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Department of Commerce
Delhi School of Economics

University of Delhi, Delhi-110007

Editor Note

The Journal of Commerce and Business Studies embarked to disseminate the research undertaken in contemporary areas of business and management with a view to create a solution oriented paradigm for national problems. It is pertinent to note that the Journal of Commerce and business studies provides wide circulation amongst Academic Institutes, Central Universities and Business Organizations as well. It encourages the authors for the exemplary research output having academic rigor with high standards of originality.

The papers in this issue exhibit the evidence reported from Nigeria in context of agriculture output to per capita income during a span of thirty years and the grant of ESOP and its culture in Indian context. Further, it demonstrates the findings for consumers' inclination to greener products and services and the CSR opportunities attached thereto along with the findings in the domain of exports and economic development.

I would like to thank the authors who have contributed to this issue of the Journal and also to those five dozen authors who sent their papers for publication in this issue. This issue is an output of sheer hard work of the editorial team, the reviewers and the support of associate editor. The guidance and interventions of the head, Department of Commerce helped to improvise the issue manifold. I wish the present issue unfolds further research questions and avenues for enhanced academic rigour.

Thank You

Dr Sunaina Kanojia
Editor

AGRICULTURAL OUTPUT AND PER CAPITA INCOME: EVIDENCE FROM NIGERIA

OsagieOsifo[1], Lawson Eghosa Igbinovia[2] and Prof. P.O. Eriki[3]

The study empirically examines the impact of agricultural output on per capita income in Nigeria for a period of thirty two years (1980 to 2015). The study employs multiple Ordinary Least Squares (OLS) analysis for the estimation process, unit root test for stationarity variables, co-integration analysis for long-run equilibrium relationship and error correction model to ascertain the short run effect of the variables. The variables used in the model were per capita income which is the dependent variable, while agricultural output (AGQ), index of industrial production (INDPR), agricultural exports (EXP) and investment (INV) served as the independent or explanatory variables.The results from the analysis showed that agricultural output (AGQ) and agricultural exports (EXP) have a significant positive relationship with per capita income. Index of industrial production (INDPR) and that of investment (INV) have insignificant positive relationships with Per capita income(PCI).The study recommends among others that since agricultural output, not just mere exports that boosts per capita income, relevant authorities should consider measures of increasing the share of agricultural output in Nigeria by providing the farmers with high yielding varieties of crops and teaching them better farming and preservation methods through a revamped agricultural extension system. This way, more farmers will be able to produce products that are viable in the international market and thus improve their living standards and per capita income in general

Key Words: Agricultural Output, Per Capita Income, Exports, Investment, Industrial Production.

Nigeria is generously endowed with abundant natural resources. With its reserves of human and natural resources, Nigeria has the potential to build a prosperous economy and provide for the basic needs of the population. This enormous resource base if well managed could support a vibrant agricultural sector capable of ensuring the supply of raw materials for the industrial sector, provide gainful employment, increase rural and national income, and consequently raise the per capita income level.

In fact, through its different spheres of activities both at the macro and micro levels, the agricultural sector is strategically positioned to constitute the foundation for any nation's economic development through its multiplier effects (Ogen, 2007). By diversifying the economic base, agricultural sector if well developed will not only earn the country additional foreign exchange but will raise the per capita income and overall standard of living of the people (Jhingan, 2007).

Given the critical role of agriculture in the development of any country, both developed and developing countries are laying serious emphasis on developing the agricultural sector. The study of economic history provides us with ample evidence that an agricultural revolution is fundamental pre-condition for

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[1] Department Of Banking And Finance , University Of Benin, Benin City, Email: osagie.osifo@uniben.edu

[2] Department Of Banking And Finance, University Of Benin, Benin City, Email: lawson.igbinovia@uniben.edu

[3] Department Of Banking And Finance, University Of Benin, Benin City, Email: peter.eriki@yahoo.com

economic development (Eicher and Witt, 1964: 239; Jones and Woolf, 1969: 123). A basic index for measuring economic development itself is per capita income. It is the most widely accepted indicator of the level of development or underdevelopment. Increasing per capita income therefore implies improved standard of living (Iyoha, 2004).

Despite being richly endowed with abundant natural resources and rich vegetation which can support a strong agricultural sector, Nigeria is among the poorest nation in the world. The World Bank (2008) revealed that 70 percent of Nigerian populations are living on less than a dollar per day. Nigeria is ranked 158 out 177 countries in 2008 and 138 out of 187 countries in the 2012 United Nations Human Development Index. The country is regarded as having one of the lowest per capita incomes in the world (World Bank Development Report, 2012).

A retrospective look at the Nigerian economy and its development reveals that agriculture was both the mainstay of the Nigerian economy and chief foreign exchange earner before and immediately after independence. For instance, in the 1960's, agriculture accounted for well over 80 percent of the export earnings and employment; over 60 percent of the GDP and over 50 percent of government revenue. This has since not been the case following the production of crude oil in large commercial quantities. Although agriculture no longer serves as the leading sector of the Nigerian economy in terms of contribution to GDP, it is still the dominant economic activity in terms of employment for the vast majority of the populace.

Given that increased agricultural output will raise the level of national income through the exportation of the surplus produce, and in turn raise the per capita income in Nigeria, an empirical study of such relationship as this, is important.

OBJECTIVES OF THE STUDY

The broad objective of this study of this study is to examine the impact of agricultural output on per capita income in Nigeria

i.   To ascertain the effect of industrial production on per capita income in Nigeria

ii. To determine the impact of export of agricultural products on per capita income in Nigeria

iii. To examine the impact of domestic investment on per capita income in Nigeria.

HYPOTHESES OF THIS STUDY

i.   Agricultural output does not have any significant impact on per capita income in Nigeria.

ii. Industrial production does not have any significant effect on per capita income in Nigeria

iii. Export of agricultural products does not have any significant impact on per capita income in Nigeria

iv. Domestic investment does not have significant effect on per capita income in Nigeria.

RELEVANCE OF THE PAPER

This study will be of high significance to the Nigerian government. The country being a mono economy that is utterly dependent on sales from crude oil and the constantly dwindling and drop in the price of "black gold" the country has to diversify her economy and agricultural sector will be apt.

Hence, the rest paper is structured such that section two reviews the literature on the relationship between agricultural output and per capita income, while section three presents the methodology of study. Section four analyses the empirical results and section five concludes the study with necessary recommendations.

LITERATURE REVIEW

(a)   Conceptual Framework and Review of Literature

(i)   Agricultural Output and Per Capita Income

In economics, per capita income or GNP per capita is the most used index (measurement) of economic development or standard of living. Countries with high per capita income are regarded as having high standard of living. According to Kuznets (1959) cited in Iyoha (2004).

> "Given the structure of human wants, a cumulative large rise in a country's per capita product necessarily means a shift in relative proportions of various goods demand and used – and hence major changes in combinations of productive factors, in patterns of life and in international relations."

Theoretically, a positive relationship is believed to exist between agricultural output and per capita income. To the best of my knowledge, increase in agricultural production and the resultant output means that there is surplus for export markets. This creates domestic agricultural supply and industrial demand. The resulting exportation of the surplus agricultural output earns foreign exchange for the domestic economy. An increased foreign exchange earnings means more national income and consequently, increase per capita income. This also implies enhanced farmers income (earnings) leading to better standard of living for the population, all things being equal.

Traditionally, economic development is deemed to have taken place if there is a sustained increase over a long period of time in per capita income or output of a country. Since per capita income implies a share of the national income per person (or the average income per person), rising national income due to increased agricultural output implies increasing per capita income.

(ii)   Agricultural Policies in Nigeria

As a result of the decline in the percentage contribution of agriculture to GDP at the dawn of 1970, owing to the oil boom, many policy measures have been put in place by the Federal Government of Nigeria (FGN) to reposition the agricultural sector to boost output and productivity. Examples of such policies

and programmes include the Operation Feed the Nation (OFN) and the River Basin and Rural Development Authority both of 1976. These policies, programmes and strategies were aimed at developing the agricultural sector in order to boost output.

The Green Revolution Programme of 1980 replaced OFN with the aim of food sufficiency in agricultural production. The World Bank – assisted Agricultural Development Project (ADP) came on board in 1974. It was the first practical demonstration of an integrated approach to agricultural development in Nigeria. Other policy programmes that were aimed at revamping the agricultural sector include the Directorate of Foods, Roads and Rural Infrastructure (DFFRI)-1986, National Land Development Authority (NALDA) - 1992 and the scrapping of commodity boards amongst others. In 2004, under the umbrella of the New partnership for Africa's Development (NEPAD), the comprehensive African Agricultural Development Programme was launched. In it, agriculture was seen as the engine of growth to propel African economies out of hunger and poverty. The programme is aimed at achieving higher growth rate through increased agricultural output.

In recent times, other programmers and strategies to improve the agricultural sector have also come on board. These include the establishment of National Special Programmed on Food Security (NSPFS) and the presidential initiatives on Rice and Cassava production, conversion of community banks to micro finance banks to finance agricultural production, amongst others (National Planning Commission, 2006), cited in Onoja and Agumagu (2009).

According to Iyoha (2004: 38), the reasons that have made Africa's agricultural production remained below its potential include: neglect by Africa's policy makers, gross under capitalization, high transaction costs, inadequate market information, poor infrastructure, primitive farming techniques and difficulties in assessing agricultural credit facilities.

THEORETICAL FRAMEWORK

This study adopts Solow-Swan neoclassical growth theory and its framework for analyzing the process of economic growth and development. This conceptual framework was also adopted by the study of Awokuse (2009). It states thus:

Assuming a constant return to scale aggregate production functions expressed as:

Y*t* = K*t*, L*t*, B*t*………………………………………………………………………….. (1)

Where Y,K,L and B represent real GDP per capita, real gross capital, labour, and the Hicks-neutral productivity term respectively.

The contribution of agriculture to aggregate economic growth could be modeled through its effect on total factor productivity (Timmer, 1995; Ruttan, 2000). Early theories of development regarded agriculture as a vital source of resources to finance the development of the industrial sector. Thus, agricultural production growth serves as an engine of growth for the entire economy. Hwa (1988) posits that agriculture is an engine of growth and added agriculture to the standard Solow-Swan growth equation as a measure of linkages between the rural and industrial sector of the economy.

EMPIRICAL LITERATURE

The ability of agricultural production to promote economic growth and development in a nation has been extensively argued in the empirical literature. Some argue that agriculture has positive impact on economic development, while others argue on the contrary (Obayagbona and Eboiyehi, 2013). Johnston and Mellor (1961) observed that agriculture contributes to economic growth and development through: (i) supply of surplus labor to firms in the industrial sector; (ii) supply of food for domestic consumption; (iii) provision of market for industrial output; (iv) supply of domestic savings for industrial investment; and (v) supply of foreign exchange from agricultural export earnings to finance import of intermediate and capital goods. Nurkse (1953) asserts that agriculture is a prerequisite for industrialization by saying that everyone knows that the spectacular industrial revolution would not have been possible without the agricultural revolution that preceded it. Furthermore, Rostow (1960) argued that "revolutionary changes in agricultural productivity are an essential condition for successful take-off and that, the idea behind this view is that as agricultural productivity of developing countries are able to produce more food with less labor input which allows them to feed their growing population while releasing labor for manufacturing sector.

Obayagbona and Eboiyehi (2013) empirically examined the impact of agricultural output on per capita income in Nigeria. The specific objectives were to determine the impact of agricultural output, agricultural exports, domestic investment and human capital (proxies by secondary school enrolment rate) on per capita income in Nigeria. Using annual time series data covering the period 1980 to 2011, the ordinary least squared (OLS) econometric technique was used in estimating the relationships. Following previous methodology, per capita income was used as a proxy for economic growth in Nigeria. The results show that agricultural output in itself does not stimulate per capita income in Nigeria. This is perhaps due to the weak productivity in the sector that has led to low yield from small inefficient farms; Agricultural Exports have a significant positive impact on economic growth in Nigeria; Again, while Physical Investment has a significant stimulating effect on agricultural output in Nigeria, Human Capital Investment does not have a direct positive impact on economic growth in Nigeria.

Timmer (1995) emphasized the importance of indirect non-market linkages that improves the quality of the major production factors (labor and capital). He observes that agriculture indirectly contributes to economic growth via its provision of better caloric nutrient intake by the poor, food availability, food price stability, and poverty reduction. He added that the role of agriculture has been underestimated because of data limitations that preclude explicit quantitative analyses of the indirect effects of agriculture's contributions to capital and labor efficiency and total factor productivity. Matsuyama (1992) on the other hand used the comparative advantage argument to refute the claim that agricultural productivity is an engine of economic growth. Reflecting the negative view of agriculture in the development process, policymakers in many developing countries proposed and adopted development strategies that were anti-agriculture and rather emphasized the role of the manufacturing sector as the preferred source of economic growth (Schiff and Valdez, 1998). In many developing countries, the agricultural sector was subject to heavy taxation. For example, prior to agricultural reforms in 1979, Chinese agriculture was under a heavy tax burden and the revenues were used to subsidize urban and industrial development (Yao, 2000). Although several studies have outlined the theoretical relationship

between agriculture and economic growth, disagreements still persist. The causal dynamics between agriculture and economic growth is an empirical question worthy of further investigation.

The study of Lawal and Atte (2006) on the growth of the agricultural sector of the Nigerian economy, using descriptive statistics and regression analysis in their empirical analysis, the results show that the overall agricultural production average growth rate was 5.4% and that GDP growth rate, population growth rate, and the Consumer Price Index were the main factors affecting domestic agricultural production. The study however recommends the need to increase per-capita productivity through the introduction of improved technology in agricultural production in Nigeria. Nguyen (2010) in his study in the rural Vietnam on whether Agriculture help Poverty and Inequality Reduction, and using fixed-effects regressions from 2002 to 2004 found that impact estimates of the production of crops and forestry on per capita income and consumption expenditure are not statistically significant. Impact estimates of the livestock production are positive and statistically significant for per capita income, but not statistically significant for per capita expenditure. However, the aqua cultural production has positive and statistically significant impacts on both income and expenditure. As a result, the aqua cultural production helps the producing households reduce the poverty incidence by 4.3 percentage points. It also decreases the poverty gap and poverty severity indexes of the producing households by around 13 percent and 15 percent, respectively. The aqua cultural production also reduces the rural expenditure inequality, albeit at an extremely small magnitude. used bivariate Granger causality tests to examine the causal relationships between agricultural value-added and economic growth for a panel of countries. They found strong evidence in support of causality from agriculture to economic growth for developing countries, but the causality results for developed countries were inconclusive. Awokuse (2009) examines the question of whether agriculture could serve as an engine of growth. The results from the empirical analysis provide strong evidence indicating that agriculture is an engine of economic growth and that trade openness has a positive effect on GDP growth. His emphasis was on the change in GDP per capita over the last three decades (1975-2005) for a selection of fifteen developing countries relative to the United States, GDP per capita in most of the nations in Africa (e.g., Nigeria and Senegal) and Latin America over the three decades has been very low and quite disappointing. In contrast, several Asian economies (e.g., China and Thailand) have experienced phenomenon growth in the past thirty years. Interestingly, much of the nations with poor growth records still have a relatively large share of their GDP coming from the agricultural sector. In most of the African nations, agriculture accounts for over 20 percent of GDP.

Mankiw, Romer; and Weil (1992) suggest Matsuyama (1992) prediction regarding the relationship between productivity in the agriculture sector and growth is only partially consistent with the evidences from the contemporary developing countries. As the theory predicts the openness of economies negatively affects the gains in the economic growth from improvement in the agricultural productivity, however, this effect was not strong enough to cause either a long-run negative relationship between economic growth and agricultural productivity in the contemporary developing countries which are assumed to be open (which Matsuyama called welfare loss) or to bring large differences in the gains from agricultural productivity between the open and closed economies.

METHODOLOGY AND MODEL SPECIFICATION

In this paper, time series data from 1980 to 2015 was adopted, the central reason for using time series data is that it captures both the past and future in terms of understanding the past and predicting the future. The data used in this study include per capita income (real GDP per capita), agricultural output, industrial output or production, export of agricultural products and domestic investment. The data were obtained from the publications of the Central Bank of Nigeria Statistical Bulletin, National Bureau of Statistics and other academic journals. A multi-regression model was employed to capture the relationship and effect of above listed variables on per capita income in Nigeria.

The functional form of the model for this paper is specified below as:

$$PCI = F(AGQ, INDPR, EXP, INV, ECM)$$

Hence, the econometric form of the model is specified as:

$$PCI = \alpha_0 + \alpha_1 AGQ + \alpha_2 INDPR + \alpha_{3EXP} + \alpha_4 INV + ECM(-1) + e_t$$

Where:

PCI	= Per capita income (or Real GDP per capita)
AGQ	= Agricultural output
INDPR	= Industrial production or output
Exp	= Export of Agricultural products
INV	= Domestic Investment
ECM	= Error correction model
e_t	= residual error term

Apriori signs: $\alpha_1 > 0$, $\alpha_2 > 0$, $\alpha_3 > 0$

ESTIMATION TECHNIQUE

The ordinary least squares method was employed to establish the relationship between the variables in the specified model. The variables were subjected to unit root test in order to make them stationary, also co-integration test was carried out to ascertain if the series are co-integrated with per capita income, i.e if there is any long run relationship between the variables in the model. The error correction model was used to analyze the short run dynamic relationship between the variables.

EMPIRICAL RESULTS AND ANALYSIS

The study employs the techniques of co-integration and error correction modelling (ECM) in order to estimate a more robust analysis of the relationship between agricultural output and per capita income in Nigeria. The ECM, as a tool of analysis overcomes the problem of spurious regressions through the use of appropriate differenced variables in order to determine the short term adjustments in the model. Co-integration analysis on the other hand provides the potential information about the long term equilibrium

relationship of the model. Since time series generally exhibit a non-stationary pattern in their levels, unit root testing as a pre-testing device for co-integration will be carried out in order to determine the degree of stationary. If the time series variables are found to be non–stationary, is an appropriate difference mechanism. The associated error correction model is used to analyze the short run dynamic relationship between the variables.

Unit Root Analysis

The Augmented Dickey Fuller (ADF) test was employed in order to analyze the unit roots. The results are presented in levels and first difference forms in Tables 1. The results in second column of Table 2 indicate that the respective variables possess ADF values that are less than the 95 percent critical ADF value (in absolute values). The implication of this is that the time series are non- stationary in their levels. In order words, the variables are time-dependent and would not guarantee a long run relationship unless tested.

Table 1: Unit Root Test for Variables in levels and First Difference

Variable	ADF Statistic (in Levels)	ADF Test Statistic (in First Difference)	Order of Integration	Remark
ΔPCI	-2.105	-7.567**	I(1)	Stationary
ΔAGQ	-1.982	-4.899**	I(1)	"
ΔINDPR	-1.560	-4.1549*	I(1)	"
ΔEXP	-0.9763	-6.113**	I(1)	"
ΔINV	-2.1174	-4.872**	I(I)	''
(**) denotes significance at 5% (1%) level				

In line with the argument of Box and Jenkins (1978) that non-stationary time series in levels may be made stationary by taking their first differences, we took the first differences of the respective variables and performed the unit root test on each of the resultant time series. The results of the unit root tests on the variables in first differences in column 3 of the Table show that the ADF test statistic for each of the variables is greater than the 95 percent critical ADF values (in absolute values). Therefore, the variables are adjudged to be stationary in first difference form and hence possess unit roots. Indeed, the variables are integrated of order one (i.e. I [1]).

COINTEGRATION TEST

Having established that the series in the analysis are all I(1) variables, possessing unit roots, we determined their co-integration status. The cointegration test is based on the argument that time series have a unit root and a relationship exist between a linear combination of such series. The result from the Engle and Granger (1987) two stage method co-integration test is presented in Table 2. In the table, the ADF test statistic value of (-6.4709) is greater than the 95percent critical ADF value of -4.9745 (in absolute values). This clearly indicates that the residuals are stationary. Indeed, there is cointegration among the variables. Thus, a long-run equilibrium relationship exists among the variables.

Table 2: Results of Engle and Granger Residual Based Cointegration Test

Variable	ADF Test Statistic	95% Critical ADF Value	Remarks
Residual	-6.4709	-4.9745	Stationary

Error Correction Model

The results of the short-run dynamic error correction model showing the response of manufacturing sector output to macroeconomic variables is shown in Table 3.

Table 3: The Short-run Dynamic Model Result

Dependent Variable: PCI		
Variable	**Coefficient**	**t-ratio**
C	0.777	1.269
ΔLAGQ	0.472	2.586
ΔLINDPR	0.861	1.316
ΔEXP	0.394	2.425
ΔLINV	0.203	1.845
ECM(-1)	-0.828	-4.487
R^2=0.965; Adjusted R^2=0.951	F-Value=152.06	DW Statistic=1.91

Source: Authors' computation (2016)

The adjusted R-squared value of 0.951 indicates that 95 percent of the systematic variation in per capita income is explained by the explanatory variables, suggesting a good fit. The F-value of 152.1 is highly significant at the 1 percent level, validating the hypothesis of the existence of a significant linear relationship between per capita income and its explanatory variables. The Durbin Watson statistic of 1.91 shows that there is no serial correlation in the model, implying that the model can be used for structural and policy analysis. All the coefficients of the explanatory variables have the correct signs in line with theoretical expectation two of them (agricultural output and exports pass the significance test at the 1 percent level. This implies that they significantly explain per capita income during the period of study, as the Nigerian economy is strongly dependent on agriculture and commodity exports. Invariably, a significant percent of the population, particularly rural dwellers depends on agriculture for their income. This combine with commodity exports, including oil significantly explains per capita income in Nigeria. The coefficient of investment is positive in line with theoretical expectation, but only passes the significant test at the 10 percent level, implying that the level of investment in the economy has not significantly influence per capita income. The coefficient of industrial production (a measure of the level of industrialization) is positive but not statistically significant at the 5 percent level. Since the t-value of its coefficient is greater than unity, we may infer that industrial production stimulates per capita income but its effect is rather weak due to the low level of industrialization.

Apart from the diagnostic statistic, the error-correction term is appropriately negative and significant at the 5percent level. The coefficient indicates that the contemporaneous adjustment of industrial output to long run equilibrium is about 83 percent.

FINDINGS OF THE STUDY

i.   Agricultural output and agricultural export were found to significantly impact on per capita income which confirms the findings of Awokuse (2009) and Tiffin and Irz (2006).

ii. Investment and industrial production were found to weakly impact on the dependent variable which was not in consonance with the findings of Nurkse (1953).

CONCLUSION

In this study, the impact of the agricultural sector on per capita income in Nigeria was examined using empirical investigation tools. The argument has been that the agricultural sector in Nigeria is a strategic sector that can constitute a launch pad for the takeoff of other sectors in the country, especially given the advantages derivable from the sector (Obayagbona and Eboiyehi, 2013).

This paper has examined the relationship between agricultural output and per capita income in Nigeria. Using annual time series data covering the period 1980-2015 and a dynamic framework of cointegration and error correction techniques, the empirical results reveal that the agricultural production (output) and exports are the principal determinants of per capita income in Nigeria. Investment is found to be significant only at the 10 percent level, while the impact of industrial output is positive but weak. Given the critical role of agriculture in employment generation, substantial poverty reduction, foreign exchange earnings and input role in the industrial sector, there is need for critical, aggressive and result-oriented policies and strategies to be   implemented that will rapidly transform the sector. Complementary policies in the area of investment-enhancing policies and industrialization are also critical for the rapid economic development of the country(MonyeEmina, 2009;Wang, Wu and Gao, 2010; Ohlan, 2013).

Although this study mainly provided an assessment of the economic importance of the agricultural output on economic growth and development of Nigeria, further studies are however needed in the area of contributions of the specific agricultural subsectors to the overall growth of the economy. With respect to policy formulations, further study could also be carried out on the effectiveness of policy instruments to enhancing the growth of the agricultural sector that will inadvertently spur the rapid growth and development of the Nigerian economy as a whole.

POLICY RECOMMENDATIONS

In view of the findings from this study, the following salient recommendations will be useful to revitalizing the ailing Nigerian agricultural sector:

- Since the result shows that it is agricultural output, not just mere exports that boost per capita income, the authorities should consider measures of increasing the share of agricultural output in Nigeria. This can be done by providing the farmers with better yield crops and teaching them better farming and preservation methods. This way, more farmers will be able to produce products that are viable in the international market and thus improve their living standards.

- Accordingly, there appears to be more potentials for agricultural growth by adopting the outward-looking, export-promotion policies by the relevant authorities in the country. This will help to wield-in more foreign exchanges needed for basic infrastructure to spur the rate of industrialization and hence, rapid economic growth and development of Nigeria.

- Finally, since total investment in agricultural sector has a weak positive relationship with economic growth, the government should therefore expedite means of increasing fund availability to farmers in the country and all those who are willing to invest in the sector to enable them invest massively in agricultural production and exportation. The various financing schemes/initiatives of successive Nigerian administrations designed to improve access to credit for the rural poor have been largely inefficient and ineffective. This is primarily because of inadequate budgetary provision to fund the initiatives properly.

REFERENCES

Awokuse, T.O (2009). Does agriculture really matter for economic growth in developing countries? Selected paper prepared for presentation at the *American Agricultural Economics Association Annual Meeting,* Milwaukee, WI, July 28, 2009

Bilgili, F., Tülüce, N.S.H. &Doğan, I. (2012). The determinants of FDI in Turkey: A Markov Regime Switching approach, *Economic Modelling*, 29, 1161- 1169.

Box, G.E.P & Jenkins, G. M. (1994).*Time series analysis, forecasting and control*, 3rd ed., Prentice Hall, Englewood Cliffs, NJ.

Eicher, C. & Witt, L. (eds.) (1964).Agriculture in economic development. New York: McGraw-Hill.

Engle, R.F. & Granger, C.W.J. (1987). Cointegration and error-correction: representation, estimation and testing. *Econometrica, 55,* 251-276.

Iyoha, M.A. (2004). Macroeconomics theory and policy: Revised edition, Mindex Publishing, Benin City, Nigeria.

Jhingan, M.L. (2007). The economics of development planning. 39th revised and Enlargededition.

Johnston, B.& Mellor, J. (1961).The role of agriculture in economic development.*American Economic Review* 51(4): 566-593.

Jones, E.I. & Woolf, S.S. (eds.) (1969).Agrarian change and economic development: The historical problems, London: Methuen.

Kuznets, S. (1959). Six lectures on economic growth. New York, The Free Press.

Lawal, M. &Atte, O.A. (2006).An analysis of agricultural production in Nigeria. African *Journal of General Agriculture*, 2 (1)

Lewis, W.A. (1954). Economic development with unlimited supplies of labour. The Manchester school, 22(2), 139-191

Longe, J.B. (2008). Economics of agricultural production in Nigeria.*Journal of Policy Issues*, 1(2): 2 – 10.

Mankiw, N.G., Romer, D. & Weil, D.N (1992). Agricultural productivity and economic growth: empirical analysis on the contemporary developing countries, *Agricultural Economics Review;* 1-14

Matsuyama, K (1992). Agricultural productivity, comparative advantage, and economic growth, *Journal of Economic Theory*, 58, 317-334.

Money-Emina, A.I. (2009). Agricultural revival strategies: An appraisal of the Nigerian experience. *Journal of Social and Economic Development*.

National Planning Commission (NPC) (2006). National economic empowerment and development strategy: Needs. Abuja: Central Bank of Nigeria (118).

Nguyen, V.C (2010). Does agriculture help poverty and inequality reduction? Evidence from Vietnam: *Agricultural Economics Review;* 11, (1), 44-56

Nurkse, R (1953). *Problems of capital formation in under developed countries*, Oxford Univ. Press, New York, Okonkwo, I. C (1989). The erosion of agricultural exports in an oil economy: The case of Nigeria. *Journal of Agricultural Economics, 40,(3), 375-84*

Obayagbona, J &Eboiyehi, O (2013).Impact of agricultural output on per capita income in Nigeria: 1980-2011, *Nigerian journal of agricultural and development economics (NIJADE),* 3(1), 141-150.

Ogen, O. (2007). The agricultural sector and Nigeria's development: Comparative perspectives from the Brazilian agro-industrial economy, 1960 – 1995, Nebula 4.1, March.

Ojeh, V.N., Origho, T. & John, P.H. (2012).Agriculture as an index of socio-economic development of Delta State of Nigeria. *World Environment* (24): 62 – 68.

Onoja, A.O. & Agumagu, A.C. (2009). Econometric modelling of the effects of economic policies on food output in Nigeria under Obasanjo Administration: *Journal of Sustainable Development in Africa*, 11 (1): 98 – 112.

Rostow, W. W. (1960). *The stages of economic growth: a non-communist manifesto, Cambridge* Univ. Press, Cambridge, UK.

Schiff, M. & Valdez, A (1998). *Agriculture and the macroeconomy. In: Gardner, B., Rausser, G. (Eds.)*, Handbook of agricultural economics. Amsterdam, Elsevier Science.

Timmer, C. P (1995). Getting agriculture moving: do markets provide the right signals?*Food Policy,* 20, (5), 455-472.

World Bank (1991). Development reports, Washington, D.C.

Yao, S (2000). How important is agriculture in China's economic growth? *Oxford Development Studies,* 28, (1), 33-49.

GRANT OF ESOPS AND CULTURE: A STUDY IN INDIAN CONTEXT

J.P.Sharma[1], Astha Dewan[2] and C.S. Sharma[3]

In a growing organization, the management not only wants to retain its entire working team but also desires that the members be suitably compensated for their efforts. The compensation policy of any organization impacts employees' enthusiasm, contentment and performance. ESOPs have emerged as an important non-cash tool to compensate employees. The compensation policy is in turn influenced by cultural aspects. The term culture is not equivalent to the term country. To avoid stereotyping, the cultural values should be captured at an individual level. For this purpose, cultural dimensions have been measured through CVSCALE which has been adapted and modified according to Indian scenario. The core objective of this paper is to explore cultural dimensions which influence the grant of ESOPs in India. To meet the objective of the study, primary data has been collected from 500 employees. Exploratory factor analysis (EFA) and Confirmatory factor analysis (CFA) has been applied in the study. The results highlight that there are four distinct cultural dimensions which influences the grant of ESOPs in India namely, as power distance, uncertainty avoidance, individualism-collectivism and masculinity-femininity.

The employees play a key role in the growth and development of any sector or nation. Employers want to grab and retain the best human talent in a rapidly changing business environment and immense competition. They are looking for innovative ways to attract and retain good talent. One of the ways to do this is through Employees Stock Option Plans (ESOP). It means a plan under which an organization grants shares to employees usually at a discounted price for a specified period of time. ESOPs have emerged as an important non-cash tool to compensate employees (Rizvi, 2010).

The compensation policy of any organization impacts employees' enthusiasm, contentment, and performance (Kerr and Slocum, 1987). The organizational culture is an important organizational characteristic that gives the organization a competitive edge, enhances its value and performance (Boniface C. Madu, 2012). The concept of culture in context of an organization has been defined from various viewpoints and fields of study, such as anthropology, sociology, organizational behavior, to name a few. The term culture means "the way we do things around here", "the reward system", "beliefs" and so on (Madu, 2012). Thus, ESOPs being used as a tool to compensate employees will also be influenced by the culture of an organization.

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[1] Director, Institute of Management Studies, Immediate Past Head, Department of Commerce , Formerly Dean, Faculty of Commerce & Business, Delhi School of Economics, University of Delhi, Delhi- 110 007

[2] Assistant Professor, Shri Ram College of Commerce, University of Delhi, Delhi-110 007., Email: asthadewandse@yahoo.co.in

[3] Director & Professor, Integrated Campus, JRE Group of Institutions, Greater Noida-201 308

REVIEW OF LITERATURE

The ESOPs have been used by employers to attract and retain talented employees in their organization. Numerous studies have been undertaken related to various aspects of ESOPs such as financial, accounting, taxation, behavioral, among others. The researcher does not come across any study related to ESOPs and culture. To fill the gap in existing literature there is a need to explore the relationship between cultural dimensions and the grant of ESOPs in India (Indian) context.

In this section how different types of cultures influence compensation system has been discussed. Kerr and Slocum's (1987) used the concepts of "clan culture" and "market culture" to suggest reward practices that seem appropriate for each—for example, performance pay is seen as appropriate for market cultures. Second, Flannery, Hofrichter, and Patten (1996) suggest that organization or "work" cultures can be divided into just four types—functionalist, time-based, process, and network. They then propose that some forms of reward ("compensation") are more appropriate in some cultures than in others—for instance, they suggest that narrower job grades would be more suitable in a functional organizational structure.

Singh, Mathew and Das (1977) examined the role of organizational culture vis-a-vis the demand for monetary compensation. It concludes that organizational culture plays a significant role in determining the level of economic demands. Lower quality of organizational milieu leads to higher level of expectations for monetary compensation. This is so because such organizations do not gratify social and psychological needs of the individuals. They lead to subordination, dependence, and submissiveness. Concern for more money arises because of the basic incongruity between the individual need system and the organizational demands.

Organizations express their cultural values in many ways. One of the most important vehicles for expressing cultural values is through rewards practices. (Tosi and Greckhamer, 2004). Besides that, cultural differences dictate what people thought about the compensation practices. Taking into account the importance of culture in shaping its organizational compensation strategy, it becomes imperative to find out cultural factors influencing the grant of ESOPs.

OBJECTIVES OF THE STUDY

Considering that culture is a broad, fuzzy, and multidimensional concept, a very fundamental question in cultural management research is to look at the effects of cultural orientations on organizational behavior. This research agenda seems legitimate, because individuals both within and across societies hold different cultural values that influence their attitudes and behaviors (Yeganeh and Su, 2011). Accordingly, in this study the researcher is not interested in cross-national variations, but focused on the cultural values within one society and their implications for compensation policies particularly ESOPs. More specifically, in this study, it has been intended to identify and confirm the culture factors influencing the grant of employee stock options in Indian context.

RESEARCH METHODOLOGY OF THE STUDY

A questionnaire based on modified CVSCALE (list of variables included in study are given in table 1) has been personally administered on 500 employees working in different sectors such as information and communication, manufacturing and consumer, health care sector, banking & financial sector and others. Stratified convenient sampling method has been used in the study. In this study, the grant of ESOPs has been taken as the criterion to identify strata. Out of the 500 respondents approached, 373 responded. After dealing with missing values, only 361 respondents have been left. Out of 361 respondents, 231 are not being granted ESOPS by their organization while only 130 employees are being granted ESOPs by their organization.

Table 1: List of Variables Included in the Study

S. No.	Variables
q1	Managers should make most decisions without consulting their subordinates.
q2	Manager should not ask the opinions of their subordinates too frequently.
q3	Managers should avoid social interaction with their subordinates.
q4	Subordinates should not disagree with their manager's decisions.
q5	Managers should not delegate important tasks to their subordinates.
q 6	It is important to have instructions spelled out in detail so that I always know what I'm expected to do.
q7	It is important to closely follow instructions and procedures.
q 8	Rules and regulations are important because they inform me of what is expected of me.
q 9	Standardized work procedures are helpful to me.
q 10	I prefer structured situations to unstructured situations.
q 11	Individuals should sacrifice self-interest for the group.
q 12	Individuals should stick with the group even through difficulties.
q 13	If a coworker gets a prize, I would feel proud.
q 14	Group success is more important than individual success.
q 15	Individuals should only pursue their goals after considering the welfare of the group.
q 16	Group loyalty should be encouraged even if individual goals suffer.
q 17	It is more important for men to have a professional career than it is for women.
q 18	Men usually solve problems with logical analysis; women usually solve problems with intuition.
q 19	Solving difficult problems usually requires an active, forcible approach, which is typical of men.
q 20	There are some jobs that a man can always do better than a woman.

Exploratory factor analysis (EFA) has been applied to identify cultural dimensions and later confirmatory factor analysis (CFA) has been used in the study to confirm those cultural dimensions. The EFA final model has been arrived after meeting the criteria of determinant, Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy, Bartlett's test and value of diagonal elements of anti- image correlation matrix. The principal component analysis (PCA) method of extraction with varimax rotation has been applied in the study. The CFA final model has been arrived after meeting the criteria of composite

reliability, convergent validity and discriminant validity. Further, all the factors have at least two or more variables (Bollen, 1989; O'Brien, 1994). If the model is unable to meet these criteria's, then to achieve the model fit, arrows has been added and variables has been removed (Garson, 2009). The model has been modified using modification indices output (co-varying error terms) and estimates output (standardizes regression weights). If the model meets criteria of reliability, validity and at least two or more variables per factor, then overall fitness of measurement model has been judged using normed chi-square (CMIN/DF), RMSEA, GFI and CFI (Kyle, 1999). Statistical Package for the Social Sciences (SPSS) version 19.0 and IBM's Analysis of Moment Structure (AMOS) software version 22.0, apart from Microsoft Excel has been used in the study.

FINDINGS AND DISCUSSIONS OF THE STUDY

The reliability test had been conducted before running EFA & CFA. The alpha coefficient had been calculated for each factor yielding a value greater than minimum cut off in all the factors. The overall Cronbach's Alpha α is .695.

Exploratory Factor Analysis (EFA)

To identify cultural factors which influence grant of ESOPs in India, EFA is deployed, which are later confirmed by CFA.

- **EFA Model I**

In model I, factor analysis is applied on all twenty variables.

1. Criteria to be met in Factor Analysis

There are certain criteria that need to be met to carry out EFA. These criteria are as follows:

a) The new determinant is .009 > .00001, thereby overcoming the problem of multicollinearity.

b) The new KMO statistics = .782 > .50, which show high sample adequacy (table 2).

Table 2: KMO and Bartlett's Test (EFA Model I)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.782
Bartlett's Test of Sphericity	Approx. Chi-Square	1.671E3
	df	190
	Sig.	.000

Source: SPSS Output

c) Bartlett's Test (table 2) reveals that test is significant, with p < .05. Thus, factor analysis is appropriate for the data.

d) The value for the diagonal elements of anti-image correlation matrix for all variables is more than .50 (table 3). Thus, factor analysis is appropriate for the data.

Table 3: Anti-image Matrices (EFA Model I)

		q1	q2	q3	q4	q5	q6	q7	q8	q9	q10	q11	q12	q13	q14	q15	q16	q17	q18	q19	q20
Anti-image Correlation	q1	.710[a]	-.207	-.009	-.196	.022	-.025	.049	-.011	.005	-.070	-.024	.090	-.110	.023	-.001	-.082	-.067	.043	-.007	-.052
	q2	-.207	.682[a]	-.190	-.147	-.085	.061	-.047	-.024	-.030	-.022	.004	-.006	-.024	-.045	-.045	.029	.024	-.070	.173	-.115
	q3	-.009	-.190	.741[a]	-.163	-.167	.000	.005	-.006	-.085	.069	.009	.032	-.027	-.109	.060	.057	-.191	-.006	-.008	-.004
	q4	-.196	-.147	-.163	.767[a]	-.130	-.030	-.072	-.067	.114	.038	.018	.005	.108	-.011	-.020	-.023	-.093	-.002	-.033	-.078
	q5	.022	-.085	-.167	-.130	.791[a]	-.023	.073	.084	.013	-.044	-.099	.009	.033	.091	-.063	.018	-.024	-.063	-.064	-.078
	q6	-.025	.061	.000	-.030	-.023	.777[a]	-.362	-.046	-.019	-.181	-.097	.070	.019	-.113	.005	.027	.017	.030	.107	-.103
	q7	.049	-.047	.005	-.072	.073	-.362	.787[a]	-.027	-.258	-.093	-.119	-.095	-.061	-.031	.029	.096	-.018	-.058	-.079	-.042
	q8	-.011	-.024	-.006	-.067	.084	-.046	-.027	.885[a]	-.099	-.089	-.044	-.026	-.044	.000	-.073	.031	.049	.029	-.003	-.066
	q9	.005	-.030	-.085	.114	.013	-.019	-.258	-.099	.766[a]	-.406	.050	-.070	.001	-.023	-.048	-.071	.015	.148	-.118	.015
	q10	-.070	-.022	.069	.038	-.044	-.181	-.093	-.089	-.406	.755[a]	-.024	.066	.034	.055	.035	-.121	.078	.014	-.076	-.019
	q11	-.024	.004	.009	.018	-.099	-.097	-.119	-.044	.050	-.024	.843[a]	-.218	-.068	-.162	-.105	-.190	-.118	.134	-.079	-.042
	q12	.090	-.006	.032	.005	.009	.070	-.095	-.026	-.070	.066	-.218	.829[a]	-.201	.031	-.117	-.126	.055	.141	-.077	.026
	q13	-.110	-.024	-.027	.108	.033	.019	-.061	-.044	.001	.034	-.068	-.201	.809[a]	-.343	-.163	-.111	.020	-.122	.006	.027
	q14	.023	-.045	-.109	-.011	.091	-.113	-.031	.000	-.023	.055	-.162	.031	-.343	.819[a]	-.170	-.118	.053	-.014	.017	.021
	q15	-.001	-.045	.060	-.020	-.063	.005	.029	-.073	-.048	.035	-.105	-.117	-.163	-.170	.871[a]	-.113	-.025	.061	-.058	.063
	q16	-.082	.029	.057	-.023	.018	.027	.096	.031	-.071	-.121	-.190	-.126	-.111	-.118	-.113	.853[a]	.018	-.055	.021	.000
	q17	-.067	.024	-.191	-.093	-.024	.017	-.018	.049	.015	.078	-.118	.055	.020	.053	-.025	.018	.800[a]	-.239	-.167	.015
	q18	.043	-.070	-.006	-.002	-.063	.030	-.058	.029	.148	.014	.134	.141	-.122	-.014	.061	-.055	-.239	.713[a]	-.422	-.066
	q19	-.007	.173	-.008	-.033	-.064	.107	-.079	-.003	-.118	-.076	-.079	-.077	.006	.017	-.058	.021	-.167	-.422	.649[a]	-.336
	q20	-.052	-.115	-.004	-.078	-.078	-.103	-.042	-.066	.015	-.019	-.042	.026	.027	.021	.063	.000	.015	-.066	-.336	.757[a]

a. Measures of Sampling Adequacy
Source: SPSS Output

2. Factor Extraction

In the next step, PCA method of extracting the factors has being applied, in order to determine the number of factors that should be included in the factor solution. Table 4 shows the extraction communalities which need to be > .50 (Hair et al., 2010). Table 4 reveals that there are two variables q5 and q 8 have communality value of less than .30. Therefore, variable q5 and q8 have been dropped from analysis.

Table 4: Communalities (EFA Model I)

	Initial	Extraction
q1	1.000	.354
q2	1.000	.533
q3	1.000	.421
q4	1.000	.495
q5	1.000	.287
q6	1.000	.493
q7	1.000	.544
q8	1.000	.223
q9	1.000	.592
q10	1.000	.605
q11	1.000	.509
q12	1.000	.457
q13	1.000	.587
q14	1.000	.533
q15	1.000	.486
q16	1.000	.423
q17	1.000	.463
q18	1.000	.620
q19	1.000	.743
q20	1.000	.454

Extraction Method: Principal Component Analysis.
Source: SPSS Output

Thus, EFA needs to be applied again without variables q5 and q8 and the changes are noted. At this stage, it would not be useful to show the results of factor rotation. Thus, the researcher has not shown these results here in model I.

- **EFA Model II**

In model II, factor analysis is applied on all eighteen variables except q5 and q8 which is dropped for reasons explained in model I.

1. Criteria to be met in Factor Analysis

There are certain criteria that need to be met to carry out EFA. They are as follows:

a) The new determinant is .012 > .00001, thereby overcoming the problem of multicollinearity.

b) The new KMO statistics = .770 > .50, which show high sample adequacy (table 5).

Table 5: KMO and Bartlett's Test (EFA Model II)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.770
Bartlett's Test of Sphericity	Approx. Chi-Square	1.555E3
	df	153
	Sig.	.000

Source: SPSS Output

c) Bartlett's Test (table 5) revealed that test is significant, with $p < .05$. Thus, factor analysis is appropriate for the data.

d) The value for the diagonal elements of anti-image correlation matrix (table 6) for all variables is more than .50. Thus, factor analysis is appropriate for the data.

Table 6: Anti-image Matrix (EFA Model II)

		q1	q2	q3	q4	q6	q7	q9	q10	q11	q12	q13	q14	q15	q16	q17	q18	q19	q20
Anti-image Correlation	q1	.703a	-.206	-.005	-.196	-.026	.047	.003	-.071	-.022	.090	-.112	.021	.000	-.082	-.066	.044	-.005	-.051
	q2	-.206	.654a	-.208	-.162	.058	-.042	-.031	-.027	-.005	-.005	-.022	-.038	-.052	.031	.023	-.075	.168	-.123
	q3	-.005	-.208	.723a	-.189	-.004	.018	-.083	.063	-.007	.034	-.022	-.096	.051	.060	-.199	-.017	-.019	-.016
	q4	-.196	-.162	-.189	.747a	-.036	-.065	.112	.028	.003	.005	.111	.001	-.032	-.019	-.094	-.009	-.042	-.093
	q6	-.026	.058	-.004	-.036	.766a	-.363	-.023	-.187	-.101	.069	.018	-.111	.001	.028	.018	.030	.106	-.108
	q7	.047	-.042	.018	-.065	-.363	.779a	-.265	-.093	-.114	-.097	-.065	-.038	.031	.096	-.015	-.052	.057	.009
	q9	.003	-.031	-.083	.112	-.023	-.265	.750a	-.418	.048	-.073	-.005	-.025	-.055	-.069	.020	.154	-.118	.010
	q10	-.071	-.027	.063	.028	-.187	-.093	-.418	.740a	-.032	.065	.032	.059	.027	-.118	.082	.014	-.079	-.028
	q11	-.022	-.005	-.007	.003	-.101	-.114	.048	-.032	.846a	-.219	-.067	-.155	-.115	-.188	-.119	.130	-.085	-.052
	q12	.090	-.005	.034	.005	.069	-.097	-.073	.065	-.219	.823a	-.203	.030	-.119	-.126	.056	.143	-.077	.025
	q13	-.112	-.022	-.022	.111	.018	-.065	-.005	.032	-.067	-.203	.804a	-.349	-.165	-.111	.024	-.119	.009	.027
	q14	.021	-.038	-.096	.001	-.111	-.038	-.025	.059	-.155	.030	-.349	.821a	-.166	-.120	.056	-.008	.023	.028
	q15	.000	-.052	.051	-.032	.001	.031	-.055	.027	-.115	-.119	-.165	-.166	.875a	-.111	-.023	.060	-.062	.054
	q16	-.082	.031	.060	-.019	.028	.096	-.069	-.118	-.188	-.126	-.111	-.120	-.111	.854a	.017	-.055	.022	.003
	q17	-.066	.023	-.199	-.094	.018	-.015	.020	.082	-.119	.056	.024	.056	-.023	.017	.782a	-.243	-.169	.016
	q18	.044	-.075	-.017	-.009	.030	-.052	.154	.014	.130	.143	-.119	-.008	.060	-.055	-.243	.697a	-.429	-.069
	q19	-.005	.168	-.019	-.042	.106	.057	-.118	-.079	-.085	-.077	.009	.023	-.062	.022	-.169	-.429	.629a	-.343
	q20	-.051	-.123	-.016	-.093	-.108	.009	.010	-.028	-.052	.025	.027	.028	.054	.003	.016	-.069	-.343	.735a

a. Measures of Sampling Adequacy
Source: SPSS Output

2. Factor Extraction

In the next step, PCA method of extracting the factors has being applied, in order to determine the number of factors that should be included in the factor solution. Table 7 shows the extraction communalities which need to be > .50 (Hair et al., 2010). According to Lago (2007), in the area of social science research, communality greater than or equal to .40 has been acceptable. Hair et al., (2010) suggested overlooking problematic variables as one of the solutions to deal with variables having communalities lower than .50. Since, all the three variables have values greater than or approaching .40, the researcher decided to overlook these variables at this EFA stage and reconsider them, if required, at CFA stage.

Table 7: Principal Component Analysis with Varimax Rotation (EFA Model II)

Variables / Factors		Factor loadings (Rotated Component Matrix)				Extraction communalities
		F1	F2	F3	F4	
q1		.095	.073	.046	.606	.384
q2		.060	.055	-.059	.728	.540
q3		.001	-.041	.207	.608	.414
q4		-.082	-.036	.207	.668	.497
q6		.113	.697	-.083	.104	.517
q7		.203	.720	-.041	.077	.568
q9		.198	.745	-.033	-.065	.599
q10		.054	.781	.031	-.053	.616
q11		.665	.247	.065	.057	.511
q12		.648	.121	-.097	-.140	.463
q13		.762	.044	.008	.054	.586
q14		.705	.112	-.069	.139	.534
q15		.697	.028	-.033	.036	.488
q16		.638	.126	.034	-.025	.425
q17		-.011	-.167	.619	.258	.478
q18		-.073	-.186	.767	.076	.634
q19		.067	.026	.860	-.056	.749
q20		-.060	.184	.620	.189	.457
Extraction Sums of Squared Loadings	Eigen values	3.651	2.609	1.733	1.467	
	% of Variance	20.283	14.494	9.626	8.151	
	Cumulative % of Variance	20.283	34.777	44.403	52.554	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Source: SPSS Output

3. Factor Rotation

In factor rotation, the pattern of the factor loadings is changed which helps in easier interpretation of factors. In the present study varimax rotation has been selected.

4. Interpreting the Factors

Table 7 depicts the factor loadings in the rotated component matrix. Factor loading is the correlation between the variable and the factor. Factor loadings need to be analyzed to check cross-loadings in order to determine the quality of the variables measuring the components. Cross loading is identified if the difference between the loading and cross loading is more than .20 (http://statwiki.kolobkreations.com/wiki/Exploratory_Factor_Analysis). Thus, presently no more variables are required to be dropped from the analysis.

After scrutinizing for cross-loadings, size of loadings also needs to be studied to determine the quality of the variables measuring the components. According to Hair et al., (2010), loadings less than .50 are suppressed if the sample size is at least 120. Thus, factor loadings greater than or equal to .50 are being considered. They are being shown in table 7.

After meeting all the conditions required to obtain an optimal factor solution in EFA, the last step in EFA is reached. Here the objective is to interpret the rotated component matrix and identify factors.

Table 7 lists eigenvalues (variance explained) associated with each component or factor after extraction. The table depicts that the factors with eigen values greater than 1 are extracted, which resulted in four factors. The eigen values of four factor (F1 to F4) are 3.651, 2.609, 1.733 and 1.467 respectively.

Table 7 lists the percentage of variance and cumulative percentage of variance after extraction. It reveals that the four extracted factors explain nearly 52.554% of the variability in the original 18 variables. The percentages of variance extracted by factor 1 to 4 are 20.283%, 14.494%, 9.626% and 8.151% respectively. The cumulative percentages of variance extracted by factor 1 to 4 are 20.283%, 34.777%, 44.403% and 52.554% respectively.

Table 7 shows the rotated component matrix. The rotated component matrix helps to determine what the components represent. The first component (F1) is most highly correlated with q11, q12, q13, q14, q15 and q16. The second component (F2) is most highly correlated with q6, q7, q9 and q10. The third component (F3) is most highly correlated with q17, q18, q19 andq20. The fourth component (F4) is most

highly correlated with q1, q2, q3 and q4.

Table 8 depicts the results of analysis of the content of the statements that load onto the same factor to try to identify common themes.

Factors	Factor Name	Variable No.	Variables	Factor Loadings
			Table 8: Extracted Factors	
F1	**Individualism-Collectivism**	q11	Individuals should sacrifice self-interest for the group.	.665
		q12	Individuals should stick with the group even through difficulties.	.648
		q13	If a coworker gets a prize, I would feel proud.	.762
		q14	Group success is more important than individual success.	.705
		q15	Individuals should only pursue their goals after considering the welfare of the group.	.697
		q16	Group loyalty should be encouraged even if individual goals suffer.	.638
F2	**Uncertainty avoidance**	q6	It is important to have instructions spelled out in detail so that I always know what I'm expected to do.	.697
		q7	It is important to closely follow instructions and procedures.	.720
		q9	Standardized work procedures are helpful.	.745
		q10	I prefer structured situations to unstructured situations.	.781
F3	**Masculinity-Femininity**	q 17	It is more important for men to have a professional career than it is for women.	.619
		q 18	Men usually solve problems with logical analysis; women usually solve problems with intuition.	.767
		q 19	Solving difficult problems usually requires an active, forcible approach, which is typical of men.	.860
		q 20	There are some jobs that a man can always do better than a woman.	.620
F4	**Power distance**	q1	Managers should make most decisions without consulting their subordinates.	.606
		q2	Manager should not ask the opinions of their subordinates too frequently.	.728
		q3	Managers should avoid social interaction with their subordinates.	.608
		q4	Subordinates should not disagree with their manager's decisions.	.668

Source: SPSS Output

Thus, factor analysis has resulted in four distinct cultural factors out of a set of eighteen variables which influence the management decision to grant ESOPs in India.

Factor Validity

The next step is to evaluate the validity of the above drawn factors. Validity refers to how well a test measures what it is purported to measure (). The validity needs to be established in terms of the following:

a) **Discriminant validity** -Discriminant validity refers to the extent to which factors are distinct and uncorrelated. The difference between the two loadings is more than .20 (http://statwiki.kolobkreations.com/wiki/ Exploratory_Factor_ Analysis), thus suggesting discriminant validity for the factors (table 7).

b) **Face validity** -In addition to discriminant validity, factors are high on face validity. Face validity exists when all the variables that are similar in nature load on the same component. Thus, all the extracted factors are high on face validity (table 8).

c) **Convergent validity** -The data, apart from having discriminant validity and face validity, also has convergent validity. Convergent validity implies that the variables are highly correlated with one component. This can be seen in table 8 that the factor loadings have been greater than .50 ().

Confirmatory Factor Analysis (CFA)

The EFA gave an initial assessment of the four cultural factors influencing the grant of ESOPs in India. This will be tested by applying CFA. To run CFA, a path diagram is made which is a graphical way to depict the relationship between the unobserved (i.e., latent) variables and the observed (i.e., manifest) variables. To test the measurement model I, four factors have been allowed to freely correlate and the factor loading of one observed variable per factor is given value one. All the observed variables load on one factor only and the error terms do not correlate with one another.

To run CFA, first, composite reliability, convergent validity and discriminant validity of the factors needs to be established. It also needs to be ensured that each factor must have at least two or more variables (Bollen, 1989; O'Brien, 1994).

The Stats Tool Package (Gaskin, 2012) has been deployed to establish composite reliability and validity of the factors. The results of reliability and validity estimates for CFA Model I have been shown in table 9.

Table 9: Reliability and Validity Estimates (CFA Model I)

	CR	AVE	MSV	ASV
Masculinity-Femininity	0.728	0.405	0.144	0.056
Individualism – Collectivism	0.789	0.402	0.194	0.067
Uncertainty avoidance	0.754	0.435	0.194	0.071
Power distance	**0.596**	**0.371**	0.144	0.050

Source: Gakingston Validity Concerns Tool Kit Output

All the factors have CR above .70 (Hair et al., 2010) except power distance which shows internal consistency exists in Uncertainty avoidance, Individualism-collectivism, Masculinity-femininity. All the factors have Average Variance Extracted (AVE) equal to or greater than .40 (Bagozzi and Baumgartner, 1994) except power distance, indicating there are no convergent validity issues. It means that more than 40 percent of the variances in the observed variables have been explained by factors namely, uncertainty avoidance, individualism-collectivism, masculinity-femininity. Further, both Maximum Shared Variance (MSV), and Average Shared Variance (ASV) are less than Average Variance Extracted (AVE) (Hair et al. 2010), indicating there are no discriminant validity issues.

In measurement model I, to overcome identification issues, it has been checked that each factor has at least two or more variables (Bollen, 1989; O'Brien, 1994).

This means that on the basis of the reliability and validity, model I need to be modified. To achieve the model fit, arrows have been added and variables have been removed (Garson, 2009). The model has been modified using modification indices output and estimates output.

a) Modification indices output

The modification indices (MI) have been analyzed for identifying covariances in the error terms that are part of the same factor. However, only those items should be identified for co-varying for which there exists a theoretical justification. The MI value more than or equal to 4.0 shows the scope for better model fitness (Anderson, 1987). Based on the analysis of the MI, the errors in the 10th and 9th item (e6 & e7 respectively), in 10th and 7th item (e6 & e8 respectively), in 9th and 6th item (e7 & e9 respectively), in 7th and 6th item (e8 & e9 respectively), in 14th and 13th item (e2 & e3 respectively), in 14th and 12th item (e2 & e4 respectively), in 13th and 11th item (e3 & e5 respectively), in 3rd and 1st item (e15 & e17 respectively), in 20th and 17th item (e10 & e13 respectively), in 20th and 18th item (e10 & e12 respectively) and in 20th and 19th item (e10 & e11 respectively) have been found to be correlated. Thus, the double-headed arrows linking e6 & e7 mean that the measurement error associated with q10 is correlated with the measurement error associated with q9 (fig 1). Likewise, for other correlations

between errors terms that are part of the same factor.

Fig 1: CFA Path Diagram of Measurement Model II
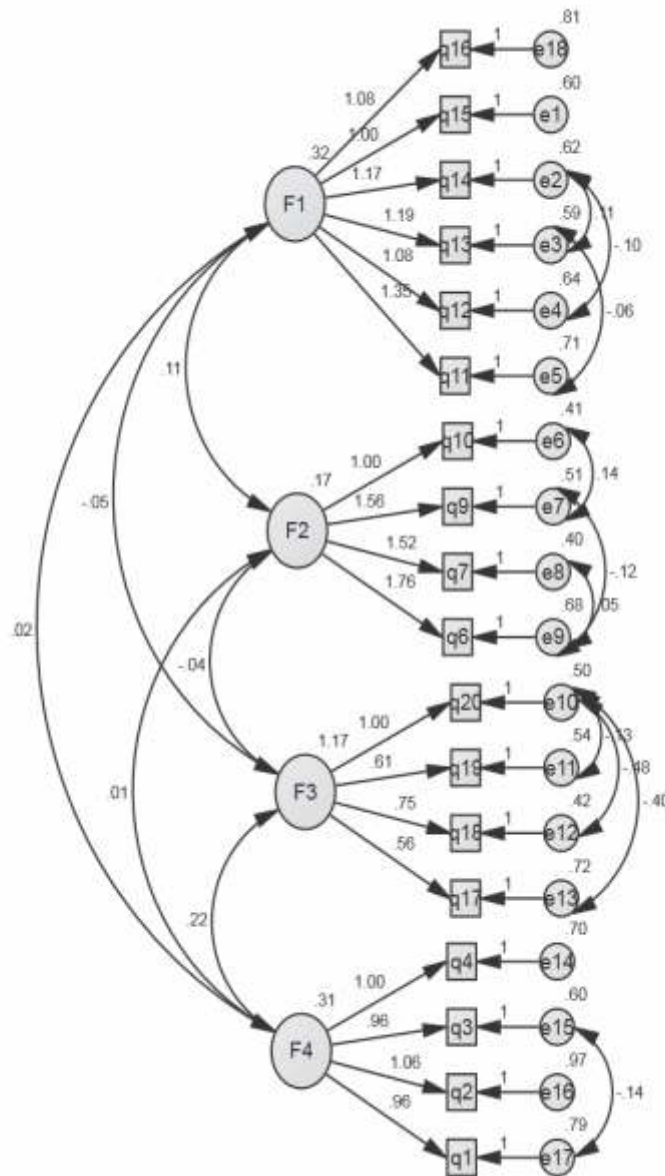
b) Estimates output

Under the estimates output of AMOS, standardized regression weights (or factor loadings) has been calculated. For CFA, factor loadings should be greater than 0.5 (Hair et al., 2006). All the variables have standardized regression weights more than .50 except for statements 5 and 8. These statements got deleted during CFA due to low standardized regression weights.

Further, all the factors have at least two or more variables. Although all the factors should have at least three variables, however, in case of two or more factors, the factor model is identified with even two

variables per factor (Hancock and Mueller, 2010; http://www.personal.psu.edu/faculty/j/x/jxb14/ Nina/cfa .pdf). A CFA with two items per factor is identified provided that each factor has a non-zero covariance with at least one other factor in population (Bollen, 1989; O'Brien, 1994).

At this stage, CFA has been applied again on the modified data. The results of reliability and validity estimates for CFA Model II have been shown in table 10.

Table 10: Reliability and Validity Estimates (CFA Model II)	CR	AVE	MSV	ASV
Uncertainty avoidance	0.737	0.415	0.218	0.076
Individualism – Collectivism	0.791	0.427	0.218	0.077
Masculinity-Femininity	0.811	0.522	0.136	0.050
Power distance	0.681	0.403	0.136	0.048

Source: Gakingston Validity Concerns Tool Kit Output

All the factors have Composite Reliability (CR) equal to (approaching) or above .70 (Hair et al. 2010) which shows internal consistency exists. All the factors have Average Variance Extracted (AVE) equal to or greater than .40 (Bagozzi and Baumgartner, 1994), indicating there are no convergent validity issues. Further, both Maximum Shared Variance (MSV), and Average Shared Variance (ASV) are less than Average Variance Extracted (AVE) (Hair et al. 2010), indicating there are no discriminant validity issues.

Thus, the measurement model has sufficient reliability, convergent validity and discriminant validity. Further, all the factors have at least two or more variables.

After establishing reliability and validity, the model fit results to judge the overall fitness of measurement model II has been shown in table 11.

Fit Indices	CMIN/DF	GFI	CFI	RMSEA
Observed	1.679	.943	.944	.043
Threshold	≤ 3.00	≥ 0.90	≥ 0.90	≤ 0.08

Table 11: Model Fit Summary for Measurement Model II

Source: AMOS output

The repeated CFA on thirteen items after modification revealed that the value of normed chi-square (CMIN/DF) is 1.679, thereby meeting the given standard. The RMSEA is. .043, thereby making the model II a close fit. The GFI is .943, meeting the threshold limit of .90. The CFI is .944, meeting the threshold limit of .90. The CFA model II yields good results (CMIN/DF, GFI, CFI, RMSE).

The regression weights with the level of significance have been shown in table no. 12. The standardized regression weight of each item is depicted in table 13. The standardized regression weights or factor loadings) indicate influence of the factor to its observed variables. For CFA, factor loadings should be

greater than 0.5 (Hair et al., 2006). Thus all the eighteen items are retained.

Table 12: Regression Weights (CFA model II)

			Estimate	S.E.	C.R.	P	Label
q15	<---	F1	1.000				
q14	<---	F1	1.167	.138	8.478	***	par_1
q13	<---	F1	1.190	.140	8.511	***	par_2
q12	<---	F1	1.077	.127	8.500	***	par_3
q11	<---	F1	1.349	.149	9.055	***	par_4
q10	<---	F2	1.000				
q9	<---	F2	1.562	.177	8.837	***	par_5
q7	<---	F2	1.524	.288	5.287	***	par_6
q6	<---	F2	1.764	.364	4.842	***	par_7
q20	<---	F3	1.000				
q19	<---	F3	.606	.132	4.580	***	par_8
q18	<---	F3	.748	.165	4.521	***	par_9
q17	<---	F3	.561	.130	4.309	***	par_10
q4	<---	F4	1.000				
q3	<---	F4	.957	.167	5.730	***	par_11
q2	<---	F4	1.063	.168	6.340	***	par_12
q1	<---	F4	.956	.177	5.399	***	par_13
q16	<---	F1	1.077	.131	8.224	***	par_14

Source: AMOS output

Table 13: Factor Loadings & Squared Multiple Correlation of Measurement Model II

Items	Factor Loadings. Standardized Regression Weights	Squared Multiple Correlation
F1 (Individualism – Collectivism)		
q11	.670	.449
q12	.605	.366
q13	.659	.434
q14	.642	.413
q15	.590	.349
q16	.560	.314
F2 (Uncertainty Avoidance)		
q6	.658	.433
q7	.700	.490
q 9	.668	.447
q 10	.538	.289
F3 (Masculinity-Femininity)		
q17	.580	.336
q18	.780	.609
q19	.665	.442
q20	.837	.701
F4 (Power Distance)		
q1	.515	.266
q2	.517	.267
q3	.571	.326
q4	.557	.311

Source: AMOS output

Analysis of the standardized regression weights for F1 reveals that q11 i.e. individuals should sacrifice self-interest for the group, explains more than 67% of the variation in the F1 (individualism – collectivism), followed by q13 i.e. if a coworker gets a prize, I would feel proud, followed by q14i.e. i.e. group success is more important than individual success, followed by q12 i.e. individuals should stick with the group even through difficulties, followed by q15 i.e. individuals should only pursue their goals after considering the welfare of the group and lastly q 16 i.e. group loyalty should be encouraged even if individual goals suffer.

Analysis of the standardized regression weights for F2 reveals that q7 i.e. it is important to closely follow instructions and procedures, explains more than 70% of the variation in the F2 (uncertainty avoidance), followed by q 9 i.e. standardized work procedures are helpful, followed by q 6 i.e. it is important to have instructions spelled out in detail so that I always know what I'm expected to do and then by q10 i.e. I prefer structured situations to unstructured situations.

Analysis of the standardized regression weights for F3 reveals that q20 i.e. there are some jobs that a man can always do better than a woman, explains more than 83.7% of the variation in the F3 (masculinity-femininity), followed by q18 i.e. men usually solve problems with logical analysis; women usually solve problems with intuition, followed by q19 i.e. solving difficult problems usually requires an active, forcible approach, which is typical of men and lastly q17 i.e. it is more important for men to have a professional career than it is for women.

Analysis of the standardized regression weights for F4 reveals that q3 i.e. managers should avoid social interaction with their subordinates, explains more than 57.1% of the variation in the F4 (power distance), followed by q4 i.e. subordinates should not disagree with their manager's decisions, followed by q2 i.e. manager should not ask the opinions of their subordinates too frequently and lastly q1 i.e. managers should make most decisions without consulting their subordinates.

The squared multiple correlation is depicted in the table 6. The squared multiple correlation is the like communalities in EFA. The squared multiple correlations indicate the percentage of variance of the observed variable that is explained with variations in the factor. All the squared multiple correlations should be greater than or equal to 0.20 (Schmeelk-Cone, Karen et al, 2012).

The squared multiple correlation of q11 under F1 is .449. It means that 44.9% of the variance in q11 is explained with factor F1, followed by q13, q 14,q12, q 15 and q16 .The squared multiple correlation of q7 under F2 is .447. It means that 44.7% of the variance in q7 is explained with factor F2, followed by q9, q 6 and q 10. The squared multiple correlation of q20 under F3 is .701. It means that 70.1% of the variance in q20 is explained with factor F3, followed by q18, q19 and q17.The squared multiple correlation of q3 under F4 is .326. It means that 32.6% of the variance in q3 is explained with factor F4, followed by q4, q4 and q1.

CONCLUSIONS OF THE STUDY

The core objective of this paper is to explore cultural dimensions which influence the grant of ESOPs in India. For this purpose, EFA and CFA have been used. The EFA final model has been arrived after meeting the criteria of determinant, Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy, Bartlett's test and value of diagonal elements of anti- image correlation matrix. The principal component analysis (PCA) method of extraction with varimax rotation has been applied in the study. The CFA final model has sufficient reliability, convergent validity and yields good results (GFI, CFI, RMSEA). Moreover, all factor loadings are also significant. This indicates that the observed variable load highly on the factor, resulting in uni-dimensionality and convergent validity. Additionally, the four factors (F1, F2, F3 and F4) are not correlated.

The EFA and CFA resulted in four distinct cultural factors which impacts the grant of ESOPs in India, namely, as power distance, uncertainty avoidance, individualism-collectivism and masculinity-femininity. The first component (F1) individualism – collectivism had been most highly correlated with q11, q12, q13, q14, q15 and q16. The second component (F2) uncertainty avoidance had been most highly correlated with q6, q7, q9 and q10. The third component (F3) masculinity-femininity had been most highly correlated with q17, q18, q19 and q20. The fourth component (F4) power distance had been most highly correlated with q1, q2, q3 and q4. Additionally, it was found that the four factors (F1, F2, F3 and F4) were not correlated. To sum up it can be said there are four distinct cultural dimensions which influences the grant of ESOPs in India.

REFERENCES

Anderson, J. C., (1987). An approach for confirmatory measurement and structural equation modeling of organizational properties. Management Science, 33 (4), 525-541.

Bagozzi, R. P., and Baumgartner, H. (1994). The evaluation of structural equation models and hypothesis testing. In R. P. Bagozzi (Ed.),Principles of marketing research (pp. 386–422). Cambridge: Blackwell.

Bollen, K. (1989). Structural equations with latent variables. New. York: John Wiley.

Flannery, T., Hofrichter, D., and Patten, P. (1996). People, performance and pay. New York: Free Press.

Garson, G. D. (2009). Statnotes: Topics in Multivariate Analysis. . (Retrieved on March 14, 2014).

Gaskin, J. (2012). Stats Tools Package. [Online] Retrieved from URL: http://statwiki. kolobkreations.com/wiki/Main_Page. (Retrieved on 16th May, 2014).

Hair, Jr., J. F., Black, W. C., Babin, B. J., Anderson, R. E., and Tatham, R. L. (2006). Multivariate data analysis (6th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Hair, J. F., Black, W., Babin, B., and Anderson, R. (2010). Multivariate data analysis (7th ed.). Inc. Upper Saddle River, NJ, USA: Prentice Hall.

Hancock, G. R., and Mueller, R. O. (2010). The reviewer's guide to quantitative methods in the social sciences. New York: Routledge.

Kerr, J. L. and Slocum, J.W. (1987). Managing corporate culture through reward system design. Academy of Management Executive, 1(2), 99-108.

Kyle, R. J. (1999, January 21-23). Basic concepts of confirmatory factor analysis. Paper presented at the Annual Meeting of the Southwest Educational Research Association, San Antonio, TX.

Madu, Boniface C. (2012). Organization culture as driver of competitive advantage. Journal of Academic and Business Ethics, 5, 1-9.

O'Brien, R. (1994). Identification of simple measurement models with multiple latent variables and correlated errors. Pp. 137-170 in Peter Marsden (Ed.) Sociological Methodology. Blackwell.

Rizvi, Y. (2010). Human capital development role of HR during mergers and acquisitions. The South East Asian Journal of Management, 4(1), 17-28.

Schmeelk-Cone, K., Pisani, A. R., Petrova, M., and Wyman, P. A. (2012). Three scales assessing high school students' attitudes and perceived norms about seeking adult help for distress and suicide concerns. Suicide & Life-Threatening Behavior, 42(2), 157–172. doi:10.1111/j.1943-278X.2011.00079.x

Singh P., T. Mathew and Das, G.S. (1977). Organizational culture and its impact on managerial remuneration. Indian Journal of Industrial Relations, 13 (1), 1-14.

Tosi, H.L. and Greckhamer, T. (2004). Culture and CEO compensation. Organization Science. 15 (6), 657-670.

Yeganeh, Hamid and Zhan, Su. (2011). The effects of cultural orientations on preferred compensation policies. The International Journal of Human Resource Management, 22(12), 2609–2628.

CONSUMER'S INCLINATION TO GREENER ISSUES: AN OPPORTUNITY IN CSR

Shweta Garg[1] and Shivani Garg[2]

The study aims to identify important factors influencing consumers' green purchasing behavior stemming from their awareness of "greener environment issues". It explores the extent to which the identified factors motivate and encourage adoption of greener products and services by the consumers. Hypotheses are laid down to delineate the intricate relationship between posited variables such as social influence, perceived concern and responsibility for environment, environmental attitude, perceived seriousness of environmental problems, perceived effectiveness of environmental behavior on consumers' green purchasing behavior. Correlation and linear regression analysis is employed to ascertain the nature of specified constructs in affecting consumer support to green initiatives and green/eco-friendly products (services). The results indicate that social influence was the top predictor of Indian consumers' green purchasing behavior, followed by concern for self-image as the second and perceived effectiveness of green initiatives as the third important predictor. The study proposes implications for marketing managers in designing communication and positioning strategies, considering the interplay of the factors influencing consumers' response to green marketing. It enables marketers to fulfill CSR obligations and expectations. The study adds new knowledge by specifically exploring individual factors appealing consumers and influencing their green purchasing.

Key Words: Green Purchasing Behavior, Environment Awareness, Eco Friendly Products, Social Influence

INTRODUCTION

There has been much discussion in recent years on environmental degradation issues and society's concerns for sustainable development. Environmental threats are alarming government and citizens alike. India, in particular, is suffering from high levels of air pollution, poor water quality, rapidly diminishing landfill space, dismal garbage disposal avenues, high levels of noise pollution and falling levels of groundwater. Consumers are becoming highly aware of the impact of their consumption on environment and are more ready and willing to respond to the appeals based on green issues. "Green issues", hence, attract consumers' attention and reflects their environmental concern through modified buying behavior. Emerging markets for environment products, services and techniques present promising opportunities for the marketer. Marketers are employing environment friendly tactics and strategies to take into consideration environmentalism and green issues. They have responded to consumers' awareness by designing and commercializing greener strategies, allowing them to project a responsible image in the marketplace.

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[1] Assistant Professor, Shri Ram College of Commerce, University of Delhi, Delhi, Email: shwetagarg18@gmail.com

[2] Research Scholar, Department of Commerce, Delhi School of Economics, University of Delhi, Email: shivanigarg01@gmail.com

Schlegelmilch et al. (1996) classified green products into general green products, recycled paper products, products not tested on animals, environmentally friendly detergents, organically-grown fruit and vegetables, ozone-friendly aerosols and energy-efficient products. As an exploratory study, this paper focuses on purchasing behaviours for general green products. Although, green marketing has received attention of global markets (Chan, 2001; Yam-Tang and Chan, 1998), still researches focusing on Indian consumers' green marketing responses are few. The study aims to fill the gap by delineating the various factors influencing Indian consumers' buying habits. The paper offers useful insights to marketers by indicating the factors that appeal the consumers and hence assist marketers in formulation of better strategies to effectively target environmentally- conscious Indian consumers. The purpose of the study is three-fold:

- Firstly, to identify and delineate the factors responsible in motivating consumers to engage in green-purchasing behavior.

- Secondly, to identify the extent of influence of factors highly influential in addressing consumers' green- behavior.

- Lastly, to propose implications for the marketers in encouraging green buying habits amongst the consumers.

LITERATURE REVIEW

Green marketing is "the marketing or promotion of a product based on its environmental performance or an improvement thereof" (Charter and Polonsky ,1999). The origin of the concept of green marketing dates to late 1980s when the concept was first introduced and discussed. Marketing practitioners engaged themselves in employing green -issues in marketing products and services. In the initial stage of green marketing they expected to generate higher sales and increased goodwill for the company by addressing consumers' concern for environment (Vandermerwe and Oliff, 1990). However, market growth drastically fell short of marketers' expectations (Wong et al., 1996). Consumers viewed marketers as mere manipulators of the "green-issue" trying to project environmental benefits of the product (service) without adding any real value to it. Consumers' cynicism about green products, companies' intention and green claims resulted into a failure of green marketing during 1990s Mendleson and Polonsky, 1995; Peattie and Crane, 2005; Wong et al., 1996). Peattie and Crane (2005) have identified five marketing practices which led to the failure of green marketing during this period. They included *Green spinning*- reactive approach oriented at discrediting public's criticisms against the company's practices; *Green selling*- opportunistic approach whereby some green claims are added to existing attributes; *Green harvesting*- cost-orineted approach where marketer "becomes enthusiastic about the environment only when greening could result in cost savings (e.g., in terms of energy and material input inefficiencies, package reductions, etc.)"; *Entrepreneur marketing*- focusing on development of innovative green products while overlooking consumer needs; and *Compliance marketing*- involving initiatives beyond responding to regulations.

Marketers started believing that green products are a fad and would consumers would soon detract from adopting greener and environment friendly products. However, from mid 1990s consumers started to become more aware of the societal as well as environmental concerns. In this stage, green consumerism

galvanized consumers whereby they started demanding a socially responsible behavior from the corporations. They started focusing more on the intrinsic worth of the goods rather than focusing on the materialistic value of being able to afford the goods. Consumers readjusted their purchase criterion and this greening of consumers is presently increasing at a tremendous rate. A green consumer is the one who "avoid products that are likely to endanger the health of the consumer or others; cause significant damage to the environment during manufacture, use of disposal; consume a disproportionate amount of energy; cause unnecessary waste; use materials derived from threatened species or environments" (Strong 1996). A closer scrutiny from environmentalists, media and government is further propelling green marketing. Marketers are working to promote the cause of environment and presenting a renewed sensitivity towards green consumers and social consciousness of the markets. Green marketing is making a comeback in the present scenario of high global concern about environment quality. The concept of integrating going -green approach in the mainstream business strategy is gaining ground. Corporations are initiating and adopting a fresh outlook towards adoption of greener marketing strategies by understanding the consumers' perceptions of the company's initiatives and better targeting them by responding to the major factors that influence the green purchase behavior of consumers(Polonsky, 2011; Rex & Baumann, 2007; Rivera-Camino, 2005).

Marketers' Interest in Green marketing: Companies are aggressively initiating green- marketing as consumers are increasingly becoming conscious of alarming environmental problems and the pollution and degradation associated with unprecedented economic developments. Also, the rise of financially strong consumers presents an opportunity for marketers to capitalize on their rising demands for greener products. Financially empowered consumers are ready and willing to spend more on purchasing green products(Straughan & Roberts, 1993). Moreover, they consider a greener lifestyle as a way to project their social status and position. Despite, the growing consumers' interest in green marketing little research exist in aiding marketers to understand how consumers' interpret and react to green initiatives. A marketer attempts to present consumers with characteristics to base their decisions and, therefore, must focus on exposing consumers to such characteristics which influence consumers' green purchasing the most. A larger segment of the target market may hence be reached successfully. Also, Government policies and regulations are continuously reshaped to attend to environment issues demanding marketers' attention to green-marketing(Manaktola & Jauhari, 2007; Rivera-Camino, 2005; Straughan & Roberts, 1993).

Consumers' Green behavior and Hypotheses: Literature has provided evidence that consumers' environmental behaviour is related to the following variables: environmental attitude (Kaiser et al., 1999), environmental concern (Schultz et al.,2004), perceived seriousness of environmental problems (Garcia-Mira et al., 2005),perceived environmental responsibility (Manzo and Weinstein, 1987), perceived effectiveness of environmental behaviour (Manzo and Weinstein, 1987), concern for self-image in environmental protection (Lee, 2007), and peer influence (Ryan, 2001). All these variables are posited as constructs understudy and based on previously cited evidences the hypotheses are developed.

Consumers' are becoming aware of the alarming environmental problems and considering it their responsibility to be socially responsive. Their attitude towards environmental concerns and problems is posited to cast influence on their green purchasing behavior. H2, H3, H4 and H5 is hence stated. However, with increased financial status and higher spending power consumers are getting influenced

by the opinions of their peers and the social circle to which they belong to. They consider it a craze to talk about eco-friendly products and behavior and construe green behavior as a favourable image projector. Accordingly H1 and H7 are laid down. Notwithstanding the levels of consumer's environmental awareness, they are unable to make an assessment of the effectiveness of the efforts of marketers in fulfilling environmental concerns through green marketing. Hence, perceptions of effectiveness of engaging in environment friendly behavior is not construed as a major factor in influencing consumers' green buying behavior. H6 is so posited.

H_1: Social influence impacts consumers' green purchasing behavior.

H_2: Consumers' attitude towards environmental protection impacts consumers' green purchasing behavior.

H_3: Consumers' concern for environment impacts consumers' green purchasing behavior.

H_4: Consumers' perceptions of the gravity of environmental problems impacts consumers' green purchasing behavior.

H_5: Consumers' perceptions of their responsibility towards environment impacts consumers' green purchasing behavior

H_6: Consumers' perceptions of the effectiveness of engaging in environment friendly behavior does not impacts consumers' green purchasing behavior.

H_7: Consumers' concern for their self-image impacts consumers' green purchasing behavior.

RESEARCH METHODOLOGY

Data was collected through the administration of structured questionnaire based survey in the metropolitan city of Delhi during the month of September 2016. Sample comprised of 141 respondents, and majority of them were city residents in the age group of 20-29 years. The mean age of consumers was 23.46 years with a standard deviation of 2.13 years. The reason for the choosing this particular age-group is that people in this group are young consumers considered to be highly responsive and demanding of socially responsive marketer behavior. Youth comprise a larger part of the purchasing population and their behavior in marketplace would highly determine company's success in positioning and marketing greener initiatives. The questionnaire contained measures for different constructs under study and the scales used for measuring these constructs are based on previous studies. All constructs are multi-dimensional in nature and are taken from previous works on green marketing. It renders replication of previous studies where consumers green behavior is tried to be explored in western economies context. Table1 depicts the constructs used and the mean and standard deviation of the responses received.

Respondents were specifically asked about their demographic information and responses were sought to identify the impact of social influence, environmental attitude, environmental concern, perceived seriousness of environmental problems, perceived environmental responsibility, perceived effectiveness of environmental behaviour, and concern for self-image in environment protection on consumers' green purchasing behavior. Participants were asked to respond using a 5point Likert scale where 5 denotes a high influence and 1 denotes a lower influence.

Table 1: Constructs influencing consumers' green buying behaviour

Measure (for N=141)	Mean	StnDev
Social influence		
(1) How much do you learn about environmental products from your friends	4.32	1.88
(2) How much do you learn about environmental issues from your friends	3.65	1.98
(3) How much do you discuss with your friends about environmental products	2.89	1.54
(4) How much do you discuss with your friends about environmental issues	2.52	1.99
(5) How often do you buy environmental products with your friends	2.41	1.14
(6) How often do you share information regarding environmental products with your friend	2.09	1.09
Environmental attitude		
(1) It is essential to promote green living in India.	5.66	1.43
(2) I strongly agree that more environmental protection works are needed in India.	5.46	1.56
(3) It is very important to raise environmental awareness among Indian people.	5.08	1.58
(4) Environmental protection works are simply a waste of money and resources.	2.43	1.76
(5) Environmental protection issues are none of my business	2.19	1.78
(6) I think environmental protection is meaningless	1.98	1.42
(7) It is unwise for India to spend a vast amount of money on promoting environmental protection (Items 4-7 were recoded)	1.83	1.45
Environmental concern		
(1) I am worried about the worsening of the quality of India's environment.	2.54	1.22
(2) India's environment is my major concern.	3.21	1.67
(3) I am emotionally involved in environmental protection issues in India.	3.89	1.52
(4) I often think about how the environmental quality in India can be improved.	3.22	0.79
Perceived seriousness of environmental problems		
(1) How serious do you think the environmental problems are?	5.7	1.27
(2) How urgently do you think India's environmental problems need to be dealt with?	5.44	1.88
(3) I think environmental problems are worsening.	4.82	1.32
(4) India's environmental problems are threatening our health.	5.52	1.91
(5) India's environmental problems are threatening the reputation of India.	5.61	1.32
Perceived environmental responsibility		
(1) I should be responsible for protecting our environment.	4.21	1.91
(2) Environmental protection starts with me.	3.22	1.98
(3) How much responsibility do you think you have in protecting the environment in India?	4.99	1.53
(4) I have taken responsibility for environmental protection since I was young .	4.78	1.89
(5) How willing are you to take up responsibility to protect the environment in India?	4.45	1.56
(6) Environmental protection is the responsibility of the Indian government, not me.	2.99	1.67
(7) Environmental protection is the responsibility of the environmental organizaitons, not me (Items 6 and 7 were recoded)	2.07	1.45
Perceived effectiveness of environmental behaviour		
(1) I think if I carry out some pro-environmental behaviours in my everyday life, I would contribute a lot to our environment	5.02	1.88
(2) I think my participation in environmental protection would influence my family and friends to participate too.	4.23	1.82
(3) The environmental quality of India will stay the same even if I engage in some pro-environmental behaviours.	3.77	1.71
(4) Even if I recycle and reuse things, the environmental quality of India will remain as it currently is (Items 3 and 4 were recoded)	3.41	1.23
Concern for self-image in environmental protection		
(1) Supporting environmental protection makes me more socially attractive	3.89	1.45
(2) Supporting environmental protection makes me special	3.25	1.82

(3) I will be perceived by others as "out-dated" if I do not support environmental protection	2.99	1.54

Green purchasing behaviour

(1) When I want to buy a product, I look at the ingredients label to see if it contains things that are environmentally-damaging.	3.56	1.08
(2) I prefer green products over non-green products when their product qualities are similar.	2.99	1.24
(3) I choose to buy products that are environmentally-friendly.	2.98	.88
(4) I buy green products even if they are more expensive than the non-green ones.	2.23	.94

ANALYSIS AND RESULTS

Reliability Test: For all the multi-item scales, internal consistency was assessed using Crobach's alpha test of reliability. The scales for social influence, environmental attitude, environmental concern, perceived seriousness of environmental problems, perceived environmental responsibility, perceived effectiveness of environmental behaviour ,concern for self-image in environment protection and consumers' green purchasing behavior have the cronbach alpha values nearing the norm of 0.6, indicating satisfactory representation of these constructs.

Table 2: Test of Reliability of Different Constructs

Constructs	social influence	environmental attitude	environmental concern	perceived seriousness of environmental problems	perceived environmental responsibility	perceived effectiveness of environmental behaviour	concern for self-image in environment protection	consumers' green purchasing behavior
Cronbach Alpha	.724	.674	.561	.772	.784	.592	.588	.748

Correlation Based Analysis: Correlation coefficients were computed to determine both the nature and extent of relationship between different factors and consumers' green purchasing behavior. The results of proposed hypotheses H_1, H_2, H_3, H_4, H_5, H_6 and H_7 are shown in Table 3.Some of the relationships, particularly H_2 and H_3, though are weak, but significant. The results indicate a high and significant positive influence of social influence and consumers' concern for their self-image on their green purchasing behavior(corr. coeff. 0.522 and 0.412 respectively with p<.05 levels). Green behavior is next influenced most by consumers' perceptions of the effectiveness of environmental behavior with corr. coeff. as .325 with p<.05 levels.

Table 3: Hypotheses Testing: Correlations Based Results for Variables Suggesting Consumer Green Buying Behaviour

Factors	Variable	Correlation coefficient	p value (one tailed)	Hypotheses
Social influence	Green Purchasing Behaviour	.522	.000[a]	H1: Social influence impacts consumers' green purchasing behavior. (Supported at p<.05)**
Environmental Attitude	Green Purchasing Behaviour	.129	.047[a]	H2: Consumers' attitude towards environmental protection impacts consumers' green purchasing behavior. (Supported at p<.05)**

Environmental Concern	Green Purchasing Behaviour	.121	.019[a]	H3: Consumers' concern for environment impacts consumers' green purchasing behavior. (Supported at p<.05)**
Perceived Seriousness of Environmental problems	Green Purchasing Behaviour	.143	.000[a]	H4: Consumers' perceptions of the gravity of environmental problems impacts consumers' green purchasing behavior. (Supported at p<.05)**
Perceived Environmental responsibility*	Green Purchasing Behaviour	.189	.031[a]	H 5: Consumers' perceptions of their responsibility towards environment impacts consumers' green purchasing behavior (Supported at p<.05)**
Perceived Effectiveness of Environmental Behaviour	Green Purchasing Behaviour	.325	.000[a]	H6: Consumers' perceptions of the effectiveness of engaging in environment friendly behavior does not impacts consumers' green purchasing behavior. (Not Supported at p<.05)**
Concern for self-image in environment protection	Green Purchasing Behaviour	.412	.002[a]	H7: Consumers' concern for their self-image impacts consumers' green purchasing behavior (Supported at p<.05)**
Notes:*Recoded variables [a] significant at p<0.05 levels significant at p<0.10 levels **Indicates the resulting status of hypothesis				

Regression based analysis: In the context of studying consumers' green purchasing behavior, linear regression analysis is performed to explore the extent of influence of dependent variable on different predictor variables. The results are depicted in table4. The hypothesized relationship suggesting influence of social influence on consumers' green buying behavior is supported with $R^2 = 0.258$ at p<.05. However, the influence of other posited variables is found to be significantly low in determining the green behavior of the consumers. Though significant H_2, H_3, H_4 and H_5 needs further investigation. H_7 positing the impact of consumers' self image on their buying behavior is supported with $R^2 = .232$ at p<0.05 and H_6 is supported with $R^2 = .202$ at p<0.05.

Table 4: Hypotheses testing results - Research Findings

Tested Hypotheses	Predictor variables	Dependent Variable	R^2	p value
H_1: Social influence impacts consumers' green purchasing behavior.	Social influence	Green Purchasing Behaviour	.258	.000[a]
H_2: Consumers' attitude towards environmental protection impacts consumers' green purchasing behavior.	Environmental Attitude	Green Purchasing Behaviour	.076	.008[a]
H_3: Consumers' concern for environment impacts consumers' green purchasing behavior.	Environmental Concern	Green Purchasing Behaviour	.081	.012[b]
H_4: Consumers' perceptions of the gravity of environmental problems impacts consumers' green purchasing behavior.	Perceived Seriousness of Environmental problems	Green Purchasing Behaviour	.129	.000[a]
H_5: Consumers' perceptions of their responsibility towards environment impacts consumers' green purchasing behavior.	Perceived Environmental responsibility*	Green Purchasing Behaviour	.178	.004[a]

H_6: Consumers' perceptions of the effectiveness of engaging in environment friendly behavior does not impacts consumers' green purchasing behavior.	Perceived Effectiveness of Environmental Behaviour	Green Purchasing Behaviour	.202	.000[a]
H_7: Consumers' concern for their self-image impacts consumers' green purchasing behavior	Concern for self-image in environment protection	Green Purchasing Behaviour	.232	.002[a]
a:significant at p<0.05 levels b:significant at p<.10 levels				

IMPLICATIONS OF THE STUDY

The study contributes by indicating that the key to successful green marketing lies in addressing 1) social influence 2) consumers' concern for self- image and 3) consumers' perceptions of the effectiveness of environmental behavior. An interplay of these factors can help position a green-marketing initiative in consumers' cognition which could translate into modified buying behavior.

Consumers' adoption of green buying is an outcome of the influence of their peers, society and their concern for self-image. Consumers not only make judgments of how their image in the society shall be improved rather they also form assessments of the effectiveness of marketers' green behavior. Marketers may target consumers by communicating favorable impact of their green initiatives. Evident favourable results of green marketing encourage consumers to adopt green- behavior. Green marketing yielding positive effect on environment, if communicated well to the consumers, shall enhance their green buying behavior. Marketers must try to design communication and promotion strategies to divulge information regarding positive impact created due to their green marketing initiatives. It shall reinforce consumers' belief in the effectiveness of their green buying and hence would further encourage them to adopt green-buying behavior. The study did not observe a high impact of consumers' attitude towards environment protection, their concern for environment and its problems and consumers' perceptions of their responsibility towards environment. It is evident that Indian consumers are majorly aware of their responsibility towards environment protection and have a strong sense of concern for the alarming issues. However, the attitude does not translates into buying greener and eco-friendly products. High awareness of the gravity of the environmental issues do not translate into green-behavior. Being environmentally aware is not the only condition for encouraging green-behaviour. However, consumers' self interest when aligned with "green-issues" might have a positive influence on consumers' buying behavior.

The study provides real life implications for the global marketer trying to capitalize upon the increasing levels of consumers' environment consciousness. It enables green-marketer to better target consumers by catering to the most influential factors. Green marketing should use more buzz marketing to encourage consumers to talk about environmental messages to their peers and recommend good environmental products to their friends by word-of-mouth in the form of face-to-face or new media communications. It is very important for green marketers to associate a trendy and "cool" image with green products. They should aim at cultivating a "feel good" purchase experience among Indian consumers (Peattie, 2001). Also, it is the responsibility of the marketer to convey the effectiveness of adopting greener initiatives and the positive impact casted on the environment.

REFERENCES

Chan, R.Y.K. (2001), "Determinants of Chinese consumers' green purchase behaviour", Psychology & Marketing, Vol. 18 No. 4, pp. 389-413.

Charter, M. and Polonsky, M.J. (1999), Green Marketing: A Global Perspective on Green Marketing Practices, Greenleaf Publications, Sheffield.

Garcia-Mira, R., Real, J.E. and Jose, R. (2005), "Temporal and spatial dimensions in the perception of environmental problems: an investigation of the concept of environmental hyperopia", International Journal of Psychology, Vol. 40 No. 1, pp. 5-10.

Kaiser, F.G., Wolfing, S. and Fuhrer, U. (1999), "Environmental attitude and ecological behaviour", Journal of Environmental Psychology, Vol. 19, pp. 1-19.

Lee, P.K. (2007), The Relationships Among Self-concept, Advertising, Brand Attitude and Purchase Intention: A Study of Domestic Vehicles, unpublished Master's dissertation, National Cheng Kung University, Tainan City.

Manaktola, K., & Jauhari, V. (2007). Exploring consumer attitude and behaviour towards green practices in the lodging industry in India. *International Journal of Contemporary Hospitality Management*, *19*(5), 364–377. http://doi.org/10.1108/09596110710757534

Manzo, L.C. and Weinstein, N.D. (1987), "Behavioural commitment to environmental protection: a study of active and nonactive members of the Sierra club", Environmental and Behaviour, Vol. 19, pp. 673-94.

Mendleson, N. and Polonsky, M.J. (1995), "Using strategic alliances to develop credible green marketing", Journal of Consumer Marketing, Vol. 12 No. 2, pp. 4-18.

Peattie, K. (2001), "Golden goose or wild goose? The hunt for the green consumer", Business Strategy and the Environment, Vol. 10 No. 4, pp. 187-99.

Peattie, K. and Crane, A. (2005), "Green marketing: legend, myth, farce or prophesy?", Qualitative Market Research, Vol. 8 No. 4, pp. 357-70.

–Polonsky, M. J. (2011). Transformative green marketing: Impediments and opportunities. Journal of Business Research, 64(12), 13111319.

Rex, E., & Baumann, H. (2007). Beyond ecolabels: what green marketing can learn from conventional marketing. *Journal of Cleaner Production*, *15*(6), 567–576.

Rivera-Camino, J. (2005). Re-evaluating green marketing strategy: a stakeholder perspective. *European Journal of Marketing*, *41*(11–12), 1328–1358.

Ryan, A.M. (2001), "The peer group as a context for the development of young adolescent motivation and achievement", Child Development, Vol. 72 No. 6, pp. 1135-50.

Schlegelmilch, B.B., Bohlen, G.M. and Diamantopoulos, A. (1996), "The link between green purchasing decisions and measures of environmental consciousness", European Journal of Marketing, Vol. 30 No. 5, pp. 35-55.

Schultz, P.W., Shriver, C., Tabanico, J.J. and Khazian, A.M. (2004), "Implicit connections with nature", Journal of Environmental Psychology, Vol. 24, pp. 31-42.

Straughan, R. D., & Roberts, J. A. (1993). Environmental segmentation alternatives: a look at green consumer behavior in the new millennium. *Journal of Consumer Marketing Journal of Consumer Marketing Journal of Consumer Marketing Iss Journal of Consumer Marketing*, *16*(3), 558–575.

Strong, C. (1996), "Features contributing to the growth of ethical consumerism: a preliminary investigation", Marketing Intelligence & Planning, Vol. 14 No. 5, pp. 5-13.

Vandermerwe, S. and Oliff, M.D. (1990), "Customers drive corporations green", Long Range Planning, Vol. 23 No. 6, pp. 10-16.

Wong, V., Turner, W. and Stoneman, P. (1996), "Marketing strategies and market prospects for environmentally-friendly consumer products", British Journal of Management, Vol. 7 No. 3, pp. 263-81.

Yam-Tang, E.P.Y. and Chan, R.Y.K. (1998), "Purchasing behaviours and perceptions of environmentally harmful products", Marketing Intelligence & Planning, Vol. 16 No. 6, pp. 356-63.

EXPORT AND ECONOMIC DEVELOPMENT: AN INDIAN PERSPECTIVE

Manoj Kumar Sinha[1]

After the crisis in 1991, the Indian government introduced some changes in its Policy on trade, foreign Investment, Tariffs and Taxes under the name of New Economic Reforms. The main focus of these reforms has been on Liberalization, openness and export promotion activity. The paper is focused on the impact of development variables on export from India. Developmental variables include infrastructure, human resource, openness, production & market, research & development, resources, and taxation. Each development variable consists of a set of related variables. The paper has used principal component analysis (PCA), composite index and panel regression model. These help to know impact of individual developmental variable on India's export. The value of KMO is over 0.6 indicating the samples are adequate and the value of Bartlett's test is less than 0.05 ensure suitability of PCA. The overall growth rate Indian export is 4.4 percent during last more than two decades. R&D is most important development variable. The elasticity of R&D is more than one and statistically significant. Main determinants of Indian export are research & development, resources, taxation and production & market. The government should strengthen and incorporate these developmental variables while making Indian export-import policy under the umbrella of WTO.

Key Words: Exports, Economic Development, Trade, International Trade, India.

Foreign Trade has been one of the most significant determinants of economic development in a country. The foreign trade of a country consists of inward and outward movement of goods and services, which result into outflow and inflow of foreign exchange from one country to another country. During present times, International trade is a vital part of development strategy and it can be an effective instrument of economic growth, employment generation and poverty alleviation in an economy. According to traditional pattern of development show that resources are transferred form the agricultural to the manufacturing sector and then into services - sector in an economy. The process of globalization has got momentum through the process of economic integration, and in the expansion of the volume of International Trade. India has been a relatively new comer to the process of expansion of international trade since its opening up to world trade only began after the crisis in 1991. The opening up to international trade should be seen as a crucial aspect of the new approach to economic Policy and as an integral part of the process of reforms. In 1991, the government introduced some changes in its Policy on trade, foreign Investment, Tariffs and Taxes under the name of *"New Economic Reforms"*. The main focus of these reforms has been on liberalization, openness and export promotion activity. India's foreign Trade has export significantly changed in the post-reforms period. In absolute terms, trade volume rose and the composition of exports have undergone several significant changes. India's foreign trade continuously increased. It has shown the position of export and import of Indian economy. It was 1.33 billion $US 1960-61. But in 1980-81 export was increased to 8.58 billion US$ and after economic reform in 1991-92

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[1] Assistant Professor, Commerce Department, PGDAV College, University of Delhi, Delhi-65, Email: mksinhadu@gmail.com

export goes up with 17.6 billion US$ after that at present in 2010-2011 export is 157.2 billion US$.

With globalisation and WTO, India's export turnover has been increased manifold over a period of more than two decades since 1991. This become possible only because of India has adopted liberalised and "New Economic Reforms" after crisis of 1991. The state of Indian economy is considered as main contributor for increasing in export turnover. Developmental variables such as infrastructure, human resource, openness, production and market, taxation etc. are indicators of level of development of Indian economy. The main purpose of this paper is to study the relationship between economic development and export from India.

TRENDS OF INDIA'S EXPORT AND FOREIGN TRADE

Over the last 25 years since India's liberalization and globalisation, its export and foreign trade has expanded manifold and seen significant structural shifts in product as well as geographic composition. The easing of quantitative restrictions as well as significant reduction in tariff levels across product lines has aided the growth of export and foreign trade.

Table 1: Trends of India's Export and Foreign Trade with respect to GDP

Year	Export (US $ Million)	Total Trade (US $ Million)	GDP (US $ Million)	Export as % of GDP	Trade as % of GDP
1990	17969.1	41548.7	320349.7	5.61	12.97
1991	17726.8	38174.6	283967.7	6.24	13.44
1992	19627.5	43206.1	285176.4	6.88	15.15
1993	21571.6	44360	278384	7.75	15.93
1994	25021.8	51864.5	318925.1	7.85	16.26
1995	30630	65336.9	361957.2	8.46	18.05
1996	33105.1	71047.3	381492.8	8.68	18.62
1997	35008.1	76440	414237.5	8.45	18.45
1998	33437	76416.9	416885.4	8.02	18.33
1999	35666.7	82645.9	444434.8	8.03	18.60
2000	42379.3	93902.2	458561.1	9.24	20.48
2001	43361	93753	473441.7	9.16	19.80
2002	49250	105767	494986.7	9.95	21.37
2003	58962.9	131520.6	579668.7	10.17	22.69
2004	76648.6	176424	701347.4	10.93	25.16
2005	99616	242486	820980	12.13	29.54
2006	121807.7	300217.7	929215.2	13.11	32.31
2007	150158.6	379528.5	1182320.7	12.70	32.10
2008	194828.3	515859.8	1268587.7	15.36	40.66
2009	164908.7	422110.9	1311852.4	12.57	32.18
2010	226351.4	576584.2	1668768.3	13.56	34.55
2011	302905.39	767367.39	1892419.8	16.01	40.55
2012	296828.2	786522.1	1869209.7	15.88	**42.08**
2013	314847.74	780244.81	1936087.5	**16.26**	40.30
2014	322693.68	785603.3	2054941.5	15.70	38.23
2015	267147.08	659123.65	2219669	12.04	29.69

Source: www.unctad.org

In-fact, the share of export and foreign trade in India's GDP stood at over 16 percent in 2013 and 42 percent in 2012 as against 5.61 percent and 12.97 percent in 1990 respectively. Indian economy and foreign trade are closely interlinked. The early policy initiatives aimed at liberalization and globalization of India's foreign trade, the outward looking trade policy measures announced in 1991 marks the initiation of a new era in India's foreign trade. The country's trade to GDP ratio hardly changed between 1980 and 1990. It remained fixed at around 13 percent. Things have moved rapidly since then. Both exports and imports have grown faster than GDP, thereby pushing the trade-GDP ratio to 42.1 percent in 2012 (Table 1).

Figure 1: Trend of India's Export and Foreign Trade as Percentage of GDP
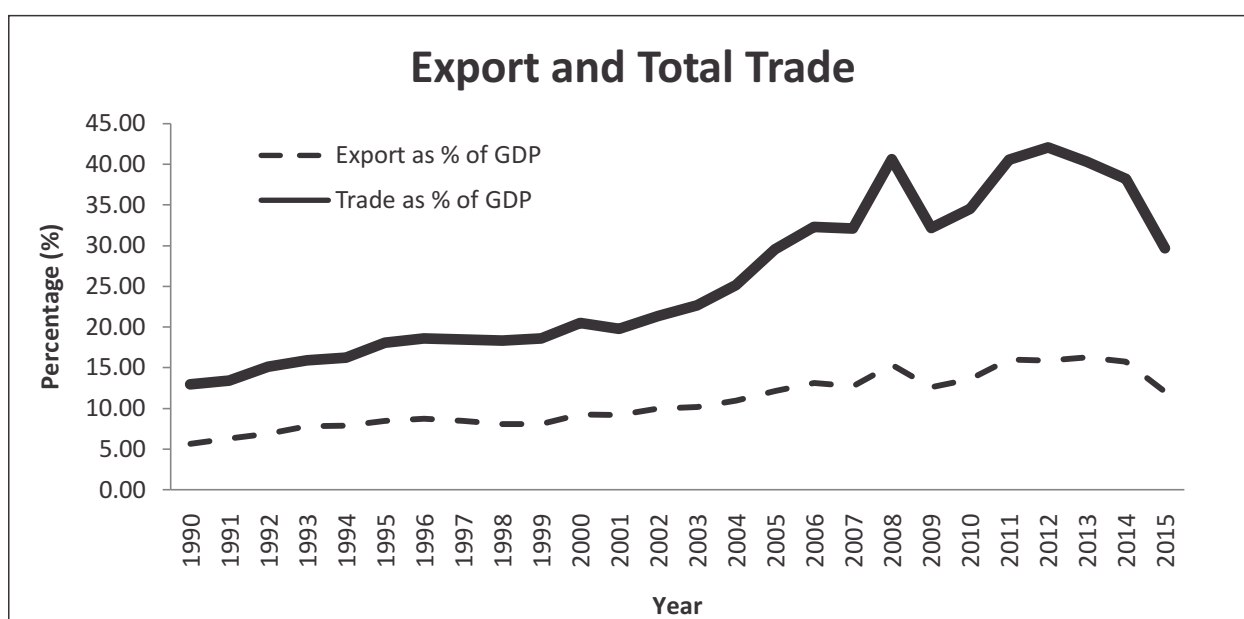
OBJECTIVE OF THE STUDY

• To study the impact of economic development on the export performance of India.

HYPOTHESIS TESTING

Ho: Economic development does not affect India's export.

LITERATURE REVIEW

Brempong (1991) estimates the effect of export instability on economic growth over the period 1960-86. He uses cross –country data from 23 sub-Saharan African countries. The export instability variable is found to have a negative effect on economic growth. The study concludes that negative effect does not depend upon the instability index used.

Dawe (1996) examines the relationship between export and economic performance. The study covers 85 countries for the time period 1965-85. The study concludes that increasing instability tends to increase

savings and therefore, investment. However, export instability is negatively associated with the growth.

Sinha (1999) examines the relationship between export instability, investment and economic growth in nine Asian countries viz. India, Malaysia, Myanmar, Pakistan, Philippines, Korea, Sri-Lanka, Thailand and a developed country, Japan. The main reason behind including Japan is to compare the results from a developed country to developing countries. The study concludes that for Japan, Malaysia, Philippine and Sri-Lanka the relationship between export and economic growth is negative. For Korea, Myanmar, Pakistan and Thailand, the results show a positive relationship between growth and export instability. For India, the results are mixed.

Subrahmanya (2004) studies the impact of globalisation and domestic economic reforms on small industry. The study concludes that small industry in India is facing a tough competitive environment since 1991. As a result, its growth in terms of units, employment, output and exports has come down. This has resulted in a less impressive growth in its contribution to national income and exports. Lack of reliable and stable economic infrastructure reduced growth of credit inflow which further caused technological obsolescence. These activities led to inferior quality of the products and low productivity. The study recommends that the financial infrastructure needs to be broadened and adequate inflow of credit to the sector must be ensured.

Shah and Ali (2005) investigate the relationship between Gross Domestic Product (GDP), Exports and Imports of South Asian Countries. The results of his study shows that output growth and exports provoke imports in case of India. The South Asian countries should continue with the import of necessary raw material for value addition and needed technology to expand capacity and improve productivity to increase output growth.

Veeramani (2007) explores the relationship between the Real Effective Exchange Rate (REER) and exports for the period 1960-2007. The study confirms that the appreciation of the REER leads to a fall in the dollar value of India's merchandise exports. The analysis suggests that the major downward risk on the growth rate of exports may arise from the fall in the growth rate of India's real GDP. Any slowdown in India's GDP growth would also lead to a fall in the growth rate of exports.

Sharma and Dhiman(2015) aimed at to estimate determinants affecting the export performance of Indian textile industry. The paper found a positive relationship between GDP, exchange rate, labour, capital (FDI) and technology with export performance of textile industry. Most of the researchers found a positive relationship between the above said variables and textile exports.

Reis and Taglioni (2013)found that Pakistan posts a high concentration of exports in the hands of a limited number of large exporters. The dominance of few exporters has increased over time and it seems associated with the changes in trade policy. Low rates of product innovation and experimentation and a low ability of the Pakistani export sector to enter into new higher growth sectors are other features emerging from the data. The mediocre performance seems to be associated with internal problems with trade-related incentives, business environment, and governance, in addition to the well-known external constraints.

Bhavan (2016) considered five factors - gross capital formation, foreign direct investment, interest payment on foreign debt, import, weighted average of per-capita income of the export destination countries. The results suggested that all determinants are statistically significant and having a long run relationship, of which import, foreign direct investment and interest payment on debt have a significant positive influence in the long run, whereas gross capital formation and per capita income of the export destination countries have a negative impact. In short run,foreign direct investment and per capita income of export destination countries are significant while import, gross capital formation and interest payments for debts are insignificant.

There is no existing literature which has included comprehensive set of macro-economic variables for the purpose of investigating their individual impact on the India's export performance.

RESEARCH METHODOLOGY

Data Sources

The required quantitative data is sourced online mainly from UNCTAD and World Bank website. The period of study is 1990-2015 for study of trend of export and foreign trade. However the period of study is 1990-2013 for overall study because developmental variables data are available up to year 2013. Export data of India is taken from United Nations Conference on Trade and Development (UNCTAD). Developmental variables (i.e. socio-economic variables) have been classified into infrastructure, human resource, research and development, production and market, resources, openness, taxation. Each variable consists of a set of related variables. Developmental variables data are collected online from World Bank website. The paper has used principal component analysis (PCA), composite index and panel regression model (fixed effect).

Principal Component Analysis

The paper considers developmental variables like population, GDP, and so on, which is bound to be a high degree of correlation amongst independent variables. There could be three strategies that can be used for dealing with such an econometric problem:

1. Drop all correlated variables, there is a great loss of information.

2. Use Principal Component Analysis (PCA) to determine the "principal variables."

3. Use PCA for formation of a composite index.

The following consideration should be kept in mind while applying PCA:

1. For determining the retained component we need a criterion.

2. The PCA methodology tells us the total variance explained by each retained principal component as well as the cumulative percentage of the explained variation. This is a measure of the explanatory power of the component for the information content of the procedure.

3. There were various methods of rotation but the most popular method is the Varimax with the Kaiser

normalization. The purpose of the rotation is to make the interpretation of the PCA more meaningful. Method of rotation however retains the same information and explanatory power.

Method for Construction of the Index

The method for construction of a composite index is given by Jha and Murthy (2006). Once the number of retained principal components is determined and the rotated component scores obtained, then there is the choice of using the principal components as such or selecting certain sub-set of variables from the larger set of variables. Jolliffe proposes selecting one variable to represent each of the retained principal components. The variable that has the highest loading on a component is chosen to represent that component, provided that it has not already been chosen. If it has been chosen, the variable with the next largest loading is selected. The procedure starts with the largest principal component and proceeds to the smallest retained component.[2]

$$Index = \sum_{j}^{3} wjxj$$

Where,

Xj = retained variables

Wj = component scores (weights).

Fixed Effect Panel Regression Model:

A common panel data regression model looks like

$$y_{it} = a + bx_{it} + \epsilon_{it},$$

Where *y* is the dependent variable, *x* is the independent variable, '*a*' and '*b*' are coefficients, *i* and *t* are indices for individuals and time. The error ϵ_{it} is very important in this analysis.

Export

The general form of the fixed effects model is:

$(EXPORT)_{it} = e^{\{[\alpha_0]+[\beta_1]*(t)\}}.(IHR)_{it}^{\beta2}.(IINFRA)_{it}^{\beta3}.(IR\&D)_{it}^{\beta4}.(IMKT)_{it}^{\beta5}.(ITOPN)_{it}^{\beta6}.$ $(IRES)_{it}^{\beta7}.(ITAX)_{it}^{\beta8}$ (1)

Taking log on both the side and add error term

$L(EXPORT)_{it} = \alpha_0 + \beta_1*(t) + \beta_2 L(IHR)_{it} + \beta_3 L(IINFRA)_{it} + \beta_4 L(ILAB)_{it} + \beta_5 L(IMKT)_{it} + \beta_6 L(ITOPN)_{it} + \beta_7 L(IRES)_{it} + \beta_8 L(ITAX)_{it} + U_{it}$ …………………………………………………………….(1a)

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[2] An alternative approach is to delete variables by using the discarded principal components.   Starting with the smallest discarded component, the variable with the largest weight on that component is deleted. Then the variable with the largest loading on the second smallest component would be discarded. If the variable has previously been discarded, then the variable with the next highest loading would also be discarded. This procedure continues up to the largest such discarded component.

Where, α_0 = Intercept

    t = 1990, 1991, ... 2013

    β_1 = Growth Rate of India Export

    $\beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7,$ and β_8 = Elasticities of Developmental Variables

    IHR = Composite Index of Human Resource

    IINFRA = Composite Index of Infrastructure

    IR&D = Composite Index of Research and Development

    IMKT = Composite Index of Market and Production

    ITOPN = Composite Index of Trade Openness

    IRES = Composite Index of Resources

    ITAX = Composite Index of Taxation

RESULTS AND ANALYSIS

Results of Principal Component Analysis and Composite Index

- *Infrastructure:*

Infrastructure refers to the facilities through which others resources can be efficiently and optimally used. For measuring this variable principal component analysis (PCA) has selected following variables as principal variables- Energy production (kt of oil equivalent) (ENGYP), Electricity production (kWh) (ELCTP), Electric power consumption (kWh per capita) (EPC), Air transport, registered carrier departures worldwide (ATCARR), Air transport, freight (million ton-km) (ATFT), Railways, goods transported (million ton-km) (RLYGT), Rail lines (total route-km) (RLYLINE) and Telecom (TEL). These variables have been used for construction of composite index, which summaries the information contained in these variables. It involves three steps:

KMO and Bartlett Test of Sphericity is a measure of sampling adequacy that is recommended to check the case to variable ratio for the analysis being conducted. These tests play an important role for accepting the sample adequacy. While the KMO ranges from 0 to 1, the accepted index is over 0.6. Also, the Bartlett's Test of Sphericity relates to the significance of the study thereby shows the validity and suitability of the responses collected to the problem being addressed through the study. For principal component analysis to be recommended suitable, the Bartlett's Test of Sphericity must be less than 0.05.

Another important aspect is the rotated component matrix. While deciding how many factors one would analyze is whether a variable might relate to more than one factor. Rotation maximizes high item loadings and minimizes low item loadings, thereby producing a more interpretable and simplified solution. There are two common rotation techniques- orthogonal varimax rotation and oblique rotation. While orthogonal varimax rotation that produces factor structures that are uncorrelated, oblique rotation produces factors that are correlated. Irrespective of the rotation method used, the primary objectives are to provide easier interpretation of results, and produce a solution that is more parsimonious.

The value of KMO is 0.87, which is high. Bartlett test is highly statistically significant. Next step is to select principal components which are being retained. Out of eight variables, ATCARR, ATFT and

RLYLINE are retained variables. Total variance explained by principal variable is 99.35 percent. Rotated component matrix helps us in generating the value weights obtained from the factor loading for constructing the composite index. Rotated component scores of ATCARR, ATFT and RLYLINEare 0.797, 0.757 and 0.771 respectively (Table 2). These scores are used for construction of composite index of infrastructure.

Table 2: Results of Principal Component Analysis of Infrastructure

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.87
Bartlett's Test of Sphericity	Approx. Chi-Square	527.877
	Df	28
	Sig.	0

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	%	Total	% of Variance	Cumulative %
1	7.648	95.603	95.603	7.648	95.603	95.603
2	0.167	2.091	97.694	0.167	2.091	97.694
3	0.133	1.659	99.353	0.133	1.659	99.353
4	0.03	0.372	99.725			
5	0.012	0.146	99.871			
6	0.006	0.069	99.94			
7	0.003	0.037	99.977			
8	0.002	0.023	100			

Rotated Component Matrix

	Component		
	1	2	3
ATCARR	**0.725**	0.557	0.388
ELCTP	0.704	0.451	0.544
ENGYP	0.703	0.497	0.501
EPC	0.682	0.528	0.502
RLYGT	0.682	0.575	0.45
ATFT	0.513	**0.757**	0.396
TEL	0.462	0.746	0.469
RLYLINE	0.455	0.442	**0.771**

Source: Author's Estimation

Composite Index of Infrastructure:

$I_{INFRA} = .725*ATCARR + .757*ATFT + .771*RLYLINE$

• *Human Resource:*

Human resource represents skilled manpower which would have an impact on the export from India. Human resource has considered following variables- Compensation of employees (COM_E), Employment to population ratio, 15+ (EMP_POP), Labor force participation rate, total (% of total population ages 15-64) (LFPR), Total Labour Force (LF), Population Ages 15-64 (WPOP), GDP per person employed (GDPPPE). The value of KMO is 0.75, which is high. Bartlett test is highly statistically significant. Next step is to select principal components which are being retained. The retained variables are COM_E, LT and GDPPE. Total variance explained by principal variable is 99.85 percent. Rotated component matrix helps us in generating the value weights obtained from the factor loading for constructing the composite index. Rotated component scores of COM_E, LT and GDPPE are 0.799, 0.941 and 0.068 respectively (Table 3). These scores are used for construction of composite index of human resource.

Table 3: Results of Principal Component Analysis of Human Resources

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.751
Bartlett's Test of Sphericity	Approx. Chi-Square	463.359
	Df	15
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.451	90.855	90.855	5.451	90.855	90.855
2	.516	8.599	99.454	.516	8.599	99.454
3	.024	.395	99.849	.024	.395	99.849
4	.007	.118	99.967			
5	.002	.031	99.998			
6	.000	.002	100.000			

Rotated Component Matrix

	Component		
	1	2	3
LFPR	-.928	-.371	.004
EMP_POP	-.902	-.430	.008
COM_E	**.799**	.575	.176
LF	.336	**.941**	.013
WPOP	.538	.842	.026
GDPPPE	.669	.737	**.068**

Source: Author's Estimation

Composite Index of Human Resource:

$$I_{HR} = .799*COM\_E + .941*LF + .068GDPPPE$$

• *Openness:*

Globalization and WTO policy have objective to promote free movement of factors of production across the countries, which would enable for optimum utilization of available resources and maximization of social welfare. Openness is one dimension of globalization which permits movement of factor of production in the form of raw materials, goods, capital, labour etc. with less restrictions and tariff duty. Openness can be measured in terms of degree. India has been opened her economy by reducing import tariff and other quantitative and qualitative restrictions and also by promotion of export and investment for other countries since 1991. Openness has considered following variables under the study for measuring openness variable- Customs and other import duties (IMD), Official exchange rate (EXRATE), International Tourism Number (TOURNO), International Tourism (TOURISM), Net barter terms of trade index (TOT), Total Reserves (RESV), Foreign Direct Investment (FDI), Portfolio Equity (PORT) and Trade Openness (TOPN). The value of KMO is 0.792, which is high. Bartlett test is highly statistically significant. Next step is to select principal components which are being retained. The retained variables are EXRATE, TOT and PORT. Total variance explained by principal variable is 93.61 percent. Rotated component matrix helps us in generating the value weights obtained from the factor loading for constructing the composite index. Rotated component scores of EXRATE, TOT and PORT are 0.895, 0.858 and 0.942 respectively (Table 4). These scores are used for construction of composite index of openness.

Table4: Results of Principal Component Analysis of Openness

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.792
Bartlett's Test of Sphericity	Approx. Chi-Square	394.213
	Df	36
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.066	78.507	78.507	7.066	78.507	78.507
2	.760	8.447	86.954	.760	8.447	86.954
3	.599	6.653	93.607	.599	6.653	93.607
4	.361	4.016	97.623			
5	.160	1.781	99.405			
6	.033	.366	99.771			
7	.012	.136	99.907			
8	.006	.061	99.969			
9	.003	.031	100.000			

Rotated Component Matrix

	Component		
	1	2	3
EXRATE	**.895**	.122	.217
TOURNO	.778	.571	.238
TOPN	.767	.594	.164
TOURISM	.749	.617	.197
IMD	.682	.596	.298
TOT	.164	**.858**	.287
FDI	.561	.782	.007
RESV	.659	.668	.284
PORT	.236	.203	**.942**

Source*:* Author's Estimation

Composite Index of Openness:

$$I_{OPN} = .895 EXRATE + .858*TOT + .942*PORT$$

• *Production and Market:*

Production means outputs readily available for either for resale or industrial/consumer consumption. Market refers to consumption capacity of population within a country depends on state of economy, per capita income and other related factors. Production and market has considered following variables under the study for measuring production and market variable-Market capitalization of listed companies (MKTCAP), Total Listed Domestic Companies (COS), Total Stock Traded (STOCK), Agriculture Value Added (AGR), Manufacturing Value Added (MFG), Industry Value Added (IND), Service Valued Added (SER), Gross Domestic Product (GDP), GDP per capita (GDPPC) and Population density (POPDEN). The value of KMO is 0.725, which is high. Bartlett test is highly statistically significant. Next step is to select principal components which are being retained. The retained variables are MFG, STOCK and COS. Total variance explained by principal variable is 98.26 percent. Rotated component matrix helps us in generating the value weights obtained from the factor loading for constructing the composite index. Rotated component scores of MFG, STOCK and COS are 0.937, 0.831 and 0.990 respectively (Table 5). These scores are used for construction of composite index of production and market.

Table 5: Results of Principal Component Analysis of Production and Market

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.725
Bartlett's Test of Sphericity	Approx. Chi-Square	818.351
	Df	45
	Sig.	.000

Total Variance Explained

Compo nent	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.435	84.348	84.348	8.435	84.348	84.348
2	1.021	10.214	94.562	1.021	10.214	94.562
3	.370	3.698	98.260	.370	3.698	**98.260**
4	.107	1.070	99.330			
5	.055	.547	99.877			
6	.011	.111	99.987			
7	.001	.008	99.995			
8	.000	.004	99.999			
9	.000	.001	100.000			
10	.000	.000	100.000			

Rotated Component Matrix

	Component		
	1	2	3
MFG	**.937**	.328	.101
IND	.932	.346	.095
AGR	.920	.370	.105
GDP	.904	.412	.108
GDPPC	.898	.427	.099
SER	.872	.469	.118
POPDEN	.735	.501	.393
MKTCAP	.690	.673	.015
STOCK	.512	**.831**	.153
COS	.083	.076	**.990**

Source: Author's Estimation

Composite Index of Production & Market:

$$I_{PRODMKT} = .937*MFG + .831*STOCK + .990*COS$$

- *Research and Development:*

Research and Development (R&D) investigative activities that a business chooses to conduct with the intention of making a discovery that can either lead to the development of new products or procedures or to improvement of existing products or procedures. R&D helps to promote foreign trade. R&D has introduced following variables- Scientific and technical journal articles (JOUR), Total Patent and Trade Mark applications (PTM), Primary education pupils (PRMYEDU), Secondary education pupils (SECEDU), Secondary education-vocational pupils (VOCTN), School enrollment-tertiary (SCHENR), and education expenditure (EDUEXP). KMO value 0.824, which is adequate. Bartlett's test is statistically significant. Out of seven variables, the retained variables are SCHENR, PRMYEDU and VOCTN. Total variance explained by these three variables is 99.14 percent. The highest loading value of rotated matrix is used for construction of composite index in case of R&D (Table 6).

Table 6: Results of Principal Component Analysis of Research and Development

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.824
Bartlett's Test of Sphericity	Approx. Chi-Square	351.779
	Df	21
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.888	84.117	84.117	5.888	84.117	84.117
2	.871	12.446	96.563	.871	12.446	96.563
3	.180	2.573	99.136	.180	2.573	99.136
4	.026	.372	99.508			
5	.021	.294	99.801			
6	.010	.140	99.942			
7	.004	.058	100.000			

Rotated Component Matrix

	Component		
	1	2	3
SCHENR	**.921**	.288	.237
EDUEXP	.902	.364	.214
PTM	.900	.407	.134
JOUR	.843	.419	.320
SECEDU	.767	.620	.109
PRMYEDU	.671	**.730**	.108
VOCTN	.185	.077	**.980**

Source: Author's Estimation

Composite Index of Research and Development

$$I_{R\&D} = .921*SCHENR + .730*PRMYEDU + .980*VOCTN$$

- *Resources:*

Resource refers to factors of production available in a country. Abundance of availability leads to higher foreign trade. Resource has introduced following variables- Total natural resources rents (TNR), Gross fixed capital formation (GFCF), Gross domestic savings (GDS), Fuel imports (FUEL) and Ores & Metal Imports (OREMETAL). KMO value is 0.697, which is adequate. Bartlett's test is highly significant. Out of five variables, retained variables are GDS, OREMETAL and TNR. Total variance explained by these three variables is 95.44 percent. The highest loading value for a component of rotated matrix is used for construction of composite index in case of resource (table 7).

Table 7: Results of Principal Component Analysis of Resources

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.697
Bartlett's Test of Sphericity	Approx. Chi-Square	147.654
	Df	10
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.173	63.464	63.464	3.173	63.464	63.464
2	1.125	22.505	85.969	1.125	22.505	85.969
3	.474	9.472	95.441	.474	9.472	95.441
4	.226	4.520	99.961			
5	.002	.039	100.000			

Rotated Component Matrix

	Component		
	1	2	3
GDS	**.958**	-.059	.249
GFCF	.957	-.050	.255
FUEL	.733	-.422	.358
OREMETAL	-.099	**.978**	.077
TNR	.351	.084	**.928**

Source: Author's Estimation

Composite Index of Resource:

$$I_{RES} = .958*GDS + .978*OREMETAL + .928*TNR$$

• *Taxation:*

Taxation represents total financial revenue mobilization by government depends on state of economy, per capita income, foreign trade etc. It includes direct tax, indirect tax and custom and import duties. Higher custom and import duty means higher turnover of foreign trade of the country. Taxation has taken following variables- Taxes on goods and services (G&STAX), Other taxes (OTHRTAX), Tax Revenue (TAXREV) and Taxes on International Trade (ITTAX). The value of KMO is 0.766, which is high. Bartlett test is highly statistically significant. Next step is to select principal components which are being retained. The retained variables are G&STAX, TAXREV and OTHRTAX. Total variance explained by principal variable is 99.67 percent. Rotated component matrix helps us in generating the value weights obtained from the factor loading for constructing the composite index. Rotated component scores of G&STAX, TAXREV and OTHRTAX are 0.995, 0.126 and 1.00 respectively (Table 8). These scores are used for construction of composite index of production and market.

Table 8: Results of Principal Component Analysis of Taxation

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.766
Bartlett's Test of Sphericity	Approx. Chi-Square	146.264
	Df	6
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.963	74.080	74.080	2.963	74.080	74.080
2	1.001	25.020	99.099	1.001	25.020	99.099
3	.023	.571	99.670	.023	.571	99.670
4	.013	.330	100.000			

(a)   Rotated Component Matrix

	Component		
	1	2	3
G&STAX	**.995**	-.028	-.040
ITTAX	.995	.014	-.074
TAXREV	.992	.000	**.126**
OTHRTAX	-.005	**1.000**	.000

Source: Author's Estimation

Composite Index of Taxation:

$I_{TAX} = .995*G\&STAX + 1.0*OTHRTAX + .126*TAXREV$

RELATIONSHIP BETWEEN INDIA'S EXPORT AND ECONOMIC DEVELOPMENT

This paper has focused to study the impact of economic development (i.e. socio-economic variables) on the export performance of India. The Adjusted R Square is 0.997 indicating that explanatory variables have been sufficiently explaining the export from India. The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule of thumb, the residuals are uncorrelated is the Durbin-Watson statistic is approximately 2. A value close to 0 indicates strong positive correlation, while a value of 4 indicates strong negative correlation. For our case, the value of Durbin-Watson is 2.69 indicating no serial correlation.

Table 9: Regression Statistics of India's Export

Model Summary[a]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.999[b]	.998	.997	.0542560	2.694
a. Predictors: (Constant), LTAX, Lopness, LPM, LRnD, LHR, Linfra, LRES, Time b. Dependent Variable: Export					

ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	25.346	8	3.168	1076.269	.000
Residual	.044	15	.003		
Total	25.390	23			

Coefficient[a]

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
(Constant)	-106.481*	27.638		-3.853	**.002**
Time	.044**	.019	.298	2.384	**.031**
LINFRA	.300	.208	.151	1.443	.170
LHR	-.012	.114	-.010	-.109	.915
LOPN	-.003	.011	-.008	-.291	.775
LPRODMKT	-.071***	.036	-.074	-1.997	**.064**
LR&D	1.348***	.764	.157	1.763	**.098**
LRES	.464*	.138	.354	3.371	**.004**
LTAX	.187***	.101	.136	1.843	**.085**
a Dependent Variable: Export *at 1% level of significance, **at 5% level of significance & *** at 10% level of significance					

Source: Author's Estimation

India's export performance has been significantly improved because of change in her export-import policy from 'import substitution' to 'export promotion'. This is also reflected from table- 8. The annual compound growth rate of export from India was 4.4 percent for the period of 24 years and also statistically significant.

Infrastructure has a role inthe capacity-building of any country. It facilitates to increase export turnover. It should have positive impact on export from India. The result shows that the elasticity is less than one i.e. 0.3. A one percent increase in infrastructure development would lead to a 0.3 percent increase in export. However, it is not conventionally statistically significant, but significant at 17 percent. Infrastructure is not found as an important determinant because of the export mainly depends on surplus production and not on level of infrastructure.

Human Resource: Human skill plays a very important role and helps to accelerate export. They have to make tactful deal with the importer of the other countries for export from India. Human resource should have positive relationship with export. However, human resource shows negative relationship with export but not statistically significant. Human resource is not found as an important determinant because of the export/foreign trade depends on the bilateral relationship between two trading countries.

Openness: India has changed her export-import policy from 'restrictive' to 'openness'. The degree of openness has been gradually increased. Openness implies not only trade openness but also free movement of factors of production across the countries in the global context. Export turnover should be increased with openness. However, the result shows negative sign but not statistically significant. Openness is not found as an important determinant because of the export/foreign trade depends on the bilateral relationship between two trading countries. However, openness helps in development of overall foreign trade policy of the country.

Production and Market: India is a second most populated country next to China. Due to high level of domestic consumption, surplus products are less available for export from India. Thus, high domestic consumption due to population leads to less export. Production and market bears a negative sign and has elasticity equal to 0.07 and statistically significant at 10 percent. A percent increase in national production and market consumption would lead to 0.07 percent decline in India's export.

Research and Development: R&D helps to search in new invention or new uses of existing products. It plays role like backbone in the highly cut-throat competitive international trading environment. High level of R&D has to be positive impact on export performance. The result shows that R&D is one of the most important determinants. The elasticity is more than one and statistically significant. Therefore, it clearly indicates the role of R&D in the export performance. A one percent increase in R&D would lead to 1.35 increases in export from India.

Resources: Resources means factors of production. Availability of resources ensures surplus production for export. It should have positive impact on the export. The sign is positive and elasticity is 0.46 and statistically significant at 1 percent. It means one percent increase in resources lead to increase India's export by 0.46 percent.

Taxation is an important source of revenue especially for Indian government. Low domestic tax and custom duty are desirable for increasing production and export. Market friendly and competitive taxation policy leads to increase export turnover which consequently increase taxation revenue of the government. Thus, its impact on export should be positive. Taxation bears a positive sign and elasticity is 0.19 at 10 percent level of significance.

CONCLUDING REMARKS AND POLICY IMPLICATION

KMO and Bartlett Test of Sphericity is a measure of sampling adequacy that is recommended to check the case to variable ratio for the analysis being conducted. The value of KMO in case of all developmental variables is over 0.6 indicating the samples are adequate for PCA. While the value of Bartlett's test is less than 0.05 in case of all developmental variables, ensure suitability of PCA.

The overall annual compound growth of Indian export is 4.4 percent during last more than two decades. The results show that infrastructure, research & development, resources and taxation bear positive sign and are on the expected line and these variables except infrastructure are also statistically significant. It means these variables have positive impact on India's export. R&D is most important development variable. R&D plays very crucial role in the global cut-throat competitive trading environment. The elasticity is more than one and statistically significant. Therefore, it clearly indicates the role of R&D in the export performance. A one percent increase in R&D would lead to 1.35 increases in export from India. Production & market bears negative sign due to high domestic demand and fewer surpluses available for export and also statistically significant. Human resource and openness bear negative sign but not statistically significant. Main determinants of Indian export are research & development, resources, taxation and production & market. The government should strengthen and incorporate these developmental variables while making Indian export-import policy under the umbrella of WTO.

In general, development variables i.e. infrastructure, human resource, openness, production & market, research & development, resources and taxation are affecting India's export one way or other.

REFERENCES

Bhanumurthy, K.V. (2011).State of Environment in South Asia' in R. Jha (Ed.) *Handbook of South Asian Economics*, Routledge, London.

Bhavan, T. (2016). The Determinants of Export Performance: The Case of Sri Lanka. *International Research Journal of Social Sciences*, 5(8), 8-13.

Brempong, K.G. (1991). Export Instability and Economic Growth in Sub-Saharan Africa.*Economic Development and cultural Change*, 39,815-828.

Dawe, David (1996). A New look at the Effects of Export Instability on Investment and Growth.*World Development*, 24(12), 1905-1914.

EXIM Bank (2011). Openness and Growth of the Indian Economy: An Empirical Analysis. EXIM Bank of India, Occasional Paper 150.

Jha, R. and Bhanumurthy, K.V. (2006).Environmental Degradation Index.*A Survey of Composite Indices Measuring Country Performance: 2006 Update,* A UNDP/ODS *Working Paper*, By Romina

Jha, R. and Bhanumurthy, K.V. et al (1999).Real Consumption Levels and Public Distribution in India.April 10-16, *Economic and Political Weekly*, Mumbai.

Paudel, Ramesh C. (2014). Liberalisation reform and export performance of India.Australian National University, *ASARC Working Paper* 2014/03.

Reis, José Guilherme; Taglioni, Daria(2013). Determinants of Export Growth at the Extensive and Intensive Margins: Evidence from Product and Firm-level Data for Pakistan. *Policy Research Working Paper*No. 6341. World Bank, Washington, DC.

Shah, Nasim and Turkhan Ali (2005). Export Led- Growth Hypothesis: Further Econometric Evidence from South Asia. *The Developing Economies*, 43(4), 472-488.

Sharma, M. and Dhiman, R. (2015). Determinants Affecting Indian Textile Exports: A Review.*Biz and Bytes*, 6(2), 195-201.

Sinha, D. (1999). Export Instability, Investment and Economic Growth in Asian Countries: A Time Series Analysis. *Center Discussion Paper*, No. 799, Economic Growth Center (EGC), Yale University.

Subrahmanya, M.H. (2004). Small Industry and Globalization-Implications, Performance and Prospects.*Economic and Political Weekly*,

39(18), 1826-183

Veeramani, C. (2007).Sources of India's Export Growth in Pre- and Post-Reform Periods.*Economic and Political Weekly*, 42(25), 2419-2427.

APPENDIX

Infrastructure

ENGYP	Energy production (kt of oil equivalent)
ELCTP	Electricity production (kWh)
EPC	Electric power consumption (kWh per capita)
ATCARR	Air transport, registered carrier departures worldwide
ATFT	Air transport, freight (million ton-km)
RLYGT	**Railways, goods transported (million ton-km)**
RLYLINE	**Rail lines (total route-km)**
TEL	Telecom

Human Resource

COM_E	Compensation of employees (current LCU)
EMP_POP	Employment to population ratio, 15+, total (%) (modeled ILO estimate)
LFPR	Labor force participation rate, total (% of total population ages 15-64) (modeled ILO estimate)
LF	**Labor force, total**
WPOP	**Population ages 15-64 (% of total)**
GDPPPE	**GDP per person employed (constant 1990 PPP $)**

Openness

IMD	Customs and other import duties (current LCU)
EXRATE	Official exchange rate (LCU per US$, period average)
TOURNO	**International tourism, number of arrivals and departure**
TOURISM	**International tourism (current US$)**
TOT	Net barter terms of trade index (2000 = 100)
RESV	**Total reserves (includes gold, current US$)**
FDI	Foreign direct investment, net inflows (BoP, current US$)
PORT	Portfolio equity, net inflows (BoP, current US$)
TOPN	Trade Openness

Production and Market

MKTCAP	**Market capitalization of listed companies (current US$)**
COS	Listed domestic companies, total
STOCK	**Stocks traded, total value (current US$)**
AGR	**Agriculture, value added (current US$)**
MFG	**Manufacturing, value added (current US$)**
IND	**Industry, value added (current US$)**
SER	**Services, etc., value added (current US$)**
GDP	GDP (current US$)
GDPPC	GDP per capita (current US$)
POPDEN	Population density (people per sq. km of land area)

Resources

TNR	Total natural resources rents (% of GDP)
GFCF	Gross fixed capital formation (current US$)
GDS	Gross domestic savings (current US$)
FUEL	Fuel imports (% of merchandise imports)
OREMETAL	Ores and metals imports (% of merchandise imports)

Research and Development

JOUR	Scientific and technical journal articles
PTM	Patent and Trade Mark applications, Total
PRMYEDU	Primary education, pupils
SECEDU	Secondary education, pupils
VOCTN	Secondary education, vocational pupils
SCHENR	School enrollment, tertiary (% gross)
EDUEXP	Adjusted savings: education expenditure (current US$)

Taxation

&STAX	Taxes on goods and services (current LCU)
OTHRTAX	Other taxes (current LCU)
TAXREV	Tax revenue (current LCU)
ITTAX	Taxes on international trade (current LCU)

Developmental Variable Selected Through Principal Component Analysis

Variable	Variables Included (in PCA)	Principal Variables Selected (by PCA)	Composite Index
Human Resource (HR)	COM_E, EMP_POP, LFPR, WPOP, GDPPPE	COM_E, LF, GDPPPE	IHR
Infrastructure (INFRA)	ENGYP, ELCTP, EPC, ATCARR, ATFT, RLYGT, RLYLINE, TEL	ATCARR, ATFT, RLYLINE	IINFRA
Research & Development (R&D)	JOUR, PTM, PRMYEDU, SECEDU, VOCTN, SCHENR, EDUEXP	SCHENR, PRMYEDU, VOCTN	IR&D
Production & Market (PRODMKT)	MKTCAP, COS, STOCK, AGR, MFG, IND, SER, GDP, GDPPC, POPDEN	MFG, STOCK, COS	IPRODMKT
Openness (OPN)	IMD, EXRATE, TOURNO, TOURISM, TOT, RESV, FDI, PORT, TOPN	EXRATE, TOT, PORT	IOPN
Resource (RES)	TNR, GFCF, GDS, FUEL, OREMETAL	GDS, OREMETAL, TNR	IRES
Taxation (TAX)	G&STAX, OTHRTAX, TAXREV, ITTAX	G&STAX, OTHRTAX, TAXREV	ITAX

Source: Author's Estimation

A CASE STUDY ON SUPPLY CHAIN MANAGEMENT IN ARAVIND EYE CARE SYSTEM

Dr. H.K. Dangi[1], Dr. Sukrit Kumar[2] and Anuradha Malik[3]

In this competitive age, supply chain management has become a key strategic factor for the success of all kinds of organization. Efficient supply chain management in the healthcare sector is of utmost importance. The healthcare sector faces unique pressures of higher quality and timely service, dispersed patients, high risk, stringent government regulations and mounting costs. The health care organization investigated in this case study is Aravind Eye Care system (AECS), popularly known as the McDonald's of cataract surgery. The present study identifies the supply chain model used by AECS and elaborates how supply chain management in various operations of AECS contributes to its success. The case study exemplifies that efficient management of supply chain can help an organization in attaining scalability and sustainability.

Key Words: Supply Chain, Hub and Spokes Model, Health Care, Aravind Eye Care System.

BACKGROUND

My goal is to spread the Aravind Model to every nook and corner of India, Asia and Africa, wherever there is blindness we want to offer hope".

-Dr. Venkataswamy (Founder, Aravind Eye Care System)

Healthcare care sector is one of the key pillars of any economy. The well being of people of a nation depends on the robustness and responsiveness of its health sector. In developing countries like India, health care sector pose various adverse challenges. India has an average availability of 1 doctor for every 1674 people against the World Health Organization (WHO) norm of 1:1000 ratio (Ministry of Health and Family welfare,2016). The situation in rural areas is even worse. The rural doctor-patient ratio is found to be six times lower than the urban doctor-patient ratio (Sengupta, 2013). Thus, there is significant mismatch between supply and demand for health care services.

India is home to the largest blind population in the world and75% of the cases of blindness are preventable(Sinhal, 2007). The situations of eye care in the country were even severe in the twentieth century. Cataract emerged as the most prevalent cause of blindness. According to the sample survey of 1975, out of total cases, 55% of blindness was solely caused by cataract(H.V. Nema & N. Nema, 2011).The incidence of the disease was worsened by lack of timely treatment and each year 3.8 million people in India suffered from cataract (Minassian & Mehra, 1990).

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[1] Associate Professor, Department of Commerce, Delhi School of Economics, University of Delhi, Email id— hkdangi@yahoo.com

[2] Expert – Urban Primary Healthcare Network in Health, Nutrition and WASH Practice in PAHAL project, IPE Global Limited, Email id— dr.sukrit@gmail.com

[3] Ph.D. Scholar, Department of Commerce, Delhi School of Economics, University of Delhi (Corresponding Author), Email id- malikanuradha93@gmail.com

Cataract is clouding of the eye's natural lens which can cause blurry vision to complete loss of vision. It can affect one or both eyes. Cataract is treatable with a simple and quick surgery to replace the eye lens (Sihota & Tandon, 2011). Nevertheless, the situation was not so simple in India in last century. On one hand, patients were scattered throughout the country while on the other specialty eye hospitals were concentrated primarily in urban areas. Apart from accessibility, there were other problems like affordability as the Intra ocular lens used for surgery was expensive, lack of awareness among patients and apprehensions about surgery.

Against background of such distressing situations of eye care in India, Aravind Eye Care System (AECS) was established under GOVEL trust as a non-profit institution in Madurai in 1976 byDr. Govindappa Venkataswamy. He was a disciple of revered spiritual leader Sri Aurobindo and named the organization after him. Dr. V was an ophthalmologist and set up AECS after his retirement from Madurai medical college. He had also served Indian Army as a physician from 1945-48 but he was discharged due to rheumatoid arthritis. His severe illness developed deep compassion in him for the suffering of other people. Motivated by his vision to eliminate preventable blindness, AECS was started by Dr.V from his family home with eleven beds and four doctors (Mehta & Shenoy, 2011). His mission was to eradicate avoidable blindness by providing high quality, huge volume and compassionate eye care to all.

AECS provides free treatment and eye care to those who cannot pay. For rest, affordable eye care is provided. The quality of treatment and care is same for everyone. The only difference is of amenities such as air conditioning in the recovery room or choice of lens (Centre for Global Development, 2007). The patients who cannot pay are serviced with revenue earned from those patients who are able to pay the hospital charges. AECS has completed forty years of its journey of excellent and affordable eye care and has become one of the largest providers of ophthalmological services in the world. Aravind model is guided by high ethical standards of serving needy people. Selfless values form the backbone of the entire Aravind eye care system.

SUPPLY CHAIN MANAGEMENT

In simple words, supply chain management is managing the flow of goods, services or information from supplier to customer. Supply chain management can be a key source of competitive advantage (Christopher, 2005). Supply chain system consists of manufacturers, distributors, suppliers and customers. The basic components of supply chain management are – Plan, Source, Make, Deliver and Return.

Planning is the strategic activity of supply chain. The organizations need to plan how resources will be used in a cost effective manner to meet the customers' demand for their product or service. Sourcing is associated with choosing reliable suppliers/vendors and maintaining profitable relationships with them. The organizations must develop an efficient system of pricing, delivery and payment mechanism with the suppliers. The make component of supply chain is concerned with scheduling of the activities necessary for production, testing, packaging and preparation for delivery. The delivery component is also known as logistic function and includes receiving orders from customers and ensuring delivery through an efficient distribution system. The final stage of supply chain management is called return. Supply chain should be created and managed in a flexible and responsive manner. This will be helpful in

receiving defective and excess products back from customers and supporting customers with delivered products.

Supply chain should be developed and managed in such a way that it facilitates cost effectiveness while delivering timely, high quality and valuable goods or services to customers.

SUPPLY CHAIN MANAGEMENT IN HEALTH CARE

Supply chain in health care sector consists of all the parties involved directly or indirectly in fulfilling patients' needs and expectations. A typical Supply Chain in health care includes all components such as patients/customers, doctors, nurses, paramedical staff, healthcare administrators, hospitals, healthcare centers, labs, pharmaceuticals, equipment companies and raw material suppliers etc. The supply chain in healthcare sector is often found to be highly fragmented and uneconomical (Schneller & Smeltzer, 2006). Efficient supply chain management is critically important because of risk involved and costs in health care (Chandra & Kachhal, 2004).The key idea behind managing the supply chain in health care systems is to provide quality care at affordable prices to the dispersed population at the right time. Population in developing countries such as India is scattered into numerous cities, towns and villages. Owing to the fact that health care infrastructure and resources are limited, providing care and treatment at the point of need is the real challenge.

SUPPLY CHAIN MANAGEMENT IN ARAVIND EYE CARE SYSTEM

The success of AECS can be attributed to factors like efficiency in workflow, sound HR management, use of technology, backward integration and conversion of latent demand into effective demand by wide outreach etc. The underlying corner stone is efficient supply chain management throughout the organization in all functions and at all levels. The key building blocks of self sustaining Aravind model are:

(A) Hub and Spokes Model- AECS has networked the components of the organization (specialty hospitals and vision centers) in Hub and Spokes model. This model is an integrated system in which a centrally located hub is connected with spokes. The functionality of the hubs and spokes vary according to the industry. AECS has eleven super specialty hospitals which act as hubs. Fifty nine vision centers and numerous community eye clinics and outreach camps act as spokes in the system. Hub hospitals have advanced equipments and doctors with specialized diagnostic and surgical skills. The key motive to use hub and spokes model by AECS is to ensure health connectivity to widespread patients.

Figure 1: Hub and Spokes model in AECS

Needy people in far flung locations who lack resources and are unaware can be reached through Spokes. Use of Hub and Spokes model ensures volume for the hospitals. Volume, in turn is harnessed by the combination of low cost, high quality and efficient procedures as well as the appropriate use of technology. Thus, spatial and temporal issues are dealt with Hub and Spokes model of supply chain.

(B) Backward Integration/ End to End solution (E2ES) -In the initial years of its operation, Aravind faced problem of high cost of imported Intra ocular lenses and scheduling of imports and surgeries. In 1992, with technological support from US based Seva foundation and Combat blindness foundation, Aurolab was established to manufacture high quality lenses at low costs (Ibrahim et al, 2006). The manufacturing cost of IOL in Aurolab is only $2 while the import cost was around $200. AECS also has an eye bank as part of its network of hospitals. Later, Aurolab also started to manufacture products such as micro-surgical blades, suture needles, lasers and eye drops. Apart from cost benefits, depending on in-house supply for raw material also ensures timeliness. Today, the Intra ocular lenses manufactured by Aurolab are exported to over 120 countries and Aurolab own the 7% of global market share for such lenses. The export income has become a major source of revenue for AECS.

(C) Workflow Optimization- Dr.V was highly inspired by standardization and assembly line approach used in product manufacturing. The same is replicated in surgery proceedings in AECS. In operation theatre, patients are laid on surgery tables side by side. While highly skilled ophthalmologist operates on one patient, another patient is prepared by the assisting team for surgery. After completing one surgery, the ophthalmologist immediately starts operating the adjacent patient. By maintaining such high level of efficiency in workflow, the productivity is kept high and costs are lowered down. A surgeon in AECS performs an average of 2,000 or more surgeries per year which is far more than the national and international benchmark averages. Administrative workflow such as registration, billing, and discharge is also standardised so that patients can be provided service in least time.

(D) Economies of Scale- Volume lowers down the cost and ensure sustainable existence of the system (Swami & Shah,2011).The spokes of the Aravind model are spread in rural areas so that need for eye care could be converted into demand. High level of connectivity in supply chain facilitates timely treatment of widespread patients. In financial year 2015-16, 3,727,227 outpatients were treated and 408,220 surgeries were performed at the Aravind Eye Care Hospitals (AECS Activity Report,2016). To remain financially viable, AECS has to ensure that eye care is accessible to needy patients irrespective of their location. Also, by reaching out to patients in early stage of diseases, eye care cost can be lowered down.

(E) Sound HR practices- AECS depends mainly on its own supply of human resources. It has special focus on recruitment and training. It has wide range of clinical and non-clinical training programs for its staff. Girls from rural background are trained for two years and employed as ophthalmic assistants. For training, research and consultancy in hospital management, Lions Aravind Institute of community ophthalmology (LAICO) was established in 1992. Aravind has in-house training programs for various levels of personnel-ophthalmologists, opticians, ophthalmic technicians, clinical assistants, outreach coordinators, health care managers and hospital administrators. There are certificate courses, management courses, diplomas,degrees and fellowship programs etc. to cater to various educational needs. The employees are infused with higher purpose of serving people. Auro iTech was founded to provide information technology services to the organization. These unique practices help AECS in keeping the HR costs low. The attrition rate is also very low.

(F) Integration of Technology-AECS has harnessed and incorporated technology in its supply chain from grassroots level. To tackle the problem of lack of ophthalmologists and to ensure wide reach, Aravind has telemedicine network in satellite clinics. Ophthalmic assistants and patients in remote eye clinics can consult doctors via video conferencing. Portable Fundus cameras are used for eye screening in vision centers and camps. Such images are sent to doctors in specialized hospitals for diagnosing. This ensures timely delivery of care at point of need. Aravind Tele-Ophthalmology Network was established in 2002 to ensure underserved population can be covered by AECS initiatives. Patient records are also maintained electronically to speedup the entire service process. Radio frequency Identification (RFID) is used for management of doctors, patients, paramedics and other staff at each vision centre.

CONCLUSION

Supply chain management is backbone of any organization. The purpose of supply chain management is to ensure that right thing reaches the right place at the right time. At each and every step in supply chain, attempts are made to keep the costs minimum. In health care sector, the supply chain management is utterly crucial because of the risks involved. Timeliness is the real prerequisite to be patient centric in health care sector.

In four decades of its existence, Aravind eye care has scaled up to many eye hospitals, vision centers, community outreach clinics, local eye care centers, eye banks, educational institutes and training institutes. It is the WHO's collaborating center for prevention of avoidable blindness and visual impairment in India. The success of Aravind eye care system rests on effectiveness and responsiveness of its supply chain. Aravind has successfully illustrated how supply chain can be used to reach the needy patients. Many health organizations worldwide have replicated use of Aravind model in decentralizing

health care.

Health care sector face challenges of lack of qualified professionals and wide spread patients. Traditional models of health management have failed to solve the heath sector problems. Modern health care supply chain models such as Hub and Spokes model used by AECS ensure that widespread patients get care on time and are integrated into the system. Technology is the lifeline of modern supply chain systems in health care and should be leveraged to provide last mile connectivity.

REFERENCES

AECS Activity Report 2015-16 (2016).http://www.aravind.org/content/downloads/aecsreport201516.pdf

Centre for Global Development (2007), *Millions Saved: Treating Cataracts in India*. Retrieved from: http://www.cgdev.org/doc/millions/MS_case_19.pdf

Chandra, C., & Kachhal, S. K. (2004). Managing health care supply chain: trends, issues, and solutions from a logistics perspective. In*Proceedings of the sixteenth annual society of health systems management engineering forum, February* (pp. 20-21).

Christopher, M. (2005). *Logistics and supply chain management: creating value-adding networks*. Pearson education

Ibrahim, M., Bhandari, A., Sandhu, J. S., & Balakrishnan, P. (2006). Making Sight Affordable (Part I): Aurolab Pioneers production of low-cost technology for cataract surgery. *innovations*, *1*(3), 25-41.

Mehta, P., & Shenoy, S. (2011). *Infinite vision: How Aravind became the world's greatest business case for compassion*. Berrett-Koehler Publishers

Minassian, D. C., & Mehra, V. (1990). 3.8 million blinded by cataract each year: projections from the first epidemiological study of incidence of cataract blindness in India. *British journal of ophthalmology*, *74*(6), 341-343.

Ministry of Health and Family Welfare. (2016).*Ninety-Second Report: The Functioning of Medical Council of India.* Rajya Sabha Secretariat, New Delhi

Nema, H. V., & Nema, N. (2011). *Textbook of ophthalmology*. JP Medical Ltd.

Schneller, E. S., & Smeltzer, L. R. (2006). *Strategic management of the health care supply chain*. San Francisco, CA: Jossey-Bass

Sengupta, R. (2013). Sustainable and Inclusive Innovations in Health Care Delivery–A Business Model Perspective. *GIZ India & CII-ITC Centre of Excellence for Sustainable Development*.

Sihota, R., & Tandon, R. (2011). *Parsons' Diseases of the Eye*.Elsevier India.

Sinhal K. (2007). India has largest blind population. Retrieved from http://timesofindia.indiatimes.com/india/India-has-largest-blind-population/articleshow/2447603.cms. The Times of India

Swami, S., & Shah, J. (2011).Improving Quality of Development: Perspectives from Operations Management. *IIM Bangalore Research Paper*, (349).

Website of AECS- http://www.aravind.org/

Annexure

1. **Terms of Glossary**

• Cataract-Clouding of the eye lens leading to a decrease of vision.

• Fundus camera- A specialized low power microscope with an attached camera

• IOL- Intraocular lens (IOL) is a lens implanted in the eye used to treat medical conditions of the eye.

• Needless Blindness- Blindness which is treatable or preventable.

• Ophthalmologist- A specialist in medical and surgical eye problems.

- Ophthalmological Service- Medical Service pertaining to an eye.

- Outpatient- A patient whose treatment does not require an overnight stay at the hospital.

- Paramedic-A person who is trained to do medical work especially emergency first aid, but is not a fully qualified doctor.

- Radio Frequency Identification-It uses radio waves to transfer data from an electronic tag attached to an object for the purpose of identifying and tracking the object.

- Rheumatoid Arthritis- A disease causing inflammation in the joints and resulting in painful deformity and immobility. It affects the wrist and small joints.

- Telemedicine-The remote diagnosis and treatment of patients by means of telecommunications technology.

2. **Location of Hospitals in AECS system**- Madurai, Theni, Tirunelveli, Coimbatore, Coimbatore City Center, Pondicherry, Dindigul, Tirupur, Salem, Tuticorin, Udumalpet

3. **List of vision centers in AECS system**- Alanganallur, Tiruppuvanam, Rameshwara, Gandhigram, Natham, Sholavandan, Manamadurai, Usilampatti, Sattur, Singampunari, Kariapatti, Peraiyur, Kalaiyarkoil, Srivilliputhur, Vedachandur, Devakottai, Vadamadurai, Oddanchatram, Tiruchuli, Panthalkudi, Ilayangudi, Sedapatti, Rayavaram, R.S. Mangalam, Andipatti, Bodi, Chinnamanur, Periyakulam, Thevaram, Batlagundu, Kandamanur, Kallidaikurichi, Srivaikuntam, Surandai, Vilathikulam, Valliyur, Kadayanallur Patthamadai, Kadayam, Pavoorchatram, Puthiyamuthur, Sivagiri, P.N.Palayam, Kinathukadavu, P.Puliyampatti, Annamalai, Alandurai, Madathukulam, Pongalur, Uthukuli, Tirukkanur, Marakkanam, Kurunchipadi, Nellikuppam,Ulundurpet, Auroville, Parangipettai, Pennadam, Thiruvennainallur

3. **Cataract Eye**

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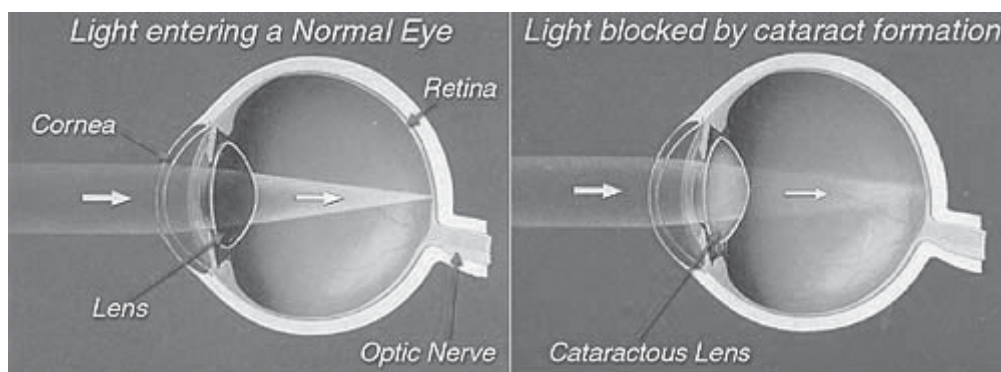
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