU=U_y[dD_y+(U_x/U_y)dD_x] \tag{22}$$

where $U_i>0$ is the marginal utility of the ith good. Maximization of social utility implies that $(U_x/U_y)=p$. Hence,

$$dU/U_y=dD_y+p\ dD_x \tag{23}$$

The economy's budget constraint in terms of world prices (p^*) is given by

$$Y+p^*X=D_y+p^*D_x \tag{24}$$

Totally differentiating (24), we obtain,

$$dY+p^*dX=dD_y+p^*dD_x \tag{25}$$

Substituting (25) into (23) and after a little manipulation, it follows that,

3. Since economies of scale are external to the firm and internal to the industry, for any firm returns to scale are constant. Therefore $g_x(X)$ and $g_y(Y)$ are perceived to be parameters to the firm. Hence from (1) and (2) we obtain,

$$dX=g_xf[vd\bar{K}-k_yd\bar{V}]/(1-\varepsilon_x)vk_x$$

Since $(1-\varepsilon_x)$ is always positive, it is obvious that $(dX/d\bar{V}) < 0$. Moreover, since $(dX/dp) > 0$, the sign of (dL/dX) depends on the sign of (dL/dp) which is positive if $k_y \geqslant k_x$ and ambiguous if $k_y < k_x$ (see appendix for an expression for dL/dp). Hence $(dL/dX)=(dL/dp)/(dX/dp) > 0$. Now it may be noted that $b=[X_L(dL/dX)+(\rho/p)\ (dV/dX)]$ where the sign of b is positive if the positive employment effect offsets the negative production effect which results from an increase in the supply of land and $b < 0$ if employment effect is negative.

$$(dU/U_y)=(p-p^*)dE_x+p[1-\theta(1-\varepsilon_x)/(1-\varepsilon_y)]dX \qquad (26)$$

where E_x is the volume of import. Equation (16) is the key expression for a change in welfare and can be used to emamine the impact of various protection measures in the presence of unemployment and VRS.

Free trade implies that $p=p^*$, and the necessary conditions for free trade to be the optimal policy is $dU=0$; it is obvious from(26) that $dU\neq 0$, when initially $p=p^*$. This happens even when $\varepsilon_x=\varepsilon_y=0$(constant returns to scale). Furthermore, $dU\neq 0$, if $\varepsilon_x\neq\varepsilon_y$. Hence free trade is not the optimal policy in the presence of minimum wage constraint and /or when the production functions are subject to VRS.

Ⅳ. Unemployment, Terms of Trade and Welfare

In this section, I proceed to analyze the implications of VRS for the effect of a change in terms of trade on the welfare of a small labor-surplus economy. Differentiating the social utility function (16) with respect to p and arranging terms, we obtain :

$$(1/U_y)\ (dU/dp)=(dD_y/dp)+p(dD_x/dp) \qquad (27)$$

By differentiating (17), (18) and (19) with respect to p and substituting, (27) can be rewritten as,

$$(1/U_y)\ (dU/dp)=[1-\theta(1-\varepsilon_x)/(1-\varepsilon_y)](dX/dp)-E_x \qquad (28)$$

Equation (28) can be used to derive all the implications of the changes in the terms of trade for welfare in the presence of VRS and unemployment. In the appendix we show that $(dX/dp) > 0$. Under constant returns to scale where $\varepsilon_x=\varepsilon_y=0$, (28) reduces to,

$$(1/U_y)\ (dU/dp)=(1-\theta)\ (dX/dp)-E_x \qquad (29)$$

The sign of (29) obviously depends on the value of θ, which is positive, and the sign of (dX/dP). If $\theta>1$, given that (dX/dP) is positive, then $(dU/dp) < 0$, indicating a loss in welfare due to a deterioration in the terms of trade. Hence the standard result continues to hold. However, if $\theta < 1$, so the first term in (29) is positive while the second terms is negative. It, therefore, follows that the sign of $(1/U_y)\ (dU/dp)$ is ambiguous. In other words, a deterioration in the terms of trade may raise welfare. Hence, we have,

Proposition Ⅰ. *A deterioration in the terms of trade may raise the welfare of a small labor-surplus economy.*

The intuitive explanation of this unexpected result is that the positive employment effect may offset the consumption loss which results from an adverse change in terms of trade leading to the possibility that social welfare may improve as a consequence of a deterioration in the terms of trade.

On the other hand, the sign of (dU/dp) is unambiguously negative if $\varepsilon_x < \varepsilon_y$ and ambiguous if $\varepsilon_x > \varepsilon_y$. The following proposition is now immediate.

Proposition Ⅱ. *Under VRS and in the presence of unemployment, a deterioration (improvement) in terms of trade lowers (raises) welfare if elasticity of returns to scale of the importable industry are greater than that of the exportable industry.*

A. Tariffs

A tariff causes a change in the domestic relative price ratio facing both producer and consumer. Let t denote the tariff rate $p=p^*(1+t)$. Using this and differentiating (26) with respect to t, we obtain :

$$(1/U_y)(dU/dt)=p^*t\,(dE_x/dt) + p^*[1-\theta(1-\varepsilon_x)/(1-\varepsilon_y)]\,p(dX/dp) \tag{30}$$

Equation (30) is the key expression for determining the welfare effects of tariff under VRS in a labor surplus economy. If $\varepsilon_x=\varepsilon_y=0$(constant returns to scale), (30) reduces to $p^*t\,(dE_x/dt)+p^*(1-\theta)\,p\,(dX/dp)$. Now, for non inferior goods $(dE_x/dt)<0$, tariff reduces imports and ; $(dX/dp)>0$, hence $(1/U_y)(dU/dt)$ is unambiguously negative if $\theta>1$ and this happens even when $t=0$ initially. Therefore, unemployment increases and welfare falls as a monotonic function of the rate of tariff. However, if $\theta<1$, the welfare effects are indeterminate. On the other hand, if $\varepsilon_y>\varepsilon_x$, $(1/U_y)(dU/dt)<0$. Furthermore, the welfare effects of a tariff are ambiguous if $\varepsilon_x>\varepsilon_y$, we now have,

Proposition Ⅲ. *Under VRS, a trariff causes a welfare loss and a rise in total unemployment in the labor surplus economy if elaticity of returns to scale of the exportable industry is more than that of the importable sector.*

B. Production Subsidy to the Importable Industry

Let us define $P_s=p^*(1+e_x)$, where e_x is the Production Subsidy to importable industry. Here, the price ratio facing consumers remains the same at p^*, so that $(p-p^*)\,dD_x=0$. Differentiating (26) with respect to e_x, we obtain,

$$(1/U_x)\ (dU/de_x) = -p^* e_x\ (dX/de_x) + p[1-\theta\ (1-\varepsilon_x)/(1-\varepsilon_y)]p^*(dX/dp) \quad (31)$$

Now, $(dX/de_x) > 0$ since the production subsidy raises the price ratio facing producers in the importable sector. If $\varepsilon_x = \varepsilon_y = 0$, (31) reduces to,

$$(1/U_y)\ (dU/de_x) = -p^* e_x\ (dX/de_x + p(1-\theta)p^*(dX/dp)] \quad (31)'$$

which is unambiguously negative if $\theta > 1$ and this happens even when e_x is initially zero. Hence, unemployment increases. Note further that the welfare effects are indetermainate if $\theta < 1$. However, if $\varepsilon_y > \varepsilon_x$, $(1/U_y)\ (dU/de_x) < 0$, even when initially $e_x = 0$. Furthermore, if $\varepsilon_x > \varepsilon_y$, then the sign in (31) is, in general, indeterminate. On the other hand, if $\varepsilon_y < \varepsilon_x$ and e_x is initially zero, $(1/U_y)\ (dU/de_x) > 0$. The following proposition is now immediate,

Proposition Ⅳ. *Under VRS and in the presence of unemployment, free trade is superior to restricted trade caused by a production subsidy to the importable industry if elasticity of returns to scale of the exportable sector is greater than that of the importable sector.*

C. Export Subsidy

This section is devoted to the analysis of welfare and employment as a result of granting an export subsidy to the agricultural sector. This implies that $p^* = p(1+e)$, where e is the rate of export subsidy. By using the same procedure outlined above, the change in welfare due to an export subsidy is given by the following expression,

$$\begin{aligned}(1/U_y)\ (dU/U_y) &= (ep^2/1+e)\ (dE_x/dp) \\ &\quad -[1-(1-\varepsilon_x)\ \theta/(1-\varepsilon_y)](dX/dp)\ (p^2/1+e)\end{aligned} \quad (32)$$

In (32) $(dE_x/dp) < 0$, since a rise in the domestic relative price of importable causes a fall in imports and $(dX/dp) > 0$ (see Appendix). If $\varepsilon_x = \varepsilon_y = 0$, (32) reduces to,

$$\begin{aligned}&(1/U_y)\ (dU/U_y) = \\ &\quad [(ep^2/1+e)\ (dE_x/dp) - (1-\theta)\ (dX/dp)\ (p^2/1+e)]\end{aligned} \quad (32)'$$

If $\theta < 1$, then (dU/de) is unambiguously negative and this happens even when initially $e = 0$ and the sign of (dU/de) is indeterminate if $\theta > 1$. However, if initially $e = 0$, then $(dU/de) \gtrless 0$ as $\theta \gtrless 1$. Now, if $\varepsilon_x > \varepsilon_y$, then (dU/de) is negative and the sign of (dU/de) is ambiguous if $\varepsilon_y > \varepsilon_x$. Note further that if $\varepsilon_y > \varepsilon_x$ and e s initially zero then $(dU/de) > 0$.

Proposition Ⅴ. *Under VRS, free trade is inferior to an export subsidy in a labor-surplus economy if the elasticity of returns to scale of the agricultural is greater than that of the manufacting sector.*

D. Production Subsidy to Exportable Industry

The policy of granting a production subsidy to the agricultural sector implies that $p^{*}=p_s(1+e_y)$, where e_y is the productive subsidy. Here again the price ratio facing consumers remains the same. Dividing both sides of (26) by de_y, and by appropriate substitution we obtain,

$$\begin{aligned}(1/U_y)(dU/de_y)=&(-e_y p_s^2/1+e_y)(dx/dp_s)\\ &-p[1-\theta(1-\varepsilon_x)/(1-\varepsilon_y)]\,(dx/dp_s)(p_s/1+e_y)\end{aligned} \tag{33}$$

Under constant returns to scale, (33) reduces to $[(-e_y p_s^2/1+e_y)\ (dx/dp_s)-p(1-\theta)\ (dx/dp_s)\ (p_s/a+e_y)]$ which is necessarily negative if $\theta < 1$ and positive if e_y is initially zero and $\theta > 1$. On the other hand, if e_y is initially zero, then $(dU/de_y) \gtreqless 0$ as $\varepsilon_y \gtreqless \varepsilon_x$. Hence, we have the following proposition :

Proposition Ⅵ. *Under VRS, in a labor surplus economy, free trade is inferior to a production subsidy to the exportable sector, if elasticity of returns to scale of the agricultural sector is greater than that of the manufacturing sector.*

Ⅴ. Concluding Remarks

This paper has been concerned with the welfare implications of some protection measures in a two-sector, three factor framework in which land is a specific factor, wages are institutionally determined, and variable returns to scale are present. Among other things, we have shown that free trade is inferior to export-promoting policies if elasticity of returns to scale of the agricultural sector is greater than that of the manufacturing industry. Specifically, a production subsidy to the manufacturing sector causes social welfare to fall and unemployment to increase whereas unemployment falls and welfare increases as a result of an export subsidy or a production subsidy to agricultural sector.

Appendix

In what follows, we derive the mathematical expression supporting the results used in the main text. From (8), (10), and (12), we have

$$pg_xF_{Kx}(K_x)=g_yF_{ky}(k_y, v) \tag{A1}$$

And from (7) and (9), we write

$$W=pg_xF_{Lx}(k_x) \tag{A2}$$

$$W=p_yF_{Ly}(k_y, v) \tag{A3}$$

Differentiating (A1)−(A3) and assuming for simplicity that p=1 initially, we obtain the following matrix system,

$$\begin{bmatrix} -g_xF_{Kkx} & g_yF_{Kky} & g_yF_{kvy} \\ g_xF_{Lkx} & 0 & 0 \\ 0 & g_yF_{Lky} & g_yF_{Lvy} \end{bmatrix} \begin{bmatrix} dk_x \\ dk_y \\ dv \end{bmatrix} = \begin{bmatrix} H_1 \\ H_2 \\ H_3 \end{bmatrix}$$

where,

$$H_1=-r(dg_y-dg_x-g_xdp) \tag{A4}$$
$$H_2=-(Wg_x-dp-Wdg_x) \tag{A5}$$
$$H_3=-Wdg_y \tag{A6}$$

The determinant of this system is given by,

$$D=-g_xg_y^2F_{Lkx}\,[F_{Kky}F_{Lvy}-F_{Kvy}F_{Lky}]$$

Clearly D 〉 0. Since F_{Kvy} is negative whereas F_{Kvy}, F_{Lky}, F_{Lkx} and F_{Lvy} are positive(see Panagariya [1980], p. 520). The solution of the matrix yields,

$$(dk_x/dp)=(1/D)\,[Wg_xg_y^2\,(F_{Lvy}F_{Kky}-F_{kvy}-F_{Lky})] \tag{A7}$$
$$(dk_y/dp)=(1/D)g_yg_x^2\,[WF_{Kkx}F_{Lvy}-rF_{Lkx}F_{Lvy}] \tag{A8}$$

and

$$(dv/dp)=(1/D)\;g_yg_x^2F_{Lky}[rF_{Lkx}-WF_{Kkx}] \tag{A9}$$

From these equations it is obvious that (dK_x/dp) and (dk_y/dp) are negative whereas (dv/dp) is positive.

In order to see how p affects X and Y, we need the Production Functions,

$X = g_x(X) L_x f(k_x)$

and

$Y = g_y(Y) L_y g(k_y, v)$

And the full utilization equations,

$L_x k_x + L_y k_y = \bar{K}$ and $L_y v = \bar{V}$

Differentiating these with respect to p and using (A7)−(A9), we have,

$$(dX/dp) = -(g_x/1-\varepsilon_x)[c_1(dk_x/dp) + c_2(dk_y/dp) - c_3(dv/dp)] \quad \text{(A10)}$$

and

$$(dY/dp) = (g_y/1-\varepsilon_y)[L_y F_{Ky}(dk_y/dp) - (1/v)(g - vF_{Vy})(dv/dp)] \quad \text{(A11)}$$

where,

$c_1 = [L_x(f - k_x F_{Kx})/k_x]$
$c_2 = (fL_y/k_x)$

and

$c_3 = (Vf/k_x)$

Since $(1-\varepsilon_x)$ and $(1-\varepsilon_y)$ are always positive (see Panagariya[1980]), (dk_x/dp) and (dk_y/dp) are negative and (dv/dp) is positive. Hence $(dX/dp) > 0$ and $(dY/dp) < 0$. Furthermore, we can write $y + \Phi(X)$
with

$\Phi' = dy/dx = (dY/dp)/(dX/dp) < 0.$

In order to see how a change in p affects unemployment, differentiate (13) and (14) with respect to p, keeping K and V constant, we obtain

$$(dL_x/dp) = (k_y/v)(L_y/k_x)(dv/dp) - (1/k_x)[L_x(dk_x/dp) + L_y(dk_y/dp)] \quad \text{(A12)}$$
and

$$(dL_y/dp) = -(L_y/v)(dv/dp) \quad \text{(A13)}$$

Now, since $dL + dL_x + dL_y$, hence we have,

$$(dL/dp)=[(dL_x+dL_y)/dp]$$
$$=(L_y/v)(1/k_y)(k_y-k_x)(dv/dp)-(1/k_x)[L_x(dk_x/dp)+L_y(dk_y/dp)]$$

Let $\varepsilon_v=(dv/dp)(1/v)$ be the positive elasticity of land-labor ratio in agricultural sector with respect to p and with p=1 initially, we have,[4]

$$(dL/dp)=J+(L_y/k_x)(k_y-k_x)\varepsilon_v \quad \text{(A14)}$$

where $J=-[L_x(dk_x/dp)+L_y(dk_y/dp)](1/k_x)$

It should be noted here that since labor supply is fixed, dL signifies a change in employment as well as unemployment in the economy. It is clear from (A14) that $(dL/dp) > 0$ if $k_y \geq k_x$.

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