Illegal Immigration and Immigration Policy: A Note

Chisato Yoshida

Abstract

We extend the Djajic 1987 model of illegal immigration to allow for capital mobility. We assume that an enforcement level of immigration policies against illegal aliens by a host country depends on lobbying efforts that are made by interest groups supporting or against immigration controls. We investigate the impacts of some disturbances, capital accumulation in a host country, and population growth in a labor-sending country, when capital is mobile between the countries.

JEL classification No.: F21, F22

Key words: Immigration policy, Lobby efforts, Disturbance

Introduction

The most analyses of illegal immigration have focused on the effects of an immigration policy by a labor-importing country see Ethier 1986, Bond and Chen 1987, Djajic 1997, Yoshida 2000. They ignored some dynamic aspects of the immigration policy. An immigration authority of the host country has sometime adjusted an enforcement level of the immigration control according to lobbying efforts made by different interest groups approving or objecting to the immigration restriction.

In recent years, a general public sentiment of the United States U.S. has been given effective political voice as anti-immigration groups like the Federation for American Immigration Reform FAIR have become increasingly prominent in an immigration policy debate in the U.S. Indeed, within 1994–1996, a new Republican Congress pushed legislation designed to reduce illegal immigration to the U.S. The Illegal Immigration Reform and Responsibility Act of 1996 introduced a variety of new methods designed to deter and discipline illegal immigration, i.e., to increase funding for border patrol and civil penalties for illegal entry, and to enforce laws against alien smuggling and document fraud and increase penalties for these violations DeLaet 2000.

The immigration control of the host country is assumed to be determined by a proportion of the illegal aliens in a domestic total labor force, and the country's unemployment, following Djajic 1987. As shown above, we observe that the anti-immigration group positively makes lobbying efforts to lessen undocumented immigration in response to each factor. The

Djajic 1987 paper initially proposed that the immigration restriction was endogenously determined since the enforcement level of the immigration policy has varied once in a while in accordance with the lobbying efforts.

Djajic 1987 explored the effects of some disturbances, e. g., capital accumulation in a host country, and population growth in a migrant-source country, using a two-country model of illegal immigration extended the framework suggested by Harris and Todaro 1970 in which capital was assumed to be immobile. In this note, we extend the Djajic 1987 model to take capital mobility between the two countries into account, and examine some issues not considered in his work.

First, we consider the effects of an increment in the capital endowment in the home country, and an increase in a supply of labor in the source country. Second, we analyze the impacts of such disturbances on the labor-importing country's income.

Next section develops a basic two-country model with capital mobility, which extends the Djajic 1987 model of undocumented aliens where unlike Djajic 1987 there is unemployment in the home country, whilst full employment in the foreign country. Section 3 examines the effects of the disturbances on the migrant-receiving country's welfare. Final section offers some concluding remarks.

The Basic Model

We extend the Djajic 1987 model of illegal immigration where an enforcement level of an immigration policy by a host country is endogenously determined, in order to allow for capital mobility between a labor-importing capital abundant and a labor-exporting capital scarce countries. We have unemployment full employment in the host country the source country .

Following Djajic 1987 , we assume that an enforcement level of the immigration control, E depends on social and political frictions which are expressed as a, a share of illegal immigrants, I to total home country's labor-force, $(\bar{L}+I)$, and unemployment rate of home labor-force, $(1-e)$ where $\bar{L}$ is the endowment of home labor, and e is employment rate of domestic workers:

$$E=\widetilde{E}(a,\ 1-e) \qquad\qquad 1$$

where $\widetilde{E}_1,\ \widetilde{E}_2>0$

We have equilibrium conditions in production factor markets of the host and the donor countries.

$$(\bar{K}-K_F)\lambda-e(\bar{L}+I)=0 \qquad\qquad \text{2-a}$$

$$(\bar{K}^*+K_F)\lambda^*(w^*)+I=\bar{L}^* \qquad\qquad \text{2-b}$$

$$K_F=h[(1-t)r^*] \qquad\qquad \text{2-c}$$

$$e\bar{w}-w^*-p(\widetilde{E}(a,\ 1-e))z=0 \qquad\qquad \text{2-d}$$

where $\bar{K}$ is home capital endowment, $\bar{K}^*$ is foreign capital endowment, $\bar{L}^*$ is foreign labor endowment, $\bar{w}$ is a minimum wage in the home country which is above a market-clearing level, w^* is foreign country's wage, $r(r^*)$ is rental price of home (foreign) capital, K_F is home capital exports, $\lambda(\lambda^*)$ is labor-capital ratio of the home (foreign) country, t is tax rate imposed on rewards of home capital located in the foreign country, $p(\widetilde{E})$ is the probability found foreign illegal workers by an immigration authority, which is in $(0,1)$, and z is a penalty paid by a detected employer for each illegal alien caught by the immigration authority.[1] In (2-c) we assume $h'>0$, which implies that K_F increases when net tax revenue rises. (2-c) is called as capital movement function (Yabuuchi (1982)).

The equation system (A) of (2-a) through (2-d) decides the four endogenous variables, e, w^*, K_F and a, respectively. Therefore, we can examine the effects on these variables of home capital accumulations, $d\bar{K}$ and foreign population growth, $d\bar{L}$.

2.1　Capital Accumulations

The total differentiation of the system (A) provides the impacts of an increase in the capital endowment of the labor-receiving country.

$$de/d\bar{K}=\lambda[zp'\widetilde{E}_1(1-a)\{(\bar{K}^*+K_F)\lambda^{*\prime}-h'(1-t)\lambda^{*2}\}-(\bar{L}+I)]/\varDelta>0, \qquad (3)$$

$$dw^*/d\bar{K}=-\lambda[(\bar{L}+I)(\bar{w}+p'z\widetilde{E}_2)]/\varDelta>0, \qquad (4)$$

$$dK_F/d\bar{K}=\lambda[h'(1-t)\lambda^*(\bar{L}+I)(\bar{w}+p'z\widetilde{E}_2)]/\varDelta<0, \qquad (5)$$

$$dI/d\bar{K}=\lambda[(\bar{L}+I)(\bar{w}+p'z\widetilde{E}_2)\{(\bar{K}^*+K_F)\lambda^{*\prime}-h'(1-t)\lambda^{*2}\}]/\varDelta>0, \qquad (6)$$

$$dE/d\bar{K}=\widetilde{E}_1\{(1-a)/(\bar{L}+I)\}dI/d\bar{K}-\widetilde{E}_2de/d\bar{K}\gtreqless0, \qquad (7)$$

where

$$\varDelta=(\bar{L}+I)[zp'\widetilde{E}_1(1-a)\{(\bar{K}^*+K_F)\lambda^{*\prime}-h'(1-t)\lambda^{*2}\}-(\bar{L}+I)$$
$$-(\bar{w}+p'z\widetilde{E}_2)\{-e(\bar{K}^*+K_F)\lambda^{*\prime}+h'(1-t)\lambda^*(e\lambda^*-\lambda)\}]<\overset{2}{0}.$$

An increment in home capital endowment brings about an expansion in home labor-demand, and therefore increases the employment rate of domestic workers. The accumulation of capital endowment to some extent absorbs domestic unemployed workers, which reduces home capital exports towards the labor-sending country. This pushes out a part of foreign workers to the labor-importing country, that is, raises illegal immigration, and also forces the foreign country's wage to increase. An augmentation of illegal aliens leads to increase an enforcement level of the internal inspections, whilst the improvement of the employment rate alleviates a removal of foreign irregular workers. Hence, we cannot know whether or not an accretion in the home capital endowment makes the immigration restriction tighter.

2.2　Foreign Population Growth

It is well known that undocumented immigration into the U.S. may be chiefly ascribed to population growth more than the demand for labor growth in the emigration countries (Djajic (1987), Yoshida (2000)). We will derive the effects of foreign labor endowment expansion,

$d\bar{L}^*(>0)$, by making use of the similar way to 2.1.

$$de/d\bar{L}^* = [zp'\tilde{E}_1(1-a)h'(1-t)\lambda^*\lambda + e(\bar{L}+I)]/\Delta < 0, \qquad 8$$

$$dw^*/d\bar{L}^* = (\bar{L}+I)[zp'\tilde{E}_1(1-a) + e(\bar{w}+p'z\tilde{E}_2)]/\Delta < 0, \qquad 9$$

$$dK_F/d\bar{L}^* = -h'(1-t)\lambda^*(\bar{L}+I)[zp'\tilde{E}_1(1-a) + e(\bar{w}+p'z\tilde{E}_2)]/\Delta > 0, \qquad 10$$

$$dI/d\bar{L}^* = -(\bar{L}+I)[-(\bar{w}+p'z\tilde{E}_2)\lambda h'(1-t)\lambda^* + (\bar{L}+I)]/\Delta \gtreqless 0, \qquad 11$$

$$dE/d\bar{L}^* = \tilde{E}_1\{(1-a)/(\bar{L}+I)\}dI/d\bar{L}^* - \tilde{E}_2 de/d\bar{L}^* \gtreqless 0. \qquad 12$$

The labor supply growth in the migrant-source country attracts home capital to the source country, and hence causes employment opportunities in the host country to fall. This compels the wage of the labor-sending country to rise. Although the home and foreign capital situated in the donor country matches with the source country's labor, the rest of foreign labor may illegally migrate to the migrant-importing country. However, not all of them are hired in the host country on behalf of a decrease in the home employment rate. An augmentation of the home unemployment rate raises a level of the internal enforcement through the lobby efforts by the interest groups against illegal immigrants. But we cannot find the effect on the number of unauthorized aliens. Hence, the effect of the lobby efforts on the immigration control is indeterminate.

Welfare Analysis

We explore the effects of the home capital expansion and the foreign population growth on home country's income. We assume that a budget constraint of the home country's government is balanced:

$$T\bar{w}e\bar{L} + (1-t)r^*K_F + zp(\tilde{E})I = vp(\tilde{E})I + \tilde{E}, \qquad 13$$

where T is an income tax rate of home workers, and v is the cost of returning the arrested aliens to their mother country and collecting penalties from the home firms cf. Ethier 1986 . The left-hand side of 13 is the revenue of the government, while the right-hand is the expenditure.

The home country's welfare is expressed as:

$$Y = [e\bar{w}(1-T)\bar{L} + r\bar{K}]. \qquad 14$$

The right-hand side of 14 is home factor payments. Differentiating 14 concerning $\bar{K}$ and considering that r is constant, we obtain the effects of the capital accumulation on the migrant-receiving country's welfare.

$$dY/d\bar{K} = \bar{w}(1-T)\bar{L}de/d\bar{K} > 0. \qquad 15$$

We find from 3 and 15 that home capital augmentation compels the host country's income to increase.

We can also find the impacts of an increase in the foreign labor endowment, $d\bar{L}^*$ on the host country's income, replacing $d\bar{K}$ in 15 by $d\bar{L}^*$.

$$dY/d\bar{L}^* = \bar{w}(1-T)\bar{L}de/d\bar{L}^* < 0. \qquad\qquad 16$$

From 8 and 16, the effect of the foreign population expansion on the home country's income is negative.

Proposition: When capital is internationally mobile, capital accumulation of a host country improves the home country's welfare, whilst population growth of a labor-exporting country harms its income.

We can interpret that the home capital expansion creates home employment opportunities, and hence raises the home factor payments. Also, since the foreign population enlargement draws the home capital to the foreign country on behalf of lower foreign wage, the home workers are deprived of their employment opportunities. This forces the labor-receiving country's income to decline.

Conclusion

We extended the Djajic 1987 model of illegal aliens by incorporating capital mobility into the model, and analyzed some issues not considered in the model. First, we examined the effects of capital expansion in the host country and population growth in the migrant-source country. Second, we explored how such disturbances influence the host country's income.

Capital accumulation in the home country causes an increase in the opportunity of home employment, and hence diminishes capital outflows to the migrant-sending country. The augmentation in the home labor demand draws unauthorized immigration to the labor-importing country. However, we cannot know how the increase in the home capital endowment affects the level of enforcing the immigration restrictions by the migrant-receiving country due to the increase in the portion of foreign clandestine workers in the home work-force and the improvement of home employment rate.

Foreign population growth makes the foreign country's wage decrease, and therefore raises the home capital exports to the foreign country, and induces unlawful immigration. The outflows of home capital diminish the employment rate in the home country. We cannot determine the impact on the number of illegal immigration owing to decreases in the home employment rate and the foreign wage. Hence, it is impossible to decide the effect on the enforcement level of the immigration control.

Capital accumulation in the labor-importing country makes the home country's welfare better off, while population growth in the labor-exporting country compels the host country's income to be worse off. The capital expansion benefits the host country since it brings about a rise in the home employment rate. The population enlargement in the foreign country harms the migrant-receiving country because the employment rate of home workers decreases on behalf of an increase in the home capital exports.

1 Note that λ is constant, since $\bar{w}=f'(\lambda)$, from a first order condition for cost-minimization of a

home competitive firm where the home firm is assumed to have a constant returns to scale technology, i. e., $f \equiv (\bar{K} - K_F) f(\lambda)$.

2　The four equilibrium values are assumed to be stable.　Hence, $(e\lambda^* - \lambda) > 0$　see Yoshida 2000　.

References

Bond, E. and Tain-Jy Chen, 1987, The welfare effects of illegal migration, Journal of International Economics 23, 315-328.

DeLaet, D. L., 2000, U.S. immigration policy in an age of rights　Praeger, Westport, Connecticut .

Djajic, S., 1987, Illegal aliens, unemployment and immigration policy, Journal of Development Economics 25, 235-249.

Djajic, S., 1997, Illegal immigration and resource allocation, International Economic Review 38, 97-117.

Ethier W. J., 1986, Illegal immigration : The host-country problem, American Economic Review 76, 56-71.

Yabuuchi, S., 1982, A note on tariff-induced capital inflow and immiserization in the presence of taxation of foreign profits, Journal of International Economics 12, 183-189.

Yoshida, C., 2000, Illegal immigration and economic welfare　Springer-Verlag, Heidelberg, Germany .