

## Human Trafficking – Socio-Economic Determinants: Cross Countries Analysis

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### Abstract

*This paper shows that the geographical concentration of Human Trafficking can be explained by the developmental, political and cultural factors in each country. Using the set of data containing 64 countries compiled by the United Nations Office against Drug and Crime (UNODC) from 2003 to 2008, we specified and estimated the model with human trafficking as the dependent variable explained by GDP per capita, openness of the economy, OECD membership, Misery Index, percentage of the population being Muslim and Protestant, as well as the population heterogeneity. We found an 'Inverted U' relationship between Human Trafficking rates and the square term of GDP per capita, and estimated the turning point to be \$3049. Beyond that human trafficking decreases with increasing GDP per capita. It may appear that countries can possibly grow their way out of Human Trafficking through sustained economic development. However, appropriate legal enforcement, international cooperation, and setting up of institutions that proactively disrupt the value chain, to increase costs and dampen demand are still very much needed.*

**Keywords:** Human Trafficking, Migration, Economics of Crime, Moral Economy, Kuznets Curve

**JEL Classifications:** O15, K42, Z13

### 1. Introduction

Human Trafficking (HT) is a crime against humanity. It involves an act of recruiting, transporting, transferring, harboring or receiving a person through a use of force, coercion or other means, for the purpose of exploiting them<sup>1</sup>. According to UNOHC, the guardian of United Nations Convention against Transnational Organized Crime, every year, thousands of men, women and children fall into the hands of traffickers, in their own countries and abroad. Every country in the world is affected by trafficking, whether as a country of origin, transit or destination for victims.

There is nothing wrong in the age of globalization and relative inexpensive transportation to find a Chinese male worker from a remote province in China to be working as a chef in a café or restaurant in London or Paris. He could be a bona fide foreign worker with the relevant legal documents to support his employment status. It is an example of international mobility of labor. However, that case may be an exception if there are many instances in which female compatriots or neighbors of that male worker expecting the same gainful occupational outcome are being deceived intentionally or coerced into working in vice related occupations in capital cities of developed countries illegally and subjected to the control and abuse of the person or persons who introduced and brought them into the foreign land.

Many media reports have highlighted the plight of trafficked persons and the ruthlessness of the traffickers. A real life example will remind us of the importance of the issue. In April 2003, The New Yorker magazine ran a vivid story of modern forced labor. Three young Mexicans had contracted a smuggler, a so-called "coyote", to cross illegally into the U.S. They were transported through Arizona into Florida, where they were introduced to some labor contractors - the Ramos brothers. The three Mexicans were ordered to pay a commission of \$1,000 each to the smugglers for connecting them with the labor contractors.

Since none of the three could pay, the Ramos brothers pretended to advance the sum to the smugglers and informed the Mexicans they would have to work to pay the money back. The next day, the three friends were picking tomatoes and citrus under constant surveillance and threats for eight to twelve hours a day, for six to seven days a week, and for almost no money. This situation lasted until an NGO helped the workers to escape. It is still a happy ending but the same cannot be said of all trafficking cases. What is observed is the disparity in occurrence in HT across countries. This article seeks to explore the characteristics of countries that tend to have higher transnational human trafficking rates. The article is organized in the following sections. In the section following this, the theoretical basis of human trafficking is explored. Looking from the economic perspectives, we noted one main reasons being the failure of market. Other socio-economic and political factors also influence the prevalence of human trafficking. In section 3, we describe the dataset used and the specification which will be used in the empirical study. Section 4 presents the results together with the analysis. Section 5 concludes the paper with some implications for public policies.

## 2. Theoretical foundation

There are relatively few academic articles on human trafficking. Most of the published work and information were predominantly efforts of international organization like the United Nations or specific national agencies and non-government organizations (NGOs) such as Human Rights Watch and Amnesty International, dealing with such crime. A notable example of government agency tasked to fight against human trafficking is the United States Department of States which regularly publishes Trafficking in Person Reports (latest in 2017), providing overview of the current status and effort made by countries in eliminating human trafficking. Worthy of mention is a book published in 1999 by Kelvin Bales, a sociologist of Sociology at Roehampton University in London, provides a firsthand analysis of the operations of five slave-based businesses. The existence and prevalence of human trafficking cannot be purely explained by economic incentives and rationale.

As human trafficking often involved mobility of trafficked person across countries or region, the Harris-Todaro model (1976) – the popular model to use explain spatial movement of labor is relevant. However, it is noted that the model assumes that labor market is in relative good working order supported by institutions and norms of law and order. The movement of labor is triggered by the pull factors such as higher wage rate offered at the destination and push factors such as high unemployment and economic hardship at the origin. Perhaps a more pertinent theoretical foundation is the economics of crime that attempt to explain the motive and action of the criminals performing an activity which have undesirable consequences for the victims<sup>2</sup>.

The economics of crime focuses on the effect of incentives on criminal behavior; the way decisions interact in a market setting, and the use of the benefit-cost framework to assess alternative strategies to reduce crime. Empirical evidence supports the role of incentives in the criminal decision: legitimate labor market experience, sanctions and the risk of apprehension all influence decision to engage in crime. Most analyses show that “crime pays” in the sense of offering higher wages than legitimate work, presumably in part to offset the risk of apprehension. But some important facts about crime – the geographical concentration of crime; preponderance of men and the young in crime – seem to go beyond basic economic analysis. (Becker, 1968; Freeman, 1999)

Parallel to the terminologies of criminal and victim, we shall use *traffickers* and *trafficees* in the context of human trafficking. Despite that human trafficking is crime against humanity, its prevalence and occurrence across countries is significant. In many instances, human trafficking is simply modern day’s form of slavery. Why one human being will like to exploit another fellow human? Economic explanation based on cost and benefits will point to the greed and benefits of the traffickers obtainable in such activities. As noted by UNOHC, human trafficking is a \$32 billion<sup>3</sup> global industry driven by profit. It is the fastest growing and second largest criminal activity in the world, tied with arms and drug dealings. An estimated 2.4 million<sup>4</sup> men, women and children are trafficked across international borders each year.

Human Trafficking is primarily an economic crime, and as such it should respond to changes in its cost/benefit structure. According to the standard economic model of decision making, individuals choose between criminal activity and legal activity on the basis of the expected utility (U) from those acts. If  $\pi_c$  is the gain from the successful crime, p the probability of being apprehended, S the extent of punishment, and  $\pi$  is earnings from legitimate work, and the decision maker will choose to commit crimes in a given time period rather than do legitimate work when:

$$(1-p)U(\pi_c) - p.U(S) > U(\pi) \quad \text{. . . . . (EQ1)}$$

**This equation has three implications for empirical analysis:**

First, it implies that crime must have a higher profit than legitimate activities.

Second, it implies that attitudes toward risk, measured by the curvature of  $U$ , influence the decision to commit crime. Both the probability and the severity of punishment are found to deter crime for a risk averse person. Furthermore, risk averse persons will respond more to changes in the probability of being apprehended than to changes in the extent of punishment, holding fixed the expected net income from crime  $[(1-p)\pi_c - p.S - \pi]$ .

Third, it shows that the major factors that affect the decisions to commit crime – criminal versus legitimate earnings, the chance of being caught, and the extent of sentencing – are intrinsically related. Someone who accepts equation (1) as a valid description of the decision to commit crime cannot argue that tougher sentences will work to reduce crime whereas improvements in the legitimate opportunities of criminals can do so, and conversely.

The traffickees may not be completely ignorant and innocent. Often we sympathize with the traffickees as if they are unquestionably the victims<sup>5</sup>. It may be ‘misplaced sympathy’. She may have known that her participation in the transaction involved risk and illegitimacy. EQ1 appropriately modified, can be applied in a similar manner to the traffickees. A utility maximizing traffickee will choose to be involved in the transaction when

$$(1-q)V(W_c) - qV(T) > V(W) \quad \text{EQ2}$$

with  $W_c$  is the gain from the successful crime,  $q$  the probability of being apprehended,  $T$  is the extent of punishment, and  $W$  is the earnings from legitimate work. Equation 1 or equation 2 is a two-activity, one period model that treats crime and legitimate work as substitutes (Anderson and O’Connell, 2003). The model can be expanded in various ways. It can be extended to include intertemporal perspective of decision making and feedback effect of legal effort on legitimate work participation. There is virtue in the simple equation: it highlights the major variables in which most empirical work focuses.

Equation (1) and equation (2) describe the supply side of HT, the demand for HT is an indirect or *derived* demand. Traffickers are regularly thinking of how to meet and stimulate the demand for their product which is used as inputs for the production of commodities. In the standard theory of demand, beside the price of the commodity, the main determinants will include the purchasing power or income of the consumers, the availability of substitutes, market structure and competition, legal sanctions relating to the use and consumption of the good or service concerned. Symbolically, we can write the demand for traffickees ( $Q^D$ ) as:

$$Q^D = Q^D(\text{price of trafficked labor; price of market labor; output; legal sanction, ...}) \quad \text{EQ3}$$

Traffickees who are victimized, noticeably those trafficked for prostitution or domestic services, must somehow be presented and marketed to ‘consumers’ who operate within a *moral* economy that allows them to rationalize this activity. The moral economy will in turn be determined by the cultural, ethnic, religious and legal context of the society. This provide a cogent rationale in the empirical exercise to be reported in the subsequent section, to include indicators that reflect the level of government corruption, exposure to international network, employment opportunity, ethno-religious affiliation and macroeconomic stability as explanatory variables for incidence of human trafficking. Indeed in a cross country investigation, these are ‘pull’ factors that best predict trafficking in person in a country.

The interaction of the supply and demand will yield the ‘equilibrium’ quantity transacted – reduced form equation depicted below as:

$$\text{Quantity of HT} = f[\text{GDP, Openness, Variables Relating to Corruption, Ethnic Composition, Economic Stability and Governance}] \quad \text{EQ4}$$

A set of hypotheses can be drawn from the above theoretical model, i.e. intensity of HT is negatively related to GDP, economic instability, and corruption, while positively related to the intensity (Openness) of international trade linkages. We will consider these further in the choice of explanatory variables and data availability in the section on empirical application.

### 3. Data, variable Definition and Equation Specification

#### 3.1. Data

We encountered quite a number of difficulties in gathering data that adequately reveals the human trafficking market across countries. We note that there are several international organizations such as UNDCP, UNIFEM, FBI, SE Women's Conference, Protection Project, UNICEF, IOM, Terre Des Hommes, and USAID, made effort in collecting data on human trafficking. The main criticisms against the data collected include information not collected on regular basis; information only cover specific 'group' mostly on trafficking in human beings for sexual exploitation and on trafficked women and children; limited information about the perpetrators of the crime; lack of validation to ensure no duplication. Reports from International Organization for Migration (IOM 2005) alleged that many human trafficking cases could remain unreported and undiscovered due to regular supervision, restricted freedom of movement and threat to trafficees and family members by the employers/traffickers. The inability to speak the local language and the distrust some victims of trafficking have vis-à-vis the police and state authorities can also mask a number of unknown cases (GAO 2006; OSCE/ODIHR 2004: 17). Some researchers are almost in desperation to lament that it is "difficult, perhaps impossible, to find hard evidence" of a relationship between trafficking and any other phenomenon (Cho et al. 2012, p. 70) and that "the underlying data may be of bad quality" and are "limited and unsatisfactory in many ways" (Jakobsson & Kotsadam 2013, p. 93).

The United Nations Office against Drug and Crime (UNODC) has noted the problem of human trafficking in the world. Keeping the above caveats and constraints in mind, UNODC has made available the single most complete set of data on trafficking in person at the national level, number of police-recorded offences for the period 2003-2008, which is submitted to UNODC from a total of 64 countries<sup>6</sup>. UNODC then filter the information on coverage and methods of police statistics to ensure consistency in reported trafficking in person (TIP) cases across countries. By pooling the cross sectional data of 64 countries over a period of 6 years, we manage to have a sizeable sample for empirical modeling and analysis.

### 3.2. Regression Equation Specification

The dependent variable in our regression models is the human trafficking rate (HTR) measured as the number of cases per million population.

The model to be estimated and used in the analysis takes the form of:

$$HTR = \beta_0 + \beta_1 GPC + \beta_2 OPEN + \beta_3 OECD + \beta_4 ELF + \beta_5 MUS + \beta_6 PROT + \beta_1 MIS + \varepsilon \quad (EQ5)$$

We collected data on GDP at 2000 prices denominated in Purchasing Power Parity valuation, and Population size of countries in the sample from World Development Indicators compiled by the World Bank. The Gross Domestic Product (GDP) is a well-known variable for measuring the income of the country. However, when it is divided by the population size to obtain GDP per capita (GPC), it becomes a surrogate measure of the standard of living. A rising GDP per capita usually connotes progress made in economic development supported by effective macroeconomic policies and good governance in ensuring fair competition and respecting human rights. The group of countries being members of the OECD is generally deemed to possess such characteristics.

Rising GDP is brought about by increased utilization of resources. Inadequacy and escalating cost of indigenous resources may result in increase in HT activity. But rising GDP may be accompanied by good institutional reform and increasing moral awareness that curb the demand and utilization trafficked human. We expect HTR to decrease in tandem with rising GPC. Nonetheless it is possible for the effect to be positive for low level of GPC before becoming negative in higher GPC. The relationship between HTR and GPC can possibly be non-linear can be discerned from the following specification. The coefficient of GPC in equation (5) is not constant but dependent on the level of GPC:

$$\beta_1 = \lambda_1 + \lambda_2 GPC \quad (EQ 6)$$

Substituting into equation (5), we obtain a quadratic relationship between HTR and GPC:

$$HTR = \beta_0 + \lambda_1 GPC + \lambda_2 GPC^2 + \beta_2 OPEN + \beta_3 OECD + \beta_4 ELF + \beta_5 MUS + \beta_6 PROT + \beta_1 MIS + \varepsilon \quad (EQ7).$$

This specification with a negative  $\lambda_2$  will present the inverted-U or Kuznets curve phenomenon observed in several cross countries studies on income distribution and environmental pollution associated with economic growth and performance. Holding other variables constant, HTR increases with a rising level of GPC until a maximum is reached. Beyond that HTR decreases with rising GPC. A popular measure of the extent of openness of an economy (OPEN) is the ratio of trade (imports plus exports) to GDP. Time series information on the variable for the 64 countries are obtained from the World Development Indicators. The extent of openness also means the availability of substitutes from international market.

It is adopted as a measure of the exposure of the economy to external sources of goods and services. The importance of this variable cannot be underestimated especially when dealing with transnational human trafficking. Rising cross border trade exposure makes available more opportunities for human trafficking, but it is also an avenue to learn from trading partners and advanced economies on practices and policies which can curb human trafficking. In particular the effect of trade openness on HTR is expected to decrease with rising level of openness.

In order to study how the systematic effect of sound political structuring and the effect of good governance in general affect HTR, we have to separate OECD countries from non-OECD countries in the sample of 64 countries. The variable OECD is a dummy variable that takes value of “1” if a country is an OECD member and “0” otherwise. Membership of countries in OECD is identified using membership list in the official website of the OECD. The coefficient associated with the variable OECD is expected to be negative.

The corruption index (CI) compiled by Transparency International and the Corruption Control Index provided by Kaufman at the World Bank are commonly used by analysts in many empirical studies. In the present exercise we have opted for a set of variables which are highly correlated to corruption following the study by Treisman (2000). In fact CI is found to be highly correlated to the variables relating to ethno-linguistic fragmentation (ELF)<sup>7</sup>, proportion of Muslim (MUS) or Protestants (PROT) in the community. As alluded to in the previous section, this cluster of variables can be more effective in capturing the *moral economy* under which human trafficking activities are tolerated.

Finally, the (lack of) economic stability and governance is best captured by the Misery Index (MIS) which is the sum of inflation rate and unemployment rate. The major advantage when we use the Misery Index is that it eliminates or reduces the severity of multi-collinearity problem and mis-specification if the two variables, unemployment and inflation, are included as separate explanatory variables in the model (Ralston 1999, Tang and Lean, 2009). The lower the Misery Index, greater is the attraction for human trafficking: the traffickers can expect a higher demand for traffickees, while the traffickees are somewhat more assured of their income (less uncertainty to variation in exchange rate) to be repatriated to their families in the originating countries.

**Table 1: Summary description of Explanatory variables used in the HTR regression model**

Variable	Description of Explanatory Variables	Expected Sign of Partial Correlation
GPC	GDP per capita	-/+
GPC <sup>2</sup>	Square of GPC; to reflect ‘Inverted U’ relationship is valid	-
OPEN	Degree of openness measured by ratio of total trade to GDP	+
OPEN <sup>2</sup>	Square of OPEN; to test the presence of diminishing marginal impact of OPEN is valid	-
OECD	Dummy variable for countries being members of OECD	-
MIS	Misery Index being the sum of inflation rate and unemployment rate; a measure of macroeconomic stability	-
MUS	Proportion of population being Muslim.	-/+
PROT	Proportion of population being Protestant	-/+
ELF	Heterogeneity of Population in terms of ethno- linguistic fragmentation.	+

Table 1 provides a summary of the explanatory variables to be included in the model and the expected signs of the partial correlation between HTR and the variables.

## 4. Results and Analysis

### 4.1 Regression results

In this section we present regression results of 4 models based on pooling the cross section data over the period 2003-2008. The final size of the sample is 141 after removing a couple of outliers. In Table 2, the summary statistics of the variables used in the models as well as the correlation coefficient matrix is presented.

**Table 2: Descriptive Statistics for Variables Used in Regression**

	HTR	LGPC	OPEN	LMIS	LPROT2	MUS2	ELF2
Mean	14.37	9.13	1.10	2.38	1.38	4.57	15.67
Median	1.80	8.94	0.92	2.38	1.48	0.01	8.00
Maximum	485.25	10.64	4.64	3.67	4.58	49.40	89.00
Minimum	0.00	6.38	0.24	1.17	-2.30	0.00	0.00
Std. Dev.	58.66	1.00	0.63	0.42	2.16	11.20	20.21

<i>Correlation Coefficient Matrix</i>							
	HTR	LGPC	OPEN	LMIS	LPROT2	MUS2	ELF2
HTR	1.0000	-0.1038	0.1957	-0.0878	-0.1056	0.4471	0.3620
LGPC	-0.1038	1.0000	-0.1479	-0.6776	0.3287	-0.3452	0.0335
OPEN	0.1957	-0.1479	1.0000	0.0442	0.1037	0.1643	0.0029
LMIS	-0.0878	-0.6776	0.0442	1.0000	-0.2613	0.2479	-0.2493
LPROT2	-0.1056	0.3287	0.1037	-0.2613	1.0000	-0.2084	-0.0282
MUS2	0.4471	-0.3452	0.1643	0.2479	-0.2084	1.0000	0.1592
ELF2	0.3620	0.0335	0.0029	-0.2493	-0.0282	0.1592	1.0000

**Note:**

*HTR = Human Trafficking Rate which is the number of trafficking per million population;*

*LGPC = logarithm of the Gross Domestic Product per capita;*

*OPEN = international openness measured as the ratio of (exports+ imports) to GDP;*

*LMIS = logarithm of the ratio of sum of inflation rate and unemployment rate;*

*LPROT2 = logarithm of the share of Protestants among worshippers.*

*MUS2 = share of population being Muslim;*

*ELF2 = ethno-linguistic fractionalization in the society.*

There is substantial variability in the data set to support useful empirical modeling and analysis. The pair-wise correlation coefficients between two variables are less than 0.7, suggesting that multicollinearity is not likely a problem in this set of data. We noted the pair-wise correlation between HTR and GPC is negative; while that between HTR and OPEN is positive. Table 3 shows the regression results for 4 models on which the following analysis rests.

**Table 3: Regression Results of Models Dependent Variable = HTR**

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
<b>Variable</b>	<b>Coeff</b>	<b>Coeff</b>	<b>Coeff</b>	<b>Coeff</b>
Constant	195.20	86.92	-2297.80**	-1817.07**
<i>standard error</i>	<i>192.24</i>	<i>128.94</i>	<i>988.06</i>	<i>836.07</i>
LGPC	-10.63	-5.19	585.67**	458.36**
<i>standard error</i>	<i>12.09</i>	<i>10.14</i>	<i>253.90</i>	<i>214.51</i>
LGPC <sup>2</sup>			-36.01**	-28.57**
<i>standard error</i>			<i>15.62</i>	<i>13.21</i>
OECD*LGPC			114.59**	87.02**
<i>standard error</i>			<i>49.04</i>	<i>38.19</i>
OPEN	13.56	13.14	84.48*	134.83*
<i>standard error</i>	<i>17.59</i>	<i>17.62</i>	<i>48.49</i>	<i>77.54</i>
OPEN <sup>2</sup>			-12.33	-21.68
<i>standard error</i>			<i>8.30</i>	<i>13.79</i>
OPEN*OECD				-51.28**
<i>standard error</i>				<i>24.51</i>
LMIS	-38.00	-25.90	-56.77*	-52.01*
<i>standard error</i>	<i>38.36</i>	<i>25.10</i>	<i>30.39</i>	<i>26.69</i>
OECD	-14.86	5.04	-1028.11**	-711.55**
<i>standard error</i>	<i>12.34</i>	<i>13.81</i>	<i>438.34</i>	<i>332.07</i>
LPROT2		-1.55	-5.75	-4.05
<i>standard error</i>		<i>2.19</i>	<i>3.69</i>	<i>3.48</i>
MUS2		2.13	2.24*	2.29*
<i>standard error</i>		<i>1.68</i>	<i>1.33</i>	<i>1.28</i>
ELF2		0.73	0.82*	0.79*
<i>standard error</i>		<i>0.46</i>	<i>0.43</i>	<i>0.40</i>
R-squared	0.0925	0.3252	0.5138	0.5340
Adjusted R-squared	0.0658	0.2897	0.4764	0.4943
S.E. of regression	56.6953	49.4368	42.4443	41.7133
F-statistic	3.4651	9.1567	13.7388	13.4401
Prob(F-statistic)	0.0099	0.0000	0.0000	0.0000

**Note:**

\* Statistically significant at 10%;

\*\* Statistically significant at 5%.

Model 1 is the basic model where HTR is regressed on LGPC, OPEN, LMIS and OECD. The latter is a dummy variable that takes value 1 if the observation is associated with an OECD country. The coefficient of OECD is expected to be negative. All coefficients have the expected signs, but none of them is statistically significant at the 5% level. The explanatory power of the model, measured by the  $R^2$  or adjusted  $R^2$ , is relatively low at less than 10%. A Ramsey test was conducted to check on the adequacy of the specification. The test indicates that the presence of mis-specification. A White test on presence of heteroscedasticity is also positive. In all subsequent tables and analysis we will use the White's Heteroscedasticity and Autocorrelation Consistent (HAC) standard errors of the estimated coefficients. In revising the specification, 'fixed-effect' variables, popular in panel data analysis, which are supposed to capture the heterogeneity across countries, were added to the Model 1.

However, the resultant specification registers very high explanatory power as measured by the  $R^2$ , the individual intercept term overwhelms the many interesting individual specific variables, rendering them statistically insignificant<sup>8</sup> and wrongly signed. Thus in place of the ‘fixed-effect’, we added LPROT2, MUS2, and ELF2 as explanatory variable in Model 2. These variables are more pertinent in capturing the heterogeneous characteristics among the countries included in the data set.

In comparison with Model 1, the explanatory power (adjusted  $R^2$ ) of Model 2 has improved by more than three folds. All the explanatory variables, except OECD have the expected *a priori* signs. The coefficient of OECD has turned negative though statistically insignificant. In Model 3, we take into consideration the possibility of non-linear relationship between the dependent variable and the explanatory variables. The squares of LGPC and OPEN are added as explanatory variables. In addition, the cross product between OECD and LGPC is also included as an explanatory variable to account for the interaction effect of the two variables. The explanatory power (adjusted  $R^2$ ) of the revised specification is increased by 15 percentage points. With the exception of the variables OPEN<sup>2</sup> and LPROT2, all other explanatory variables are statistically significant at 10% including 4 variables being significant at 5% level. The signs of all estimated coefficients conform to expectation.

The cross product of OPEN and OECD is added as another explanatory variable to Model 3 to form Model 4. This additional explanatory variable is to account for the possibility that the marginal effect of openness for OECD countries is significantly different from the non-OECD countries. Indeed openness has a relatively lower marginal impact on OECD countries. Other regression results are similar to that in Model 3 with exception that the variable LPROT2 is only statistically significant at the 10% level. However, the explanatory power has improved by slight more than 1 percentage point. Moreover, the coefficient of the newly introduced interaction term is negative and statistically significant at 5%. It indicates that membership of OECD does have an impact in mitigating the positive influence of openness on human trafficking.

As shown in Model 3 and Model 4 cultural linguistic diversity and demographic religious composition do have bearings on the incidence of human trafficking. Nonetheless such factors are of relatively less importance when measured against economic factors like GPC and openness of the economies. For every model, the results indicate rising human trafficking associated with falling misery index, which is the sum of the inflation rate and the unemployment rate. A well-managed economy is also favored by both traffickers and traffickees in the absence of other conjoint deterrence.

The coefficient of the square LGPC is negative in both Model 3 and Model 4. This implies that there is an inverted-U shape relationship between HTR and LGPC. For low level of GPC, HTR increases with rising GPC. Beyond a particular level of GPC, HTR decreases with rising GPC<sup>9</sup>. Using the estimated coefficients in Model 4, we can compute the ‘turning point’ for GPC and it takes a value of US\$3,049. We sketch below a graph of HTR against GPC which illustrates the ‘Inverted U Hypothesis’ (Figure 1).

The variable OPEN influences HTR positively and in a non-linear manner. As OPEN increases, the marginal impact on HTR diminishes. One may think that the inverted U phenomenon is also true for openness. In fact, that is more of an aberration, as the turning point occurs at a level of openness in excess of 300%, a level well beyond that recorded for the countries (with the exception of Singapore) in the sample.

#### 4.2 Classification of Countries Based on Differential Impact of GPC and OPEN

The HTR in the empirical equation can be broadly to be accounted for by two factors: one relating to GPC and the other, the openness of the economy. Ignoring other idiosyncratic variables, symbolically the equation for HTR:

$$HTR = a_0 + a_1LGPC + a_2LGPC^2 + b_1OPEN + b_2OPEN^2 \quad (EQ8)$$

The first three terms on the right hand side of EQ8 refers to the partial effect attributed to GPC, while the next two variables refer to the partial effect of openness. The GPC effect can be either positive or negative, while the impact of openness is positive and monotonically increasing (See Figures 1). Using the estimated coefficients, we can compute the partial GPC effect and partial OPEN effect for each observation; the countries can be placed in 4 different categories according to the partial effect of GPC and the ever positive partial effect of openness. The 4 categories are listed in Table 4 and Figure 1 presents a diagrammatic exposition of the categorization. The list of countries in each category is presented in Table A1 in the Appendix.

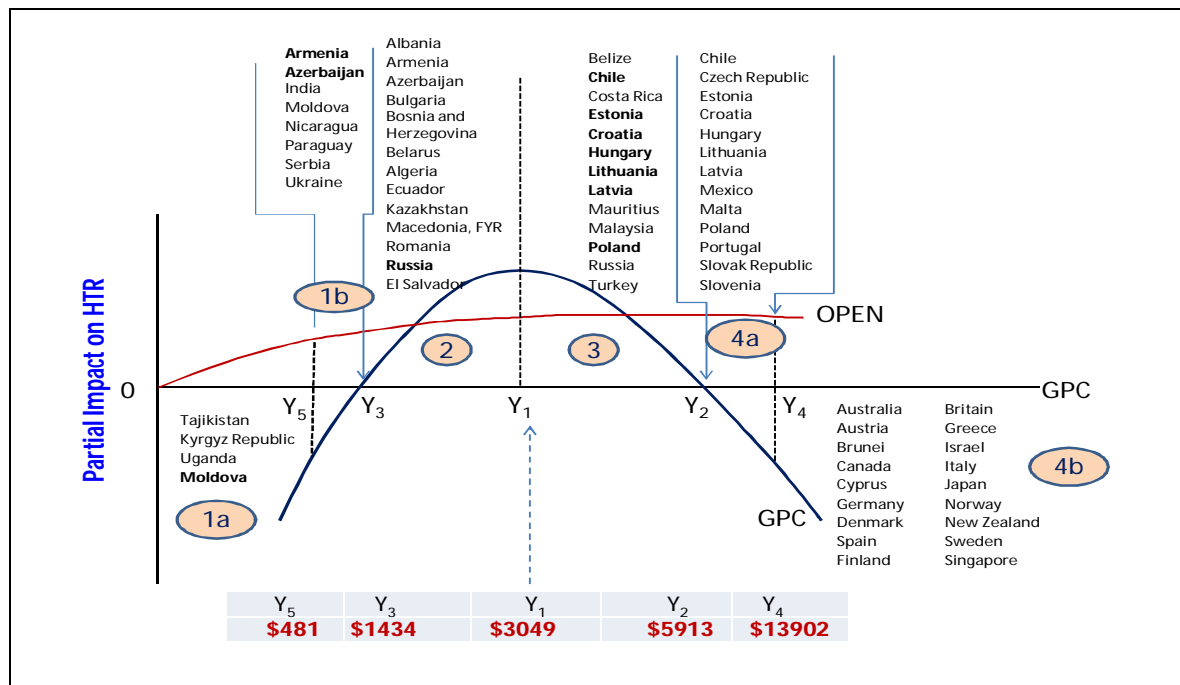


**Table 4: Categorization Based on the Partial Impact of GPC and OPEN**

1	Category 1a	Decreasing Negative Income effect > Positive Openness Effect
2	Category 1b	Decreasing Negative Income effect < Positive Openness Effect
3	Category 2	Rising Positive Income effect + Positive Openness Effect
4	Category 3	Falling Positive Income effect + Positive Openness Effect
5	Category 4a	Increasing Negative Income effect < Positive Openness Effect
6	Category 4b	Increasing Negative Income effect > Positive Openness Effect

In Figure 1,  $Y_1$  which is computed to be \$3049 from our estimated equation (Model 4), is the GPC in which the effect on HTR is maximized. Rising GPC still contribute positively to HTR until GPC equals  $Y_2$ . Beyond  $Y_2$ , GPC contribution to HTR is negative; and when GPC exceeds  $Y_4$ , negative partial effect of GPC overwhelms the positive effect of openness<sup>10</sup>. Similarly for GPC less than  $Y_1$ , HTR is positively related to GPC. For GPC taking values between  $Y_3$  and  $Y_1$ , the partial impact of GPC on HTR is positive. However, when GPC is smaller than  $Y_3$ , the partial impact of GPC on HTR is negative. When GPC is lower than  $Y_5$ , the negative impact of GPC is greater than the positive impact of openness.

**Figure 1: Partial Impact of GPC and OPEN on the level of HTR**



The first two categories refer to countries within GPC less than the threshold of \$3049: rising GPC has positive influence on HTR. Categories 3 and 4 consist of countries in which GPC has a negative influence on HTR. For countries in Category 1 (GPC less than \$1434), the partial impact of GPC is negative. There are two sub-categories in Category 1. Countries like Tajikistan, Kyrgyz Republic, Uganda and Moldova belong to the sub Category 1a, they have the negative partial effect of GPC is *larger* than the positive effect of openness. Category 1 b consists of countries like India, Paraguay and Ukraine where negative partial effect of GPC is *smaller* than the positive effect of openness. We also note that Moldova has ‘graduated’ to Category 1b by the end of the sample period.

Categories 2 and 3 consist of countries where partial effect of GPC is positive and adds to the positive partial effect of openness. Countries in Category 3 distinguish themselves for Category 2 by having the GPC exceeding the threshold of \$3049. Armenia, Bulgaria, Ecuador, Romania and Russia are examples of countries in Category 2, while Chile, Estonia, Lithuania, Malaysia and Poland are members of category 3. Russia has moved from Category 2 to Category 3 by the end of the sample period. The last category, Category 4 consists of countries (GPC greater than \$5913) where the partial effect of GPC is negative. In the sub category, Category 4b (GPC greater than \$13902), the partial negative effect of GPC exceeds that of the positive partial effect of openness.

Members of Category 4b include several of the developed economies like Australia, New Zealand, Canada, Britain, Germany, Sweden, Finland, Norway and Japan. During the sample period, Chile, Estonia, Croatia, Hungary, Lithuania and Latvia had 'graduated' from Category 3 to Category 4. The classification exercise does suggest that countries in Categories 3 and 4 can concentrate on mitigating cross border influences on human trafficking as their economies continue to expand. Domestic 'demand' for human trafficking will be waning. For those countries in categories 1 and 2, they are relatively poor and less developed but face a situation of possible rising human trafficking activities resulting from improving domestic economic environment and increasing exposure and interface with international market. Greater international resources should be allocated to help such countries in their fight against human trafficking.

## **5. Conclusion**

We analyzed the human trafficking rate across countries with respect to the varying degree of economic development, openness of the economy, institutional traditions and the religious and ethnicity composition. Our main findings confirm our original observation that countries with high human trafficking are those with weak institutions, economically poor but open, and have a highly ethno-linguistic fragmented population. All these result in poor governance and hence high transacting cost which is a key impediment to progress in addressing modern slavery. More encouragingly, we found strong evidence that the continued process of economic development and opening up of the economy reduces human trafficking, though countries will have to suffer from increasing levels of human trafficking before the turning point, where any further economic development and higher openness would lower human trafficking.

Greater interdependence among countries has brought along many economic benefits in production, distribution and consumption. However, on the flip side, globalization also avail criminals to a more opportunities and sources of inputs material and human, for the pursuit of profit in an ever increasingly competitive world. In a globalized economy, production and distribution of goods and services are characterized by 'value-chain'. This can also be said of human trafficking. Both a wholesale and retail market for trafficked people exists. The 'wholesalers' are the recruiters, transporters and traffickers who harvest and move people into trafficking stream (Bales, 1999). This suggests a counter action against human trafficking. Efforts can be made to disrupt the value chain, which will also dampen demand as it increases costs to the 'consumers'. However, such effort requires international cooperation and resources.

Public education and awareness campaigns in origin countries can help in preventing trafficking. There are a number of structural and legal measures that can be taken to reduce demand. One is to increase the availability of legal possibilities for people to emigrate for work. This lessens demand in the destination country for illegally supplied labor and fosters competition with legally supplied labor. An example of such a legal arrangement is the bilateral agreement between Italy and Albania to allow 5,000 Albanian to work in Italy for one year. No such agreement is recorded for countries in the Pacific region. However, there are many free trade agreements being initiated and negotiated among countries in the region. It would be helpful, especially in the context of deepening regional trade integration to include regional labor market integration to include human trafficking as an item of interest to forge coordinated effort for its eradication.

Perhaps, a much greater challenge in the elimination of the human trafficking market is the social norms and ethos of the society in the toleration and condonation of human trafficking. The awareness of human trafficking being a crime is insufficient. The status and trajectory of the moral economy plays an important role in determining the success of eliminating human trafficking. Labor unions which are primarily concerned about the welfare of the local employees can play the role of a watch dog, informing the authority of malfeasance companies engaging and hiring illegal workers. Economic growth must be accompanied by institutional reform and upgrading of the ethics of the market in order for the perverse form of labor market as in human trafficking to be rendered ineffective and obsolete. More micro level studies advocated by authors like Weitzer (2015) may be needed to hone and customize policies & measures that take account of unique features of enslavement regime to fight human trafficking.

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## Appendix

**Table A1: Classification of countries into 6 Categories**

1a	1b	2	3	4a	4b
Neg Inc >Pos Open	Neg Inc <Pos Open	Rising Pos Inc + Pos Open	Falling Pos Inc + Pos Open	Neg Inc <Pos Open	Neg Inc >Pos Open
Tajikistan Kyrgyz Republic Uganda <b>Moldova*</b>	<b>Armenia</b> <b>Azerbaijan</b> India Moldova  Nicaragua Paraguay Serbia Ukraine	Albania  Armenia Azerbaijan Bulgaria  Bosnia and Herzegovina Belarus Algeria Ecuador Kazakhstan Macedonia, FYR Romania  <b>Russia</b> El Salvador	Belize  <b>Chile</b> Costa Rica <b>Estonia</b>  <b>Croatia</b> <b>Hungary</b> <b>Lithuania</b> <b>Latvia</b> Mauritius  Malaysia Poland  Russia Turkey	Chile  Czech Republic Estonia Croatia  Hungary Lithuania Latvia Mexico Malta  Poland Portugal  Slovak Republic Slovenia	Australia  Austria Brunei Canada  Cyprus Germany Denmark Spain Finland  Britain Greece  Israel Italy Japan Norway New Zealand Sweden Singapore

\*Note: Countries highlighted 'graduated' to the next category by the end of the sample period.

## Endnotes

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<sup>1</sup>An internationally agreed definition is provided by the 2000 UN Convention against Transnational Organized Crime (the *Palermo Convention*) which states :

*“Trafficking in persons” shall mean the recruitment, transportation, transfer, harboring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation. Exploitation shall include, at a minimum, the exploitation of the prostitution of others or other forms of sexual exploitation, forced labor or services, slavery or practices similar to slavery, servitude or the removal of organs.”*

<sup>2</sup> The victim can an individual, it can also be a group of person or community.

<sup>3</sup> Attorneys General Unite Against Human Trafficking

<sup>4</sup> International Labor Office

<sup>5</sup> The process of recognizing the rights of trafficees is making slow progress in many countries and public does not tend to have a clear understanding of the crime (Bale 2007). The US Trafficking Victims Protection Act (2000) has been hailed as a breakthrough legislation that specifically recognizes that trafficees are victims of a crime, and that their status and priority as victims is higher than that of illegal aliens.

<sup>6</sup> The names of the 64 countries are presented in Table A.1 in the Appendix. Classification of the countries will be explained in later section of the article.

<sup>7</sup> The data on Muslim and Protestants as proportion of the population was obtained from CIA and the United Nations: Statistical Abstract of the World 2010 which identifies the percentage of the population of each country that belonged to the two most widely spread religions in the world. The numbers are in percent (scaled from 0 to 100). As for ethnic-linguistic fragmentation, we used the data from 1) Atlas Narodov Mira, 1964; 2) Muller, 1964; 3) Roberts, 1962; 4) Gunnemark, 1991. (See Mauro 1995).

<sup>8</sup> While FEM can estimate individual -specific effects from time-variant variables, however, it cannot detect the individual-specific effects regarding the individual-variant but time-invariant variables such as ethnicity concentration variable between different countries. Thus, multiple individual specific effects for the invariant variables are subsumed under the intercept term. Another critical issue with this FEM is that it should produce several dummy variables, which would cause a degrees of- freedom problem, leading to an increase of the standard error in the regression equation.

<sup>9</sup> Given the quadratic relationship, the turning point (maximum or minimum) can be derived. Since the sign of the coefficient of squared-variable is negative, the turning point is a maximum. The turning point of LGPC is computed as equal to  $-\text{coefficient of LGPC} / (2 * \text{coefficient of the Squared LGPC})$ .

<sup>10</sup> Basically,  $Y_2$  and  $Y_3$  are the roots of the quadratic equation associated with GPC.