Strategic Trade Policy and Migration : The Case of Different Size Countries

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With an imperfect competition model of trade we analyze the impact of migration on a source and receiving migration country. We assume both countries are different in size and the flow of migrants may run in both senses. There is a two way trade in a homogenous good produced in a cournot competition framework in each country. A tariff is set previously in both countries as a strategic trade policy. Once the tariffs have been set, we analyze the impact of two-way migration on welfare in both countries. We found that countries benefit from incoming migrants and harm from leaving migrants independently of the size of the countries.

[Keywords : Migration, trade policies, welfare]

1. Introduction

It is naïve to say that migration is a complex phenomenon. According to the Global Knowledge Partnership on Migration and Development (KNOMAD) migration is determined not only by economics incentives like higher rate of returns and better conditions of life, but also by wars, discrimination, illness, social insecurity, climate change and even religious concerns. In 2013 more than 247 million people live outside their countries of birth. It is the 3.4% of the total world population and migrants is expected to be more than 260 million people for 2017 which is just above the 3% of the total world population, and this tendency has been so since the last 15 years (KNOMAD, 2016).

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Independently of the reasons to migrate, in which we are not going to deepen on, the impact of migration is quite relevant and analyzed from vary multi-disciplinary approaches. There are social, political, anthropological and economic consequences. For instance Western European countries are more racially, ethnically, and linguistically diverse that in any other time of their history (Castles, de Haas and Miller, 2003); the European migrant crisis, the United Kingdom’s vote to leave the European Union (EU), and the American elections are other examples just from 2016 (Eger and Breznau, 2017). In general migration is a burning issue for most policy makers in both recipient and sending countries because of the social, political and economic disturbances.

However the economic consequences of migration are the most analyzed issue by the current economic literature. Coppel, Dumont and Visco. (2001) identify four major consequences of international migration. Firstly, there is an impact of migration on the host country’s labor market. Secondly, international migration affects the budgetary position of the recipient country with unexpected spending in the welfare system but an increase in tax revenue. Thirdly, immigration may be the solution to the ageing population problem faced by many OECD countries. Fourthly, from the point of view of source country there is a positive impact given by remittances and a negative impact given by brain drain.

The overall balance of these effects determines the migration policies set by host and source countries. The question driving this balance can be expressed as: is migration good for the economy? The literature on this issue is quite abundant and thus difficult to follow closely. The literature about incoming migrants talks on the labor market and productivity analysis of immigration as a negative relation as in Borjas (2014) or a positive relation as in Card (2001) and Peri (2012). In this case the most of the studies are empirical and focus on the analysis of migration into a host country rather the source country. In the case of a source migrant country, it is generally assumed that emigration has a positive impact given by remittances although some works talk about the negative impact of emigration in the form of brain drain mainly in emerging economies (Schiff, 2008).

In this paper we intend to analyze the impact of migration from a different point of view: Following an imperfect competitive approach we analyze migration in two countries with a different size. Generally it is an omitted feature in the theoretical literature and we try to consider this difference. The empirical evidence suggests that migration may occur in many cases between small and large regions: Mexico-USA, Russia-Ukraine and India-Bangladesh are some sound examples.

Our intention is to develop a simple model of trade with an imperfect competition-exporting sector and strategic trade policies. Different to the previous literature we analyze the welfare’s impact of migration flowing into a host country and migration flowing out a source country once tariff has been set by both countries. Migration may occur from the small to the large country or vice versa.
This migration changes the amount of labor endowment in each country: Immigration increases the amount of labor endowment and emigration reduces the amount of labor endowment.

We analyze welfare in each country considering the exporting-importing sectors where a specific number of firms face Cournot competition. The firms in each country produce a tradable good in a two-way trade. There is not free trade as tariffs are set in both countries. But once the strategic trade policies are set, we focus on welfare’s changes in the presence of migration. We can see that receiving/emitting migration is always welfare increasing/decreasing for the any country independently of the size of the countries.

The theoretical model is set in the next section. In the section 3 we describe the comparative static of tariffs. In the section 4 we determine the optimal tariffs for both countries. In section 5 we describe the comparative static of labor migration. In section 6 and 7 we analyze the impact of migration once the optimal policies have been set. In this case we have two cases: when countries converge and diverge. Finally in the last section we conclude.

2. The Model

We assume that there are two countries having a two way trade, country A and country B. Each country contains firms from an imperfectly competitive industry producing and trading a homogeneous good. We consider a partial equilibrium model of an oligopolistic industry in which there are \( n \) identical firms in A, and \( m \) identical firms in B. Each firm has a Cournot perception: Each firm takes the output of other firms as given while maximizing its products. The homogeneous output produced by firms located in A and B are \( X \) and \( Y \) respectively where \( X = X^A + X^B \) and \( Y = Y^A Y^B \), such that \( X^A \) is consumed in country A and \( X^B \) is exported to country B. Similarly, \( Y^B \) is for local consumption in B and \( Y^A \) is exported to A.

The marginal costs of firms located in A and B are \( c_x \) and \( c_y \) respectively. These costs are taken to be constant, and therefore equal the average variable costs. There is transport cost \( t \) incurred in exporting goods from one country to the other that is borne by producers.

Following closely to Markusen and Venables (1988) labor is the only factor of production in each country. We are assuming, without loss of generality, that labor endowment in country B \( l^B \) is larger in than that in country A \( l^A \), so we can define country B as the larger country and country A as the smaller country \( l^A < l^B \). Total amount of labor in the world is normalized as \( l^A + l^B = 1 \). This factor may be used to produce a tradable composite commodity under perfect competition, and with identical constant returns to scale technologies in each country. Units are chosen such that the factor of production and the composite may be taken as numeraire.
We have segmented markets with homogeneous goods, and the inverse demand functions are

\[ D_A = l^A (\alpha - \beta P_A) \]  
\[ D_B = l^B (\alpha - \beta P_B) \]  

Where

\[ D_A = nX^A + mY^A \]  
\[ D_B = nX^B + mY^B \]

The profits of each firm located in A and B are given by

\[ \Pi_A = (P_a - c_x)X^A + (P_B - c_x - t - T^B)X^B \]  
\[ \Pi_B = (P_B - c_y)Y^B + (P_A - c_y - t - T^A)Y^A \]

Where \( P_a \) and \( P_B \) are the prices of demands, \( T^A \) and \( T^B \) are the tariff levied by country A and B respectively. Each firm decides what proportion of the commodity is produced for domestic consumption and for export. Under Cournot-Nash assumptions the first order maximization conditions are:

\[ a - c_x = \frac{b}{l^A} (n + 1)X^A - \frac{b}{l^A} mY^A \]  
\[ a - c_x - t - T^B = \frac{b}{l^B} (n + 1)X^B - \frac{b}{l^B} mY^B \]  
\[ a - c_y = \frac{b}{l^B} (m + 1)Y^B - \frac{b}{l^B} nX^B \]  
\[ a - c_y - t - T^A = \frac{b}{l^A} (m + 1)Y^A - \frac{b}{l^A} nX^A \]

such that \( b = 1/\beta \) and \( a = \alpha /\beta \). We have a separable system where (7) is solved with (10) and (8) with (9). Positive solutions to this system give us the equilibrium where two-way trade arises and, given the linearity of demand functions, the second order conditions are satisfied. The closed form solutions for the following variables are obtained as:

\[ \Pi_A = \frac{b}{l^A} (X^A)^2 + \frac{b}{l^B} (X^B)^2 \]  
\[ \Pi_B = \frac{b}{l^A} (Y^B)^2 + \frac{b}{l^B} (Y^A)^2 \]  
\[ X^A = l^A x^A \]  
\[ X^B = l^B x^B \]  
\[ Y^A = l^A y^A \]  
\[ Y^B = l^B y^B \]

where

\[ x^A = \frac{1}{b\Delta} [(m + 1)(a - c_x) - m(a - c_y - t - T^A)] \]
Finally, the welfare functions for both countries can be given by:

\[ W_A = n \prod_A + CS_A + m Y^A T^A \] \hspace{1cm} \ldots(17)

\[ W_B = n \prod_B + CS_B + n X^B T^B \] \hspace{1cm} \ldots(18)

Where the first, second and third term at the right hand in (17) and (18) are the producer surplus, consumer surplus and tariff revenue respectively. Taking into account the linear demands (1) and (2), the consumer surplus in each country can be represented respectively as

\[ CS_A = \frac{b D^A}{l^A 2} \] \hspace{1cm} \ldots(19)

\[ CS_B = \frac{b D^B}{l^B 2} \] \hspace{1cm} \ldots(20)

The equations (1) - (6) and (11)-(20) form the backbone for the following analysis.

3. **Comparative Static of Tariffs**

Having described the properties of the model, we shall analyze the comparative statics of tariffs respect to key variables. After setting the model, we are going to consider the effect of tariffs on output, consumer surplus, producer surplus and tariff revenue.

Because we have a segmented market and a separable system to solve, from (13) to (16) we have:

\[ \frac{dX^A}{dT^A} = \frac{ml^A}{b \Delta} > 0 \] \hspace{1cm} \ldots(21)

\[ \frac{dY^A}{dT^A} = -\frac{(n + 1)l^A}{b \Delta} < 0 \] \hspace{1cm} \ldots(22)

\[ \frac{dX^B}{dT^B} = -\frac{(m + 1)l^B}{b \Delta} < 0 \] \hspace{1cm} \ldots(23)

\[ \frac{dY^B}{dT^B} = \frac{nl^B}{b \Delta} > 0 \] \hspace{1cm} \ldots(24)

\[ \frac{dX^A}{dT^A} = \frac{dY^B}{dT^B} = \frac{dX^A}{dT^B} = \frac{dY^A}{dT^B} = 0 \] \hspace{1cm} \ldots(25)
We can see from the above equations that an increase in the tariff levied by country $A$ increases the amount of output produced by domestic firms for local consumption and reduces the amount of import goods from the country $B$. The tariff gives a competitive advantage to produce $X^A$ over the imported good $Y^A$. It can be seen in (21) and (22). The same intuition applies with the tariff levied by country $B$ on local production $Y^B$ and imports goods $X^B$ showed in (23) and (24) respectively.

On the other hand, and given by the assumption of segmented markets, an increase in $T^A$ does not affect the demand of the country $B$. There is not impact for setting $T^A$ on $X^B$ and $Y^B$ according to (25). The intuition is similar in the case in which a tariff is levied by country $B$ where the demand of country $A$ is unaffected. There is not impact for setting $T^B$ on $X^A$ and $Y^A$ according to (25).

From (3), (4), (19) and (20) we can get the change in the demand and consumer surplus given by the change in the tariffs levied by government in country $A$ and $B$. Taking (3), (4), (19) and (20) and using (21) to (25) we have:

\[
\frac{dD_A}{dT^A} = \frac{m l^A}{b \Delta} < 0 \quad \ldots(26)
\]

\[
\frac{dD_B}{dT^B} = -\frac{m l^B}{b \Delta} < 0 \quad \ldots(27)
\]

\[
\frac{dD_A}{dT^B} = \frac{dD_B}{dT^A} = 0 \quad \ldots(28)
\]

\[
\frac{dCS_A}{dT^B} = D_B \frac{n}{\Delta} < 0 \quad \ldots(29)
\]

\[
\frac{dCS_A}{dT^A} = D_A \frac{m}{\Delta} < 0 \quad \ldots(30)
\]

\[
\frac{dCS_B}{dT^A} = \frac{dCS_A}{dT^B} = 0 \quad \ldots(31)
\]

From (26), (28), (30) and (31) we can see that an increase in $T^A$ will reduce the demand of the country $A$ because of an increase in the price of goods. This higher price is given by the fall in the imports, which is larger than the increase in the output produced for local consumption. Therefore consumer surplus in country $A$ is reduced. On the other hand, an increase in $T^B$ will not affect the demand in country $A$ since it is a tariff imposed by the foreign country and it is not affecting the domestic price, and consequently the consumer surplus is unaffected.

Similar to the previous case, from (27), (28), (29) and (31) an increase in $T^A$ will not affect the demand in country $B$ since it is a tariff imposed by the domestic country. On the other hand, an increase in $T^B$ will reduce the demand of the country $B$ because of an increase in the price of goods. This higher price is given by the fall in the imports, which is larger than the increase in the output produced for local consumption. Therefore consumer surplus in country $B$ is reduced.
The impact of a change in a tariff on the profit of each firm located in both countries can be seen from the derivation of (11) and (12) with respect to both tariffs. Using again (21) to (25) we can get the following results:

\[
\frac{d\Pi_A}{dT^A} = \frac{2mX^A}{\Delta} > 0 \quad \ldots(32)
\]

\[
\frac{d\Pi_A}{dT^B} = -\frac{(2m + 1)X^B}{\Delta} < 0 \quad \ldots(33)
\]

\[
\frac{d\Pi_B}{dT^A} = -\frac{2(n + 1)Y^A}{\Delta} < 0 \quad \ldots(34)
\]

\[
\frac{d\Pi_B}{dT^B} = \frac{2nY^B}{\Delta} > 0 \quad \ldots(35)
\]

Once a tariff is set by a country is straightforward to see that local firms get competitive advantage over foreign firms given by a larger cost of imported goods. Thus, with a tariff the producer surplus increases because of the increase in the local production. It can be seen in (32) and (35). On the other hand, a larger cost of imported goods given by the setting of a tariff discourages the amount of exported output produced by firms. Thus a tariff set by a foreign country reduces the producer surplus of local firms. It can be seen in (33) and (34).

Finally, the derivation of the last term in (17) and (18) give us the effect of a tariff on tariff revenue, such that using (21) to (25) we can get

\[
\frac{d(mT^A Y^A)}{dT^A} = mY^A - \frac{m(n + 1)T^A m^A}{b\Delta} \quad \ldots(36)
\]

\[
\frac{d(nT^B X^B)}{dT^A} = 0 \quad \ldots(37)
\]

\[
\frac{d(mT^A Y^A)}{dT^B} = 0 \quad \ldots(38)
\]

\[
\frac{d(nT^B X^B)}{dT^B} = nX^B - \frac{n(n + 1)T^B m^B}{b\Delta} \quad \ldots(39)
\]

Intuitively speaking the setting of a tariff levied by the country A or B will produce an ambiguous impact on the tariff revenue in each country since there is a positive direct effect given by the increase of the tariff itself, but there is a negative indirect effect given by the reduction of the imported output caused by the loss of competitiveness of the exporter firms. It can be seen in (36) and (39). Since the tariff is levied for imports, this tariff is not affecting the tariff revenue of the other country according to (37) and (38). Once we have set the comparative static, we shall analyze the determination of the optimal tariff in both countries.

4. Optimal Policies

In order to determine the optimal tariffs in both countries we will take into account the impact of the setting of tariffs on welfare in both countries. From total
differentiation of (17) and (18) with respect to both tariffs and using (29)-(39) we get the following implicit results:

\[ dW_A = \frac{m}{\Delta} \left[ 2nX^A - D_A + \Delta Y^A - \frac{(n + 1)T^A I^A}{b} \right] dT^A - \left[ \frac{2n(m + 1)X^B}{\Delta} \right] dT^B \quad \ldots (40) \]

\[ dW_B = \frac{n}{\Delta} \left[ 2mY^B - D_B + \Delta X^B - \frac{(m + 1)T^B I^B}{b} \right] dT^B - \left[ \frac{2m(n + 1)Y^A}{\Delta} \right] dT^A \quad \ldots (41) \]

The first term at the right hand in (40) and (41) shows the impact of the local tariff on the local welfare. Inside the square brackets are the producer surplus, consumer surplus and tariff revenue as shown in the comparative static section. The second term at the right hand of (40) and (41) shows the impact of foreign tariff on the local welfare. Inside the square brackets is only the producer surplus effect of a foreign tariff since there is not impact of foreign tariff on consumer surplus and tariff revenue. The optimal Nash policies can be obtained from the coefficient of \( dT^A \) and \( dT^B \) equal to zero such that:

\[ T^A* = \frac{b(nX^A + (n + 1)y^A)}{n + 1} > 0 \quad \ldots (42) \]

\[ T^B* = \frac{b(my^B + (m + 1)x^B)}{m + 1} > 0 \quad \ldots (43) \]

Both policies are unequivocally positive. Intuitively speaking the benefit obtained by setting a tariff on imported goods on producer surplus and tariff revenue is larger than the loss in consumer surplus. The government in each country is willing to set a tariff in order to encourage the competitive advantage of local producers and the income received by taxing foreign imports.

Until now it is a clear result: Both tariffs are positive independently of the size of each country. However we may wonder how the optimal policy may change with a change in the economy’s share of the world endowment of labor or, in simply words, a change in the economies size.

In a two-world country this change in the economies size may be seen as a migration of labor from one country to the other. The optimal policies depend basically on the amount of labor endowment because the workers are consumers as well, and this movement affects consumer surplus, producer surplus and tariff revenue in both countries.

5. Labor Migration

Many reasons can be argued in order to explain why labor could move from one country to another. The literature is full of arguments about this movement: Wage differentials, social discrimination, wars, illness, crime, political conflicts, better living conditions, etc. Independently of the reasons argued for such a movement, the fact is that this migration of labor is a very common issue nowadays.
In this paper we are considering that labor migration occurs for some reasons and we are omitting for the moment any specification on this model.

Once the optimal policy has been set, we consider the impact of labor migration from one country to the other on welfare in each country. For this to be the case, we consider the optimal tariff as given. In order to consider the impact of the change in the size between the countries we should consider the impact of the change in $l^A$ and $l^B$ on the optimal outputs, consumer surplus, producer surplus and tariff revenue in each country. Differentiating implicitly from (13) to (16) we have:

$$
\frac{dX^A}{dl^A} = X^A > 0, \quad \frac{dY^A}{dl^A} = y^A > 0 \quad \text{...(44)}
$$

$$
\frac{dX^B}{dl^B} = X^B > 0, \quad \frac{dY^B}{dl^B} = y^B > 0 \quad \text{...(45)}
$$

$$
\frac{dX^A}{dl^B} = \frac{dY^A}{dl^A} = \frac{dX^B}{dl^B} = \frac{dY^B}{dl^A} = 0 \quad \text{...(46)}
$$

A larger local country means a larger amount of output produced per firm in order to satisfy the local consumers’ demand (output produced locally and imported). From the point of view of a local country, a change in the size of the other foreign country does not affect the production made for local consumption. From above we define the producer surplus. From the differentiation of (11) and (12) and using (44) to (46) we can define the effect of labor migration on producer surplus as

$$
\frac{d\Pi_A}{dl^A} = bx^A > 0 \quad \text{...(47)}
$$

$$
\frac{d\Pi_A}{dl^B} = bx^B > 0 \quad \text{...(48)}
$$

$$
\frac{d\Pi_B}{dl^A} = by^A > 0 \quad \text{...(49)}
$$

$$
\frac{d\Pi_B}{dl^B} = by^B > 0 \quad \text{...(50)}
$$

Following the last intuition, a larger country increases the producer surplus since more goods are demanded and produced either for local consumption and/or for export. With the differentiation of (19) and (20) using (44) to (46) we get the effect on consumer surplus such that

$$
\frac{dCS_A}{dl^A} = \frac{bl^A(nx^A + my^A)^2}{2} > 0 \quad \text{...(51)}
$$

$$
\frac{dCS_B}{dl^B} = \frac{bl^B(nx^B + my^B)^2}{2} > 0 \quad \text{...(52)}
$$

$$
\frac{dCS_A}{dl^B} = \frac{dCS_B}{dl^A} = 0 \quad \text{...(53)}
$$
With a larger local country, larger is the local consumers’ demand. So the amount of output produced by firms is larger, then the price is going down and the consumer surplus in each country increases. A larger foreign country does not have any direct effect on the local consumer surplus. The effect of labor migration on tariff revenue, once the optimal tariff has been set, is given by the differentiation of the third term in (17) and (18) using (44) to (46) such that

\[
\frac{d(mY^A T^A)}{dl^A} = mT^A y^A > 0 \quad \text{...}(54)
\]

\[
\frac{d(nX^B T^B)}{dl^B} = nT^B x^B > 0 \quad \text{...}(55)
\]

\[
\frac{d(mY^A T^A)}{dl^B} = \frac{d(nX^B T^B)}{dl^A} \quad \text{...}(56)
\]

A larger importing country implies a larger amount of importing goods. Given as fixed the amount of exporting firms and the tariff levied by the importing country, an increase in imports means an increase in tariff revenue received by the importing country. On the other hand, the increase in the size of the exporting country is not affecting directly the tariff revenue of the importing country.

The overall impact of labor migration on welfare is given by the total differentiation of (17) and (18) with respect to both tariffs, and using (44)-(56) we get:

\[
dW_A = \frac{1}{2} \left[ 2 m x^A + b l^A (n x^A + m y^A)^2 + 2 n T^A y^A \right] dl^A + \left[ n b x^A \right] dl^B \quad \text{...}(57)
\]

\[
dW_B = \frac{1}{2} \left[ 2 m y^B + b l^B (n y^B + m y^B)^2 + 2 n T^B x^B \right] dl^B + \left[ m b y^B \right] dl^A \quad \text{...}(58)
\]

However, the net effect of labor migration has been defined only partially since the change in the flow of labor migration in one country corresponds to an inverse change in the flow of labor migration in the other country in the same proportion. In a two country world, this labor migration imply that the amount of labor going out from one country is the same that the amount of labor coming into the other country.

In our model given that the country B is larger than the country A, we can consider two scenarios: First, the convergence between the large and small country; and second, a greater divergence between the small and large country.

5.1 **Convergence in size between the large and small country** ($l^A \rightarrow l^B$)

In this case we have migration from the large to the small country. We can have the following condition:

\[
dl^A = 0 \quad \text{and} \quad dl^B = 0
\]

Where $\theta$ is a small, entire and positive number. Applying this condition to (57) and (58) we have the impact of migration from the small to the large country as:
\[ dW_A = \frac{\theta}{2} [2nb(x^A - x^B) + bl^A (nx^A + my^A)^2 + m\overline{t}^A y^A ] > 0 \] 

\[ dW_A = \frac{\theta}{2} [2mb(y^B - Y^A) + bl^B (nx^B + my^B)^2 + m\overline{t}^B x^B ] < 0 \]

Where by definition \( x^A > x^B \) and \( y^B > y^A \).

First of all, the labor migration from country \( B \) to country \( A \) always harms country \( B \). The impact of labor migration on country \( A \) is going to be positive. Intuitively speaking the flow of labor from the large country to the small country harms the large country because the exit of labor reduces the consumer surplus, the producer surplus and the tariff revenue. A smaller country means less consumption and therefore less production. There is a reduction in producer surplus and consumer surplus as well as in the amount of imported goods and so tariff revenue. So the welfare of the large country is reduced. In the case of the small country we have the opposite intuition as presented in the case of the large country. So the welfare of the small country increases.

**5.2 Divergence in size between the large and small country \((l^A \leftarrow l^B)\)**

In the second scenario, there is labor migration from the small to the large country. On this case the condition should be written as:

\[ dl^A = -\theta \quad \text{and} \quad dl^B = 0 \]

Applying this condition to (57) and (58) we have the impact of labor migration from the small to the large country as:

\[ dW_A = \frac{\theta}{2} [2nb(x^A - x^B) + bl^A (nx^A + my^A)^2 + m\overline{t}^A y^A ] < 0 \] 

\[ dW_B = \frac{\theta}{2} [2mb(y^B - Y^A) + bl^B (nx^B + my^B)^2 + m\overline{t}^B x^B ] > 0 \]

Where by definition \( x^A > x^B \) and \( y^B > y^A \).

First of all, the labor migration from country \( A \) to country \( B \) always benefits country \( B \). The impact of labor migration on country \( A \) is negative. The intuition in this case is the opposite of that in the last section. Intuitively speaking the flow of labor from the small country to the large country benefits the large country because the entry of labor increases the consumption and production. There is an increase in consumer surplus, producer surplus and tariff revenue. For the country \( A \) we have the opposite intuition as presented in the large country. The flow of labor from the small country to the large country harms the small country because there is reduction in consumption and production. There is a decrease in consumer surplus, producer surplus and tariff revenue.

**6. Strategic Policy Response**

Once the optimal policy has been determined and migration occurs, Governments in both countries may apply a strategic trade policy in order to
compensate the decrease in welfare given by migration. In this model leaving migrants is seen as a negative externality because is not policy induced. When the exit of labor reduces the welfare in either the large or the small country, the government may try to correct this negative externality using the policy instrument. In this case, when the government pursues a tariff to imports, how should the country government respond to an exit of labor? In order to solve this question, we obtain the comparative static of a reduction in the labor endowment on the optimal tariff in the welfare decreasing country.

In the case of convergence or divergence between the large and small country, it is clear the country with leaving migrants is always negatively affected, and a strategic trade policy may be required. However, from (42) and (43) we can see that both policies are positive independently of the size of the countries and they are not depending of the amount of labor endowment. In other words, the optimal polices are not affected by any change in the labor endowment. The best policy response is doing nothing.

The intuition behind is quite straightforward. Once the optimal policy has been set by both governments, evaluating not only the impact on consumer surplus and the total profits of firms but also the benefit on tariff revenue, the emigration/immigration affects the consumer surplus directly by changing the amount of consumption in a similar proportion that those in producer surplus and tariff revenue. Any changes in the optimal policy in order to compensate any lost in welfare will be compensate in the same magnitude by changes in the opposite sense given by producer surplus and tariff revenue. The change in the patter of consumption given by migration is the endogenous mechanism of compensation in all welfare.

7. Conclusions

Migration is a complex problem involving not only economic difference but also political, social and cultural reasons. Certainly income differences among countries may be considered the most common reasons why migration may occur. The majority of the literature on migration’s determinants argues that difference between the personal income levels, and consequently a better life’s conditions, is on of the main reason to explain migration.

However, violence, insecurity, discrimination and professional opportunities are important emerging reasons to explain why people may find a new place to live in. On this paper we assume that migration arises from external reasons different to income or rate of returns among countries. Even when this assumption seems to be strong, it was helpful to analyze the impact of migration on welfare as we provide a model to analyze in a simple way a stylized fact.

Apart from the media opinion about the impact of migration in a specific society with tricky relations between migration and crime, migration and lack of
job opportunities for local workers, social conflicts given by cultural diversity, etcetera, there are some relevant impacts on welfare mainly on the long term. Once the migrants have been adopted in the economic system, the impact of migration on welfare is relevant as they become consumers, formal workers and in many cases producers. In other words migration becomes to increase/decrease the size of labor market.

As a general result we can argue that a country always benefits with the entry of labor and always harms with the exit of labor. This result applies independently of the size of the country. The labor recipient country benefits from a larger amount of consumption and production. Even the tariff revenue may increase. For countries, the entry of labor benefits and the exit of labor harms.

Of course, this work seems to confirm the valuable aspect of immigration, but in a partial equilibrium model we can consider the cost of emigration in the source countries focusing in a specific sector. The increase in the foreign demand of the large country may be caused not only by migration and not only specifically by migration of the small country, but in two-world model the migration is linearly related to the other country. An interesting extension of the model could be produced by the outside migration.

Footnotes

1. A good survey is Drinkwater, Levine, Lotti and Pearlman (2002) and they focus on European migration.
3. We assume that the utility functions, in each country, can be approximated by $U_A = u(X^A, Y^A) + \mu_A$ and $U_B = u(X^B, Y^B) + \mu_B$ where X and Y are the goods under consideration and $\mu_A$ and $\mu_B$ are the expenditure on the numeraire goods. The use of this approximation removes a number of theoretical difficulties, including income effects. For simplicity, we consider identical preferences and therefore the demand parameters are identical in both countries.
4. They can be considered separately given the assumption of constant marginal costs.
5. The second order condition hold in both cases:

$$\frac{d^2W_A}{dT^A} = \frac{I^A}{bA^2}[m(2n+1) - 2\Delta(n+1)] < 0$$

$$\frac{d^2W_B}{dT^B} = \frac{I^B}{bA^2}[m(2n+1) - 2\Delta(m+1)] < 0$$

6. Arguments like crime, political instability or even some cultural discrimination may be considered. We may consider wage differentials between countries as one of the most used argument in literature in favor of movement of labor across borders. However our interest is to consider that migration occurs.

References


