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Working Paper Series
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Research on Immigration and Integration in the Metropolis

Triangular Human Capital Flows between Sending, Entrepôt and the Rest-of-the-world Destinations

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April 30, 2001

Introduction

In the 1990s, a debate remerged over the size and duration of Canada's brain drain or the transfer of human capital to the United States (DeVoretz and Laryea 1998; Helliwell 2000; Wagner 2000). In a similar vein, D. Zweig (1997) documented the economic and political motives for the highly skilled Chinese émigrés to remain in the United States. Similar bilateral studies have been conducted to detect the size, duration and motivation for the movement of the highly skilled between Europe and the rest of the world. (Winkleman 2001). Implicitly, what we see emerging from this literature is a set of parallel studies assessing the effects of bilateral human capital transfers on both the sending and receiving regions and the individual movers.

This paper proposes a new research tactic when it eschews the standard bilateral analysis and argues that human capital transfers are part of a general equilibrium system – globalization – which transfers human capital from (at least) three areas of the world: sending countries, India-China (including the SAR), to entrepôt countries (Canada and Europe), and then on to the rest of the world (USA). In particular, we argue that Canada is an excellent entrepôt example, given its unique immigration and integration policies and its strategic geographical location. An entrepôt in this context is defined as an intermediate destination country, which confers subsidized benefits on recent immigrant arrivals. In turn, these immigrants arrivals who may later return to their source country, stay in their original entrepôt destination country or move to a third destination (ROW).[1]

Major issues arise in the Canadian or entrepôt context from this complex trilateral movement of the highly skilled. For example, is Canada participating in a zero (or negative) sum game? In other words, do the immigrant arrivals from outside of North America to Canada just (or not) offset the loss of highly skilled Canadian émigrés to the United States and the ROW?[2] Do the highly skilled immigrants that remain in Canada have an inferior (superior) skill set when compared to those immigrants who return or

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[1] Canada is our particular example of an entrepôt county. Other examples exist, namely Israel, Ireland, Germany, United Kingdom and perhaps the entire European Union.

[2] 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. A similar pattern may be emerging in the SAR or Hong Kong when Mainland Chinese engineers replace Hong Kong engineers in the SAR who have left for North America.

move on to the rest of the world? Furthermore, what are the roles respectively of the entrepôt labour market and its immigration (emigration) policies in sorting the immigrants into stayers or movers after they arrive in the entrepôt country?
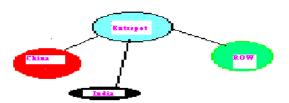
Implications of this human capital transfer on the sending region can also be profound especially if the sending region is less developed (e.g. India-China). For example, how large is the taxpayer subsidy from the sending country to Canada? Furthermore, how long will it take before a reverse flow occurs from the entrepôt country to the source country? Moreover, what fraction of the original leavers will return home and why? Are these leaver the most or least able of the highly skilled?

Finally, what are the implications of the initial skilled movement from the immigrant sending countries (India-China) to the entrepôt country (Canada) on the rest of the world? Will the rest of the world gain twice? Will the initial Chinese (or Indian) highly skilled immigrants to the entrepôt country (Canada/ EU) self-select and move on to the rest of the world with the added human capital of language and other embodied human capital investments? Will these sojourners to the rest of the world (USA) be more (or less) productive than those immigrants who remain in the entrepôt (Canada) or return home (China)?

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

Figure 1: Triangular Human Capital Transfers:

We argue that their exist three initial sending regions, India, China, and Hong-

Kong (SAR) and two possible receiving regions, an entrepôt destination (Canada-Europe) and the ROW (USA). The home destination is, of course, the original sending country.

Furthermore, we argue that three options or types of movement exist for each emigrant after the initial move to the entrepôt country in two separate periods. These options include staying in the new entrepôt country (Canada), returning to the origin country or moving on to a third country. In addition, multiple permutations over these types of immigrant movements can arise and complex patterns will now blur the traditional categories of temporary (less than one year) and permanent movers.[3] In order to simplify the modelling we initially start with two sending regions: India-China arguing that the initial immigrant move is to an entrepôt destination (either Canada or Europe). First, however, we must recognize that the vast majority of highly trained people do not emigrate from the original sending region. Thus, a fundamental question is: how does the sorting mechanism, which allocates stayers and leavers within the sending country, work? Do the best of the highly skilled leave and the mediocre stay or vice-versa? Moreover, if people do move from SAR or China to Canada or ROW is it a product of a joint or two-part investment?

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[3] Permutations of this three-stage movement become complex when multiple moves are considered. For example, the initial movement from 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 Hong Kong émigrés to Canada who originally came from the PRC and after their stay in 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.

The first act of investment takes place prior to movement as the person acquires human capital in their place of origin. The second act of investment occurs when the immigrant moves to exploit this advantage by gaining complementary human capital. Given this two-stage investment behavior a new series of questions arise in the entrepôt destination. First, does this initial educational investment by the potential immigrant in the origin country arise due to a subsidy? Moreover, is strategic behavior involved? In other words, do people invest in a low educational cost (high tax) environment and move to higher educational cost but low tax environments?[4] Does this strategic behaviour, which is good for the individual, create public finance externalities, which are bad for the state or taxpayer?

Given these posed questions, the modeling process, which characterizes this trilateral flow, is best formulated in three stages. The first stage is to model who stays in the sending country and why. DeVoretz and Iturralde (2000) argue that demographic arguments or the head of household's stage in the life cycle condition the probability of staying for a highly skilled worker in a developed country. This is so because the state confers subsidized public goods on highly skilled stayers differentially over their life cycle.[5] Epstein et al. (1999) also argue that in the context of poor sending country the probability of moving is a function of the state's (or Emperor's) willingness to confer benefits or tax the highly skilled. In either a developed or less-developed milieu two additional questions must be posed and answered in the context of the model. How many stay (leave) and what is the quality of the person who does stay (leave)?

Once we model and determine who stays and who leaves the sending country we must next model the motivation for immigrant's long-term behaviour after he/she initially arrives at the entrepôt destination. Will the immigrant be a permanent resident in the original entrepôt destination country, return to the sending country or move on to the rest of the world (ROW)? Before we answer these questions we must ask why after arrival in the entrepôt destination would anyone return to their origin country or move on to a third

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[4] Clearly, an overlapping generation's model can arise. In this case, the progeny of Chinese immigrants to Canada and/or Europe can gain their education in Canada or Europe and make their next move to either the SAR or PRC or USA.
[5] For example, university education, health care, subsidized daycare are all conferred on the household when the highly skilled head is middle age with children.

destination? On the surface, return migration appears to be a product of economic disappointment. However, the economics of this return decision are much more complex than an explanation based upon simple failure in the entrepôt destination country. In a similar vein, it is initially difficult to rationalize onward migration to the ROW. In short, if the immigrant did not want to go to the original entrepôt destination why did he/she simply not initially move to the ultimate rest of the world (ROW) residence? Finally, what arguments best rationalize the behaviour of immigrants who follow sequential repeat patterns, first moving to the entrepôt country, next returning to home (or ROW) and then repeating the process?

As we earlier noted, we introduce several agents – an Emperor in the country of origin and two immigrant settlement agents in the entrepôt country to help us understand initial, return and ongoing immigrant movements. 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 influences their decision to either stay, move on, or return to the original sending country. We outline the various agent's roles below in both the sending and entrepôt countries.

Emperor and Emigrants

As earlier stated, Epstein et al. (1999) argue that the role of the Emperor – typically in the sending country – is to raise taxes, which in turn allows him to dispense favors to cliques within his society. These favored cliques in turn must lobby the Emperor to insure that they continue to receive these gifts from the Emperor and pay the minimum taxes for these benefits. This lobbying effort is both complex and expensive in two dimensions. First, time is involved in lobbying for your presumed favors. Moreover, the outcome from lobbying is often unknown. Secondly, the potential highly skilled émigré is heavily taxed by the Emperor to help finance the Emperor's gifts.[6] It is quite possible under these circumstances that the total value of the gifts conferred on the population by the Emperor may be dissipated in lost output as his subjects lobby in lieu

of productive activity. Under these conditions of uncertainty with respect to the outcome of your lobbying efforts and the simultaneous existence of differential time costs for lobbying across the potential émigré population, differential lobbying efforts will emerge. For our skill group, namely highly trained and potentially mobile workers, their optimal amount of lobbying in the absence of mobility rights is unclear. If the highly skilled are rewarded according to their productivity in wages or salary in the empire then their lobbying efforts will be reduced due to the high time cost of their lobbying effort.[7] Regardless of their lobbying efforts and ultimate rewards, the highly skilled are still taxed.

Now 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 benefits received. This of course raises the question: why would the Emperor 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 probability of return migration by the best of the highly skilled emigres.

The role of the Emperor in conditioning mobility, however, 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 return conditions.[8] The Emperor's role in influencing the émigré after he leaves is crucial to understand, otherwise it would be difficult to rationalize why a successful émigré – as opposed to a failed émigré – would ever return to the Emperor's Kingdom. After all, the emigrant revealed his/her preference by leaving after her/his lobbying for benefits had failed. Thus, it would be difficult to rationalize why a successful émigré would decide to return to this environment without introducing an Emperor who later confers benefits on the ex-patriot.

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[6] In China, one of our selected countries, intellectuals and the highly trained have in the past, had their privileges removed as they were banished to the countryside. In the absence of immigration, their human capital and the country's output suffered.

[7] This would be especially true if the Emperor is a socialist and rewards the favored cliques in an equal fashion.

[8] It is important to note that in the actual case of China circa 2001 the government does not permit free mobility. You must gain permission to leave, which is either more or less lenient depending on the nature of travel.

Essential to rationalizing any potential return emigration is a knowledge of the power of the Emperor to impose conditions on the potential returning émigré. The Emperor often imposes return conditions, which include some form of a surety bond. This bond can be in the form of money held by the Emperor, bank's discounting remittances, or withholding exit visas to permit family reunification. In a more positive manner, the Emperor can bribe the émigré to return with enhanced employment and social conditions after his/her return. 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 Entrepôt Country

After the move to the entrepôt country a second agent – a settlement worker – now enters the decision process of the recent immigrant arrival to the entrepôt country. After arrival the immigrant faces the decision to stay in the entrepôt destination, return home or move on to the rest of the world. Again the decision process is a nested one. First, after the highly skilled immigrant arrives he/she must decide to stay or not at the end of each period. If the decision is to stay then the immigration chain ends. However, when the immigrant is pushed out of the entrepôt country by an unexpected bad labour experience or lured to the rest of the world by a higher return to the newly acquired human capital, the triangular movement continues to the third stage. The emigrant who has decided not to stay in the entrepôt destination must now decide to return home or move on to the rest of the world (ROW). The actions of the settlement worker in the entrepôt country will again influence if the émigré returns home or moves on to the rest of the world. In fact, in the entrepôt country two types of settlement workers appear – private and public The private or volunteer settlement agent offers the recent arrival specific human capital whilst a second government worker offers a public good with positive externalities in period 2.

Period One: Settlement Worker One

After arrival, the recent immigrant is offered subsidized general human capital training (language, knowledge of labour market channels, cultural mores) and specific human capital (C++ programming skills, retraining for certification, access to modern technology) by settlement worker one. The agent's goal in this case is to increase the probability of staying for the recent immigrant at the end of period 1.[9] 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. 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. As Borjas and Bratsberg have further demonstrated, depending on the relative rates of return to the newly acquired specific capital to the best (or weakest) of the highly skilled immigrant arrivals, they may in turn return home or move to the rest of the world at the end of period 1. In sum, the settlement worker's activities in period one 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. The other two outcomes are inferior for the settlement worker but not necessarily for the potential émigré.

Period Two: Settlement Worker Two

If the newly arrived immigrant decides to remain in the entrepôt destination at the end of period 1, the second agent or settlement worker two enters and confers additional benefits. Again these benefits, which now arrive in the form of a public good, are intended to increase the probability of staying in the entrepôt destination in subsequent periods. However, the benefits conferred may act perversely and induce the resident immigrant to leave. The main public good, which offers free rider benefits, is citizenship. If the immigrant remains in the entrepôt country in period 2 and ascends to citizenship,

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[9] Settlement worker one may 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

then the immigrant's mobility costs of moving to the rest of the world will fall. The free rider problem arising from citizenship (and a passport) is owing to the good behavior of older vintages of citizens in the entrepôt country. Now this good behavior manifests itself as visa free travel to the ROW for the newest vintage of entrepôt citizen. The best example of this is the immigrant to Canada (or the any EU member country) who acquires citizenship and then is free to travel to the United States (or another EU member country) and exploit the specific human capital acquired in a subsidized manner in period one in the entrepôt country. [10]

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. 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 ascension to citizenship in the entrepôt country, the probability of leaving for the rest of the world is reduced.[11] The Emperor of course can induce return migration and deflect a potential move to the ROW by acting in a positive fashion and conferring unique benefits on the potential émigré after he/she ascends to citizenship in the entrepôt country and returns home. 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.

In sum, the model at this stage can predict the probability of staying in the entrepôt country and the effect of perverse incentives produced by the settlement workers providing human capital and public goods in periods 1 and 2. Now any outcome in period 2 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 three agents' actions.

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recent arrival to increase the contribution to the society. To this extent this government motive is not altruistic.

[10] Both the European Union and Canada (or the United States) allow immigrants who ascend to citizenship in their respective areas to enter in a merged labour market.

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

A subset of the original leavers at end of period 2 may now have moved on to the rest of the world. This result may be Pareto optimal but may have distributional consequences on both the original sending country and the entrepôt holding state. We review these outcomes below.

To deduce the number and quality of movers from the entrepôt country to the ROW we must describe a stylized environment in the ROW. Foremost among the institutional conditions is the resident tenure of the newly arrived émigré from the entrepôt country. Two entry options are available. The immigrant may apply to use the permanent entry gate or the renewable (indefinite) temporary entry gate. The former has a strict quota and the latter has no quota, so uncertainty of admission arises in the permanent entry gate.[12] The permanent entry gate reproduces the environment in stage 2 for the immigrant in the entrepôt country. The reward from queue waiting before permanent entry is ascension to citizenship. Temporary immigration may be of two types, with and without a queue. In either case, ascension to citizenship is not possible.

The second dimension in the ROW is the reward structure that the highly skilled émigré faces upon arrival. Since by definition the ROW confers no public goods on the émigré the ROW tax rates are low and less progressive than other destinations. The resulting income distribution under this tax regime is more unequal with a higher mean income and greater variance for any highly skilled occupation than in the entrepôt or sending country. In sum, the institutional setting of the ROW is a low tax environment with an unequal income distribution with a low cost but temporary entry point.

One other feature of the ROW, its absolute size, manifests itself in several dimensions, and is crucial to the analysis. The ROW economy is absolutely large and hence this increases the probability of the émigré making a successful job match. Thus, in this expanded labour market, an outstanding talent will have greater absolute chance of a

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[11] A variation of this behaviour is when the entrepôt country confers citizenship on the immigrant and requires that she renounce the home country citizenship. Germany and USA currently do this, but Canada does not.

successful job match, which exploits his/her outstanding skills. This scale affect in the labour market increases the probability of the most talented leaving the entrepôt country for the ROW economy.

On the other hand, the larger population in the ROW implies that the associated ethnic population will also be larger than in the entrepôt country. This potential social safety net encourages the arrival of less-talented, highly skilled émigrés from the entrepôt country since, if they fail in the mainstream labour market, they can find employment in the large ethnic market.

In sum, if we assume that the potential pool of émigrés from the entrepôt destination to the ROW is risk neutral, both the number and quality distribution of the leavers can be determined. At the first stage, entrepôt leavers whose reservation wage is matched by the expected income gain will consider moving to the ROW.[13] This population at risk will be young, with a small size and an extensive prior mobility experience. Thus, post-secondary school leavers and less than 35-year-old males will form the émigré group. This group will in turn be the most and least talented of the resident émigré pool in the entrepôt country.

The public finance impact derived from the arrival of émigrés from the ROW is unambiguous since it receives immigrants embodied with other countries taxpayer-financed human capital. In turn by definition the ROW does not provide this generation of émigrés any publicly financed goods, thus tax receipts must rise. The income distribution affect on the resident highly skilled in the ROW is, however, unclear. The combination of the best and least strong of the highly skilled who emigrate from the entrepôt to the ROW can raise or lower the wage rate for the resident highly skilled in the ROW. Finally, we can infer from these conditions in the ROW that the mediocre highly skilled and most risk adverse of the potential émigrés (middle aged) will remain in the entrepôt destination.

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[12] A variation of this tenure is temporary status with an overall quota and end date.

[13] As DeVoretz and Iturralde (2000) have shown, this is a small percentage of the stock of potential movers, approximately 5 to 20 per cent.

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(Special Issues)

These papers were prepared for the Roundtable *Globalization and Immigration: Canada, China, and Beyond,* presented by the Centre for Excellence, Immigration (RIIM/SFU), Asia Pacific Foundation, and the Shanghai Academy of Social Sciences in Vancouver, BC on May 22-23, 2001.

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