Did we find alternate to GDP to measure national progress? Analysis of Harvard University's social progress index

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Abstract. For major part of the preceding century, Economic Measures such as GDP, GNI etc were considered to measure economic as well as social and human progress of a country. However, scholars have raised concerns over the sufficiency of these economic measures. This propelled scholars to develop alternate measures for social improvement and human capability development. Consequently, indices such as Social Progress Imperative (SPI) and Human Development Index (HDI) were developed by renowned authors. However, little work is done to check effect of social progress on susceptibility against human trafficking and modern slavery, and business opportunities in the nation. Further, there is almost no empirical evidence which suggest that SPI is better scale than GDP or HDI in predicating different social measure. Therefore, data of 124 countries regarding SPI, HDI, GDP, Vulnerability to Enslavement, and Distance to Frontier score was collected for Year 2014. Secondary data analysis was performed and Simple Regression analysis was carried out on data for hypothesis testing. As proposed, a positive relationship of SPI and Ease of Doing Business was observed whereas negative relation was found between SPI and Vulnerability of Enslavement. In addition, SPI explain variation in both Vulnerability of Enslavement and Ease of Doing Business better than GDP and HDI, thereby providing evidence of its superior representation of social measures.

Keywords. Social progress, Human development, Ease of doing business, Vulnerability to slavery, SPI, HDI.

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1. Introduction

Economic development in various countries has revolutionized quality of living of citizens of that country (SPI Report, 2014). For this reason, economic development is considered as the benchmark for assessing prosperity of a particular country. Since long, GDP of a country was regarded as the yardstick to judge social welfare of its inhabitants. However, the cost of economic progress was seldom taken into account. For instance, rapid industrial progress of countries has severely affected its environment. Similarly, a higher GDP is useless if government fails to provide basic human needs, standard of living and sense of security to its people causing unrest and anxiety in the society. This raises doubts on the adequacy of GDP as a sole measure to represent social wellbeing of a country.

Keeping in view this exigency, William Porter and his colleagues worked on a new multi-dimensional scale with an aim to come up with a tool to gauge

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performance of countries in the domain of basic human needs, environmental and ecosystem preservation and opportunities for its citizens. Although 85% correlation was found between SPI and GDP, however, relationship between both is not linear (SPI Report, 2014). This shows that social progress is not completely described by GDP. Developers of this scale believed that in addition to Gross Domestic Product, social and environmental aspect must be assimilated in order to check performance of a country. As a result, by incorporating social and environmental performance along with the economic development will provide a holistic picture of a society.

Social Progress Imperative ranks countries on the basis of 54 indicators related to social performance, health services, basic and higher education, security situation, environment sustainability, communication facilities, access to information and tolerance in society (SPI Report, 2014). On the basis of result obtained from these indicators, prominent variations were observed in different countries around the globe. Some countries had higher scores in all fields while others were strong in some fields but lagged behind in other areas. Hence, by viewing score in individual fields, government can infer about their relatively stronger areas and also identify certain grey areas. This identification will be helpful in taking necessary corrective actions by keeping in view the standards set by high performing countries. In short, SPI is not only a framework to evaluate capacity and potential of a government towards welfare of its people but it also provides guidelines to governments regarding policy development and its implementation which will be helpful in transforming economic progress into social benefits (SPI Report, 2014).

It is needless to say that, human development is the pre-requisite for development and progress in societies (Welzel *et al,* 2003). A major focus of Social Progress Index is to enhance capacity of people of a given country. Indicators such as Access to Basic and Higher Education, Access to Information and Communication, Health and Sanitation Facilities, and Personal Rights etc focus on the improvement of residents of the country. This is some what similar to the concept of *"Human Development"* currently being used by United Nations Development Program (UNDP). HDR intends to quantify capabilities of human in a society. Since 1990, UNDP is publishing *Human Development Report (HDR)* which shows comparison between countries regarding well-being of humans on the basis of Human Development Index (HDI). HDI was developed by Mahbub-ul-Haq (Dervis & Klugman, 2011), based on the concept of "Capabilities" floated by Amartya Sen (Stanton, 2007). Three dimensions are used to measure this index.Human Development Report grades countries on the basis of Human Development Index which is a geometric mean of various measures used to represent education, income and health situation of a particular country (Asher & Daponte, 2010). Like SPI, HDI also believes that GDP or similar measures of National Income are insufficient to represent development of countries. Even though HDI incorporates certain important measures, yet it doesn't full cover all the facet of social progress which is more multi-dimensional then HDI intends to measure.

A disturbing issue of modern world is Human Trafficking which can be considered as an extension of modern slavery. There may be a number of reasons contributing to this form of slavery but the chief responsible is the lack of economic growth and consequent social progress. In law, slavery refers to situations where one person has such complete and absolute control over another person, that they really can treat that person as if they are a piece of property: able to be bought, sold, given away or disposed of. (Term defined in Article 1 1926 Slavery Convention). The Walk Free Foundation publishes a report on this modern day menace and has developed an index referred to as 'Global Slavery Index'.This report includes list of top countries with largest estimated population involved in slavery, countries in which threat of slavery is most severe, list of countries which are coping with slavery despite mediocre resources, along with those which should spend more of their national income in inhabiting spread of this ailment (The

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Global Slavery Index Report, 2014). Based on 37 indicators, this index covers three dimension i.e. prevalence of slavery in a country, vulnerability of the country towards modern slavery and government responses. The country with highest score is more prone or vulnerable to modern slavery. A thorough study of this report indicates that countries with higher GDP such as Middle Eastern Countries have a relatively higher score of susceptibility to modern slavery. This means that a higher income doesn't ensure low slavery and it is possible that policies favorable to slavery are causing higher GDP.

A key advantage of social prosperity and economic affluence is the opportunity for initiating and developing business for small and medium size industry in the country. Such opportunities, in turn, results in a more prosperous society. Word Bank is publishing Ease of Doing Business Report from 2005 which categories countries on the basis of their regulatory environment of starting new business. It provides a framework which helps in finding out which countryis more conducive in starting and operation of local firms at small and medium level (Doing Business Report, 2014). These rankings are provided by arranging the cumulative scores of ten dimensions to form overall Distance to Frontier of any country. Each dimension consists of several indicators whereas equal weight is given to each dimension. This index gives emphasis on sound statuary practices, better legal rules and business supporting regulatory agencies (Doing Business Report, 2014). It also extends instructions to governments on facilitating the private sector in starting business as well as safeguarding interests of consumers and employees (Doing Business Report, 2014).

From above discussion it can be inferred that development of human, vulnerability against modern slavery and initiating a business is strongly depended upon economic and social prosperity. Further, it is expected that human development and ease of doing business may have a positive relationship with social progress while vulnerability against slavery is negatively related with social progress. Therefore, it will be interesting to determine the role of social progress of a country in developing capabilities of its citizens as well as providing them with opportunities for starting new business. Similarly, the affect of social progress in reducing exposure of a country to slavery is also worth investigating. In addition, little empirical evidence exists to the claim of proponents of SPI that it has better explaining ability of social indicators as compared to GDP or other social measures.

As stated above, Social Progress Imperative is a newer index since its beta version was launched in April 2013. Very little work is present regarding SPI and almost no work is done in investigating its relationship with other measures or indices. On other hand, considerable work is done regarding history and development of HDI as well as discrepancies in its data collection and methodology. However, the researcher has probed into relationship of human development with economic growth. Similarly, human trafficking is also viewed in combination with economic situation of the country and same is the case with doing business. Research work in determining the role of wellbeing of the society on human development, weakness against slavery and ease of doing business is scarce. This researchis done with an aim to fill this gap in literature and verify the predicting power of recently developed Social Progress Imperative scale. In addition to this, role of Social progress in enhancing development of humans of a society, reducing inclination towards slavery and human trafficking, and promoting small and medium enterprise in the country will also be measured.

Following research questions will be investigated during this study.

Q#1: Whether social progress of a country results in higher human development of its people?

Q#2: Whether social progress of a country will reduces vulnerability against slavery?

Q#3: Whether social progress of a country will make it easier to start new business?

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Q#4: Whether social progress imperative has better explaining ability of vulnerability against slavery and ease of doing business as compared to GDP and HDI?

Objectives of this study is to

1.   Measure the relationship of Social Progress with Human Development, Susceptibility to Slavery and Ease of Doing Business.

2.   Superiority of using social progress index for vulnerability against slavery and ease of doing business as compared to GDP and HDI.

2. Literature review

Economic progress fueled by rapid industrial and information technology advancement has helped in improving quality of life. People now are getting better health, educational and communication facilities. For this reason, economic measures of progress were used for nearly half a century to demonstrate progress of a country. There are various measures to determine economic progress of a country but the most frequently used one is *Gross Domestic Product*. Gross Domestic Product is defined as "the monetary value of all the finished goods and services produced within a country's borders in a specific time period" (Investopedia).

However, scholars claim that these economic measures don't provide a complete and holistic picture of the society. For example, rapid industrialization has affected our environment and ecosystem. Burning issues such as unequal distribution of resources, lack of tolerance, deforestation, global warming and ozone depletion are now challenging our notion to regarduse of economic means as solitary standard for gauging a nation's well being. Therefore, other standards and measures have been developed by renowned academics which are more robust in measuring social prosperity.

One of such measures is Social Progress Imperative developed by Dr. William Porter and his colleagues. Beta version of this index was launched in April 2013 and first report of this series is published in 2014. Social Progress is defined as "the capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential" (SPI Report, 2014). SPI uses 54 indictors from different social aspects to compute social progress number of a country. These dimensions and components are measured on a scale from 0 to 100 where 0 indicates worst performance while 100 shows the highest score.This index incorporates four key design principles (SPI Report, 2014).

1.   Exclusively social and environmental indicators
2.   Outcomes not inputs
3.   Actionability
4.   Relevance to all countries

Following figure shows the list of each indicator along with relevant component.

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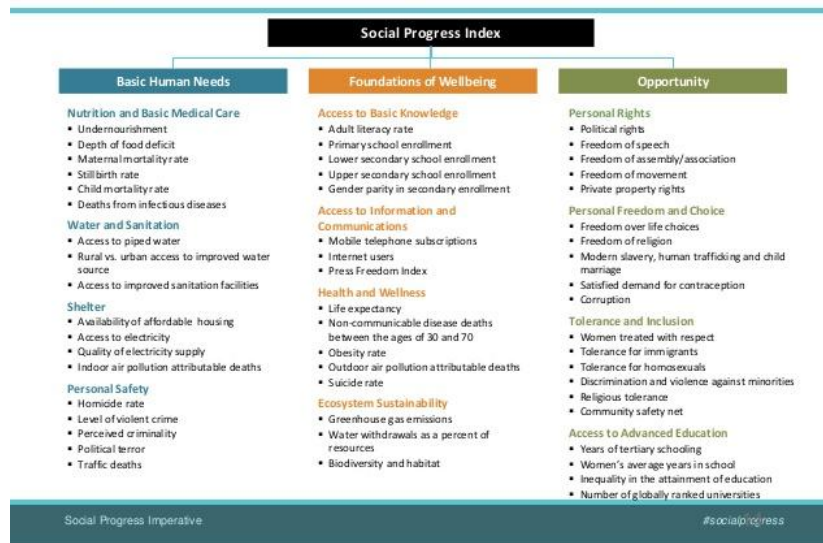
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Figure 1: Source Social Progress Report 2014.

The rapid expansion of national income & distribution of wealth equally among all members of society are fundamental to social progress. Social Progress and development is based on dignity of society members, value of human person, promotion of human rights and social justice. Socioeconomic development, cultural change & democratization lead to the coherent pattern of social progress. This specific pattern is "Human Development". Socioeconomic development nurtures individual resources, giving people the objective meaning of choice. Socioeconomic development is technological innovation, increased income and life expectancy, educational progress and increased social complexity (Lewis, 1955; Rostow, 1961; Bell, 1973; Chirot, 1986; Perkin, 1996; Rowen, 1996; Barro, 1997; Estes, 1998; Rodrik, 1999; Hughes, 1999; Sen, 2001). Christian Welzel, Ronald Inglehart and Hans-Dieter Klingemann describe this as

> "Socioeconomic development gives people theobjective means of choice by increasing individual resources; rising emancipative valuesstrengthen people's subjective orientation towards choice; and democratization provideslegal guarantees of choice by institutionalizing freedom rights."

The human development concept was developed by famous economist Dr.Mahboob ul Haq. Dr. Mehboob gave the opinion that existing human development measures fail to represent the people's lives in true sense. He developed an index known as Human Development Index which is defined as "The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living". Dimension of 'Long and healthy Life' is measured by Life Expectancy Index, while 'Knowledge' and 'Decent Standard of Living' are assessed by Education Index and Global National Income Index respectively. Based on these measures, Dr. Haq published first Human Development Report in 1998. Everyday life experience of ordinary people is depicted by human development model wherein the social, legal, psychological, cultural and environmental progress of the people is presented. (Khodabakhshi, 2011). Human development indices are used to measure the development of human resources in each country. There are four basic indicators of human development Index (HDI) such as life expectancy, income per capita, average number of years studying & number of years of education (Khodabakhshi, 2011).

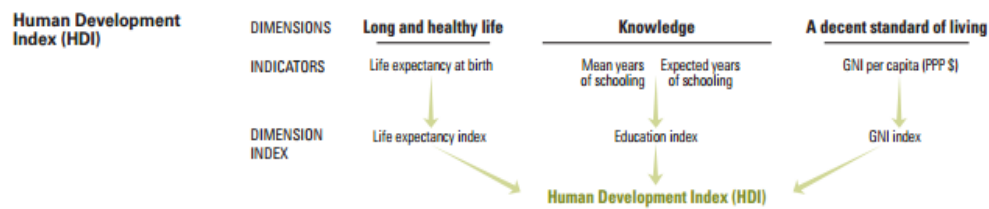TER, 4(4), A.F. Siddiqui, A. Waseem, & D. Mamoon, p.352-368.

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Figure 2. Source: [Retrieved from].

HDI is the assessment of country's progress and achievement in different areas of human development. Long & healthy life, access to knowledge and wisdom all are parameters of human development. United Nations' Development Report explains the availability of measurement & comparison tools that are used by different sectors such as in governments, NGOs and researchers. HDI encompasses the Amartys Sens'"capabilities" approach for the understanding of human well being such as development standards of living, income per capita. These key capabilities are empowered by other developmental indicators like access to health, education and goods and ultimately to achieve high standard of living (Sen, 1985).

Human trafficking is modern day nuisance. In 2004, human trafficking was declared the fastest growing criminal industry by the U.S. Department of Health and Human Services (Jones, *et al.,* 2007) which is earning an annual profit of approximately $32 billion (Feingold, 2005). UN defines trafficking as,

> "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."

Slave trade involves all types of acts such as capture, acquisition or disposal of a person with intent to reduce him to slavery. A person selling or exchanging himself is also deemed as slavery (Slavery Convention, 1926). There are about 35.8 million people estimated to be living in slavery. Countries with highest number of modern slavery are India, China, Pakistan, Uzbekistan & Russia wherein 61% of theses 35.8 million slave people live (Global Slavery Index Report, 2014).

An unfortunate side is involvement of girls and women who leave homes on daily basis as domestic workers in different cities of under developed countries. Domestic slavery becomes their fate from the very first day. They are often deceived, locked inside the home of a strange owner. They are often beaten and sexually abused; not allowed to meet their families even for months and years. Nightmare of modern slavery becomes their fate (C189-Domestic Workers Convention, 2011). These incidents are more common in under-developed countries. In 100th session of General Conference of International Labor Organization which was convened in 2011, it was concluded that domestic workers contribute significantly to global economy. Therefore, there should be a social justice under fair globalization by promoting decent work for domestic workers. Paid job opportunities for women and men workers should be increased (C189-Domestic Workers Convention, 2011).

Domestic workers will enjoy fair terms of employment with decent working conditions in household work, decent living conditions by respecting their privacy (C189-Domestic Workers Convention, 2011). Forced labor propagates poverty and vulnerability of domestic slavery, low level of education and literacy, human trafficking and other factors. There is dire and desperate need of today to adapt stronger measures of prevention and protection and enhanced law enforcement. Governments of developed countries are taking strict measures in fighting human trafficking. "The Brussels Declaration" at the end of EU conference on "Preventing and Combating Trafficking in Human Beings" gives policy guidelines to

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government of European Union in reducing the threat of human trafficking (Frank & Marco, 2003).

For ease of doing any business, entrepreneurs should have ability to give legal form to the idea to start a business-simply, quickly and inexpensively. Value change in society leads to social progress. It expands markets and social mobilization by intensifying human activities such as commercialized business transactions and civic exchange. There should be certainty of well designed insolvency system. People should be hired that help to realize the idea of entrepreneurs. System should be easy to obtain financing and to do import and export. There should be a straightforward way to pay their taxes (Doing Business Report, 2015). Business regulations in right direction make the lives of working class easy as well as creation of new jobs. If the business regulations make the good idea not to be implemented, important opportunities may be missed. Doing Business indictors elaborates the efficiency in procedures, time and cost to start a business or to transfer property (Doing Business Report, 2015).

Singapore has most business friendly regulations. Reordering of economies has been taken place in 2015 in top 20 countries in ease of doing business ranking. Switzerland has started online business procedures for ease of doing business as well as strengthening minority investor protection through enhanced transparency. Sweden has made property registering by an easy way of online procedures. Implemented system makes the searches and file registration easier through easy access globally. Governments in these countries have made such rules and regulations of business that facilitates interactions in the marketplace. Report reveals that high income economies have high distance to frontier scores on average, indicating them having most friendly regulations. Europe and central Asia have both the largest share of economies making it easier to do business (Doing Business Report, 2015).

3. Operationalization and research hypothesis

As evident from above literature review, four constructs will be studied during this study.
1. Social Progress
2. Human Development
3. Economic Progress
4. Human Trafficking and modern slavery
5. Business opportunities in a country

Four reports namely Social Progress Index, Human Development Report, The Global Slavery Index and Doing Business will be consulted. All the above constructsexcept Economic Progress will be operationalize by using their operational definition mentioned in respective report that the theoretical concept can be measured empirically. GDP, PPP (constant 2011 international $) is used to represent economic progress and data for this variable is taken from the website of World Bank.

We will use Social Progress Index to measure social progress. This index is related to three dimensions of social welfare namely Basic Human Needs, Foundation of Well being and Opportunity (SPI report, 2014). Each of these measures is sub divided into further categories. Accordingly, an aggregated score of social progress of every country is calculated on the basis of 54 different indicators.

Although, Human Development Report published by UNDP also includes various measures. However, we will restrict ourselves to HDI which is basic version to describe Human development. Hence, Human development is measured using Human Development Index developed by Mehboob-ul-Haq. This index uses geometric means of three indices which are Life Expectancy Index, Educational Index and Gross National Income Index, whereasEducational index is further divided into Basic and Higher education.

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Three different dimensions are used in the Global Slavery Report. These are prevalence of slavery in the country, vulnerability against slavery and government responses to combat slavery. However, for this study only vulnerability against slavery will be considered which is measured by five indicators.

Ease of Doing Business report published by World Bank is based on Distance to Frontier score. This score is based on the aggregate score of ten dimensions and 36 indicators. This scale enables the observer to compare performance of a particular country with the best possible performance and this score will be considered during this study (Doing Business Report, 2015).

The research questions above will be testedthrough hypothesis based on operational definition. Keeping in view operational definitions/measures described above, we will propose our hypothesis in the form of testable statements. Since the literature and rationale gives hint regarding presence of a distinct direction of relationship between our constructs, therefore, directional hypotheses are put forward as per opinion of Cipriano (2002). Following hypothesis are proposed for this study which will be tested accordingly.

3.1. Social progress imperative and human development index

Citizens of a thriving society will be its prime focus. It will provide good educational facilities to its inhabitants which will result in a higher literacy rates. Moreover, there will be more chances for higher education for people. Life expectancy in such society will be higher owing to better medical and health facilities. Last but not the least; a successful society will have higher Gross National Income due to better business and job chances. Citizens of socially developed countries have democratic governments which allow their nationals to exercise freedom (Inglehart, 2003) quality education and good health facilities. Keeping in view the above, it can be assumed that a positive relationship exists between human development and social progress.

Hypothesis 1: *Human Development Index Score of each country is positively depended on Social Progress Imperative score of the country.*

3.2. Social progress and vulnerability against slavery

A prosperous society will have lesser chances of slavery. People of the country will have better income and more job opportunities. Government of such countries provides unemployment allowance and will ensure availability of basic human needs even to jobless or deprived persons. On the other hand, low social progress makes people more vulnerable to human trafficking and slavery. Such people are forced to migrate for better earning where they are deprived of basic human rights as citizens (Engstrom, 2006; Aleinikoff & Klusmeyer, 2002) which make them more susceptible to exploitation and other harms (Jones, et al., 2007). Thus, it can be assumed that vulnerability against slavery has inverse relation with social progress.

Hypothesis 2: *Vulnerability of Enslavement within Each Country is negatively depended on Social Progress Imperative score of the country.*

3.3. Social progress imperative and distance to frontier score

Without any doubt, Government policies are crucial in encouraging start of new business especially in private sector. Further, economic growth, skilled manpower, access of electricity and power, better communication and transportation facilities are also beneficial to existing and new business. An educated population will pursue entrepreneurship by keeping novel and creative ideas to start business. In light of above, our third hypothesis will be as under.

Hypothesis 3: *Distance to Frontier Score of each country is positively depended on Social Progress Imperative score of the country.*

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3.4. Comparison of SPI with GDP or HDI in predicting vulnerability against enslavement and distance to frontier

Recently, the efficacy of indicators for economic growth in predicting social progress and human development is skeptical. Consequently, different measures such as Social Progress Index and Human Development Index are being developed that are more robust in describing social condition of countries. Promoters of SPI claims that this index has better explaining power in predicting different social measures. Therefore, our fourth hypothesis will be as under.

Hypothesis 4: *Social Progress Index has better explaining power of Vulnerability against Enslavement and Distance to Frontier Score as compared to GDP or HDI.*

4. Hypothesid testing

Data of 124 countries obtained from above sources was initially fed into SPSS, and statistical analysis was performed using SPSS. Descriptive Statistics were first used to calculate Central Tendency and Dispersion. Afterwards, Regression Analysis was employed as the tool for testing of hypothesis. For first three hypotheses, the data was split on the basis of continents in order to test these hypotheses not only on global level but also at the individual level.

However, before performing regression test, related assumptions were fulfilled. Initially, condition of normality of data was observed to be violated in few cases. Therefore, data of few countries were removed in order to fulfill said assumption. Afterwards, all the remaining conditions of regressions were tested and satisfied. Results of fulfilling assumptions of regression are shown in below.

Assumption 1. As we are using various indices developed for various purposes, hence, our data is quantitative and first condition is satisfied.

Assumption 2. Normal distribution of the data for each relation was checked by Shapiro-Wilk Test. Significance level value was set at 0.05. Shapiro-Wilk value for residual terms of every relation was found higher than the chosen significance level. This confirms that normality is present in the residual values thus implying that normality exists for each constructs involved in our study.

Table 1. *Shapiro-Wilk Test Value*

Relationship	Shapiro-Wilk Test Value
Social Progress Imperative and Human Development Index	0.254
Social Progress Imperative and Vulnerability against Enslavement	0.069
Social Progress Imperative and Distance to Frontier Score	0.104
GDP (PPP) and Vulnerability against Enslavement	0.255
GDP (PPP) and Distance to Frontier Score	0.727
Human Development Index and Vulnerability against Enslavement	0.063
Human Development Index and Distance to Frontier Score	0.100

Similarly, when data was split on the basis of continent, normal distribution of data was also still present. Value of S-W test for each relation (for each continent) is given below.

Table 2. *Value of S-W test for each relation (for each continent) is given below*

Relationship	Shapiro-Wilk Test Value				
	Asia	Africa	Europe	North America	South America
Social Progress Imperative and Human Development Index	0.276	0.839	0.990	0.316	0.068
Social Progress Imperative and Vulnerability of Enslavement	0.957	0.49	0.202	0.794	0.144
Social Progress Imperative and Distance to Frontier Score	0.823	0.817	0.541	0.510	0.768

Assumption 3. Regression analysis demands there should be no relationship between independent variables. Multi-co linearity is checked where there is more than one independent variable. But, in our study since there is only one independent variable in all model, therefore, there will be no issue of multi-co linearity in our study.

Assumption 4. Interdependence of observation can be checked by performing Durbin-Watson Statistic. Range of value for Durbin-Watson Statistic for this test is 0 to 4, where a value of 2 indicates presence of no relationship between observations. Although, a range of 1.75 to 2.25 indicates presence of auto-correlation; however, the same is sosmall that it can be ignored. Value of Durbin-Watson Statistic for each relationship was found out, which is tabulated below in Table 3. In all instances, auto-correlation was found to be within the acceptable range which shows that there is ignorable auto-correlation. Therefore Assumption 4 was fulfilled.

Table 3. *Durbin-Watson Statistic*

Relationship	Durbin-Watson Statistic
Social Progress Imperative and Human Development Index	1.792
Social Progress Imperative and Vulnerability of Enslavement	1.975
Social Progress Imperative and Distance to Frontier Score	1.829
GDP (PPP) and Vulnerability against Enslavement	2.239
GDP (PPP) and Distance to Frontier Score	2.090
Human Development Index and Vulnerability against Enslavement	1.978
Human Development Index and Distance to Frontier Score	1.882

On the other hand, when data was split on the basis of continent, first and second order auto-correlation was observed in few cases. Only first order auto-correlation was removed from the data. Butin certain situations, Second Order Auto-correlation was still present which was not removed. These instances are marked with*.

Table 4. *Durbin-Watson Statistic*

Relationship	Durbin-Watson Statistic Value				
	Asia	Africa	Europe	North America	South America
Social Progress Imperative and Human Development Index	2.050	1.761	2.130	1.893	2.014
Social Progress Imperative and Vulnerability of Enslavement	2.034	2.139	1.874	2.089	2.668*
Social Progress Imperative and Distance to Frontier Score	2.122	2.231	1.956	2.506*	1.885

5. Results

As described above, Descriptive Statistics was used to find out central tendency and dispersion while Simple Regression Analysis was carried out to check above mentioned hypotheses. Results of statistical analysis are given below.

5.1. Descriptive statistics of variables

Descriptive statistics was used to calculate average and spread of data for all variables. Quantitative data was used for this study and either Mean or Median can be used for measuring average for such data. Value of Skewness Index for all variables was within range of -1.3 to 1.3, which indicates that Mean can be used to represent central tendency. Standard Deviation was taken as a measure of dispersion of data for all variables.Only, high degree of skewness was observed in GDP data whereas for remaining variables it was within limit.
Table 5 shows descriptive statistic for HDI and SPI.

Table 5. *Mean and Standart Deviation*

Variable	Mean	Standard Deviation
Social Progress Imperative	64.01	14.35
Human Development Index	0.707	0.155
Vulnerability of Enslavement	45.79	17.43
Distance to Frontier	63.41	12.01

Similarly, data was split on the basis of continents and value of means and standard deviation for these four variables is reproduced as under in Table 6.

Table 6. *Continent, Mean and Standart Deviation*

Variable	Continent	Mean	Standard Deviation
Social Progress Imperative	Asia	59.06	9.81
	Africa	48.71	8.81
	Europe	76.38	8.59
	North America	69.87	8.86
	South America	67.77	5.55
Human Development Index	Asia	0.696	0.108
	Africa	0.527	0.110
	Europe	0.838	0.068
	North America	0.738	0.112
	South America	0.740	0.065
Vulnerability of Enslavement	Asia	55.08	10.39
	Africa	61.71	8.69
	Europe	30.33	12.70
	North America	40.89	13.60
	South America	42.37	9.39
Distance to Frontier	Asia	61.82	9.52
	Africa	53.40	10.27
	Europe	71.87	8.08
	North America	67.24	8.40
	South America	59.59	10.09

5.2. Hypothesis testing

Since we have only one dependent variable for all hypotheses, therefore, simple linear regression model was used. In first three hypotheses, Social Progress Imperative score was taken as Independent Variable while all other three variables were treated as Dependent Variable in each case, whereas in the fourth hypothesis GDP and HDI were taken independent variables separately in order to check their relationship with Vulnerability of Enslavement and Distance to Frontier. Results of these regression analyses are as follow.

5.3. Social progress index and human development index

Table 7 shows the result of regression analysis between SPI and HDI. Value of un-standardized coefficient is not zero; this indicates a relation exists between Human Development Index and Social Progress Imperative. Value of R^2 for this model is 0.895 which shows a very strong relation between explanatory and explained variable. Result of this analysis indicates that variation in the value of HDI explained by SPI is nearly 90%. Further, the significance value of the independent variable is also below the chosen significance value of 0.05, which shows greater generalization of the model. Similar, results of generalizationwere obtained from F-Test as $F(1,118)=1009.39$, $p<0.05$. Moreover, Standardized Coefficient (Beta) has posi tive sign which implicates a positive relationship between both variables. This also supports our hypothesis that human development is positively dependent on social progress.

Table 7. *Social Progress Index and Human Development Index*

Un-standardized Coefficients (B)	0.010
R Square	0.895
Standardized Coefficients (Beta)	0.946

Similar results are observed when the data is split on the basis of continent. Although, minor changes are observed in the value of R^2 for some continents, but the relationships still remained strong and model was statistically significant. Further, very little variation in the value of Beta was observed for all continents showing relatively homogenous sensitivity of SPI. Summary of regression analysis with split data is given below in Table 8.

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Table 8. *Summary of regression analysis*

Continent	Un-standardized Coefficients (B)	R Square (R^2)	Standardized Coefficients (Beta)
Asia	0.009	0.737	0.858
Africa	0.011	0.768	0.876
Europe	0.007	0.895	0.946
North America	0.012	0.928	0.963
South America	0.010	0.702	0.838

5.4. Social progress index and vulnerability of enslavement

Table 9 demonstrates that value of un-standardized coefficient is not zero which shows presence of a relation between Vulnerability of Enslavement and Social Progress Index. The variance explained by the model as a whole was 87%. Further, value of F test was $F(1,118) = 789.64$, $p < 0.05$, which shows that model is significant. Presence of negative sign with Beta shows that SPI is negatively related with Vulnerability of Enslavement. This supports our hypothesis that Vulnerability of Enslavement is negatively dependent on social progress. Un-standardizedcoefficient value was -1.133 which means that a unit increase in the score of SPI will cause a reduction of 1.133 in Vulnerability of Enslavement score.

Table 9. *Vulnerability of Enslavement score*

Un-standardized Coefficients (B)	-1.133
R Square	0.870
Standardized Coefficients (Beta)	-28.10

Even on splitting data on the basis of continent, somewhat identical outcomes are found. Value of R^2 for each continent remains closer to that of model for all countries. However, value of R^2 for the relation between slavery and SPI for African countries is 0.486. Similarly, for African nations, SPI was less sensitive towards Slavery due to relatively lower value of beta. Like model for all countries, Standardized Coefficient (Beta) had negative sign implying presence of negative relationship between antecedent and outcome in all continents.

Table 10. *Standardized Coefficient (Beta)*

Continent	Un-standardized Coefficients (B)	R Square (R^2)	Standardized Coefficients (Beta)
Asia	-0.876	0.684	-0.827
Africa	-0.688	0.486	-0.697
Europe	-1.410	0.890	-0.943
North America	-1.455	0.900	-0.949
South America	-1.351	0.907	-0.952

5.5. Social progress index and distance to frontier score

A relation exists between Distance to Frontier and SPI because un-standardized coefficient is not zero. As compared to previous two models, value of R^2 was a little lower. But, the model itself was still strong as the regression model produced $R^2 = 0.678$, $F(1,118)= 248.52$, $p <0.05$. This shows that about 68% of the variability of Distance to Frontier is accounted for by the model. But, the Dependent Variable was also affected by other factors which account for 32% variation in value of Distance to Frontier. Relation between Distance to Frontier and Social Progress is positive as proven by the positive sign of Beta. We would expect an increase of 0.689 in the score of Distance to Frontier with a unit increase in SPI score. Summary of Regression Model for this relationship is tabulated at Table 11.

Table 11. Summary of Regression Model

Un-standardized Coefficients (B)	0.689
R Square	0.678
Standardized Coefficients (Beta)	15.76

However, if we split this data on the basis of continent, then certain interesting variations are observed. Higher values of R^2 are observed for African and North American Countries are as compared to model for all countries, whereas it was
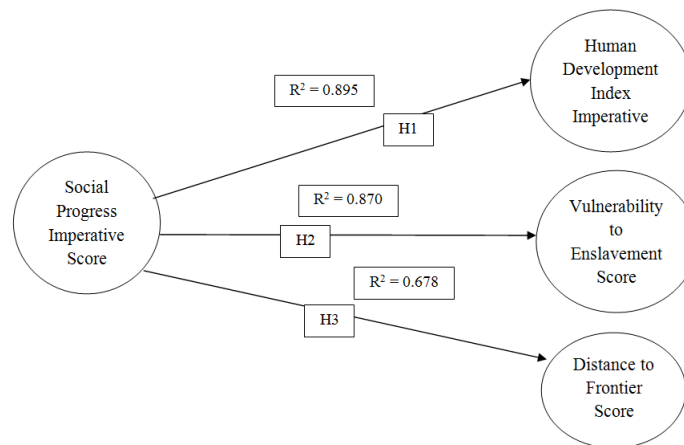
below for Europe.Value of R^2 for South America was too lower to suggest that no relation existed between both variables. Moreover, SPI does not remain statistically significant for South American countries as its p value is 0.374. In addition to this, value of Beta also decreases for this continent which shows that the sensitivity of SPI towards Distance to Frontier is also low for these continents. Regression Model based on grouping done with regards to continents is given as under in Table 12.

Table 12. *Regression Model*

Continent	Un-standardized Coefficients (B)	R Square (R^2)	Standardized Coefficients (Beta)
Asia	0.731	0.567	0.753
Africa	0.962	0.745	0.863
Europe	0.564	0.367	0.606
North America	0.750	0.781	0.883
South America	0.433	0.114	0.338

Results of the first three hypotheses can be summarized in the following figure.

Figure 1. *Results of the first three hypotheses*

5.6. Comparison of SPI with GDP or HDI in predicting vulnerability against enslavement and distance to frontier

Relationship of SPI with Vulnerability against Enslavement and Distance to Frontierhas been explained earlier, while testing second and third hypothesis. However, it is imperative that similar analysis may be applied by taking GDP and HDI before deciding the best variable for predicting Vulnerability against Enslavement and Distance to Frontier.

GDP(PPP) and Vulnerability of Enslavement: Since value of R^2 = 0.13, therefore, a veryweak relationship exists between GDP(PPP) and Vulnerability of Enslavement.

GDP(PPP) and Distance to Frontier: Similarly very weak relation is present between Distance to Frontier as the value of R^2 = 0.142.

5.7. HDI and vulnerability of enslavement

Table No 13 shows the important results of regression model between Human Development Index and Vulnerability of Enslavement. The variance explained by the model is71% and the value of F test was $F(1,118) = 290.24$, $p<0.05$.Negative sign with Beta shows that both the variables are negatively related.

Table 13. *HDI and Vulnerability of Enslavement*

Un-standardized Coefficients (B)	-0.936
R Square	0.709
Standardized Coefficients (Beta)	-0.842

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5.8. HDI and distance to frontier

Predicting power of HDI with regards to Distance to Frontier is 62%.The model is statistically significant as the $F_{(1,118)} = 193.63$, $p<0.10$.

Table 14. *HDI and Distance to Frontier*

Un-standardized Coefficients (B)	-0.607
R Square	0.617
Standardized Coefficients (Beta)	-0.786

Now, after performing the regression analysis by individually taking SPI, GDP and HDI as independent variable and Vulnerability to Enslavement & Distance to Frontier as dependent variable, we can now compare values of R^2 for each model which will give us the indication that which predictor has the greatest explaining power in predicting both dependent variables.

Table 15. *HDI and Distance to Frontier*

	SPI	GDP	HDI
Vulnerability to Enslavement	0.870	0.130	0.709
Distance to Frontier	0.674	0.142	0.617

This comparison makes it clear that SPI has greatest value of R^2, which means that this variable has the highest in predictingVulnerability to Enslavement and Distance to Frontier. This supports our fourth hypothesis that Social Progress Index has better explaining power of Vulnerability against Enslavement and Distance to Frontier Score as compared to GDP or HDI.

6. Discussion over results

Aim of this study is to see the effect of social well being of a country on development of its people capabilities, reduction in threat of slavery and business prospects in the country. Results of the above described regression models and hypothesis testing are discussed below.

6.1. Social progress and human development

It was put forward that a socially effluent society will specially focus on development of its people. Results of the regression analysis prove this hypothesis as a very strong relation was observed between both Antecedent and Criterion. Large portion of variability in the value of HDI is explained by SPI. This shows that a socially progressive society will provide better health and education facilities to its citizens. People will benefit from this social progress and their income will increase.

Similar results are observed for all continents. Value of R^2 of this relation for European and North American countries is 0.895 and 0.928 respectively. This shows that people of these countries enjoy better health and education facilities and their per capita income is also greater. On other hand, Asian, African and South American countries are lagging behind in terms of translation of social progress in human development initiatives. But, in all cases Social Progress Imperative remained statistically significant.

6.2. Social progress and vulnerability of enslavement

In the earlier sections, it is proposed that social progress of a country will substantially decrease likelihood of human trafficking and similar forms of modern slavery. Accordingly, a negative relationship is expected between Social Progress and Vulnerability of Enslavement. Findings of this study not only confirm a negative relationship between predictor and outcome but also reaffirm that this relationship is very strong. Further, results of this model have generalization as Significance value is below 0.05.

This relationship also holds for European, North and South American countries. However, the strength of said relationship in Asian and African countries is lower than remaining continents. Value of R^2 for African nations is 0.486, which shows that there is a considerable unexplained variation in this model for African nations. Thus, it is interesting to investigate further reasons of this higher unexplained variation.

6.3. Social progress and distance to frontier (Ease of doing business)

In the third hypothesis, a positive relationship between Social Progress and Distance to Frontier Score wassuggested. This hypothesis is testified by results of study as the proposed model is strong and Beta has positive sign. This shows that government of socially progressing nation works on reducing unemployment by offering better job and business opportunities to its nationals. These outcomes are consistent with the report of World Bank regarding Doing Business 2014 which describes that business activities of the country are very much dependent on social progress. But, this relation is not as strong as preceding two relations.

However, contrasting results are observed for continents. Explaining power of model increases for African & North American countries, while for European countries, the variability explained by the model becomes low. In case of South American nations model not only becomes virtually non-existent but also becomes statistically insignificant. Such high spread in value of R^2 may be due to presence of Auto-correlation and outliers. This is major discrepancy observed in this study since the relation between Social Progress and Distance to Frontier Score is significant for all continents except South America. Research may be carried further to investigate reasons behind this anomaly.

6.4. Comparison of SPI with GDP or HDI in predicting vulnerability against enslavement and distance to frontier

In the fourth hypothesis, it was proposed that the SPI (the latest social progress indicator) has the greater predicting and explaining power of social phenomena as compared with HDI (another popular scale for human development) and GDP (the most commonly used economic indicator for progress of country). For this purpose, simple regression analysis was performed by separately keeping SPI, HDI and GDP as predictor while Vulnerability against Enslavement and Distance to Frontier as outcomes. Later value of R^2 of each model was compared which is tabulated at Table 15.

This table shows that in both cases, SPI has the greatest value of R^2 which means that it provide better explanation of both Vulnerability against Enslavement and Distance to Frontier. HDI was the second independent variable which offered greater prediction of both dependent variables. However, there was a very weak relation of GDP with Vulnerability against Enslavement and Distance to Frontier which confirms that GDP provides very little explanation about the variation in these two variables. These results are consistent with the claims of many scholars who regard social indicators as superior in predicting the social wellbeing of any nation as compared to economic indicators. Further, this study also provides empirical evidence that SPI is the better social indicator which extends more comprehensive explanation of different social aspects. This also supports argument present on the website of social progress imperative which is reproduced as under. "The Social Progress Index is distinct from other wellbeing indices in its measurement of social progress directly, independently of economic development, in a way that is both holistic and rigorous" (Source: [Retrieved from]).

6.5. Limitations of research

Secondary data from different reports was used to test research hypothesis. Relevancy of secondary data has always been questionable. Such doubts are raised due to the fact that the data is collected from some other purpose (Denscombe, 2007). Similarly, quality of secondary data to answer research questions is also

doubtful (Saunders, 2009). Another drawback in using secondary data analysis is that the researcher is not the part of the research design (Johnston, 2014). He/she is unaware about the sample size, response rate or how well the data is collected (Boslaugh, 2007). In order to address these issues, attempts were made to use data from well reputed source and consider only those measures which are most relevant to our study. Another problem in this study is the time of data collection. Although 2014 was selected as base year in order to ensure similarity of data. There may be difference in the time and source of data collection.

6.6. Future research

As pointed out earlier, certain major discrepancies were observed during this study. Especially, while measuring the relationship between SPI and Ease of doing business, no relationship was observed between both variables for South America nations and relation was also statistically insignificant. Likewise, strength of model between SPI and Vulnerability of Enslavement was weaker for Asian and African countries as compared to remaining continents. These two deviations should be probed into and reasons for these disparities should be identified. Further, this study can be extended by taking different social aspects and index as dependent variable and find out whether SPI still holds its superior position over other social or economic indicators of progress.

7. Conclusion and recommendation

Economic progress or GDP is does not ensure a socially flourishing society. Some countries such as China, Russia, Saudia Arabia etc having high GDP illustrate poor social performance and human developing, and are more prone to enslavement. This led to development of alternate measures, such as SPI and HDI etc, which are aimed at providing a better picture of social progress. During this study, it was proved that SPI is a better and more comprehensive index which presents true picture of a society.

Social progress is of prime importance, as a socially progressive society will help in tapping and developing capabilities of its inhabitants, tacking the ailment of human trafficking and slavery as well as extending better job and career prospects to its citizen. These indices should not be considered merely as measures for different constructs. Translating economic gains into providing better quality of life, health and educational facilities, better job opportunities and sensitivity to environment is beneficial to social success. Thus, social progress and economic growth should complement each other and government policies are crucial to achieve this two-fold advantage (SPI Report, 2014). Government should implement their recommendations in their policies for betterment of their nationals. Many countries are applying these indicators for instance Paraguay and Brazil has included SPI to be a measure of their countries performance (SPI Report, 2014). Widespread of economic benefits will make certain that the entire society will benefit from this rather than few individuals. Only by employing such initiatives, dream of true welfare state can be turned into reality.

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