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Immigrant Links to the Home Country: Implications for Trade, Welfare and Factor Rewards

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Federal Reserve Bank of Dallas

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By David M. Gould[1]

In this paper, I examine how ties to immigrants' home countries can influence trade, welfare and factor rewards. Immigrant ties, or links, include knowledge of home-country markets, language, preferences, and personal contacts that have the potential to decrease trading transactions costs. An important implication from the model is that while immigration tends to decrease trade and labor wages, immigration that includes immigrant links can have the opposite effects– increasing trade and wages. Furthermore, the total potential gains from trade may increase through the trade enhancing effects of immigrant links.

[1]Research Department, Federal Reserve Bank of Dallas, Dallas, TX 75222. I would like to acknowledge the extremely helpful comments of Edward Leamer, Bruce Fallick, John Duca, Joseph Haslag, Mark Wynne and members of the UCLA International Economics Seminar. The views expressed herein are those of the author and not necessarily those of the Federal Reserve Bank of Dallas or the Federal Reserve System.

I Introduction

Over the past two decades, the world has experienced some of the largest increases in the international migration of people since the turn of the century. In the United States, the 1980 census recorded 14 million foreign-born residents, 32 percent of whom immigrated between 1970 and 1980. This is one of the highest intercensal increases in foreign-born population in U.S. history, representing 18.6 percent of the increment in population. Recent political and economic turmoil in the former Soviet Union and Eastern Europe suggest that immigration will continue to be an extremely important force in the years to come.

While recent large international flows of labor have generated a substantial literature, most economic models of immigration treat immigrants as indistinguishable from current residents.[1] In these models, the primary difference between an increase in domestic labor as opposed to foreign labor is the treatment of national welfare (that is, Are immigrants included in the host country's welfare?) and the question of whether physical and human capital accompanies foreign labor.[2] This, however, may ignore other important effects of immigration, such as the close ties or links an immigrant community maintains with its home country. Immigration may be trade-enhancing because it introduces into the host country the immigrant's language, preferences, knowledge of home-country markets, and home-country contacts.

The question I address in this paper is, What are the potential effects of immigrant links on the host country's welfare, factor returns and trade? This issue is important in assessing the economic consequences of immigration as well as understanding the political economy of immigration – that is, who will lobby for immigration liberalizations or restrictions? Furthermore, questions concerning the changing source-country

[1]See, for example, Greenwood (1983), Greenwood and McDowell (1985), and Reubens (1983).

[2]See Johnson (1967), Grubel and Scott (1966), Berry and Soligo (1969), and Bhagwati and Rodrigues (1975).

distribution of immigrants can be addressed in this context. Does it make a difference to a host country's income distribution whether it receives 100,000 immigrants from only one country or from a dozen countries? Should a host country actively promote diversity in its immigration policy, or should the country be passive?

Evidence of Immigrant Links

Recent case studies of immigrant networks and immigrant entrepreneurs provide suggestive evidence of immigrant links.[3] These studies show that although entrepreneurial activity may differ between immigrant groups and destination countries, immigrants typically have found trading activities an accessible niche to fill in the labor market.[4] For example, in a survey of Korean immigrants in Los Angeles, Min (1990) found that the most frequent occupation of Korean immigrant entrepreneurs is trading activities (mainly trade in fashion items) with Korea. Min observed, "Korean exports to the U.S. have substantially increased since the early 1970s, when a massive influx of Koreans to the U.S. started. By virtue of the advantages associated with their language and ethnic background, many Korean immigrants have been able to establish import businesses dealing in Korean-imported merchandise"(p. 22).

Using multivariate regression analysis, Gould (1991) found empirical evidence for the United States and Canada which suggested that immigrant links do play an important role in increasing bilateral trade flows with immigrants' home countries. Controlling for host and home country income, population, prices, and immigrant community characteristics, the empirical results suggested that immigrant link effects are strongest in exports and imports of consumer manufactured products, with exports appearing to be influenced the most.

[3]See, for example, Light (1985), Light and Bonacich (1988), and Razin (1990).
[4]Razin (1990).

The Mechanisms of Immigrant Links

The mechanisms by which immigrant links influence trade flows may be sorted into two general types. The first refers to immigrant preference for home-country products, and the other refers to the transactions costs to trade associated with information and trust. The first class of mechanisms suggests that immigrants' consumption of their home-country products will result in a direct increase in the host country's imports of these goods. The second category, a much broader one, predicts a direct increase in both export and import flows through a decrease in transactions costs associated with obtaining foreign market information and establishing trade relationships.

There are several ways in which immigrant links can decrease the transactions costs to trade associated with foreign market information and developing trust. First, the native language of the immigrants can become known, or used more often, by the residents of the host country. Consequently, this can create a larger group of individuals in the host country, immigrants and nonimmigrants, who are bilingual in the languages of both countries, which diminishes the trading costs due to communication barriers. Second, if products are differentiated across countries and immigrants bring information about their home-country products and preferences, the costs of obtaining foreign market information in the host country will decrease. Finally, because trade often depends on contracts for delivery and payment, the development of trust through immigrant contacts can decrease the costs associated with negotiating trade contracts and ensuring their enforcement. While trade flows between developed countries may benefit a little from these effects, trade between developed and developing countries would be influenced even more because formal trade contracting is not as well institutionalized in developing countries as in developed countries.

The importance of these immigrant information effects, of course, would depend on the initial amount of foreign market information in the host country and the ability

of immigrants to relay information and to integrate their communities into the host country.[5] This, in turn, may depend on the educational level of the immigrants, the length of their stay in the host country, and the size of the immigrant community.

In this paper a three-goods, two-factor model is developed to analyze how immigration and immigrant links affect welfare, factor returns and trade. The analysis takes the point of view of a developed economy which receives an inflow of foreign labor. This paper is divided into two primary sections; the first develops a long-run model of immigrant links and trade and the second examines the medium-run effects of immigrant links on factor returns.

In the first section, the duality approach to modeling international trade as developed by Dixit and Norman (1980) is utilized since it can summarize, in a rather simple fashion, the supply and demand changes that result from immigration and changes in information costs due to immigrant links. The focus of this section is to examine the effects of immigrant links on trade and welfare in a simple general equilibrium model with traded and nontraded goods. Two conclusions of the model contrast against those of the standard 2X2 Heckscher-Ohlin-Samuelson (HOS) model. First, although the model has only two traded goods and two factors, immigration can be a complement to trade. This result contrasts with the HOS implication of immigration being solely a substitute to trade. Secondly, the model suggests that the total potential gains from trade will increase with immigration and immigrant links that decrease information costs.

In the second section, the effect of immigration and immigrant links on factor rewards is discussed. It is shown that in the medium-run with sector specific capital and labor mobile, immigration alone tends to decrease wages, as in the specific

[5]Certainly, immigration is not the only way a host country can obtain foreign market information. Immigration, however, may increase the availability of such information, which would decrease its marginal cost.

factors model. However, with immigrant links, the tradables sector expands thereby mitigating the downward pressure on wages. The implication that immigrant links can help prevent wages from falling may help to explain why recent empirical studies have failed to show a strong negative relationship between U.S. immigration and native's wages rates.[6]

II The Model

The model under consideration consists of an open economy which produces three goods: importables (M), exportables (X), and nontradables (N); with two factors labor (L) and capital (K). In this model, the rest of the world (outside the host and home countries) is so large that the migration of labor does not influence world prices of traded goods. Although there are two factors and two traded goods (which implies factor price equalization in the traditional HOS framework), the lack of foreign market information results in a wedge between the domestic and foreign prices of traded goods. Consequently, the scarce factor, which is labor in the host country, is paid more than it would be in the absence of transactions costs. All goods are produced by capital and labor, with exports being the most capital intensive and nontradable goods, the least capital intensive.

There are a large number of producers and consumers so that perfect competition prevails, and all goods are produced with constant returns to scale. Consumers maximize utility subject to their budget constraint and producers maximize profit subject to the available resources and technology.

The representative consumer maximizes the following utility function:

$$\max_{C_n, C_m, C_x} U(C_n, C_m, C_x) \tag{1}$$

[6]See for example Topel and LaLonde(1990) and Borjas (1990)

subject to the budget constraint:

$$C_x + pC_m + qC_n \leq Income \tag{2}$$

where $U(\cdot)$ is the utility function, C_n is the consumption of nontradables, C_m is the consumption of imports, C_x is the consumption of exports, p is the domestic price of importables relative to exportables inclusive of transactions costs and, q is the price of nontradables relative to exportables. Income is derived from labor wages and capital rental, and is measured in terms of the exportable good.

On the production side, firms use standard technology (that is, ruling out increasing returns to scale and all increasing marginal rates of substitution and transformation) which is the same across countries to produce imports, exports and nontradables. Subject to standard technology, firms maximize profit

$$\max_{Q_x, Q_m, Q_n} \Pi = (Q_x + pQ_m + qQ_n) - w_i V, \tag{3}$$

where Q_m is the quantity of importables produced, Q_n is the quantity of nontradables produced, Q_x is the quantity of exportables produced, V is the vector of inputs and, w_i is the vector of factor wages in country i.

The price of importables relative to exportables is equal to the international price of these goods plus the information costs involved in trading between two countries.

$$p = p^* + I(Z) \tag{4}$$

where p^* is the international price of importables relative to exportables, $I(\cdot)$ are foreign market information costs ($I(Z) \geq 0$) and, Z is a subset of the vector of factor inputs (V) and refers to those factors that can increase information about the foreign market. In this model Z represents the stock of immigrants.

Information costs in this model are assumed to create a wedge between the domestic and international prices of imports and exports. Although the international price is not observable, it can be thought of as that price which would exist in the absence of any information costs. These costs relate to language barriers, knowledge of foreign markets structure (i.e., where and how to sell products abroad) and costs associated with gaining foreign market contacts.

Assuming that foreign market information costs decrease with the flow of immigrants at a decreasing rate after some threshold in the stock of immigrants has been reached, we have if $Z \geq Z^*$:

$$\frac{dI}{dZ} < 0,$$

and

$$\frac{d^2I}{dZ^2} < 0,$$

where Z^* is the threshold level of immigrants needed to affect information in the host country. Figure 1 describes the shape of the information cost function.

The simultaneous solutions to the producers' and consumers' maximization problems will determine the equilibrium levels of nontradables prices, factor rewards and outputs of all goods.

A simple way of summarizing equilibrium in the host country is to use duality theory. [7] To begin with, all other factors are assumed to be immobile across countries except labor. Furthermore, immigrants are assumed not to repatriate any income to their country of origin.

Let $E(1, p, q, u)$ stand for the expenditure function for all workers in the host country, and $R(1, p, q, V)$ the revenue function for all firms. Equations (5) through (7) summarize the model.

[7] See Dixit and Norman (1980) pages 146-149, S. Edwards(1987).

$$E(1,p,q,u) = R(1,p,q,V) \tag{5}$$

$$E_q(1,p,q,u) = R_q(1,p,q,V) \tag{6}$$

$$p = p^* + I(Z) \tag{7}$$

The partial derivative of a variable is denoted by a subscript. Thus, R_q is the partial derivative of the revenue function with respect to the price of nontradables and is the supply of nontradables. E_q is the derivative of the expenditure function with respect to the price of nontradables which is the Hicksian compensated demand for nontradables. The price of exports is the numeraire.

In this one-period model, the first equation imposes external equilibrium (trade balance), the second represents internal equilibrium in the nontradables sector, and the third is the relationship between the domestic and foreign price of importables.[8]

To determine the effects of immigration, consider the consequences of a shift in the stock of immigrants. Since the only change in the vector of factor inputs, V, is equal to the inflow of immigrants, the change in the factors which increase foreign market information, dZ, equals dV. Consequently, in what follows, the term dV will substitute for dZ.

Totally differentiating the system gives:

$$(E_p - R_p)dp + (E_q - R_q)dq + E_u du = R_V dV \tag{8}$$

$$(E_{qp} - R_{qp})dp + (E_{qq} - R_{qq})dq + E_{qu} du = R_{qV} dV \tag{9}$$

$$dp = I_V dV \tag{10}$$

[8]Since there is only one period in this model, external equilibrium will always exist and because there is no capital account in this model, external equilibrium implies trade balance.

Since the demand for nontradables equals the supply of nontradables,

$$(E_q - R_q) = 0,$$

equation (8) becomes,

$$(E_p - R_p)dp + E_u du = R_V dV. \tag{11}$$

Substituting equation (10) into equations (9) and (11) to eliminate dp, and noting that $\phi_n = \frac{E_{qu}}{E_u}$ is the pure income effect on the demand for nontradables, and letting M denote imports which are $(E_p - R_p)$, the system can be expressed as:

$$\begin{bmatrix} 0 & E_u \\ (E_{qq} - R_{qq}) & E_u\phi_n \end{bmatrix} \begin{bmatrix} dq \\ du \end{bmatrix} = \begin{bmatrix} [R_V - MI_V]dV \\ [R_{qV} - (E_{qp} - R_{qp})I_V]dV \end{bmatrix},$$

which yields the solutions,

$$\frac{dq}{dV} = \frac{1}{\Delta}[(R_V\phi_n - R_{qV})E_u + [(E_{qp} - R_{qp}) - M\phi_n]E_u I_V], \tag{12}$$

$$\frac{du}{dV} = \frac{1}{\Delta}[-(E_{qq} - R_{qq})[R_V - MI_V]], \tag{13}$$

where $\Delta = -(E_{qq} - R_{qq})E_u$ is the determinant of the system.

Equation (12) represents the effect of immigration on the price of nontradables and equation (13) represents the impact of immigration on the host country's welfare defined over consumption of these three goods. These two equations are discussed in detail in the following two subsections.

II.A Immigrant Links and The Price of Nontradable Goods

First note that the determinant of the system, Δ, is positive because E_u, the change in total expenditure when utility changes, is positive and the term $-(E_{qq} - R_{qq})$

is positive because (E_{qq}), the own price effect on the demand for nontradables is negative, and (R_{qq}), the own price effect on the supply of nontradables is positive. That is, demand is downward sloping and supply is upward sloping.

Equation (12) implies that changes in the price of nontradables depend on three terms: (1) $(R_V\phi_n - R_{qV})E_u$, (2) $(E_{qp} - R_{qp})E_u I_V$, and (3) $-[M\phi_n]E_u I_V$. If immigrant links are not present (i.e., $I_V = 0$), the change in the price of nontradables depends only on the first term.

The first term, $(R_V\phi_n - R_{qV})E_u$, represents the direct demand and supply effects of immigration on the nontradables sector. $(R_V\phi_n)$ are the wage payments to immigrants multiplied by the pure income effect on the demand for nontradables, and (R_{qV}) is the Rybczynski effect of immigration in the nontradables sector. Wage payments will have a positive impact on the demand for nontradable goods through the income effect, and hence will tend to increase the price of nontradables. However, the Rybczynski effect can be either positive or negative depending on the relative capital-labor ratios in the other sectors. If the capital-labor ratio in the nontradables sector is higher than in the importables or exportables sectors, then the Rybczynski effect is negative and the total effect of immigration on the price of nontradables, excluding immigrant links, is positive. Otherwise, the change in the price of nontradables is unknown because the Rybczynski effect may or may not dominate the positive income effect.

If immigrant links accompany immigration, the second and third terms are important. These respective terms relate to the substitution and income effects in the nontradables sector when immigrant links decrease the relative price of traded goods.

The second term, $(E_{qp} - R_{qp})E_u I_V$, represents the demand and supply effects in the nontraded goods sector when the price of traded goods falls due to an increase in foreign market information. Since there are three goods in this model, any two can be complementary as long as the third is a substitute to both. If we assume

that all goods are substitutes in consumption, the cross price effect on the demand for nontradables (E_{qp}) is positive. On the other hand, the cross price effect on the supply of nontradables (R_{qp}) must always be negative. Consequently, if all goods are substitutes in consumption, then immigrant links will induce substitution away from nontradables and tend to decrease the price of nontradables.

The third term, $-[M\phi_n]E_u I_V$, represents the positive income effect from decrease in the relative price of tradables on the demand for nontradables. This increase in income will tend to put upward pressure on the demand for nontradables, and thereby will increase the price of nontradables.

In summary, immigrant links will cause a fall in the price of nontradables (because of the fall in the price of traded goods) when the substitution away from nontradables outweighs the positive income effect on the demand for nontradables. In general, however, the overall effects of immigration and immigrant links on the price of nontradables are uncertain.

II.B The Effects of Immigrant Links on Host Country Welfare

Equation (13) shows that the welfare effects of immigration and immigrant links depend on two factors which are both proportional to $-\frac{1}{\Delta}(E_{qq}-R_{qq})$. This expression is the determinant of the system multiplied by the own price effect on the demand and supply of nontradables, which, as mentioned above, is positive. The first term, (R_V), reflects the marginal product of labor or the wage rate of labor, and the second term, $(-MI_V)$, reflects the increase in income due to the increase in the terms of trade as a result of new foreign market information becoming available.

The first term, (R_V), is the marginal product of labor and is positive. The second term, $(-MI_V)$, represents the increase in income due to the decrease in the information costs associated with trade. This term has a positive impact on the welfare of the

host country since (I_V) is negative and is multiplied by another negative term,($-M$). Consequently, the total impact on welfare from immigration and immigrant links will be positive, assuming, of course, there are no factor market distortions.

Summarizing the effects of labor migration on the price of nontradables and welfare, the following can be said: (1) If the new demand for nontradables equals the change in the supply of nontradables and substitution effect outweighs the income effect, then the price of nontradables will fall. Otherwise, the change in the price of nontradables is uncertain. (2) Welfare will increase in the host country as long as immigrant links decrease trade information costs. Although the home country is not the focus of this analysis, it is rather straightforward to demonstrate that welfare in the home country will also increase if emigration from the home country results in a decrease in foreign market information costs.

III Trade and Immigrant Links

This section examines the effects of immigration and immigrant links on trade flows. To determine what these effects are, the expression for imports, $M = (E_p - R_p)$, is differentiated with respect to a change in immigration. Since this model does not include a capital account, this expression also represents movements in exports. So, a relative price change that directly affects imports is also a price change that directly affects exports.

The change in imports due to immigration is:

$$\frac{dM}{dV} = -R_{pV} + (E_{pp} - R_{pp})I_V + [E_{pq} - R_{qp}]\frac{dq}{dV} + \phi_n E_u \frac{du}{dV}. \qquad (14)$$

The first term represents the direct effect of immigration on the change in supply of importables. The second term is the own price effect on demand for and supply of importables due to a change in information. The third term represents the substitu-

tion into or out of imports when the price of nontradables changes. The last term is the effect of a change in welfare (the income effect) in the importables sector.

The first term, the direct effect on imports ($-R_{pV}$), can be positive or negative depending on the sign of the Rybczynski effect. Maintaining the assumption that the import competing sector is relatively labor intensive compared to the exports sector, the Rybczynski effect will be positive and, hence, the sign of the first term will be negative. Under this condition, when there is an increase in the labor supply, labor flows into the import competing sector which results in an increase in the production of import competing goods and a decrease in imports.

The second term, $(E_{pp} - R_{pp})I_V$, represents the own price effect on the demand and supply of importables. With a decrease in information costs, the price of imports goes down so the consumption of imports will increase while host country production falls. The net effect of this term results in an increase in imports.

The third term, $[E_{pq} - R_{qp}]\frac{dq}{dV}$, relates to the cross substitution effects between importables and nontradables. If all goods are substitutes in consumption, an increase in the price of nontradables will tend to increase imports.

The fourth term, $\phi_n E_u \frac{du}{dV}$, shows how a change in welfare will affect imports. This is essentially the income effect and is positive when immigrant links decrease the information costs associated with trade.

In general, the direction of the change in imports is ambiguous since the values of the first and third terms, the effect on production and the substitution effect from a change in the price of nontradables, are indeterminate. The second and fourth terms, the own price effect and income effect, are positive and will always tend to increase imports.

Although the change in trade is ambiguous in the model, the following can be said: if a marginal increase in the flow of immigrants brings a large enough decrease

in the transactions costs to trade, imports (and exports) will increase. This suggests that immigrants who transmit a relatively large amount of information about their home country will have a positive effect on bilateral trade.

IV Immigration and Factor Rewards

This section takes a detailed look at the medium-run implications of immigrant links on changes in factor rewards and output mix. Under the assumptions made above, exports are the most capital intensive and nontradables are the least capital intensive. The capital intensity of imports lies between exports and nontradables. Since this is a medium-run analysis, capital is assumed to be sector specific, but labor is mobile between sectors.[9]

The initial labor market equilibrium is depicted in Figure 2. The horizontal axis represents the total amount of labor available to the host economy and the vertical axis represents the wage in terms of importables.[10] The demand for labor in the tradables goods sector is the curve labeled L_T, and is equal to the horizontal sum of the demand for labor in the importables sector L_I and that in the exportables sector. The demand for labor by the nontradables goods sector is shown by the curve L_N. The initial equilibrium is characterized by a wage rate equal to W_0, with $O_T L_A$ labor used in producing importables, $L_A L_B$ used in producing exportables, and $O_N L_B$ labor used in producing nontradables.

With an increase in immigration, the supply of labor to all sectors increases which is represented by the horizontal axis expanding by the distance $O_N O_{N'}$. If the price of nontradables does not change and immigrant links are absent, then the wage rate will fall from W_0 to W_1. If the price of nontradables does increase, the labor demand

[9]In the short-run, both labor and capital would be sector specific.

[10]This diagram is an adaptation for the three good case of the Ricardo-Viner models of Jones(1971), Mayer(1974), and Mussa(1974). (See S. Edwards(1988)).

curve for nontradables will shift out to L''_N, causing wages to rise from W_1 to W_2. Consequently, the existence of nontradable goods may decrease the pressure for wages to fall. A possible but unlikely case is if the price of nontradables increases to such a degree that wages actually rise above the initial equilibrium. This is possible if nontradables, as a whole, are necessities and immigrants spend a large proportion of their income on these goods.

Figure 3 shows the final equilibrium depicted in Figure 2 with the added labor market adjustment due to immigrant links. The accompanying reduction in transactions costs will result in a higher price received for exports and will generate an upward shift in the L_T curve to L'_T. The new curve will intersect the L''_N curve at A but this is not the final equilibrium. Whereas the domestic price of exports relative to imports rises from the decrease in information costs, the relative price of nontradables, as discussed above, can either increase or decrease depending on the income and substitution effects.

Assuming the income effect does not outweigh the substitution effect, the price of nontradables will fall because of immigrant links. As a result, L''_N will shift downward (by less than the increase in L_T) to L'''_N and the final equilibrium will be achieved at B with the wage rate at W_3. The production of nontradables falls and results in a decrease in labor demand in that sector from $O_{N'}L_{B''}$ to $O_{N'}L_{B'''}$. The production of importables goes down and causes labor in that sector to leave which is shown by a shift from $O_T L_{A''}$ to $O_T L_{A'''}$. As drawn in the diagram, labor moves out of the nontradables and import competing sectors and into the exports sector as the production of nontradables and importables goes down. Consequently, because of immigrant links, the exports sector increases production and the wage rate rises above that which would result in the absence of immigrant link effects.

Table 1 summarizes changes in the wage rate and the return to capital due to immigration and immigrant links that decrease transactions costs. K_E represents

Table 1 – Change in Factor Rewards With Immigration

Factor Rewards in Terms of	With an increase in immigration				Change due to Immigrant Links			
	L	K_E	K_I	K_N	L	K_E	K_I	K_N
Exports	−	+	+	+	?	+	−	−
Imports	−	+	+	+	+	+	−	−
Nontradables	−	?	?	?	+	+	?	−

capital in the exports sector, K_I represents capital in the imports sector and K_N represents capital in the nontraded goods sector. With immigration absent immigrant links, labor loses in terms of all goods. Capital, on the other hand, gains in terms of exports and imports, while it can either gain or lose in terms of nontradables depending on the magnitude of the price change in the nontradables sector.

If immigration is accompanied by immigrant links, labor will gain in terms of importables and nontradables while it may gain or lose in terms of exportables. As drawn in Figure 3, labor loses in terms of exportables since wages have increased less than the price of exportables. Capital in the importables sector loses in terms of all goods except in terms of nontradables, where it may gain or lose. Capital in the export sector gains in terms of all goods, while capital in the nontradables sector loses in terms of all goods.

The important point to be stressed here is that unlike the traditional specific factors model, this model demonstrates that the larger immigrant links are, the less labor will lose as a result of immigration. This is due to the trade enhancing effects of immigrant links. To some degree, this may help explain why a number of empirical studies have found the effect of immigration on natives' wages to be slight.

V Summary

This paper investigates an aspect of immigration that until now has received little attention; namely, the foreign market information that immigrants generate. This new information in the host country can decrease the transactions costs of trade by making it easier to obtain knowledge of the immigrant's home-country language, market structure, and foreign contacts.

The model developed in this paper explains how immigration and immigrant links to the home country can affect welfare, trade and factor returns. The effects of immigration are examined in terms of both tradable and nontradable goods. Two conclusions of the model contrast sharply against those of the standard 2X2 HOS model. First, although the model has only two traded goods and two factors, immigration can be a complement to trade, which contrasts with the HOS implication of immigration being a substitute to trade. Second, by increasing the available amount of foreign market information in the host country, immigration increases welfare.

The effects of immigration and immigrant links on factor rewards have also been discussed. It was shown that in the medium-run with capital sector specific and labor mobile, immigration alone tends to decrease wages as is the case in the specific factors model. However with immigrant links, the tradables sector expands and tends to mitigate the downward pressure on labor wages.

Several interesting facets of the relationship between immigration and immigrant links remain to be explored. A particularly useful research project would be to examine the differences in the domestic wage response to increases in immigration from different immigrant source countries, addressing the question of whether increases in the size of immigrant communities with the largest immigrant-link effects have the smallest effects on natives' wages. The results would provide useful information on the ability of the United States to increase immigration without placing a large

burden on the natives who compete the most with immigrants.

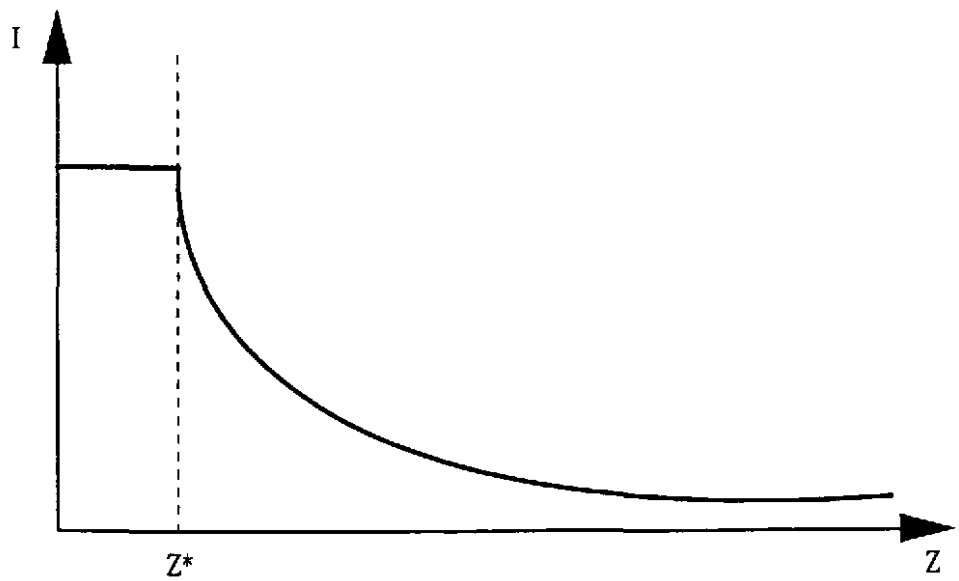

Figure 1: Information Costs and the Stock of Immigrants

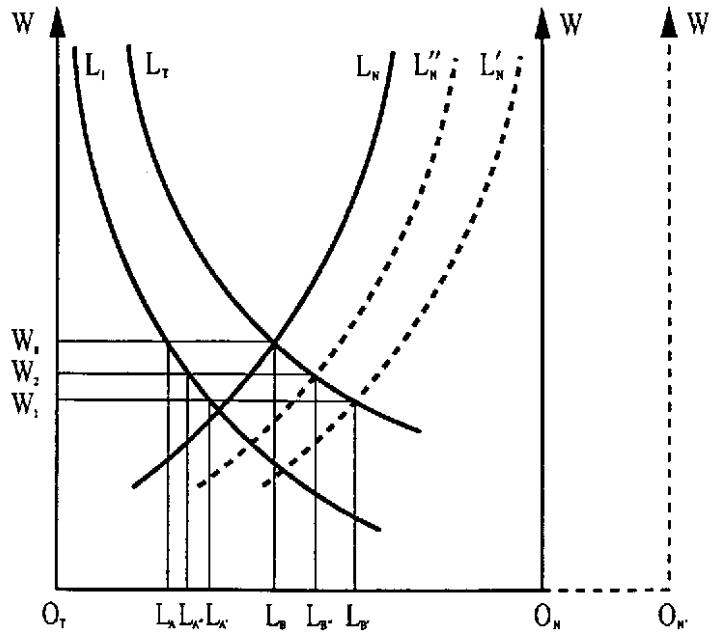

Figure 2: Labor Market Equilibrium With Immigration and No Immigrant Links

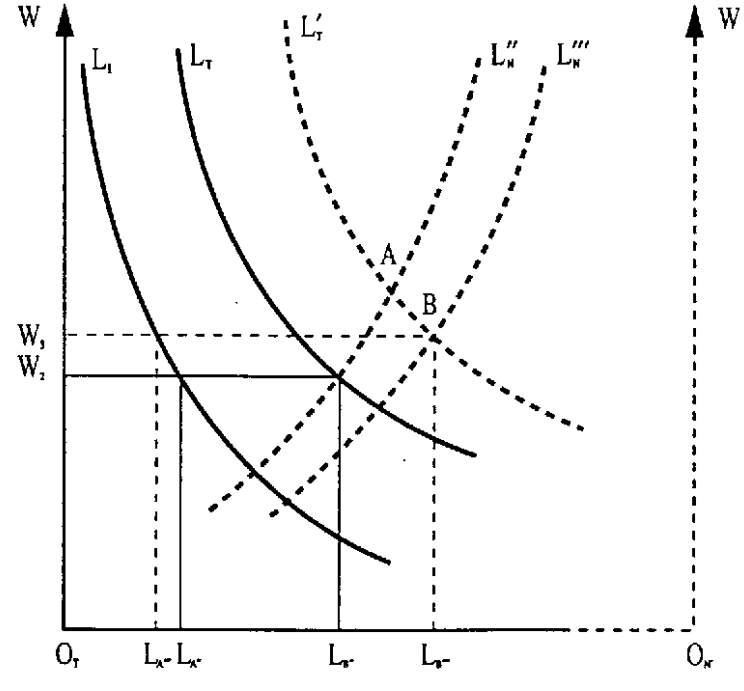

Figure 3: Labor Market Equilibrium With Immigration and Immigrant Links

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