Análisis Económico
Núm. 52, vol. XXIII
Primer cuatrimestre de 2008

International Migration: the Teaching of Economic Theory

(Received: October/06–Approved: May/07)

*Thierry Baudassé**

Abstract

Various models of economic theory are analyzed it order to specify the policy implications of each one. The classical model of Harris-Todaro is not analyzed, the focus being on the new economics of migration models, and by taking into consideration four aspects which are not present in the Harris-Todaro framework: the cost of migration, the attitude towards risk, the relative deprivation hypothesis, and the role of social capital.

Key Words: economics of migration, cost of migration, social capital.
JEL Clasification: F22, Z13.

* Associate Professor at University of Orleans, France (thierry.baudasse@univ-orleans.fr).

Introduction

This paper analyzes various models of economic theory in order to specify the policy implications of each one. The classical model of Harris-Todaro (1970) will not be analized. It has been made in another work (Baudassé and Calderón, 2006) we attempted to develop an original Harris-Todaro model and show its policy implications. So, in this paper we will focus on the "new economics of migration" models, by considering four aspects which are not present in the Harris-Todaro framework: the cost of migration (section 1), the attitude towards risk (section 2), the relative deprivation hypothesis (section 3) and the role of social capital (section 4).

1. Impact of migration costs

1.1 Analysis

To migrate is not free, it is therefore necessary to take into account the cost of migrating, in particular in order to define if, when a developing country get richer, migration decreases or increases. It is clear that when a country becomes richer, its inhabitants have less motivation to migrate, but, at the same time, they are more capable of assuming the cost of migration. We will see this phenomenon in a model inspired by Schiff (1994). Let us suppose that there are two goods:

1) One durable and indivisible, capital good.
2) One perishable, consumption good.

The individuals are paid in perishable goods. The perishable good produced in year *y* can be stored during the entire year *y* but completely disappears in *y+1*. So the only way to store goods for more than one year is to convert them into the durable good. The durable good is indivisible and one unit of this good costs *x* units of perishable good. So in order to store wealth it is necessary to save at least *x* units of perishable goods, because if not, it is not possible to convert perishable goods into durable good. The durable good is a capital good, and so, detention of one unit of durable good gives each period *r.x* units of perishable goods to its bearer, *r* being the rate of interest.

There are two countries in this model: the South and the North. In the South, the annual wage is W_s, while in the North, it is W_n with $W_n > W_s$. In order to stay alive,

an individual must spend W_p, which means that W_p is the wage of subsistence. We suppose $W_s > W_p$. If $[W_s - W_p]$ is inferior to x, it is not worth saving because the quantity of perishable good that can be saved is not enough to buy a durable good. So, it is more rational to consume the whole salary W_s. But if $[W_s - W_p]$ exceeds x, it may be a good strategy to save and buy one or more units of durable good.

In this model it is possible to migrate from the South to the North in order to have the benefit of a higher salary, but migration has a cost. We suppose for simplicity that the cost of migration is one unit of durable good. So, in order to migrate, an individual must save x units of perishable good, to buy one unit of durable good and use it to pay the cost of migration. We suppose that a salary in the North is higher than a salary in the South, so that $[W_n - W_s] > 0$, but if this difference is inferior to $r.x$, i.e. if $W_n < W_s + r.x$ it is not rational to migrate, as the cost of migration is one unit of durable good, and detention of one unit of durable good gives $r.x$ unit of perishable goods as an interest at each period. So if $W_n < W_s + r.x$ the better strategy is not to migrate, but rather to buy one unit of durable good and keep it, while working in the South for a wage W_s. On the other hand, if $W_n > W_s + r.x$ it is more rational to use the unit of durable good in order to pay the cost of migration, and enjoy a salary of W_n rather than $W_s + r.x$. So, in summary, there are three possible situations:

Case 1: $[W_s - W_p] < x$: the individual cannot afford to migrate.

Case 2: $W_n - r.x > W_s > W_p + x$: the individual can pay the cost of migration and has an advantage in migrating, so that he or she migrates from South to North.

Case 3: $W_s > W_p + x$ and $W_s > W_n - r.x$: the individual could pay for migration but he prefers to buy one unit of durable good and keep it, and work in the South. In this case, the individual will not migrate.

Note that it is possible to have $W_p + x > W_n - r.x$, or $x.(1+r) > W_n - W_p > 0$, so that case 2 does not even exist. But this means that W_n is very close to subsistence wage, and/or that the cost of migration x is very high and/or the rate of interest r is very high. If this is not the case, case 2 will exist.

Note also that it is possible to have $[W_s - W_p] \geq 2.x$, and in that case it will be possible for an individual in the South to buy two durable goods or more. In this case, the decision will still be to migrate if $W_s < W_n - r.x$ and to stay in the South if $W_s > W_n - r.x$. As a matter of fact, if we have $[W_s - W_p] = n.x$ (with n a natural number), the individual who migrates will have a revenue of $W_n + (n-1)r.x$ and the individual who does not migrate will have $W_s + n.r.x$, so that the agent will migrate if $W_s < W_n - r.x$.

If case 2 exists, it is clear that when South Country is getting richer, so that the salary W_s increases and get closer to W_n, there will be two stages in migration:

Stage 1 (case 1): there is no migration.
Stage 2 (case 2): migration increases as the southern country gets richer and can afford the migration cost.
Stage 3 (case 3): migration stops when migration is not attractive any more because the difference between the salary in the South and the salary in the North is not sufficient to compensate the cost of migrating.

Let us now illustrate the model by a numerical example: we suppose that W_p=10 and W_n=50, the other values change as indicated in Table 1:

Table 1
Numerical example of migration costs

x=20 and r=20%		*x=30 and r=50%*	
Value of W_s	*Decision of migration or no-migration*	*Value of* W_s	*Decision of migration or no-migration*
20 (stage 1)	$[W_s-W_p] = 10 < x$: the individuals cannot afford to migrate	20 (stage 1)	$[W_s-W_p] = 10 < x$: the individuals cannot afford to migrate
35 (stage 2)	$W_n - r.x = 46 > W_s > W_p+x = 30$: individuals migrate	45 (stage 3)	$W_s > W_p+x = 40 > W_n - r.x = 35$: individuals can pay the cost of migration but they have no incentive to migrate because they can earn $60 = W_s + r.x$ being in the South while only 50 in the North.
48 (stage 3)	$W_s > W_n - r.x = 46 > W_p + x = 30$: individuals have no more incentive to migrate and migration stops.		

1.2 Policy recommendations

If we suppose that case 2 exists, i.e. if we suppose that the salary in the North is not too close to subsistence wage, if the cost of migration is not too high relative to the northern salary, and if the interest rate is not too high either, then, when the salary in the South increases, migration will increase first and then will stop. So, during stage 2, there is a temporary increase in migration. In stage 3, migration stops, but there is no return migration, so the global effect of the process is a permanent increase in the stock of migrants in the North. As a result, more trade will imply more migration because free trade will imply an increase in the southern salary (factor price equalization). So, it appears that when the cost of migration is taken into account, trade and migrations are complementary and not substitutable as it was the case in the classic model of Mundell (1957).

2. Attitude towards risk

2.1 Analysis

In the basic Harris-Todaro model, going from the rural sector to the urban sector is renouncing to certainty in order to take a risk. As a matter of fact, the income in the rural sector is supposed to be known with certainty, while in the urban sector, an individual has a certain probability of getting a formal job, and a certain probability to be unemployed. In spite of that, it can be sustained that an individual could be induced to leave the countryside, even if he is risk-adverse, if there is a sufficient risk-premium, i.e. if the formal wage is big enough. Fields (1975) notes for example that the urban income is frequently two times more than the rural revenue, and that the employment rate is rarely inferior to 80% in the city. So if an individual has a utility function in the uncertainty $u(x) = \sqrt{x}$ and if y is the rural income, the expected utility in urban activity is $0.8\ \sqrt{2y}$, which is equal to $1.13\ \sqrt{y}$ and is superior to $\sqrt{y}$.

Nevertheless, the vision of rural activity as risk-free is obviously misleading. Levhari and Stark (1982), or Stark (1991), note that rural activity is risky, because revenues depend on climatic conditions which are intrinsically variables. On the other hand, urban activity is risky in the short term, but after a first phase of job search, it provides a salary which is probably more stable than in the countryside, and so going to the city could be viewed in the long term as a diminution of risk. So, risk adverse individuals could be incited to migrate if they don't discount too many future utilities.

This point of view can be illustrated by an example:

1) In case of migration, the revenue is 100 if one finds a formal work and of 20 if one does not find such a job. The probability of finding a formal work is supposed to be of 50% in the short term but it is 80% in the long run.
2) In the case of no-migration, the income is 60 with a probability of 50% and of 40 with the complementary probability, in the short run or in the long run.

Let us suppose the individual discount future utilities with a factor β and that the utility function is $u(x) = L_n(x)$, the individual will have to choose between:

In case of migration a utility of $0.5.\ L_n(100) + 0.5.\ L_n(20) + \beta.\ [0.8.\ L_n(100) + 0.2.\ L_n(20)] = 3.80 + 4.28.\ \beta$.

In case of no-migration: $0.5.\ L_n(60) + 0.5.\ L_n(240) + \beta.\ [0.5.\ L_n(60) + 0.2.\ L_n(40)] = 3.89 + 3.89.\ \beta$.

So that the individual will migrate if and only if $\beta > 0.23$, that is, if he does not discount 'too many' future utilities.

Another aspect of the relation between migration and risk is that migration is not necessarily an individual decision, but rather a decision that involves a larger entity like family. The migration of one of its member can be a risk-diversification strategy for a family entity. As a matter of fact, agricultural activity is, by nature, dependent of climatic conditions and so it is risky. If the farmers are not allowed to insure themselves against climatic risk, and if they are risk-adverse, a possible strategy to diversify risk is to send some of the individuals that compose the family to the city. That will bring a new source of income to the family, not correlated with the original agricultural activity. Another possibility is to send people abroad, for example to a more developed country (the United States for a Mexican household, or the European Union for a South-Mediterranean family). So, migration of some individuals to a city or to another country, followed by remittances sent home by the migrants, will permit a diversification of the risk incurred by the family entity.

2.2 Policy recommendations

If migration is related to risk management, control of migration needs a reflexion about the factors which affect the activity in the sectors or the countries which send migrants. So, a better access to insurance could be a substitute to migration. As a matter of fact, migration has a high cost –both financial and emotional– for the family who send people to another sector or another country. Migration has also, eventually, a certain cost for the sector or the economy which receives migrants. So it seems possible to improve the situation by offering financial instruments (insurance contracts) to families which need to diminish their exposition to risk. One possibility could be to develop micro-insurance contracts more adapted to the needs of little farmers of developing countries, so that it would not be necessary for them to diversify the sources of income of the family by migrating and receiving remittances.

3. Relative privation hypothesis

3.1 Analysis

Stark and Yitzhaki (1988), Stark (1991) and Stark and Taylor (1991) note that individuals do not migrate uniquely in response to 'absolute income' consideration but also in response to 'relative deprivation' or 'relative income' considerations. This means that an individual is not only looking for improving his absolute income, but also he is willing to improve his relative situation in a 'reference group'. The 'reference group' is originally the sending sector, i.e. the village, or the neighborhood, where migrants have their origin. As a matter of fact, migration can be a way of improving the relative position of the family or the household in the origin group, by sending some of its members to a city or a northern country. It is not even necessary to consider the family or the household as the decisional unit to make use of the concept of relative deprivation in economics of migration. An individual who migrates can still consider his village of origin as his reference group, because he can for example be considered by the other members of his village as someone who succeeded and he can demonstrate his relative success by sending remittances, or by spending money when he returns home. A problem can emerge if the reference group changes when the migrants are better integrated in the receiving sector, but this problem is likely to appear only after a long period of time, and it will not appear at all in the case of seasonal migrants who come and go between the sector of origin and the place of temporary immigration. It is now relevant to distinguish two issues in this approach: the problem of the measurement of relative deprivation, and the problem of the change of reference group.

First, let us consider the issue of how to measure relative deprivation. The idea is that we need at least two kinds of indicators, numeric indicators, which will measure for example 'the number of persons richer than I', and volumetric indicators, which will measure 'how much I am relatively deprived'. Of course, a good synthetic indicator will depend at the same time on the first magnitude (the percentage of the population whose income is greater than mine) and the second one (average gap between the income of people richer than I and my own revenue). In consequence, we can use as an indicator of relative deprivation an indicator like *PR*:

$$PR\,(y) = \{1\text{-}F(y)\}.\ \{E\,(z\text{-}y \mid z>y)\}$$

Where F(y) is the cumulative distribution function of income, and consequently 1-F(y) is the percentage of individuals who have an income superior to y, and E (z-y | z>y) is the expected value of the difference (z-y) for the revenues z superior to y. PR(y), the relative deprivation of an individual having an income y, is thus equal to the product of a numeric indicator by a volumetric indicator. To illustrate that, let us take the example of Stark and Taylor (1991).

We have an economy composed by a city and a village. Each inhabitant of the village at time t has an income of 100, while each city dweller has an income of 200. If we suppose that for inhabitants of the village, the reference group is the village, relative deprivation will be nil for them and so they will not migrate, in spite of the difference of income between the village and the city. Now we suppose that at time t+1 one half of the inhabitants have an increase in their income which becomes 150, relative deprivation of the inhabitants whose income stays equal to 100 is ½. (150-100) = 25. One possibility for these households relatively deprived will be to send half of each household to the city, so that these households will attain an average income of ½. (100+200) = 150. Migration will then make relative deprivation equal to zero. The interesting point is that the average gap between city and village is smaller at t+1 than it was at t, but migration has begun only at t+1.

We turn now to the problem of the reference group. After a while, migrants may stop referring themselves to their village of origin and adopt the environment where they live as their new reference group. Obviously, this change is more likely to happen when migration is permanent and not transient (for example seasonal), and it will take a certain time after the migrant has established himself in his new environment. But it is also probable that change of reference group will be easier and faster when the receiving sector is culturally close to the sending sector. Stark (1991) and Stark and Taylor (1991) think that cultural and social differences make a change of reference group difficult in the case of international migrants. International migrants will then continue referring themselves to their group of origin, at least until their integration into the receiving country is complete. That will take a lot of time, and that will be longer when migrants of a same origin stay together in their receiving country, which is often the case.

The change of reference group is more frequent in the case of internal (rural-urban) migration, because in this case cultural differences are minimal. In this case, return migration will be more frequent, because after they change their reference group, individuals may experiment a relative deprivation that is more important in the city than the deprivation they used to have in their village of origin.

Return migration will then occur as a strategy to diminish relative deprivation, even if it implies a decrease in absolute income. In a many cases the returning migrant has, when he returns, a better relative position than before his initial migration, because he has built up a patrimony while he was working far from home.

3.2 Policy recommendations

Relative deprivation hypothesis implies that inequality in distribution of income is also an important explanation for migration. If the individuals are sensitive not only to their absolute revenue but also to the difference between what they have and what the others possess, the important point is not so much the difference of income between the sending sector and the receiving sector, but rather the inequality in the distribution of income inside the reference group. So, in order to control migratory flows, it may be important to control the level of inequality in the potential sending sectors, for example the southern countries if we consider international migration. If one believes in the Kuznets hypothesis of an inverted U curve between GDP per capita and inequality, it is possible to deduce from relative deprivation hypothesis that middle income countries (more unequal) are more likely to send migrants than low income countries.

4. The role of social capital

4.1 Analysis

Social capital "refers to the norms and networks that enable collective action" (website of the World Bank) and "is generally referred to as the set of trust, institutions, social norms, social networks, and organizations that shape the interactions of actors within a society and are an asset for the individual and collective production of well-being" (Sabatini at (www.socialcapitalgateway.org)). In the 80's, French sociologist Pierre Bourdieu has defined social capital as "the set of actual or potential resources that are associated with the possession of a durable network of relationships (…) or, in other terms, with the membership of a group" (Bourdieu, 1980: 2). Other definition is Schiff's who defines social capital as "the set of elements of the social structure that affect relations among people and are inputs or arguments of the utility and/or production function" (Schiff, 2002: 88).

It is easily understandable that migrations are linked to social capital. As a matter of fact, social capital can be theorized by the capacity of the individuals to

cooperate, as has been developed in various articles which use the formalism of theory of repeated games (see Annen, 2003, Dayton-Johnson, 2003, or Routledge and Von Amsberg, 2003, among others). Migrations can negatively affect social capital by diminishing the motivation to cooperate: why should I cooperate today if I am going to migrate tomorrow and if I will never meet again the people I am playing with today? If one has to play again with the same players as today, and if individuals are punished in the future when they choose an aggressive strategy, Folk Theorem tell us that players (if they don't have too high a preference for the present) will choose to cooperate in equilibrium. But if agents are continually changing location, and so if they have a very low probability of meeting again in the future, this result is not valid anymore. This idea is summarized by Miguel (2003: 196) who writes in his commentary of the article by Routledge and von Amsberg "Trust and Social Capital are undermined by extensive labour mobility, as individuals are no longer able to engage in the long term reciprocal relationships that nurture community cooperation". That creates a problem because, "while social capital is critical in promoting economic growth, growth may destroy social capital" (2003: 196), insofar as "growing societies periodically experience large technological shocks that generate pressure for labour mobility" (2003: 195).

So, a first kind of problem is the influence of labour migration on social capital, which has been studied by Maurice Schiff in various articles (see Schiff, 1999, 1999b and 2002). Schiff notes that migration is considered as a major issue by most governments, but economic theory often considers free trade and free migration as equivalent. If free trade is desirable, why shouldn't free migration be desirable as well? How can we explain this difference? The point made by Schiff is that free migration is different from free trade because migrations affect social capital. The effect of migration on social capital appears in both the countries of emigration and immigration. In the sending country, social capital decreases with the level of migration "because of the reduction in the size of the group of people of similar background and values with whom each member of the group can interact" (Schiff, 2002: 92), which means in other words that "emigration results in a social capital drain" (Schiff, 2002: 92). In the receiving country, social capital depends also negatively on migration, because migration affects the capacity of the members of society to share the same values and/or to communicate. If social capital is the ability and willingness of the members of society to act together for a common goal, the existence of a migrant population along side the native group can have two negative effects: the first effect alters the ability to act in common, because for example, migrants may speak a different language than the natives, and the second effect is related to the willingness to act in common, because the two populations may have different values; for example a different religion.

A second kind of problem has been studied by Massey (1987), Massey (1999) and Zabin *et al*. (1993), and is related to the influence of social capital, or social networks, on migrations. We know that migrants' networks, *i.e.* existence in an immigration sector (*e.g.* a Northern country, or a big city in a developing country) of an important community proceeding from a precise origin (for example a region, or a village), allied with a structure of relationships (social capital) which links all the migrants, one with another, and with the persons who are still in the sector of origin, fosters migration and shapes it in a specific way. So, economic determinants are not the only ones in motion when migrants are determining the destination they are going to choose. The orientations of the flows of migrants are also dependent of the social networks already existing in the potential receiving sectors. Massey (1999: 306) describes this phenomenon in these terms:

> However an immigration stream begins, it displays a strong tendency to continue because of the growth and elaboration of migrants' networks (social capital theory). The concentration of immigrants in certain destination areas creates a 'family and friends' effect that channels later streams of immigrants to the same places and facilitates their arrival and integration.

Numerous examples can be made of that phenomenon, such as that of Mexican migration to the United States, or Chinese migrants' networks around the world.

4.2 Policy recommendations

We can deduce from the preceding theories two kinds of policy recommendations. On the one hand, migration is not only an economic phenomenon, and so, it is not equivalent to free trade of goods or to free movements of capital. When people change location, it destroys social networks formerly existing in the sending places and it affects social capital in the receiving sectors. So migration must be managed cautiously. On the other hand, when networks of migrants have been established, migration is likely to continue even if the initial motivation to migrate has disappeared. Thus, it is not necessarily sufficient to make economic incitation disappear to stop the migratory phenomenon.

Synthesis

We can summarize the main results of this paper in the following table:

Table 2
Summary of the findings

Model	*Characteristics of the model*	*Main policy recommendations*
Cost of migration	The models in this tradition take into account the fact that migration is not free and that it generates costs, both financial and emotional. The financial cost is easier to assume when the sending country gets richer.	When the cost of migration is taken into account, we frequently see complementarity between migration and trade, and so liberalization will lead to a permanent increase in the stock of migrants in the North.
Risk management	Migration can be a strategy of risk avoidance and not of risk taking. This can be explained by considering that in the long run the revenue in the city is less risky than in the rural activity, or by supposing that migration is the strategy of a family which has a diversification strategy by sending some of its member to the city.	Migration can be a form of insurance for a family entity. As a matter of fact, by sending some of its members abroad, the family is diversifying its sources of revenue and so it diminishes its risk. In order to control migration, a possible proposition is that families take out micro-insurance contracts that better fit their needs and are less costly than migration.
Relative deprivation	Migration can be a response not to a low absolute income, but to a low relative income.	If individuals are sensitive, not only to their absolute income but also to the difference between what they have and what others possess, the important point is not so much the difference of income between the sending sector and the receiving sector, but rather the inequality in the distribution of income inside the reference group. So, in order to control migratory flows, it may be important to control the level of inequality in the potentially sending sectors. First, migration is not only an economic phenomenon, and so, it is not just equivalent to free trade of goods or free movements of capital.
Social capital and networks	Social capital, i.e. networks, can have an influence on migration, and reciprocally migration can influence social capital.	When people change location, it destroys social networks formerly existing in the sending places and it affects social capital in the receiving sectors. So, migration must be managed cautiously. Secondly, when networks of migrants have been established, migration is likely to continue even if the initial motivation to migrate has disappeared. Thus, it is not necessarily sufficient to make economic incitation disappear to stop the migratory phenomenon.

Bibliographic References

Annen, K. (2003). "Social Capital, inclusive networks, and economic performance", *Journal of Economic Behavior and Organization*, vol. 50, pp. 449-463.

Baudassé, T. and C. Calderon (2006). "Desigualdad Económica e Integración Comercial del Sector Agrícola en los Países en vías de desarrollo", mimeo, University of Orleans and Colegio de la Frontera Norte.

Bourdieu, P. (1980). "Le Capital Social, notes provisoires", *Actes de la Recherche en Sciences Sociales*, pp. 2-3.

Dayton-Johnson, J. (2003). "Knitted warmth: the simple analytics of social cohesion", *The Journal of Socio-Economics*, 32.

Harris J. R. and M. P. Todaro (1970). "Migration, unemployment and development: a two sector analysis", *American Economic Review*, vol.60, pp. 126-142.

Massey, D., R. Alarcon, J. Durand and H. González (1987). *Return to Aztlan: The Social Process of International Migration from Western Mexico*, Berkeley: University of California Press.

Massey, D. (1999). "International Migration at the Dawn of the Twenty-First Century: The Role of the State", *Population and Development Review*, 25 (2), pp. 303-322, June.

Miguel, E. (2003). "Comment on: Social Capital and Growth", *Journal of Monetary Economics*, 50, pp. 195-198.

Mundell, R. (1957). "International Trade and Factor Mobility", *American Economic Review*, 47, pp. 321-335.

Routledge B. R. and J. Von Amsberg (2003). "Social Capital and Growth", *Journal of Monetary Economics*, 50, pp. 167-193.

Schiff, M. (1994). "How Trade, Aid, and Remittances Affect International Migration", *Policy Research Working Paper*, 1376, The World Bank.

——— (1996). "South-North Migration and Trade. A Survey", *Policy Research Working Paper*, 1696, The World Bank.

——— (1999). "Trade, Migration and Welfare: The impact of social capital", *Policy Research Working Paper*, 2044, The World Bank.

———(1999b). "Labor market integration in the presence of social capital", *Policy Research Working Paper*, 2222, The World Bank.

———(2002). "Love thy neighbor: trade, migration, and social capital", *European Journal of Political Economy*, vol. 18, pp. 87-107.

Stark, O and S. Yitzhaki (1988). "Migration as a response to relative deprivation", *Journal of Population Economics*, 1.

Stark, O. (1991). *The Migration of Labour*, Blackwell Ed.
Stark, O. and J. Edward Taylor (1991). "Relative Deprivation and Migration", *Policy Research Working Paper*, 656, The World Bank.
Stark, O. (1995). "Frontiers Issues in International Migration", *Proceedings of the World Bank Annual Conference on Development Economics 1994*, The World Bank.
Zabin C., M. Kearney, A. García, D. Runsten and C. Nagengast (1993). *Mixtec Migrants in California Agriculture*, California Institute for Rural Studies, May.