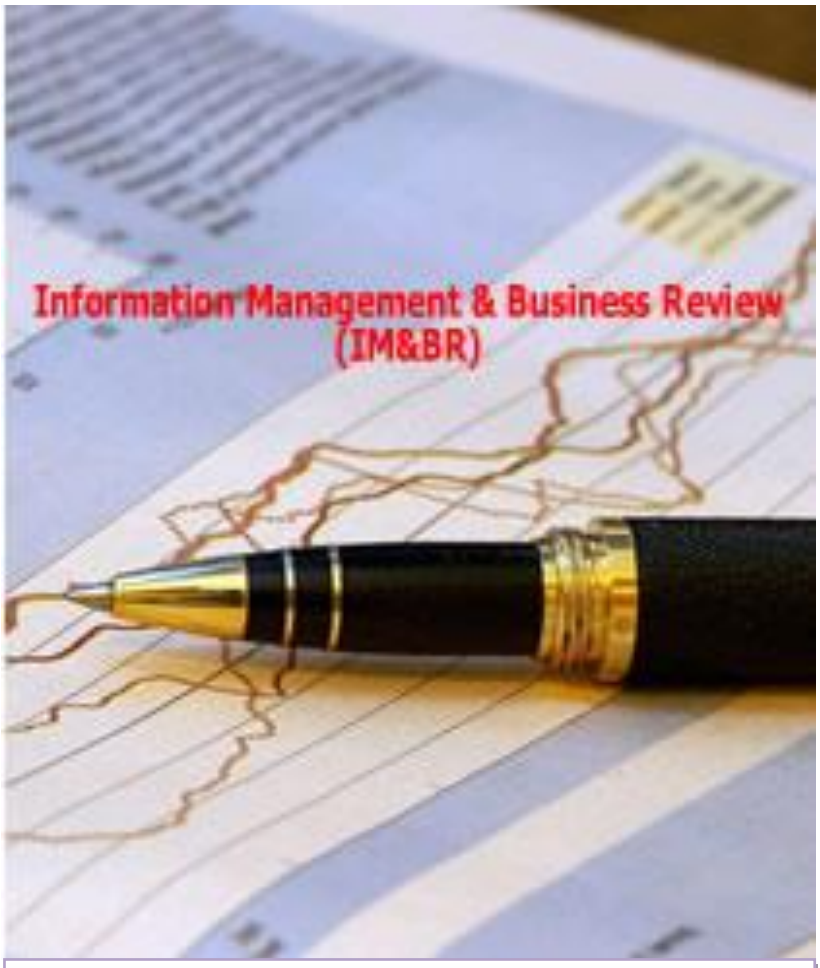


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**Editorial**

Information Management and Business Review (IMBR) provides a unique platform to scholars around the world to share their knowledge and publish research work in the fields of information management, business, management and related disciplines. The work submitted for publication consideration in IMBR should address empirical and theoretical developments in the subjects related to scope of the journal in particular and allied theories and practices in general. Scope of IMBR includes: subjects of finance, accounting, auditing, cost & management accounting, financial psychology, financial literacy, marketing, information management, human resource management, knowledge management, innovation, change management, enterprise management, e-commerce and information system. Author(s) should declare that work submitted to the journal is original, not under consideration for publication by another journal, and that all listed authors approve its submission to IMBR. It is IMBR policy to welcome submissions for consideration, which are original, and not under consideration for publication by another journal at the same time. Author (s) can submit: Research Paper, Conceptual Paper, Case Studies and Book Review. The current issue of IMBR comprises of papers of scholars from Malaysia, Nigeria, USA, South Africa, Pakistan and China. Comparative analysis of socio-economics determinants of fertility, experiential marketing and marketing performance, tenure vs non-tenure faculty employment decisions, unpacking the Syrian crisis and role of exports, imports and it's determinants in foreign trade are some of the major practices and concepts examined in these studies. Journal received research submission related to all aspects of major themes and tracks. All the submitted papers were first assessed by the editorial team for relevance and originality of the work and blindly peer reviewed by the external reviewers depending on the subject matter of the paper. After the rigorous peer-review process, the submitted papers were selected based on originality, significance, and clarity of the purpose. Current issue will therefore be a unique offer, where scholars will be able to appreciate the latest results in their field of expertise, and to acquire additional knowledge in other relevant fields.

Prof. Dileep Kumar, M., Ph. D.
Editor In Chief

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# PAPERS

Information Management and Business Review (IMBR)
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# Comparative Analysis of Socio-Economics Determinants of Fertility: Malaysia and United Kingdom

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**Abstract:** The divergence between the literature on fertility decision making and the differences factors on determinants signifies the importance of this study. The study will conduct empirical analysis from the perspective of demographical dimension, socio-economics, intergenerational factors and microeconomics factors that is associated with fertility decision making from the theoretical perspective of quality vs. quantity of children. Order Probit model was employed using the selected sample of female at the age 15 to 49. The finding revealed educated women in Malaysia and UK decision on the number of children based on their fertility preference and career advancement. The other explanation is based on the relative price change by Becker's demand of children – cost of child-rearing activities, urbanization, opportunity costs of child-bearing.

**Keywords:** *Fertility-decision, socio-economics, demographical, intergenerational, microeconomics*

## 1. Introduction

Historically, the rapidly increasing population throughout the world has escalated many problems, which include widespread poverty, unemployment, social issues such as inequality, underdevelopment, political unrest, climate change, diseases and other pandemics, reproductive health and many other problems. These have led to many issues that relate to many aspects of life from housing, health, ageing, influx of migrations and clean access of water, and so much more. These also have subsequently contributed to the emergence of doctrine on population by United Nations (UN) and government of the country**.** However, the fact that the worldwide fertility has declined over the past fifty years was anticipated by demographers and population forecasters, as evidenced by the UN population projections made the 50s and 60s century. In the early 50s, there are two distinct demographic groups:

- less developed regions with total fertility rates above 5 children per woman
- less developed regions with average fertility above 3.5 children per woman

**Table 1: The World, Development Groups and Major Areas Total Fertility**

| | *Total fertility (average number of children per woman)* | | | |
|---|---|---|---|---|
| *Development group or major area* | *1950-55* | *1970-1975* | *1990-1995* | *2005-2010* |
| World | 4.97 | 4.44 | 3.04 | 2.53 |
| Developed regions | 2.83 | 2.15 | 1.67 | 1.66 |
| Developing regions | 6.08 | 5.36 | 3.38 | 2.69 |
| Least developed countries | 6.55 | 6.75 | 5.77 | 4.53 |
| Other less developed countries | 6.02 | 5.18 | 3.08 | 2.40 |
| Africa | 6.59 | 6.66 | 5.71 | 4.88 |
| Asia | 5.83 | 4.99 | 2.96 | 2.25 |
| Europe | 2.67 | 2.17 | 1.57 | 1.54 |
| Latin America and the Caribbean | 5.86 | 5.02 | 3.02 | 2.30 |
| Northern America | 3.35 | 2.01 | 2.00 | 2.02 |
| Oceania | 3.83 | 3.23 | 2.49 | 2.47 |

Source: United Nations, Department of Economic and Social Affairs, Population Division (2013). Fertility Levels and Trends as Assessed in the 2012 Revision of World Population Prospects.

The 20 year period (1990-2010) from Table 1 showed that out of the sixth regions, Africa still dominates with more than 5 child per woman. In contrast, in Asia, Latin America and the Caribbean, Northern America and Oceania the number of children ranging from 2 to 3 children per woman; and Europe with lowest fertility below 2 children per woman. The world fertility level are influences by many factors such as demographic, socio economics, culture, social and economic conditions. Many reasearch always associated lower fertility

wirh industrialized and economically developed country. Table 2 represents a average number of children per woman based on the type of country development.

**Table 2: Fertility Rate by World Bank Income Group, 2009**

| Income Group | Adolescent fertility rate (per 1000 girls aged 15 -19 years) | Crude death rate (per 1000 population) |
|---|---|---|
| Low Income | 110 | 11 |
| Lower –middle income | 223 | 8.5 |
| Upper-middle income | 197 | 7.5 |
| High income | 134 | 8.3 |
| Global | 202 | 8.4 |

Source: World Health Organization (2013), Global Health Observatory Data Repository

Table 3 provides general characteristics of Malaysia and United Kingdom; indicating some basic informations relating to geographic and socio-economics information. Malaysia and UK represent substantial diversity in many aspects of socio-demographic factors, socio-economics status, cultural and religious factor. Malaysia has a majority of Muslim populations and is a multi-racial country with diversity of culture. Christian is a major religion in the United Kingdom until the 1980s, when Christianity declined and the diversity of the population increased. The two countries also represent substantial diversity in education, income per capita and woman working ratio.

**Table 3: Basic characteristics of Malaysia and UK**

| Characteristics | United Kingdom | Malaysia |
|---|---|---|
| Region | Northern Europe | South Eastern Asia |
| Population (million) | 62,417 | 28,859 |
| GDP per-capita (US$) | 38,918 | 9,977 |
| Total fertility rate (children per women) | 1.6 | 2.6 |
| Female labour-force participation rate (2009-2013) | 56 | 44 |
| Life expectancy at birth (years) Female/ Male | 82.4/78.3 | 76.9/72.5 |
| Gross enrollment rate (%) Secondary | 102[b] | 68[b] |
| Quality of life index | 9.917[c] | 6.608[c] |

Source: [a]Data from United Nations (2014)
[b]Data are form United Nations Development Programme (2014)
[c]www.economist.com (retrieved 6 March 2014) (Scale 1-10)

The fertility rate in Malaysia is 1 per cent higher than United Kingdom. Such low fertility levels indicate that each country has experienced substantial decline in fertility but the time frame might be different. As for UK total fertility rate is only 1.6, below the replacement level of 2.1 children per woman in every member state of the European Union (EU). According to Grant et al. (2004), there is negative relatioship between fertility and the mean age of women, which cause more older people than the younger youths. This will be serious consequences for policymakers, due to increases in pension and health provisions as people age and therefore fewer tax payers. Another fact is the increasing participation of women in their prime age of 25-54 years in paid work has been driving the employment trends and the gender gaps in labour force participation rate, which linked to the completion of the fertility transition. UK labour force participation rate is 12 percent higher than Malaysia, drove the fertility rate below the replacement rate of 2 children per women. Malaysia female labour force participation rate start to increase when women start entering the labour force for family survival. The limitation of this research is the unavailability of secondary data on fertility demographics and socio-economics from Malaysia and UK. This is further analyze on the demographical effect, intergenerational

relationship, relative income effect and opportunity cost. The focus will center on female at child bearing age of 15 to 49 years old.

## 2. Literature Review

Rational choice theory is directed on the hypothesis individual/woman react to achieve their individual objective in any situations. Bulatao (2001) stated that to limit fertility is largely seen as a normal process based on individual controls that less fertility make sense for economic and non-economics factors. These theories are interrelated with two major economic approaches associated with fertility change;

- Decreased number of children influenced by income, price and taste (Becker, 1981; Schultz, 1974)
- Supply and demand framework by Easterlin (1978), in which supply are constraint that boundary of usual fertility rate and year of existence (Hirshman, 1994; Kirk, 1996) together with culture and attitudes.

In the field of sociology, the related concept of rational choices is associated with theory of exchange (Wallace and Wolf, 1995). Cain (1983) suggest that family treats highly as having children and as a valuable possession and not replaceable. Indeed, the rational choice theories stress more on the economic justification of rising real wages that will induce the decline in fertility rate in three ways as discussed by Schellekens and Poppel (2012). According to Garlor and Weil (1996), the substitution effect is higher than the family income effect; the increase in a woman salary may increase the price of raising children. The increase in income would influence parents to invest more on quality rather than the quantity of children (Becker et al., 1990). Lastly as real income increases, the demand for children may be less because children are more needed to involve in a labour force.

## 3. Methodology

The ordered probit uses the following form to model the dependent variable using categorical;

$Y^* = ß'X + Ɛ$

When $Y_i$ takes on multiple qualitative values which can be ranked (ordinal outcomes) such as the number of children coded as from 0 to more than 4. ß' is the vector of estimated parameters and X is the vector of explanatory variables, ε is the error term, which is assumed to be normally distributed (zero mean and unit variances) with cumulative distribution denoted by Θ (*) and density function denoted by Ǿ (*). Given a number of children, household number of children falls in category n if $\mu_{it-1} < Y^* < \mu_{it.}$ The fertility data, Y*, are related to the underlying latent variable Y*, through thresholds $\mu_{it,}$ where n= 0-4. The underlying probabilities:

*Prob* (y=n) = Θ ($\mu_{it}$ - ß'x) - Ǿ ($\mu_{it-1}$ - ß'x) , n = 5

Where $\mu_0$= 0 and $\mu_5$=+∞ and $\mu_1 < \mu_2 < \mu_3 < \mu_4 < \mu_5$ are defined as five thresholds between which categorical responses are estimated. The threshold μ show the range of the normal distribution associated with the specific values of the response variable. The remaining parameters, ß, represent the effect of changes in explanatory variables on the underlying scale.

The marginal impacts of factors x on the underlying injury propensity can be evaluated in the following way:

$\partial$ Prob (y=n)/ $\partial$ x = -[ Θ ($\mu_{it}$ - ß'x) – Θ (($\mu_{it-1}$ - ß'x)] ß, n= 5

Marginal effects computation is meaningful for ordered probit model where the effect of variables x on the intermediate categories is ambiguous if the parameter estimates are available.

Goodness of fit measure can be obtained by calculating

$P^2 = 1 - [\ln L_b / \ln L_o]$

Where ln $L_b$ is the log likelihood at convergence and ln $L_o$ is log likelihood computed at zero. This measure is bounded by zero and one. If all model coefficients are zero, then the measure is zero. Although $P^2$ cannot equal one, a value close to one indicates a very good fit.

**Model and Data:** Census micro data is from Integrated Public Use Microdata Series (IPUMS) containing information collected on persons and households. The responses of each person and household with the different census questions are recorded in separate variables. However, for this study only female within the household will be analyzed at child-bearing age of 15-49 years. Following the theoretical work of Becker (1960, 1981, 1991) and Becker and Lewis (1973), Sah (1991), Sobel and Arminger (1992), Huan (1997), Cigno (1998), Hondroyiannis (2004), Gyimah et al. (2008), so it is possible for this research to come up with an equation for fertility decision making;

$$NCHILD = ß_0 + ß_1SPLOC_{ij} + ß_2MARST_{it} + ß_3URBAN_{ij} + ß_4RELIG_{it} + ß_5AGE_{i\ t} + ß_6ETHN_{ij} + ß_7OWNRSHP + ß_8OCCISCO_{it} + ß_9EDUC_{it} + \mu_t$$

**Variable definitions:**

- NCHILD = number of children
- SPLOC = 1 if spouse's location in the household, 0 otherwise
- MARST = marital status
- URBAN = 1 if urban, 0 otherwise
- RELIG = religious belief
- AGE = childbearing age category (15-49 years old)
- ETHN = ethnicity
- OWRSHP = 1 if ownership of dwelling, 0 otherwise
- OCCISCO = type of occupation
- EDUC = education attainment

## 4. Results and Discussion

The following is the description of data for the year of 1991. Table 4 present the ordinal scale, the highest categories are women with 3-4 children at 21 percent and only 8 percent have children more than 5. In Asian countries, the ideal family size tends to band in the range of 3.5 to 4.5 children (ESCAP, 1987). As for UK, the highest categories are women with 1 child and 2 child, 18 percent and 16 percent respectively.

**Table 4: Descriptive Analysis on Number of Children based on Ordinal Scale – MY and UK**

| Number of children in ordinal category | Percent MY | Percent UK |
|---|---|---|
| 0 | 45 | 56 |
| 1 | 12 | 18 |
| 2 | 14 | 16 |
| 3-4 | 21 | 7 |
| > 5 | 8 | 3 |
| Total | 100 | 100 |

Table 5 showed the number of children based on child-bearing age 19 percent are from the age group of 15-19, followed by 20-24 and 25-29 at 16 percent and for UK the highest category at the age 30-34 at 21%.

**Table 5: Descriptive Statistics on Children based on Child-Bearing Age Interval – MY and UK**

| Age interval | Percent MY | Per cent UK |
|---|---|---|
| 15 -19 | 19 | 1 |
| 20-24 | 16 | 8 |
| 25-29 | 16 | 17 |
| 30-34 | 15 | 21 |
| 35-39 | 14 | 17 |
| 40-44 | 11 | 19 |
| 45-49 | 9 | 17 |
| | 100 | 100 |

The comparisons were based on proxy of four effects; demographic, intergenerational, relative income and opportunity cost. Ordered probit of ME is used as it provided how change in a response related to change in a covariate (Stata 11 Reference Manual, p.975). For ME for categorical variables show how P (Y=1) is predicted to a change as $X_k$ changes from 0 to 1 holding all other $X_s$ equal (Cameron & Trivedi, 2009). The demographic variables of marginal effects between Malaysia and UK presented in Table 6.

***Table 6: Comparison of ME Result of Demographic Variables for Malaysia and UK: Ordered Probit for Childless Women***

| Effects | Variables | Malaysia | | UK | |
|---|---|---|---|---|---|
| | | **ME** | ***,**,*** | **ME** | ***,**,*** |
| Demographic | Spouse | 0.296 | *** | **0.340** | *** |
| | Married | **-0.557** | *** | -0.391 | *** |
| | Divourced | **-0.526** | *** | -0.373 | *** |
| | Widowed | **-0.573** | *** | -0.506 | *** |
| | Age 15-19 | **0.375** | *** | -0.012 | *** |
| | Age 20-24 | **0.339** | *** | 0.197 | *** |
| | Age 25-29 | **0.225** | *** | 0.088 | *** |
| | Age 30-34 | 0.032 | *** | **-0.180** | *** |
| | Age 35-39 | -0.097 | *** | **-0.347** | *** |
| | Age 40-44 | -0.097 | *** | **-0.386** | *** |
| | Malay/White | **-0.154** | *** | 0.002 | - |
| | Chinese/Black | -0.020 | *** | **-0.160** | ** |
| | Indian/ Asian | -0.089 | *** | 0.100 | - |
| | Urban/Region | -0.079 | *** | -0.025 | - |

Note: ***=p<1%, **=p<5%,*=p<10%, ME –marginal effects, - (not significant)

The proportion of women in Malaysia and UK varied significantly with marital status, age and race in terms of fertility choice. Probability of having a spouse in the household is higher and in UK (34%) than in Malaysia (30%), which probably indicates that most spouse in Malaysia is not staying in the household due to work commitment. In terms of marital status, the probability is higher in Malaysia for all categories and more than 50 percent women in Malaysia prefer to have children. In the age category of 15-29 in Malaysia, higher probability of more likely not to have children than in UK. At the age of 30-34, UK with probability of 18 percent prefer not to have children but opposite with Malaysia only 3.2 percent prefer to have children, while at the age of 35-44, both country show the women prefer not to have children but the probability is higher in UK. A woman's fertility decision will depend on the stage of her child-bearing career, influenced number of children and age. In UK, at the age of more than 30 and less than 44 would prefer to have children unlike the women in Malaysia. As in the case of race, only two variables are significant Malay for Malaysia and Black for UK, and quite similar probability of 16 percent prefer not to have children. The last variable on location, only significant in Malaysia, which indicate urban prefer not to have more children at probability of 7.9 percent. Study done by Poo & Nai (1994) on fertility intentions behaviour in Peninsular Malaysia found that significant differences occurred among ethnic group ( Malay double than Chinese and Indian in terms of fertility) and rural couples wanted more children than urban. Consequently, these result demostrate that women's preference for children is Malaysia and UK are different in their demographic variables that associated with the age, marital status and race. Table 7 will summarize the result of the marginal effects of the proxy used to the theoretical perpective based on three effects.

**Table 7: Comparison of ME Result of Malaysia and UK: Ordered Probit for Childless Women**

| Effects | Proxy Variables | Malaysia ME | *,**,*** | UK ME | *,**,*** |
|---|---|---|---|---|---|
| | Spouse | 0.296 | *** | 0.34 | *** |
| Intergenerational | Married | -0.557 | *** | -0.391 | *** |
| | Divourced | -0.526 | *** | -0.373 | *** |
| | Widowed | -0.573 | *** | -0.506 | *** |
| Relative Income | Ownership | **0.066** | *** | -0.043 | *** |
| | Education | | | | |
| | Secondary | 0.070 | *** | **0.098** | *** |
| | University | **0.085** | *** | 0.052 | *** |
| Opportunity Cost | Education | | | | |
| | Secondary | 0.070 | *** | **0.098** | *** |
| | University | **0.085** | *** | 0.052 | *** |
| | Legislator | -0.047 | - | **0.196** | *** |
| | Operators | 0.033 | - | **0.211** | *** |

Note: ***=p<1%, **=p<5%,*=p<10%, ME –marginal effects, - (not significant)

**Intergenerational effects:** In both estimation models, spouse living in the same household in both countries with the probability is about 30-35 percent preferred not to have children. This finding indicates that existence of spouse in the family surrounding is not important with the assumptions as long the spouse provided a source of income to the family. As for marital status (married, divorced and widowed) suggests that chains of relationship are important in deciding the number of children, however the probability is higher in Malaysia than in UK.

**Relative income effect and opportunity cost:** Table 7 shows that the relative income effects reveal higher probability of ownership for women in Malaysia with 6.6 percent more likely not to have children if they do not own a house. To own a house is a proxy of women asset, relative cost of having children to a family is not surely affecting the source of income which adds to family endowments. In this study, the finding of owning a house is expected to associate with increase number of children, other things being equal (Shultz, 1981; 1994).

As for education show that women in both country prefer not to have children, with the probability of less than 10 percent. However, the effects are higher in Malaysia for women with university qualification (8.5%) than in UK (5.2%), but the opposite result for secondary level. In terms of employment level, the MEs are significant for UK, higher probability for lower level occupation. There are negative associations between the high level of wage returns of employment and the level of fertility (Becker and Lewis, 1974). They suggest further that the income elasticity of demand for child quantity exceeded positive income elasticity for child quantity which means more income and less fertility. In this case one should not assume that children (quantity) are an inferior good for which income effects are negative, or to show increases in women's value of their time in the modern economy caused the decline in fertility.
The ME for education which is proxy for opportunity cost for a woman are higher as the education level increase in Malaysia but lower in UK. This result indicates that as the opportunity cost of raising children increases, household prefer fewer children. The negative association measure of relative income effect supports the quality-quantity theory and indicates women prefer less but higher quality children. Willis (1973) found that women's education was assumed to enhance women's productivity only in the market, and thereby increase the relative price of home production and decrease their demand for fertility. The wage return from higher education would increase demand for schooling and indirectly would decrease the demand for fertility. After analyzing the effect of relative income and opportunity cost of women in both countries, this study can conclude that the result follow the neoclassical theory of demand for children (Becker, 1981; Becker & Lewis, 1973).

## 5. Conclusion

The finding revealed women in Malaysia and UK with higher level of education is strongly associated number of children based on their choice and career advancement rather that thinking on number of children. The other explanation is based on the relative price change by Becker's demand of children – cost of child-rearing activities, urbanization, opportunity costs of child-bearing. Consequently, this research indicates a positive scenario in the overall fertility decision making, although it is at the declining trend, but women today are concern more on the quality of children they produced for the nation.

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## References

Becker, G. S. (1960). An Economic Analysis of Fertility. In G. Becker, J. S. Duesenberry & B. Okun (Eds.), Demographic and Economic Change in Developed Countries, Princeton, pp. 209–231

Becker, G. S., Murphy, K. M. & Tamura, R. (1990). Human Capital, Fertility, and Economic Growth. *Journal of Political Economy*, 98, S12-S37.

Becker, G. S. (1981). Altruism in the Family and Selfishness in the Market Place. *Economica*, 48, 1–15.

Becker, G. S. (1991). A Treatise of the Family. London: Harvard University Press

Becker, G. S. & Lewis, H. G. (1973). On the Interaction between the Ouantity and Quality of Children. *Journal of Political Economy*, 81, 279-299

Becker, G. S. & Lewis, G. H. (1974). Interrelation Between Quantity and Quality of Children, in T.W, Schultz (eds), Economics of the Family: Marriage, Children and Human Capital, PP. 81-90, Chicago, University of Chicago Press.

Bulatao, R. (2001). Introduction. *Population and Development Review,* 9, 688-702.

Cain, M. (1983). Fertility as Adjustment to Risk. *Population and Development Review*, 9, 688-702

Cigno, A. (1998). Fertility Decisions When Infant Survival is Endogenous. *Journal of Population Economics*, 11, 21-28.

Cameron, A. C. & Trivedi, P. (2009). Microeconometrics Using Stata, Stata Press, College Station, TX, 2009

ESCAP, (1987). Population Research Leads 26:8

Easterlin, R. A. (1978). The Economic and Sociology of Fertility: A Synthesis, 57-113 in C. Tilly, ed., Historical Studies of Changing Fertility. Princeton University Press

Grant, J., Hoorens, S., Sivadasan, S., Loo, M., DaVanzo, J., Hale, L., Gibson S. & Butz W. (2004). Low fertility and population ageing: Causes, consequences, and policy options. UK: European Commission. RAND Corporation

Garlor, O. & Weil, D. N. (1996). The Gender Gap, Fertility, and Growth. *American Economic Review*, 86(3), 374–387.

Gyimah, S. O., Takyi, B. & Tenkorang, E. Y. (2008). Denominational Affiliation and Fertility Behaviour in an African Context: An Examination of Couple Data from Ghana. *Journal of Biosocial Science*, 40, 445-458.

Hirshman, C. (1994). Why Fertility Changes? *Annual Review Sociology*, 20, 203-33.

Huan, N. D. (1997). A Socioeconomic Analysis of the Determinants of Fertility: The Case of Vietnam. *Population Economics*, 10, 251-271.

Hondroyiannis, G. (2004). Modeling household fertility decision in Greece. *The Social Science Journal*, 41, 477 - 483

Kirk, D. (1996). Demographic Transition Theory. *Population Studies*, 50, 361-387

Minnesota Population Center, Integrated Public Use Microdata Series, International: Version 6.2 [Machine-readable database]. Minneapolis: University of Minnesota, 201

Sah, R. K. (1991). The Effect of Child Mortality Changes on Fertility Choice and Parental Welfare. *Journal of Political Economy*, 99(3), 582-606.

Sobel, M. E. & Arminger, G. (1992). Modelling Household Fertility Decision: A Nonlinear Simultaneous Probit Model. *Journal of the American Statistical Association*, 87, 38-47

Schellekens, J. & van Poppel, F. (2012). Marital Fertility Decline in the Netherlands: Child Mortality, Real Wages, and Unemployment, 1860-1939. *Demography*, 49(3), 965–88.

Schultz, T. P. (1974). Birth rate changes over space and time: a study of Taiwan, in: T.W. Schultz, ed., Economics of the family (University of Chicago Press, Chicago, IL)

Schultz, T. P. (1994). Mortality decline in the low-income world: causes and consequences. *AEA Papers and Proceedings*, 83, 337-342.

Schultz, P. (1981). Economics of Population. Reading, MA: Addison Wesley.

Stata Press. (2012). Stata Base Reference Manual, Release 11. College Station, TX: Stata Press Quality of Life Index retrieved at www. economist.com

United Nations. (2013, 2014). Department of Economic and Social Affairs, Population Division.

United Nations, Department of Economic and Social Affairs, Population Division. (2013). Fertility Levels and Trends as Assessed in the 2012 Revision of World Population Prospects.

Wallace, R. A. & Wolf, A. (1995). Contemporary Sociology Theory: Continuing the Classical Tradition. Englewood Cliffs, NJ. Prentice Hall.

Willis, R. J. (1973). A new approach to the economic theory of fertility behaviour. *Journal of Political Economy*, 81(S2), S14–S64.

World Health Organizations, Global Health Observatory Data Repository Assessed at pps.who.int/gho/data/view.main.2060.

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# Experiential Marketing and Marketing Performance of Alcoholic and Non-Alcoholic Beverages in Nigerian Breweries PLC

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**Abstract:** This paper provided a theoretical review on how Nigerian Breweries uses its range of products to influence customer buying decision. This study examines the benefit of customer engagement and helps to understand the role of emotional benefit on marketing performance of beverages in the Nigerian Breweries plc. Experiential marketing play an important role in the industrial sector of a country, but faced with lots of constraints that impede its development and growth. These constraints include execution and also having creative ideas. How can a marketer generate interesting ideas that would help to pull sales for the brand? And how much cost should be incurred to project a huge life time customer experience in other to generate sales for a brand over a short time. This has led to inconsistencies in the continuation of events or shows by the company. The trend of experiential marketing is growing tremendously. The primary reason behind this is the exceptional procedures used by these services to allow one get focus from customer base and build relationship with them. Experiential marketing campaign is practically done anywhere. Therefore, previous studies suggest that most organizations did not take experiential marketing as an essential part of their marketing communication strategy; But with the change in communication process away from one way communication to two way communication and brands wanting immediate feedbacks for communication efforts, experiential marketing has now become a critical component of marketing efforts. We recommend that effective and efficient experiential marketing should be employed as a strategy to enhance marketing performance.

**Keywords:** *Experiential Marketing, Marketing Performance, Nigerian Breweries, Consumer Behaviour, Engagement*

## 1. Introduction

Nigerian Breweries Plc engages in the brewing and marketing of Lager beer, Stout and non-alcoholic malt drinks and the bottling of the Schweppes range of Soft drinks and Crush orange. The company's product range includes Star, Gulder, Legend Extra Stout, Maltina and Malta. These products are mainly sold in Nigeria and other neighboring countries (Bloomberg Markets, 2016). Therefore, previous studies suggest that most organizations did not take experiential marketing as an essential part of their marketing communication strategy; But with the change in communication process away from one way communication to two way communication and brands wanting immediate feedbacks for communication efforts, experiential marketing has now become a critical component of marketing efforts (Salau, 2015). Company brands do not only want consumers to see their products; they want them to feel it. This is why they often deploy the best creativity in any outing. Besides taking the game to meet people in their domain, the content not only appeals to the specific audience, it is usually carried out in a fun-filled, memorable encounter (Salau, 2015). Experiences are considered to be key concepts in marketing today. Experience is the key element in understanding consumer behavior and experience is the main component of experiential marketing. Brands are usually looking for new avenue to bond with consumers. This is why many organizations are deploying different experiential marketing effort.

The Marketing Director, Walter Drenth said "over the years, Star Lager Beer has risen to become the number one favorite beer and the undisputed market leader in Nigeria. The brand has continued to keep its consumers actively engaged all year round through exciting consumer engagement platform that cut through music, football and consumer promotions (Alonge, 2013). A lot of organizations do these by introducing a lot of television game shows that are associated with a product. For example, Nigeria breweries have introduced Star quest, Star mega jam, and Star music trek, it recently introduced ''Star the winner is'' Gulder Ultimate search, Maltina dance all (The Guardian newspaper). The reality TV show ''star the winner is'' has positioned the star brand as a strong pillar of entertainment in the country. Over the years, since the introduction of the

''star brand'', the promoters of "Star" have not ignored the fact that choosing or giving priority to entertainment is a major vehicle to position or promote the brand. Experiential marketing gives customers wide variety of experiences with products in order to give them the opportunity to have an emotional bond with the product in order to make purchase decision. Experiential marketing refers to the real experiences that consumers experience with the product to improve and increase sales. Experiential marketing connects with consumers through the participation and tangible nature of a personally relevant and memorable experience. Examples of experiential marketing that marketers engage in include special events, concerts, free samples, and touring exhibitions to promote a product or brand (Adweek, 2009). Through experiences such as these, experiential marketing provides an alternative form of marketing that allows consumers to directly sample what companies are offering by minimizing the detachment between consumers and companies.

Until Star Larger Beer from the stable of Nigerian Breweries entered the beer market over six decades ago, the market was being controlled by foreign brands. With the development, handlers of the foreign brands had to readjust and change their approach of addressing competitions. Few years after the launch of Star, it became obvious to stakeholders that the new comer was not a pretender. As a result of this, other local investors saw the market as an area that could still be tapped, hence the influx of many brands after the launch of Star. For Nigerian Breweries, the reality in the industry was considered as another opportunity to further explored the market and so it extended its frontier by introducing Gulder. From day one, Gulder has remained a newsmaker for obvious reason; its unique bottle, which its promoters thought would be an instant success, was rebuffed in some quarters. Those who believe beer must be in green bottle didn't appreciate the package of the new offering. But like all unique things, the bottle won for the brand appreciative followers. For these reasons, its story was full of different shades but the flag has since the beginning remained flying, despite the odds. It has become the game changer that is prompting agency owners to consider setting up an experiential marketing agency within their group to stay in business. While clients are slicing marketing budgets in relation to other promotional mix, experiential marketing agencies are feeding fat, though delivering on return-on-investments. As a result, these have heat up debate on the role of experiential marketing to sustain brand recall and influence purchasing decision.

Salau (2014) "Experiential marketing is a form of advertising that focuses primarily on helping consumers experiences a brand. While traditional advertising (radio, print, television) verbally and visually communicates the brand and product benefits, experiential marketing tries to immerse the consumers within the product by engaging as many other human senses as possible. In this way, experiential marketing can encompass other marketing strategies from individual sampling to large-scale guerrilla marketing." With the power of the emerging promotional mix to win consumers via exploring entertainment among other activities that engages consumers higher than traditional promotional mix, the marketing communication industry has massive use of the promotional mix to gain consumers attention. Recently, Nigerian Brewery launched an experiential campaign to engage their brand with consumers via, Black Revolution. The experiential campaign was meant to activate the new bottle for its stout brand, Legend Extra Stout but the use of Black Revolution as the experiential campaign, which was designed by Oracle Experience, an experiential marketing agency, the Black Revolution, explored Live Show with notable celebrities, such as Femi Anikulapo, Tuface Idibia, and Comedian Gordons, to thrill the audience. The agency used the short documentary to highlight the Legend brand to remind the target market, which was represented by selected audience at the Bar Beach, where the activation was done, to stay connected with the brand using all celebrities, the theatre and the campaign headline, Black Revolution, as the experience. The "Black Revolution" is presented as a movement that yearns for consumers in terms of satisfaction and quality. The trend of experiential marketing is growing tremendously and the primary reason behind this is the exceptional procedures used by these services to allow you to get focus from customer base. You will discover experiential branding campaigns practically anywhere. These services can help you build up a relationship with your customer base. Creating new experience is vital in the success of Nigerian Breweries.

**Statement of Problem**: Experiential marketing involves large amount of financial investments. A company's success requires large finance to be competitive in the industry but with low finance most firms especially the new ones may not survive and such tend to withdraw. Some suggest that television shows are experiential branding and depends on how you interpret it. So it's not about big budgets. It's about execution and also

having creative ideas. How can a marketer generate interesting ideas that would help to pull sales for the brand? And how much cost should be incurred to project a huge life time customer experience in other to generate sales for a brand over a short time. Also, to what extent can experiential marketing be developed to improve sales, increase profit and improve the business growth?

**Objective of study:** The main objective of the study is to determine the influence of experiential marketing on marketing performance of Beverages in Nigerian Breweries Plc.

- To examine the benefit of customer engagement on the marketing performance of Beverages in Nigerian Breweries Plc
- To understand the role of emotional benefit on the marketing performance of Nigerian Breweries Plc
- To analyze the practice of brand loyalty on the marketing performance of Nigerian Breweries Plc

## 2. Literature Review

**Theoretical foundations:** Schmitt (1999a) focuses on those aspects of marketing aimed at creating experiences for customers and promises to provide "tools for this new approach". Schmitt (1999b) distinguishes five different types of experiences that marketers can create for customers. These experiences, called strategic experiential modules (SEMs), are implemented through so-called experience providers (ExPros), such as communications, visual and verbal identity, product presence, electronic media, etc. According to Schmitt (1999a), the framework of experiential marketing has two aspects: SEMs, which form the strategic underpinning of experiential marketing, and ExPros, which are the tactical tools of experiential marketing. Holbrook (2000) criticizes Schmitt saying that he arrays the SEMs and ExPros against each other to form a conceptually useful experiential grid, though it presses credulity a bit when Schmitt positions this rather modest conceptual framework as "a key strategic planning tool of experiential marketing". The author of this paper stresses that marketing planning tool is tactical, not strategic. The whole experience marketing methodology is based on experiences, not specific activities that are experiential in nature.

Carù & Cova (2003) are also critical towards Schmitt and in general towards American romanticism (authors Holbrook, Schmitt, Pine, Gilmore etc). They confirm that this allowed Holbrook (1997) to propose the logical sequence: 'romanticism → experiential consumption → emotional responses → pleasure', and to insist on the fact that in this experiential approach, sensations are more important than the consumers' rational thoughts. Schmitt (1999b) extends the traditional features-and-benefits paradigm to build a conceptual model for designing, managing, and integrating consumption-based experiences (Holbrook 2000). The author of this paper emphasizes that Schmitt's toolkit is not strategic marketing management, but it focuses on tactical and operational level actions where the main question is how to do marketing campaigns experientially. Of course the operational level is a vital link between tactics and strategy. Experiential marketing allows customers to engage and interact with brands, products, and services in sensory ways that provide the "icing on the cake of providing information". Hauser (2011) says that the term 'experiential marketing' refers to actual customer experiences with the brand, product or service that drive sales and increase brand image and awareness.

Snakers & Zajdman (2010) define experiential marketing as a new way by making the customers to live an experience through the creation of emotions. Thus, experiential marketing has a goal to create emotions to the customers that lead to enjoying the experience. You-Ming (2010) suggests that experiential marketing is a kind of face-to-face communication method, which mainly raises customers' physical and emotional feelings so that customers expect to be relevant and interactive to some brands and to feel and experience wholehearted. The author of this paper highlights that all these definitions indicate that experiential marketing is mainly and directly related to emotions, feelings, and senses and has less to do with cognitions and human intentions. Cantone & Risitano (2011) confirm that in the last years, many firms are adopting CEM strategies in which are emphasized the role of emotions, feelings, sentiments, passions and experiences in the consumer-brand relationships". According to Yuan & Wu (2008) experiential marketing can be seen as a marketing tactic designed by a business to stage the entire physical environment and the operational processes for its customers to experience.

What is then experiential marketing? When we ask ten different people to define experiential marketing, we will probably end up with ten different answers. Meier (2010) points out that Hauser commented in 2007

that the "definition of experiential marketing is fluid – as is the methodology itself. It was once little talked about, and is now being embraced as a silver bullet". Hauser once posed the simple question of experiential marketing's definition to the Experiential Marketing Forum, and received more than 200 definitions from more than 150 countries (*Ibid*.). When Schmitt (1999a) explains the idea of Pine and Gilmore's experience economy he uses the phrase 'experiential economy'. It shows how those terms and words are used interchangeably. Smilansky (2009) says that experiential marketing is the process of identifying and satisfying customer needs and aspirations profitably, engaging them through two-way communications that bring brand personalities to life and add value to the target audience. International Experiential Marketing Association (2011) declares that experiential marketing can be seen as a marketing tactic designed by a business to stage the entire physical environment and the operational processes for its customers to experience. Hekkert (2006) distinguishes three levels of experience: attribution of meaning (experience of meaning), emotional response (emotional experience), and aesthetic pleasure (aesthetic experience). These experiences influence value co-creation, purchase decisions and behavior

**Experiential Marketing and Customer's Satisfaction:** However, the use of experiential marketing as a communication method is growing fast and companies believe it can provide them competitive advantages compare to that of traditional marketing/communication. Consumer behaviour is premised on personal experience and others opinion. Therefore, companies like Nigerian Breweries should endeavour to develop new memorable experience that will appeal to consumers. Nigerian breweries have been around for years sharing different experiences through the brands of alcoholic beverages and non-alcoholic beverages. Maltina is one of the non-alcoholic malt drink sponsored by the company. It organized a show called Maltina Dance All (MDA) to showcase togetherness among families and friends where they compete for a price at the end of the show. It is a foremost experiential and sponsorship platform of the Maltina brand renowned for promoting togetherness with friends and loved ones. The TV show, which made debut in 2007, has remained Nigeria's first and only family dance TV show featuring families from various regions across the country (NBPlc, 2011). The show is about the emotions, excitement, fun and the unbreakable bond that ten families will showcase when they challenge themselves by learning and performing various dance styles in the famous Maltina dance All Academy. The show which is seen by sharing happiness, the MDA is the consumer engagement platform that the brand uses to resonate with esteemed customers and the society in general. Star premium beer is Nigeria's leading beer has announced the kickoff of a new football game show. The first of its kind will be an engrossing campaign that will test the passion, knowledge and skills of football fans and provide platform to be seen and celebrated. (Nigerian Breweries Plc, 2016) 'Star is a brand known for always rewarding its loyal customers and this game show is another way to do so. It's been music for a while but this time, we bring football to the table because they understand that football fans are everywhere in Nigeria. According to (NBPlc, 2016) this is another of 'Stars numerous platforms to reward consumers loyalty and amplify their passion following the success of STAR Trek , STAR Quest and most recently STAR The winner is.

## 3. Conclusion

Experiential marketing captures the imagination of marketers and brands across nation. In this regard, effective brand can reach and engage consumers based on emotional and rational level in a way old media methods never could. Marketers need to understand the importance of experience marketing because experience in marketing as it is one of ways to gain competitive advantage in a competitive business environment.

**Recommendations:** We recommend that effective and efficient experiential marketing should be employed as a strategy to enhance marketing performance.

## References

Alonge, O. (2013). Star league-Text and Play Kicks off this April. Thenet.ng Posted on April 04.

Adweek (2009). Entrepreneur magazine; Emerald Insight; Proceedings of the 41st Hawaii International Conference on System Sciences (2008) Copyright 2011Little& King Integrated Marketing Group, Inc.

Bloomberg Markets. (2016). Nigerian Breweries: Lagos stock Quote – Nigerian Breweries PLC-Bloomberg Markets.www.bloomberg.com>quote>NB: NL

Cantone, L. & Risitano, M. (2011). Building consumer-brand relationships for the customer experience management, in The 10th International Marketing Trend Conference. Paris, France, 20-22 January 2011. Selected papers. Paris, 2011, 1–33. ISBN 978-2-9532811-2-5.

Carù, A. & Cova, B. (2003). Revisiting Consumption Experience. *Marketing Theory*, 3(2), 267-286.

Hauser, E. (2011). Experiential Marketing Forum (accessed August 7, 2011), [available at http://www.experientialforum.com]

Hekkert, P. (2006). Design aesthetics: Principles of pleasure in product design. *Psychology Science*, 48(2), 157–172.

Holbrook, M. B. (1997). Romanticism, Introspection and the Roots of Experiential Consumption: Morris the Epicurean, Consumption. *Market and culture*, 1(2), 97–164.

Holbrook, M. B. (2000). The Millennial Consumer in the Texts of Our Times: Experience and Entertainment. *Journal of Macro marketing*, 20(2), 178–192.

International Experiential Marketing Association. (2011). Available from Internet: http://www.experientialforum.com

Meier, D. (2010). Reading List Challenge: 19 Experiential Marketing Books (accessed August 18, 2011), [available at http://www.javelinexperiential.com/experiential-marketing /reading-list-challenge-19-experiential-marketing-books]

Nigerian Breweries Plc. (2016). Star Debuts New Football TV Game Show, Star Football Superfans April 9th 2015.

The Guardian Newspaper. (2015). Forecasting breakthrough for experiential marketing in 2015 by Gbenga Salau. 18 January 2015.

The Guardian Newspaper. (2014). Nigeria: Raising the stakes in experiential marketing by Gbenga Salau, 27 October 2014.

The Guardian Newspaper. (2014). Nigeria: reaching out through experiential marketing by Gbenga Salau. 22 September 2014

Schmitt, B. (1999a). Experiential marketing: How to get customers to sense, feel, think, act and relate to your company and brands The Free Press, New York, USA.

Schmitt, B. (1999b). Experiential Marketing. *Journal of Marketing Management*, 15(1-3), 53–67. http://dx.doi.org/10.1362/026725799784870496

Smilansky, S (2009). Experiential Marketing: A Practical Guide to Interactive Brand Experiences Kogan Page, London, UK

Snakers, E. & Zajdman, E. (2010). Does experiential marketing affect the behavior of luxury goods' consumers? Umeå: Umeå Universitet

You-Ming, C. (2010). Study on the Impacts of Experiential Marketing and Customers´ Satisfaction Based on Relationship Quality. *International Journal of Organizational Innovation*, 3(1), 189-209.

Yuan, Y. H. & Wu, C. (2008). Relationship among Experiential Marketing, Experiential Value, and Customer Satisfaction. *Journal of Hospitality and Tourism Research*, 32(3), 387-410.

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# Are American Universities Mismanaged?: Tenure vs Non-Tenure Faculty Employment Decisions

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**Abstract:** This paper empirically tests the extent to which public universities in the United States are potentially mismanaged. The focus rests with university managerial employment decisions regarding the continuing substitution of less costly non-tenure track teaching faculty for tenured and tenure track faculty and the extent to which those decisions affect student graduation success. Panel data covering ten academic years, 2004-05 through 2013-14 are employed using ordinary least squares and stochastic frontier analysis specifications. The latter provides tests of the inefficiency effects of managerial employment decisions and academic year estimates of technical efficiency. In both cases, the results provide statistically strong evidence that tenured faculty lead to increased student graduation success while increases in non-tenured faculty have negative effects on student graduation rates. The stochastic results provide strong evidence of efficiency gains due to tenured faculty and increased inefficiency arising from non-tenure track faculty employment. While universities appear to have managed efficiency gains as a possible result of the Great Recession, those gains quickly evaporated in both 2012 and 2013. Separate estimates for research vs. lower level comprehensive universities, indicate that the former maintain greater operating efficiencies. Given that public universities are being subject to new funding models that tie funding to the production of student success rates, the continuing non-tenure track employment substitution suggests that universities are potentially mismanaged in generating funding support for faculty employment and student success.

**Keywords:** *Tenure, non-tenure, faculty employment, stochastic frontier, university efficiency*

## 1. Introduction

This paper investigates managerial decisions in American publicly funded universities as those decisions relate to the employment of tenured and tenure track faculty relative to non-tenure track faculty and the efficiency consequences of producing student graduation success. The empirical results are robust in indicating that tenured faculty employment increases student graduation success and university efficiencies. In contrast, increases in the employment composition of non-tenure track faculty have an inefficiency producing effect that decrease student success rates. The empirical results suggest that university managerial decisions may not, in part, be in sync with the reality of external forces guiding their future and, in particular, their ability to sustain or improve their financial funding position from public agencies. That, in turn, suggests that U.S. public universities are mismanaged. The potential mismanagement can be attributed to the continuing evolution of internal decision-making on the one hand and the changing external political demands and funding models being imposed upon universities on the other hand. Three combinations of internal and external factors are relevant. First, in terms of internal employment decision-making, university administrators have continued to reallocate internal resources toward the hiring of non-tenure track faculty in substitution for tenured and tenure track faculty. The American Association of University Professors reports (American Association of State Colleges and Universities, 2006) that over the past four decades full time tenured faculty positions have decreased by 26% and tenure track faculty lines have declined by 50%. In the present paper, the data for U.S. public universities indicate that, on average, 44% of university faculty is on employed under non-tenure track employment contracts. University administrators and their controlling boards of trustees likely view the substitution of lower salaried non-tenure track teaching faculty for higher salaried tenured and tenure track teaching faculty as good cost-cutting business decisions.

Second, decreases in government funding of public universities has continued to decline and deteriorate university revenues derived from tax supported dollars. Moreover, the decrease in funding support accelerated with the arrival of the Great Recession (officially dated December 2007 to June 2009). In the 2004 academic year, state government funding generated 32 % of university funding and thereafter declined to 23% in the 2013 academic year (GAO, 2014). With increasing student enrollments, budgetary cuts placed greater pressures on university administrators to substitute lower salaried non-tenure track teaching faculty for higher salaried tenured and tenure track teaching faculty. Third, the political machinery and funding

agencies responsible for the funding cuts have imposed increasingly new demands on universities to do more with less by increasing the efficiency with which they produce publicly provided higher education. That same machinery has implemented new funding models that subject universities to greater accountability in tying public funding to university measures of producing student success outcomes. Thirty two of the fifty states in the U.S. have implemented funding formulas that tie public university funding to student success measures and five additional states are in transition to doing the same (National Conference of State Legislators, 2015). In particular, publicity regarding low student graduation successes among public universities have brought that political pressure to implement funding models that require universities to demonstrate improvements in student academic success leading to improved retention and, ultimately improved student graduation rates. Therein lies, in part, a managerial dilemma but in reality a potential problem with the mismanagement of U.S. publicly supported universities. That is, if university administrative decisions continue to rest with cost cutting substitutions of the employment of non-tenure track faculty for tenured and tenure track faculty and the former negatively affect student success rates while funding models are increasingly tied to the production of student success, then university administrative decision-making is apparently incongruent with successful managerial practices.

The empirical results alluded to the opening paragraph and in reference to the above realities are based on panel data for U.S. universities engaged in both undergraduate and graduate education over ten academic years, 2004-05 through 2013-14. The full panel consists of 3,465 observations. Two empirical model specifications are used to evaluate the university production of student success as measured by graduation rates. An ordinary least squares (OLS) model is used at the outset and is followed by a stochastic frontier analysis (SFA) model. The latter is employed to estimate the inefficiency effects of university managerial employment decisions and, in addition, generate efficiency estimates of university production of student graduation success rates. In both specifications, university administrative decisions are incorporated as related to contractual employment arrangements of tenured faculty, tenure track faculty, and non-tenure track faculty. In addition, university institutional control variables are included as measures of administrative allocations of internal resources to support student instruction and faculty research (as measures of university research intensity vs student support intensity), as well as, student enrollment measures as related to university student application acceptances and student enrollment stochastic aptitude abilities (as measures of university quality standards and student academic abilities). The paper proceeds with a brief literature review followed by the empirical methodology, an overview of the panel data, a detailed analysis of the empirical results, and a summary with concluding remarks.

## 2. Literature Review

To date, only a handful of studies have investigated the effects of teaching faculty on student success rates. A study by Bettinger and Long (2010) states that such is "virtually absent from the literature" but the study provides a literature review of six studies that can be considered to be of tangential relevance. Sav's study (2012a) indicates that no new studies have appeared and provides a summary of the Bettinger and Long (2010) literature review. As of this writing, an exhaustive literature search did not find any new studies since that provided by Sav (2012a). Thus, there is little need to repeat those previous literature reviews other than to provide a very brief summary. However, the review ends with a review of the most current literature that indicates a continuing concern with the decline in tenure relative to non-tenure track employment in academe. Three studies are only focused on the effects of graduate teaching assistants on student success. Norris (1991) and Fleisher, et al. (2002) find that teaching assistants do not affect student performance if, according to Fleisher, et al. (2002), non-native speaking assistants receive appropriate English speaking training. Another three studies examine the effects of full time faculty compared to adjunct and part-time faculty on student interest in subjects or on graduation rates. The Ehrenberg and Zhang (2005) study finds that part-time and non-tenure track faculty employment reduces graduation rates. Bettinger and Long (2004) find that young aged adjuncts have negative effects on student retention interest but only in specific disciplines. In the later Bettinger and Long (2010) study, employing a different methodology, they reach the same basic conclusions.

These studies use data either from a single university, e.g., Norris (1991) and Fleisher. Hashimoto and Weinberg (2002), or from universities in a single state in the U.S., e.g., Bettinger and Long (2004) and

Bettinger and Long (2010), or from a sample of U.S. universities that report only student specific aptitude test scores. None of the studies investigate the effects of full-time teaching faculty across different employment contractual arrangements imposed by university management. In addition, none of studies investigate those effects across all U.S. universities. In contrast, the study by Sav (2012a) focuses on differential effects of tenured, tenure-track, and non-tenure track employment contractual arrangements on student graduation success. Moreover, the study casts a wide net of those effects using data for all U.S. universities. The findings support the notion that tenured faculty and tenure track faculty employment produce improvements in student graduation success while hiring faculty under non-tenure track contracts are detrimental to student success. Another study by Sav (2012b) evaluates the management of U.S. public colleges and produces operating efficiency estimates by uses data only for two-year colleges and could not account for faculty employment differentials at that lower level of U.S. public higher education.

More recently, additional research has focused on the continuing concern of the tenure process in higher education. However, it has taken a different path than the studies reviewed in the above account. Lawrence, Celis and Ott (2014) evaluate faculty experiences with the tenure process and the potential problems with procedural fairness in moving untenured faculty into tenured positions. Zhang, Ehrenberg, and Liu (2015) use panel data models to examine faculty employment changes among four year colleges and universities. They conclude, in support of the present study, that institutions have, in response to deteriorating financial situations, increasingly employed faculty whose salaries are relatively inexpensive, thereby increasing the share of non-tenure track faculty relative to tenure track faculty. Kezar and Gehrke (2016) surveyed academic deans with respect to their views and practices in employing non-tenure track faculty. Using OLS they find that the increased employment of non-tenure track faculty are not in the best interests of academic deans but is the result of external pressures imposed upon their decision-making. Cater, Lew and Pivato (2016) propose that faculty research accomplishments attract tuition-paying students and, therefore, increase university revenues. Thus, they find that a profit-maximizing university will place higher value on more current research productive junior faculty than to the past accumulated research productivity of tenured faculty. They test the proposition that tenure-based contracts are therefore non-optimal. Testing the efficiency of tenure contracts, they conclude, in counter-argument, that declining research productivity of tenured faculty are not the result of any disincentive of the tenure process in academe. While that study focuses on research productivity it lends support to the current inquiry of the effects of faculty tenure on student graduation rates.

To investigate those tenure effects on student success, the present study parallels that of Sav (2012a) but offers advantages. First and foremost, that earlier study was based on university data constrained to only four academic years, 2005 to 2009. That could not account for the potential effects of the Great Recession (December 2007 to June 2009) on university operating budget cuts or the increasing student enrollments driven by the increases in recessionary unemployment or the U.S. government offered grants to student higher education enrollment for retraining the unemployed. In addition, that study did not account for some of the specific university imposed constraints pertaining to student acceptance rates, student enrollment rates upon acceptance, and incoming student scholastic aptitude preparations or academic abilities for higher education success.

## 3. Methodology

The methodology is based on universities producing student success toward graduation. That production is empirically estimated using ordinary least squares (OLS) and stochastic frontier analysis (SFA). In both cases, the primary focus rests with the university's administrative decisions and allocation of resources in employing teaching faculty under different legally contractual arrangements while also considering the allocation of resources to student support, faculty research support, and imposing quality constraints on student enrollments. The OLS estimation is intended to estimate the direct effects of all managerial decisions on student success. The SFA estimation is employed to estimate the efficiency or inefficiency of university managerial decisions in employing different compositions of faculty in producing student graduation success. In addition, the SFA model provides university production efficiency estimates for comparison across universities. For both the OLS and SFA methodology, panel data pertaining to university production over time

is employed. The OLS estimates of producing student success (*Student Success*) for university *i*=1,...,N over *t* academic years, *t*=1,...,T, is specified as follows:

$$StudentSucesss_{it} = \alpha_0 + \sum \alpha_{it} X_{it} + \sum Faculty_{it} + \varepsilon_{it}$$

Here, the *X* variables are intended to capture the institutional allocation of resources to alternative internal missions and to establish specific quality student enrollment requirements. The *Faculty* variables represent measures of the composition of faculty under different legal contracts arranged by university administrators in the allocation of resources toward the employment of teaching faculty. Epsilon is the usual OLS error term. In order to measure the efficiency with which universities produce student success, the SFA specification is employed. Invoking the Cobb-Douglas production function, the SFA specification, following Battese and Coelli (1995) and Coelli et al. (1999), is as follows (whereby the natural logarithm is denoted by *ln*):

$$\ln StudentSucesss_{it} = \beta_0 + \sum \beta_{it} \ln X_{it} + \varepsilon_{it}$$

Andepsilon is a composed error term such that

$$\varepsilon_{it} = V_{it} - U_{it}$$

The *V* represents the usual random shocks to university's ability to produce student graduation successes while *U* is intended to capture the managerial inefficiency related to the production of that graduation success. That is,

$$U_{it} = \alpha_0 + \sum \xi_{it} \ln Faculty_{it} + R_{it}$$

where *Faculty* now enter as inefficiency (efficiency) effects in determining the inefficiency (efficiency) of managerial decisions in allocating resources to the employment of teaching faculty under alternative contractual arrangements. R is a random error term that follows the distribution per the work of Battese and Coelli (1995) and Coelli et al. (1999).

With that SFA inefficiency embedded, the university's overall efficiency in producing student success is determined by the following:

$$UniversityEfficiency_{it} = \exp(-U_{it}) = \exp(-Faculty_{it}\phi - R_{it})$$

In this case, the estimated coefficients on the *Faculty* employment and the resulting university effect on inefficiency will produce negative coefficients that represent inefficiency reductions (i.e., efficiency gains or improvements) and positive coefficients will measure inefficiency increases (i.e., efficiency deterioration).

**Panel Data:** The U.S. Department of Education, National Center for Education Statistics, provides annual academic year data pertaining to U.S. higher education institutions. The data cover a wide range of college and university revenue, expenditure, student enrollment, student graduation success, measures of potential student success, and faculty employment status. The data are publicly available via the Integrated Postsecondary Education Data System (IPEDS). Given the time lag in the reporting and processing of final release data, the current study draws data from the ten academic years of IPEDS, 2004-2013 (i.e., academic years 2004-05 through 2013-2014). However, there is some variability in reporting institutional data that generates missing observations across colleges and universities. In the present study it was possible to include a total of 3,465 institutions over the ten academic years. The panel is unbalanced in that it varies from 333 to 360 institutions in any given academic year. Moreover, the panel includes colleges and universities that offer both undergraduate and graduate degree programs. Using the Carnegie classification of higher education institutions embedded in IPEDS, research level and comprehensive level universities are included in the panel. Thus, two-year associate degree and other lower level postsecondary higher education institutions in the U.S. are not included in the panel data. Table1 presents a summary description of the available measures and variables that capture the potential relationship between student success in universities and the institutional structure, student higher education preparedness, and managerial employment decisions regarding faculty employment.

**Table 1: Description of Variables**

| Variables | |
|---|---|
| Dependent Variable | |
| GRADRATE | Students Completing Degrees in 150% of Normal Time to Graduate (%) |
| Independent Variables | |
| TUITION | Tuition Charge: University Tuition Revenue per Student ($) |
| PELLGRT | Lower Income Federal Pell Grants per Undergraduate Student ($) |
| FEDGRT | Federal Government Grants per Student ($) |
| INSTRUCT | Institutional Instructional Expenditures per Student ($) |
| STUFAC | Institutional Student to Faculty Ratio (#) |
| RESLEVEL | Institutional Research Expenditures per Total Expenditures (%) |
| ACCEPT | Student Acceptance Rate: Accepted per Total Applicants (%) |
| ENROLL | Students that Enrolled per Students Accepted (%) |
| MATHSAT | 75th percentile SAT Math Score of Students Enrolled (#)* |
| VERBSAT | 75th percentile SAT Verbal Score of Students Enrolled (#)* |
| OLS Independent Variables and SFA Inefficiency Effect Variables | |
| TENURE | Percentage of Total Faculty Employed that are Tenured (%) |
| TRACK | Percentage of Total Faculty Employed that are on Tenure Track (%) |
| NOTRACK | Percentage of Total Faculty Employed that are Not on Tenure Track (%) |

* When institutions reported only the ACT scores, those scores were converted to SAT scores.

The student graduation rate within 150% (i.e., within 5 years) of normal time to complete a four year degree program (GRADRATE) is used as a measure of student success within a university. That graduation rate is dependent on the institutional price, i.e., tuition (TUITION),students must pay to enroll and continue seeking a successful degree. However, included are potential differential tuition support effects funded by the federal government via low income student support by way of the Pell Grant Program (PELLGRT) and the broader federal grant program (FEDGRT). Three measures are included as related to university support of student success and the intensity of support to faculty research. The former includes INSTRUCT and STUFAC while the latter measure is RESLEVEL. As a combination of institutional quality and student quality there are four measures, including university student acceptance rates (ACCEPT), student enrollment rates per acceptance (ENROLL), enrolled student mathematical aptitudes (MATHSAT), and enrolled student verbal aptitudes (VERBSAT).

**Table 2: Descriptive Statistics: Academic Years 2004-2013**

| Variable | Mean | Std. Dev. | Median | Min | Max |
|---|---|---|---|---|---|
| GRADRATE (%) | 50.4 | 15.5 | 48.7 | 11.2 | 93.9 |
| TUITION ($) | 4,560 | 2,370 | 3,959 | 237 | 20,466 |
| PELLGRT ($) | 1,004 | 551 | 863 | 133 | 4,048 |
| FEDGRT ($) | 120 | 174 | 72 | 0 | 2,356 |
| INSTRUCT ($) | 4,756 | 2,436 | 4,054 | 1,274 | 28,492 |
| STUFAC (#) | 20.7 | 6.4 | 19.7 | 6.5 | 58.6 |
| RESLEVEL (%) | 4.7 | 5.4 | 2.1 | 0.0 | 32.0 |
| ACCEPT (%) | 68.3 | 17.0 | 70.2 | 15.3 | 100.0 |
| ENROLL (%) | 42.8 | 14.3 | 41.1 | 13.0 | 100.0 |
| MATHSAT (#) | 578 | 61 | 580 | 260 | 800 |
| VERBSAT (#) | 573 | 57 | 570 | 330 | 800 |
| TENURE (%) | 39.5 | 11.3 | 38.5 | 9.3 | 78.9 |
| TRACK (%) | 17.0 | 6.8 | 15.9 | 1.0 | 58.6 |
| NOTRACK (%) | 43.5 | 14.6 | 44.4 | 1.5 | 83.2 |
| Observations | 3,465 | | | | |

University managerial decisions related to the changing employment composition of teaching faculty are captured in three legally contractual employment arrangements, including faculty that are employed in tenured positions (TENURE) ,faculty employed in tenure track positions (TRACK), and faculty employed in

non-tenure track positions (NOTRACK). Descriptive statistics for the full panel of observations are provided in Table 2. While on average 50% of students graduate (GRADRATE) within the five year window set by the available measure of student success, as is obvious by the standard deviation, minimum, and maximum graduation rates there is wide variability among universities. The variability in graduation rate success can, in part, be due to differential institutional and student characteristics captured in the ten covariates ranging from TUITION to VERBSAT. Moreover, student graduation success can be affected by variability in university managerial and administrative decisions related to the staffing of teaching faculty and the substitution of non-tenure track faculty (NOTRACK) for tenure (TENURE) and tenure track (TRACK) faculty. The variability in that decision making is equally apparent in Table 2.

## 4. Empirical Results

**Table 3: Results: Graduation Rate Dependent Variable, Pooled All Universities**

| | **Ordinary Least Squares (OLS)** | | | **Stochastic Frontier Analysis (SFA)** | | |
|---|---|---|---|---|---|---|
| Variable | Coeff | Std. Err. | t Value | Coeff | Std. Err. | t Value |
| Constant | - | - | - | -2.3265 | 0.2474 | *-9.40 |
| TUITION | 0.0013 | 0.0001 | *14.71 | 0.1018 | 0.0087 | *11.73 |
| PELLGRT | -0.0044 | 0.0003 | *-14.9 | -0.1181 | 0.0059 | *-20.09 |
| FEDGRT | 0.0012 | 0.0009 | 1.39 | 0.0053 | 0.0030 | **1.77 |
| INSTRUCT | 0.0003 | 0.0001 | *3.25 | 0.1076 | 0.0119 | *9.02 |
| STUFAC | -0.4659 | 0.0282 | *-16.55 | -0.0938 | 0.0120 | *-7.78 |
| RESLEVEL | -0.1319 | 0.0304 | *-4.34 | -0.0103 | 0.0016 | *-6.30 |
| ACCEPT | -0.0993 | 0.0087 | *-11.4 | -0.0751 | 0.0098 | *-7.65 |
| ENROLL | -0.1881 | 0.0105 | *-17.85 | -0.1457 | 0.0093 | *-15.65 |
| MATHSAT | 0.0858 | 0.0058 | *14.75 | 0.6867 | 0.0619 | *11.08 |
| VERBSAT | 0.0373 | 0.0059 | *6.26 | 0.3445 | 0.0658 | *5.23 |
| TENURE | 0.1254 | 0.0287 | *4.37 | -0.9137 | 0.2172 | *-4.21 |
| TRACK | 0.0970 | 0.0286 | *3.39 | 0.0501 | 0.0317 | ***1.58 |
| NOTRACK | -0.1167 | 0.0238 | *-4.91 | 0.5593 | 0.1126 | *4.97 |
| Adjust R**2 | | | 0.977 | | | |
| Prob>F | | | * 0.000 | | | |
| Sigma Sq | | | | 0.2528 | 0.0615 | *4.11 |
| Gamma | | | | 0.9699 | 0.0070 | *138.11 |
| Log LL | | | | | | *1,230 |
| Log Ratio | | | | | | *828 |
| Observations | | | 3,465 | | | 3,465 |

Note: Significant at 1%(*),10%(**), and 15%(***) – (t or other appropriate test).

The ordinary least squares (OLS) and stochastic frontier analysis (SFA) maximum likelihood estimates are presented in Table 3 when all universities are pooled (research and comprehensive). In order to account for possible underlying structural differences in research level compared to comprehensive level universities, Table 4 presents the separate level OLS and SFA estimates. In both Tables 3 and 4, the OLS estimates include the SFA employment inefficiency measures. It was not believed to be necessary to present OLS estimates that excluded the inefficiency measures since the test on Gamma in the SFA results determine whether or not those OLS estimates can be rejected in favor of the SFA estimates. Also, as noted, the OLS constant term is excluded so that it is possible to include all three faculty employment effects as covariates and, therefore, make relevant comparable evaluations to the inclusion of faculty employment as inefficiency terms in the SFA estimates. Turning first to the pooled results provided in Table 3, for the OLS results, 12 of the 13 independent variables are statistically significant at the 1% level of significance – only federal government grants (FEDGRT) fail to reach a reasonable level of significance. In addition, the adjusted R squared is better than 0.97. For the SFA results, 9 of the 10 independent variables reach the 1% level of significance and, in contrast to the OLS results, FEDGRT enters as significant at the 10% level. The SFA results, per the statistical significance of Gamma, also reveal that the faculty employment inefficiency terms should be included relative to an OLS speciation that excludes them. Likewise, the SFA likelihood ratio shows that the faculty employment inefficiency effects should be absent (jointly) from the model is rejected at the 1% level of

statistical significance. In both the OLS and SFA estimates, the positive effect of TUITION on graduation success is consistent with the higher tuition universities being of the more premier and more selective universities in the U.S. The negative effect of PELLGRT is also expected if lower income government funded student enrollments are associated with less academically prepared students perhaps coming from underfunded primary and secondary school districts. Yet, as indicated, institutional expenditures on instruction (INSTRUCT) per student has a positive effect in assisting all students to successfully graduate. However, increases in the student to faculty ratio (STUFAC) works in the opposite direction with a strong negative effect on student success. That negative effect on student success is also present with regard to the increased research intensity of the institution (RESLEVEL).

The negative effect of higher acceptance rates of student applicants (ACCEPT) and the higher enrollment rates of accepted student applicants (ENROLL) indicates that lower quality universities struggle with improved graduation rates. As expected, the better academically prepared are the enrolled students as measured by both the mathematical (MATHSAT) and verbal (VERBSAT) preparedness, the greater is the university ability to successfully lead them to graduation success. As for the main focus of the paper, both the OLS and SFA results strongly support the notion that the administrative decision making in allocating employment resources to the hiring of teaching faculty under different contractual arrangements matters in the production of student academic graduation success. Under the OLS estimates, both tenured faculty (TENURE) and tenure track faculty (TRACK) significantly (at the 1% level) and positively contribute to the graduation success of university students. And managerial decisions in substituting non-tenure track faculty (NOTRACK) for tenured employment or tenure track faculty lines is statistically significant (at the 1% level) as a detriment to student graduation success. In estimating the efficiency/inefficiency in those same administrative employment allocations, the SFA estimates are interpreted differently but are also robust. Negative coefficients in the faculty employment inefficiency terms represent efficiency improvements while positive coefficients represent inefficiency increases.

Thus, in the SFA estimates, tenured faculty employment (TENURE) enters as increasing the efficiency with which universities produce successful student graduation success. Although TENURE is significant at the 1% level, the weaker effect of TRACK at the 15% level is not to be ignored being that that faculty on tenure track must be more focused on research output in order to successfully gain their bid and promotion to tenure. As a result, that may interfere with their teaching responsibilities and can be attributed to the increased inefficiency but only at the 15% level of statistical significance. On the other hand, the positive and significant (1% level) effect of non-tenure track faculty in the SFA result indicates that university administrators that shift faculty hiring resources away from tenure line faculty to non-tenure track faculty employment are decreasing the efficiency with which they can successfully graduate their students. Turning to the research university vs comprehensive university separate level estimates provided in Table 4, both the OLS and SFA results meet the overall statistical significance requirements based on the adjusted R squared, F test, Gamma test, and the likelihood ratio test. However, the results indicate the presence of some basic structural differences in research compared to comprehensive universities in both the OLS and SFA results compared to the pooled university results provided in Table 3.

For the OLS estimates, federal government grants (FEDGRT) plays a positive and statistically significant role in improving student graduation success among research universities but is negative although statistically insignificant among comprehensive universities. In contrast, institutional expenditures on instruction per student (INSTRUCT) is negative but statistically insignificant in improving that graduation success among research universities but positive and statistically significant for student success among comprehensive universities. With regard to faculty employment effects, tenure (TENURE) and tenure track faculty (TRACK) move students successfully toward successful graduation (although the latter reaches significance at only the 15% level). Non-tenure track faculty (NOTRACK) has a significant detrimental graduation effect. In comparison, while TENURE and TRACK have positive effects on student success among comprehensive universities, neither enters as being statistically significant. Still, the negative effect and statistically significant effect on NOTRACT faculty holds even among comprehensive universities.

**Table 4: Results: Research vs Comprehensive Universities**

| | Ordinary Least Squares (OLS) | | | Stochastic Frontier Analysis (SFA) | | |
|---|---|---|---|---|---|---|
| **Variable** | **Coeff** | **Std. Err.** | **t Value** | **Coeff** | **Std. Err.** | **t Value** |
| **Research** | | | | | | |
| Constant | - | - | - | -3.2608 | 0.3755 | *-8.68 |
| TUITION | 0.0008 | 0.0001 | *7.69 | 0.0656 | 0.0106 | *6.22 |
| PELLGRT | -0.0034 | 0.0005 | *-7.11 | -0.0675 | 0.0076 | *-8.88 |
| FEDGRT | 0.0044 | 0.0012 | *3.68 | 0.0079 | 0.0039 | *2.05 |
| INSTRUCT | -0.0001 | 0.0001 | -0.64 | 0.0545 | 0.0140 | *3.90 |
| STUFAC | -0.5843 | 0.0420 | *-13.93 | -0.1443 | 0.0161 | *-8.96 |
| RESLEVEL | -0.1425 | 0.0424 | *-3.36 | -0.0078 | 0.0042 | **-1.85 |
| ACCEPT | -0.1277 | 0.0135 | *-9.49 | -0.0961 | 0.0137 | *-7.04 |
| ENROLL | -0.2303 | 0.0179 | *-12.89 | -0.1541 | 0.0122 | *-12.61 |
| MATHSAT | 0.1100 | 0.0086 | *12.78 | 0.9841 | 0.0909 | *10.83 |
| VERBSAT | 0.0373 | 0.0081 | *4.61 | 0.2979 | 0.0868 | *3.43 |
| TENURE | 0.0847 | 0.0489 | **1.73 | -0.7213 | 0.1217 | *-5.93 |
| TRACK | 0.0811 | 0.0516 | ***1.57 | -0.0157 | 0.0355 | -0.44 |
| NOTRACK | -0.1851 | 0.0417 | *-4.44 | 0.5608 | 0.0731 | *7.67 |
| Adjust R Sq | | | 0.986 | | | |
| Prob>F | | | * 0.000 | | | |
| Sigma Sq | | | | 0.1290 | 0.0220 | *5.87 |
| Gamma | | | | 0.9617 | 0.0066 | *146.44 |
| Log LL | | | | | | *835 |
| Log Ratio | | | | | | *503 |
| Observations | | | 1,466 | | | 1,466 |
| **Comprehensive** | | | | | | |
| Constant | - | - | - | -3.1357 | 0.4164 | *-7.53 |
| TUITION | 0.0020 | 0.0002 | *12.05 | 0.1319 | 0.0123 | *10.69 |
| PELLGRT | -0.0051 | 0.0004 | *-13.37 | -0.1617 | 0.0086 | *-18.84 |
| FEDGRT | -0.0002 | 0.0012 | -0.15 | 0.0066 | 0.0048 | 1.37 |
| INSTRUCT | 0.0021 | 0.0003 | *6.48 | 0.2465 | 0.0244 | *10.10 |
| STUFAC | -0.2337 | 0.0467 | *-5.00 | 0.0077 | 0.0198 | 0.39 |
| RESLEVEL | -0.6378 | 0.1057 | *-6.03 | -0.0082 | 0.0026 | *-3.14 |
| ACCEPT | -0.0674 | 0.0119 | *-5.64 | -0.0513 | 0.0139 | *-3.69 |
| ENROLL | -0.1542 | 0.0137 | *-11.27 | -0.1344 | 0.0136 | *-9.85 |
| MATHSAT | 0.0634 | 0.0079 | *8.05 | 0.5177 | 0.0838 | *6.18 |
| VERBSAT | 0.0424 | 0.0084 | *5.04 | 0.3975 | 0.0937 | *4.24 |
| TENURE | 0.0007 | 0.0434 | 0.02 | -0.5482 | 0.2892 | *-1.99 |
| TRACK | 0.0408 | 0.0404 | 1.01 | -0.1459 | 0.1504 | -0.97 |
| NOTRACK | -0.1364 | 0.0331 | *-4.12 | 0.2328 | 0.1009 | *2.31 |
| Adjust R**2 | | | 0.970 | | | |
| Prob>F | | | * 0.000 | | | |
| Sigma Sq | | | | 0.3628 | 0.1745 | *2.08 |
| Gamma | | | | 0.9733 | 0.0115 | *84.57 |
| Log LL | | | | | | *520 |
| Log Ratio | | | | | | *321 |
| Observations | | | 1,999 | | | 1,999 |

Note: Significant at 1%(*),10%(**), and 15%(***) – (t or other appropriate test).

The research vs comprehensive structural differences are weak at best in the SFA results. That is, for comprehensive universities FEDGRT continues to be an insignificant role in graduation success. But relative to research universities the institutional student to faculty ratio (STUFAC) appears to have a positive but statistically insignificant effect among comprehensive universities while retaining its powerful positive effect among research universities. On faculty employment SFA inefficiency effects, the results are congruent across both university levels with respect to coefficient signs and statistical significance. That is, for research and

comprehensive universities, increasing TENURE faculty leads to efficiency increases in producing student graduation success and increasing NOTRACK faculty increases the inefficiency in doing so. For both levels of universities, increasing the employment of tenure track faculty (TRACK) is an efficiency improving managerial decision and beneficial to student. The efficiency increasing effect, however, might suggest that the larger efficiency gains of TRACK are lagged and appear with their successful tenure (TENURE). Yet, the weaker effect of TENURE can also be attributed to the university administrative decisions to reduce tenure track faculty lines and substitute non-tenured faculty for those lines as is obvious in the descriptive statistics provided in Table 2.

**Table 5: University Efficiencies by Academic Year**

| | Mean | Std. Dev. | Median | Min | Max |
|---|---|---|---|---|---|
| Pooled Universities | | | | | |
| 2004 | 0.848 | 0.122 | 0.896 | 0.339 | 0.987 |
| 2005 | 0.846 | 0.115 | 0.891 | 0.422 | 0.980 |
| 2006 | 0.839 | 0.116 | 0.881 | 0.444 | 0.979 |
| 2007 | 0.835 | 0.114 | 0.872 | 0.422 | 0.974 |
| 2008 | 0.828 | 0.123 | 0.869 | 0.325 | 0.974 |
| 2009 | 0.832 | 0.122 | 0.875 | 0.302 | 0.976 |
| 2010 | 0.855 | 0.116 | 0.898 | 0.332 | 0.975 |
| 2011 | 0.859 | 0.112 | 0.902 | 0.294 | 0.974 |
| 2012 | 0.851 | 0.116 | 0.893 | 0.288 | 0.972 |
| 2013 | 0.847 | 0.115 | 0.884 | 0.331 | 0.974 |
| 10yr | 0.844 | 0.117 | 0.888 | 0.288 | 0.987 |
| Research Universities | | | | | |
| 2004 | 0.873 | 0.105 | 0.919 | 0.476 | 0.984 |
| 2005 | 0.874 | 0.100 | 0.916 | 0.526 | 0.984 |
| 2006 | 0.870 | 0.102 | 0.916 | 0.535 | 0.987 |
| 2007 | 0.868 | 0.099 | 0.908 | 0.528 | 0.980 |
| 2008 | 0.859 | 0.110 | 0.900 | 0.360 | 0.972 |
| 2009 | 0.859 | 0.111 | 0.892 | 0.314 | 0.974 |
| 2010 | 0.869 | 0.111 | 0.910 | 0.334 | 0.975 |
| 2011 | 0.874 | 0.104 | 0.901 | 0.295 | 0.977 |
| 2012 | 0.868 | 0.110 | 0.910 | 0.292 | 0.975 |
| 2013 | 0.864 | 0.104 | 0.901 | 0.364 | 0.978 |
| 10yr | 0.868 | 0.105 | 0.906 | 0.292 | 0.987 |
| Comprehensive Universities | | | | | |
| 2004 | 0.842 | 0.125 | 0.889 | 0.329 | 0.980 |
| 2005 | 0.840 | 0.114 | 0.875 | 0.445 | 0.976 |
| 2006 | 0.829 | 0.116 | 0.866 | 0.465 | 0.969 |
| 2007 | 0.823 | 0.114 | 0.861 | 0.415 | 0.962 |
| 2008 | 0.815 | 0.123 | 0.858 | 0.318 | 0.970 |
| 2009 | 0.821 | 0.120 | 0.862 | 0.366 | 0.958 |
| 2010 | 0.855 | 0.111 | 0.898 | 0.365 | 0.969 |
| 2011 | 0.856 | 0.108 | 0.899 | 0.434 | 0.969 |
| 2012 | 0.846 | 0.116 | 0.891 | 0.339 | 0.962 |
| 2013 | 0.838 | 0.118 | 0.880 | 0.369 | 0.965 |
| 10yr | 0.837 | 0.117 | 0.878 | 0.318 | 0.980 |

University managerial inefficiencies/efficiencies in allocating internal resources to faculty teaching contracts and employment are generated from the SFA estimates. Table 5 presents the institutional inefficiency/efficiency results for the pooled, research, and comprehensive universities. As Table 5 indicates, across all universities, pooled or otherwise, the mean production technical efficiency is below 90% but is encouraging in that universities are producing relatively well in terms of their graduation rate efficiencies given the resources that are at their disposal and/or managerially allocated within the institution. Of course, as the OLS and SFA results revealed, university efficiencies are dependent upon incoming student

preparedness, as well as, governmental grants to support student higher education enrollments and managerial decisions related to the employment of teaching faculty. The pooled efficiency results presented in Table 5 indicate a decline in mean university efficiencies beginning in the 2005 academic year and continuing with each consecutive academic year through 2008. Efficiency gains follow with the 2009, 2010, and 2011 academic years. To some extent those gains could be attributed to managerial responses to the Great Recession (December 2007 to June 2009) and slow economic recovery that, for example, when measured in employment gains did not begin until 2011. However, as indicated, university efficiencies once again took a downward turn in both the 2012 and 2013 academic years. In each academic year, the median efficiencies exceed the means and is indicative of the negative skewness among university efficiency outcomes. Likewise, the maximum efficiencies indicate that some universities across the ten academic years are close to full efficiency while the minimum efficiencies suggest that other universities struggle to maintain a reasonably acceptable level of efficiency in producing student graduation success.

Separate results for research and comprehensive universities produce a similar pattern of mean efficiency losses and gains over the ten academic years but with research university gains appearing in only 2010 and 2011 and comprehensive gains stretching over the three academic years, 2009, 2010, and 2011. However, both research and comprehensive universities realize efficiency losses in 2012 and 2013. In each academic year, research university mean efficiencies, as well as median efficiencies, outweigh what comprehensive universities are managerially able to achieve. That advantage of research over comprehensive universities also holds for the maximum achieved efficiencies. For the worst performing, minimum efficiency, universities, research universities begin a downhill slide beginning in 2008. With minimum efficiencies above 50% in the three previous academic years, 2008 witnesses a decline to a 36% efficiency and remains at near 30% to the mid 30% range. In contrast, comprehensive universities begin to show some improvements beginning in the 2009 academic year, i.e., the minimum efficiency begins a slow climb to the better. The SFA results provided in Table 4 clearly indicate that lower efficiency universities captured in Table 5 are due to lower tenure and tenure track employment decisions relative to higher employment of non-tenure track teaching faculty decisions within universities. By the same token, higher efficiency universities in producing student success are those universities employing relatively more tenure and tenure track faculty relative to non-tenure track faculty. Figures 1, 2, and 3 present a clear summary picture of the relationships between managerial decisions of faculty employment and the institutional efficiency in producing student graduation success for all universities pooled, research universities, and comprehensive universities, respectively.

Figure 1. Faculty and Efficiency: All Universities Pooled

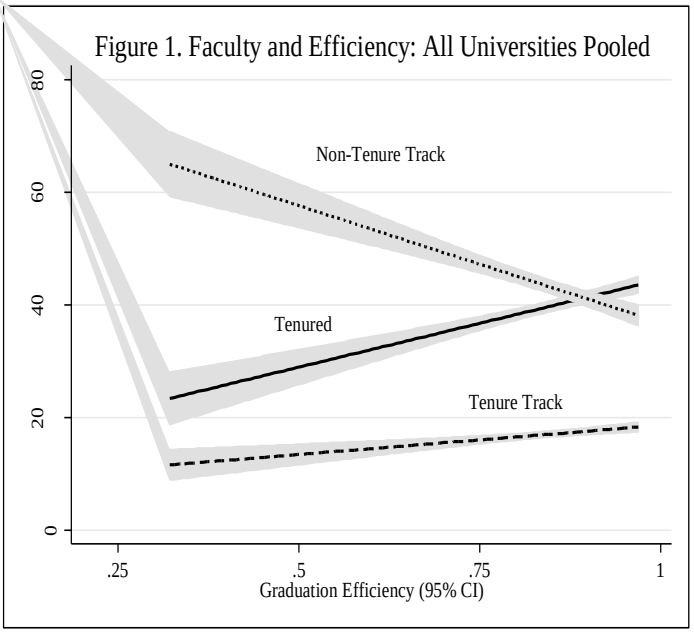


Figure 2. Faculty and Efficiency: Research Universities

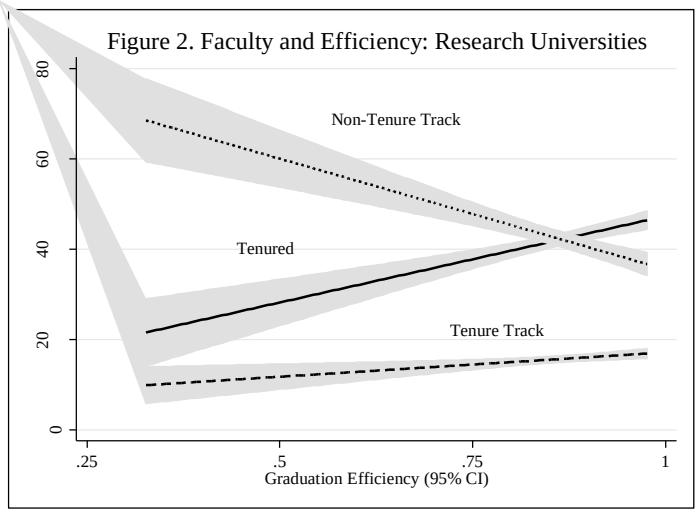
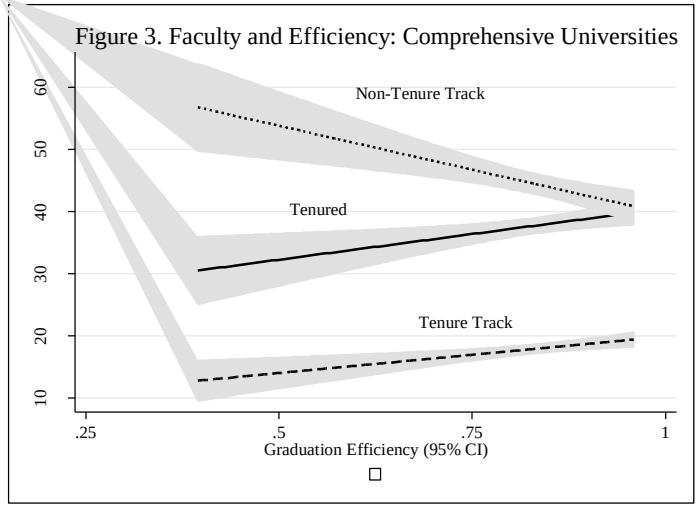



Figure 3. Faculty and Efficiency: Comprehensive Universities




In all cases, increases in the composition of faculty that are tenured have a strong effect on increasing the efficiency of producing student graduation success while increases in the composition of non-tenure track faculty have a detrimental effect on producing student success. Both effects are somewhat stronger among research universities relative to comprehensive universities. The employment composition of tenure track faculty are relatively weak among both research and comprehensive universities and that, of course, is in keeping with the SFA efficiency results of Tables 3 and 4 whereby the tenure track inefficiency coefficients struggled to reach a reasonable level of statistical significance. And while it was suggested that the weaker tenure track effect may be due to the greater research demands placed on faculty at that level, better data on the teaching responsibilities of those faculty would be necessary to drawn stronger conclusions.

## 5. Conclusion and Recommendations

The empirical results of this paper support the notion that the faculty tenure process present in U.S. higher education leads to improvements in the graduation rates of students and increases the efficiency of universities in producing student success. In contrast, there is equally strong empirical evidence presented indicating that increases in the proportion of non-tenure track faculty employment have a negative effect on student graduation success and increases the inefficiency of universities. The results are based on employing panel data over ten academic years, 2004-05 through 2013-14, using both ordinary least squares (OLS) and stochastic frontier analysis (SFA) to test the employment composition effects of tenured faculty, tenure track faculty, and non-tenure track faculty on the graduation success of students. The full panel data consisted of 3,465 observations on public sector research and comprehensive universities offering both undergraduate

and graduate education. Both the OLS and SFA specifications used control variables as measures of internal budgetary allocations to student support and faculty research support, as well as, student tuition charges, student application acceptance rates, student acceptance enrollment rates, and student enrollment mathematical and verbal aptitude scores. Compared to the OLS specification, the SFA model was used to include the three faculty employment contractual arrangements as inefficiency measures and to subsequently provide overall university efficiency results.

In comparison to previous studies, the current results support the Ehrenberg and Zhang (2005) study that finds part-time and non-tenure track faculty employment reduces graduation rates. However, unlike the current results, that study does not incorporate the effects of tenured faculty and tenure track faculty on effects of graduation rate success. Relative to other previous studies, the current study results are based on reported data for all U.S. Carnegie classified research and comprehensive universities offering both undergraduate and graduate education. Absent the study by Sav (2012a), none of the previous studies have included such an all-inclusive evaluation of U.S. universities. Moreover, relative to that Sav (2012a) study that was constrained to evaluating faculty employment effects over the 2004-09 academic years, the present results are extended to encompass ten academic years 2004-05 through 2013-14 and, therefore, include the potential effects of managerial responses to and effects of the Great Recession on university efficiencies. Yet, the limitations of the present study rest with the available data and the inability to include alternative effects of adjunct faculty and graduate assistant teaching as substitutes to tenure and tenure track faculty by university managers. If that better data becomes available and can be incorporated in the current empirical approach, then better comparisons of faculty or teaching employment effects could be improved for comparison across all previous literature. That would be a fruitful undertaking for future research.

In conclusion, the managerial policy implications emanating from the current results are clear. While university administrators and mangers view the employment of lower salary non-tenure track faculty in substitution for more expensive salary tenure track and tenured faculty as budget saving decision-making, that substitution works against producing improvements in student higher education graduation success and against the institutional efficiency of doing so. Given the changing landscape of funding public higher education in moving toward a greater focus on increased funding tied to increases in university student success outcomes, the path to greater funding support appears to be tied to a reversal in administration decision-making and a clear recommendation for increases in the employment composition of tenure track and tenured teaching faculty. Overall, that suggests that publicly funded U.S. universities are on a potential course of mismanagement and not in sync with external conditions driving their public funding support.

**References**

American Association of State Colleges and Universities. (2006). Faculty trends and issues. *Policy Matters*, 3(4), 1-4.

Battese, G. E. & Coelli, T. J. (1995). A model for technical inefficiency effects in a stochastic frontier production function for panel data. *Empirical Economics*, 20(1), 325-332.

Bettinger, E. P. & Long, B. T. (2004). Do college instructors matter? The effects of adjuncts and graduate assistants on students' interests and success. National Bureau of Economic Research, Working Paper No. 10370.

Bettinger, E. P. & Long, B. T. (2010). Does cheaper mean better? The impact of using adjunct instructors on student outcomes. *Review of Economics and Statistics,* 92(3), 598-613.

Borjas, G. J. (2000). Foreign-born teaching assistants and the academic performance of undergraduates. *American Economic Review*, 90(2), 355-359.

Cater, B., Lew, B. & Pivato, M. (2016). The Efficiency of Tenure Contracts in Academic Employment. *Journal of Public Economic Theory*, DOI: 10.1111/jpet.12201, 1-31.

Coelli, T., Perelman, S. & Romano, E. (1999).Accounting for environmental influences in stochastic frontier models: With application to international airlines. *The Journal of Productivity Analysis*, 11(1), 251-273.

Ehrenberg, R. G. & Zhang, L. (2005). Do tenured and tenure-track faculty matter? *Journal of Human Resources*, 40(3), 647-659.

Fleisher, B., Hashimoto, M. & Weinberg, B. (2002). Foreign GTAs can be effective teachers of economics.

*Journal of Economic Education*, 33(4), 299-325.

GAO, United States Government Accountability Office. (2014). Higher Education State Funding and Policies on Affordability, GAO-15-151, 1-41.

Kezar, A. & Gehrke, S. (2016). Faculty Composition in Four-Year Institutions: The Role of Pressures, Values, and Organizational Processes in Academic Decision-Making. *The Journal of Higher Education*, 87(3), 390-419.

Lawrence, J. H., Celis, S. & Ott, M., (2014). Is the Tenure Process Fair. *The Journal of Higher Education*, 85(2), 155-192.

National Conference of State Legislators. (2015). Performance-Based Funding for Higher Education, http://www.ncsl.org/research/education/performance-funding.aspx.

Norris, T. (1991). Nonnative English-speaking teaching assistants and student performance. *Research in Higher Education*, 32(4), 433-438.

Sav, G. T. (2012a). Does Faculty Tenure Improve Student Graduation Rates? *Journal of Business Management and Applied Economics,* 1(5), 1-19.

Sav, G. T. (2012b). Efficiency Estimates and Rankings Employing Data Envelopment and Stochastic Frontier Analyses: Evaluating the Management of U.S. Public Colleges. *Information Management and Business Review*, 4(8), 444-452.

Zhang, L., Ehrenberg, R. G. & Liu, X. (2015). Changing Faculty Employment at Four-Year Colleges and Universities in the United States. NBER Working Paper No. 21827, 1-59.

# Unpacking the Syrian Crisis: A Literature Review

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**Abstract:** The Syrian war has raged on for more than 4 years now and the global citizenry had decided to keep quiet until recently(Grover, 2015). This paper sets out to explain the Syrian crisis and analyse it in relation to how it affects the global citizenry. It will also lay down the events that have fuelled the crisis, explain some underlying issues and discuss the best possible solutions to address it. When Syrian Arab Spring-type protest erupted experts wrongly predicted that they will frizzle out. What initially started off as protests later became a civil war. The crisis had all the features of a Cold War before the direct involvement of the super powers. The causes of the Syrian crisis are as complex as the different players in it. These key issues go beyond the events of March 2011, which triggered the first shots in Daraa. If this crisis continues uncontrolled it could escalate into World War III. Its end is pinned on the political will and commitment to implement the Vienna Statement of October 30, which incorporates by reference the 2012 Geneva Communique. The lack thereof was witnessed during the short-lived ceasefire of September 2016.

**Keywords:** *Syria crisis, humanitarian disaster, migrants, cold war*

## 1. Introduction

It is human nature to ignore something that doesnot directly affect as an individual. Several global crises have been met with general akrasia over the past years until after it was too late to save innocent lives. The Syrian war has raged on for more than four years now and the global citizenry had decided to keep silent until recently(Grover, 2015). The pronounce attention to this crisis was triggered by the influx of Syrian refugees onto Europe's doorstep (Heisbourg, 2015). Whilst there was attention before, progress was hampered by the inability for the various players to agree on what to do. The refugee crisis in Europe forced them to see that the inability to solve the Syrian Crisis was now causing more problems. Before that it never bothered or affected state security and the livelihoods of many since it was a drama being acted in the theatre far away in the Middle East. Now the prospects of inviting so called "terrorists" into neighbourhoods has jolted severalcountries and people into action. Whilst countries like Germany and Sweden are making efforts to take in a large portion of the refugees into their borers the rest of the European Union members have not been so enthusiastic. This paper sets out to explain the Syrian crisis and analyse it in relation to how it affects the global citizenry. Because indeed, if conflicts like this one are left uncurtailed can lead to an ever-widening circle of destruction as has been witnessed so far. The article attempts to answer how this global crisis, which has now become a web of foreign players, came about. It will lay down the events that have fuelled it, explain some underlying issues and discuss the best solutions to address the crisis.

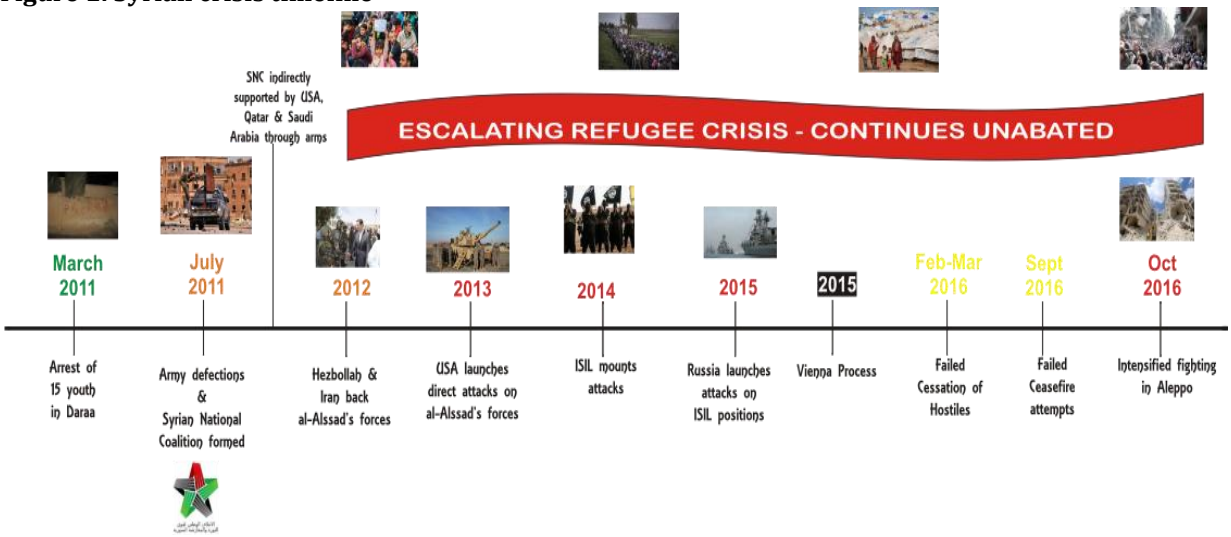
## 2. Literature Review

**Demographic background:** Syria is in the Middle East and is home to about 22 million people. Syria's modern borders were imposed by its former colonisers. This has been a major source of conflict since it forced people from diverse religious and ethnic backgrounds to live within these borders. Due to the fragile composition of its population, Syria has never held a census on religious grounds. It is believed that the Alawites, who rule present-time Syria, are part of the minority. They, together with other non-Sunni Muslim, make a total of about 13% of the population (Adigbuo, 2014). Sunni Muslims make up 75% of the population with the remainder being Kurds that inhabit the North-Eastern part of Syria. Syria has been under authoritarian rule by the Baath Party for more than 40 years and the current President Bashar al-Assad took over from his father in 2000.

**Chronology of events:** News on the Syrian crisis has now dominated international news headlines ever since the heightened push by refugees to reach Europe through legal and illegal entry points. Unworthyservant (2015) illustrates the Syrian conflict as having four opposing sides that at times are not sure whom they are

really fighting against. However, there is consensus on how events have taken place in Syria since 2011, when the crisis first broke out. Figure 1, below, summarises the timeline of these events.

**Figure 1: Syrian crisis timeline**




**Source - authors**

On 6 march of 2011, 15 young people were arrested in the town of Daraa for writing anti-al-Assad graffiti on a wall (Bhalla, 2011). They were tortured during the arrest and this prompted their parents and relatives to take to the streets in protest. The protests were met with a heavy response from the government leading to the deaths of some unarmed civilians. A few days later, a group of those mourning the dead were fired at, leaving one dead. The citizens then armed themselves and returned fire in subsequent protests. When these Arab-Spring-type protests erupted, experts wrongly predicted that they would frizzle our given Syria's stability over the past decades. However, by end of July 2011, some members of the Syrian Army defected, formed the Syrian National Coalition and began fighting against President al-Assad. The Kurds, in the North East, also saw this unfolding civil war as an opportunity to be armed and demand secession from Syria(Gunter, 2015).

Subsequently, the involvement of other countries or foreign groups in the direct confrontation began in 2012 when Hezbollah, with the backing of Iran, fought on al-Assad's side. However, this was probably to counter the indirect participation of other countries like America, Saudi Arabia and Qatar that have been supplyingarms and funding to the Syrian National Coalition, channelling them through Turkey and Jordan (Adigbuo, 2014; Bhalla, 2011; Khashanah, 2014). In 2013, after a protracted delay, the United States of America became involved in direct attacks on those fighting on al-Assad's side (Cozma & Kozman, 2015). The USA's point of entry was the al-Assad's regime's alleged usage of chemical weapons in the war. 2014 saw the involvement of the Islamic State of Iraq and the Lavent (ISIL) with their quest to set up an Islamic State and Caliphate. The last quarter of 2015 saw Russia'sinvolvement through the direct attacks on ISIL positions. This is reported to be at the invitation of the Syrian government. On 24 November 2015, Turkey gunned down a Russian plane and this event created a diplomatic confrontation between the two countries and NATO. Russia responded by increasing its military posture in the Near East. Whilst China has not been directly involved in the war it has chosen to take a diplomatic rout and use its veto power in the UN's Security Council. This has avoided legitimising international military intervention in Syria despite the itch by so many countries to do so (Swaine, 2012).

No fewer than 17 attempts have been made to try and resolve the conflict(Hartberg, Bowen, & Gorevan, 2015; Shaw, 2013). These attempts, which started as far back as 2011 and included the involvement of the United Nations, neighbouring states as well as the Arab League, are summarised in the Table 1 below.Despite such concerted efforts the proposed peace plans have failed. The main reason for this failure could be that there have been in some ways too many players and that the disunited agendas of each have continue to plague the

region and country(Al-Fattal, 2016). There have been reports of mistrust as well as counter-accusations of sides breaching ceasefire agreements and causing more civilian casualties in the process(Crilly, 2016; Issa, 2016).

**Table 1: Conflict resolution attempts**

| Tittle | Date | Lead/Key players |
|---|---|---|
| Arab League Peace Plans for Syria | November 2011 to January 2012 | Arab League |
| Russian Peace Initiatives for Syria | January 2012 and November 2013 | Russia |
| Friends of Syria Group | February 2012 | France |
| Kofi Annan Peace Plan | March 2012 | Kofi Annan - UN |
| Geneva I Conference on Syria | June 2012 | United Nations |
| 16th Summit of The Non-Aligned Movement | August 2012 | Iran |
| Eid Al-Adha Cease Fire Attempt | September 2012 | Lakhdar Brahimi - UN |
| Geneva II Conference on Syria | January 2014 | United Nations |
| Four Committees Initiative | July 2015 | United Nations |
| Zabadani Ceasefire Agreement | September 2015 | Hezbollah & Iran |
| Vienna Process | October 2015 | United States, Russia, Saudi Arabia and Turkey |
| Riyadh Conference | December 2015 | Syrian opposition groups |
| Geneva II Conference on Syria | January 2016 | United Nations |
| Syrian Women's Advisory Board | February 2016 | United Nations |
| Cessation of Hostilities | February 2016 | UN, Russia and USA |
| Cease Fire Deal | September 2016 | Russia and USA |
| Lausanne Talks | October 2016 | U.S., Russia, Saudi Arabia, Turkey, Qatar and I |
| Aleppo Ceasefire | October 2016 | Russia and Syria |

Source: authors

Two of the latest ceasefire attempts have been short-lived with the first one, of September 2016 lasting seven days. Fighting resumed with Russia and USA accusing each other of initiating the breach to the ceasefire agreement (Dorell & Hjelmgaard, 2016). The fighting that ensued since 19 September 2016 has led to increased fighting in the Syrian second city of Aleppo. A second cease-fire attempt was made to bring peace in Aleppo but only lasted for 10 hours (Reuters, 2016).

**Context:** Having narrated the events leading to the Syrian crisis this section reviews the context in which it is unfolding. The crisis is more about a dictatorship, the people's attempt at removing him and his brutal response, also, the effectiveness of their attempts and the role of the international community. This was complicated by interference from external powers who sided with either the dictator or the people. Intervention was seen to be fraught with challenges given that there were so many contributing and conflicting influences. Within countries who considered intervening, there was disagreement of how it could be done, resulting in what is seen to be inaction. This section narrates the key issues and the real reasons when foreign players have become directly involved in the crisis.

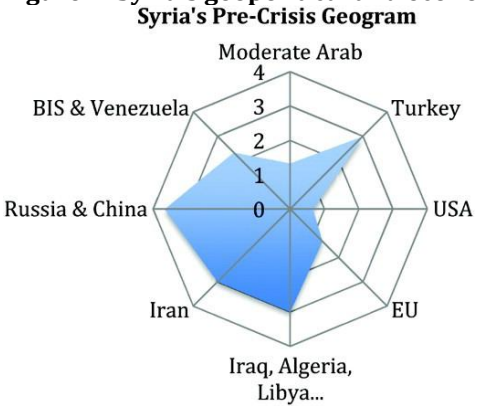
### 3. Salient causes of the crisis

The causes of the Syrian crisis are as complex as the players in it. These key issues go beyond the events of March 2011, which triggered the first shots in Daraa. Different positions have been presented to lay out the real issues behind the Syrian crisis and the magnitude of its impact. The much publicised key issue has been a demand for regime change and an end to structural violence and inequality within Syria (Gleick, 2014). This position is supported by Phillips (2015) who pins the crisis on "short-term structural socio-economic, cultural and political factors". Some experts have gone back to the drought that hit Syria between 2006 and 2010 and linked the trigger point to climate change ((Bisaria, 2015; De Châtel, 2014; Verner & Breisinger,

2013; Werrell, Femia, & Sternberg, 2015). It is alleged that during this period al-Assad's government selectively provided wells for farmers and left out a big number of deserving households. As reported by (Gleick, 2014) there had been a long history of conflicts over water in the region. Therefore, climate change can be a plausible trigger point. This view is supported by world leaders like Prince Charles and Secretary John Kerry ((BBC News, 2015; Kasperowicz, 2015; Mills, 2015). The theoretic framework introduced by Khashanah (2014) presents the underlying causes as being sectarianism. Whilst Kfir (2015) relates it to the existence of social group identities that push the deep rooted extremist ideologies of ISIL.

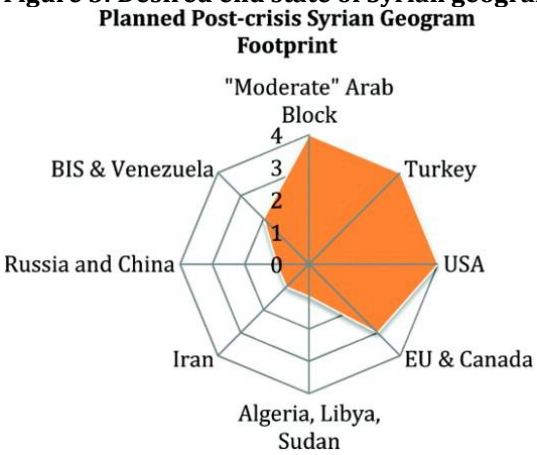
**Latent causes for foreign involvement:** Understanding the latent causes to the Syrian crisis reveals the Cold War nature of this conflict. They in actual fact may be real reasons why outsiders have dabbled into Syria. Johnson (2015) speaks on these latent causes by questioning the timing of the uprising and signing the Bushehr Memo of 25 June 2011. This agreement created the Iran-Iraq-Syria gas pipeline which will be a major source of gas for Europe and a huge boost to the Syrian government's revenue. The European Union, therefore, might be seen as trying to halt the refugee crisis when in actual fact it wants to ensure that the gas gets into its citizens' homes. The systemic framework introduced by Khashanah (2014) argues that the revolt was used as an entry point to realign Syria ideologically and geopolitically. She introduces a geogram and theory that pits Iran, China and Russia to the "left" and whilst the "right" has USA, Canada, the European Union and Turkey (see Figures 2 and 3 below). Countries such as Qatar and Saudi Arabia that are in the vertical axis of the geogram are part of the right. The aim of the countries involvement is to move Syria to the right. The realignment could be seen as necessary sinceSyria is strategic geopolitically.

**Figure 2: Syria's geopolitical and economic footprint**




**Source Khashanah 2014:13**

**Figure 3: Desired end state of Syrian geogram because of the foreign country involvement**




Source Khashanah 2014:15

Whilst the USA's involvement has been publicised as a reaction to al-Assad's' atrocities and his use of chemical weapons, the latent issue is to push back Iranian influence in the region. On the other hand, Syria is a strategic ally to Russia's sphere of influence in the Middle East and Northern Africa (MENA) region as it hosts Russia's remaining naval base of Tartus(Kreutz, 2010). Russia's involvement is therefore aimed at entrenching its influence in the region as well as a show of military power. This military power has been displayed by Russia's success rate in obliterating ISIL bases and positions regardless of the short-time it has been directly involved in the conflict(Roth, 2016; Stent, 2016). This has prompted the USA to have diplomatic agreements with Russia that they have a common enemy in this war and hence they should increase joint efforts to eliminate ISIL.

**War classification:** There have been different propositions on the type of war in which the Syrian crisis can be classified. These classifications are linked to the many events that have unfolded over the past four years. Initially, it started off as a civil war, with a citizens' uprising that demanded structural change within Syria (Sterling, 2012). Adigbuo (2014) asserts that this crisis had all the features of a Cold War, pitting the regional and international community, way before the direct involvement of super powers like America and Russia. The main reason for this will be explained in the next section that narrates the underlying issues behind the crisis. Other scholars have classified it as a Holy War pitting Shi'a Muslims against Sunnis ((Bhalla, 2011; Khashanah, 2014). Whilst on the hand scholars reports and conspiracy theorists have hinted that if it goes uncontrolled it could escalate to World War III with the potential usage of nuclear weaponry (Adigbuo, 2014).

**Humanitarian impact of the crisis:** Whilst the figures of the death toll from Syria vary according to source, it has become the worst crisis in our lifetime, affecting more people that the combined impact of the Haiti Earthquake, the Indian Ocean Tsunami and Hurricane Katrina (World Vision, 2015). Regardless of this fact it has not been met with matching attention and responses. According to United Nations Office for the Coordination of Humanitarian Affairs (2016a) more than 250 000 people have been killed in the Syrian crisis. An estimated 4,3 million are now refugees with 6.6 million have been internally displaced. Approximately USD7,7billion is needed to meet the urgent needs in Syria during 2016 with USD5.3billion having been raised by October 2016 (United Nations Office for the Coordination of Humanitarian Affairs, 2016b). The crisis is an evident case of the impact of the international community's failure to fulfil its responsibility to protect global citizens (Solberg-Henriet, 2015).

## 4. Solutions to the Syrian conflict

Concerted efforts have been made to find a lasting solution to this conflict cover the past 2 years. All players have been afforded an opportunity to put their demands on the table and propose their own solutions. Players have different positions dependent on whose side they have been supporting and what their long-term gains will be(Al Jazeera Staff, 2015). For instance, Russia sees a political solution as the only way to being an end to the Syrian crisis(Gardner, 2016). The USA is pushing for a negotiated settlement that might involve not keeping al-Assad in power longer(Shapiro & Charap, 2014; Tabler, 2013). The Gulf States and Turkey insist on al-Assad's exit and are advocating for setting up a transitional mechanism(Hokayem, 2013). Iran, which has spent billions to prop up al-Assad, proposes a peaceful transition leading to multi-party elections (United States Institute of Peace, 2015). The ongoing negotiations have let to the release of the Vienna Statement of October 30, which incorporates by reference the 2012 Geneva Communiqué(United Nations Department of Political Affairs, 2015). Some of the agreed positions thereof include;

- A ceasefire that establishes a credible, inclusive non-sectarian governance within 6 months
- Drafting of a new constitution
- Holding free and fair elections within 18 months in pursuant of the new constitution
- The elections to be under UN supervision and allowing all Syrians including the Diaspora to participate.

The end of the Syrian crisis is pined on the political will and commitment to implement the above agreed positions to the letter. What is seen is how the parties to this war will act out as the hostilities and engagements continue.

## 5. Conclusion

From the analysis of available literature, it can be concluded that the causes of the Syrian crisis include the civilian demands for regime change, climate change and inequitable distribution of natural resources, geopolitical positioning of foreign players, religion and sectarianism as well as the scramble for oil and gas by foreign countries. This crisis is a good illustration of how things can go wrong, anywhere in world, if the following can take place:

- Failure to address structural, cultural violence and underlying issues of social exclusion, poverty and inequality
- Applying hard handed responses to protesters demanding structural changes in their states
- Failure to mitigate and address climate change and the scramble for scarce natural resources
- Ignoring the right to protect in favour of the show of political power and prowess
- Putting foreign states interests in a particular country ahead of the interests of that country's citizens
- Failure to eliminate the marketplace of identities and thus promote harmony amongst us.

The fact that billions have been spent in entrenching positions as opposed to addressing the humanitarian crisis is evidence of how greed and power have consumed humanity. Thousands of lives and billions of dollars could have been saved had the world taken appropriate action right from the onset. This is a crisis that could have been avoided and history will judge this generation for not having done enough. It is a good example of why more ethical and collective interventions are the solution to such problems.We will be judged for choosing to ignore a crisis as it morphed up simply because it was not happening within our neighbourhood.

## References

Adigbuo, R. E. (2014). Cold War Resurgence: The Case of Syrian Uprising. *Journal Of Humanities And Social Science,* 19(8), 39-47.

Al-Fattal, R. (Producer). (2016). Why initiatives to bring peace in Syria have got it wrong. Open Canada. Retrieved from https://www.opencanada.org/features/why-initiatives-bring-peace-syria-have-got-it-wrong/

Al Jazeera Staff. (2015). Analysis: How to solve a problem like Syria? Retrieved from http://www.aljazeera.com/news/2015/09/analysis-plan-save-syria-150930083231637.html

BBC News. (2015). Prince Charles links climate change to Syria conflict. *BBC*. Retrieved from http://www.bbc.com/news/uk-34897796

Bhalla, R. (2011). Making sense of the Syrian crisis. Retrieved from http://www.stratfor.com/weekly/20110504-making-sense-syrian-crisis

Bisaria, A. (2015). It'll Take All Of 5 Minutes For This Comic To Tell You Why Syrians Are Fleeing Their Motherland. Indian Times, p. Online article. Retrieved from http://www.indiatimes.com/news/world/itll-take-all-of-5-minutes-for-this-comic-to-tell-you-why-syrians-are-fleeing-their-motherland-244888.html

Cozma, R. & Kozman, C. (2015). The Syrian Crisis in the News: How the United States' elite newspapers framed the international reaction to Syria's use of chemical weapons. *Journalism Practice,* 9(5), 669-686.

Crilly, R. (2016). All sides report Syria ceasefire breaches as UN prepares to deliver aid. The Telegraph. Retrieved from http://www.telegraph.co.uk/news/worldnews/middleeast/syria/12177167/All-sides-report-Syria-ceasefire-breaches-as-UN-prepares-to-deliver-aid.html

De Châtel, F. (2014). The role of drought and climate change in the Syrian uprising: Untangling the triggers of the revolution. *Middle Eastern Studies,* 50(4), 521-535.

Dorell, O. & Hjelmgaard, K. (2016). Aid convoy attacked as Syria declares end to week-old cease-fire. *USA Today*. Retrieved from http://www.usatoday.com/story/news/world/2016/09/19/syria-truce-russia-us-military-cooperation-doubt/90682792/

Gardner, D. (2016). Russia and Iran move towards a political solution for Syria, Online newspaper. *Financial Times*. Retrieved from https://www.ft.com/content/22fffd48-37c3-11e6-a780-b48ed7b6126f

Gleick, P. H. (2014). Water, drought, climate change, and conflict in Syria. *Weather, Climate, and Society,* 6(3), 331-340.

Grover, S. (2015). R2P and the Syrian crisis: when semantics becomes a matter of life or death. *The International Journal of Human Rights,* 19(8), 1112-1128.

Gunter, M. M. (2015). Iraq, Syria, ISIS and the Kurds: Geostrategic Concerns for the US and Turkey. *Middle East Policy,* 22(1), 102-111.

Hartberg, M., Bowen, D. & Gorevan, D. (2015). Failing Syria: Assessing the impact of UN Security Council resolutions in protecting and assisting civilians in Syria.

Heisbourg, F. (2015). The Strategic Implications of the Syrian Refugee Crisis. *Survival,* 57(6), 7-20.

Hokayem, E. (2013). Syria's uprising and the fracturing of the Levant. In R. Leenders (Ed.). *International Affairs*, 438, 149-190). (London): Royal Institute of International Affairs.

Issa, A. (2016). Why Syria's Cease-Fires Keep Collapsing. The National Interest.

Johnson, M. R. (2015). Russian forces in Syria: The ISIS fraud and the frantic clamor of a dying empire. Katehon.

Kasperowicz, P. (2015). Kerry: Climate change fueled Syrian refugee crisis. Washington Examiner. Retrieved from http://www.washingtonexaminer.com/kerry-climate-change-fueled-syrian-refugee-crisis/article/2578035

Kfir, I. (2015). Social Identity Group and Human (In) Security: The Case of Islamic State in Iraq and the Levant (ISIL). *Studies in Conflict & Terrorism,* 38(4), 233-252.

Khashanah, K. (2014). The Syrian Crisis: a systemic framework. *Contemporary Arab Affairs,* 7(1), 1-21.

Kreutz, A. (2010). Syria: Russia's Best Asset in the Middle East. *Russie. Nei. Visions*(55).

Mills, R. (2015). Charles: Syria's War Linked To Climate Change. Retrieved from http://news.sky.com/story/charles-syrias-war-linked-to-climate-change-10338610

Phillips, C. (2015). Sectarianism and conflict in Syria. *Third World Quarterly,* 36(2), 357-376.

Reuters. (2016). Aleppo: Ceasefire between Russian and Syrian forces ends; civilians, rebels ignore opportunity to leave. ABC Online Services. Retrieved from http://www.abc.net.au/news/2016-11-05/rebel-held-zone-of-aleppo-syria-braces-for-renewed-bombing/7997886

Roth, A. (2016). After four months, Russia's campaign in Syria is proving successful for Moscow. The Washington Post.

Shapiro, J. & Charap, S. (2014). Winning the peace by failing in Geneva. Foreign Affairs, 9.

Shaw, D. (2013, June 2013). Syria – Timeline of Peace Process. Peace and Justice News.

Solberg-Henriet, H. L. (2015). Responsibility to Protect in Application: A Comparative Analysis of Libya and Syria during the Arab spring.

Stent, A. (2016). Putin's Power Play in Syria: How to Respond to Russia's Intervention. *Foreign Aff.,* 95, 106.

Sterling, J. (2012). Daraa: The spark that lit the Syrian flame. *CNN. Retrieved December,* 15, 2013.

Swaine, M. (2012). Chinese views of the Syrian conflict. *China Leadership Monitor,* 39(2).

Tabler, A. J. (2013). Syria's Collapse: And How Washington Can Stop It. *Foreign Aff.,* 92, 90.

United Nations Department of Political Affairs. (2015). 14 November 2015, Statement of the International Syria Support Group Vienna. Retrieved from Rome: http://www.un.org/undpa/en/Speeches-statements/14112015/syria

United Nations Office for the Coordination of Humanitarian Affairs. (2016a). Syrian Arab Republic. Retrieved from http://www.unocha.org/syria

United Nations Office for the Coordination of Humanitarian Affairs. (2016b). Total Funding to the Syrian Crisis. Retrieved from https://fts.unocha.org/pageloader.aspx?page=special-syriancrisis

United States Institute of Peace. (2015). Iranian Officials on Syria, Possible Solutions. Retrieved from http://iranprimer.usip.org/blog/2015/oct/01/iranian-officials-syria-possible-solutions

Unworthyservant (Producer). (2015). Syria's war: A 5 minute history. [Video] Retrieved from https://www.youtube.com/watch?v=Cgi9tz3IZWQ

Verner, D. & Breisinger, C. (2013). Economics of Climate Change in the Arab World: Case Studies from the Syrian Arab Republic, Tunisia and the Republic of Yemen: World Bank Publications.

Werrell, C. E., Femia, F. & Sternberg, T. (2015). Did we see it coming?: State fragility, climate vulnerability, and the uprisings in Syria and Egypt. *SAIS Review of International Affairs,* 35(1), 29-46.

World Vision. (2015). Syria war refugee crisis. Retrieved from http://www.worldvision.org/news-stories-videos/syrian-war-refugee-crisis.

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# An Empirical Investigation on the Role of exports, imports and it's Determinants in Foreign Trade of Pakistan

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**Abstract:** Foreign trade was restrained by fluctuations and depreciations in currencies, nations were under financial pressure to implement protection measures in form of custom duties tariffs. These theories and thoughts have enormous impact on rules and policies of global trade throughout the world. To adopt economic liberalization and free trade zones nations all over the world are connected through number of agreements since last few centuries. In this revolutionized economic system, nations allow free trading of merchandise and services and at the same time don't have to impose tariff in form of import and exports duties. This study attempted to empirically evaluate the role of imports, exports and its determinants in foreign trade of Pakistan applied ARDL Approach for the period of 1972-2015. The study recommends that economies with significant competitiveness and comparative advantage will be greatly benefited from export promoting policies. As far as trade partners are concerned, no considerable efforts have been done to explore new markets in direction of Pakistan's foreign trade since its independence. The key trading partners of Pakistan in the beginning were the developed countries of West and still they are main trading partners of Pakistan.

**Keywords:** *Foreign Trade, Imports, Exports, ARDL Approach and Stability Analysis.*

## 1. Introduction

Trade being too old phenomena initiated from barter system replaced with Mercantilism. With publication of Adam Smith's "The Wealth of Nations" in 18th century trade transferred to liberalism emphasis on the absolute advantage from trade in form of product specialization on large scale. In early twentieth century Heckscher and Bertil Ohlin (H-O model) designed the theory of international trade that nations will manufacture and export commodities which can be produced efficiently by using factors of production or raw material which are comparatively abundant in that country and import the rest which are produced with relatively scarce resources. Generally the theory sounds accurate but practical deficiency in the H–O model was discovered by Wassily Leontief known as Leontief paradox which identified that the United States has a tendency to export labor-abundant commodities regardless of having capital abundance. One of new developments in international trade theories is Gravity model of trade which shows a deep practical scrutiny of trade patterns, it estimates trade on the basis of distance among nations and the monetary value or size of the economy of trading partners.

Trade is an ancient practice pertaining to be a natural phenomenon to attain different desires since decades of human history. Throughout history, the most perceptible change in trade is its range and dimension. The main reason behind trade is lake of self-sufficiency of economic agents and countries; no nation has sufficient resources to achieve all the demands of its inhabitants. So the country enriches in physical, capital or natural resources will produce the commodities with comparatively efficient productivity and exchange these products with rest of the world for commodities in which it has comparative disadvantage. Factor endowment, climate or natural resources, population, taste and technological changes greatly influenced the capacity of international trade and global markets. Pakistan is facing a persistent trade deficit since its initiation because of poor economic performance and lake of infrastructural facilities. Exports of Pakistan consists of low value added and raw or semi-processed agricultural-products. In 1950-60 Pakistan adopted the policy of import substitution to stabilize and protect domestic industries and increase its share in manufactured products. National demand was shifted from foreign products to goods produced domestically through protecting industries from foreign competition. Consequently some important industrial units were developed due to these policies and economy observed phenomenal growth in 1960's; in short at that time these policies proved to be instrumental in industrial establishment and development.
Most of the economic policies are generalized but still most of these have different effects on different economies under various socio-economic circumstances. Similarly where protectionist policies in form of

import substitution worked in favor of industrialization of Pakistan for other developing economies it wasn't that effective therefore they adopted export promotion policies instead and succeeded in attaining phenomenal economic growth. In mid 1970's Pakistan under inspiration from the economic development of these economies attracted towards adopting trade liberalization policies, still till late 1990 Pakistan stick to protectionists policy regarding foreign trade. Where these protective policies had positive impact in form of new industries at the same time these policies decreased the standards and levels of competition in food and textile industries. The significance of foreign trade in emerging economies becomes a core issue now-a-days, that's why the subject matter of this study is profoundly debated these days and gets a lot of interest especially in the new industrial and developing countries. Pakistan is persistently facing a huge trade deficit as well as low economic growth. In order to minimize trade deficit and to enhance a steady growth rate needs a profound investigation.

This research study will be aiming to find out the answer of these questions that, is there any momentous effect of imports and exports on foreign trade of Pakistan? Whether Trade liberalization policy is assistance or hindrance in favorable balance trade of Pakistan? Different international economic policies affect world economies in a different way according to their economic and financial conditions, culture and socio-economic setup, climate and environment etc; hence this research study emphasizes on the effect of foreign trade policy on Pakistan's economy. Does exports, imports and international trade helps to reduce the trade deficit and improve the Pakistan's economic growth as Pakistan facing persistently trade deficit since independence and low economic growth from last decades. To examine detailed scrutiny of sectoral imports and exports and its impact on international trade; each economic sector is observed with respect to its importance for aforementioned. Furthermore main variables were decomposed in secondary variables to have detailed insightful of possible effect, outcome and nature of variables in more detail. In short the researcher is aiming to have accurate and comprehensive results.

## 2. Literature Review

Foreign trade, exports and imports has dual role in the economy. Firstly, it affects directly Balance of Payment[1] in the short-run creating sever fluctuation the current account balances. Secondly, through BOP it also affects the GNP [2] or National Income[3] of a country in the long-run. International trade is the most volatile component of GNP and having close relation with economic growth of a country. It has also a strong impact on the aggregate supply and aggregate demand of goods and services on any country. It is simple to find the role of exports in international trade, but very sensitive to find out the role of imports in international trade. Ahmed (2000) investigated the response of Bangladesh's exports towards its Trade Liberalization and Economic Growth applying Co-Integration and Error Correction Model (ECM). The results of the study found long-run relation among exports of goods, price of exported goods, exchange rate and trade liberalization having significant effect on the economic growth of Bangladesh for the period of 1994-19995. However, the study found short-run relation between supplies of exported goods and Bangladesh's economic growth. Yanikkaya (2003) examined the impact of trade liberalization on export, import, net export and economic growth, selecting 120 countries. Panel data were used in the study for the period of 1970 to 1977. The variables were regressed through Generalized Method of Movement (GMM). The results revealed that these variables have significant with positive sign, indicating the major role of these variables in economic growth.

Martinez-Zarzoso and Nowak-Lehmann (2003) examined the bilateral annual exports among the 19 countries. The study used panel data for the period of analysis from 1975 to 2002. The trade Gravity Model was applied in the methodology to find out the impact of bilateral exports on population growth rate, infrastructures and imports of these 19 countries. The study found the positive and significant effect of exports on both population and infrastructures on the economic growth of these selected samples of study countries. The study also found that bigger population countries have greater imports as compared to small

[1] BOP is define as "The annual record of all economic transaction of one country with other countries OR the annual record of all economic transaction of a resident country with rest of the world during one year". It has three basic Accounts; Current Account, Capital Account & Reserved or Official Settlement Account.
[2] Gross Domestic Product (GNP) defined as "The total market value of final goods and services produced by a country during a year".
[3] Simplest definition is "the total outcome of country is called National Income".

population countries. Further, the study concluded that infrastructure too played a leading role like exports in raising the economic growth of these sample selected countries. Akhtar (2003) investigated the seasonal behavior and pattern of Pakistan's exports and imports using quarterly data from 1984: 1 to 2002:1. In the methodology several techniques like integrated models, Auto-Regressive Integrated Model Analysis (ARIMA), mixed ARIMA, ARIMA-GARCH and unit root test. Though the study used diverse and varied analytical techniques, found that the deterministic effect of both exports and imports were relatively stronger than stochastic effects. Akhtar and Ghani (2010) studied free trade agreement benefits for SAARC countries applying trade gravity model. The study found constructive and assenting effect of trade agreements on economic growth of SAARC countries for the period of 2003-2008, using cross-sectional.

Filippini and Molini (2003) attempted to determine the trade flows between industrializing countries, East Asian countries including China and with some other developed countries. The study used panel data covering the period of analysis from 1970 to 2002. In the methodology of the study the Trade Gravity Model was applied to examine the impact of bilateral trade flows among the industrializing, East Asian and developed countries. The study found the positive and significant impact with true expected signs of the entire hypothesis to be tested and for estimator too. Further, the study also found that China played a dual important and significant role as an exporter and importer too, showing the bursting getting of advantage from bilateral trade. Ahmad, Alam and Butt (2004) examined the causal relationship between exports, imports, Foreign Direct Investment (FDI), domestic production, Domestic Output, trade openness and economic growth of Pakistan applying Johansen Co-integration, Vector Auto Regressive (VAR) model and Granger Causality test. The study found the causal relation among the included variables, i.e. Exports, Manufacturing Production, Domestic Output, Foreign Direct Investment (FDI), Foreign Income and exchange rate as well as of these variables with economic growth of Pakistan for the period of 1972-2001. Iacovoiu (2013) analyzed the impact of exports, imports and capital formation on the economic growth of Romania. The study used time series data for the period of 2004-2012. In the methodology they used co-integration vector analysis, multivariate co-integration, Vector Auto-regressive (VAR) model and Error Correction Model (ECM). The results revealed that exports, imports and capital formation have positive and significant on the economic growth of Romania.

Santos-Paulino and Thirlwall (2004) examined the impact of trade liberalization policies on the balance of payment, export, balance of trade and import. They used mixed data including panel, time-series and cross-sectional data. The study was analyzed for those twenty-two developing countries have adopted trade liberalization policies in 1970's. The results showed that both export and import of these developing countries increase by adopting the liberalization policies. It was also evident from the results that increase in imports was much higher than export of these countries producing fluctuation and instability both in balance of payment and balance of trade, alternatively slowdowns the growth of the economies and also effect the living standard and output of these countries. Achay (2006) studied the trade flows among different countries of the world. The study used panel data for the five sub-periods on yearly basis from 1970 to 2000. In the methodology of the study the Trade Gravity Model was applied to find out the trade flows relationship between 126 different countries of the world. The results obtained from the study revealed that bilateral trade flows have positive and significant impact for these 126 selected sample countries with each other taking the momentous increase in their economic growth from bilateral trade. Awokuse (2007) examined the impact of exports and imports on economic growth for Czech Republic, Bulgaria and Poland. The panel data were used in the study for the period of analysis from 1980 to 2006. In the methodological framework used the error correction model. The results captured the bi-directional causal relation between exports, imports and economic growth for Bulgaria. For Czech Republic unidirectional causality relation from exports and imports are captured, while only imports led-growth were found for Poland.

Zaman et al. (2010) attempted to empirically examine the bilateral trade impact between Pakistan and Turkey. The panel data was used in the study covering the period of analysis from 1990 to 2008. In the methodology they applied the Trade Gravity Model to explore the bilateral trade flows between Pakistan and Turkey. The results obtained from the regression analysis of the study showed the strong relationships between bilateral trade flows and economic growth for both Pakistan and Turkey and weak relationship between distance of these two countries and bilateral trade flows. In the recommendations of the study they suggested that bilateral trade between these two countries needs more boost up and upgrading for achieving

the prosperous economic growth. Emeka, Fredrick and Peter (2012) studied the impact of export and international trade on Nigeria's economy by developing the combination of multi-variant and bi-variant models of macroeconomic variables. They used time series data covering the period from 1970 to 2008. The results revealed that foreign direct investment and export have significant positive sign, showing their important effect on Nigeria's economy. In the policy recommendation they suggested that there should be connection between the fiscal policy and export to achieve the desired goal for Nigeria's economy. Javed et al. (2012) analyzed the impact of international trade, exports, imports, investments and trade openness on the economic growth of Pakistan. They used time-series data for the period of 1973 to 2010. In the methodology they used Chow Test and regressed through simple Ordinary Least Square (OLS) method. The study revealed that these variables effect the short-run growth of Pakistan economy more significantly as compared to long-run. Further, the imports of some goods bring increase in the production in Pakistan resulting more output and employment.

Sulaiman and Hussain (2012) empirically investigated the impact of exports, imports, Foreign Direct Investment (FDI) and trade openness on economic growth of Pakistan. The annual time series data was used in the study covering the period of analysis from 1970 to 2012. In methodology of the study they used Johnson co-integration technique and Error Correction Model (ECM) for the estimation and regression of variables. The results revealed that there is positive and significant impact of trade openness on economic growth of Pakistan in long run having major role of Foreign Direct Investment (FDI) too. Further, the study concluded that in Pakistan the growth mainly are export led growths (ELG). In policy recommendation they suggested that government of Pakistan should need to focus on the export by improving their quality, quantity, marketing of products and access of domestic exporter in to foreign market. Azeez, Dada and Aluko (2014) studied the impact of international trade, exports, imports and trade openness on economic growth of Nigeria. The annual time series data for the period of 2000-2014 was used and regressed through simple Ordinary Least Square (OLS) technique. The results obtained from the regression analysis revealed that international trade, export and imports had significant impact on Nigeria's Economy. The study suggested that government should need to decrease dependency from oil export products and bring increase in the exports of non-oil products.

## 3. Econometric Model and Description of Data

This research study observing the evolution of embodied exports and imports of goods in international trade and afterward on the economic growth of Pakistan. For this, the econometric model for the growth of exports, imports, its determinants and international trade of the country was developed. The basic idea for the development of the theoretical and econometric models have been taken from previous models used by Santos-Paulino and Thirlwall (2004), Wacziarg and Welch (2003). Ju et el. (2010) extended their work to develop models for this study. The demand for goods in the international market (international trade) depends on the assessment of the comparative prices of goods, the relative prices of the currencies of both the trading countries and demand for goods in the world countries and in international market. If the world income, the elasticity of world income and the proportional price of the goods in the world countries assume as constant than the international trade equation are expressed as;

$$I.T_t = A(X_t)^{\alpha_1}(M_t)^{\alpha_2}(Y_t)^{\alpha_3}(ER_t)^{\alpha_4} \quad \text{..... (3.1)}$$

Here, small "t" represents the time period (time series), $I.T_t$ is the international trade, $X_t$ is the exports, $M_t$ is the Imports, $Y_t$ is the World Income take as constant and $ER_t$ is the exchange rate in time period "t".

In equation (3.1) $\alpha_1$ is the price elasticity of demand for exporting goods , $\alpha_2$ is the price elasticity of demand for Importing goods, $\alpha_3$ is the Income elasticity of demand for both exports and imports goods and $\alpha_4$ is the price elasticity of exports and imports from Country "i" to country "j". In other words $\alpha_4$ is the price elasticity in relative currencies of both countries. To formulate the equation (3.1) to linear form, the logarithmic is taken on both side of the equation (3.1).

$$Ln(I.T_t) = Ln(A) + \alpha_1 Ln(X_t) + \alpha_2 Ln(M_t) + \alpha_3 Ln(Y_t) + \alpha_4 Ln(ER_t) \quad \text{..... (3.2)}$$

Now, by taking the derivative on both side of the equation (3.2), with respect to time "t" the growth rate in international trade with respect to exports, imports, world income and exchange rate be determine. The equation (3.2) will become as follows;

$$(\dot{I.T}_t / I.T_t) = (\dot{A}/A) + \alpha_1(\dot{X}_t / X_t) + \alpha_2(\dot{M}_t / M_t) + \alpha_3(\dot{Y}_t / Y_t) + \alpha_4(\dot{ER}_t / ER_t) \quad \text{..... (3.3)}$$

In the econometric form for the empirical regression the equation (3.3) be articulated as

$$IT_t = \alpha_0 + \alpha_1 x_t + \alpha_2 m_t + \alpha_3 y_t + \alpha_4 er_t + \mu_t \quad \text{..... (3.4)}$$

In the above equation (3.4), $IT_t$ (=$I.T_t^*/I.T_t$), $x_t$ (=$X_t^*/X_t$), m ($M_t^*/M_t$),$y_t$ (=$Y_t^*/Y_t$) and $er_t$(= $ER_t^*/ER_t$). $\alpha_0$ (=A*/A) and taken as constant i.e. technology, shocks etc. $\alpha_1$ and $\alpha_2$ are the price elasticity of demand for exports and Imports of goods, $\alpha_3$ is the Income elasticity of demand for both exports and imports goods and $\alpha_4$ is the price elasticity of trading goods in relative currencies for both the countries. μt is the error term or the white noise error stochastic term. The random error term is assumed to be normally distributed through the subsequent restrictions, $[E(\eta_i) = 0], [E(\eta_i)^2 = \sigma^2], [E(\eta_{i,}\eta_j) = 0]$

This process is known "White noise process".

The basic motive and reason for international trade among the countries is quite simple. Some countries can produce more goods as compared to other countries and they have comparative advantage of producing these goods over other nations having more resources, efficient allocation, modern technology, enhanced capital and low production cost. Some countries have economically better than other countries in producing the goods that are excessive than there domestic consumption. The rational for international trade follows that the countries producing auxiliary goods from their domestic consumption needs, Countries can exports those goods to other countries while imports those goods from other countries in which they have deficiency in satisfying their domestic needs and requirements. The international trade is one of the important components of GDP especially for the countries have adopted policy of an open economy. The international trade is depended on the exports and import of country. Greater the exports and less imports brings surplus and less exports and greater imports cause deficit in the balance of trade for the resident country. In keeping the importance of international trade in view, Pakistan has made several attempts by adopting liberalization policies of trade openness to gain more fruit from international trade.

To investigate the broader impact of Pakistan's exports and imports on the international trade of Pakistan, the parent model developed for the international trade growth is followed. It is expected that the model derived to estimate the broader effect of exports and imports on international trade from the basic model (3.4) are truly be envoy of explaining the behavior of export and import in international trade of Pakistan. The dependent variable is the international trade (IT) while the independent variables are exports (X), Imports (M), exports of primary commodities (XPC), exports of textile manufacturing sector (XTM), exports of other manufacturing sector (XOM), export of other commodities and goods(XO) , imports of food products (MFP), imports of Heavy Machinery (MHM), Imports of petroleum products (MPP), imports of textile and metals (MTM), imports of agriculture products and their chemicals (Magri), imports of other goods (MOP), world income (Y), exchange rate (ER), tariff imposition on export($TRF^x$), tariff imposition on imports ($TRF^M$), Dummy variable for Trade openness or Liberalization policy (TOP), terms of trade (TOT) and balance of trade (BOT). The theoretical equation that expressed the relationship between dependent and independent variables is expressed as;

IT = f (X, M, XPC, XTM, XOM, XO, MFP, MHM, MPP, MTM,
Magri, MOP, Y, ER, $TRF^x$, $TRF^M$, TOP, TOT, BOT) ..... (3.5)

The econometric model of the above equation (3.5) can be formed as follows;

$$IT_t = (\gamma_0 + \gamma_1 X_t + \gamma_2 M_t + \gamma_3 XPC_t + \gamma_4 XTM_t + \gamma_5 XOM_t + \gamma_6 XO_t + \gamma_7 MFP_t + \gamma_8 MHM_t + \gamma_9 MPP_t + \gamma_{10} MTM_t + \gamma_{11} MAgri_t + \gamma_{12} MOP_t + \gamma_{13} Y_t + \gamma_{14} ER_t + \gamma_{15} TRF_t^x + \gamma_{16} TRF_t^m + \gamma_{17} TOP_t + \gamma_{18} TOT_t + \gamma_{19} BOT_t + \mu_t) \quad \text{.....(3.6)}$$

The sign of the coefficient/ estimator are expected as;

$\gamma_1 > 0, \gamma_2 > 0, \gamma_3 > 0, \gamma_4 > 0, \gamma_5 > 0, \gamma_6 > 0, \gamma_7 > 0, \gamma_8 > 0, \gamma_9 > 0, \gamma_{10} > 0,$
$\gamma_{11} > 0, \gamma_{12} > 0, \gamma_{13} > 0, \gamma_{14} > 0, \gamma_{15} < 0, \gamma_{16} > 0, \gamma_{17} > 0, \gamma_{18} < 0, \gamma_{19} > 0,$

**Data Analysis and Sources:** The data used in this study are the annual time series data, because quarterly and semi-annual data are not available for most of the variables included in the study in their desired form. The time periods of analysis are from 1972 to 2015. Prior to 1972, due to the conflicts of different policies and separation of East-Pakistan the data for the selected variables in this research study are unavailable in their purified and true form. The data used in this study are obtained from Economic Surveys, Federal Bureau of Statistics, State Bank of Pakistan, Agriculture Development Bank of Pakistan (ZTBL), Cooperatives and Commercial Banks, International Financial Statistics (IFS), Pakistan Institute of Development Economics (PIDE), World Development Report (WDR), National Accounts of Pakistan, Federal Board of Revenue (FBR) Pakistan, Custom House (Islamabad) Pakistan, World Development Index, World Bank, Trading Economics, World Economic data Indicator, Global Economy, Ministry of Finance Pakistan, Economic Affairs Division Pakistan, World Trade Organization (WTO) Statistics Database, from different surveys and reports.

## 4. Methodology, Results and Discussion (Regression Analysis of Model)

In time series analysis there is always worried and apprehension about spurious relationship. As the current research study is also based on time series analysis, therefore before running an appropriate regression technique the variable data has tested for unit root by applying Augmented-Dicky Fuller (ADF) test. initially, the ADF test is applied at level {I(0)} on all the variables data and the results integrated in table (1) indicates that some variables are stationary at level, while some variables has unit root (accepting $H_0$ for some variables). Therefore, going ahead we applied ADF test on first difference also and outcome reveals that some variables are stationary at I(0) and some are at I(1). As none of the variables is integrated of order two or I(2), that confirm that there isn't any spurious relationship among the variables in the observed data. When some variables are stationary at me(0) and some are at I(1), Auto-Regressive Distributed Lag (ARDL) model is suggested by economist and researchers for regression analysis of the variables data.

**Table: 1** Augmented Dickey–Fuller **Unit Root Test Results**

| **Variables** | **Acronyms** | **ADF Values** | | **ADF Critical Values** |
|---|---|---|---|---|
| | | **At Level** | **At 1st Difference** | |
| International Trade | IT | -1.270626 | -3.528793* | -2.9378 |
| Exports | X | -2.465024** | -3.780645* | -2.9378 |
| Imports | M | -1.468560 | -3.954462* | -2.9378 |
| Exports of Primary Commodities | XPC | -2.888938** | -3.474630* | -2.9378 |
| Exports of Textile Manufacturing Sector | XTM | -3.338658* | -3.028298* | -2.9378 |
| Exports of Other Manufacturing Sector | XOM | -0.933170 | -4.130593* | -2.9378 |
| Exports of Other goods | XO | -2.935485* | -4.473913* | -2.9378 |
| Imports of food products | MFP | -1.086570 | -3.892350* | -2.9378 |
| Imports of Heavy Machinery | MHM | -3.248487* | -4.289952* | -2.9378 |
| Imports of petroleum products | MPP | -3.534812* | -4.973725* | -2.9378 |
| Imports of textile and metals | MTM | -2.678600** | -5.073726* | -2.9378 |
| Imports of agriculture products and chemicals | MAgri | -1.992232 | -3.823919* | -2.9378 |
| Imports of other goods | MOP | -2.159266 | -6.724687* | -2.9378 |
| Export Tariffs | $TRF^x$ | -3.580181* | -4.989223* | -2.9378 |
| Import duties | $TRF^M$ | -1.520033 | -4.141358* | -2.9378 |
| World Income | Y | -2.698155** | -3.795314* | -2.9378 |
| Exchange Rate | ER | -1.488565 | -3.647880* | -2.9378 |
| Trade Openness | TOP | -0.820238 | -5.071277* | -2.9378 |
| Terms of Trade | TOT | -1.936422 | -5.784582* | -2.9378 |
| Balance of Trade | BOT | -4.858152* | -6.485582* | -2.9378 |

Critical Value of ADF is selected at 5% significance level. (*) & (**) shows rejection of Null Hypothesis at 5% & 10%.

To empirically evaluate the importance of exports, imports and its determinants in Pakistan's foreign trade, the Auto-Regressive Distributed Lag (ARDL) model is applied. The dependent variable is international trade (IT) and the independent variables are Exports (X), Imports (M), exports of primary commodities (XPC), exports of textile manufacturing sector (XTM), exports of other manufacturing sector (XOM), exports of other commodities and goods (XO), imports of food products (MFP), imports of Heavy Machinery (MHM), Imports of petroleum products (MPP), imports of textile and metals (MTM), imports of agriculture products and their chemicals (Magri), imports of other goods (MOP), world income (Y), exchange rate (ER), tariff imposition on exports ($TRF^x$ ), tariff imposition on exports ($TRF^M$ ),Proxy variable for Trade openness or Liberalization policy (TOP), terms of trade (TOT) and balance of trade (BOT). The theoretical equation to express the relationship between dependent and independent variables is articulated as;

IT = f (X, M, XPC, XTM, XOM, XO, MFP, MHM, MPP, MTM, Magri, MOP,Y, ER, $TRF^x$, $TRF^m$, TOP, TOT, BOT)…….. (4.1)

The econometric model of the above theoretical equation (4.1) can be formed as follows;

$$IT_t = (\gamma_0 + \gamma_1 X_t + \gamma_2 M_t + \gamma_3 XPC_t + \gamma_4 XTM_t + \gamma_5 XOM_t + \gamma_6 XO_t + \gamma_7 MFP_t + \gamma_8 MHM_t + \gamma_9 MPP_t + \gamma_{10} MTM_t + \gamma_{11} MAgri_t + \gamma_{12} MOP_t + \gamma_{13} Y_t + \gamma_{14} ER_t + \gamma_{15} TRF_t^x + \gamma_{16} TRF_t^m + \gamma_{17} TOP_t + \gamma_{18} TOT_t + \gamma_{19} BOT_t + \mu_t) \quad (4.2)$$

The ARDL model for regression analysis of the variables to empirically examine the role exports, imports and its sectoral determinants in foreign trade of Pakistan is written as;

$$IT_t = (\gamma_0 + \gamma_1 X_t + \gamma_2 M_t + \gamma_3 XPC_t + \gamma_4 XTM_t + \gamma_5 XOM_t + \gamma_6 XO_t + \gamma_7 MFP_t + \gamma_8 MHM_t + \gamma_9 MPP_t + \gamma_{10} MTM_t + \gamma_{11} MAgri_t + \gamma_{12} MOP_t + \gamma_{13} Y_t + \gamma_{14} ER_t + \gamma_{15} TRF_t^x + \gamma_{16} TRF_t^m + \gamma_{17} TOP_t + \gamma_{18} TOT_t + \gamma_{19} BOT_t + \sum_{t-1}^{t=n} \beta_0 \Delta IT_{t-1} + \sum_{t-1}^{t=n} \gamma_1 \Delta X_{t-1} + \sum_{t-1}^{t=n} \gamma_2 \Delta M_{t-1} + \sum_{t-1}^{t=n} \gamma_3 \Delta XPC_{t-1} + \sum_{t-1}^{t=n} \gamma_4 \Delta XTM_{t-1} + \sum_{t-1}^{t=n} \gamma_5 \Delta XOM_{t-1} + \sum_{t-1}^{t=n} \gamma_6 \Delta XO_{t-1} + \sum_{t-1}^{t=n} \gamma_7 \Delta MFP_{t-1} + \sum_{t-1}^{t=n} \gamma_8 \Delta MHM_{t-1} + \sum_{t-1}^{t=n} \gamma_9 \Delta MPP_{t-1} + \sum_{t-1}^{t=n} \gamma_{10} \Delta MTM_{t-1} + \sum_{t-1}^{t=n} \gamma_{11} \Delta MAgri_{t-1} + \sum_{t-1}^{t=n} \gamma_{12} \Delta MOP_{t-1} + \sum_{t-1}^{t=n} \gamma_{13} \Delta Y_{t-1} + \sum_{t-1}^{t=n} \gamma_{14} \Delta ER_{t-1} + \sum_{t-1}^{t=n} \gamma_{15} \Delta TRF^x{}_{t-1} + \sum_{t-1}^{t=n} \gamma_{16} \Delta TOP_{t-1} + \sum_{t-1}^{t=n} \gamma_{17} \Delta BOT_{t-1} + \sum_{t-1}^{t=n} \gamma_{18} \Delta TOT_{t-1} + \mu_t) \quad (4.3)$$

The model is regressed with the help of E-Views version (9) and the important results of ARDL regression analysis is given in table (2).

To evaluate the importance of exports, imports and its determinants in international trade of Pakistan, the Auto-Regressive model has been applied for empirical analysis. The overall performance of the model is highly significant as the results obtained from the regression analysis of ARDL approach integrated in above table (2) reveals that Prob. F-stat value is (0.0000), Durbin-Watson Stat (2.065) and R-Squared value (0.9039) explaining 90% variation between dependent and explanatory variables verifying goodness of fit of the model. The DW value is greater than R-Squared value authenticating that there isn't any sign of spurious relationship in the data. The lag-length criterion is selected from Akaike and Schwarz criteria following the automatic ARDL regression lag analysis and assume the lag form as (1, 1, 1, 0, 0, 1, 1, 1, 0, 1, 1, 1, 1, 0, 1, 1, 0, 0, 1, 1) during regression analysis of the variables data. Exports are indispensible for economic growth of countries. Besides earning foreign exchange reserves it also fulfills the unattainable demand of the locals for products with imports. Exports also strengthen the links and relationships among the countries. Without any ambiguity a vast number of literature exits on the significant role of exports in growth of economies. This research study also aiming to empirically investigate the role of exports in foreign trade of Pakistan. The results obtained from ARDL regression analysis of the variables integrated in table (2) indicates that exports is highly significant with positive coefficient value reveals that exports plays a vital role in Pakistan's foreign trade. The estimated value of exports co-efficient is (0. 420817) implies that one percent increase in total

exports of Pakistan will convey forty-two percent increases in overall foreign trade of Pakistan. The empirical result of this study for the impact of exports in foreign trade of Pakistan is consistent with the earlier studies of (Hatemi, 2002; Shirazi and Manap, 2004; Afzal, 2006; Nadeem, 2007; Mohammad, 2010; Khan and Sattar, 2010; Zada et al., 2011; Hameed et al., 2012; Hossain and Rajeb, 2012; Zakariya, 2014; Saleem and Sial, 2015).

**Table: 2 ARDL Regression Results (For Evolution of Imports, Exports, Its determinants and Foreign Trade of Pakistan)**

| Variables | Acronyms | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|---|
| Constant | C | 0.391240 | 0.137218 | 2.851209 | 0.0413 |
| Exports | X | 0. 420817 | 0280957 | 2.285210* | 0.0013 |
| Imports | M | 0.551742 | 0.138438 | 3.985454* | 0.0000 |
| Exports of Primary Commodities | XPC | 0.260681 | 0.092206 | 2.827138* | 0.0003 |
| Exports of Textile Manufacturing Sector | XTM | 0.397341 | 0.148248 | 2.680234* | 0.0037 |
| Exports of Other Manufacturing Sector | XOM | 0.216433 | 0.116919 | 2.851126* | 0.0023 |
| Exports of Other goods | XO | 0.235885 | 0.037417 | 3.631629* | 0.0000 |
| Imports of food products | MFP | 0.365028 | 0.129068 | 2.828180 | 0.0025 |
| Imports of Heavy Machinery | MHM | 0.276133 | 0.089630 | 3.080789* | 0.0003 |
| Imports of petroleum products | MPP | 0.264712 | 0.140515 | 1.883864*** | 0.0718 |
| Imports of textile and metals | MTM | 0.263158 | 0.126206 | 2.085144** | 0.0446 |
| Imports of agriculture products and chemicals | MAgri | 0.468316 | 0.200923 | 2.330818** | 0.0208 |
| Imports of other goods | MOP | 0.213715 | 0.075698 | 2.823224* | 0.0012 |
| World Income | Y | 0.425206 | 0.197622 | 2.151604** | 0.0385 |
| Exchange Rate | ER | -0.184692 | 0.078560 | -2.350948** | 0.0470 |
| Export Tariffs | $TRF^x$ | -0.273650 | 0.086834 | -3.151411* | 0.0000 |
| Trade Openness | TOP | -0.246213 | 0.174758 | -1.408874 | 0.1843 |
| Terms of Trade | TOT | -0.280416 | 0.125166 | -2.240347** | 0.0519 |
| Balance of Trade | BOT | 0.172612 | 0.089813 | 1.943532*** | 0.0767 |
| Error Correction Term | ECT | -0.495597 | 0.128384 | -3.860255* | 0.0000 |
| R-squared | 0.903961 | Durbin-Watson stat | | 2.065539 | |
| Adjusted R-squared | 0.882713 | Prob(F-statistic) | | 0.000000 | |

(*), (**), (***) showing significance at 1%, 5% & 10% respectively.

The behavior of imports in foreign trade is tricky and confusing that may leads to gratuitous hatred towards the contribution of imports in foreign trade of countries. However, imports are the goods and services that a country can acquire from international trade which it can't produced domestically or that can accessible at a cheaper price from international market instead of domestic expensive production. Imported goods also create competition for domestic goods that not only leads to improvement in quality of domestic goods but also bring increase in varieties for consumers. Almost all of the developing countries dominantly depended on imports of goods and services. Same is the case with Pakistan, history shows its dependence on imports and except few years throughout its import bill was higher than exports since independence. This study attempts to empirically scrutinize the role of imports in foreign trade of Pakistan. The results integrated in table (2) shows considerable role of imports in foreign trade of Pakistan and reveals that one percent increase in total imports will bring an increase of fifty-five percent in overall foreign trade of Pakistan. The real statistics of 2014-15[4] also shows that the share of imports in foreign trade of Pakistan is fifty-eight percent approximately. The empirical results of this study and real facts and figures of statistical data of Pakistan are fairly harmonizing. A vast number of literature exits on the role and effect of imports and the empirical finding of this study for the role imports in Pakistan's foreign trade is consistent with past studies

[4] *Economic Survey of Pakistan 2014-15*

of (Musleh-Ud Din, 2004; Shirazi and Manap, 2004; Alam et al., 2010; Sulaiman and Hussain, 2012; Velnampy and Achchuthan, 2013; and Dilawar et al., 2013).

Exports of primary goods have vital and imperative role in foreign trade of developing and under-developed countries and considered as engine of growth for these economies. It also has an influential role in development process. Pakistan too is a developing country having lack of capital, technology and industrial structure, therefore, mostly exports primary goods to its trading partners. This study regress exports of primary goods as independent variable to empirically evaluate its role in foreign trade of Pakistan for the period 1972-2015. The results obtained from ARDL regression analysis of variables integrated in table (2) presents that the co-efficient value of Exports of primary goods in case of Pakistan is positive (0.260681) and significant as expected means that one percent increase in exports primary goods may bring an increase of twenty-six percent in overall foreign trade of Pakistan. The empirical finding of this study for exports of primary goods is consistent with the past studies of (Bahmani-Oskooee and Alse, 1993; Dutt and Ghosh, 1996; Ghatak et al., 1997; Levin and Raut, 1997; Rahman and Mustafa, 1998; Islam, 1998; Ekanayake, 1999; Dawson, 2005; Kwa and Bassoume, 2007; Sanjuan-Lopez and Dawson, 2010; Faridi, 2012). Since independence, textile sector has significantly contributed to foreign trade and growth of Pakistan via exports. That's why this study includes exports of textile as explanatory variable to empirically evaluate its importance in Pakistan's foreign trade. The ARDL regression results of the variables data integrated in table (2) shows that exports of textile sector has momentous role in foreign trade of Pakistan. The coefficient value of exports of textile sector is (0.397341) showing that one percent increase in exports of textile sector will stimulate international trade of Pakistan by thirty-nine percent. The empirical result for exports of textile and its contribution to foreign trade of Pakistan is consistent with recent studies of (Subhani et al., 2011; Zulfiqar and Kauser, 2012; Wang, 2013; Ahmad and Kalim, 2014; Nawaz and Rukhsana, 2014).

Manufacturing sector is the backbone of economies and the role of manufacturing exports is indispensable in growth and development. Both the empirical and theoretical studies highlight the importance and contribution of manufacturing exports in boosting the economic growth of different countries. Unfortunately, the manufacturing sector of Pakistan has facing sever crises especially due to energy crises since last decades. However, this study includes exports of manufacturing sector as one of independent variable to empirically examine its role in foreign trade of Pakistan. The results obtained from ARDL regression analysis of the variables integrated in table (2) found constructive and noteworthy role of manufacturing exports in Pakistan's foreign trade and reveals that one percent improvement in exports of manufacturing sector transmits approximately twenty-one percent (0.216433) enhancement in overall foreign trade of Pakistan. The ARDL empirical result for contribution of manufacturing sector exports foreign trade of Pakistan is consistent with the past studies of (Lardy, 2003; Akbar and Fatima, 2003; Alam, 2003; Cuaresma and Worz, 2005; Herzer et al., 2005; Kurt and Terzi, 2007; Parida and Sahoo, 2007; Kilavuz and Topcu, 2012). The exports of other goods and items as well as sub-groups of manufacturing like jewelry, cements etc witnessed progressive growth from previous few decades in foreign trade and in economic growth of Pakistan. The empirical results of this study obtained from ARDL regression analysis of the variables data integrated in table (2) found noteworthy and considerable role of exports of other goods and items in foreign trade of Pakistan. The results given in table (2) reveals that export of other goods and items have significant positive value (0.235885) as expected showing that one percent increase in exports of other items brings approximately twenty-three percent increase in overall foreign trade of Pakistan.

Pakistan is a developing country with rapid growth in population. It didn't fulfill intact requirements of its individuals. In order to meet food requirements of its citizen, Pakistan imports a number of food items from other countries. This study empirically attempts to examine the role of imports of food items in foreign trade of Pakistan. The ARDL regression results obtained from variables data shows that the co-efficient value of imports of food items is significant and positive as expected. The results integrated in table (2) reveals that one percent increase in imports of food items will bring an increase of approximately thirteen percent in overall foreign trade of Pakistan. The real data, facts and figures of Pakistan economy shows that during 2014-15[5] the share and value of imports of food items in total imports remained approximately eleven

[5] *Imports of Food items are US $ 4,205.4Million, while total imports are US $ 37,763.1 Million. (Source: Economic Survey of Pakistan 2014-15).*

percent. The empirical result of this study for imports of food (primary) items is consistent with the studies of (Buzby and Unnevehr, 2004; Blalock and Veloso, 2007; Dengfeng, 2008; Qiang, 2010; Islam, 2013).

Manufacturing sector plays a crucial role in economic growth and development of any country. Developed countries have abundant capital resources and known as capital intensive countries, whereas, developing countries have shortage of capital resources and mostly are labor intensive countries. The capital gap among developed and developing countries generates larger breach in growth of developed and developing countries. To offset this gap most of the developing countries imports capital goods from developed countries to enhance rapid growth and development. Pakistan also imports heavy machineries and capital goods aiming to make manufacturing sector more strong and effective and to play its role in growth and development as well as in foreign trade of Pakistan. This research study attempts to empirically examine the role of imports of capital and heavy machinery goods in foreign trade of Pakistan. The study found significant and encouraging role of capital goods imports in international trade of Pakistan as expected, showing that one percent increase in imports of capital goods will bring an increase of approximately twenty-seven percent in overall foreign trade of Pakistan. According to Economic Survey of Pakistan 2014-15, the share of imports of capital goods in overall imports during 2014-15 is about thirteen percent, while eleven percent during 2013-14. The empirical finding for the role of imports of manufacturing goods in foreign trade of Pakistan is consistent with the past studies of (Lee and Huang, 2002; Eaton and Kortum, 2001; Eaton and Kortum, 2002; Alfaro and Hammel, 2006; Alvarez and Lucas, 2007; Sun and Heshmati, 2010; Waugh, 2010; Mutreja et al., 2014).

The world economies after experiencing global financial shocks again continue to prolong the recuperation process of their restrained and uneven promptness development of their economy. But this recovery process accompanied some new challenges for world economies including downfalls in oil prices especially in 2014-15[6] and expected in 2015-16[7] too. The gap between the demand and supply of oil imports affects the price of Petroleum products that resulted in lethargic economic growth of many countries. Though, still import of petroleum products plays an important role in foreign trade especially of oil importing and developing countries. Pakistan also imports petroleum products from different countries and fulfills eighty (80) percent of its demand by importing and twenty (20) percent from domestic petroleum production. This study attempts to examine empirically the role of imports of petroleum products in foreign trade of Pakistan including it as one of independent variable. The ARDL regression results of the variables integrated in table (2) shows encouraging and momentous affect of imports of petroleum products in foreign trade of Pakistan and reveals that one percent increase in imports of oil products will bring an increase of approximately twenty-six percent in overall foreign trade of Pakistan. The facts and figure of Pakistan economy and Bureau of Statistics of Pakistan shows that the share of imports of petroleum products is twenty-six percent in 2014-15 and was thirty-two percent during 2013-14. The earlier studies of (Al-Moneef, 2006; Bedi-uz-Zaman et al., 2011; Baghebo, 2012; Jawad, 2013; Baghebo and Atima, 2013; Kiani, 2013; Nazir and Qayyum, 2014; Usman et al., 2015) had also found noteworthy role of petroleum products in economic growth and in international trade of different countries.

Textile manufacturing sector of Pakistan has conventionally persisted a satisfactory performance and has reasonable contribution to growth. However, from several decades this sector has facing sever challenge of high cost and low returns. Besides the fact that textile sector of Pakistan contributed about sixty percent to total exports of Pakistan, a lot of materials and capital needed to this sector that are imported from different countries. This research study attempts to explore the role of imports of textile sector products in foreign trade of Pakistan empirically from 1972-2015, and found significant and positive role of imports of textile manufacturing in foreign trade of Pakistan. The results obtained from ARDL regression analysis reveals that one percent increase in imports of textile manufacturing goods will contribute an approximately twenty-six percent to overall foreign trade of Pakistan as integrated in table (7.5.2). The share of textile manufacturing sector shrinks 7.1 percent during 2014-15 from previous year and remained approximately Sixteen[8] percent during 2014-15. The ARDL regression result for the role of imports of textile manufacturing goods in overall

[6] *Economic Survey of Pakistan 2014-15.*
[7] *Economic Survey of Pakistan 2014-15.*
[8] *Economic Survey of Pakistan 2014-15*

foreign trade of Pakistan is consistent with the earlier studies of (Dijk, 2001; Pan et al., 2004; Havrila and Gunawardana, 2006; Khan and Khan, 2010; Alam, 2011; Islam et al., 2013; and Khaliji et al., 2013).

Agriculture sector plays dominant role for developing countries and most of the developing countries wholly or partially depends on agriculture sector. Agriculture sector of Pakistan also has a dominant role in growth as well as in foreign trade of Pakistan since independence. From several decades, this sector experiences downwards trend and its growth ranges about twenty-percent. In order to make this sector more efficient, the government of Pakistan imports many agriculture related goods from other countries containing agri Fertilizer, agriculture related chemicals, insecticides, plastic material, Medicinal Products, hybrid seeds, fertilizers and agri-related pesticides. This research study attempts to examine empirically the role of agriculture-related products imports in foreign trade of Pakistan. The regression results obtained from regression analysis of ARDL model incorporated in table (2) found significant and positive role of imports of agri-related products in international trade of Pakistan and reveals that one percent increase in imports of agriculture related product bring an increase of approximately forty-six percent in overall Pakistan's foreign trade. The empirical result of this research study for imports of agri-related goods is consistent with the past studies of (Dorosh and Valdes, 1990; Akhtar, 2003; Dorosh and Salam, 2008; Mahmood and Akmal, 2010; Sharif et al., 2010; and Faridi, 2012).

Pakistan is a developing country and faces some disasters as well as other financial shocks that broke down the persistent growth of economy and foreign trade. From previous decades the production growth of Pakistan was severely affected due to energy crises that results an increase in imports of Pakistan. This study includes imports of other goods as independent variable to empirically assess its role in foreign trade of Pakistan. The results integrated in table (2) obtained from ARDL regression analysis of the variables indicates positive and significant role of imports of other goods in items in Pakistan's foreign trade as expected. The result reveals that one percent increase in imports of other goods will bring twenty-one percent enhancements in foreign trade of Pakistan. The real facts and figures showing the share of other items in total exports during 2014-15 is about twenty-five percent recorded from Economic Survey of Pakistan and Bureau of Statistics of Pakistan. The importance of world economies and their income distribution become a debating issue and now-a-days due to globalization has gain a considerable part in foreign trade. Those countries who have significantly adopted economic policies concurrence to the situations in international market gain considerable advantages by diverting the world demand and income through attracting the world market towards their products in order to increase their exports. However, it also noticeable that some countries especially developing countries had been suffering from augmented competitive environment of these countries. In this research study, the world income is taken as explanatory variable to empirically evaluate the role of world income in foreign trade of Pakistan. The results obtained from regression analysis of the ARDL model verifies that world income has significant and affirmative role foreign trade of Pakistan from 1972-2015. The results integrated in table (2) shows that estimator value of world trade is positive and (0.425206) reveals that one percent increase in world income may bring an increase of approximately forty-two percent in overall foreign trade of Pakistan via exports and imports. The same result of this study for the empirical role of world income in foreign trade of Pakistan is consistent with the earlier studies of (Acemoglu and Ventura, 2002; Baldwin, 2012; Antras, 2014; Baldwin and Okubo, 2014; Baldwin, 2015).

Exchange rate is an important element/variable that affects the exports as well as imports of a country that ultimately leads to change in nature and pattern of international trade. Many countries devalue their currency to gain much fruit from foreign trade via increasing demand for their exports through lowering their exchange rate. Pakistan also devalues its currency in 1972 that brought an increase of an about forty percent at that time. In this study, the variable exchange rate is included to empirically examine its effect on international trade of Pakistan. The co-efficient value (-0.184692) of exchange rate is negative and significant indicating that one percent devaluation/depreciation in value of PKR (exchange rate) may bring an increase of eighteen percent in overall foreign trade of Pakistan. The ARDL result of this study for impact of exchange rate on foreign trade of Pakistan is consistent with the past studies of (Elbadawi, 1997; Bahmani-Oskooee, 2001; Bleaney and Greenaway, 2001; Gomes and Paz, 2005; Bouoiyour and Rey, 2005; Kemal, 2005; Wai-mum et al., 2008; Shahbaz et al., 2011; Shawa and Shen, 2013; Tabari and Haghight, 2014). The tariffs and exports duties play an imperative role in shaping the foreign trade of the countries. Low tariff rates boom exports that increase the foreign trade of that country. Like other countries Pakistan also adopted different

tariff policies throughout history in order to increase foreign trade to achieve maximum output from exports and international trade. To empirically examine the impact of exports tariffs on foreign trade of Pakistan, this study include tariffs duties as an explanatory variable. The ARDL regression results integrated in table (2) shows that the co-efficient value (-0.273650) of exports tariffs is negative and significant reveals that one percent decrease in exports duties may bring an increase of about twenty-seven percent in overall foreign trade of Pakistan. The empirical studies of (Bertola and Faini, 1991; Shun-Fa, 2011; Ismail and Wijnbergen, 1993; Li and Liu, 2005; Moseykin and Levchenko, 2010; Jing and Lu, 2011; Kahnamoui, 2013; and Isakova et al., 2013) had also found the significantly negative effect of exports tariffs.

Generally perceived that trade liberalization or trade openness have noteworthy effect in foreign trade as well as it generates a competitive environment for the countries to improve the quality and quantity of their products to enhance their exports (Ravallion, 2004). Mixed literature been exists regarding the role of trade openness and its possible effects. Some empirical studies support positive effect, while others observed negative whereas some studies didn't found any significant effect of trade openness or liberalization policies. Some of the economist suggests that developing countries can gain much from international trade, while other have doubtful believe on the gain from foreign trade. This study also attempts to empirically observe the connotation of trade openness on foreign trade of Pakistan. The result given in table (2) reveals that trade openness has insignificant co-efficient value and doesn't show any considerable role in foreign trade of Pakistan. The empirical studies (Dollar and Kraay, 2003; Rigobon and Rodrik, 2004; Siddiqui and Iqbal, 2005; Yucel, 2009) also didn't found any significant role of trade openness in foreign trade and in growth of different countries.

Trade balance is an important factor that clearly shows the volume of trade (exports and imports) of the countries. If a country exports is larger than imports, trade balance will be in surplus. If trade volume of exports is smaller than exports, trade balance is in deficit or negative. If volume of exports and imports are equal, trade is called balance. Most of the developing countries are suffering from deficit in their trade. Pakistan also experienced and facing continuous trade deficit except few years. This research study includes trade balance as one of the explanatory variables to assess its empirical role in foreign trade of Pakistan. The co-efficient value of trade balance (0.172612) is positive and significant as expected, showing that one percent improvement in trade balance leads to an increase of approximately seventeen percent in overall international trade of Pakistan. The empirical result of this research for the role of trade balance in foreign trade of Pakistan is consistent with the past studies of (Egwaikhide, 1999; Akhtar and Malik, 2000; Sugema, 2005; mbayani, 2006; Peter and Sarah, 2006; Duasa, 2007; nienga, 2010; Waliullah et al., 2010; Mohammad, 2010; Ju et al., 2010; Levant, 2011; Saadullar and Ismail, 2012; Shawa and Shen, 2013; Abbas and Raza, 2013).

Terms of trade has gained crucial interest in determining foreign trade among the economies especially of developing countries. Huge fluctuation and instability in the price level in developing countries generate worsening terms of trade that leads to fall in foreign trade of developing countries. This research study attempts to explore the effect of terms of trade on the international trade of Pakistan. The result for terms of trade obtained from ARDL regression analysis variables integrated in table (2) that terms of trade have powerful effect in foreign trade of Pakistan. The empirical result of this study for the impact of terms of trade in foreign trade of Pakistan is consistent with the past studies of (Mendoza, 1997; Ghirmay et al., 1999; Bleaney and Greenaway, 2001; Broda and Tille, 2003; Blattman et al., 2003; Fatima, 2010). Error Correction Term (ECT) estimates the speed at which the model will return back to its original position after subsequent external shock or from disequilibrium. The behavior of ECT is also assessed and the results integrated in table (2) indicates that the value of ECT (-0.495597) is negative and significant, that means that this model can turn back at a speed of forty-nine percent to its original if suffered from any external shocks. The constant term is positive and significant; while lag of international trade has found significant positive values delivering that previous year foreign trade of Pakistan has optimistic impact on the present foreign trade.

**ARDL Co-integration, Long form and Bound Testing Approach:** The long-run relation of variables included in the model and their co-integration vector are also checked by applying the Bound Testing Approach, ARDL long-run and co-integration techniques. The ARDL co-integration test also confirms co-integrating vectors among the variables as shown in table (3).

**Table: 3 ARDL Co-integration Test Results**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(X) | 0.351208 | 0.082932 | 4.234861* | 0.0000 |
| D(XPC) | 0.163038 | 0.045134 | 3.612310* | 0.0001 |
| D(XTM) | 0.130497 | 0.048689 | 2.680234* | 0.0338 |
| D(XOM) | 0.234204 | 0.126519 | 1.851126* | 0.0889 |
| D(XO) | 0.321223 | 0.124832 | 2.573236* | 0.0346 |
| D(M) | 0.398742 | 0.089524 | 4.453999* | 0.0000 |
| D(MFP) | 0.174241 | 0.050923 | 3.421664* | 0.0016 |
| D(MHM) | 0.241573 | 0.078412 | 3.080789* | 0.0095 |
| D(MPP) | 0.186429 | 0.085023 | 2.192683* | 0.0488 |
| D(MTM) | 0.197314 | 0.091244 | 2.162489* | 0.0512 |
| D(MAGRI) | 0.237468 | 0.101882 | 2.330818* | 0.0380 |
| D(MOP) | 0.167369 | 0.049787 | 3.361618* | 0.0002 |
| D(Y) | 0.428963 | 0.105294 | 4.073937* | 0.0000 |
| D(ER) | -0.133137 | 0.045341 | -2.936334* | 0.0316 |
| D(TRFX) | -0.125736 | 0.051271 | -2.452386* | 0.0372 |
| D(TOP) | -0.162129 | 0.115078 | -1.408874 | 0.1843 |
| D(BOT) | 0.321512 | 0.093589 | 3.435332* | 0.0001 |
| D(TOT) | 0.163542 | 0.108072 | 1.513268 | 0.1653 |
| CointEq(-1) | -0.493640 | 0.124168 | -3.975580* | 0.0000 |

(*) shows co-integrating variables

To examine the long run relation between the Pakistan foreign trade and independent variables included in this study the bound testing approach is applied and the result of the test is integrated in below table (4).

**Table: 4 Results of Bounds Test (Null Hypothesis: No long-run relationships exist)**

| Bounds Test Value | | Critical Value Bounds | |
|---|---|---|---|
| Test Statistic | Value | I(0) Bound | I(1) Bound |
| F-statistic | 9.803852* | 3.61 | 2.75 |

Critical Value is selected at 5% significance level. (*) Shows rejection of null hypothesis

The Null Hypothesis is $\gamma_1 = \gamma_2 = \gamma_3 = \gamma_4 = \gamma_5 = \gamma_6 = \gamma_7 = \gamma_8 = \gamma_9 = \gamma_{10} = \gamma_{11} = \gamma_{12} = \gamma_{13} = \gamma_{14} = \gamma_{15} = \gamma_{16} = \gamma_{17} = \gamma_{18} = \gamma_{19} = 0$, assuming that there doesn't exist any long-run relation among the variables. In contrast the Alternative Hypothesis shows the existence of long run relation, that is $\gamma_1 \neq 0$, $\gamma_2 \neq 0$, $\gamma_3 \neq 0$, $\gamma_4 \neq 0$, $\gamma_5 \neq 0$, $\gamma_6 \neq 0$, $\gamma_7 \neq 0$, $\gamma_8 \neq 0$, $\gamma_9 \neq 0$, $\gamma_{10} \neq 0$, $\gamma_{11} \neq 0$, $\gamma_{12} \neq 0$, $\gamma_{13} \neq 0$, $\gamma_{14} \neq 0$, $\gamma_{15} \neq 0$, $\gamma_{16} \neq 0$, $\gamma_{17} \neq 0$, $\gamma_{18} \neq 0$, $\gamma_{19} \neq 0$. The hypothesis is tested through bound testing approach comparing the F-stat value with (Pesaran et al., 2001) critical values. If the F-statistics value is greater than critical value of upper bound assumed by (Pesaran et al., 2001) test, it holds to the rejection of null hypothesis. The result of bound test given in table (4) illustrates the rejection of null hypothesis and indicates the long-run relation of the variables included in the model. The Wald test is applied to verify the long run relation between dependent and independent variables of the study. The results of Wald test integrated in below table (5) confirms the long run association among the included variables and thus the findings of bound testing approach and Wald test is consistent with each other.

**Table: 5 Wald Test for Long-Run Relation**

(Null Hypothesis:C(2)=C(4)=C(6)=C(7)=C(8)=C(9)=C(10)=C(12)=C(13)=C(15)=C(17)=C(19)=C(21)=C(22)=C(24)=C(25)=C(26)=0)

| Test Statistic | Value | Probability |
|---|---|---|
| F-statistic | 9.793628* | 0.0000 |

| | | |
|---|---|---|
| Chi-square | 83.56749* | 0.0000 |

(*) shows the rejection of Null hypothesis

After confirming the long run relation between the variables we applied ARDL long form co-efficient test to empirically examine the long form behavior of the all the included behavior in brief.

**Table: 6 ARDL Long forms Co-efficient Results**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| X | 0.326521 | 0.088290 | 3.698261* | 0.0000 |
| XPC | 0.333445 | 0.133702 | 2.493941* | 0.0269 |
| XTM | 0.261652 | 0.075527 | 3.464368* | 0.0001 |
| XOM | 0.212504 | 0.114820 | 1.850755* | 0.0890 |
| XO | 0.158071 | 0.061107 | 2.586774* | 0.0226 |
| M | 0.462702 | 0.112287 | 4.120696* | 0.0000 |
| MFP | 0.160890 | 0.067109 | 2.397430* | 0.0322 |
| MHM | 0.253733 | 0.082387 | 3.079809* | 0.0000 |
| MPP | 0.189027 | 0.095409 | 1.981214* | 0.0691 |
| MTM | 0.174554 | 0.090602 | 1.926599* | 0.0727 |
| MAGRI | 0.181644 | 0.092820 | 1.956941* | 0.0710 |
| MOP | 0.131070 | 0.040711 | 3.219539* | 0.0074 |
| Y | 0.563826 | 0.138399 | 4.073904* | 0.0000 |
| ER | -0.268457 | 0.138392 | -1.939827* | 0.0744 |
| TRFX | -0.125781 | 0.051290 | -2.452343* | 0.0320 |
| TOP | -0.178048 | 0.126385 | -1.408774 | 0.1843 |
| BOT | 0.493612 | 0.143682 | 3.435448* | 0.0000 |
| TOT | -0.122534 | 0.132684 | -0.923502 | 0.3726 |
| C | 0.239614 | 0.208148 | 1.151167 | 0.4113 |

(*) shows Long run relation between Dependent & Independent Variables

The results of the ARDL long form co-efficient integrated in above table (6) indicates that exports, imports, its determinants and other trade policy variables included in this study have significantly affect the foreign trade of Pakistan in the long run. However, the study didn't found any significant effect of trade openness or trade liberalization in the long run as well as in the short run too.

**Diagnostic and Stability Analysis of Model:** To check the sensitivity, steadiness and goodness of fit of the model, the diagnostic and stability test are applied to check the Auto-correlation, Hetro- skedasticity, Stability, Long-run relation and co-integration among the variables as well as of the model.

**Table: 7 Breusch-Godfrey Serial Correlation LM Test Result**

| Test Statistic | Value | Probability |
|---|---|---|
| F-statistic | 1.375727* | 0.2656 |
| Chi-square | 2.335369* | 0.2373 |

(*) shows the rejection of Null hypothesis

The Breusch-Godfrey Serial Correlation LM test is applied to test the serial correlation in the model. The results integrated in table (7) shows rejection of the null hypothesis proving that the model is free from the problem of serial correlation.

**Table: 8 Breusch-Pagan-Godfrey Heteroskedasticity Test Result**

| Test Statistic | Value | Probability |
|---|---|---|
| F-statistic | 0.526753* | 0.9167 |
| Obs*R-squared | 20.78675* | 0.7529 |

(*) shows the rejection of Null hypothesis

Though there are negligible chances of Heteroskedasticity especially in time series data, however we applied Breusch-Pagan-Godfrey Heteroskedasticity test to inspect the chances of Heteroskedasticity. The results of the Heteroskedasticity test integrated in table (8) shows that the variance among the variables is constant and thus rejects the chance of Heteroskedasticity in the model.

**Table: 9 Ramsey RESET Stability Test Result**

| Test Statistic | Value | Probability |
|---|---|---|
| t-statistic | 0.568002* | 0.5814 |
| F-statistic | 0.322627* | 0.5814 |

(*****) shows the rejection of Null hypothesis

For stability and specification of the model, the Ramsey RESET[9] Test has been applied and the results integrated in table (9) demonstrating the stability and normality of the model and acceptance of null hypothesis, that the model is stable and steer to goodness of fit.

## 5. Conclusion

Exports, imports of goods and International trade plays a vital role in the economic development of any nation and could notably be called growth locomotive. Foreign trade or International trade consists of strategies that support trade without quantitative and qualitative restrictions across international boundaries, where trading allies are permitted by the policy to have mutual benefits from the trade exactly according to the law of comparative advantage. Trade liberalization consists of policies of complete or partial removal or reduction of tariffs and non-tariff restrictions and barriers on the free exchange of capital, services and goods globally to promote "foreign trade". Today, most of the developing and developed countries approved the policy of trade liberalization through the diminution or complete eradication of trade barriers. Popular trade barriers adopted since last few decades are import and export tariffs, export subsidies, technical barriers and quotas. Time has witnessed great economic developments and sharp changes in living standards. This development can be attributed towards globalization and liberalization of international trade due to technological developments and concerted efforts to reduce trade barriers. Exports and imports (Trade) plays a key role in the economic growth and development of a country. Trade policies boost the growth of the economy which leads to the development of that country. Pakistan has also adopted many trade policies to bring Pakistan in this regard are a step towards the improvement in business environment, leads to increase in exports and economic growth. Increase in the productivity and efficient allocation of resources also brings significant change in export.

Pakistan is lacking efficiency and specialization in production resulting in higher cost per output despite intense efforts for export progression; therefore Pakistani products lacking demanded from both local and international markets due to high prices. Economic stagnation and recession leads to inefficient production process and thus lesser exports. Pakistan is facing shortage of foreign direct investment due to which new industries can't be flourished and established. Pakistan is obsessed with the dilemma that exports are concentrated with just few specific items and trading partners. Historical evidence shows that exports of Pakistan are greatly concerted in five merchandise items and to seven nations only. Furthermore, trade deficit increased due to minor value addition and exports of conventional goods. Fluctuating exchange rate due to financial instability also influence the quality and quantity of exports.

## References

Abbas, M. & Raza, H. (2013). Effects of Trade Deficit on the Economy of Pakistan. *Interdisciplinary Journal of Contemporary Research in Business*, 4(11), 176-215.

Acemoglu, D. & Ventura, J. (2002). The World Income Distribution. *Quarterly Journal of Economics*, 117(3), 659-94.

[9] Regression Specification error term

Achay, L. (2006). Assessing Regional Integration in North Africa. National Institute of Statistics and Applied economics, Rabat, Morocco.

Afzal, M. (2006). Causality between Exports, World Income and Economic Growth in Pakistan. *International Economic Journal*, 20(1), 63-77.

Ahmad, M. H., Alam, S. & Butt, M. S. (2004). Foreign Direct Investment, Exports, and Domestic Output in Pakistan. *The Pakistan Development Review*, 42(4), 715-723.

Ahmad, N. & Kalim, R. (2014). Implications of Export Competitiveness, and Performance of Textile and Clothing Sector of Pakistan: Pre and Post Quota Analysis. *Pakistan Journal of Commerce and Social Sciences*, 8 (3), 696-714.

Ahmed, N. (2000). Export Response to Trade Liberalization in Bangladesh: A Co-integration Analysis. *Applied Economics*, 32 (1), 1077–84.

Akbar, M. & Fatima, Z. (2003), Are Exports an Engine of Growth in Pakistan? EcoMod 2003 International Conference, Istanbul, 1-35.

Akhtar, S. (2003). Is There Seasonality in Pakistan's Merchandise Exports and Imports? The Uni-variate Modelling Approach. *Pakistan Development Review,* 42(1), 59-75.

Akhtar, N. & Ghani, E. (2010). Regional Integration in South Asia: An Analysis of Trade Flows Using the Gravity Model. *The Pakistan Development Review*, 49(2), 105-118.

Akhtar, S. & Malik, F. (2000). Pakistan's Trade Performance VIS-À-VIS Its Major Trading Partners. *The Pakistan Development Review*, 39(1), 37-50.

Alam, I. (2011). Impact of Financial Crisis on Textile Industry of Pakistan: Evidence from Faisalabad. SANEI Working Paper Series No. 11-02.

Alam, M. I. (2003). Manufactured Exports, Capital Goods Imports, and Economic Growth: Experience of Mexico and Brazil. *International Economic Journal*, 17(4), 85-105.

Alam, M. M., Salah Udddin, M. G. & Khan, A. S. (2010). An Empirical Study on Exports, Imports and Economic Growth of Bhutan. *Indian Development Review*, 8(1), 94-104.

Alfaro, L. & Hammel, E. (2006). Capital Flows and Capital Goods. *Journal of International Economics*, 72, 128-150.

Al-Moneef, M. (2006). The contribution of the oil sector to Arab Economic development. OFI Pamphlet Series 34.Vienna: Austria.

Alvarez, F. & Lucas, R. J. (2007). General equilibrium analysis of the Eaton-Kortum model of international trade. *Journal of Monetary Economics*, 54, 1726–1768.

Awokuse, T. (2007). Causality between Exports, Imports, and Economic Growth: Evidence from Transition Economies. *Economics Letters, Elsevier Publisher*, 94(3), 389-395.

Azeez, B. A., Dada S. O. & Aluko O. A. (2014). Effects of International Trade on Nigerian Economic Growth; the 21st Century Experience. *International Journal of Economics, Commerce and Management*, 2(10).

Baghebo, M. (2012). Natural Resource Economics. Bayelsa: Kadmon Printing Press and Publishing House.

Baghebo, M. & Atima, T. O. (2013).The Impact of Petroleum on Economic Growth in Nigeria. *Global Business and Economics Research Journal*, 2(5), 102-115.

Bahmani-Oskooee, M. (2001). Nominal and Real Effective Exchange Rates of Middle Eastern Countries and Their Trade Performance. *Applied Economics*, 33(1), 103-111.

Bahmani-Oskooee, M. & Alse, J. (1993). Export Growth and Economic Growth: An Application of Co-integration and Error-Correction Modeling. *Journal of Developing Areas*, 27(4), 535-542.

Baldwin, R. (2012). Global Supply Chains: Why They Emerged, Why They Matters and Where They are going. CEPR Discussion Paper No. 9103.

Baldwin, R. (2015). The World Trade Organization and the Future of Multilateralism. CEPR Discussion Paper No. 11021.

Baldwin, R. & Okubo, T. (2014). International Trade, Off-shoring and Heterogeneous Firms. *Review of International Economics*, 22(1), 59-72.

Bedi-uz-Zaman, Farooq, M. & Ullah, S. (2011). Sectoral oil consumption and economic growth in Pakistan: An ECM approach. *American Journal of Scientific and Industrial Research*, 2(2), 149-156.

Bertola, G. & Faini, R. (1991). Import Demand and Non-Tariff Barriers: The Impact of Trade Liberalization. *Journal of Development Economics*, 34(2), 269–86.

Blalock, G. & Veloso, F. M. (2007). Imports, Productivity Growth and Supply Chain Learning. *World Development Review*, 35(7), 1134-1151.

Blattman, C., Hwang, J. & Williamson, J. G. (2003). The Terms of Trade and Economic Growth in the Periphery 1870-1983. NBER Working Paper No. 9940.

Bleaney, M. & Greenaway, D. (2001). The Impact of Terms of Trade and Real Exchange Rate Volatility on Investment and Growth in Sub-Saharan Africa. *Journal of Development Economics*, 65, 491–500.

Bouoiyour, J. & Rey, S. (2005). Exchange Rate Regime, Real Exchange Rate, Trade Flows and Foreign Direct Investments: The case of Morocco. *African Review of Development*, 17(2), 302-334.

Broda, C. & Tille, C. (2003). Coping with Terms-of-Trade Shocks in Developing Countries. *Current Issues in Economics and Finance, Federal Reserve Bank of New York*, 9(11), 1–7.

Buzby, J. C. & Unnevehr, L. J. (2004). Food Safety and International Trade. Agriculture Information Bulletin No. 33629, United States Department of Agriculture Economic Research Service.

Cuaresma, J. C. & Worz, J. (2005). On Export Composition and Growth. *Review of World Economics*, 141(1), 33-49.

Dawson, P. J. (2005). Agricultural Exports and Economic Growth in Less Developed Countries. *Journal of Agricultural Economics*, 33(1), 145-152.

Dengfeng, Z. (2008). The econometric analysis of the supply effects on Chinese economic growth by import trade. *Contemporary Finance and Economics*, 3(2), 96-101.

Dijk, M. V. (2001). The Determinants of Export Performance in Developing Countries: the Case of an Indonesian Manufacturing, Working Paper 02.01, Eindhoven Centre for Innovation Studies, the Netherlands.

Dilawar, K., Shaista, K. & Ul-Haq, I. (2013). An Empirical Analysis of Pakistan's Bilateral Trade: A Gravity Model Approach. *The Romanian Economic Journal*, 4(8), 103-120.

Dollar, D. & Kraay, A. (2003). Institutions, Trade and Growth. *Journal of Monetary Economics*, 50(1), 133-162.

Dorosh, P. & Salam, A. (2008). Wheat Markets and Price Stabilization in Pakistan: An Analysis of Policy Options. *Pakistan Development Review*, 47(1), 71-87.

Dorosh, P. & Valdes, A. (1990) Effects of Exchange Rate and Trade Policies on Agriculture in Pakistan. Washington, DC: IFPRI. (International Food Policy Research Institute Research Report No. 84.)

Duasa, J. (2007). Determinants of Malaysian Trade Balance: An ARDL Bound Testing Approach. *Journal of Economic Cooperation*, 28(3), 21-40.

Dutt, D. S. & Ghosh, D. (1996). The Export Growth-Economic Growth Nexus: A Causality Analysis. *The Journal of Developing Areas,* 30(2), 167-182.

Eaton, J. & Kortum, S. (2001). Trade in Capital Goods. *European Economic Review*, 45(1), 1195-1235.

Eaton, J. & Kortum, S. (2002). Technology, Growth and Trade. *Econometrica*, 70, 1741-1781.

Egwaikhide, F. O. (1999). Effects of Budget Deficit on Trade Balance in Nigeria: A Stimulation Exercise. *African Development Review*, 11(2), 265-289.

Ekanayake, E. M. (1999). Exports and Economic Growth in Asian Developing Countries: Co-integration and Error-Correction Models. *Journal of Economic Development*, 24(2), 43-56.

Elbadawi, I. A. (1997). Real Exchange Rate Policy and Export Performance in Three Arab Countries. Economic Research Forum, Fourth Annual Conference on Regional Trade Finance and Labor Markets in Transition, Conference Proceedings.

Emeka, E. J., Frederick, I. & Peter, A. (2012). Macroeconomic Impact of Trade on Nigerian Growth: An Empirical Evaluation. *Research Journal of Business Management and Accounting*, 1(4), 79-83.

Faridi, M. Z. (2012). Contribution of Agricultural Exports to Economic Growth in Pakistan. *Pakistan Journal of Commerce and Social Science*, 6(1), 133-146.

Fatima, N. (2010). Analyzing the Terms of Trade Effect for Pakistan. PIDE Working Papers 2010: 59.

Filippini, C. & Molini, V. (2003). The Determinants of East Asian Trade Flows: A Gravity Equation Approach. *Journal of Asian Economics*, 14(5), 695-711.

Ghatak, S., Milner, C. & Utkulu, U. (1997). Exports, Export Composition and Growth: Co-integration and Causality Evidence for Malaysia. *Applied Economics*, 29(2), 213-223.

Ghirmay, T. C., Sharma, S. & Grabowski, R. (1999). Export Instability, Income Terms of Trade Instability and Growth: Causal Analyses. *The Journal of International Trade and Economic Development: An International and Comparative Review*, 8(2), 209–229.

Gomes, F. A. R. & Paz, L. S. (2005). Can real exchange rate devaluation improve trade balance? The 1990-1998 Brazilian case. *Applied Economics Letters*, 12, 525-528.

Hameed, I., Iqbal, A. & Devi, K. (2012). Relationship between Exports and Economic Growth of Pakistan. *European Journal of Social Sciences*, 32(3), 453-460.

Hatemi J. A. (2002). Export Performance and Economic Growth Nexus in Japan: A bootstrap approach. *Japan and the World Economy*, 14(1), 25-33.

Havrila, J. & Gunawardana, P. (2006). Determinants of Export Supply of the Australian Textiles Industry. *Economic Analysis & Policy*, 36(1-2), 45-59.

Herzer, D., Lehmann, F. N. & Siliverstovs, B. (2005). Export-Led Growth in Chile: Assessing the Role of Export Composition in Productivity Growth. America Institute for Economic Research, Germany, 1-30.

Hossain, M. M. & Rajeb, M. (2012). Toward Bracketing the Seasonal Export-Import of Bangladesh: A Time Series based Analytical Approach. *Terengganu International Finance and Economics Journal*, 2(2), 103-117.

Iacovoiu, V. B. (2013). Perspectives on Romania's Economic Growth through the Evolution of Direct Investment Flows. *Economic Insights – Trends and Challenges*, 2(1), 84-95.

Isakova, A., Koczan, Z. & Plekhanov, A. (2013). How Much Do Tariffs Matter? Evidence from the Custom Unions of Belarus, Kazakhstan and Russia. EBRD Working Paper No. 154,1-22.

Islam, M. N. (1988). Export Expansion and Economic Growth: Testing for Co-integration and Causality. *Applied Economics*, 30(3), 415-425.

Islam, M. M., Khan, A. M. & Islam, M. M. (2013). Textile Industries in Bangladesh and Challenges of Growth. *Research Journal of Engineering Sciences*, 2(2), 31-37.

Ismail, A. & Wijnbergen, V. S. (1993). Export Incentives, Exchange Rate Policy and Export Growth in Turkey. *The Review of Economics and Statistics*, 75(1), 128-133

Javed, H. Z., Qaisar, I., Mushtaq, A., Saif-Ullah. & Iqbal, A. (2012). Effects of International Trade on Economic Growth: A Case Study of Pakistan. *International journal of Academic Research in Progressive Education and Development*, 1(2), 103-113.

Jawad, M. (2013) Oil Price Volatility and its Impact on Economic Growth in Pakistan. *Journal of Finance and Economics*, 1(4), 62-68.

Jing, M. & Lu, Y. (2011). Free Trade or Protection: A Literature Review on Trade Barriers. *Research in World Economy*, 2(1), 69-76.

Ju, J., Wu, Y. & Zeng, L. (2010). The Impact of Trade Liberalization on the Trade Balance in Developing Countries. *IMF Staff Papers,* 57(2), 427–49.

Kahnamoui, F. (2013). Do Trade Restrictions or Openness Affect Economic Growth Differently in the Presence of Export Credits? *Business and Economics Journal*, 69, 1-11.

Kemal, M. A. (2005). Exchange Rate Instability and Trade: The Case of Pakistan. Pakistan Institute of Development Economics. Islamabad: Research Report no. 186.

Khan, A. A. & Khan, M. (2010). Pakistan Textile Industry Facing New Challenges. *Research Journal of International Studies*, 14, 21-29.

Khan, A. E. R. & Sattar, R. (2010). Trade Growth and Poverty: A Case of Pakistan. *Pakistan Journal of Social Science*, 4(2), 173-184.

Khaliji, B. A., Jaffari, S., Shahzad, A. & Mehtab, M. (2013). Role of Textile Sector in Domestic Development. *Business Management Dynamics*, 2(10), 14-27.

Kiani, A. (2013) Impact of High Oil Prices on Pakistan's Economic Growth. *International Journal of Business and Social Science*, 2(17), 209-216.

Kilavuz, E. & Topcu, A. B. (2012). Export and Economic Growth in the Case of the Manufacturing Industry: Panel Data Analysis of Developing Countries. *International Journal of Economics and Financial Issues*, 2(2), 201-215.

Kurt, S. & Terzi, H. (2007), Relation between Foreign Trade, Productivity and Economic Growth. *Journal of Economics and Administrative Sciences*, 21(1), 25-46.

Kwa & Bassoume. (2007). Exploring the Linkages between Agricultural Exports and Sustainable Development. *Ecofair trade dialogue [Discussion Paper]*, 2, 1-38.

Lardy, N. R. (2003). Trade Liberalization and Its Role in Chinese Economic Growth. Institute for International Economics, International Monetary Fund, Washington, D.C.

Lee, C. & Huang, B. (2002). The Relationship between Exports and Economic Growth in East Asian Countries: A Multivariate Threshold Autoregressive Approach. *Journal of Economic Development*, 27(2), 45–68.

Levant, K. (2011). An Empirical Model for the Turkish Trade Balance: New Evidence from ARDL Bound Testing Analyses. MPRA Paper No. 32550.

Levin, A. & Raut, L. K. (1997). Complementarities between Exports and Human Capital: Evidence from the Semi-Industrialized Countries. *Economic Development and Cultural Change*, 46(1), 155-174.

Li, X. & Liu, X. (2005). Foreign Direct Investment and Economic Growth: An Increasingly Endogenous Relationship. *World Development*, 33(3), 393-407.

Mahmood, M. A. & Akmal, N. (2010). Impact o Trade Liberalization on Agriculture in Pakistan: A REVIEW. *Journal of Agriculture Resource*, 48(1), 1-11.

Martinez-Zarzoso, I. & Nowak-Lehmann, F. (2003). Augmented Gravity Model: An Empirical Application to Mercosur-European Union Trade Flows. *Journal of Applied Economics*, 6(2), 291-316.

Mbayani, S. (2006). Determinants of trade balance in Tanzania, A research paper towards the fulfillment of masters of Arts degree in economic policy management (PPT), Makerere University.

Mendoza, E. G. (1997). Terms-of-Trade Uncertainty and Economic Growth. *Journal of Development Economics*, 54,323-356

Mohammad, D. S. (2010). Determinant of Balance of Trade: Case Study of Pakistan. *European Journal of Scientific Research*, 41(1), 13-20.

Moseykin, N. Y. & Levchenko, V. I. (2010). The Impact of Agricultural Import Tariff on Economic Growth: Evidence from Mercosur Countries. *Chinese Business Review*, 13(3), 137-153.

Musleh-Ud, D. (2004). Exports, Imports, and Economic Growth in South Asia: Evidence using a Multivariate Time Series Framework. *Pakistan Development Review*, 43(2), 105-124.

Mutreja, P., Ravikumar, B. & Sposi, M. (2014). Capital Goods Trade and Economic Development. Working Paper No. 2014-012A.

Nadeem, M. (2007). Pakistan Agricultural Export Performance in the Light of Trade Liberalization and Economic Reforms. [Working Papers] 45854, University of Baluchistan, Commerce Department.

Nawaz, A. & Rukhsana, K. (2014). Implications of Export Competitiveness, and Performance of Textile and Clothing Sector of Pakistan: Pre and Post Quota Analysis. *Pakistan Journal of Commerce and Social Sciences*, 8(3), 696-714.

Nazir, S. & Qayyum, A. (2014). Impact of Oil Price and Shocks on Economic Growth of Pakistan: Multivariate Analysis. MPRA Paper No. 55929.

Nienga, E. (2010). The Determinants of Trade Balance in Kenya; An Empirical Analysis; 1970-2010.

Pan, S., Somwaru, A. & Tuan, F. (2004).China's Role in World Cotton and Textile Markets. 7th Annual Conference on Global Economic Analysis, Washington, DC

Parida, P. C. & Sahoo, P. (2007), Export-led Growth in South Asia: A Panel Co-integration Analysis. *International Economic Journal*, 21(2), 155-175.

Pesaran, M. H., Shin, Y. & Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Economy*, 16(1), 289–326.

Peter W. & Sarah T. (2006). The Trade Balance Effects of U.S. Foreign Direct Investment in Mexico. *American Economic Journal*, 27(1), 24-39.

Qiang, S. (2010). The Research on the Relationship Between Import Trade Structure and Economic Growth in China. IZA working Paper, 187-191.

Rahman, M. & Mustafa, M. (1998). Dynamics of Real Exports and Real Economic Growth in 13 Selected Asian Countries. *Journal of Economic Development*, 22(2), 81-95.

Ravallion, M. (2004). Looking Beyond Averages in the Trade and Poverty Debate. Policy Research Working Paper No. 3461, The world Bank.

Rigobon, R. & Rodrik, D. (2004). Rule of Law, Democracy, Openness, and Income: Estimating the Interrelationships. NBER Working Papers No. 10750.

Saadullar, M. Z. k. & Ismail, M. H. (2012). Determinants of Trade Balance of Bangladesh: A Dynamic Panel Data Analysis. *Bangladesh Development Studies*, 35(2), 43-52.

Saleem, A. & Sial, M. H. (2015). Exports-Growth Nexus in Pakistan: Co-integration and Causality Analysis. *Pakistan Economic and Social Review*, 53(1), 17-46.

Sanjuan-Lopez, A. I. & Dawson, P. J. (2010). Agricultural Exports and Economic Growth in Less Developed Countries: A Panel Co-integration Approach. *Journal of Agricultural Economics*, 61(3), 565-583.

Santos-Paulino. & Thirlwall, A. P. (2004). The Impact of Trade Liberalization on Exports, Imports, and the Balance of Payments of Developing Countries. *Economic Journal*, 114(1), 50–72.

Shahbaz, M., Jalil, A. & Islam, F. (2011). Real Exchange Rate Changes and Trade Balance in Pakistan: A Revisit. Munich Personal RePEc Archive, Paper No. 27631.

Sharif, S., Javed, S. M., Abbas, A. & Hassan, S. (2010). Impact of WTO's Trade Liberalization on Selected Food Crops in Pakistan. *Pakistan Development Review*, 47(4), 547-563.

Shawa, M. J. & Shen, Y. (2013). Analysis of the Determinants of Trade Balance: Case study of Tanzania. *International Journal of Business and Economics Research*, 2(6), 134-141.

Shirazi, S. N. & Manap, T. A. (2004). Export-Led Growth Hypothesis: Further Econometric Evidence from Pakistan. *Pakistan Development Review*, 43(4), 563-581.

Siddiqui, H. A. & Iqbal, J. (2005). Impact of Trade Openness on Output Growth for Pakistan: An Empirical Investigation. *Market Forces,* 1(1), 1-9.

Subhani, M., Imtiaz, Amber, O. & Khokhar, R. (2011). The New Version of Gravity Model in Explaining Bilateral Trade; a Comparative Study for Developed and Developing Nations. *Journal of Euro Economica*, 28 (2), 41-50.

Sugema, I. (2005). The Determinants of Trade Balance and Adjustment to the Crisis in Indonesia. Centre of International Economic Studies (CIES), Discussion Paper No. 0508.

Shun-Fa, L. (2011). Tariff, growth and welfare. *Review of International Economics*, 19(2), 260–276.

Sulaiman, M. D. & Hussain, A. (2012). The Causal Relationship between Openness and Economic Growth: Empirical Evidence In Case Of Pakistan. *Pakistan Journal 0f Commerce and Social Science*, 6(2), 382-391.

Sun, P. & Heshmati, A. (2010). International Trade and its effects on Economic Growth in China. IZA, Discussion Paper No. 5151.

Tabari, Y. A. N. & Haghight, S. (2014). Iran's Regional Trade and Real Exchange Rate (Gravity Panel Data Models). *International Journal of Economy, Management and Social Sciences*, 3(1), 113-117

Usman, A., Ikemefuna, M. & Fatimah, A. (2015). Evidence of Petroleum Resources on Nigerian Economic Development. *Business and Economic Journal*, 6(2), 1-4.

Velnampy, T. & Achchuthan, S. (2013). Export, Import and Economic Growth: Evidence from Sri Lanka. *Journal of Economics and Sustainable Development*, 4(9), 1-10.

Wacziarg, R. & Welch, H. K. (2003). Trade Liberalization and Growth: New Evidence. NBER Working Paper No. 10152.

Wai-mum, H., Yuen-ling, N. G. & Tan, G. M. (2008). Real Exchange Rate and Trade Balance Relationship: An Empirical Study on Malaysia. *International Journal of Business and Management*, 3(8), 130-139.

Waliullah, M., Mehmood, K. K., Rehmatullah, K. & Wekeel, K. (2010).The Determinants of Pakistan's Trade Balance: An ARDL Co integration Approach. *The Lahore Journal of Economics*, 15(1), 1-26.

Wang, X. (2013). The determinants of textile and apparel export performance in Asian countries. Graduate Theses and Dissertations, Paper 13642.

Waugh, E. M. (2010). International Trade and Income Differences. *American Economic Review*, 100(5), 2093-2124.

Yanikkaya, H. (2003). Trade Openness and Economic Growth: A Cross Country Empirical Investigation. *Journal of Development Economics*, 72(1), 57-89.

Yucel, F. (2009). Causal Relationships between Financial Development, Trade Openness and Economic Growth: The Case of Turkey. *Journal of Social Sciences*, 5(1), 33-42.

Zada, N., Muhammad, M. & Bahadur, K. (2011). Determinants of Exports of Pakistan: A Country-wise Disaggregated Analysis. *The Pakistan Development Review*, 50(4), 715–732.

Zakaria, M. (2014). Effects of Trade Liberalization on Exports, Imports and trade Balance in Pakistan; A Time Series Analysis. *Prague Economic Paper*, 1(1), 121-139.

Zaman, K., Qaiser, A., Adnan, K. & Zahid, A. (2010). Empirical Evidence of Trade Integration between Pakistan and Turkey (A Gravity Approach). *Journal of Managerial Sciences*, 4(2), 106-114.

Zulfiqar, K. & Kausar, R. (2012). Trade Liberalization, Exchange Rate and Export Growth in Pakistan. *Far East Journal of Psychology and Business*, 9(3), 32-47.