Does international migration induce human capital investment and knowledge transfer? Evidence from the Philippines

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Abstract

This paper scrutinizes the impact of international migration on human capital accumulation in the Philippines as a source country. Recent views have suggested that international migration generates net fiscal and social benefits on those remaining behind. The findings suggest a mixture of favorable effects and smaller gains. Remittances posted by Filipino migrants relax constraints on health and schooling investment. Greater competition for the “emigration slots” leads to increases in the country’s stock of human capital. But the Philippines is clearly struggling with underdeveloped diaspora networks and inadequate support for return migrants. All these are taking place in an institutional environment of a “soft state”, indicating the immense challenges that the Philippine authorities face as they try to install better governance approaches to manage the consequences (especially on knowledge transfer) of migrant flows, and put in place solid policy measures with regard to the strengthening of diasporas, the facilitation of remittance flows, and establishing incentives for highly-skilled returnees.

Introduction

The Philippines is among a number of Asian countries that have engaged in the export of labor. The skill export strategy is presumed to be constructive to the extent that it sets off positive induced and feedback effects, especially in human capital accumulation. Accordingly, this paper scrutinizes the impact of both flows (emigration) and stocks (diasporas) on human capital accumulation in the Philippines as a source country, and the range of governance approaches available to the Philippine authorities to manage the consequences (especially on human capital buildup) of those flows.

Following Brown (2000), each country invests in the development of skills and competencies through training and education and looks ahead to a dividend when the individual becomes economically active and starts paying taxes. But in a context where migration encourages a transfer of human capital from a relatively poor source country to developed receiving countries, especially in key sectors such as education, health, communication and industry, the widely-held view is that the outflow of skilled workers can depress domestic productivity, inflict substantial long-run harm by slowing endogenous economic growth and increase inequality as the earnings of the remaining highly skilled workers rise and those of the less skilled fall (ESCAP, 2005, Todaro and Smith, 2006). However, this “pessimistic” perspective is based on a number of critical assumptions: migrants self-select out of the general population, there is no uncertainty on migration opportunities, and there is complete disconnection after emigration (Rapoport, 2008).
Recent views are more optimistic. Waving the above listed assumptions allows for potentially direct favourable effects and positive externalities to kick-in: migrants may return after a while, embodying a brain grain; the decision to seek education may be made in a context of uncertainty regarding future migration possibilities; and skilled migrants may post remittances—a major source of disposable income that can relax credit constraints on human and physical capital investment (Rapoport, 2008).

For purposes of this paper, several key channels through which international skilled migration affects human capital in the Philippines are examined, following Kapur and McHale (2005). Kapur and McHale propose analyzing four channels—prospect, absence, diaspora, and return. However, the absence channel, which focuses the “emigration surplus”—the costs on those remaining at home when skilled individuals leave—is not taken up, for lack of data. There is a dearth of estimates of any losses imposed (Lucas, 2001). Instead, the provision channel, which draws attention to the role of remittances, is added in the analysis.

- The prospect channel captures the way in which emigration affects the decision-making of people in the sending country, whether or not they truly end up leaving. In particular the prospect of emigration heightens the incentive to acquire more education. This is illustrated by the enormous increase in nursing education in the Philippines (Kapur and McHale, 2005). This channel affects decisions on types of skill acquisition.
- The diaspora channel discusses the rise of entrepreneurial migrant networks critical for linking domestic residents to skilled expatriates who use their accumulated knowledge to invest in home-country projects. They are not well developed but are likely to have significant long-term consequences for human capital development.
- The return channel looks at how emigrants coming home with augmented capital—financial and human—can affect the domestic knowledge industry differently than if they had never left.
- The provision channel checks out how remittance transfers promote access to educational and health services for the recipients, thereby increasing economic and social inclusion.

**Stock and flows of migratory Filipino human capital**

Asia hosts one of the world’s largest labor exporting countries, the Philippines. Among the most widely dispersed diasporas, Filipino migrants range from the less skilled to the highly skilled. A majority of Filipino overseas workers, as they are called, are under fixed term contracts in the Middle East, while a small number of permanent emigrants tend to go to North America (see Figure 1). Four-tenths of the permanent outflow is college educated, and their numbers go above the net
change of skilled workers in the country (Lowell and Findlay, 2001). In 2007, the number of
higher-paid and skilled workers such as those working in the medical, healthcare, information
and technology, food and hotel services continued to rise, notwithstanding the decline in the number of
professional workers (Bayangos and Jansen, 2009). The Philippines keeps on exporting its skilled
workers despite a very high proportion of the country’s workers already being abroad (Yavuzer, 2008).

As for the stock of Filipinos working outside, their numbers have grown to at least 7
million, and upwards of 10 million if unauthorized migrants were counted (see Figure 2). OECD data
suggest that among developing countries, the Philippines has the highest emigration stocks of
university-educated expatriates (over one million) in high-income economies (Docquier and Marfouk, 2006,
Kuznetsov and Sabel, 2006). However, the fraction working in science and engineering occupations is
notably low among scientists and engineers from the Philippines. Likewise, presumably because many of the Filipino graduates are trained outside the US, their qualifications do not receive a high level of recognition among US employers (Lucas,
2001). There could even be deskilling as skilled and educated migrants take on jobs that are below
their skill levels (Asis, 2006).

The demand for high skilled migrants will likely continue. Developed country governments
are concerned about creating a national competitive advantage in in emerging knowledge-based
industries (such as ICT) that face a shortage of workers with specialized skills. As a result, rich
countries will likely engage in selective dismantling of their barriers to immigration of the highly
skilled from poor countries, despite heightened security concerns (Desai, Kapur and McHale,
2001). Developed countries will also permit a greater scale of immigration to relieve the fiscal
pressures of aging societies. This trend is likely to hike demand for service providers (Kapur and
McHale, 2005).
**Provision: How do flows of remittances and flows of skills interact with each other?**

Remittances are an important feature of migration as they provide a considerable share of a developing country’s income. Remittances support private households directly; by contrast, official development assistance and foreign direct investment are supplied at the country level (Steinweg, 2006). In the Philippines, remittances from overseas Filipino workers have risen sharply (see Figure 3): as of end-December 2007, they have reached US$14.5 billion, the highest level since the 1980s (Bayangos and Jansen, 2009), making the country the fourth (India is first) among the top ten recipients in 2007 (Yavuzer, 2008).

Anecdotal evidence suggests that migrants’ financial transfers add to family incomes and help pay for education and health costs, thus improving human capital. Remittances likely offset the original investment on education, when the transfer of savings on income earned abroad outweighs the income that would have been earned at home (weighted by the probability of being employed in the country of origin).

Asis (2003), cited in Yang 2009, finds that across the Philippines, children in migrant families are noticeably better off than non-migrant families along a number of socio-economic outcomes such as household income and schooling. Also, migrants’ remittances have sent children to more expensive private schools (Asis, 2006) and provided emergency health needs (Aldaba and Opinionado, undated). Tullao, Cortez and See (2007), cited in Orbeta (2008), find larger responses on education expenditures to changes in income among remittance-receiving households. Panel data on 15 Philippine regions for the years 1994, 1997, 2000, and 2003 show that remittances add appreciably to regional development through increased spending for consumption, human capital and housing investments, and consequent multiplier effects. However, because the more advanced regions tend to get bigger shares of the total, remittances may contribute to regional disparities (Pernia, 2006). Tabuga (2007), cited in Orbeta (2008), shows similar results using the 2003 Family Income and Expenditure Survey: since richer households are known to spend more on education and health, remittances maybe adding to rising inequality on human capital expenditure across households.
Remittances received by households are potentially endogenous to human capital decisions and child labour supply. When faced with unexpected income shocks and liquidity constraints, at least in the short term, remittances serve as insurance mechanism (especially when fixed costs have to be paid in advance) in order to maintain school enrolment in response to these shocks (Calero, Bedi and Sparrow, 2008). Thus, migration may also be considered as household strategy to manage risk.

Yang and Martinez (2005), using a survey of Filipino households, exploit it successfully. They find that unanticipated exogenous increases in remittances caused by favorable exchange rate shocks raise non-consumption disbursements in several areas likely to be investment-related (in particular in educational expenditures), and lead to entrepreneurship in origin households, with less child labor and greater child schooling. Yang (2008) indicates that an improvement in the migrant’s exchange rate of 25% against the Philippine peso leads to a 3.3 percentage point increase in the likelihood of girls attending school; at the same time, boys do experience a statistically significant reduction in mean hours worked per week. In other words, remittances increase the likelihood of being a student as the main activity and decrease the hours worked in the past week for children 10-17 years (Yang, 2009).

**Prospect: Feedback effects on domestic education**

There is a great deal of anecdotal evidence that greater competition for the “emigration slots” leads to increases in overall investments in human capital accumulation as individuals attempt to distinguish themselves from others vying for jobs abroad (Pozo, 2008); when this incentive effect dominates, the home country can gain (Rapoport, 2008; Kuhna and McAusland, 2009; Leipziger, 2008; Fan and Stark, 2007). That is, migration induces a mechanical increase in educational attainments even if migration propensities are constant across education levels. Alternatively, the number of people acquiring education who are unable to migrate gives the country a higher stock of human capital after emigration is netted out. This also suggests that an optimal level of emigration (greater than none but not too much) exists: at a sufficiently high volume of skilled emigration, the share of skilled workers in the source country can be regenerated (Lowell and Findlay, 2001).

In a cross section of some 120 developing countries, Beine, Defoort and Docquier (2006) made use of counterfactual experiments to evaluate the effect of skilled migration on the average level of schooling remaining in the origin country. Using a two-step regression procedure (first, test for the ex-ante effect—how many more invest in education; second, get the ex-post net effect—how
many remain in the home country), they find (1) a positive effect of migration on gross (pre-migration) human capital formation, and (2) an overall absolute gain for developing countries in the number of skilled persons.

A selective country-by-country analysis yields Table 1, which shows that in low-income countries (Vietnam, Indonesia) and high-income countries (Italy, Malaysia), migration does not induce any incentive effect on human capital formation (the percentages are low). Hence, slowing skilled migration does not have an effect on natives’ choice and cuts human capital losses. These countries would evidently gain from reducing the human capital flight. But in some other countries, like the Philippines and Thailand (both origin countries) as well as Saudi Arabia, Singapore and the US (all destination countries), the gains are quite significant, indicating that both sending and receiving countries benefit from skilled emigration.

Anecdotal evidence in the Philippines somewhat confirms the empirical findings: the choice of major fields of study (medicine, nursing, maritime training) among Filipino students responds to shift in international demand (Docquier, Faye & Pestieau, 2008). The expectation of emigrating may have increased the incentive to invest in specialized training such as nursing in the Philippines (Leipziger, 2008). Lucas (2004) also argues that the high, privately financed enrolment rates in these fields are certainly induced by the possibility of emigration.

**Diaspora: Do migrant networks help?**

Systems of linkages of highly skilled expatriates are referred to as expatriate knowledge networks. This diaspora option tries to set up backward linkages to the home country between developing economy insiders, with their risk-mitigating knowledge and connections, and outsiders in command of technical know-how and investment capital—paving the way for information and

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**Table 1**

| Observed and steady state levels of human capital in some origin countries, 2000 |
|-----------------------------------|-----------------|-----------------|-----------------|-----------------|
| Malaysia                         | h(2000)        | h(ss)           | h'(2000)        | h'(ss)          |
|                                 | 7.5%           | 7.3%            | 8.2%            | 8.0%            |
| Thailand                         | 11.3%          | 12.1%           | 11.1%           | 12.0%           |
| Philippines                      | 22.2%          | 21.9%           | 24.5%           | 24.0%           |
| Vietnam                          | 3.8%           | 4.0%            | 4.9%            | 5.2%            |
| Indonesia                        | 5.0%           | 6.1%            | 5.1%            | 6.3%            |
| India                            | 4.8%           | 4.7%            | 5.0%            | 4.8%            |

| Observed and steady state levels of human capital in some destination countries, 2000 |
|-----------------------------------|-----------------|-----------------|-----------------|-----------------|
| United States                     | h(2000)        | h(ss)           | h'(2000)        | h'(ss)          |
|                                  | 51.3%          | 50.4%           | 51.3%           | 49.6%           |
| UAE                              | 12.5%          | 12.6%           | 12.6%           | 12.7%           |
| Italy                            | 8.7%           | 8.7%            | 9.1%            | 9.1%            |
| Singapore                        | 10.6%          | 12.3%           | 12.0%           | 14.3%           |
| Saudi Arabia                     | 12.5%          | 12.3%           | 12.6%           | 12.3%           |

Note: h(2000) = residents’ proportion observed in 2000; h'(2000) = residents’ proportion observed in 2000 with counterfactual emigration rates; h(ss) = steady state residents’ proportion with observed skilled emigration rates; h'(ss) = steady state residents’ proportion with counterfactual emigration rates.

Source: Beine, Defoort and Docquier, 2006
knowledge exchange and giving expatriates the chance to transfer their expertise and skills to the
country of origin, without necessarily returning home permanently (Brown, 2000; Kuznetsov and
Sabel, 2006).

More generally, diasporic networks are in a good position to act as intermediaries, and
credibility-enhancing mechanisms enhancing information flows, lowering reputation barriers and
enforcing contractual arrangements (Lucas, 2001). A classic instance is the Indian diaspora’s
success in Silicon Valley, which appears to be reflecting the reputational spillover effects of success
in a leading sector in a leading country. Today, an “Indian” software programmer sends an ex-ante
signal of quality (Desai, Kapur and McHale, 2001). Network diasporas, however, are not a self-
generating, context-free answer to the recurrent problem of learning from abroad; they co-evolve
with the political and economic circumstances within which they function (Kuznetsov and Sabel,
2006). Also, there is little authoritative appraisal of the cost effectiveness of these expatriate
organizations, or whether there is “adverse selection” with the least skilled returning and the more
skilled staying abroad (Leipziger, 2008).

In the Philippines, diaspora networks are few, but they profit from the absence of language
and culture barriers, and more specifically, their ability to more effectively adapt, foreign
approaches and technology to the homeland context. Diaspora members act as important liaison
between the know-how and its originating context and the homeland recipients and culture
(Brinkerhoff, 2006). Some examples, not widely known, include Filipino technicians in American
laboratories, academics in US universities, animators hired by Pixar or Disney, and programmers
employed in Silicon Valley.

Worldwide, Chinese, Jewish and Indian diasporas have had significant influence in their
home countries (Lucas, 2001). There is far less mention of a Filipino diaspora (Lucas, 2001), and it
appears the weakest effort to engage the diaspora is that of the Philippines. Asis (2006) attributes
this to the almost exclusive attention towards promoting labor migration, which takes the wind out
of the sails of attempts to organize expatriate professionals. Furthermore, the Philippine government
has no clear and stated policy for diaspora participation (Siar, 2008). The country’s early
experiments of knowledge transfer in the 1980s and 1990s, consisting of government and UN-
sponsored diaspora programs, have either been discontinued or have floundered. For instance, the
Science and Technology Advisory Council, which sought to encourage overseas Filipino scientists
to engage in knowledge exchange had worldwide chapters at one time. Today, only one active
chapter remains, in Japan. UNDP’s Transfer of Knowledge through Expatriate Nationals
(TOKTEN) program (1988–1994), administered with the Department of Foreign Affairs, funded short-term knowledge transfer visits of skilled overseas Filipinos (Opiniano and Castro, 2007). The Department of Science and Technology’s *Balik Scientist* program supported, from 1994 to 1999, short- and long-term assignments for 84 overseas Filipino scientists, who provided technical expertise to 27 major government programs including the space program, geothermal field development and hazardous waste management (Opiniano and Castro, 2007).

Perhaps the only active diaspora system is the Brain Gain Network, a multi-disciplinary network of professional engineers, scientists, and organizations with a special emphasis on high technology (see Figure 4). It has attracted over 800 overseas Filipinos in science and technology (Garchitorena, 2007).

**Figure 4: Fields of Expertise, BGN**

![Figure 4: Fields of Expertise, BGN](source: Brown (2000))

**Return: a question of domestic job opportunities**

Brain drain may have other redemptive impacts: return migrants, especially those engaged in technical, scientific and management occupations are important for the development process because they embody the inflow of human capital through their newly acquired skills and knowledge from working overseas. The return option was first implemented in the 1970’s through to the 1980’s and 1990’s. However, only a few newly industrialised countries like India, South Korea, Hong Kong and Taiwan have been able to implement this strategy effectively, since they have the economic and financial incentives to offer the expatriates they want to attract back (Brown, 2000).

Return migration in the Philippines illustrates, instead, adverse selection. Using little-used micro-data sets, Rodriguez and Horton (1995) came up with the following profile of Filipino return migrants: slightly older than migrants still away, have less education, and are more likely service or production workers. Controlling for demographic characteristics, they identified two factors which explain the probability of return. First, migrants coming from high unemployment areas delay their return. Second, time spent overseas is associated with an inverted-U pattern in the probability of return. In a similar vein, Ochi (2005) chronicles the paradox of highly-skilled Filipino women who
abandoned their academic or professional career in the Philippines when they decided to engage in domestic work overseas, but which gave them little opportunity to acquire new skills that they could apply upon return.

Highly skilled or not, Filipino returnees can find solace in a Replacement and Monitoring Center, established under the 1995 Migrant Workers and Overseas Filipinos Act. The Center offers returnees job placement services, skills training, livelihood programs, and job opportunity assessments, and gives employers a database of skilled migrant workers (de Souza, 2006; O'Neil, 2004). But the government’s poor data collection system makes the impact of this program hard to assess (Battistella, 2005). In general, despite some gains, Philippine authorities have not systematically identified re-entry problems, and there are hardly any initiatives to match returnees' skills with their home country's development priorities.

**Critical governance constraints and policy options**

The dilemma facing “soft states” (including the Philippines) is that skilled people are most likely to depart where institutional quality is worst. A soft state will have too much of disagreeable interventions (deficiencies in legislation, regulation and law enforcement), and by the same logic, will have too little of the agreeable interventions (as in the case of coordination failures) since the state does not take into account or internalize the effects of its own policies (Bardhan and Udry, 1999). The most talented individuals most likely to be active participants in the development process are the least likely to remain and the most likely to be globally marketable. Their departure may be compounded by the reduced demand for improved institutions, since it is precisely these productive individuals who have the strongest interest in seeing that the right institutions are established (Kapur and McHale, 2005). This triggers a vicious cycle of institutional deterioration. As McHale (2006) rightly argues, bad institutions can be left behind, but human capital travels with its owner. Once they reside in high quality institutional environments, expatriates are limited in what they can do to put better institutions in place in home countries.

In the end, the necessary conditions for migration to become a variable in human capital development may be social and economic, but the sufficient conditions are political and institutional. This demands solid policy measures with regard to the strengthening of diasporas, the facilitation of remittance flows, as well as the need to establish incentives for successful, highly-skilled migrants to return to their countries of origin (Steinweg, 2006). Following Kapur and McHale (2005), the policy options are divided in four broad categories: control, creation, connections and compensation.
Control related policies seek to hold back the flow of skilled immigrants or emigrants. Although there will be occasions when restraints are justified, in general it is not advisable to traverse this policy route. It is better to look for ways to make sure that everyone shares in the benefits when such openness is exercised (Kapur and McHale, 2005). It also makes no practical sense to adopt compensatory policies such as an exit tax on the individual migrant, since it is hard to gauge in exact measure the loss of human capital in monetary terms (Brown, 2000). Where control might yield some dividend is in ascertaining the balance between skilled migration and domestic education subsidies. In a context of beneficial brain drain, raising the proportion of skilled individuals who emigrate to a richer country lowers the rate of subsidy for education, until the socially desirable level of human capital without subsidies is reached (Docquier, Faye & Pestieau, 2008).

In creation, a good approach is to fashion incentives to return as opposed to prohibitions on staying Kapur and McHale (2005). Some policies that can encourage this to happen include portable social security entitlements, reducing transfer costs and helping receivers to handle migrant savings (Steinweg, 2006), and better use of official channels (such as the Development Bank of the Philippines) in sending remittances. Additionally, the government should ensure adequate compensation and job opportunities in the public sector for returnees and explore ways to invest in the infrastructure of the professional sectors from which the migrants originally came (de Souza, 2006). Encouraging the return of professionals may require strengthening public-private research linkages, and funding research through transparent, competitive processes (Leipziger, 2008). Altruistic sharing of expertise gained abroad with local communities, as well as consultancies for local government units can encourage staying. The key is to promote sustainable return, a situation where the migrant’s additional skills, financial resources and social capital are wisely utilized.

Connections come from having a well-connected diaspora. The Philippines has done little to leverage its diaspora talent. The challenge, according to Kutnetsov, Nemirovsky, and Yoguel (2006), who studied Argentinian networks, involves intense changes in both productive and institutional systems, the development of demand-pull changes in the educational system, the development of mechanisms for disseminating knowledge among disparate actors in productive supply chains, and the creation of diverse forms of mediation to facilitate links between science, technology and production. There should be incentives for expatriates who invent products and processes that can be replicated at low marginal cost (such as a physician primarily engaged in research on new treatments and medicines) (Kuhna and McAusland, 2009). Some institutional
support is necessary in reactivating initiatives such as the *Balik Scientist Program*. The Dual Nationality Act (Republic Act 9225) that enables Filipinos coming from abroad to regain Philippine nationality without giving up their foreign citizenship is a step in the right direction. At the regional level, consultative processes that focus on a multilateral regime (say in ASEAN) to secure human capital can place a great deal of emphasis on long-term goals such as increasing inter-country cooperation on information exchange and border enforcement.

*Compensation* requires encouraging developed countries to implement measures that would guarantee migrants’ rights to decent work and social security (Steinweg, 2006). To secure the welfare of those remaining behind, the options include: tying development aid to human capital recruitment; and arranging for replacement of rich-country personnel. To be sure, all of these mechanisms face practical constraints and require the cooperation of developed countries (Kapur and McHale, 2005), but carefully designed policies can reconcile seemingly opposing interests of host and source countries.

**Concluding remarks**

This paper has taken into account the impact of the brain gain on the major source of externalities—human capital. It concludes that the redistributive outcomes of Filipino migration are mixed. Remittances are found to be a big factor in defraying the costs of basic education and health. There is counterfactual evidence, plus some anecdotal proof, on migration’s feedback effects on education, thus enabling the country to maintain a fairly high level of skilled workers despite the outflow of highly educated individuals. But returns on the tiny diaspora network, and on brain circulation (return migration) are quite small, indicating the immense challenges that the Philippines faces in managing migrant flows and in putting in place more definitive policies regarding knowledge transfers.
References


