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from Hong Kong and Canada

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**Triangular Human Capital Flows:
Some Empirical Evidence from Hong Kong and Canada***

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Introduction

In the early 2000s, literature (DeVoretz and Ma 2002; Anderson and Konrad 2001a,b) emerged which argued that the “brain drain” was being replaced by a “brain exchange.” This brain exchange implied that highly skilled immigrants were now often highly skilled temporary movers with a strategic plan. In the first instance these immigrants choose to acquire their education at home (often in a less-developed country) or perhaps more likely move to a developed country that supplies subsidized education (Zhang 2001). After spending time in the developed country to gain education or job experience, a second locational choice is made to either remain or to return home or move on to a third country. Unlike the traditional neoclassical migration model, which argued that the highly skilled immigrant only returned if he/she were disappointed, this new literature argued that the temporary movement of the highly skilled was part of an investment process which improved the immigrant’s lifetime income.¹ Borjas and Bratsberg (1996) first formally challenged the neoclassical failure hypothesis by presenting a model that allowed temporary highly skilled immigration to accumulate human capital in the destination country and return home with this capital in order to improve their earnings. DeVoretz and Itturalde (2000a,b) extended this argument by adding life-cycle features of the household (marital status, age, and dependents) to the simple earnings argument to predict whether the highly skilled immigrant would stay or leave after they had obtained their education abroad. Finally, DeVoretz and Ma (2002) brought these various arguments together and added the role of the state to model and predict the complex movement patterns or brain exchange for a representative highly skilled immigrant household. The purpose of this essay is to add empirical content to the DeVoretz-Ma model by adding stylized facts and testing the prediction of the triangular movement model for one important case, namely the movement between Hong Kong–Canada and the rest of the world (ROW).

The outline of the paper is as follows. We first motivate why the triangular flow phenomenon is of interest, and in particular the importance of the Hong Kong–Canada–ROW example. Next, we briefly outline the model and its major hypotheses. Then, with the aid of

¹ In fact, history has shown that 30 per cent or more of North American immigrants returned in the 20th century.

the 2000 Hong Kong census, we document the triangular nature of Hong Kong's recent immigration-emigration patterns for the highly skilled. Finally, we present some econometric evidence to support the DeVoretz-Ma model and conclude with some observations.

The DeVoretz-Ma model argues that human capital transfers are part of a general global system, which transfers human capital from sending countries such as India-China (including Hong Kong) to entrepôt countries (Canada and Europe), and then on to the rest of the world (USA).² In particular, they argue that immigrants enter an entrepôt country because it supplies subsidized human capital and other free public goods. DeVoretz and Ma further argue that Canada is an excellent entrepôt example given its unique immigration and integration policies and its strategic geographical location.³ In turn, these immigrants, after a period of stay in the entrepôt country, make a decision to either return to their source country or stay in their original entrepôt destination country or move to a third destination (ROW).⁴ Major issues arise in the Canadian or entrepôt context from this complex trilateral movement of the highly skilled. For example, is Canada or any entrepôt country simply participating in a zero (or negative) sum game? In other words, do the immigrant arrivals to Canada just offset (or not) the loss of highly skilled Canadian émigrés to the United States and the ROW?⁵ Do the highly skilled immigrants that remain in Canada have an inferior (superior) skill set when compared to those immigrants who return or move on to the rest of the world?⁶ Furthermore, what are the roles respectively of the entrepôt labour market and its

² An entrepôt country is one in which traditionally exported goods are held in storage to be re-exported at a later date. Thus, Singapore and Hong Kong were traditional entrepôt centres. In this context, an entrepôt country is an immigrant-receiving country that provides human capital to the immigrant before she/he emigrates.

³ McInnis (2001) argues persuasively that Canada's emigration experience in the last half of the 19th century can be partially characterized by this entrepôt model for its then 19th century semi- and skilled-labour movement from Canada to the United States. Dales (1964) also presented a similar model for early 20th century Canada, U.K. – U.S.A. flows.

⁴ Canada is one particular example of an entrepôt country. Other examples exist, namely Israel, Ireland, Germany, the United Kingdom and perhaps the entire European Union.

⁵ Israel could be another zero sum case in point. Here Russian émigrés may be replacing Sabra (native-born) Israelis who have left for the rest of the world.

⁶ This model is capable of predicting the skill level of the movers and stayers if we visualize the state as a tax agent who provides services to its immigrant clients. Borrowing on the work of Epstein et al. (1999) as noted in the text if Emperor (or state) redistributes benefits away from the highly skilled and the lobbying costs are too high to recover these lost benefits then the highly skilled will leave. DeVoretz and Itturalde (2000a) with its stayer model empirically tests and confirms the existence of sorting in the Canadian context circa 1992-96.

immigration (emigration) policies in sorting the immigrants into non-movers or movers after they arrive in the entrepôt country?⁷

Implications of this triangular human capital transfer on the sending region (Hong Kong) can also be profound. For example, how long will it take before a reverse flow occurs from the entrepôt country to the original source country? Moreover, what fraction of the original leavers will return home and why? Finally, as noted above, are these returnees the most or least able of the highly skilled?

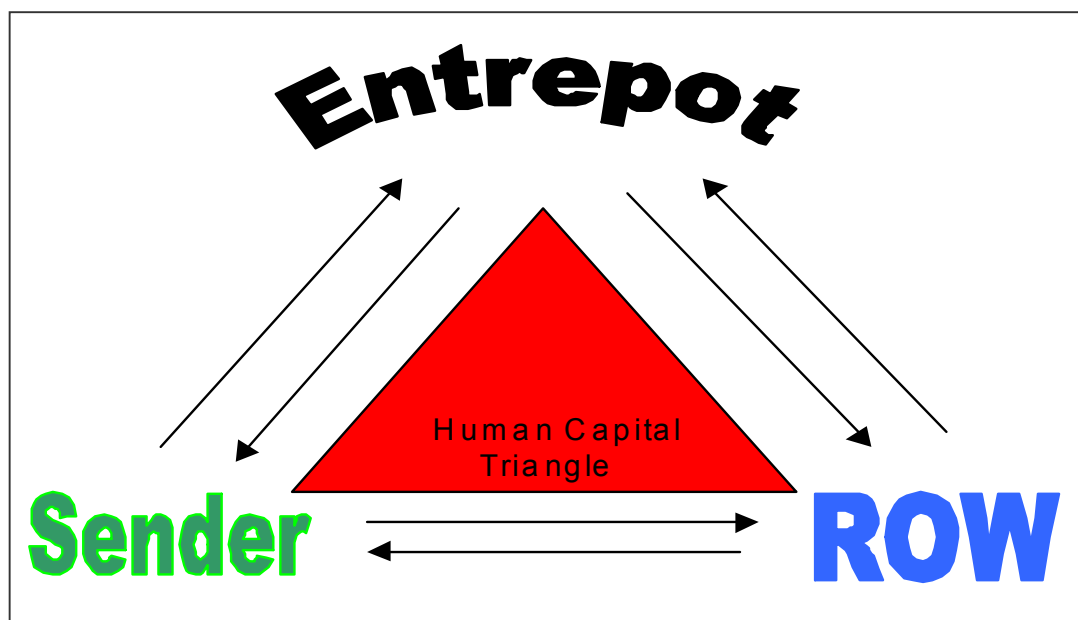
Triangular Human Capital Transfer

In order to draw explicit hypotheses from this stylized view of the world, we present Figure 1, which schematically re-produces the potential movement pattern outlined above.

In Figure 1, we argue that there initially exists a proto-typical sending region (Hong Kong) and three possible receiving regions: an entrepôt destination (Canada), the USA, and after a period of time abroad, the home or sending region.

⁷ As noted later, the ROW countries are characterized by the lack of agents. Since these states provide no services, their tax rates are low, and those emigrants who expect an extremely high income will leave the entrepôt country for the ROW. This argument is embedded in the Borjas and Bratsberg model (1996) and simply extended here.

Figure 1: Triangular Human Capital Transfers



Furthermore, we note that three movement options exist for each emigrant after the initial move to the entrepôt country while in residence in the entrepôt country.⁸ These options include staying permanently in the new entrepôt country (Canada), returning to the origin country (Hong Kong), or moving on to a third country (ROW). Permutations of this three-stage movement become complex when multiple moves are considered.⁹ However, first we must recognize that the vast majority of highly trained people do not emigrate from the original sending region. Thus, a fundamental question arises. How does the sorting mechanism, which allocates non-movers and leavers within the sending country, work? To answer these questions, we formulate a three-stage model. In the first stage we model who stays in the origin country and why. Zhang (2001) argues that students leave the origin country to train in an entrepôt destination to maximize their returns for an educational investment. DeVoretz and Iturralde (2000a) argue that demographic arguments after arrival

⁸ This model contains two periods since agents in the entrepôt destination country must equip the immigrant arrivals with human capital and offer a public good which will influence the immigrant's decision to stay or move on in the second period.

⁹ For example, the initial movement from the sending to entrepôt country can next result in an onward move to the rest of the world, followed by a final move back to the original sending country. This example essentially describes some recent Hong Kong émigrés to Canada who originally came from the PRC and, after their stay in

in the entrepôt country and the provision of public goods condition the probability of staying for a highly skilled worker in a developed country. For example, university education, health care, and subsidized day-care are all conferred on the immigrant household in an entrepôt country when the highly skilled head is middle aged with children. These transfers will reduce the probability of movement.

Finally, the decision to stay or move is determined by several agents introduced in our model. These agents include: the role of the Emperor (state) in the country of origin, and two immigrant settlement agents in the entrepôt country.¹⁰ In short, we assert that each agent, in either the sending or entrepôt country, dispenses gifts or services on a stayer or a potential mover which influence their decision to either stay, move on, or return to the original sending country given their stage in the life-cycle. We now outline the various agents' roles below in both the sending and entrepôt countries.

Emperor and Emigrants

Epstein et al. (1999) note that the role of the Emperor – typically in the origin country – is to raise taxes, which in turn allows him to dispense favours to cliques within his society. These favoured cliques in turn must lobby the Emperor to insure that they continue to receive these gifts and pay the minimum taxes for these benefits. Under these conditions of uncertainty, if the Emperor introduces a mobility option, the highly skilled will leave if the Emperor's reward to the prospective émigré is less than their time cost of lobbying and taxes paid.¹¹

But the role of the Emperor in conditioning mobility does not stop here after the skilled subject has decided to emigrate or stay. The Emperor can control the exit conditions of his subjects and their subsequent return conditions after their stay in the entrepôt country.

Canada, later returned to Hong Kong as Canadian citizens. They now are able to easily enter China, their original sending country, as Canadian citizens resident in Hong Kong.

¹⁰ Epstein, et al. (1999) also argue that, in the context of a poor sending country, the probability of moving is a function of the state's (or Emperor's) willingness to confer benefits on or tax the highly skilled.

¹¹ This, of course, leads to the question of why the Emperor would ever permit the highly skilled to leave. We return to that question later, but simply note here that the omnipotent Emperor would only confer mobility rights to the resident highly skilled population if there exists a high enough probability of return migration by a sufficient number of the best of the highly skilled émigrés.

In sum, the Emperor's actions can condition who initially stays at home, who leaves the Kingdom, and who returns to the Kingdom after leaving.

Agents in the Entrepôt Country

After the immigrants enter the entrepôt country two types of agents – private and public – appear in two sub-periods. The private or volunteer settlement agent offers the recent arrival specific human capital in the first period, while a second government agent offers a public good with positive externalities in period 2.

Period One: Settlement Worker

After arrival, the recent immigrant is offered subsidized general human capital training (language, knowledge of labour market channels, cultural conventions) and specific human capital (programming skills, retraining for certification, access to modern technology) by a settlement worker. The agent's goal in this case is to increase the probability of staying for the recent immigrant at the end of period 1.¹² As Borjas and Bratsberg (1996) have shown, acquisition of different types of specific human capital can increase the probability that a portion of the highly skilled immigrant arrivals will leave (or stay) in the entrepôt country. Thus, this settlement worker's activity can perversely affect the staying probability and in addition may produce distributional consequences on the quality of those who stay and those who leave. In sum, the settlement worker's activities in period 1 can increase (decrease) the probability of staying (leaving) for the best (or weakest) immigrant arrivals. Moreover, only one outcome in three (at end of period 1), namely staying, is the preferred goal of the settlement agent.¹³

¹² The settlement worker by definition provides human capital to increase the productivity of all immigrant arrivals in the entrepôt society and reduce the risk of return migration. Settlement workers may also have altruistic motives, namely to ease the immigrant's integration into society. However, in entrepôt countries such as Australia, Canada, Germany, and especially Israel, government subsidies to private altruistic agencies is predicated on increasing the staying probability of the recent arrival and to increase the immigrant's contribution to the society. To this extent this governmental motive is not altruistic.

¹³ The other two outcomes are inferior for the settlement worker, but not necessarily for the potential émigré. In addition, the model predicts that only those types of human capital acquisition, which enhance the rate of return in the entrepôt country relative to the ROW or sending region, will enhance the probability of staying in the entrepôt country. In the Canadian context human capital acquisition to be exploited in the Canadian economy is the central investment provided by the agent in period 1. Examples of the agents' activities include: access to

Period Two: Public Agent

If the immigrant chooses to stay for a second period in the entrepôt country, a public agent appears and confers a public good on the immigrant, which offers free rider benefits, namely citizenship. If the immigrant remains in the entrepôt country in period 2 and ascends to citizenship, then the immigrant's job market widens and the mobility costs of moving to the rest of the world falls.¹⁴ For example a Hong Kong immigrant to Canada who eventually acquires Canadian citizenship is then free to work in the United States or move on to a third country.

At this point in period 2 the Emperor in the original sending country can reappear and raise the costs of the entrepôt immigrant's departure to the rest of the world in period 2 and influence the potential émigré's probability of returning home.¹⁵ The Emperor, of course, can induce return migration and deflect a potential move to the ROW by acting in a positive fashion and conferring a unique set of benefits on the potential émigré after he/she acquires citizenship in the entrepôt country and returns home. For example, Lam (2000) points out that there is a recent shortage of highly skilled workers in Hong Kong and the government proposes favourable policies to induce well-trained former emigrants to return. Also, Ma (2000) suggests that the return of emigrants in the face of financial crisis can be partly explained by the resulting ongoing economic restructuring, which speeds up the opening of new sectors and hence attracts previous emigrants who have acquired relevant human capital from developed countries. Thus, it is all a matter of which policy, punitive or benign, appears to be the most efficient mechanism *a priori* to the Emperor to induce return migration of the very highly skilled from the entrepôt country.

labour market information, validation of certificates, recognition of professional credentials and language training (English and French).

¹⁴ The mobility costs for Chinese immigrants living in Canada without Canadian citizenship are the waiting and legal costs to obtain a permanent visa (E type) for the USA. These are considerable costs since the waiting period may be indefinite. However, with Canadian citizenship, a NAFTA visa can be immediately obtained. Furthermore, there is no queue for this NAFTA visa and thus the probability of entry is certain if limited side conditions are met.

¹⁵ If the Emperor cashes in the bond that is held at home, or more punitively revokes the emigrant's citizenship in the home country upon citizenship acquisition in the entrepôt country, the probability of leaving for the rest of the world is reduced. A variation of this behavior arises when the entrepôt or receiving country confers citizenship on the immigrant and requires that he/she renounce home country citizenship. Germany and the USA currently do this, but Canada does not.

In sum, the model at this stage can predict the probability of staying in the entrepôt country – Canada – after Canadian agents provide human capital and a public good in periods 1 and 2. Now any outcome in period 2 in the entrepôt destination is possible, with either highly skilled or less skilled people staying or the best of the highly skilled returning home or moving on to the rest of the world as a consequence of these entrepôt agents' actions. What ultimately determines whether immigrants stay in the entrepôt destination or move on is the rate of return of their acquired capital in Canada, the ROW or home?

Period Three: Rest-of-the-World and Beyond

A subset of the immigrants who leave the entrepôt country at the end of period 2 after gaining entrepôt citizenship do not return home but move on to the rest of the world or more likely to the USA. The choice to move on to the USA depends upon the risk aversion of the mover, and the visa available to him. Details of the underlying theory behind this third choice are complex and not germane to our case study of Canada–Hong Kong, but appear in DeVoretz and Ma (2002). Some summary observations can still be made about the decision to leave the entrepôt country for the ROW.

In the case where the potential pool of émigrés from the entrepôt destination to the ROW is risk neutral, both the number and quality of leavers can now be determined. At the first stage of residence in the entrepôt country, the highly skilled immigrant will only leave for the ROW if their reservation wage in the entrepôt country is at least matched by the expected income gain earned by moving to the ROW.¹⁶ The stylized facts reported by DeVoretz and Iturralde (2000a) indicate that the actual population at risk of moving will be relatively young, small in size relative to the immigrant cohort in the entrepôt country, and have an extensive prior mobility experience.¹⁷

Based upon the above stylized triangular human capital transfer model, a number of hypotheses appear to forecast who is more likely to stay or leave Hong Kong, why they left for an entrepôt destination and their motivation to return to Hong Kong:

¹⁶ As DeVoretz and Iturralde (2001a) have shown, this is a small percentage of the stock of potential movers, approximately 5 to 20 per cent.

Hypothesis 1: People leave Hong Kong to acquire human capital. In other words, the non-mover in Hong Kong will have less human capital than the leaver, i.e. returnee and Hong Kong-born stayer in the entrepôt destination.

Hypothesis 2: The motivation to return to Hong Kong is to earn a greater rate of return on acquired human capital in Hong Kong than can be obtained in the entrepôt destination.

Hypothesis 3: In order to maximize their lifetime return to acquired human capital, the higher the human capital level and the younger the age, the more likely they will return.

The choice of Hong Kong as the first test case for this triangular model is easy to rationalize. Hong Kong's recent political history, limited access to higher education and structural changes in its economy all point to push and pull forces that have first propelled and then attracted back its skilled population. A brief history follows large-scale movement of Hong Kong immigrants to Canada¹⁸ predated the 1997 transition to a special administrative region. After 1997 the movement of Hong Kong émigrés to Canada stopped leaving a large stock of Hong Kong residents in Canada who were now eligible to attain Canadian citizenship. Next, Hong Kong's tertiary educational system has been limited, which has sent students abroad or enticed parents to move to Canada (and USA) to access education for their children. Finally, Hong Kong has transformed its economic structure from a trading and manufacturing base to a financial and high technology centre, which has increased the demand for skilled workers abroad.

Testing the Hong Kong, Canada and ROW Case

Given these stylized facts, which describe a very robust immigration and emigration history, this section will employ census data to confirm the model's predictions about the human capital and demographic profiles of Hong Kong mover-leaver populations. Then, we will

¹⁷ These conditions either increased the probable income gain from a move or lowered the mobility costs of movement.

¹⁸ The total immigrants arrived Canada from Hong Kong during the period of 1985 – 2000 were 342,456, and 90% of them (305,599) arrived before 1997 (CIC, various years).

compare the earnings across non-movers, returnees and stayers in the destination country to see if the model's predictions are confirmed.

Data and Some Definitions

Data utilized in this paper were obtained from special runs of the 2001 Hong Kong census (Department of Census and Statistics, Hong Kong Special Administrative Region, PRC), unless otherwise specified. We had access to the complete census, which included 6,423,591 cases in total.¹⁹ The data set contained information on the person's place of birth, place of residence 5 years previous (1996) and place of residence at the time of census (2001). Therefore, in this paper, non-movers, migrants and stayers are defined by their answers to Hong Kong census questions. For the Canadian portion of the essay, the 1996 census public use microdata file is used for comparisons to the Hong Kong census. Given these data sets, we define four distinct groups:

Non-movers: People who were born in Hong Kong and did not migrate from Hong Kong, i.e. people whose place of residence was the same at all three points in time;

Returnees: People who were born in Hong Kong, Macau or Mainland China and out-migrated before 1996 but returned to Hong Kong between 1996-2001, i.e. people whose place of birth was either Hong Kong, Macau or Mainland China and place of residence in 2001 was in Hong Kong, but the place of residence in 1996 was none of above three regions;

Migrants: People who migrated to Hong Kong either before 1996 or between 1996-2001, i.e. people whose place of birth was not Hong Kong, but the place of residence in 1996 or/and 2001 was Hong Kong;

Canadian Immigrant Stayers: People who were born in Hong Kong and were resident in Canada in 1996.

These definitions are summarized in Table 1.

¹⁹ This is derived from the long census form samples, which consist of 1/7 of total population in Hong Kong.

Table 1: Definitions of Mobility Status

	Time at birth	1996	2001
Non-mover	1	1	1
Returnee	1	0	1
Migrant (previous)	0	1	1
Migrant (recent)	0	0	1
Stayer in Canada	1	0	NA

Note: 1=Yes (at the time when the place of residence was in Hong Kong, Marco and Mainland China).
0=No.

The definitions of the remaining variables are taken directly from the Hong Kong 2001 census coding classification, which is available upon request.

In order to answer the questions who returns and why, we compare the socio-economic characteristics of non-movers to returnees, other migrants and immigrant stayers in Canada, with the Hong Kong non-mover as the reference group. This decomposition will allow us to better understand differences in both the human capital and earnings profiles between the mover (including returnee and stayer at destination) and non-mover groups. Since our model argues that returnees are a special case of movers we will also draw comparisons between different movers (returnee, and other migrants). In particular, we will distinguish between migrants from Mainland China and from other more- or less-developed countries to complete the picture of movement into Hong Kong. Finally, given the theory in this paper, we will look at returnees in a more in-depth manner by comparing Hong Kong returnees from Canada and immigrant stayers in Canada, as well as comparing returnees from Canada with those returned from the USA and other countries. Tables 2 and 3 report the characteristics of non-movers, returnees and other migrants circa 2001.

Table 2: Attributes of Non-movers, and Returnees in Hong Kong

	All	Non-mover	Returnee	Migrants from			
				Mainland	LDC	MDC	
	6423591	5898351	85793	254620	129189	55638	
Total	(100.0%)	(91.8%)	(1.3%)	(4.0%)	(2.0%)	(0.9%)	
Age:							
0-19	1279908	19.9	19.5	9.6	41	3.9	20.5
20-29	994949	15.5	14.5	37.8	12	52.4	20.9
30-39	1265627	19.7	19.1	23.3	22.5	32.9	36.3
40-49	1206450	18.8	19.3	14.4	13.5	8.6	14.4
50-59	676287	10.5	11	7.3	5.6	1.8	5.4
60 +	1000370	15.6	16.6	7.5	5.5	0.5	2.6
Sex:							
Female	3287782	51.2	49.7	49.9	64.9	92.5	54.6
Male	3135809	48.8	50.3	50.1	35.1	7.5	45.4
Relation to Head of Household:							
Head	2096185	32.6	34.1	34	12.3	4.7	36.6
Spouse	1346710	21	21	17.2	29.2	4.7	21.3
Children	2354072	36.6	36.9	37.8	50.3	3.5	24.2
Maid	180164	2.8	1.1	0.1	0.1	83.5	12.5
Others	446460	7.0	6.9	10.9	8.1	3.6	5.4
Education:							
Primary School or less	2234765	34.8	35	10.7	52	16	18.3
Secondary School & Diploma	3480396	54.1	54.9	36.5	43.2	66.8	31.2
Local Uni. Degree	401373	6.3	6.5	14.7	1.5	0.4	4.7
Overseas Degree	307057	4.7	3.7	38.1	3.3	16.8	45.7
Occupation (income > 0):							
Low Skill	179737	68.4	67.9	26.7	85.9	96.9	31.5
Assistant Professional	349606	15.3	15.9	30.8	5.5	0.9	15.7
Professional	2220192	5.5	5.4	21.1	1.7	0.8	18
Managerial	498542	10.8	10.8	21.3	6.9	1.4	34.8
Total	3248077	100	100	100	100	100	100
Income from Main Employment (income > 0):							
0-5,999	622594	19.1	15.8	5.3	42.7	92.4	24.1
6,000-9,999	793042	24.4	25.4	11.8	35.8	2.7	4.5
10,000-14,999	742635	22.9	24.1	24.4	10.5	1.9	7.7
15,000-19,999	370862	11.4	12	15.9	3.8	0.7	6.8
20,000-29,999	362154	11.1	11.7	16.5	3.7	0.7	11.5
>=30,000	356790	11	10.9	26.2	3.6	1.6	45.4
Total	3248077	100	100	100	100	100	100
Median Income (HK\$/month)	10000.00	10500.00	16520.38	6000.00	3671.00	25000.00	
Mean Income (HK\$/month)	15812.00	15972.00	25543.01	9084.50	5227.70	39310.00	
Gini Coefficient*	27.21	26.62	11.96	23.23	46.47	4.48	

Source: 2001 census data, Department of Census and Statistics, Hong Kong SAR, PRC.

Note: * Authors' calculation.

Human Capital Characteristics

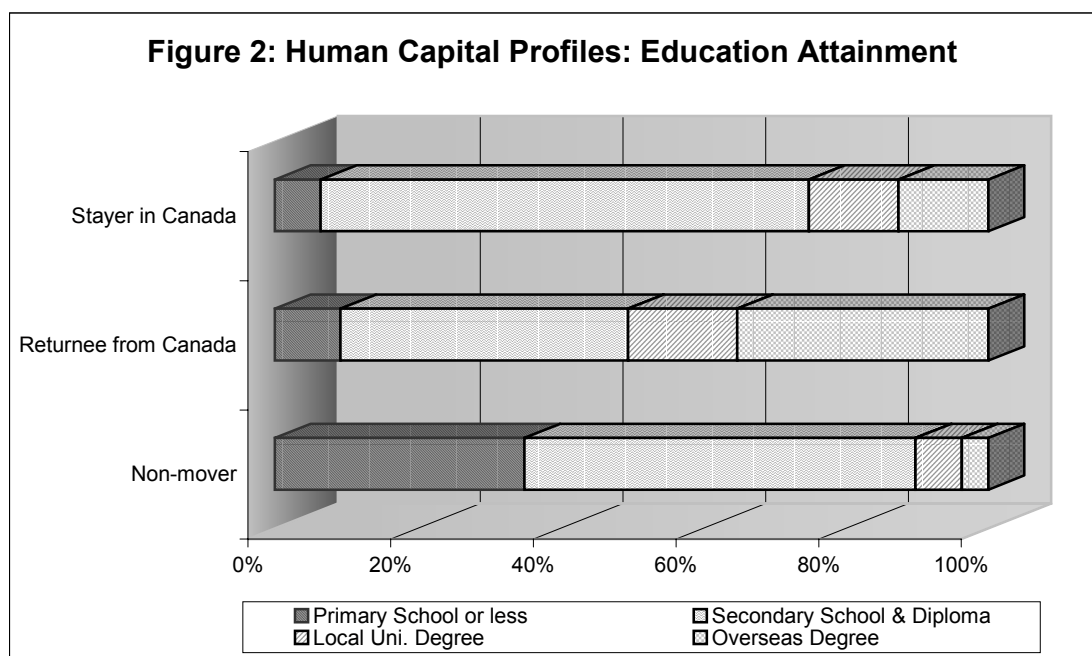
We first report the human capital characteristics for each defined mover or stayer group. These human capital characteristics refer to educational attainment and occupational skill levels, as well as other demographic indicators. The inclusion of demographic indicators, such as age and gender, will help us to demonstrate the life-cycle nature of capturing the rewards from human capital accumulation and migration as predicted by our model.

As shown in Tables 2 and 3, 92% of the total population in Hong Kong consists of non-movers, while returnees and outside migrants compose 1.3%, 4.0%, 2.0% and 0.9% of Hong Kong population respectively. This conforms to the model's proposition that moving is costly and thus most people stay. Among all returnees, 39% and 21% are returnees from Canada and the USA respectively, while 40% have returned from other countries.

The education metric reveals marked variations across the mover and non-mover groups. Non-movers are concentrated at low levels of education with 90% possessing less than a post-secondary degree. All leaver groups, including returnees and immigrant stayers in Canada, show a significantly higher level of education attainment, again as our model would predict. On average, 53% of returnees possess a post-secondary degree mainly obtained from overseas schools with returnees from the USA having the highest level of education attainment, i.e. 70% had a post-secondary degree. However, only approximately 50% of those returned from Canada and elsewhere possess a post-secondary degree. An even lower level of post-secondary degree attainment applied to Hong Kong-born immigrant stayers in Canada (26%).

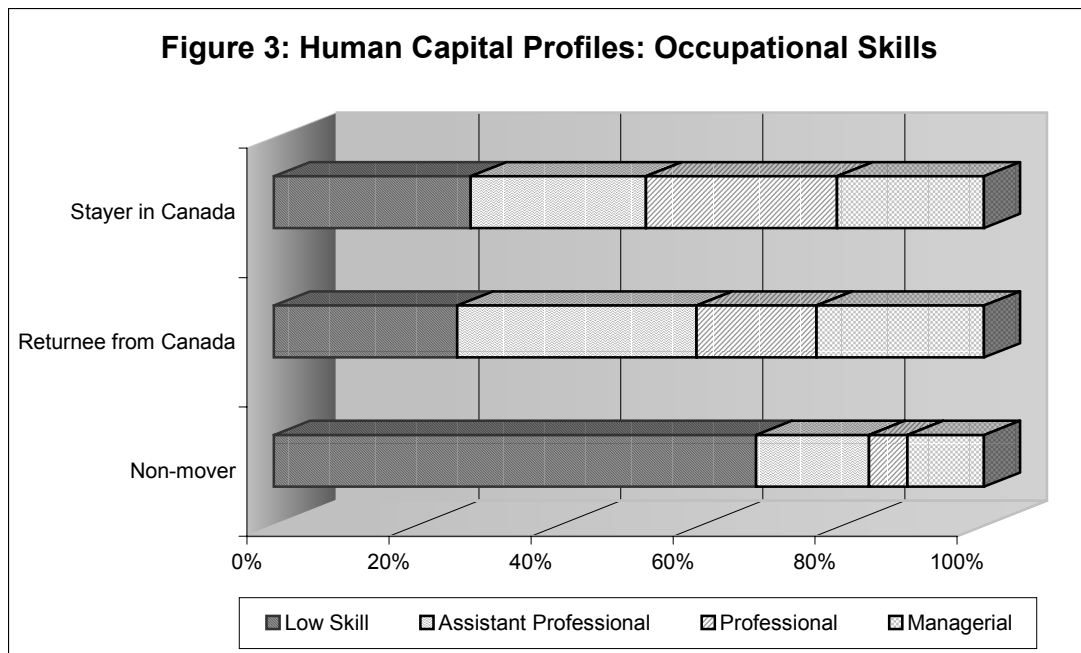
Migrants from Mainland China (PRC) have the lowest level of education and there is a two-fold explanation for this phenomenon. First, PRC migrants to Hong Kong entered under the family unification category and hence required no educational background to enter. Also, since many of entrants from the PRC are children of Hong Kong residents and are still of school age, the educational attainment measure in the census is not particularly revealing. In contrast to PRC migrants, migrants from less-developed countries (LDC) and more-developed countries (MDC) have obtained higher levels of education, which is especially evident for the MDC group. Given that migrants from MDC areas to Hong Kong are labour

market orientated, their educational background corresponds to their need to secure a job in Hong Kong.



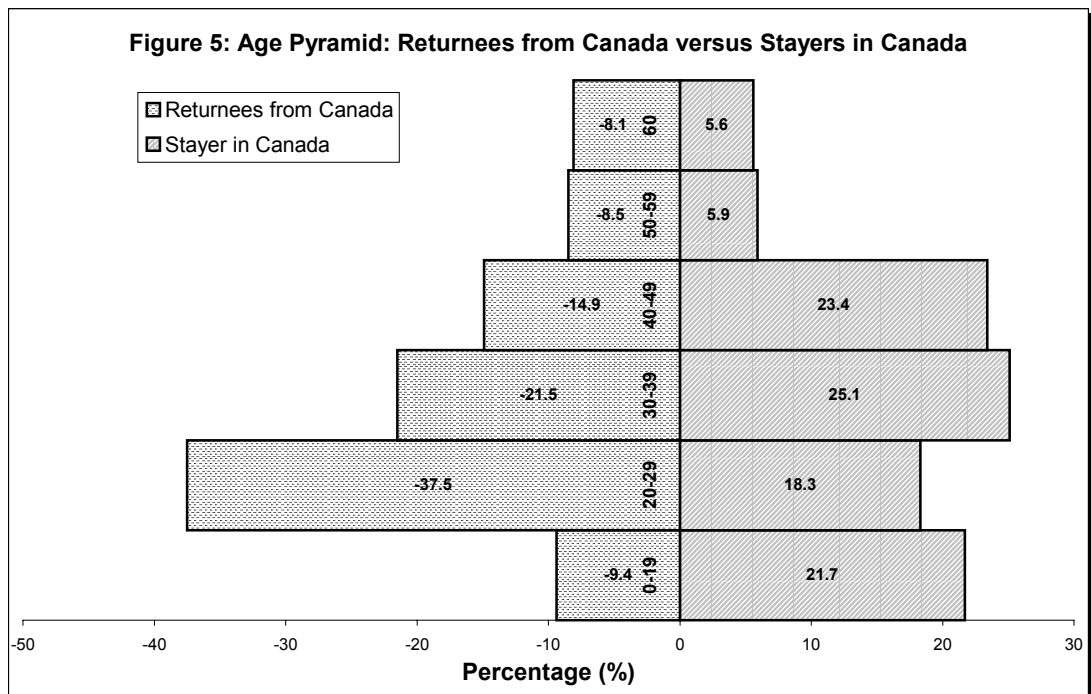
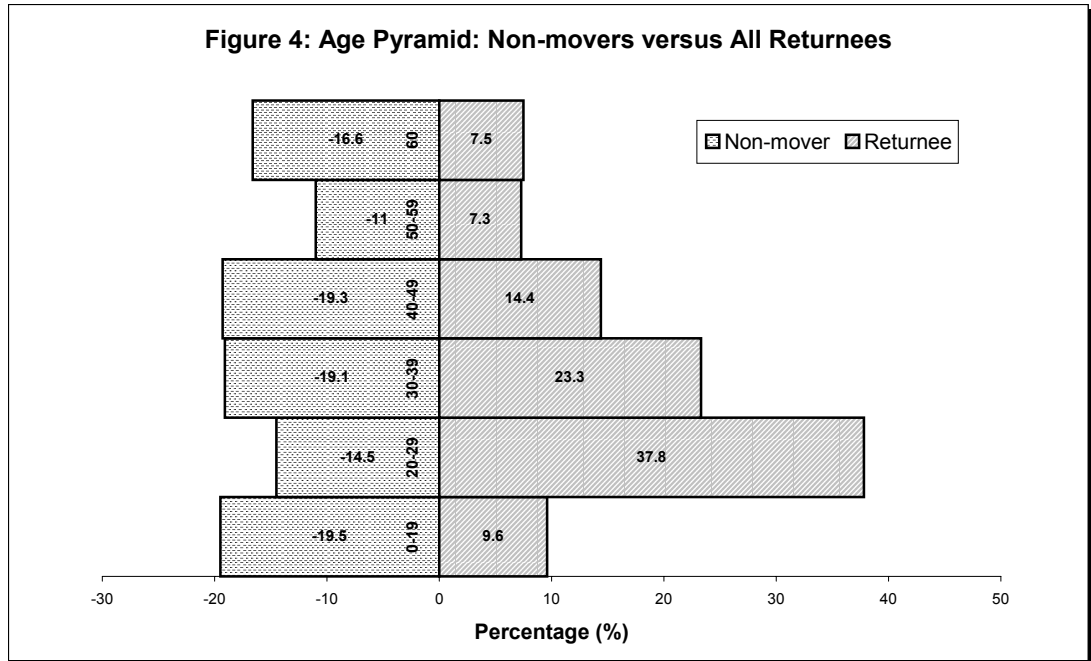
In addition to these educational characteristics, the distribution of occupational skills again reveals significant human capital differences across the defined mover groups. The non-movers and migrants from Mainland China and LDC are predominately in the lowest skilled job category. However, the returnees are dominated by entry-level skilled occupations (31%), or professional and managerial occupations (42%). In fact, compared to the non-movers, the Hong Kong returnees are four times more likely to report professional jobs and twice as likely to be managers. Again, this supports the sorting hypothesis of our theory.

Returnees from Canada are more heavily concentrated in entry-level professionals (34%), or higher-level professionals or manager jobs (40%) than those who returned from the USA and other countries. If we use the Hong Kong-born immigrant stayers in Canada as a reference group with respect to the Canadian returnees, we find that they are evenly distributed among four occupational skill categories than the returnees. Again, this corresponds to the sorting prediction of our model.



As noted earlier, other demographic measures such as age and sex distributions and relation to head of household, will reflect the movers' (stayers') stage in the life cycle. The model predicts that returnees should be young and perhaps still dependents if they have recently acquired foreign human capital. Tables 2 and 3 confirm the model's prediction since the non-movers' age pyramid has a standard population structure while returnees are much younger than the non-mover population. The dominant age intervals in the returnee population are, in fact, the 20–29 and 30–39 groups, which represent the most economically active group in the population.²⁰ More specifically, returnees from Canada are much younger than Hong Kong- born immigrant stayers in Canada, with 59% of returnees aged 20–39, while this age group only represents 43% of the Hong Kong-born immigrant-stayer population in Canada.

²⁰ These findings are in sharp contrast to evidence found for Australia and Canada, which find their returnees to be in the retired group and not students (Newbold and Bell 2001:1168).



Migrants from countries (other than Mainland China) also produce a very young population pyramid. The age shares for the 20–29 and 30–39 intervals comprise 71% of these countries’ population. Moreover, the dependency rate of their immigrants is even lower than

that of returnees, or about 16%. However, Mainland China migrants reveal a different picture. The dominant age groups from the PRC are in the 0–19 and 30–39 age intervals. These movers from the PRC are obviously the children and spouses of Hong Kong residents, thus yielding the highest dependency rate of 87% for any of our defined mover groups.

Apart from this age diversity, the variation in gender ratios across various migrant groups is also apparent. Tables 2 and 3 reveal that the percentages of females are almost identical to the male shares in the non-mover, returnee and Hong Kong-born stayer groups. However, female movers dominated the three remaining migrant groups, with an extreme concentration (92.5%) of female migrants from less-developed countries (LDC). Thus the Hong Kong experience indicates that acquisition of human capital upon arrival leads to a gender-neutral flow while unskilled labour does not. This again confirms our mover-stayer model.

The measure “Relation to Head of Household” in conjunction with age distribution completes the demographic picture of the diversity across the non-mover, returnee, migrant and stayer groups. Firstly, similar to the non-movers, all returnees are concentrated in either the “Head” (34%) of household group (aged 30–39) or a young adult in the household (37.8%) aged 20–29. Migrants from Mainland China, as noted earlier, are related to the head as either “Children” (50.3%) or “Spouse” (29.2%). These familial relations match, of course, the age distributions mentioned above. These cited relationships reflect the family reunification pattern of immigration to Hong Kong from Mainland China while the returnee’s distribution follows the predictions of our model. Finally, a large majority of migrants from LDC cite “maid” or domestic worker as their stated relation to the head of household. This designation, in fact, accounts for 83.5% of the total migrants from LDC residing in Hong Kong.

Comparing Hong Kong returnees from Canada to Hong Kong-born immigrant stayers in Canada reveals more “Heads” of household (34% vis-à-vis 28%) and less “Spouses” (18% vis-à-vis 23%) in the returnee group. This fact indicates that a returnee from Canada is more likely to be the head of household, who has perhaps left his/her spouse or children in Canada. We can cite two arguments inherent in our model to rationalize this outcome. First, returnees want their children to receive a Canadian education and their spouses must stay in Canada to

take care of the children. Secondly, the spouse and children remain in Canada to hedge a changing social and economic condition in Hong Kong if a return move is necessary in the future.

In sum, these reported demographic facts allow us to conclude that Hypothesis 1 is confirmed: Hong Kong returnees in general have a higher level of human capital than Canadian stayers and Hong Kong non-movers with the latter group obtaining the lowest level of human capital. Also Hypothesis 3 is confirmed since returnees to Hong Kong are better educated and younger than Hong Kong-born stayers in Canada.

Earnings Profiles

The differences in human capital characteristics discussed above will ultimately affect the respective groups' earnings profiles. In fact Tables 2 and 3 report substantial earnings differences for the non-mover, returnee and other migrant groups. The highest earnings (meaning monthly income) group are migrants from MDC (HK\$39,310), followed by returnees (HK\$25,543). Migrants from LDC (HK\$5,227) and Mainland China (HK\$9,085) earn the lowest mean monthly incomes. The non-mover's mean income (HK\$15,972) is of course, very close to the average level (HK\$15,812). In other words, on average, the returnees in Hong Kong earn 60% more than the non-movers, and migrants from MDC earn 2.5 times that of the non-movers as our model predicted. However, the migrants from Mainland China earn 43% less than the non-movers, and those who come from LDC earn only 33% of the non-movers.

Among all returnees, those who returned from the United States earned more than all other groups with Canadian returnees earning the lowest income among three groups. In other words, returnees from Canada to Hong Kong earn about 30% (5%) less than those returnees from the United States (or elsewhere). Although returnees from Canada in Hong Kong earn less than other returnees, they still earn much more than Hong Kong-born stayers in Canada. This again supports the sorting argument of our model. As shown in Table 3, the mean monthly earning of Canadian returnees to Hong Kong is 2.3 times that of Hong Kong born stayers in Canada.

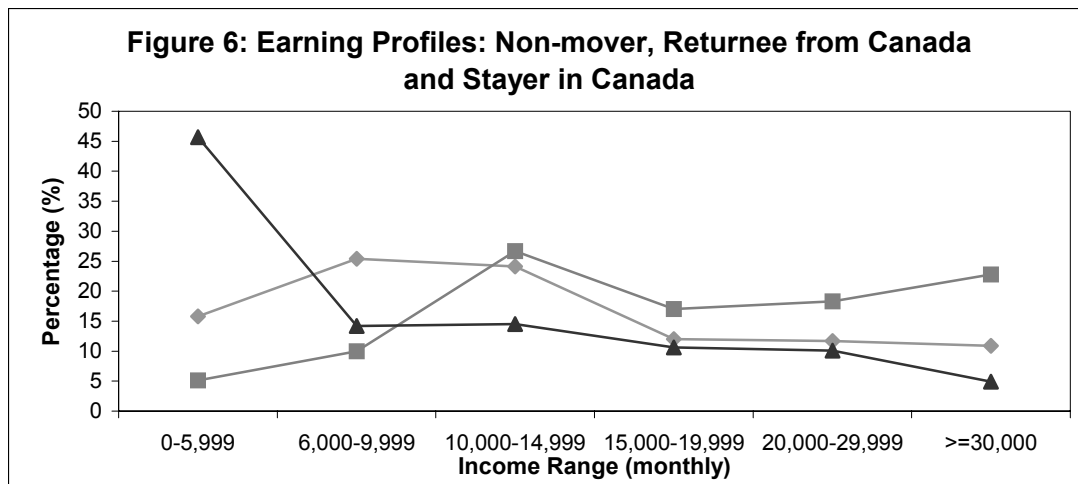
Table 3: Attributes of Returnees to Hong Kong and Stayers in Canada: Hong Kong Born

	Returnee To Hong Kong from					Hong Kong Born Stayer in Canada*	
	All		Canada	USA	Others		
Total	85793	100.0%	33676 (39.3%)	17778 (20.7%)	34339 (40.0%)	6955	100.0
Age:							
0-19	8236	9.6	9.4	4.4	11.1	1506	21.7
20-29	32430	37.8	37.5	39.4	37.6	1272	18.3
30-39	19990	23.3	21.5	26.1	23.8	1745	25.1
40-49	12354	14.4	14.9	14.4	14.1	1630	23.4
50-59	6263	7.3	8.5	8	6.3	413	5.9
60 +	6434	7.5	8.1	7.7	7.1	389	5.6
Sex:							
Female	42811	49.9	53	48	49	3519	50.6
Male	42982	50.1	47	52	51	3436	49.4
Relation to Head of Household:							
Head	29170	34.0	33.5	35.9	33.9	1966	28.3
Spouse	14756	17.2	18.2	18.0	16.3	1634	23.5
Children	32430	37.8	38.2	37.1	37.7	2741	39.4
Maid	86	0.1	0.0	0.0	0.1	n/a	n/a
Others	9351	10.9	10.1	9.1	12.0	614	8.8
Education:							
Primary School or less	9180	10.7	9.2	6.4	13.1	392	6.4
Secondary School & Diploma	31314	36.5	40.3	23.6	37.5	4201	68.2
Local Uni. Degree	12612	14.7	15.3	15.8	13.9	1571	25.5
Overseas Degree	32687	38.1	35.2	54.2	35.5		
Occupation (income > 0):							
Low Skill	13509	26.7	25.8	16.9	30.2	1068	27.7
Assistant Professional	15584	30.8	33.7	29.8	29.2	951	24.7
Professional	10726	21.2	16.9	28.4	21.9	1038	26.9
Managerial	10777	21.3	23.6	25.0	18.7	796	20.7
Total	50596	100	100	100	100	3853	100.0
Earnings (income > 0):							
1-5,999	2682	5.3	5.1	4.4	5.6	2382	45.7
6,000-9,999	5970	11.8	10.0	8.3	14.1	739	14.2
10,000-14,999	12345	24.4	26.7	17.6	24.7	753	14.5
15,000-19,999	7994	15.8	17.0	17.6	14.7	552	10.6
20,000-29,999	8348	16.5	18.3	17.5	14.8	525	10.1
>=30,000	13256	26.2	22.8	34.6	26.0	256	4.9
Total	50596	100.0	100.0	100.0	100.0	5207	100.0
Median (HK Dollar/month)		16520.38	16500.00	20000.00	15500.00		7091.03
Mean (HK Dollar/month)		25543.01	23314.00	33682.00	24657.00		10234.78
Gini Coefficient**		11.96	13.21	5.55	1.55		34.38

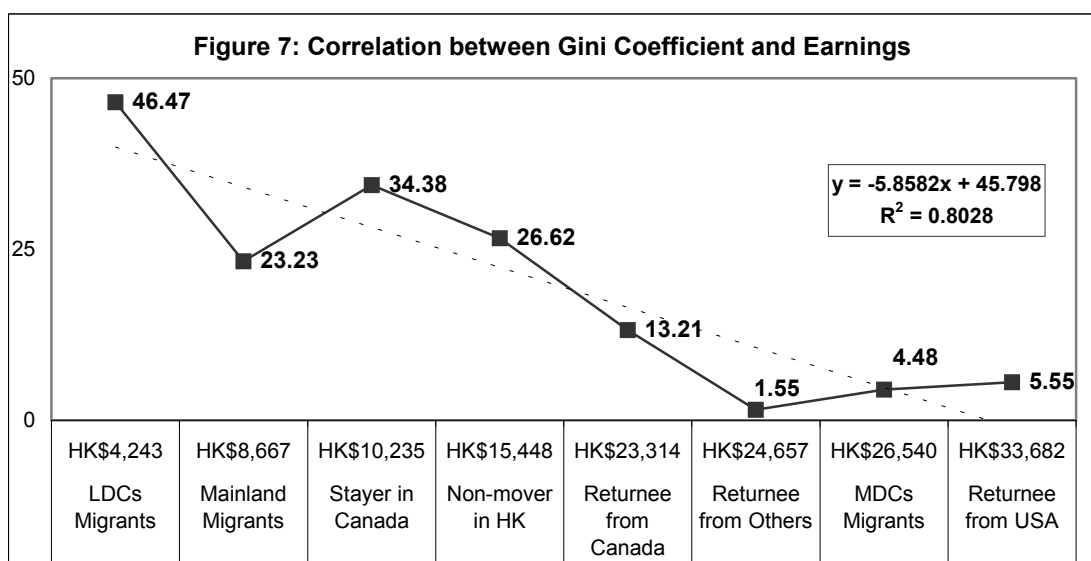
Source: 2001 census data, Department of Census and Statistics, Hong Kong SAR, PRC.

Note: *1996 Canadian census public use individual microdata files, CHASS, University of Toronto, <http://datacentre.chass.utoronto.ca/census/mainmicro.html>. For earnings, sample selected: aged 15 and over; income > 0; adjusted to 2000 real USD dollar value; exchange rate as on Dec. 31, 2000 at USD\$1 = HK\$5.20777.

** Authors' calculation.



Not only does there exist a diversity of income levels across groups, but there also exists an uneven distribution of income within each group recipient. Our calculated GINI coefficient²¹ reveals that the lower the group income level, the greater the income inequity within the group. For example, the GINI coefficient is only 4.5 for the highest income group – migrants from MDC, but assumes a value as high as 46.5 for the lowest income group – migrants from LDC. The returnees also have a very low GINI coefficient at 12.0, which is just half of that for non-movers. This finding counters the model’s prediction that risk takers or those who would tolerate a more unequal income distribution would return.



²¹ The Gini coefficient measures income inequality in a society. The Gini coefficient lies between 0 and 100, where 0 means perfect equality (everyone has the same income) and 100 means perfect inequality (one person

In sum, our data partially confirms Hypothesis 2, namely, that returnees to Hong Kong earn more than Hong Kong-born stayers in Canada and non-movers in Hong Kong. However, our risk taking hypotheses is not supported for returnees.

Concluding Remarks

From the Hong Kong case reported above, we can conclude that returnees to Hong Kong are more likely to be young and recent graduates from overseas institutions who are at the beginning of their careers. There is no significant gender difference amongst returnees, and most returnees are children of Hong Kong citizens. More than half of all returnees have a post-secondary degree, with the majority of the degrees obtained overseas, and are just entering skilled jobs. Most importantly, returnees' earnings are higher than all other resident groups in Hong Kong, except immigrants from developed countries. Also the low GINI coefficient for returnees indicates less income inequality than that reported for other groups.

By comparing the non-mover, returnee and stayer groups, we also find that returnees to Hong Kong have acquired greater more human capital than Canadian stayers and Hong Kong non-movers who have the least human capital. In addition, returnees to Hong Kong are better educated, younger and earn more than Hong Kong-born stayers in Canada. In sum, these findings confirm the three central hypotheses of the triangular human capital transfer model.

Apart from these general conclusions, a particular set of conclusions arises in our entrepôt Canadian context. Firstly, Hong Kong returnees from Canada are young adults in the economically most active age group, while the (pre-)school-age groups and older (above 40) are the Hong Kong-born stayers in Canada. Secondly, the heads of household for the Hong Kong returnees from Canada are more mobile, and his/her spouse and children are more likely to be stayers in Canada. Thirdly, Canadian returnees to Hong Kong earn a great than their stayer counterparts.

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