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## The Relationship between Iso 9000 and Economic Growth in Malaysia

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### ABSTRACT

ISO 9000 quality management standards compliance is well-known as one the significant factor in economic growth of developing countries. In this study the main objective is to evaluate: (I) if there is relationship between economic growth that is shown by GDP (Gross Domestic Product) and ISO 9000 quality management standards conformity in Malaysia, (II) if foreign direct investments and export of manufactured merchandises can mediate in the relationship between ISO 9000 quality management standards and economic growth. In order to fulfill this purpose, the data between 1995 up to 2011 was collect from UNCTAD and ISO 9000 online databases and they were analyzed through mediation regression analysis. From study's results it is identified that there is positive and significant correlation between ISO 9000 quality management standards conformity and GDP in Malaysia and foreign direct investment (FDI) and export of manufactured merchandise (ESP) significantly influence in this relationship.

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## INTRODUCTION

Changing the economic development in Malaysia has been one of the biggest challenges in this nation. Generally, developing countries' main issue lay down behind developing their economic condition by finding more appropriate methods for gaining higher degree of foreign and domestic investments in their nations. Although there are so many noticeable factors for sustaining improvement in these countries, for instance, country's main goods for exporting, agriculture, tourist income, and etc, though they would not be useful in lack of appropriate investing. Main issue for most of the developing nations especially those emerging countries in Africa, Latin America, and Southeast Asia (such as Malaysia) is the knowledge of positive economic effects in ISO 9000 quality management compliance which has not been modified as well as it has been clarified for developed countries, and in comparison of these countries, there is vast difference between GDP and HDI of developed and developing countries. ISO 9000 quality management standards identify some vital factors for organizations and corporations to prepare product with acceptable quality and do it constantly to deal with customer satisfaction and other important requirements. So in such a systematic approach quality management operations would manage corporations and organizations processes for meeting constant global quality standards. (Casadesus *et al.*, 2005; ISO, 2009; Wayhan, Kirche & Khumawala, 2002). This quality standard (ISO 9000) can translate a company's process to a norm and acceptable process (Corbett, 2006). And this verification independently carries out every three years. (ISO, 2009; Quazi, Hong, & Meng, 2002).

Also, ISO 9000, quality management standards certifications bring out some benefit for the country's development, it advances countries skilled labor force, multinational corporations, foreign direct investment, manufactured execution system, GDP, also increasing trading among those countries which apply ISO 9000. (Guler *et al.*, 2002)

According to UNDP 2008, there are strong evidences which show the effect from export of manufactured merchandises and employment intervene in generating small and medium enterprises of the country, and there is positive relationship for mutual improvement in the level of both ISO 9000 certifications and company's export merchandises. For instance, in developing countries such as Bangladesh, Nigeria and turkey that had gained low number of quality management standards certifications, export of manufactured merchandises were

respectively 0.10%, 0.48%, and 0.82% of the world export in 2008, in comparison countries which had been certified with high level of quality standard management achieving slightly different percentage in the same year, such as United States: 8.12%, Germany 9.08%, France 3.76% (UNCTAD Handbook of Statistics, 2009). Table 1 shows the Sample of data of Malaysia in 1995, 2003, and 2011:

**Table 1:**

Malaysia	ISO 9000 certificates	GDP(\$ Million)	FDI(\$ Million)	EXP(\$ Million)
1995	690	92245.6	28730.6	73913.8
2003	3076	110202.4	41187.9	99369
2011	10757	277407.2	114554.6	228259

The main objective of this study is to identify whether there is a positive and significant relationship between economic growth in Malaysia and number of ISO 9000 certifications in this country, in addition this study determine whether foreign direct investments and export of manufactured merchandises can influence the relationship of ISO 9000 quality management standards and economic growth in Malaysia.

### **Literature Review:**

Quality management standards such as ISO 9000 is used for achieving right process in high quality products, ISO 9000 get used increasingly by manufacturers, different sizes of organizations, and service providers, the latest reports say near one million ISO 9000 certifications have been adopted by almost 176 countries (ISO, 2010). A quality management standard was first published in 1987, and after that in 1994 three other standards have been announced, eventually after six years ISO 9000 have been introduced by the international standards organization.

Obviously this quality management certificates has been not distributed equally around the world. For instance most of ISO 9000 certificates have been applied in European countries and Asian countries (more than 85%), therefore other regions such as Latin America countries have less certificates. In addition developed countries have more ISO 9000 certificates than developing countries. Hong and Phitayawejwivat study in 2005 showed that ISO 9000 certifications will help in economic development improving. In the same models that had been applied in 650 companies in Thailand, the authors verified ISO 9000 certifications in Thailand companies help in developing higher GDP, trade with other countries, production, and new and functional information exchanging. TQM, JIT and Deming prize, are not consider as the popular quality management systems and they are inactive in today economic condition, though ISO 9000 have been effectively grown through last decade.

As development program (UNDP in 2008) report developing country such as Malaysia basically have limited supply for sustained economic and human development. And requirement for a vital social project instead of technological development is more necessary for Malaysia or any developing countries than in developed countries. Choosing inappropriate technological development choice might be result in economic and social matters such as, when country's manufactured products do not satisfy the global market test any more. European Business Report (EBR, May 2008), identified entry of Multinational corporations made emerging industrialised countries such as, Brazil, China, India, Mexico. EBR also report over \$70 billion had been invested on china for innovation and high-tech capacity building in the past five years for petrochemical, telecommunication, finance, insurance, pharmaceuticals, retail and environmental industries, this was significant help for Chinese domestic economy. Also Rodriguez-Clare in 1996 showed that there is a correlation between Multinational corporations' entry and ISO 9000 in host country, this researcher showed that multinational corporations influence economic growth in developing countries, so Malaysia as one of the developing countries can gain advantage of the existence of multinational corporations in its land. Through an empirical study, it has been identified that multinational corporations which export goods and services to a country most of the time transfer technical and managerial skills to the host country Corbett *et al.* (2006). And previously in 2002 Guler showed multinational corporations boost ISO 9000 diffusion and trade relationship within and across countries through supply chain system.

### **Foreign direct investment (FDI):**

Foreign direct investments can be consider as a vital factors in economic development especially in developing countries which provide foreign currency and tax revenue, FDI also support investment and economic activities in the local country. Malaysia such as other emerging nations seeking aggressively for other source of private capital, according to World bank report in 2012, Malaysia had the annual FDI inflow of \$3 billion in 2000 and this number change to over \$11 billion in 2011, this shows the role of FDI in today economic situation in developing nations. FDI can directly or indirectly helps to promote economic growth.

According to the study of Srinivasan *et al* 2010, there is a positive correlation between FDI and economic development in the association of the Southeast Asia nations (ASEAN). This study also identified that the capacity for developing nations is vitally depended on the attracting FDI flows. And with a correlation with

Dunning's results (1997) developing countries' economic growth and trade would face serious problem without foreign direct investments.

**Export of manufactured merchandise (EXP):**

Most of nations' employments are depended on small and medium enterprises, and this matter has been recognised to national economic growth for long time. ISO 9000 is a vital point in upgrading industrialization and entry of manufacturing enterprises into today global market. Guash *et al.* (2007), according to Tervioski(2010) ISO 9000 conformity can support the entry of small and medium enterprises to the local economy. In Malaysia palm oil industry is a marketing function which helps in the development and entry of small and medium enterprises in Malaysia; this can be for all the developing nations, and most of these productions are decentralized, which are great help for entry of SMEs.

Increasing of quality management standards conformity causes in improving of companies which make manufacturing products. Ayyagari, Beck and Demirguc-Kunt (2007). Through another research, it has been identified that ISO 9000 high certified countries have higher productivity and quality output than low or non-certified countries. Also studies by Sun and Cheng (2002) and similarly by Quazi, Hong, and Meng (2002) the same result had been conducted for ISO 9000 certified small and medium enterprises in manufacturing.

**Research Hypothesis:**

The main objective of the study was to identify whether there is a relationship between ISO 9000 quality management standards and economic growth, and evaluate if foreign direct investment (FDI) and export of manufactured merchandise (EXP) as the mediator variables can influence ISO 9000 quality management standards and economic growth relationship in Malaysia, so the following specified hypotheses are investigated:

**H1o:** There is no significant relationship exists between economic growth (GDP) with any of the variables which are ISO 9000, FDI, and EXP.

**H1a:** There is a significant relationship exists between economic growth and at least one of the variables which are ISO 9000, FDI, and EXP.

**H2o:** There is not a considerable relationship between ISO 9000 quality management standard certificates and economic growth in Malaysia.

**H2a:** There is a considerable relationship between ISO 9000 quality management standard certificates and economic growth in Malaysia.

**H3o:** there is not a considerable relationship between quality management standard and any of the three mediator variables that are foreign direct investment and export of manufactured goods in Malaysia.

**H3a:** there is a considerable relationship between quality management standard and any of the three mediator variables that are foreign direct investment, and export of manufactured goods in Malaysia

**H4o:** there is no relationship exist between economic growth and any of the moderator variables which are FDI and EXP.

**H4a:** there is a significant relationship between economic growth and moderator variables which are FDI and EXP.

**H5o:** there is not a considerable correlation between economic growth and ISO 9000 quality management standard certificates with mediator variables that are foreign direct investments and export of manufactured goods as mediator variables in Malaysia.

**H5a:** there is a significant correlation between economic growth and ISO 9000 quality management standard certificates with mediator variables that are foreign direct investments and export of manufactured goods as mediator variables in Malaysia.

**Research Design:**

Current study is an ex post facto research which is quantitative to evaluate the relationship among criterion and predictor variables. So there is no manipulation in data and data are used as they were, therefore data and variables have been conducted from online databases. ISO 9000 quality management standards' data is conducted from International Organization Standards online database and GDP, FDI, and EXP data is extracted from UN Conference on Trade And Development. Online databases variables were up to date of 2012 when constructed for this thesis. Sample unit for quality management standard is the number of ISO 9000 certificates which had been recorded between 1995 to 2011 in Malaysia.

Study estimated the statistic correlation within dependent, independent, and two mediator variables, through using Hashemini and Niaki (2008) and Reiss and Wolak (2007) method.

$$Y = \alpha F1(X1) + \beta F2(X2) + \delta Fn(Xn) + \varepsilon$$

: GDP (economic growth) as the dependent variables or criterion variable

: ISO 9000, FDI, and EXP independent or predictor variables

: Regression coefficient

: represent the standards error

And same as other non-experimental study, regression and correlation analyses are the main keys for the measuring of the variables and reaching the final result, this study use the general mediation regression formulas to evaluate if there is relationship among variables.

### **Research Findings:**

#### **Hypothesis 1:**

This study examined whether there is a correlation between GDP of Malaysia and at least one of the variables, which are ISO 9000, FDI, and EXP. After regression analyzing, an ANOVA test (F test) was used to examine any correlation between dependent variable which is GDP of Malaysia and independent variables which are ISO 9000 certificates, FDI and EXP of Malaysia, which this test also confirmed the significant relationship between variables in Malaysia, where F statistical is bigger than F critical ( $F_{\text{Statistic}} = 116.324$ , and  $F_{\text{Critical}} = 2.75$ ). Even from Pearson correlation this relationship can be accepted where all of the variables have correlation with each other over 87%, which means the overall performance of independent variables (ISO 9000 certificates, FDI and EXP) relative to dependent variable (GDP) showed a positive relationship. In addition  $R^2_{\text{Adjusted}}$  is 95.6 %, which means approximately 96 % of variation in Malaysia economic development can be explained by independent (ISO 9000 certificates) and mediator variables (FDI and EXP), so study accept the significant correlation and null hypothesis is rejected.

#### **Hypothesis 2:**

Study examined and answered the question that whether there is relationship between ISO 9000 quality management standards and economic growth in Malaysia. From Pearson correlation test, ISO 9000 as independent and GDP as the dependent variables have a positive correlation and it is about 93 %, so it identified that there is a positive relationship.

Also study indicate a positive and significant correlation, where, R square is 86.2% and it shows, at least 86 % of variation Can be related to each other, (GDP with ISO 9000 variations are related). In other words, having certification of ISO 9000 for Malaysia caused promotion in GDP and economic growth in Malaysia.

#### **Hypothesis 3:**

In hypothesis three, the study check if there is a relationship between ISO 9000 quality management standards and mediator variables which are foreign direct investment and export of manufactured merchandise in Malaysia.

- FDI and ISO 9000:

From the result that study finds out there is a positive and significant relationship between ISO 9000 quality management standard and foreign direct investment, due to Pearson correlation test there is a positive correlation.

And because of R Square which is 0.767, and this shows there is at least 76 % of changes can be related to each other (FDI and ISO 9000). In other words, higher number of ISO 9000 quality management standard certificate can boost foreign direct investments' stock in Malaysia.

- EXP and ISO 9000:

Due to Pearson correlation test, there is a positive correlation, and also R square which is 0.908 in model summary of regression analysis, and this shows there is at least 90 % of changes are related to each other. In other words, higher number of ISO 9000 quality management standard certificate can boost export of manufactured goods in Malaysia.

#### **Hypothesis 4:**

Hypothesis four investigates whether there is a significant relationship between foreign direct investments and export of manufactured merchandise as the mediator variables with economic growth in Malaysia.

- FDI and GDP:

Statistical analysis finding confirm there is a significant relationship where Pearson correlation table's data claimed that there is high and positive correlation between the variables. Also R square form model summery, where R square: 0.861, shows there is at least 86 % of the variations in economic growth of Malaysia can be predicted by foreign direct investments' variations in Malaysia.

- EXP and GDP:

From the result that study finds out, there is a positive and significant relationship between export of manufactured merchandise and economic growth which is represented by GDP in Malaysia, due to Pearson correlation box there is a positive correlation. And due to R square, which is 0.942, shows there is at least 94 % of changes are related to each other (GDP and EXP). In other words, the variations in economic growth of Malaysia can be predicted by export of manufactured merchandise variations in Malaysia.

**Hypothesis 5:**

The last hypothesis tests if foreign direct investment (FDI) and export of manufactured merchandise (EXP) as the mediator variables can influence on the relationship between ISO 9000 quality management standards and economic development in Malaysia.

- FDI:

As the result of hypothesis 2 identified, there is a significant and positive relationship between ISO 9000 quality management standards and economic growth of Malaysia, where R square: 0.862 and  $\beta_1$  or ISO coefficient: 0.929, after adding FDI to equation of Hypothesis 2, when only ISO 9000 and GDP exists in the equation,  $\beta_1$  decrease and change where 0.929 shift to 0.497 and R square increased from 0.862 to adjusted R square 0.907. So it shows FDI can significantly influence on ISO 9000 quality management standards as the driver of economic growth in Malaysia.

- EXP:

In Hypothesis 2, there is a significant and positive relationship between ISO 9000 quality management standards and economic growth of Malaysia, where, R square = 0.862 and  $\beta_1$  or ISO coefficient= 0.929, after adding EXP to the Hypothesis 2 (where ISO 9000 and GDP are the only variables)  $\beta_1$  decrease and shift from 0.929 to 0.039 and R square increased from 0.862 to adjusted R square 0.934. Also EXP can influence ISO 9000 quality management standards as the driver of economic growth in Malaysia.

**Conclusion And Recomedation:**

Five hypotheses conducted, and through simple regression and multiple regression analysis these five hypotheses have been investigated and the findings were reported on result section, and in this section their implications for economic development will be discussed in Malaysia as an agent of developing countries.

Hypothesis 1 evaluated if there is a significant relationship between Economic growth and ISO 9000 quality management standards, FDI (foreign direct investment), and EXP (export of manufactured merchandise) in Malaysia. From the findings, it is identified that there is a relationship between GDP (economic growth) and predictor variables. And result shows there is a strong correlation between dependent variable and independent variables in Malaysia, since the Computed F value is higher than Critical F value. Also this positive result gives the permission to start the other four hypotheses.

Hypothesis 2 evaluated if there is a positive and significant relationship between ISO 9000 quality management standards and GDP (economic growth). And the result accepted that there is a significant and also positive correlation between these two variables.

Hypothesis 3 evaluated if ISO 9000 as the Independent variable and FDI (foreign direct investments) and EXP (export of manufactured merchandise) as the two moderator variables are significantly and positively related to each other. The result shows that certification in ISO 9000 have a significant power in promoting these two variables (FDI and EXP) in Malaysia, many developing countries such as Malaysia have the potential for accepting multinational corporation foreign direct investments stock in their countries, so the result shows and confirm it. The result for ISO 9000 quality management standards and export of manufactured merchandise is also high (R square > 0.9, over 90 % of variations are related) and admits that export of manufactured goods would be one of the economic development drivers.

Hypothesis 4 evaluated if FDI and EXP can significantly and positively related to economic growth of Malaysia. From the result significant and positive relationship have been found between FDI and EXP with economic growth in Malaysia where R square is %86 and 94% respectively and these result confirm the high and positive relationship between them, and this high growth in percentage can be attributed to high growth in percentage of ISO 9000 quality management standards certificates in Malaysia. Also from past study (Borenszstein *et al.* (1998) and Geroski (2000) theory), it was identified that Malaysia as one of developing countries has a higher accelerated rate for economic growth than developed countries, because of the acquisition, adoption, diffusion, and implementation of new technological innovations. To conclude, results of statistical analysis confirm the adoption of ISO 9000 as the new innovation can be result in economic growth.

Hypothesis 5 evaluated that whether foreign direct investment, export of manufactured merchandise separately can reduce the influence of ISO 9000 on economic growth in Malaysia. Result showed a positive and significant correlation so FDI influence ISO 9000 quality management standards in Malaysia.

From the table of data, the number of ISO 9000 certificates rise up from 690 in 1995 to 10,757 in 2011 and FDI stock from \$28,731 million in 1995 change to \$114,555 million in 201, likewise, GDP increased from \$92246 Million in 1995 to \$277,407 million in 2011, all of the aforementioned information identified strong linkage between them (ISO 900 and FDI). Also result show the same finding for export of manufactured merchandise, and admit that export of manufactured merchandise significantly influence on ISO 9000 as the economic development driver in Malaysia. Table 2 is the summary of the study findings and discussions:

Table 2:

Relationship	Results	Discussion
ISO 9000 and GDP	R <sup>2</sup> : 86%, ISO coefficient( $\beta$ ): 0.929	Strong, positive relationship
ISO 9000 and FDI	R <sup>2</sup> : 77% Correlation: 0.876	Good and positive relationship
ISO 9000 and EXP	R <sup>2</sup> : 91% Correlation: 0.953	Very strong and positive relationship
FDI and GDP	R <sup>2</sup> : 86% Correlation: 0.928	Strong, positive relationship
EXP and GDP	R <sup>2</sup> : 94% Correlation: 0.970	Very strong and positive relationship
FDI on GDP and ISO 9000	R <sup>2</sup> : 92% ISO coefficient( $\beta$ ) : 0.497	FDI is a significant moderator
EXP on GDP and ISO 9000	R <sup>2</sup> : 94% ISO coefficient( $\beta$ ) : 0.039	EXP is a significant moderator

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