International Human Trafficking: Theory and Solution

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Abstract

In this paper, we build a simple model to explain the choice of migration method and the root causes of international human trafficking (IHT). Our analyses result in several implications on the problems related to IHT. First, IHT is driven by poverty and international productivity/living quality disparities. Second, the existing humanitarian and/or suppressive approaches cannot solve the problem. Third, the best option for solving the problem is setting up the 'reciprocal direct investment' (RDI) scheme between leading and lagged economies. The RDI scheme can facilitate improvements in the quality of public governance in lagged economies and directly promote international competition, efficiency, trade liberalization and division of labor. The resulting convergence in global living quality at a higher level across nations will eliminate the root causes of illicit migrations.

Keywords: human trafficking, global development, income disparities.

JEL classifications: O2, F2

1. Introduction

In this paper, we investigate the root causes of international human trafficking (IHT) by building a simple model that captures the key factors driving the choices of migration decisions and methods. Afterwards, we propose a solution that attacks the root causes of IHT for resolving/alleviating the related problems.

Although human trafficking (HT) is considered a form of modern slavery and is one of the greatest human rights challenges to advanced countries, our understanding on the causes of HT and the effectiveness of our current initiatives to deal with the problem is minimal at best. Currently, most countries view IHT as an issue of national security, and have tried to combat the activity by criminalizing illegal migrants. The success, however, has been very limited. We observe growing level of IHT along with new and stronger migration pressures and related organized crime activities as documented in various studies. For instance, after a comprehensive study on the IHT activities in various regions and countries, Shelley (2010) provides abundant evidences on the prevalence of the activities and the root causes of illicit migrations. She concludes that IHT is not only a serious humanitarian problem today but will continue to grow in this century which poses a serious challenge to academics and policymakers. With better modes of communication and transportation, the cost of IHT is decreasing over time. Potential migrants in source countries also have become more aware of political and economic disparities across nations that strengthen their desire to migrate for taking advantage of opportunities available in destination countries. Various estimates suggest that trafficking in human beings was one of the most profitable illicit industries, among the trade in illicit drugs and weapons. IHT violates human rights, state borders, and criminal laws. It always involves organized crimes, coercive sexual exploitation, labour exploitation and juvenile delinquency which are transnational in scope. They generate substantial illicit proceeds to criminal organizations that jeopardize social stabilities in related countries. In this

increasingly globalized world, preventing and combating IHT is therefore considered to be an important global challenge to related countries and international humanitarian organizations.

For solving the IHT problems, we need to understand the fundamental driving factors for the activities and to devise feasible schemes that can eliminate the fundamental driving factors. In this paper, we build a simple model to explain the choice of migration methods that are treated as a constrained rational choice of the migrants. They evaluate the costs and benefits of choosing different ways to migrate given the specific environment and constraints they are facing. Our analyses suggest that the root causes of illicit migrations are poverty and international productivity/living standard disparities caused by the divergences in the levels of public governance, technology and capital endowments. Second, the humanitarian and the suppressive approaches cannot solve the problem from its root causes.

We suggest that the best option for solving the problem is setting up an international 'reciprocal direct investment' (RDI) scheme across nations. The RDI scheme can facilitate international competition, efficiency, trade liberalization, and division of labor by exchanging production base, capital and land across nations. It can therefore substantially facilitate the convergence of living quality across countries without labor market liberalization. The global production and allocation efficiencies will be improved that generate substantial wealth increases to all countries involved.

The rest of the paper is organized as follows. In the next section, we will formulate a model to understand the causes of and determinants of IHT. Based on the understandings, we propose a novel way of international cooperation and demonstrate that it is Pareto improving to the countries involved and potentially able to eliminate IHT activities from its root causes. The last section concludes the paper.

2. The Theory and Determinants of Human Trafficking

Similar to international trade in goods and service, international 'exchange of people' is a profitable business because globalization has made it easier to move people around the world. At the same time, polarization of global development has also made the earning gap of labor services increasingly divergent across countries while people who want to move to leading countries for jobs and earnings are facing ever more stringent barriers on legal migration.[1] The growing, but unsatisfied demand for legal migration options has created a breeding ground for illicit migrations that include IHT and smuggling. Criminal organizations take the migration demand and make enormous profit from people's desire to gain from the income disparities across nations. It contributes to the vicious circle of crime, corruption, violence, poverty and underdevelopment in the lagged economies.

The prevalence of IHT is normally attributed to insufficient information and education, corruption in law enforcement and poor border controls by most media and policy reports rather than the results of international income and productivity disparities. From the viewpoint of economics, migration is just one of the trading activities for capturing the benefits from the exchange in the global marketplace. Assume a representative potential migrant who is considering three migration methods: legal migration (L), migrant smuggling (E) and human trafficking (T). The expected gains from migration may include diverse attributes such as better living environment, freedom, personal security and the wage differential. For simplicity, the expected benefits of international migration to an individual i are separated into the wage earning differential ($W_d^i - W_s^i$) and the non-wage benefits ($N_d^i - N_s^i$) between the destination country (d) and the source country (s) that are independent to the migration methods. The

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[1] Hanson (2010), among many others, documents about the political motivations for immigration restrictions in high-income countries although abundant evidences suggest that allowing labor to move from low-income to high-income countries would generate substantial gains in global income.

expected net gains of *i* from international migration (MG^i) therefore equals to: $(W_d^i - W_s^i) +$ $(N_d^i - N_s^i)$.[2] The expected total cost of the three migration options respectively equals to:

$$C_L^i = C_{Lm}^i + C_{Lu}^i,$$

$$C_E^i = C_{Em}^i + C_{Eu}^i,$$

$$C_T^i = C_{Tm}^i + C_{Tu}^i,$$

The total costs of the three migration options to an individual (C_K^i), where *K* equals *L, E, T*, are separated into the monetary (C_{Km}^i) and non-monetary (C_{Ku}^i) costs. Individual chooses the migration method for maximizing her/his net gain from migration (NG^i):

$$NG_K^i = MG^i - C_k^i = (W_d^i - W_s^i) + (N_d^i - N_s^i) - (C_{Km}^i + C_{Ku}^i)$$

Other things equal, an individual with the higher/lower the W_d^i / W_s^i and N_d^i / N_s^i, the higher the NG^i and therefore, the higher the chance to migrate. Given the MG^i, individual will choose the lowest migration cost for maximizing NG^i.[3] In general, the total cost of the migration options differ substantially to each other and $C_L^i < C_E^i < C_T^i$. Other things equal, every individual will choose legal migration as the first choice of migration method. However, legal migration is subjected to quota and border controls. Normally, only individuals who are well educated and/or skillful will be selected by destination countries. Second to the legal migration, smuggling will be chosen. Human smuggling normally operates as a commercial service that occurs with the consent of migrants who pay a lump sum to buy the smuggling

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[2] Obviously, migration methods have effects on MG^i. However, for simplicity, we assume that it depends on individual characteristics only. The differences in *NG* due to different migration methods are modeled to be captured by the C_K^i. This assumption has no effect on the focuses of our analyses.
[3] All the benefits and costs are the measurements of the individual's total subjective present discounted values over her/his lifetime. This simplification has no effect on our analyses as the major factors determining related migration decisions are already captured by the items included in NG^i. The other factors found to have effects on migration decision such as social networks can be considered as either raising the expected W_d^i and N_d^i or lowering C_{Ku}^i.

services. The process does not typically involve any forms of exploitation. However, the choice of human smuggling is subjected to the wealth constraint: only individual who can pay $C_{E^i m}$ will be able to select the method. As a result, IHT victims are 'self-selected' to be unskilled labors who cannot migrate legally and do not have enough cash to pay the price of smuggling. That is, they suffer from poverty with low W_s^i and N_s^i. They may implicitly or explicitly 'borrow' from the trafficker for the smuggling services and repay the 'loan' from their future earnings in the destination country.[4] IHT victims are therefore typically of individuals who have weak bargaining power and with no other choices but 'selecting' IHT to satisfy the migration purpose. There is no wonder that a majority of the IHT victims are female and minors from poor families

According to the understandings, individuals choosing different migration methods have different characteristics as follows:

IHT victims:

i. $NG^i > 0.$[5]

ii.   They are not qualified for migrating legally.

iii.   They are poor with insufficient cash to pay for the smuggling costs.

iv.   The migrants normally exploited by human traffickers due to their weak bargaining power and position relative to the traffickers in destination countries.

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[4] Human trafficking is defined as a situation in which an individual travelling abroad was locked and forced to work for no or little pay via means of coercion. As such, trafficking differs importantly from migrant smuggling, a commercial service that normally occurs with the consent of migrants, which does not typically involve any forms of exploitation. In our model, we abstract away the coercion, deception and asymmetric information between the traffickers and the migrants. The potential migrants 'choose' IHT because they cannot pay the cost of smuggling migration and therefore have to repay the trafficking cost by working in the destination countries. In many cases, they are misled by the traffickers that the expected $(MG^i - C_T^i)$ is positive while the realized gain of the IHT is negative.

[5] The NG^i should be interpreted as the expected subjective value of the individuals when they make the migration decisions. In many cases, the IHT victims are exploited by being forced to work for no or little pay via means of coercion even though they fully repay the trafficking cost that make the realized cost much higher than expected. This expected subjective cost is captured by the $C_{T^i u}$ that is normally substantially higher than the other forms of international migration.

Human smuggling:

i. $NG^i > 0$.

ii.   They are not qualified for migrating legally.

iii.   They have enough cash to pay for the smuggling costs ($C_{E\,m}^{i}$).

Legal migrants:

i. $NG^i > 0$.

ii.   The migrants have qualifications satisfying the requirements of the destination countries. They are normally well-educated, skillful and therefore with high W_d^{i} and W_s^{i}.

iii.   The number of legal migrants is limited by the criteria set by destination countries.

In general, the model suggests that it is the expected net gains from living abroad that motivate the migration decision. It is the constraints facing potential migrants that determine their choice on the migration methods. By stressing human smuggling and trafficking being driven by the rational calculation of costs and benefits, we can draw some policy implications based on economic principles:

1. The model suggests that existing humanitarian treatments towards illicit migrants will be ineffective to resolve the IHT problems. The humanitarian treatments lower the cost of the activities, raise their NG^i and therefore induce more illicit migration activities.

2. Instead, propaganda, advertisements and publicizing the sufferings of the IHT victims in the source countries can raise the expected subjective costs of potential IHT migrants which can reduce the demand for the activities.

3. The destination and the source countries tend to have a wide wage gap and the trafficking cost tend to be low in comparing to other potential destinations. In other words, migrants tend to flow from lagged economies towards leading economies. Other things equal, they tend to migrate to countries with social networks and/or neighboring countries for

enjoying lower monetary and subjective costs.

4. The most humanitarian solution to the IHT problems is to device international schemes that can promote the convergence of living quality between the leading/destination and lagged/source economies such that NG^i narrows over time. This will reduce the need for IHT from its root causes.

In the following sections, we try to understand the causes of the international divergences in living quality drawn from the evidences, models and implications respectively in Mo (2010a, b, c, d). Afterwards, we will formulate a 'humanitarian scheme' for solving the IHT problems accordingly.

3. The Causes of the Divergent World

The analyses in section 2 suggest that illicit migrations are unavoidable in a world of large income disparities without free flow of labor. On the side of destination economies, they are willing to offer higher wage level for labor services than the lagged economies due to their higher level of productivity and capital stock. On the side of source countries, the labors in the lagged economies suffer from insufficient job opportunities and poor living quality. Peoples in the lagged economies are motivated to migrate out to the leading economies for seeking better living quality for themselves and their families. It is the polarizing world with reducing communication and transportation cost that drive the increasing intensity of migration activities and it is the poverty of the potential migrants who cannot afford paying the smuggling costs in advance that pushes them to select IHT for the purpose. IHT victims will therefore be substantially reduced if the gap of living quality narrows down across countries. In this section, we explain the sources of global income disparities. In the next section, the 'reciprocal direct investment' scheme will be formulated that can effectively promote the convergence of the global economies while at the same time, generate mutual benefits to all

parties and countries involved.

Following the contributions in Mo (2011c, d), the direct causes of economic disparities across countries are generated by the different quantity of tools (X) and the number of its variety (V_j), such that a representative firm in the destination/leading economies has much higher quantity and variety of tools. The output level of a firm (Y_j) depends on the amount of capital service (K_j) and labor (L_j) employed by the firm, such that:

$$Y_j = K_j{}^{\alpha} L_j{}^{\beta}\ ; \ \text{with } \alpha + \beta = 1 \ ; \text{ and } 0 < \alpha < 1 \ . \tag{E1}$$

The level of capital service K_j is the aggregate of a variety of tools (X_i). Under some simplifying assumptions, profit maximizing of the entrepreneur implies that:

$$K_j^{*} = [\sum_i X_i^{*\theta}]^{1/\theta} = V_j^{1/\theta} X_j^{*}, \tag{E2}$$

with $0 < \theta < 1$ and, $i = 1$ to v_j, the tools variety employed by the firm. The parameter θ governs the elasticity of substitution between the tools. A higher value of θ indicates that X_i can be more easily substituted for each other in the production of the capital service while a lower values of θ correspond to greater differentiation among the set of tools. (E2) indicates that the level of capital service is determined by the variety of tools, V_j and the quantity of tools (X_j). Substitute (E2) into (E1), we have:[6]

$$Y_j = V_j^{\frac{\alpha}{\theta}} X_j{}^{\alpha} L_j{}^{\beta} = \ A_j X_j{}^{\alpha} L_j{}^{\beta}\ ; \text{where } A \text{ equals } V_j^{\frac{\alpha}{\theta}} \ \text{ and } \ \alpha/\theta > 1. \tag{E3}$$

(E3) suggests that given the same quantity of tools and labor, the larger the amount of tools variety, the higher will be the total output level. Moreover, the higher the tools variety, the higher the marginal product of tools and labor will be, since:

$$MPX = \ \alpha V_j{}^{\alpha/\theta}(\frac{L_j}{X_j})^{\beta}\ ; \text{ and,} \quad MPL = \ \beta V_j{}^{\alpha/\theta}(\frac{X_j}{L_j})^{\alpha} \tag{E4}$$

where MPX_j and MPL_j are the marginal product of tools and labor respectively.

In competitive markets, factors prices are equal to their marginal product. As a result, the

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[6] For more detail derivations, please refer to Mo (2011c).

higher wage in the destination countries are driven by their higher variety and quantity of tools, while the source countries vice versa.

Suppose the firms in destination and source countries have the sets of (V_d , X_d) and (V_s , X_s) respectively with (V_d , X_d) > (V_s , X_s), the source country thus has lower wage than the destination country. Labor will migrate to the destination/leading economies for capturing the higher income from their labor services. This implies that the monetary motives of international migration will be reduced if their *MPL* converge when international divergences in *V* and (*X/L)* are reduced. As suggested in Mo (2010d, 2007), the convergence can only be achieved by the improvements in the quality of public governance that determines the motivation structure in the lagged economies. For alleviating the IHT effectively, we have to formulate a feasible scheme that is most effective for inducing a rapid convergence in the quality of public governance and therefore, a rapid convergence in living quality across nations.

4. Reciprocal Direct Investment: A Pareto Solution to IHT

Numerous initiatives aimed at suppressing illicit migration activities have been suggested at international as well as national level. They include the enactment and amendment of legislation, the establishment of special units and training programs to counter human trafficking, the intensification of legal proceedings and sanctions, international co-operation among the related police units in the countries concerned etc.. Domestic and international resources are therefore channeled for blocking inflows, mandatory detention and sending illegal immigrants back to source countries. Prosecution of offenders, criminal law and legal enforcement can suppress and prevent illicit migrations.[7] However, as long as the

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[7] The United Nations General Assembly adopted the *Convention against Transnational Organized Crime* and its *Protocol to Prevent, Suppress and Punish Trafficking in Persons, especially Women and Children,* in 2000. In particular, it regulates obligations of member states to achieve three objectives: preventing the crime of human trafficking, protecting victims and prosecuting traffickers. As suggested in Cho and Vadlamannati (2011), the Anti-trafficking Protocol reflects the interests of the major powers on IHT that threaten national security and damage the domestic human rights reputation of the destination countries.

root causes of illicit migrations, that is, the mass of people in poverty, severe environmental degradation, political stability and unemployment etc. persist in the source countries, repressive measures cannot stop persons to improve their wellbeing by capturing the potential gains from migration activities. The causes are in turn largely driven by the low stage of development and quality of public governance in the source countries. Other investigators suggest that the structural causes of illicit migrations need to be addressed by eliminating the debts of poor countries and a global redistribution of wealth to lagged economies. However, these initiatives do not generate direct and indirect benefits to leading economies and do not generate extra international wealth, which make them hardly sustainable. To the best of our knowledge, there are no initiatives to resolve the problem from the perspective of international division of labor, reciprocal investment and cooperation that can facilitate global development, convergence in living quality and an explosion of wealth increases to the countries involved.

In this section, we device a sustainable scheme to harness the self-interest maximizing motives of related governments into productive activities that can alleviate the illicit migration activities in the short run and potentially eliminate them in the long run. The scheme offers a chance for all countries to enjoy a substantial increase in wealth while reducing illicit migration activities. It can address the humanitarian and global challenge of IHT by offering a solution to achieve a situation that all peoples in all countries to live peacefully and happily together.

The scheme is devised based on the understanding that sustainable schemes, system and organizations must be built upon mutual benefits to all concerned parties under a specific environment or set of constraints. We call these schemes/systems/organizations Pareto schemes/systems/organizations. Our scheme sets up some organizations that embody a motivation structure. The structure motivates related agents′ behavior that generates economic

outcomes under a specific environment. The economic outcomes generated by the scheme result in the creation of new wealth and is Pareto improving to all the agents involved. Therefore it will have tendency to be sustained, duplicated and expanded in scale and influences over time that generate further Pareto developments. The outcomes will alleviate the demand for illicit migrations in the short run and potentially eliminate them in the long run. The scheme is called 'reciprocal direct investment' (RDI) that is detailed as follows:

i. Agents:

a. Investment Company led or owned by the Government of Source/Lagged Country (GS);

b. Investment Company led or owned by the Government of Destination/Leading Country (GD)

Governments manage coercive power and device motivation structure in a jurisdiction. Therefore, the quality of public governance is the ultimate determinant of economic growth rate and therefore the job opportunities, price of inputs, rate of wealth accumulation, poverty level and long-run living quality of a nation.[8] When the governments lead or own the investment companies, the efficiency/profitability of the companies and the interests of the related governments and individuals who control the coercive power in the jurisdictions are connected. Moreover, the repeated interactions between the political and economic elites of the lagged and leading countries will facilitate their mutual trust and raise the quality of public governance of the lagged countries through learning by doing and imitations. Therefore the government-led cooperation can promote the long-run profitability of the companies and raise the dynamic gains of the countries involved.

ii. Organizations:

a. SDIC: GS-GD Investment Company investing in the Source country. [shareholding: GS

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[8] For some related discussions, please refer to Mo (2007, 2010d).

(51%), GD (49%)].

b. DSIC: GD-GS Investment Company investing in the Destination country. [shareholding: GD (51%), GS (49%)].

iii.   Activities: Reciprocal Direct Investment (RDI)

a. SDIC invests a seed project of $100 units of value in the source/lagged country, normally manufacturing units.

b. DSIC invests a seed project of $100 units of value in the destination/leading country, normally in trading and/or real estate projects.

iv.   Outcomes:

a. The profit-maximizing resource allocations are efficient:

Under the RDI scheme, the total profit function of GS or GD equals:

$$[0.51\ P_i\ Q_i\ (\ K_i,\ L_i)\ -\ 0.51(\ r\ K_i - w_i L_i\ )] + [0.49\ P_j\ Q_j(\ K_j,\ L_j) - 0.49\ (r\ K_j - w_j L_j\ )],$$

where $[P_c\ Q_c\ (\ K_c,\ L_c)]$ and $(\ r\ K_c - w_c L_c\ )$, $c = i$ or j, equals to the revenue and cost functions of the SDIC and DSIC or vice versa.

The MRP_h of K_h and L_h equal to their respective opportunity costs when the agents maximize their profit. The productive efficiency condition is attained. The scheme is therefore 'efficiency compatible'.

b. Cooperative behavior is promoted among partner countries under the RDI scheme:

A firm in the host economy requires various implicit firm-specific supports of the host authority which include basic infrastructures, free from illicit threats and corruption etc. for effective operation. Due to the problems caused by incomplete information and contract, agency problems may exist in the partnership relationships under the RDI scheme. Denoting

the implicit goods and services relating to the firm's operation provided by the host partner be H_c, $c = s, d$, the profit function of SDIC is modified as follows:

$$[0.51\ P\ x\ Q_s(\ K_s,\ L_s\ ,\ H_s) - 0.51(\ r\ K_s + w_s L_s\ ) - C_s(H_s\ )] +$$

$$[0.49\ P\ x\ Q_d(\ K_d,\ L_d,\ H_d) - 0.49\ (r\ K_d + w_d L_d\ )]\ , \tag{E5}$$

where H_s is the implicit firm-specific supports of the host authority. Since the host only gets 0.51 of the marginal benefit from providing H_s while bearing its full implicit marginal cost, the local authority of the host partner in the source country tend to under-provide the implicit supports to the SDIC. The same reasoning applies to H_d.[9]

However, the reciprocal relationship can potentially eliminate this agency problem due to the exchange in direct investments between the partners. Assume we have a reaction function such that $H_d = \gamma(H_s)$, the profit function of SDIC becomes:

$$0.51\ Q_s(\ K_s,\ L_s\ ,\ H_s) - 0.51(\ r\ K_s + w_s L_s\ ) - C_s(H_s\ )$$

$$+\ 0.49\ P_d\ x\ Q_d[\ K_d,\ L_d,\ \gamma(H_s)] - 0.49\ (r\ K_d + w_d L_d\ ). \tag{E6}$$

Concerning the reaction of the partner, the profit maximizing H_s, H_s^* is governed by the following first order equation:

$$0.51\ MRP_{Hs} + 0.49\ MRP_{Hd}\ \gamma' = C_s'. \tag{E7}$$

(E7) implies that given the same C_s', higher γ' raises the marginal benefit of H_s to the GS and therefore induces higher H_s^* provided by GS which is desirable to GD. This rational strategic tit for tat strategy ($\gamma' > 0$) can potentially induce the partners to provide efficient level of the implicit supports. Similar reasoning applies to GS. Additionally, the closely repeated interactions and the patient government agents also minimize the agency problems associated

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[9] Normally, the DSIC suffers less from the agency problems due to better corporate and public governance in the destination/leading economies.

with incomplete contract and positive monitoring costs. The partners will tend to adopt cooperative strategies to each other for capturing the potential long-term gains generated by the scheme.[10]

4.1 Sibling Projects to Accelerate Global Development

In order to speed up the convergence in the global economies and enlarge the mutual gains from the RDI scheme, it will be useful if part of the profits in the RDI scheme can be ploughed back for additional 'sibling projects'. The idea is illustrated by the following example:

Suppose the investment amount of each RDI project is $100 units. The overall rate of return in SDIC and DSIC are 40% and 10% respectively.[11]

The 'Sibling Project scheme':

a. Each investment company contributes $10M (the amount equals to the total profit of the company with the lower rate of return, that is, the DSIC in this case). A total of 20M will be used for setting up new Sibling companies.

b. The money in the Sibling companies can be used for another RDI project. If trust and cooperative tradition between the partners have been established, the money can also be solely invested in the source countries that normally generate a higher rate of return in the long run.

c. This scheme can generate sustaining expansion of good governance, tools variety, management skill and knowledge when the political and economic elites in the lagged economy modernize while at the same time, generate expansion of wealth, influences,

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[10] The efficient level of H_s is determined by the equation: $MRP_{Hs} - 1 = 0$. For more detail analyses, please refer to Appendix A.

[11] The returns of the RDI are hypothetical. However, in longer-term, the rate of return in the source countries tends to be higher but less stable while that in the destination countries tend to be stable but relatively low. Related simple models to illustrate the determinants of the rate of returns are sketched in the appendix B. Under ideal situation, the gains of the firms operating in the lagged economies include capital appreciation of the production unit caused by the rapid technology and management improvements in the catching-up process plus the gains from lower resources price.

investment and trade opportunities to the leading economy.

4.2   The Immediate and Dynamic Gains of the Scheme

a. The GS and GD will share the return of 30x0.51=15.3 and 30x0.49=14.7 respectively that generate additional fiscal revenue. The revenue can reduce the tax burden and/or raise public expenditures of the related countries. They can strengthen the political supports for the RDI scheme. The sibling projects set up by the profit of $20 units will generate future profits and related dynamic gains.

b. In the longer run, the dynamic gains from the higher growth rate of tools variety, trade volume, and rapid improvements in living quality and purchasing power generate substantial direct and indirect benefits to both leading and lagged economies.[12] This exchange in FDI will result in the convergences in technology and living quality between the leading and lagged economies at a higher level.

c. The projects generate rapid development in the source country that provides quality job opportunities to the people. They therefore reduce the demand for illicit migrations and the attractiveness of trafficking business.

d. The convergence in the standard of living in the long run eliminates the demand for IHT caused by economic reasons.

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[12] A more elaborate treatment is attached in the Appendix B. One may query that market agents will be automatic and are most effective to capture the potential gains from the investments. There are several reasons why government involvements are more effective in this case. First, top government agents control coercive force directly. They can avoid the inefficiencies and corruptions caused by widespread government failures in most lagged countries. Second, it is increasingly recognized that the quality of public governance is the ultimate determinant of economic development through its effect on the motivation structure or equivalently, the rules of the game. (for related discussions, please refer to Mo, 2007, 2010d). The direct involvements of the political and economic elites of the lagged countries will rapidly raise the quality of public governance when are exposed to the international standard and rules of corporate and public governance during the frequent interactions with those partners from the leading countries. Third, the trust between governments building up during the RDI schemes will open up opportunities for other forms of cooperation. For instance, the spirits of RDI can be expanded in scale to 'reciprocal chartered cities' or 'reciprocal special economic zones' that further release economic activities from political and other institutional constraints in the partner countries. (Romer, 2010) The above benefits cannot be generated through the private direct investment activities. Moreover, although the spillover benefits of the scheme are encompassing to all levels of a society, it generates direct benefits to political and economic elites in both countries. This can make the firms operating under the scheme much more effective, successful and sustainable politically.

In general, the direct gains of the leading economy include the higher rate of return received and assets appreciation of the investments in lagged economies. The lagged economy gains from the extended networks, learning opportunities, more quantity of tools and its variety generated from the direct investments by leading economies. Both economies are benefited from the dynamic gains generated by economic integration, division of labor and interactions. (Mo, 2010a) The standard of living and the wage rate of both countries will converge over time at a much higher level.

Through the RDI scheme, the illicit migration needs caused by border controls are replaced by exchanges in land, capital, technology and profitable opportunities across countries. Similar to the successful experiences of the incremental reforms in China that retain the benefits of vested interest groups in the country while expand new opportunities for future gains, the RDI scheme does not infringe the vested interests of the existing interest groups in the destination and source economies while opens up a new frontier to capture the benefits from international direct investments, division of labor, interactions and trade which is Pareto improving to all parties. The RDI and sibling projects provide more choices to all potential migrants, including poor people, female and children for improving their fortune by staying in the source countries. International instability caused poverty, international crime and illicit migrations will be alleviated when the scheme raises the relative price of productive and entrepreneurial activities relative to commercial sex and related criminal activities. The human rights hazard caused by IHT will be eliminated in the dynamic advancements.

5. Conclusion

In this paper, we provide a market solution that is self-enforcing, self-perpetuating and Pareto improving to all related parties for reducing IHT and improving international human rights. Illicit migrations and in particular IHT is one of the least studied forms of international

movement in persons in the mainstream economics although it generates widespread international security problems and humanitarian hazards. Given the persistence of huge disparities of living conditions between countries and strict border controls, the pool of potential illicit migrants will continue to grow. It will lead to increasing international tensions and humanitarian disasters over time.

We know that the ideal of free human beings who are able to enjoy civil and political rights and freedom from fear and poverty can only be achieved if conditions for survival are established in a nation. It is the strong economic fundamentals that provide foundations for promoting human rights and freedom, justice and peace in the world. Only when the economic fundamentals are in place, the lower order and higher order human rights can be satisfied. The RDI scheme sets up organizations under the lead or ownership of related governments that are most likely to work for the long-run profits of related projects. The scheme provides additional economic instrument for global development that is wealth-creating and Pareto improving to all parties involved. With the virtuous cycles generated by the scheme, it will be able to eliminate poverty, improve public governance, raise employment opportunities and generate sustaining economic developments in the source countries. To conclude, the short-run and long-run effects of the RDI scheme on global development include:

i.   Speed up trading in goods and services between leading and lagged economies.

ii.   Facilitate the exchange of labors legally between leading and lagged economies.

iii. Speed up technical convergence between leading and lagged economies at a higher level.

iv.   Speed up the advancement in the quality of corporate and public governance of the lagged economies through frequent interactions with the leading economies.

v.   Expand international interactions, scale and scope of global economies that generate the benefits of scale economies, division of labor, and technical improvements to all parties involved. The trust building up in the RDI process generates further cooperation

opportunities and integration to the partner countries.

IHT is usually thought of in terms of criminal or human rights violations, rather than from the perspective of international division of labor and trade. By treating IHT as an economic problem caused by income disparities and poverty, we contribute to enhance the understanding on the nature of IHT activities and to propose a novel way of international cooperation and mechanism to eliminate the root causes of IHT. Instead of relying on common humanitarian and/or suppressive measures, we propose the RDI scheme and investigate the related mechanism that generates a sustaining dynamism for closing the international disparities in living quality across countries which is beneficial to all related parties. We conclude that, through the scheme of RDI, we can harness the self-interest of the governments and related political and economic elites to promote the level of human rights, peace and living quality to a much higher level globally. The scheme can alleviate IHT in the short run and potentially be able to put an end to illicit migrations in the world by eliminating the fundamental causes of the activities.

Appendix A:

Agency Problems, Implicit Government Supports and Credibility

With the reaction function in (E6), the profit maximizing H_s, H_s^* is governed by the following first order equation:

$$0.51 \; MRP_{Hs} + 0.49 \; MRP_{Hd} \; \gamma' = C_s' \qquad\qquad (A1)$$

The efficient level of H_s is determined by: $MRP_{Hs} = C_s'$.

The γ' that will induce efficient level of H_s can be found by setting $MRP_{Hs} = C_s'$ in (A1), such that:

$$0.51 \; MRP_{Hs} + 0.49 \; MRP_{Hd} \; \gamma' = MRP_{Hs} \; ;$$

Solving for γ', the 'efficient response' of GD (γ^*) equals to: $MRP_{Hs} / MRP_{Hd} > 0$.

In symmetry, the efficient response of GD, let it be β^*, equals to: MRP_{Hd} / MRP_{Hs}.

When $MRP_{Hs} = MRP_{Hd}$, $\alpha^* = \beta^* = 1$, that will result in the efficient levels of H_s and H_d respectively.

      According to the analyses, besides the patient government agents and repeated interaction with close monitoring, the optimal response of tit for tat strategy of the partners under the RDI scheme can potentially resolve the agency problems and result in efficient outcomes among the partners.

Appendix B:

The gains from the RDI Scheme of the lagged and leading economies

  a. **The gains generated by the RDI scheme to the lagged economy**

In the cooperation process, the GS of the lagged economy can have immediate gains from:

1. the trading and investment networks built up in the destination/leading economy.

2. a stable rate of investment return generated from the investments in the leading and domestic economies which strengthen the source of fiscal revenue and foreign exchanges

3. more legal migration opportunities to the destination country and more quality employment opportunities provided by the projects under the scheme, particularly to the political and economic elites. The interaction and learning opportunities open to them facilitate the improvements in the quality of public governance in the lagged economy. The benefits of better governance spread rapidly to the whole economy.

Moreover, the domestic firms in the lagged economy can gain substantially from the interaction opportunities with the leading economy as elaborated in Mo (2010b, 2010c). The GDP of an economy (Y) depends on the amount of capital/tools (X), labor (L) and the level of tools variety (V), such that:

$$Y = V^{\frac{\alpha}{\theta}} X^{\alpha} L^{\beta} = A X^{\alpha} L^{\beta} \text{; with } A \text{ equals } V^{\frac{\alpha}{\theta}} \text{ ,}$$

where V is the number of tools variety and $0 < \theta < 1$ is the level of differential among the tools exogenously given to the firm in a country.

The growth rate of the economy therefore equals to:

$$\frac{dY}{Y} = \frac{\alpha}{\theta} d\gamma + \alpha \frac{dX}{X} + \beta \frac{dL}{L} = \frac{\alpha}{\theta} \frac{dV}{V} + \alpha \frac{dX}{X} + \beta \frac{dL}{L} \text{,}$$

with $(\alpha/\theta) \geq 1$.

Since direct investments from leading economy brings additional capital (X) as well as new tools varieties (V), the local firms in the lagged economy is provided with the opportunity to imitate and learn from the advance production method. Motivated to capture the innovative

quasi-rent, the advanced production method will be imitated by all other production units in the source economy. The lagged economy can therefore enjoy higher growth rate and gain substantially in this dynamic process as suggested in Mo (2010a, b). This results in the capital appreciation of the production units under the RDI scheme which become part of the investment gains to the GD.

a. The gains to the firms operating in the lagged economy[13]

In leading/matured economies, investment opportunities normally shrink over time due to the diminishing marginal products and higher input prices. The RDI scheme generates additional and safe investment opportunities to the investors in the leading economies. This provides additional profitable opportunities to the firms in the leading economies directly when they invest in low costs lagged economies.

Suppose that without the RDI scheme, the profit of a firm invested in destination/leading economy (*LP*) equals to the total revenue minus the total cost of production. The firm faces higher labor price ($\overline{w}$) in the leading economies, such that:

$$DP = PQ[\overline{L}^{*}(\overline{w},r), \overline{X}^{*}(\overline{w},r)] - (\overline{w}\,\overline{L}^{*} + r\,\overline{X}^{*}).$$

The RDI scheme generates the opportunity to invest in lagged economies with lower labor cost ($\underline{w}$), such that the profit of the firm invested in source/lagged economy (S*P*) equals to:

$$SP = PQ[\underline{L}^{*}(\underline{w},r), \underline{X}^{*}(\underline{w},r)] - (\underline{w}\underline{L}^{*} + r\underline{X}^{*}).$$

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[13] The following calculation is for illustration purpose only. The scheme is an 'incremental innovation' in the sense that, without the scheme, the RDI opportunity does not exist. The total profit generated under the scheme is the direct total benefit to the agents involved if the related economies have excess capacity. In this example, our calculation is based on the assumption that the new investment opportunity in the lagged economy crowds out the investment in the leading economy. In many cases, there are substantial redundant resources in an economy, particularly in those lagged economies which make the new investment opportunities have minimal opportunity cost. If there is a lack of profitable investment opportunities in the leading economy also, our calculation substantially underestimates the social gains of the related projects. In general, the dynamic gains and the spillover benefits generated from the scheme are much larger and important than the static gains in the firm level as illustrated in this case. Mo (2010a) shows that leading economies also enjoy dynamic gains of productivity improvement during their interactions with other economies.

Under the assumptions of same output level (Q), rental price of capital (r) and output price (P), the gain from the firm to operate in the lagged economy relative to operating in the leading economy equals:

$$SP - DP = -(\underline{w}\underline{L}^* + r\underline{X}^*) + \overline{w}\overline{L}^* + r\overline{X}^* =$$

$$-[\underline{w}(\overline{L}^* + \underline{L}^{a\,*}) + r(\overline{X}^* - \underline{X}^{a\,*})] + (\underline{w} + \overline{w}^a)\overline{L}^* + r\overline{X}^*, \text{ where}$$

$$\underline{L}^* = \overline{L}^* + \underline{L}^{a\,*}; \ \underline{X}^* = \overline{X}^* - \underline{X}^{a\,*}; \ \overline{w} = \underline{w} + \overline{w}^a; \ \text{and,} \ \underline{L}^{a\,*}, \ \underline{X}^{a\,*}, \ \overline{w}^a > 0.$$

$$= (-\underline{w}\,\underline{L}^{a\,*} + r\underline{X}^{a*}) + \overline{w}^a\overline{L}^*.$$

The firm can gain from substituting cheaper labor in the lagged economy for capital that equals to $(-\underline{w}\,\underline{L}^{a\,*} + r\underline{X}^{a*})$. When the firm uses identical inputs as that operated in the leading economy, such that $\underline{L}^{a\,*}$ and $\underline{X}^{a\,*}$ equal to zero, it still enjoys the lower wage rate in the lagged economy and gains additional profit of $\overline{w}^a\overline{L}^*$. The other static gain of the firm includes the lower land-rent. The dynamic gain to the firm may include the appreciation of the production unit when the investment environment improves in the lagged economy over time.

References

Alicja, J. (2010) The determinants of human trafficking. ISA Annual Convention 2010, New Orleans.

Aronowitz, A. A. (2001) Smuggling and Trafficking in Human Beings: The Phenomenon, the Markets that Drive it and the Organizations that Promote it. *European Journal on Criminal Policy and Research, 9*, 163-195.

Auriol, E. and A. Mesnard (2010) Controlling Illegal Migration: Legislation or Repression? mimeo, Touluse School of Economics.

Axelrod, R. (1984) *The Evolution of Cooperation*, Basic Books, New York.

Cho, S. and K. Vadlamannati (2011) Compliance for Big Brothers – An Empirical Analysis on the Impact of the Anti-trafficking Protocol, mimeo. University of Goettingen.

Danailova-Trainor, G. and F. Laczko (2010) Trafficking in persons and development: towards greater policy coherence. *International Migration* Volume 48, Issue 4, pages 38–83.

Facchini, Mayda and Mishra (2011) Do interest groups affect US immigration policy? *Journal of International Economics* Volume 85, Issue 1, Pages 114-128

Friebel, G. and S. Guriev (2006) Smuggling Humans: A Theory of Debt-Financed Migration. *Journal of the European Economic Association* 4(6):1085-1111.

Hanson, G. H. (2010) The Governance of Migration Policy. *Journal of Human Development and Capabilities*, May 11(2) : 185-208.

Harris, J. R. and M. P. Todaro (1970) Migration, unemployment and development: a two-sector analysis. *American Economic Review* 60: 126–42.

Hatton, T. J., and J. G. Williamson (1998) *The Age of Mass Migration: Causes and Economic Impact*. New York: Oxford University Press.

Louise S. (2010) *Human Trafficking: A Global Perspective*, Cambridge University Press.

Mahmoud, T.O., and C. Trebesch (2010) The Economics of Human Trafficking and Labor

Migration: Micro-Evidence from Eastern Europe. *Journal of Comparative Economics*, vol. 38, no.2: 173-188.

Mailath, G. J. and Samuelson, L. (2006) *Repeated Games and Reputations: Long-run Relationships*, New York: Oxford University Press.

Massey, Arango, Hugo, Kouaouci, Pellegrino, and Taylor (1998). *Worlds in Motion: Understanding International Migration at the End of the Millennium.* Oxford, England: Clarendon.

Mo, P.H. (2010a) Trade Intensity, Net Export and Economic Growth. *Review of Development Economics* 14, 563–576.

_____ (2010b) Trade Liberalization Sequence for Sustained Economic Growth. Presented in: Sixth Annual Conference, Asia-Pacific Economic Association, APEA 2010, Hong Kong Baptist University, July 8-9, 2010. MPRA paper # 28917.

_____ (2010c) Tools Variety, Technology and the Schumpeterian Cobb-Douglas Production Function. MPRA paper # 28927.

_____ (2010d) Institutions, Tools Variety and Channels to Sustained Economic Growth. MPRA paper # 28911.

_____ (2007) Rational Democracy: A Political System for Universal Interest. IED Working Papers # WP200701, School of Business, Hong Kong Baptist University.

Reubens, E. P. (1983) International Migration Models and Policies. *The American Economic Review* 73: 2, Papers and Proceedings of the Ninety-Fifth Annual Meeting of the American Economic Association, pp. 178-182.

Romer, P. (2010) Technologies, Rules, and Progress: The Case for Charter Cities, Center for Global Development.

Salt, J. (2000) Trafficking and Human Smuggling: A European Perspective. *International Migration*, Vol. 38: 31-56.

Vayrynen, R. (2003) Illegal Immigration, Human Trafficking and Organized Crime. WIDER Discussion Paper no. 2003/72.

Veugelers, R. (1993) Reputation as a Mechanism Alleviating Opportunistic Host Government

Behavior Against MNEs. *The Journal of Industrial Economics*, Vol. 41, No. 1, pp. 1-17.

Wheaton, Schauer and Galli (2010) Economics of Human Trafficking. *International Migration*, Vol. 48 (4) 2010, 114-141.