

The Relationship between National Income and Occupational Injury

ABSTRACT

In this paper, we analyze the relationship between national GDP and safety standards by determining if the rate of fatal occupational injury is high or low. We examine countries in two broad categories: the developed markets and the emerging markets. This study is limited for the seven year range of 2001 through 2007. Among the selected countries in the developed economies are the USA, Norway, Germany, and United Kingdom. Among the selected countries in the emerging market countries are Russia, India, Mexico, and Thailand. We determine that countries in the emerging markets have higher rate of fatal occupational injury compared to the countries with developed economies. This analysis also demonstrates that national income and safety standards relate by determining the level of rate of fatal occupational injury low or high.

Keywords: National income, Gross Domestic Product (GDP), occupational injury, safety standards

1. INTRODUCTION

Is there a significant correlation between the wealth of a nation and its rate of fatal occupational injury? The quest to address that question is the focus of this study. In order to examine this problem it is deemed that the study must be limited to a manageable number of selected nations that represent either developed or emerging economies. This study has narrowed the number of developed and emerging economies to four nations each. The main reason for this small sample size is that these eight nations have complete and pertinent data which has allowed for proper analysis and comparisons to be made. We wished to include several other countries such as Japan, Canada and Australia to represent developed economies, but these and some selected developing economies (such as Bangladesh, Brazil and South Africa) either have incomplete or nonexistent data. This study is not an exhaustive attempt to compare every major developed and developing economy in order to discuss the topic sentence of this paragraph. It is rather an analysis of four representative nations for each category to determine if a correlation does exist. With this limitation in mind, the chosen emerging nations are Russia, India, Mexico, and Thailand and the developed ones are the USA, Norway, Germany, and United Kingdom. In order to show the relationship between these two sets of economies, a few assumptions have been made. The first assumption is that the developed economies have more robust regulatory statutes that better prevent occupational injury and that these laws are more rigorously enforced. The second assumption is that regulations in emerging economies are either less demanding and/or less assiduously enforced. Even with this assumed disparity, occupational accidents happen in all nations, even in highly developed economies. The Fukushima nuclear power plant accident in 2011 has killed an estimated 1,600 people from post evacuation conditions in highly developed Japan [1]. The evidence for this study is derived from statistics about the eight selected nations GDP, their number of workers, cases of fatal occupational injury, and their rates of fatal occupational injury. The connection between national income and

occupation injury which may be empirically assumed is strongly verified by the data presented.

2. LITERATURE REVIEW

The key purpose of this study is to understand the core reasons of man-made accidents. Various researchers have studied similar questions to the one posed here. Khazai, Merz, Schulz, & Borst have used a framework to describe a regions exposure to indirect disaster losses. This proposed framework enables the combination of sub-systems including industrial and social ones and identifies a regions vulnerability to losses. It further exposes the characteristic fragilities of the region and the coping capacities of the people within affected areas to deal with such damages. An advantage of this indicator-based approach is that it can be widened to include the vulnerability of other sub-systems such as Agricultural or Ecological. One of the key advantages of this technique is that it can identify the most vulnerable regions and even rank different regions as to their susceptibility. This in turn can lead to better planning and implement the most cost effective mitigation measures. The model is implemented through multi-criteria decision analysis software [2].

A study by Park (2011) has recognized a set of statistically significant relationships which quantifies the variables that determine the safety performance of a society. The findings largely confirm the inverted *u*-curve or Safety Kuznet curve. This hypothesis identifies the relationship between the safety performance in a society and its level of national income. These findings have some potential implications. The first is for the policy makers in nations that show a higher potential for man-made disasters. Included among these are the rapidly growing economies and newly industrialized countries such as China and India. The repeated mining accidents in China, for example, are likely the result of failure to comprehend the root cause of the disasters. The other major implication is for multinational insurance companies. They need to exhibit extra caution for those countries that are at higher risk, and they can develop a better strategy which may be more culturally sensitive but may have a justifiably higher premium due to greater risk [3].

What may be the worst industrial disaster ever, may have resulted, according to recently released documents, from the attempt to reduce operating costs which led Union Carbide India Limited (UCIL) to cost cutting design flaws according to MacKenzie. The disaster which occurred at the pesticide plant in Bhopal, India on December 2–3, 1984 resulted in about 8,000 people killed and another 150,000 injured [4].

The central thesis of an investigation by Saaroni is that while the risk of disaster may be mitigated, not all disasters can be prevented. The very concept of risk itself is based on human perception and may not account for the infinite and unknown number of possible variables. It is not possible to find all risk factors that may result in industrial disasters. In those instances where crucial risks are identified, they still may not be manageable in an industrial setting which is usually a complex system. A further complication is that industrial complexes are created and run by humans. This alone puts doubt into industrial disaster prevention. Other factors such as environmental factors and conflict may also avert industrial disaster prevention [5].

Passariello reported in the Wall Street Journal that well-known American and Western retailers became part of factory disaster legacy of Bangladesh in 2012 and 2013. Tazreen Fashion Limited violated fire safety rules that resulted in tragedy affecting a great number of employees and their family. Tazreen Fashion Limited was making clothes for Walmart and Sears. Liberty Fashion Wears Ltd had structural failures at their facility, and the Rana Plaza Factory also had a structural fault that led to a collapsed building. With these

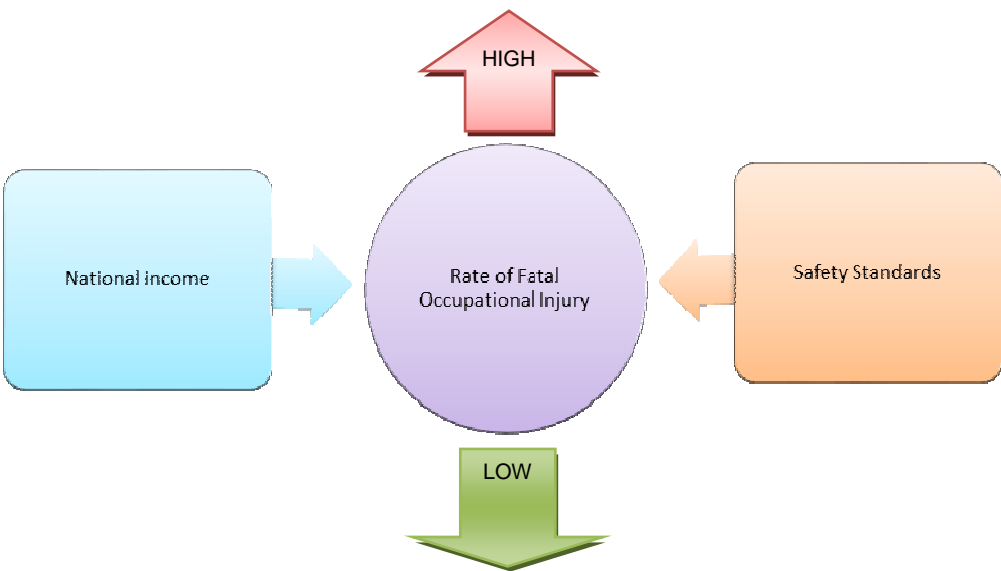
95 aforementioned industrial disasters, many famous retailers associate, such as Hennes &
96 Mauritz AB, Zara parent Inditex SA, British retailer Primark, part of Associated British Foods
97 PLC, Tesco PLC, Carrefour SA, Debenhams PLC, PVH Corp., Calvin Klein, N Brown Group
98 PLC, Wal-Mart Stores Inc., and Gap Inc. all demanded that the manufacturers enforce
99 improved safety practices [6].

101 The last relevant literature surveyed is a study which examines major industrial accidents
102 since 1917. This work is based on data from the United Nations Environment Program and
103 was originally compiled by the Organization for Economic Cooperation and Development.
104 The information from these has been used to create a database called MInA (Major
105 Industrial Accidents) which exists at the Aristotle University of Thessaloniki, Greece. The
106 authors of this work Mihailidou, Antoniadis, and Assael, have made some interesting
107 observations. The study revealed that developed nations had a far greater number of
108 industrial accidents compared with developing ones. The U.S.A. is only one of the 52 nations
109 in the study and yet it accounts for 193 out of the total of 319 documented accidents
110 (39%).The study acknowledges that developed nations have far greater industrialization and
111 thus a greater potential for industrial accidents, but the much lower numbers in developing
112 economies for such accidents may also be due to “the political, economic or social
113 conditions” which discourage proper reporting. Another revelation of the study is the rates of
114 fatal accidents in developed versus developing nations. Although the total number of
115 accidents in developed nation is much greater, the mortality rate in developing nations is
116 much greater. This rate for developing countries is about 254 deaths per accident and about
117 14 per accident in developed nations [7].

119 3. DATA AND METHODOLOGY

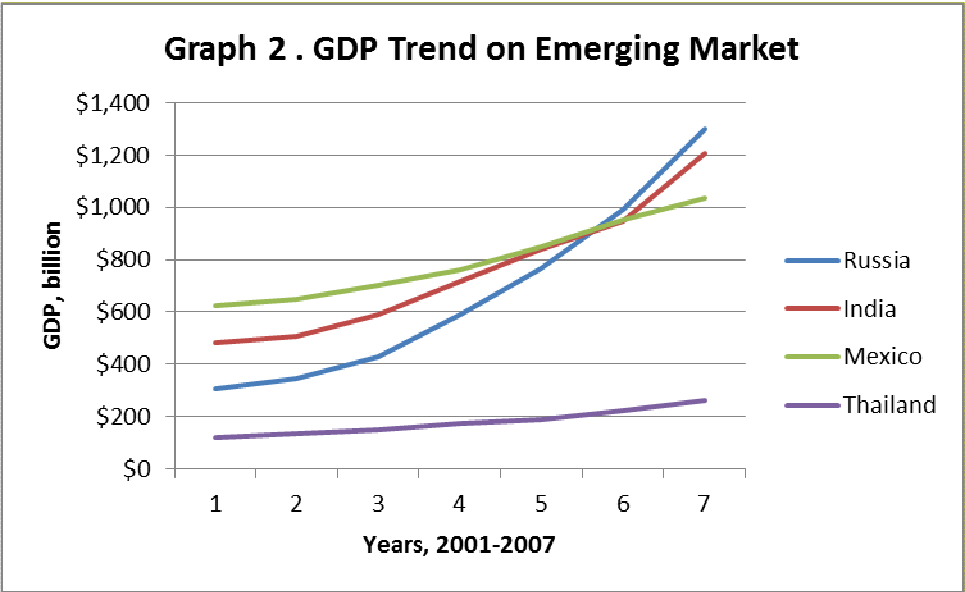
121 Our hypothesis is that the relationship between safety performance in a society and level of
122 national income determine the occurrence of fatal occupational injuries (See Graph 1). If the
123 country has low criteria for safety standards then the country, the evidence shows, has more
124 cases of fatal occupational injuries. On the other hand, countries with higher safety
125 standards generally have fewer cases of occupational injuries. We compare four countries
126 from the emerging markets and four countries from the developed economies. The four
127 selected countries from the emerging markets are Russia, India, Mexico, and Thailand. The
128 ones from the developed economies are USA, Norway, Germany, and United Kingdom. Our
129 data focus on the country's Gross Domestic Product (GDP), its number of workers, the
130 number of cases of fatal occupational injury, and the rate of fatal occupational injury.

Graph 1. Factors Influence on Rate of Fatal Occupational Injury



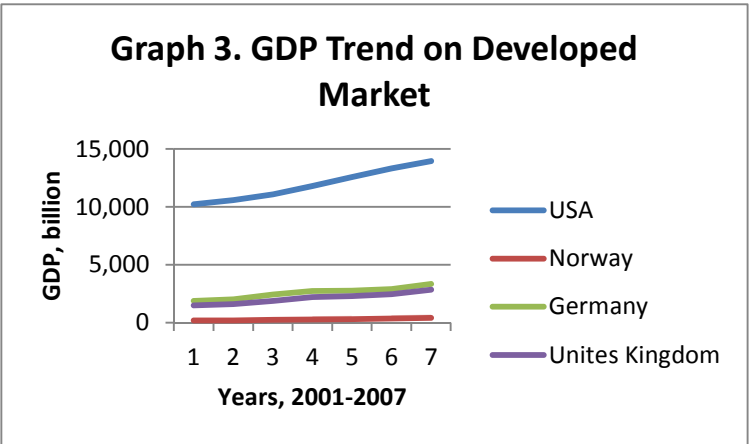
149
150
151
152
153
154
155
156
157
158
159
160
161

The trend of emerging and developed markets from 2001 through 2007 demonstrates that GDP is much higher in the developed economies than in emerging markets. Countries with the developed economies have GDP higher than \$2 trillion. On the other hand, countries from the emerging market have GDP lower than \$2 trillion.



162
163
164
165
166
167

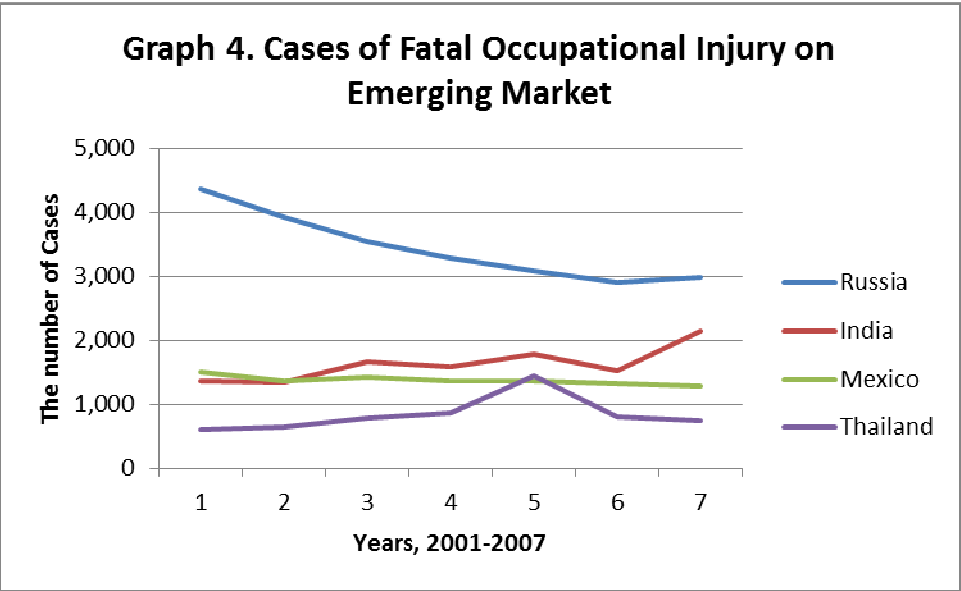
This graph shows the strong growth of Mexico, India and Russia and the steady but unspectacular growth of Thailand's economy.



169
170
171
172
173
174
175
176
177

Graph 3 demonstrates the growth of the four selected economies. It should be noted that there is a very wide range in the working populations of the four nations with the USA having a much greater one than the other developed nations.

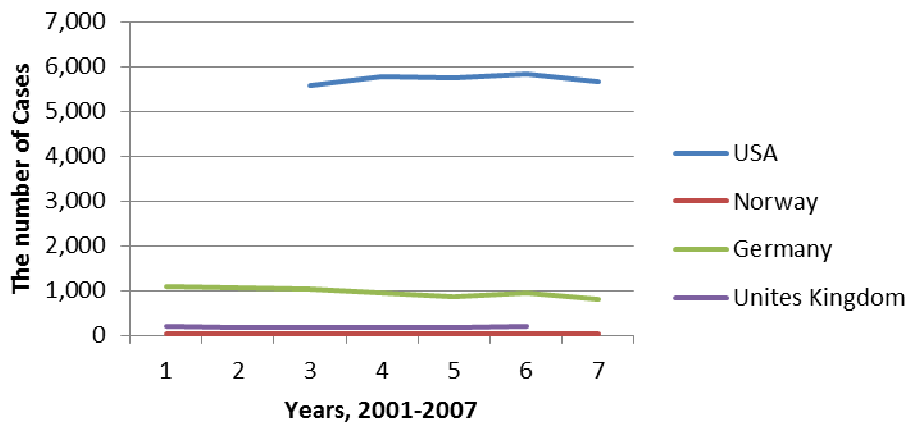
Our next step is to observe and analyze the trend on Cases of Fatal Occupational Injury that are shown on graphs 4 and 5.



178
179
180
181
182
183
184

Graph 4 identifies that the trends for cases of occupational injury vary among the four nations. The trend for Russia is a decline, for India an increase and for Mexico and Thailand the trends are steady.

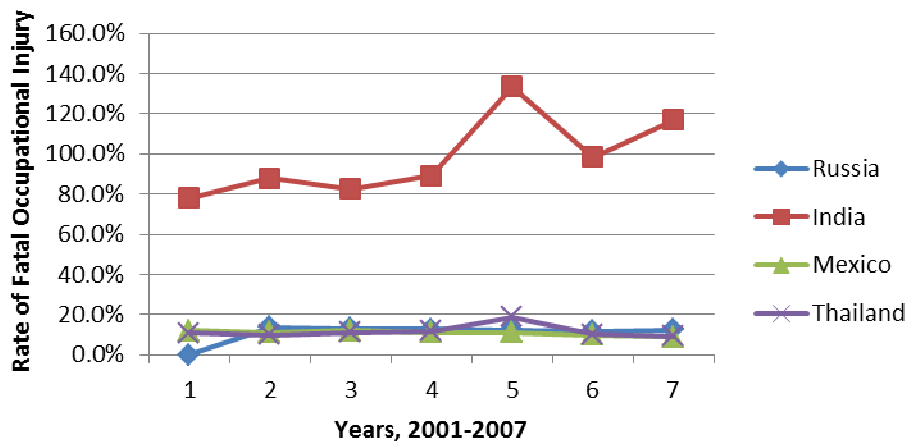
Graph 5. Cases of Fatal Occupational Injury on Developed Market



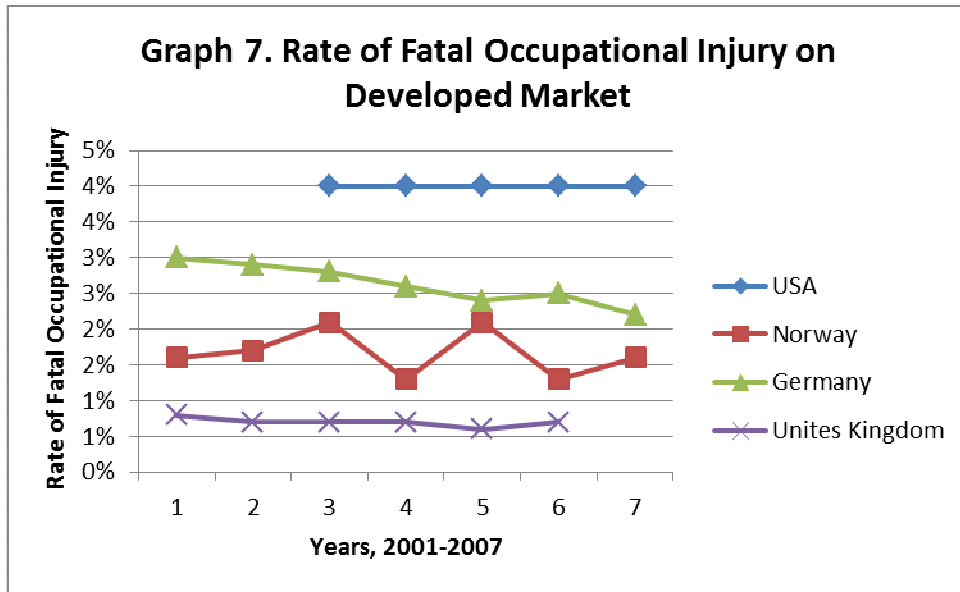
The trends identified in Graph 5 show a steadiness in cases of fatal occupational injury for the four developed economies. Data for the USA for years 1 and 2 could not be obtained.

As is evident from graph 6 and 7, the Rate of Fatal Occupational Injury from emerging market have higher rates in the range from 10% to 117% compared with countries with developed economies with rates in the range from 0.6% to 4%.

Graph 6. Rate of Fatal Occupational Injury on Emerging Market



The rates for Russia, Mexico and Thailand are similar. The rates for India are significantly higher.



The rates for the four developed economies range from less than 1% to about 4%.

To assess the relationship between a dependent (rate of fatal occupational injuries in this study) and independent variables (the GDP and the number of cases of fatal occupational injuries), this study incorporates a descriptive-correlation. The hypothesis of this study is to test the significance of independent variables in the regression model. This relationship between variables requires implementing a linear regression. The results are evaluated based on the Fisher F test. The significance of the independent variables are assessed when the Fisher F statistic is less than 5% (Sig F <5%). All the testing is performed by utilizing SPSS software.

In this study, the following linear regression model (1) is used to test the hypotheses:

$$\text{Rate of FOI}_n = \beta_0 + \beta_1 * \text{GDP}_n + \beta_2 * \text{Cases FOI}_n \quad (1)$$

- Rate of FOI_n represents the rate of fatal occupational injury (FOI) in the country in year n;
- GDP_n represents national income of the country in year n;
- Cases FOI_n represents the number of fatal occupational injury in the country in year n; and
- β_0 is the constant coefficient and the β_1 to β_2 are the coefficients of all independent variables in the regression equation.

The table below illustrates each of the research variables:

| Symbol | Variables | Description |
|-------------|-------------|------------------------------------|
| Rate of FOI | Dependent | Rate of Fatal Occupational Injury |
| GDP | Independent | National Income |
| Cases FOI | Independent | Cases of Fatal Occupational Injury |

Regression Analysis for Developed Markets

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .916 ^a | .840 | .826 | .5191 |

a. Predictors: (Constant), CasesFOI, GDP

According to the results, 84% of the variation in the rate of fatal occupational injuries is explained by GDP and cases of fatal occupational injuries in the countries with developed economies.

ANOVA^a

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|--------|-------------------|
| 1 | Regression | 32.430 | 2 | 16.215 | 60.180 | .000 ^b |
| | Residual | 6.197 | 23 | .269 | | |
| | Total | 38.627 | 25 | | | |

a. Dependent Variable: RateFOI

b. Predictors: (Constant), CasesFOI, GDP

Based on the ANOVA table results for developed markets, the p-value is 0.000, and this value is less than the level of 0.05. It tells that if the p-value is smaller than 0.05, the independent variables reliably predict the dependent variable.

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|--------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 1.856 | .159 | | 11.655 | .000 |
| | GDP | -5.162E-13 | .000 | -1.873 | -4.376 | .000 |
| | CasesFOI | .002 | .000 | 2.677 | 6.255 | .000 |

a. Dependent Variable: RateFOI

The linear regression model for developed markets is $Y = 1.856 - 5.162E-13 \beta_1 + 0.002 \beta_2$. In terms of this problem, the above results demonstrate that an increase in the rate of occupational injury in the country with the developed economy is explained by the reduction of its national income by \$5.16 billion. At the same time, an increase in the rate of occupational injury is explained by the growing number of cases of occupational injury by 0.002.

The regression analysis demonstrates the direct relationship between the national income and the rate of occupational injury in the developed markets. It also explains that by having a larger national income (GDP), the country has an opportunity to invest more in safety standards and to enforce them properly.

Regression Analysis for Emerging Markets

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1 | .342 ^a | .117 | .047 | 38.2689 |

a. Predictors: (Constant), CasesFOI, GDP

According to the results, only 12% of the variation in the rate of fatal occupational injuries is explained by both a nation's GDP and its cases of fatal occupational injuries in emerging economy nations.

ANOVA^a

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|----|-------------|-------|-------------------|
| 1 | Regression | 4865.165 | 2 | 2432.583 | 1.661 | .210 ^b |
| | Residual | 36612.765 | 25 | 1464.511 | | |
| | Total | 41477.930 | 27 | | | |

a. Dependent Variable: RateFOI

b. Predictors: (Constant), CasesFOI, GDP

Based on the results from the ANOVA table on emerging markets, the p-value is 0.210 and is greater than 0.05, it demonstrates that the group of independent variables does not show a statistically significant relationship with the dependent variable, or that the group of independent variables does not reliably predict the dependent variable.

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 19.036 | 17.999 | | 1.058 | .300 |
| | GDP | 4.010E-11 | .000 | .347 | 1.794 | .085 |
| | CasesFOI | -.005 | .007 | -.143 | -.737 | .468 |

a. Dependent Variable: RateFOI

The linear regression model for emerging markets is $Y = 19.036 + 4.010E-11 \beta_1 - 0.005 \beta_2$. In terms of this problem, the above results demonstrate that an increase in the rate of

occupational injury in the countries with emerging economies is explained by the increase of its national income (GDP) by \$4.010 billion. At the same time, an increase in the rate of occupational injury is explained by the decreasing number of cases of occupational injury by 0.005. Previous results from the ANOVA table tell this relationship is insignificant.

The results of regression analysis demonstrate the national income and the cases of occupational injury in the emerging markets the indirect relationship. It can be explained by under reporting the cases of fatal occupational injury and other factors that have a more direct impact on the rate of fatal occupational injury and implementing safety standards.

3. RESULTS AND DISCUSSION

The results from gathered data in developed and emerging economies can be summarized in the following form:

Table 1. Summary on Occupational Injuries in Developed and Emerging Markets

| <i>Economy</i> | <i>GDP</i> | <i>Cases of Fatal Occupational Injuries</i> | <i>Rate of Fatal Injuries</i> |
|-----------------------|-----------------------|--|--------------------------------------|
| Developed | 170 – 14, 991 billion | 37 - 5,840 | 0.6% - 4% |
| Emerging | 120 – 1,400 billion | 605 – 4,370 | 9.0% - 117% |

The table details the countries with the developed economies and high national GDP implement have higher safety standards that lead to a lower rate of fatal occupational injuries. On the contrary, countries with the emerging economies and lower national GDP have lower safety standards that lead to higher rate of fatal occupational injuries.

The regression analysis provides evidence of a significant relationship between the rate of occupational injury and the level national income (GDP) with the number of cases of fatal occupational injury in countries with developed economies. The insignificant impact on the rate of fatal occupational injury from the level of a nation's GDP and the number of cases of fatal occupational injury was found in countries with emerging economies. This might be explained by underreporting the number of cases of fatal occupational injury and even by the growing level of national income which may necessarily translate into developing and rigorously enforcing safety standards in the nations with emerging markets.

4. CONCLUSION

This analysis shows that there is a significant relationship between safety performance in a society and the level of national income. This further explains the markedly greater occurrence of fatal occupational injuries in nations with emerging economies compared to their developed counterparts. This is very apparent when a country's GDP is lower and its safety standards are substandard or poorly implemented. Countries that have developed economies with higher GDPs have fewer occurrences of fatal occupational injuries and their rate of fatal occupational injury is also lower. This relationship between safety performance in a society and the level of national income is an important consideration for management when it considers outsourcing its manufacturing or any other business overseas. The high risk of fatal occupational injuries might lead to major losses or even a business extinction such as the one that affected like Union Carbide Corporation after the Bhopal disaster.

A limitation of this study is that data for many major players (both developed and emerging) on the global market such as Japan, China, Indonesia, and Bangladesh, was insufficient to be included in this study. The recent safety issues in Bangladesh, for example, have yet to yield publically available data which might have the effect of reinforcing the conclusions of this study.

Future investigation might be focused on other factors that impact the fatal occupational injury occurrences, or other factors that may influence the rate of fatal occupational injury. Perhaps the most fruitful follow-up research will be conducted when data becomes available to the research community to examine the true costs of doing business in nations with lower occupational standards compared with developed economies. Another vital examination would focus on the apparent anomaly discussed in this work which is the insignificant correlation between the rate of fatal occupational injury from the level of a nation's GDP and the number of cases of fatal occupational injury in nations with emerging economies. Any reason for this discrepancy is an educated guess, but is nevertheless speculative. Reliable data for such a study may be difficult if not impossible to procure. It is also deemed that emerging nations may have substantial degrees of underreporting. They may also have insufficient enforcement of their own standards. These assumptions are also conjecture. As nations become more developed, international norms and standards may encourage emerging economies to enforce safety regulations and accurately and fully report all major accidents, which in turn may lead to more prosperous nations.

REFERENCES

1. Smith, A. (2011). Fukushima evacuation has killed more than earthquake and tsunami, survey says. Retrieved from <http://www.nbcnews.com/#/news/other/fukushima-evacuation-has-killed-more-earthquake-tsunami-survey-says-f8C11120007>
2. Khazai, B. , Merz, M. , Schulz, C. , & Borst, D. (2013). An integrated indicator framework for spatial assessment of industrial and social vulnerability to indirect disaster losses. *Natural Hazards*, 67(2), p. 145-167.
3. Park, H. (2011). Man-made disasters: A cross-national analysis. *International Business Review*, 20(4), p. 466-476.
4. MacKenzie, D. (2002). Fresh evidence on Bhopal disaster. *New Scientist*, 176(2372), p. 6.
5. Saaroni, L. (2011). Are all industrial disasters preventable? Retrieved from http://www.academia.edu/1115891/Are_all_industrial_disasters_preventable
6. Passariello, C. (2013). Retailers Speed Up Bangladesh Rules. *The Wall Street Journal*, July 8, p. B1, B6.
7. Mihailidou, E.K., Antoniadis, K.D., & Assael, M.J. (2012). The 319 Major Industrial Accidents Since 1917. *International Review of Chemical Engineering*, 4 (6), p.529-540.
8. The World Bank. (2013). Gross Domestic Product 1970-2011. Retrieved from <http://databank.worldbank.org/data/download/GDP.pdf>

367 9. The International Labor Organization. (2013). ILOSTAT Database by country. Retrieved
368 from [http://www.ilo.org/ilostat/faces/home/statisticaldata/data_by_country?_adf.ctrl-](http://www.ilo.org/ilostat/faces/home/statisticaldata/data_by_country?_adf.ctrl-state=ol8mmij5r_4&_afzLoop=501912095944467)
369 [state=ol8mmij5r_4&_afzLoop=501912095944467](http://www.ilo.org/ilostat/faces/home/statisticaldata/data_by_country?_adf.ctrl-state=ol8mmij5r_4&_afzLoop=501912095944467)
370

APPENDIX

Appendix 1: GDP in Emerging Markets

| Emerging Market | | | | | | | |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------|
| Country | GDP | | | | | | |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| Russia | 306,602,673,980 | 345,110,438,694 | 430,347,770,733 | 591,016,690,743 | 764,000,901,161 | 989,930,542,279 | 1,299,705,764,824 |
| India | 482,967,940,906 | 504,946,434,158 | 591,332,373,599 | 715,459,354,731 | 837,499,067,126 | 947,912,052,610 | 1,206,110,390,294 |
| Mexico | 622,092,637,151 | 649,075,575,302 | 700,324,664,927 | 759,777,472,170 | 848,947,464,609 | 951,915,698,648 | 1,036,000,680,567 |
| Thailand | 120,051,854,636 | 134,064,590,967 | 151,997,909,265 | 172,637,545,862 | 188,620,150,176 | 220,826,400,537 | 261,825,647,965 |

This table shows GDP in US dollars for seven years in the selected emerging market countries. . Among the selected countries are Russia, India, Mexico, and Thailand. The data were collected from the World Bank Web site [7].

Appendix 2: Cases of Fatal Occupational Injury in Emerging Markets

| Emerging Market | | | | | | | |
|-----------------|------------------------------------|-------|-------|-------|-------|-------|-------|
| Country | Cases of Fatal Occupational Injury | | | | | | |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| Russia | 4,370 | 3,920 | 3,540 | 3,290 | 3,090 | 2,900 | 2,990 |
| India | 1,366 | 1,346 | 1,663 | 1,581 | 1,780 | 1,514 | 2,140 |
| Mexico | 1,502 | 1,361 | 1,427 | 1,364 | 1,367 | 1,328 | 1,279 |
| Thailand | 605 | 650 | 787 | 861 | 1,444 | 808 | 741 |

This table shows the number of fatal cases for seven years in the selected emerging market countries. Among the selected countries are Russia, India, Mexico, and Thailand. The data were collected from the International Labor Organization (ILO) Web site [8].

Appendix 3: Rate of Fatal Occupational Injury in Emerging Markets

| Emerging Market | | | | | | | |
|-----------------|-----------------------------------|-------|-------|-------|--------|-------|--------|
| Country | Rate of Fatal Occupational Injury | | | | | | |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| Russia | 15.0% | 13.8% | 13.1% | 12.9% | 12.4% | 11.9% | 12.4% |
| India | 77.9% | 87.8% | 82.5% | 89.3% | 133.4% | 98.3% | 116.8% |
| Mexico | 12.0% | 11.0% | 12.0% | 11.0% | 11.0% | 10.0% | 9.0% |
| Thailand | 10.9% | 9.9% | 11.2% | 11.7% | 18.7% | 10.1% | 9.1% |

This table shows the rate of fatal cases for seven years in the selected emerging market countries. Among the selected countries are Russia, India, Mexico, and Thailand. The data were collected from the International Labor Organization (ILO) Web site.

Appendix 4: GDP in Developed Markets

| Developed Market | | | | | | | |
|------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Country | GDP | | | | | | |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| USA | 10,233,900,000,000 | 10,590,200,000,000 | 11,089,300,000,000 | 11,797,800,000,000 | 12,564,300,000,000 | 13,314,500,000,000 | 13,961,800,000,000 |
| Norway | 170,922,851,074 | 191,927,027,230 | 224,880,794,328 | 260,029,106,208 | 304,060,069,849 | 340,041,912,704 | 393,479,162,082 |
| Germany | 1,880,878,023,463 | 2,006,678,890,909 | 2,423,721,432,864 | 2,726,341,472,500 | 2,766,253,792,966 | 2,902,749,305,068 | 3,323,809,686,746 |
| Unites Kingdom | 1,468,121,585,535 | 1,601,561,196,401 | 1,855,750,258,175 | 2,196,860,009,521 | 2,295,843,320,737 | 2,452,970,940,716 | 2,825,528,324,602 |

This table shows GDP in US dollar for seven years in the selected developed economies. Among the selected countries are USA, Norway, Germany, and United Kingdom. The data were collected from the World Bank Web site.

Appendix 5: Cases of Fatal Occupational Injury in Developed Markets

| Developed Market | | | | | | | |
|------------------|------------------------------------|-------|-------|-------|-------|-------|-------|
| Country | Cases of Fatal Occupational Injury | | | | | | |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| USA | | | 5,575 | 5,764 | 5,734 | 5,840 | 5,657 |
| Norway | 37 | 39 | 49 | 38 | 48 | 31 | 38 |
| Germany | 1,107 | 1,071 | 1,029 | 949 | 863 | 941 | 812 |
| Unites Kingdom | 210 | 191 | 174 | 179 | 173 | 220 | |

This table shows the number of fatal cases for seven years in the selected developed economies. Among the selected countries are USA, Norway, Germany, and United Kingdom. The data were collected from the International Labor Organization (ILO) Web site. Data is missing from 2001 and 2002 from the U.S. and from 2007 for the United Kingdom due to the absence on provided information to the International Labor Organization.

Appendix 6: Rate of Fatal Occupational Injury in Developed Markets

| Developed Market | | | | | | | |
|------------------|-----------------------------------|------|------|------|------|------|------|
| Country | Rate of Fatal Occupational Injury | | | | | | |
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 |
| USA | | | 4% | 4% | 4% | 4% | 4% |
| Norway | 1.6% | 1.7% | 2.1% | 1.3% | 2.1% | 1.3% | 1.6% |
| Germany | 3% | 2.9% | 2.8% | 2.6% | 2.4% | 2.5% | 2.2% |
| Unites Kingdom | 0.8% | 0.7% | 0.7% | 0.7% | 0.6% | 0.7% | |

This table shows the rate of fatal cases for seven years in the selected developed economies. The selected countries are USA, Norway, Germany, and United Kingdom. The data were collected from the international labor organization (ILO) web site. Data is missing from

415 2001 and 2002 from the U.S. and from 2007 for the United Kingdom due to the absence on provided information to the international labor
416 organizatio