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Impact of Financial Crisis on Relationship between Aggregate Stock Returns and Macroeconomic Factors in BRICS Stock Markets

Vanita Tripathi¹, and Arnav Kumar²

ABSTRACT

The relationship between Aggregate Stock Returns and prominent Macroeconomic Factors (i.e., GDP, Inflation, Interest Rate, Exchange Rate, Money Supply and Oil Prices) has been examined for BRICS economies for the period from 1995: Q1 to 2014: Q4 using quarterly data. To assess the impact of Global Financial Crisis, this relationship is further scrutinized during two sub periods viz., a Pre Crisis period (1995:Q1 to 2007:Q2) and a Post Crisis Period (2007:Q3 to 2014:Q4). ADF Unit Root Test, Correlation Analysis and Multivariate Regression Model have been applied. We find strong positive contemporaneous relationship of BRICS stock returns with GDP growth rates, changes in Money Supply and changes in oil prices in almost every country. Stock returns are negatively correlated with inflation rate, changes in interest rate and changes in exchange rate. Also, correlation between stock returns and macroeconomic factors has increased substantially in the post crisis period indicating impact of crisis in deepening the contemporaneous relationship. Country wise multivariate regression results indicate that various Macroeconomic Factors significantly explain and predict Aggregate Stock Returns in different BRICS markets, viz., Brazil (Money Supply, Exchange Rate, GDP & Inflation), Russia (None), India (GDP & Exchange Rate), China (Exchange Rate), South Africa (Inflation, International Oil & Money Supply). These results were mostly consistent in pre and post crisis periods indicating no major impact of crisis on regression's estimated relationship. These findings besides expanding the existing literature and knowledge base on the topic will have pertinent uses and implications for regulators, policy makers, investors and researchers, particularly in emerging markets.

Keywords: Aggregate Stock Returns, BRICS Stock Markets, Macroeconomic Factors, Global Financial Crisis, Regression Analysis

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Introduction

Arbitrage Pricing Theory (APT) propounded by Stephen Ross in 1976 suggested that an asset's returns can be predicted using the relationship between that asset and many common risk factors. With an ever increasing integration of the financial and real economy, the relationship between stock returns and macro economic variables have assumed great importance particularly for prominent emerging economies such as the BRICS (Brazil, Russia, India, China and South Africa) group. Researchers and Practitioners through their work and insights over the past few decades have suggested few important macroeconomic variables which can potentially have a significant relationship with stock market performance, viz., GDP growth rate, Inflation rate, Interest rate, Foreign Exchange Rate, Money Supply and International Oil Prices.

GDP growth rate (proxy for real economic activity) should positively impact aggregate stock returns as any increase in it favourably affects demand and cash flows of corporations. Increase in inflation, on the other hand is generally taken to negatively impact stock returns as it increases input cost, reduces demand, increases interest rate and raises investors required rate of return. Like Inflation, Interest rate also causes increase in financial costs and investors opportunity rate of return by making other investment avenues more lucrative.

A depreciation in exchange rate can be favourable for an economy (thus positively impact stock returns) if the benefits of more foreign capital inflows and gains for exporters outweigh losses to importing firms. An increase in Money supply has similar debatable impact as on one hand it can cause inflation (thus negatively impact stock performance) and on the other hand it reduces interest rates and provides more funds for consumption and investment (which is positive for capital markets). Within the BRICS block, stock markets in an oil exporting country like Russia would clearly gain from increase in global oil prices While, stock markets in all other oil importing economies will suffer from the same on account of inflation, lower demand, increased costs and lower profitability of corporates.

The global financial crisis which originated in USA as subprime mortgage crisis had a devastating impact on equity markets across the globe with some losing upto two-third of their valuations in its aftermath. Thus, it would be very pertinent to probe whether the relationship between aggregate stock returns and macro economic variables (if any) was impacted (if yes then in what manner) or not at all impacted by global economic recession.

Acknowledgement: This paper is based on a comprehensive study undertaken under UGC Major Research Project titled "Relationship between Macroeconomic Factors and aggregate stock returns in Emerging Markets- An Empirical Study of BICS stock Markets" of which Dr. Vanita Tripathi is the Principal Investigator. The authors gratefully acknowledge the financial support provided by University Grants Commission, New Delhi for this study.

Our objective in this paper is to examine the nature and magnitude of contemporaneous relationship (if any) between aggregate stock returns and prominent macro economic factors. We also investigate whether any macro economic variables are useful in predicting future BRICS stock returns. Then, we examine the impact of USA global financial crisis on the above relationship.

The remaining paper is structured as follows: The next section provides review of literature. Its subsequent section explains the data and methodology. The section that follows it elucidates the empirical results. The final section provides the conclusions and implications of the study.

Review of Literature

A large number of studies have examined the relationship between aggregate stock returns and macroeconomic variables in developed markets. However, the documented literature on such a relationship in emerging markets has been limited and is growing only recently especially in the context of BRICS economies.

Fama (1981, 1990) found that stock returns have strong relationship with macroeconomic variables, namely, inflation, national output and industrial production. Chen et al. (1986) reported that interest rates, inflation and industrial production significantly affect stock market returns in USA. Chang and Pinegar (1989) affirmed presence of close relationship between domestic economic activity and stock market performance. Mukherjee and Naka (1995) suggested a positive relationship and long run cointegration between the Japanese stock returns and industrial production. Maysami and Koh (2000) evidenced that changes in Singapore's stock prices are cointegrated with changes in interest rates (both short and long term), inflation, exchange rate and money supply. Gay (2008) conveyed an insignificant, but positive relationship between exchange rates and stock prices and though non insignificant but, a negative relationship between respective oil prices and stock market in BRICS. Singh (2010) indicated that Indian industrial production (proxied by IIP) and inflation (measured by WPI) have causal relationship with BSE Sensex (Indian Stock Market Proxy). Dasgupta (2012) testified long-run cointegration relationship between BSE SENSEX and index of industrial production and interest rate (proxied by call money rate). Tripathi and Kumar (2015 c) used ARDL model and reported that Stock returns granger cause GDP and Inflation in BRICS. Also, they report significant negative relationship of stock returns with Interest Rate, Exchange Rate and Oil Prices and a positive relationship with money supply.

Overall, it can be said that, the studies have comprehensively analysed the developed markets and arrived at some common ground. But for developing markets, the consensus is largely lacking both due to varying results for most macro economic variables and paucity of research. Hence, a probe is warranted to clearly establish such relationship for emerging BRICS economies.

Data and Methodology

Data

The data comprises of quarterly data for the period 1995: Q1 to 2014: Q4. In order to incorporate the effect of global financial crisis on relationship between BRICS stock indices and macro economic variables in the study, the entire study period and data were divided into two sub-parts: a Pre-Crisis period (1995: Q1 to 2007:Q2) and a Post Crisis period (2007: Q3 – 2014: Q4). Rationale for the time frame of these sub-periods is the fact that there is a general acceptance among the global financial community that global financial crisis originated in the US on August 9, 2007 when BNP Paribas blocked withdrawals from three hedge funds citing “a complete evaporation of liquidity”.

The data comprises of macro economic variables and stock indices values for all BRICS nations and International Oil Prices. We have considered six prominent macroeconomic variables, i.e., GDP, Inflation, Interest Rate, Exchange Rate, Money Supply and Oil Prices. The operational definitions, time period of availability, source and symbol of each macro economic variable for each country and international oil prices is provided in Table-1.

Table-1: Data Description (Macroeconomic Variables)

S. No.	Country	Macroeconomic Variables	Operational Definition and Unit of measurement	Time Period	Source	Symbol
1.	Brazil	GDP	Fixed PPP, 2005 Prices (in Billion USD)	1996: Q1 -2014: Q3	OECD	BGDP
2.	Brazil	Inflation	Consumer Price Index, Base 2010	1995: Q1 -2014: Q4	OECD	BINF
3.	Brazil	Interest Rate	Brazil Selic Target Rate (in Percentages)	1999: Q1 -2014: Q4	Bloomberg	BIR
4.	Brazil	Exchange Rate	1 USD in Brazilian Real(BRL)	1995: Q1 -2014: Q4	Bloomberg	BER
5.	Brazil	Money Supply	Broad Money Supply (M3)	1995: Q1 -2014: Q4	Central Bank of Brazil	BMS
6.	Russia	GDP	Fixed PPP, 2005 Prices (in Billion USD)	1995: Q1 -2014: Q3	OECD	RGDP
7.	Russia	Inflation	Consumer Price Index, Base 2010	1995: Q1 -2014: Q4	OECD	RINF
8.	Russia	Interest Rate	Russia Refinancing Rate	1995: Q1 -2014: Q4	Bloomberg	RIR
9.	Russia	Exchange Rate	1 USD in Russian Ruble (RUB)	1995: Q1 -2014: Q4	Bloomberg	RER
10.	Russia	Money Supply	Narrow Money Supply (M1)	2002: Q2 -2014: Q4	Bloomberg	RMS
11.	India	GDP	Fixed PPP, 2005 Prices (in Billion USD)	1996: Q2 -2014: Q4	OECD	IGDP
12.	India	Inflation	Consumer Price Index, Base 2010	1995: Q1 -2014: Q4	OECD	IINF

S. No.	Country	Macroeconomic Variables	Operational Definition and Unit of measurement	Time Period	Source	Symbol
13.	India	Interest Rate	Weighted Average Call Money Rates	1995: Q1 -2014: Q4	RBI	IIR
14.	India	Exchange Rate	1 USD in Indian Rupees	1995: Q1 -2014: Q4	RBI	IER
15.	India	Money Supply	Broad Money (M3)	1995: Q1 -2014: Q4	RBI	IMS
16.	China	GDP	GDP at current prices (in Billion USD)	1995: Q1 -2014: Q3	National Bureau of Statistics	CGDP
17.	China	Inflation	Consumer Price Index, Base 2010	1995: Q1 -2014: Q4	OECD	CINF
18.	China	Interest Rate	1 Year Benchmark Lending Rates	1996: Q2 -2014: Q4	Bloomberg	CIR
19.	China	Exchange Rate	1 USD in Chinese Yuan (CNY)	1995: Q1 -2014: Q4	Bloomberg	CER
20.	China	Money Supply	Money Supply (M2)	1996: Q1 -2014: Q4	Bloomberg	CMS
21.	South Africa	GDP	Fixed PPP, 2005 Prices (in BillionUSD)	2002: Q1 -2014: Q4	OECD	SAGDP
22.	South Africa	Inflation	Consumer Price Index, Base 2010	2002: Q1 -2014: Q4	OECD	SAINF
23.	South Africa	Interest Rate	Average Repo Rate	2002: Q1 -2014: Q4	Bloomberg	SAIR
24.	South Africa	Exchange Rate	1 USD in South African Rand	2002: Q1 -2014: Q4	Bloomberg	SAER
25.	South Africa	Money Supply	Money Supply (M2)	2002: Q1 -2014: Q4	Bloomberg	SAMS
26.	International	Oil Price	Simple average of three spot prices: Dated Brent, West Texas Intermediate, and Dubai Fateh.	1995: Q1 -2014: Q4	Index Mundi	OIL

The detailed description of stock market variables of each country is given in Table-2.

Table-2: Data Description (Stock Market Variables)

S. No.	Country	Stock Exchange	Stock Index	Time Period	Source	Symbol
1.	Brazil	Sao Paulo Stock Exchange	Ibovespa	1995: Q1 to 2014: Q4	Yahoo Finance	BINDEX
2.	Russia	Moscow Stock Exchange	RTSI INDEX	1995: Q3 to 2014: Q4	Yahoo Finance	RINDEX
3.	India	Bombay Stock Exchange	BSE SENSEX	1995: Q1 to 2014: Q4	Yahoo Finance	IINDEX
4.	China	Shanghai Stock Exchange	Shanghai SE Composite	1995: Q1 to 2014: Q4	Yahoo Finance	CINDEX
5.	South Africa	Johannesburg Stock Exchange	FTSE-JSE All Share Index	2002: Q1 to 2014: Q4	Yahoo Finance	SAINDEX

Methodology

Aggregate Stock Return

First of all, we compute the aggregate stock return as follows:

Stock return is calculated in terms of log returns through the following equation:

$$R_t = \log I_t - \log I_{(t-1)} \quad \dots\dots\dots(1)$$

Where I_t = Closing Adjusted Stock Index Value in time t ;

$I_{(t-1)}$ = Closing Adjusted Stock Index Value in time $(t-1)$.

Augmented Dickey Fuller (ADF) Unit Root Test

Popular ADF unit root test has been applied to test the time series data of different variables for the property of stationarity. IHS (2013): "The Augmented Dickey-Fuller (ADF) test constructs a parametric correction for higher-order correlation by assuming that the y series follows an AR (∞) process and adding ∞ lagged difference terms of the dependent variable y to the right-hand side of the test regression:

$$\Delta y_t = \alpha y_{t-1} + \sum_{i=1}^p \beta_i \Delta y_{t-i} + x'_t \delta + v_t \quad \dots(2)$$

This augmented specification is then used to test the null and alternative hypothesis:

$$H_0 : \alpha = 0 \text{ and } H_1 : \alpha < 0 \text{'' (p. 476-477).}$$

Correlation Analysis

The Correlation Coefficient would reflect the nature and magnitude of contemporaneous relationship(if any) between macroeconomic and stock index variables of BRICS. In addition, a comparative bi-variate correlation index has also been constructed by dividing the post crisis bi-variate correlations with their pre-crisis values for each pair of stock indices and macroeconomic variables of BRICS economies. A value more than 1 would indicate an increase in the bi-variate correlation coefficient in the post crisis period as compared to the pre-crisis period.

$$\text{Bivariate Correlation Index} = \frac{\text{Coefficient of Correlation Post Crisis}}{\text{Coefficient of Correlation Pre-Crisis}} \quad \dots\dots\dots (3)$$

Multivariate Regression Analysis

Multivariate regression analysis has been used in this research to find the linear trend and explanatory power of macroeconomic variables in predicting stock returns in BRICS markets. Stock return is considered as the dependent variable (Y) and macroeconomic factors (X) are considered as independent variables in the analysis. The model is stated below:

$$Y_i = \alpha_1 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \dots\dots + \beta_n X_n + e_i \quad \dots\dots\dots (4)$$

Where:

- Y_i - Dependent BRICS Aggregate Stock Returns;

- α_1 - Constant or Intercept;
- X_1, \dots, X_6 -Independent Macroeconomic Variables;
- B_1, \dots, B_6 - Slope of regression line or measure of degree and direction of this relationship; and
- e_i - Random Error Term accounting for all factors other than macroeconomic variables which influence stock returns.

Empirical Results and Discussion

ADF Unit Root Test Results

We applied Augmented Dickey Fuller (ADF) unit root test to check for the stationarity of the time series data in the total period, pre-crisis period and post crisis period for individual countries. The results are shown in Table-3. The null hypothesis that the variable is non-stationary is rejected for all the variables at first difference. Hence, the time series are integrated of order one [I (1)] and can be used in a regression framework.

Table-3: ADF Unit Root Test Results (Log of First Difference)

Variable	Total Period		Pre Crisis Period		Post Crisis Period	
	t-Statistic	Probability	t-Statistic	Probability	t-Statistic	Probability
Brazil GDP	-7.62*	0.00	-7.59*	0.00	-2.94*	0.00
Brazil Inflation	-5.80*	0.00	-4.00*	0.00	-6.80*	0.00
Brazil Interest Rate	-7.79*	0.00	-7.10*	0.00	-2.37*	0.02
Brazil Exchange Rate	-7.32*	0.00	-5.74*	0.00	-4.40*	0.01
Brazil Money Supply	-5.95*	0.00	-4.28*	0.00	-4.94*	0.00
Russia GDP	-4.55*	0.00	-4.98*	0.00	-2.89*	0.00
Russia Inflation	-5.69*	0.00	-4.04*	0.00	-3.45*	0.02
Russia Interest Rate	-5.07*	0.00	-6.21*	0.00	-2.98*	0.00
Russia Exchange Rate	-5.77*	0.00	-4.98*	0.00	-2.10*	0.04
Russia Money Supply	-3.70*	0.03	-2.49*	0.02	-3.11*	0.04
India GDP	-8.37*	0.00	-6.12*	0.00	-6.22*	0.00
India Inflation	-8.72*	0.00	-6.92*	0.00	-6.58*	0.00
India Interest Rate	-11.90*	0.00	-6.49*	0.00	-4.61*	0.00
India Exchange Rate	-4.86*	0.00	-5.80*	0.00	-4.97*	0.00
India Money Supply	-4.12*	0.00	-10.47*	0.00	-7.92*	0.00
China GDP	-26.45*	0.00	-8.94*	0.00	-13.38*	0.00
China Inflation	-4.74*	0.00	-3.12*	0.03	-3.11*	0.04
China Interest Rate	-6.68*	0.00	-6.30*	0.00	-4.25*	0.00
China Exchange Rate	-4.88*	0.00	-6.20*	0.00	-3.32*	0.00
China Money Supply	-7.07*	0.00	-7.20*	0.00	-5.91*	0.00
South Africa GDP	-4.56*	0.00	-3.35*	0.02	-2.76*	0.00
South Africa Inflation	-4.61*	0.00	-3.53*	0.01	-3.11*	0.04
South Africa Interest Rate	-5.52*	0.00	-4.59*	0.00	-3.15*	0.00
South Africa Exchange Rate	-7.60*	0.00	-6.00*	0.00	-2.23*	0.03

Variable	Total Period		Pre Crisis Period		Post Crisis Period	
	t-Statistic	Probability	t-Statistic	Probability	t-Statistic	Probability
South Africa Money Supply	-7.56*	0.00	-5.94*	0.00	-3.77*	0.04
International Oil Price	-7.50*	0.00	-6.62*	0.00	-4.17*	0.01
Brazil Stock Index	-8.52*	0.00	-5.92*	0.00	-4.51*	0.01
Russia Stock Index	-6.19*	0.00	-4.84*	0.00	-3.76*	0.01
India Stock Index	-7.33*	0.00	-6.50*	0.00	-4.10*	0.00
China Stock Index	-6.89*	0.00	-5.75*	0.00	-3.66*	0.01
South Africa Stock Index	-5.29*	0.00	-4.18*	0.02	-3.50*	0.02

Note: * Denotes Significant at 5% Level.

Correlation Analysis Results

Country wise bivariate correlation results are presented in Tables 4 – 8. While, the Post/Pre Crisis Correlations Index is provided in Table-9. All the correlations have been computed using the stationary (first difference log) series of variables. We find strong positive contemporaneous relationship of BRICS stock returns with GDP growth rates, changes in Money Supply and changes in oil prices in almost every country. Stock returns are negatively correlated with inflation rate, changes in interest rate and changes in exchange rate.

As, there is insignificant correlation among the various macroeconomic factors, there is no major problem of Multicollinearity in Regression Model. Also, correlation between stock returns and macroeconomic factors has increased substantially in the post crisis period indicating impact of crisis in deepening the contemporaneous relationship.

Table-4: Cross Correlation Matrix - Brazil

Variable	Study Period	DLOG (BINDEX)	DLOG (BGDP)	DLOG (BINF)	DLOG (BIR)	DLOG (BER)	DLOG (BMS)	DLOG (INTOIL)
DLOG (BGDP)	Total	-0.04	1.00					
	Pre Crisis	0.13	1.00					
	Post Crisis	-0.24	1.00					
DLOG (BINF)	Total	-0.02	-0.13	1.00				
	Pre Crisis	0.01	-0.29	1.00				
	Post Crisis	-0.22	0.03	1.00				
DLOG (BIR)	Total	-0.20	-0.01	0.29*	1.00			
	Pre Crisis	-0.05	-0.11	0.35*	1.00			
	Post Crisis	-0.44*	0.16	0.20	1.00			

Variable	Study Period	DLOG (BINDEX)	DLOG (BGDP)	DLOG (BINF)	DLOG (BIR)	DLOG (BER)	DLOG (BMS)	DLOG (INTOIL)
DLOG (BER)	Total	-0.41	-0.23	-0.14	0.01	1.00		
	Pre Crisis	-0.38	-0.05	-0.15	-0.09	1.00		
	Post Crisis	-0.44*	-0.40*	-0.16	0.21	1.00		
DLOG (BMS)	Total	0.35*	0.09	-0.19*	-0.16	-0.09	1.00	
	Pre Crisis	0.72*	0.09	-0.18*	-0.14	-0.17	1.00	
	Post Crisis	-0.26	0.08	-0.38*	-0.14	0.06	1.00	
DLOG (INTOIL)	Total	0.10	0.38*	0.09	-0.19	-0.33*	-0.02	1.00
	Pre Crisis	-0.14	-0.03	0.04	-0.21	0.18	0.04	1.00
	Post Crisis	0.24	0.57*	0.16	-0.17	-0.75*	-0.11	1.00

Note: * Denotes Significant at 5% Level.

Table-5: Cross Correlation Matrix-Russia

Variable	Study Period	DLOG (RINDEX)	DLOG (RGDP)	DLOG (RINF)	DLOG (RIR)	DLOG (RER)	DLOG (RMS)	DLOG (INTOIL)
DLOG (RGDP)	Total	0.22*	1.00					
	Pre Crisis	0.15*	1.00					
	Post Crisis	0.07	1.00					
DLOG (RINF)	Total	0.18	0.03	1.00				
	Pre Crisis	0.01*	-0.04	1.00				
	Post Crisis	0.19	-0.13	1.00				
DLOG (RIR)	Total	-0.37*	-0.36	-0.01	1.00			
	Pre Crisis	0.00	-0.37	-0.29	1.00			
	Post Crisis	-0.42*	-0.27	0.30	1.00			
DLOG (RER)	Total	-0.41*	-0.46*	-0.17*	0.31	1.00		
	Pre Crisis	0.01*	0.11*	-0.16*	0.10	1.00		
	Post Crisis	-0.41*	-0.43*	-0.14	0.32	1.00		
DLOG (RMS)	Total	-0.05	0.50*	-0.28	-0.27	-0.30	1.00	
	Pre Crisis	-0.26	-0.31	-0.38	0.04	-0.32	1.00	
	Post Crisis	-0.17	0.58*	-0.42*	-0.32	-0.24	1.00	
DLOG (INTOIL)	Total	0.51*	0.41*	0.28	-0.40	-0.57*	0.08	1.00
	Pre Crisis	0.01	0.23*	0.34	0.04	0.10	-0.45*	1.00
	Post Crisis	0.58*	0.42*	0.27	-0.52*	-0.62*	0.19	1.00

Note: * Denotes Significant at 5% Level.

Table 6: Cross Correlation Matrix- India

Variable	Study Period	DLOG (IINDEX)	DLOG (IGDP)	DLOG (IINF)	DLOG (IIR)	DLOG (IER)	DLOG (IMS)	DLOG (INTOIL)
DLOG (IGDP)	Total	0.53*	1.00					
	Pre Crisis	0.41*	1.00					
	Post Crisis	0.68*	1.00					
DLOG (IINF)	Total	-0.10	0.00	1.00				
	Pre Crisis	-0.23	-0.03	1.00				
	Post Crisis	0.10	0.01	1.00				
DLOG (IIR)	Total	0.05	0.09	0.09	1.00			
	Pre Crisis	-0.02	0.08	0.03	1.00			
	Post Crisis	0.05	0.16	0.10	1.00			
DLOG (IER)	Total	-0.48*	-0.36*	0.18*	0.12	1.00		
	Pre Crisis	-0.45*	-0.14	0.16	0.23	1.00		
	Post Crisis	-0.51*	-0.51*	0.16	0.11	1.00		
DLOG (IMS)	Total	-0.02	-0.14	-0.17	0.08	0.00	1.00	
	Pre Crisis	0.11	-0.05	-0.13	0.14	-0.09	1.00	
	Post Crisis	-0.28	-0.25	-0.26	-0.27	0.14	1.00	
DLOG (INTOIL)	Total	0.23	0.17	-0.15	0.10	-0.27*	-0.02	1.00
	Pre Crisis	-0.02	0.02	-0.27*	-0.03	-0.04	-0.09	1.00
	Post Crisis	0.44*	0.27	-0.01	0.31	-0.36	0.03	1.00

Note: * Denotes Significant at 5% Level.

Table-7: Cross Correlation Matrix- China

Variable	Study Period	DLOG (CINDEX)	DLOG (CGDP)	DLOG (CINF)	DLOG (CIR)	DLOG (CER)	DLOG (CMS)	DLOG (INTOIL)
DLOG (CGDP)	Total	-0.20	1.00					
	Pre Crisis	-0.30*	1.00					
	Post Crisis	-0.12	1.00					
DLOG (CINF)	Total	0.09	-0.58*	1.00				
	Pre Crisis	0.30*	-0.58*	1.00				
	Post Crisis	-0.18	-0.68*	1.00				
DLOG (CIR)	Total	-0.05	-0.01	0.33*	1.00			
	Pre Crisis	-0.04	0.04	0.17	1.00			
	Post Crisis	-0.16	-0.09	0.47*	1.00			
DLOG (CER)	Total	0.10	-0.12	-0.28*	-0.22*	1.00		
	Pre Crisis	-0.38*	-0.07	-0.08	-0.24	1.00		
	Post Crisis	0.32*	-0.17	-0.37*	-0.17	1.00		
DLOG (CMS)	Total	0.16	-0.29*	0.18	-0.03	0.11	1.00	
	Pre Crisis	-0.02	-0.05	0.28*	0.00	-0.04	1.00	
	Post Crisis	0.32	-0.51*	0.12	-0.06	0.19	1.00	
DLOG (INTOIL)	Total	0.08	-0.12	0.09	0.46*	-0.16	0.12	1.00
	Pre Crisis	0.05	-0.07	-0.16	0.01	-0.06	-0.07	1.00
	Post Crisis	0.07	-0.18	0.39*	0.79*	-0.23	0.22	1.00

Note: * Denotes Significant at 5% Level.

Table-8: Cross Correlation Matrix- South Africa

Variable	Study Period	DLOG (SAINDEX)	DLOG (SAGDP)	DLOG (SAINF)	DLOG (SAIR)	DLOG (SAER)	DLOG (SAMS)	DLOG (INTOIL)
DLOG (SAGDP)	Total	0.27	1.00					
	Pre Crisis	0.22*	1.00					
	Post Crisis	0.22	1.00					
DLOG (SAINF)	Total	-0.48*	-0.21	1.00				
	Pre Crisis	-0.58	0.04	1.00				
	Post Crisis	-0.35	-0.23	1.00				
DLOG (SAIR)	Total	-0.23	0.39*	0.48	1.00			
	Pre Crisis	-0.35	0.37	0.75*	1.00			
	Post Crisis	-0.17	0.46*	0.19	1.00			
DLOG (SAER)	Total	-0.23	-0.05	0.02	0.23	1.00		
	Pre Crisis	0.16	0.40	-0.15	0.08	1.00		
	Post Crisis	-0.51*	-0.05	0.08	0.44*	1.00		
DLOG (SAMS)	Total	0.27	0.27	-0.17	0.13	0.00	1.00	
	Pre Crisis	0.50*	0.04	-0.15	-0.19	-0.06	1.00	
	Post Crisis	0.03	0.05	-0.09	0.28	0.28	1.00	
DLOG (INTOIL)	Total	0.34*	0.21*	0.06	-0.09	-0.31*	0.01	1.00
	Pre Crisis	-0.06	0.23*	-0.04	0.05	0.37	-0.15	1.00
	Post Crisis	0.48*	0.13	0.22	-0.18	-0.53*	-0.08	1.00

Note: * Denotes Significant at 5% Level.

Table-9: Bi-Variate Post/Pre Crisis Correlations Index (Log of First Difference)

Variables	Post/Pre Crisis Index
DLOG(BINDEX) - DLOG(BGDP)	4.21
DLOG(BINDEX) - DLOG(BINF)	-1.48
DLOG(BINDEX) - DLOG(BIR)	15.90
DLOG(BINDEX) - DLOG(BER)	6.03
DLOG(BINDEX) - DLOG(BMS)	-0.33
DLOG(RINDEX) - DLOG(RGDP)	-0.02
DLOG(RINDEX) - DLOG(RINF)	-3.08
DLOG(RINDEX) - DLOG(RIR)	1.06
DLOG(RINDEX) - DLOG(RER)	1.08
DLOG(RINDEX) - DLOG(RMS)	-28.88
DLOG(IINDEX) - DLOG(IGDP)	1.89
DLOG(IINDEX) - DLOG(IINF)	-0.52

Variables	Post/Pre Crisis Index
DLOG(IINDEX) - DLOG(IIR)	-0.71
DLOG(IINDEX) - DLOG(IER)	1.23
DLOG(IINDEX) - DLOG(IMS)	-2.23
DLOG(CINDEX) - DLOG(CGDP)	0.39
DLOG(CINDEX) - DLOG(CINF)	-1.13
DLOG(CINDEX) - DLOG(CIR)	5.69
DLOG(CINDEX) - DLOG(CER)	-1.09
DLOG(CINDEX) - DLOG(CMS)	4.60
DLOG(SAINDEX) - DLOG(SAGDP)	0.73
DLOG(SAINDEX) - DLOG(SAINF)	0.58
DLOG(SAINDEX) - DLOG(SAIR)	0.94
DLOG(SAINDEX) - DLOG(SAER)	14.39
DLOG(SAINDEX) - DLOG(SAMS)	0.14
DLOG(BINDEX) - DLOG(INTOIL)	-1.67
DLOG(RINDEX) - DLOG(INTOIL)	8.45
DLOG(IINDEX) - DLOG(INTOIL)	-14.90
DLOG(CINDEX) - DLOG(INTOIL)	-3.79
DLOG(SAINDEX) - DLOG(INTOIL)	14.79

Multiple Regression Model Results

In multiple regression, the dependent variable i.e., the aggregate stock return of a country has been regressed on macroeconomic variables of that country & international oil prices.

Brazil

The R square value of the model suggests that these six macroeconomic variables can collectively explain 32 percent variation in stock return in the total period, 63 percent variation in pre-crisis period and 64 percent variation in post crisis period (Table-10 B). In the total and post crisis periods, a one unit increase in exchange rate significantly reduces stock returns in Russia by 0.64 units. On the other hand in total and pre-crisis periods, money supply changes significantly and positively affect stock returns, while in the post crisis period it significantly and negatively affect Brazil stock returns (Table-10 A).

Table-10: Multi Variate Regression Results -Brazil

A. Multi Variate Regression Model Results (All Periods)

Variable	Total Period	Pre Crisis Period	Post Crisis Period
Constant	-0.06	-0.21*	0.29*
DLOG(BGDP)	-2.10	1.37	-3.73*
DLOG(BINF)	-0.02	1.89	-10.25*
DLOG(BIR)	-0.16	-0.04	-0.31
DLOG(BER)	-0.64*	-0.31	-0.91*
DLOG(BMS)	2.55*	5.52*	-3.31*
DLOG(INTOIL)	0.01	-0.15	0.00

* Denotes significant at 5% level. Values are regression coefficients.

B: Multi-Variate Regression Model Summary(All Periods)

Regression Model	F-Stat.	Probability	R ²	Adjusted R ²
Total Period	4.28*	0.00	0.32	0.24
Pre Crisis Period	7.23*	0.00	0.63	0.54
Post Crisis Period	6.09*	0.00	0.64	0.53

Note: * Denotes Significant at 5% Level.

Russia

The R square value of the models suggest that these six macroeconomic variables can collectively explain 15 percent variation in stock return in the total period, 10 percent variation in pre crisis period and 19 percent variation in post crisis period (Table-11 B). Thus, these variables taken together do not significantly explain stock returns in Russia, except oil price changes in the total period (at 10 percent level of significance) (Table-11 A).

Hence, the relationship between macroeconomic factors and aggregate stock returns is very weak in Russia.

Table-11: Multi Variate Regression Results - Russia

A: Multi Variate Regression Model Results (All Periods)

Regression Model	Total Period	Pre Crisis Period	Post Crisis Period
Constant	0.04	0.12	0.04
DLOG(RGDP)	0.19	2.78	-0.77
DLOG(RINF)	-0.05	-0.71	-0.55
DLOG(RIR)	-0.83	0.10	-1.10
DLOG(RER)	-0.82	-0.60	-0.61
DLOG(RMS)	-0.76	-0.74	-1.63
DLOG(INTOIL)	0.35	-0.16	0.46

* Denotes significant at 5% Level. Values are regression coefficients.

B: Multi-Variate Regression Model Summary(All Periods)

Regression Model	F-Stat.	Probability	R ²	Adjusted R ²
Total Period	1.57	0.11	0.15	0.12
Pre Crisis Period	0.24	0.95	0.10	0.03
Post Crisis Period	0.35	0.12	0.19	0.14

Note: * Denotes Significant at 5% Level.

India

The R square value of the model suggests that these six macroeconomic variables can collectively explain 38 percent variation in stock return in the total period, 36 percent variation in pre crisis period and 69 percent variation in post crisis period (Table-12 B). Hence macroeconomic variables have assumed more significance in post crisis period in India. In case of India, the regression results are more consistent. GDP growth rate has a significant positive relationship with stock returns while changes in exchange rate have a significant negative relationship with stock returns in India (Table-12 A).

Table-12: MultiVariate Regression Results - India

A: Multi Variate Regression Model Results (All Periods)

Variable	Total Period	Pre Crisis Period	Post Crisis Period
Constant	-0.05	-0.04	-0.03
DLOG(IGDP)	4.80*	5.27*	5.05*
DLOG(IINF)	-0.27	-1.36	0.69
DLOG(IIR)	0.02	0.01	-0.13
DLOG(IER)	-1.07*	-1.71*	-0.24
DLOG(IMS)	0.21	0.38	-1.33
DLOG(INTOIL)	0.05	-0.07	0.19

* Denotes significant at 5% level. Values are regression coefficients.

B: Multi-Variate Regression Model Summary(All Periods)

Regression Model	F-Stat.	Probability	R ²	Adjusted R ²
Total Period	6.91*	0.00	0.38	0.33
Pre Crisis Period	3.53*	0.01	0.36	0.26
Post Crisis Period	5.45*	0.00	0.69	0.49

Note: * Denotes Significant at 5% Level.

China

Here, the R square value of the models suggest that these six macroeconomic variables can collectively explain 7 percent variation in stock return in the total period, 30 percent variation in pre-crisis period and 16 percent variation in post crisis period (Table-13 B). But none of the slope coefficient of the macroeconomic factors (except exchange rate

changes in pre-crisis period) is significant (Table-13 A). Hence just like Russia, in China as well the relationship between stock returns and macroeconomic factors seems to be very weak.

Table-13: MultiVariate Regression Results - China

A: Multi Variate Regression Model Results (All Periods)

Variable	Total Period	Pre Crisis Period	Post Crisis Period
Constant	-0.02	0.05	-0.05
DLOG(CGDP)	-0.02	-0.03	0.00
DLOG(CINF)	0.59	2.66	-0.99
DLOG(CIR)	-0.26	-0.52	-1.16
DLOG(CER)	1.43	-0.12*	4.15
DLOG(CMS)	0.82	-1.24	1.02
DLOG(INTOIL)	0.09	0.04	0.36

* Denotes significant at 5% level. Values are regression coefficients.

B: Multi-Variate Regression Model Summary(All Periods)

Regression Model	F-Stat.	Probability	R ²	Adjusted R ²
Total Period	0.77	0.60	0.07	-0.02
Pre Crisis Period	1.58*	0.03	0.30	0.18
Post Crisis Period	1.21	0.34	0.16	0.05

Note: * Denotes Significant at 5% Level.

South Africa

The R square values of the model suggest that these six macroeconomic variables can collectively explain 42 percent variation in stock return in the total period, 56 percent variation in pre crisis period and 51 percent variation in post crisis period (Table-14 B). The results show that there is significant negative relationship between stock returns and inflation in total, pre as well as post crisis periods while significant positive relationship in case of oil price changes in total and post crisis periods (Table-14 A).

Table-14: MultiVariate Regression Model Results - South Africa

A: Multi Variate Regression Model Results (All Periods)

Variable	Total Period	Pre Crisis Period	Post Crisis Period
Constant	0.05	-0.02	0.09
DLOG(SAGDP)	0.70	3.86	-0.08
DLOG(SAINF)	-3.90*	-4.42	-4.86*
DLOG(SAIR)	0.00	0.12	0.12
DLOG(SAER)	-0.12	0.05	-0.33
DLOG(SAMS)	0.63	1.89*	0.32
DLOG(INTOIL)	0.14*	-0.08	0.15*

* Denotes significant at 5% level. Values are regression coefficients.

B: Multi-Variate Regression Model Summary(All Periods)

Regression Model	F-Stat.	Probability	R ²	Adjusted R ²
Total Period	5.27*	0.00	0.42	0.34
Pre Crisis Period	3.01*	0.04	0.56	0.38
Post Crisis Period	3.76*	0.01	0.51	0.37

Note: * Denotes Significant at 5% Level.

Conclusion and Implications

In this paper, the relationship between Aggregate Stock Returns and prominent Macro economic Factors (i.e., GDP, Inflation, Interest Rate, Exchange Rate, Money Supply and Oil Prices) has been examined for emerging BRICS economies for the period from 1995: Q1 to 2014: Q4 using quarterly data. To assess the impact of Global Financial Crisis, this relationship is further scrutinized during two sub periods viz., a Pre-Crisis period (1995:Q1 to 2007:Q2) and a Post Crisis Period (2007:Q3 to 2014:Q4). ADF Unit Root Test, Correlation Analysis and Multivariate Regression Model have been applied.

ADF unit test results reveal that all the macro economic and stock market variables of BRICS are non-stationary at level and stationary at first difference. We find strong positive contemporaneous relationship of BRICS stock returns with GDP growth rates, changes in Money Supply and changes in oil prices in almost every country. Stock returns are negatively correlated with inflation rate, changes in interest rate and changes in exchange rate.

As, there is insignificant correlation among the various macro economic factors, there is no major problem of Multicollinearity. Also, correlation between stock returns and macro economic factors has increased substantially in the post crisis period indicating impact of crisis in deepening the contemporaneous relationship.

Country wise multivariate regression results indicate that various Macro economic Factors significantly explain and predict Aggregate Stock Returns in different BRICS markets, viz., Brazil (Money Supply, Exchange Rate, GDP & Inflation), Russia (None), India (GDP & Exchange Rate), China (Exchange Rate), South Africa (Inflation, International Oil & Money Supply). These results were mostly consistent in pre and post crisis periods indicating no major impact of crisis on estimated relationship indicated by Regression. Low R square and lack of any significant Independent variables shows that this relationship is very weak in case of Russia & China.

These findings besides expanding the existing literature and knowledge base on the topic will have pertinent uses and implications for regulators, policy makers, investors and researchers, particularly in emerging markets. Policy makers & regulators should watch out impact of their macro economic policies on capital markets as the contemporaneous relationship has significantly strengthened post crisis. Investment community can formulate suitable trading strategies based on select macro economic variables for BRICS economies individually as well as collectively.

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Power Sector Reform and Restructuring: Options And Models

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ABSTRACT

Power sector consists of generation, transmission and distribution of electricity as activities. Given the importance of the sector in economic development of a country, traditionally the sector has been controlled by the governments of the states. But the inefficiency of the sector to provide access to electricity to all the sections of the population, to meet the demand and for more efficiency to manage, transmit and distribute the electricity, many governments felt it to reform the sector based on restructuring. The Structural Adjustment Lending of World Bank institutions also advocated for reforming the sector in many developed and developing countries. These reforms include linking the pricing of the electricity to be controlled by the market rather than the state, thus gradually removing government subsidies, introduction of private players in the management of the sector and to introduce competitiveness in all its operations. The paper examines the process of reforms and restructuring, available options and models. It will also look into various case studies where different models and options were adopted by the states to meet their conditions.

Keywords: Power Sector, Reforms, Restructuring, Regulation, De-regulation, Privatization

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Power Sector Reforms

The programme of reform in Power sector envisages gains to the economy coming from three distinct actions, (a) the removal of the government's intervention in tariff setting, employment strategies and other aspects of routine management as instruments to achieve economic ends, (b) the introduction of private capital and the associated profit motive and (c) the introduction of competition where possible (Bacon, 1995:1). This can be done through different ways. They are restructuring and privatisation. This privatization and restructuring process are two different kinds of change (Hunt and Shuttleworth, 1996:12) in the existing practice of government monopoly in the electric power sector.

Options and Models

Restructuring is done primarily for commercial arrangement for selling electricity. It includes separating or unbundling integrated industry structure and introducing competition and choice. This could be under Government regulation. The restructured electric utility is not necessarily privatized but open for competition among public sector electric utility. In theory these new competitors will provide customers with additional supply options, forcing traditional utilities to offer better prices and or service (Miller, 1996:15). Competition at the end use will increase use of non-formal electricity production, such as gas, wind, solar. However, as long as electric utilities are subject to cost based rate of return regulation with in price-sensitive markets they will be at a competitive disadvantage (Ibid). As a result, electric utilities are expected to unbundle their service into production, generations, transmission and distribution services to eliminate the cross subsidies inherent in current electric utility cost and rate structures as well as to compete more effectively.

This restructuring process can be done alone or simultaneously with privatization process (Bacon, 1995:17). Generally restructuring process slowly enters into privatization process. In the U.K when the electric industry was privatised it was also restructured. However the two need not go together and both are almost separate dimensions of change. As per the theorists who argue for the power sector restructuring, they envisage that the restructuring provides free market in the generation sector resulting the price structure would be based on a true economic cost which in turn allows the generating companies to expand the generation capacity appropriately to the growth in demand. It also opens many financial options to the electricity industry.

Financial Options

According to the theory restructuring could open many financial options to the countries involved in the process. They are (Desai, 1990:17):

- a) Non-recourse and limited recourse financing which is also called as project specific financing. In this option, the governments or private participants or owners (could borrow) invest on a specific project. They will have rights of ownerships particularly on this project.

- b) Leasing of individual pieces of equipment or whole plants by local or foreign investors. In this option the existing public sector electric generation industry which may or may not be running in the losses could be given for private local foreign investors as a lease for a fixed time period.
- c) Private ownership in the generation and distribution facilities. This option opens doors for selling out the existing public sector industry to the private investors, in other words replacing the ownership from government to private.
- d) The counter trade involving barter type exchange of specific export goods for electricity raw material. This option creates opportunities for countries which lack the raw materials or resources to produce required electricity and also excessive production in other sectors. The countries could export other products and could import raw material for the electricity production like in barter system.
- e) Developing financial instruments to finance local costs. This option includes creating new instruments of finance like taxes, revenue bonds, tax exempt bonds, shares. In other words creates an environment for collection of finance to invest in future projects.

All these options are applicable in the case of involvement of private participation in the restructuring electric industry where reforms are being taken place. In case the restructuring process doesn't involve the private participation then the financial options discussed above could not be applied.

The restructuring process also consist of two models and they are regulatory and deregulatory models.

Regulatory Model

Electricity involves three components viz., generation, transmission and distribution. These activities can be bundled in a single market in which producers generate, transmit and distribute electricity to consumers or these activities could be unbundled. When these activities are bundled there is a single electricity provider. This provider can be owned by a national, regional or local government, owned by a cooperative of costumers or owned privately. Because of the monopoly status of the provider, this firm can change a price above the cost of production. To achieve economic efficiency the ability to change a price above the cost of production must be mitigated through some form of regulation. Regulation also works as an error correction process, which in other words the entire industry and acts when it is necessary (Gottlies, 1985:221),

For any industry, the ownership and corresponding regulations have many options in the case of private and cooperative ownerships could include local, foreign ownership as well as joint ventures where local private and foreign participation mixed together. The regulatory theory of the restructuring process argues that as long as the frame work laid down by the special board or commission exists the form of ownership whether domestic private, foreign, public or joint venture would not by it self affect operating efficiency. This

board or commission is called regulatory commission. It further argues that the efficiency of the power sector could be achieved by the government from divesting themselves of either all or part of some government enterprises, functions or organisational structures. The first step in the restructuring process of the power sector reforms after disbanding the functional activities could be for government owned enterprises to contract out the functions handled by other players.

In theory the regulatory commission maintains that the institutional arrangement that eventually is preferable in a regulated industry is the one that maximises social welfare through minimising social costs and maximising social benefits (Ibid). Usually for the transition from one system to another begins with an act of the legislative branch, then it falls to the executive branch to make the change and then if necessary the judicial branch oversees that change conforms to the act of the legislature. This balance of rights and responsibilities is reproduced in the regulatory system, where the economic power of the electric utility is balanced by the regulatory power of the regulating agency and overseen by a judicial body that also resolves disputes. Most regulatory agencies are headed by a commissioner or commission that is ultimately responsible for the agency's decisions. However, the regulatory staff gather much of the information and make recommendations to the head of the agency. Therefore, there is a balance of power between the regulatory staff and the utility with the head of the agency acting as a judge whose decisions can be appealed to the court. Although different nations follow different methods of regulation, most rely on a system of checks and balances to ensure that one party in the regulatory process is unable to dominate the others. This balance of powers between the utility and regulator is essential to ensure the independence between the regulator and other branches of government to reduce the political influence in setting tariffs and allowing entry into potentially competitive industries, between the regulator and the utility to reduce the possibility of maximising profits of utility at the expense of consumers. Goals of regulatory policy relate to (Rothwell and Gomer, 2003:76) :

- a) Regulated tariffs defining the rate structure,
- b) Investment in generation, transmission and distribution assets,
- c) Access to rules, including entry into the market by non-utility generators, access to the transmission network for wholesale customers and access to the distribution network for retail customers,
- d) Quality of service requirements including reliability and voltage disturbances. If the goal of the electricity provider is to maximise profit, the regulator carefully considers each of these policy variables focussing on price, quality and quantity the electricity supplier might have an incentive to focus on low-cost customers and avoid high cost customers.

The primary short run focus of the electricity regulator is to set a tariff structure that provides the utility with revenues to pay suppliers and compensate the firm for its investments. The primary long-run focus of the electricity regulator is to encourage the

electricity supplier to construct enough generation, transmission and distribution capacity to meet all demand. If a supplier is earning reasonable return on investment, there should be adequate incentive to build a new capacity. To construct a new capacity generator, it needs some form of licence to construct. This licensing process could involve an informal review of the proposed facilities or formal hearing procedures to decide whether the new capacity is required. Thus the regulatory emphases on the profit control and they also have jurisdiction over structure of rates. They generally permit differential pricing among different classes of consumption i.e. residential, commercial and industrial class and allow decreasing block rates within each class (Sherer, 1977:26).

Deregulation Model

The role of deregulation is to create or restructure or introduce competitive market with enough generators to eliminate market power (i.e., the ability of a firm or a group of firms to set prices, 'a small but significant and non transitory amount' above production cost). With deregulation, electric utilities must split regulated from deregulated activities and compete with new firms originating from other energy business or retail services. The economic decision making mechanism, under competition, responds to a decentralised process, where by each participant maximises profit equal to the difference between total revenue and total cost. However, under competition the recovery of investment in new plant is not guaranteed. So risk management becomes a crucial part of the electricity business (Berry, 1983:8).

Reasons for Deregulation: Theoreticians who argue for privatisation and deregulation put forward the reasons for deregulation as follows (Rothwell and Gomer, 2003:3),

- a) new generation capacities, technologies, have reduced the optional size of an electricity generator,
- b) the competitive global economy requires input cost reduction; electricity is a primary input for many industries,
- c) the state, as owner and manager of traditional infrastructure industries, cannot respond as quickly as private owners to economic and technological change, prompting privatisation,
- d) information technologies and communication systems make possible the exchange of huge volumes of information needed to manage electricity markets.

Privatisation

Privatisation involves perfect competition, in theory, the interaction of many buyers and sellers yields a market price that is equal to the cost of producing the last unit sold (Ibid:2). According to theory privatisation also increases productive efficiency whether or not a monopoly is involved (Moore, 1986:95). This is because pressures from share holders looking for return on their investment. If these share holders are also managers and employees then they provide a clear incentive to privatised firms to organise their

internal affairs as efficiently as possible and seek the maximum competitive terms from their suppliers. In this process if their firm or a unit of production, which can produce the same amount of the same type of output than another at a lower cost is said to be more productively efficient than the other firm. This efficiency could make the company more attractive and could compete with full-strength with the cost of production less than other companies give a financial edge. This theory applies to all the players in the sector.

This privatization is a change from government to private ownership and is the end point of a continuum of changes in the ownership and management (Olivera, 1991:95). This is a process, which begins with the vertical separation (financial and real) of the generation, transmission and distribution functions, proceeds with opening up of the transmission grid to independent generators and goes on to the corporatisation and eventual whole or partial privatisation of state owned electricity companies (Pollitt, 1995:2). Privatisation also emphasises on introduction of market forces in the sector and attraction of additional financial and other resources with competition and efficiency by improving system management (USAID, 1988:33). Across the world, state owned electricity industries are in the process of restructuring through vertical separation and the required legislation is being passed to enable private competitors to enter the market and or to enable full or partial transfer of state owned electricity companies' assets to the private sector.

This privatisation process includes three steps.

Commercialisation: it happens when the Government relinquishes detailed control in favour of the autonomy and a focus on profitability. This is a change in behaviour than the organisation. It normally involves adoption of commercial accounting practices, economic tariffs and to separate the core business from other activities.

Corporatisation: It is a formal and legal move from direct government control to a legal corporation with a separate management. This may be a government owned corporation. The ownership of assets and capital structure need to be determined before this step is taken. The government (Hunt and Shuttleworth, 2003:16) also needs to set out the objectives of the corporation and the process by which public policies are taken into account.

Privatisation: It is the move from a government corporation to a privately held corporation. It may take to increase the access to capital markets. If a government decides to privatise its electric industry it needs to place a value on the assets. This will depend upon the revenues the assets can earn. If the industry is being privatized, the sources and certainty of revenues will be crucial. Regulatory systems are to control costs and prices and to make investment decisions in the options of competition. Hence the question of restructuring inevitably arises in conjunction with consideration of privatization.

All over the world the governments and regulators are considering whether to restructure or privatize their electric industries. The aim is to increase efficiency through better investment decisions, better use of existing plant, better management and better choices for customers (Ibid:11). This is aimed at introducing competition to provide customers

electricity at cheaper rates, additional supply options forcing traditional utilities to offer better prices and service (Miller, 1996:15). This theory also provides the electricity producers to increase the use of non-formal electric production such as gas, wind and solar.

Most of the countries in Africa, Latin America and Asia are in the path of electricity sector reforms to a deregulated privatised electricity industry.

Case Studies

A major reason for the reforms in most of the developing countries is to survive from the balance of payment crisis raised out of the fiscal crisis emerging out of oil prices hike in 1970s. Chile started the reform process in 1978 with the help of the World Bank. The fiscal crisis of seventies gave an opportunity to World Bank to come up with the conditional loan policy. The importance of structural adjustment came forward with this World Bank policy of Structural Adjustment Loan (SAL) which it introduced in 1980 provide quick-dispersing loans to finance general imports over a period of years, conditional on an agreed set of measures intended to strengthening the balance of payment (BOP) while maintaining a development momentum. Later on the World Bank switched emphasis from SAL to Sectoral Adjustment Lending (SeAL) with sectoral based adjustment policies and lending, though the general policy thrust is similar.

Another international money lending agency, the International Monetary Fund (IMF) also started giving the structural based lending with the Structural Adjustment Facility (SAF), intended to provide medium term balance of payment assistance to low income countries facing protracted BOP crisis in return for a program of policy measures dictated by the IMF. It was augmented at the end of 1987 by an Enhanced Structural Adjustment Facility (ESAF) with considerably greater resources. As a result, a number of countries including China, England, USA, and Australia have been in the process of restructuring their electric industries with the aim of achieving greater competition in the generation sector, which accounts for a majority of the cost of electricity (US Department of Energy:A-1).

China

The power sector reform in China started with the fiscal crisis of 1970s with cut backs in investment not only in heavy industry but also in power industry. The process began with the decentralisation of administrative responsibility to provincial and regional authorities, with provisions for changes in financing sources from budget allocations to loans (Berrah and Lamech, 1995:28). The search by the provincial and local governments for alternative sources of financing had its first result when in 1980 the Guangdong provincial government started discussions with the China Power and Light Co. Ltd. of Hong Kong (China Light) on a joint venture (JV) development of a nuclear power plant in the province. It took five years for the final signing of the JV agreement that marked the beginning of foreign direct investment (FDI) in China's power sector. During the period from 1984 to 1998, there were 34 financial closures of power projects with private FDI in China, worth US \$ 14.8 billion. Of this amount, total debt financing accounted for US \$ 12.3 billion (83 percent) and equity

participation for 17 percent. These projects represented 26000 MW of installed capacity (IC), equivalent to about 10 percent of China's total IC (Kannan and Pillai, 2002).

The privatisation bid in the Chinese power sector took place in 1993. The initiative came from the Shenyang municipal government in Liaoning province when it raised US\$ 100 million by transferring 55 percent of its ownership and management rights in an existing 400 Mega Watts coal fired power plant to private Hong Kong firm under a 20 year cooperation agreement. The Electricity Law of December 1995 explicitly stipulates that the generation sector is open to investment by all economic entities and individuals, both domestic and foreign. The FDI laws of June 1995 permit private ownership without shareholding limitation of all generation plants or companies (except hydro power plants with IC of more than 250 MW), but prohibit private investment in T&D facilities. Private participation is allowed by means of either partial or total divestiture of existing assets and direct investment in new projects. With these steps China plans to build no fewer than 20 power stations of 1000 mw each with a capacity large enough to supply an industrialised centre of about one million people (Ashmore, 1996:22).

England

The process of restructuring the United Kingdom (UK) economy started in 1957 but in electricity industry till 1990 it moved in a slow pace. The restructuring of electricity began in March 1990, which divided the process of electricity supply into four activities: generation, transmission, distribution and supply. Generation accounts for around two-thirds of the industry's costs, transmission for 10 percent, distribution for 20 percent, and supply for the remaining 5 percent. Supply is further subdivided into sales to a franchise market of smaller consumers, restricted to the local REC, and a non-franchise market of large consumers, which can be served any company acting as a private or second-tier supplier (Surrey, 1996).

The white paper on privatisation of the English electricity supply industry, "Privatising Electricity", issued in February 1988, initially proposed that all the nuclear stations together with 60 percent of the conventional stations would be placed in one large company 'National Power', the conventional stations in 'Power Gen'. The revised proposal became law as the Electricity Act in July 1989. Transmission was transferred as a regulated natural monopoly to the National Grid Company (NGC), created in the 1989 reforms as a separately owned and operated company, prohibited as part of its license conditions from owning or operating any generation business. The Central Electricity Generating Board (CEGB) was thus divided into four companies (NGC, Power Gen, National Power, and Nuclear Electric), which were vested as public limited companies on March 31, 1990. For regional level electricity, 12 Area Boards, know as Regional Electricity Companies (RECs), which received electricity from the CEGB under the Bulk Supply Tariff (BST), and then distributed and sold this electricity to its regional consumers at its own tariffs.

The NGC was transferred to the joint ownership of the RECs and the RECs were sold to the public in December 1990, but in 1995, the NGC was de-merged from the RECs

and became an independent company. Sixty percent of National Power and Power Gen were subsequently sold to the public in March 1991 and remainder in 1995 (Henney, 1995:243-271). Thus the RECs were totally privatised and many foreign firms are holding the ownerships of the RECs. Each REC's distribution business is an effective regional monopoly, but, subject to controls on the prices it can charge and the quality of service to provide. Supply of electricity liberalised resulting in huge competition. All customers have right to choose their own retail supplier. The retail was competition fully implemented only by May 1999 (Kannan and Pillai, 2002:267).

The regulation of the sector is carried out by the Office for Electricity Regulation (OFFER). The regulating system enjoys the checks and balances. If any decision of this regulating system opposed by the utility, it must be cleared by both the Monopolies and Mergers Commission and the Secretary of State for Trade and Industry. In June 1999, the two regulatory offices of gas (Ofgas) and electricity (OFFER) were merged under the Office of Gas and Electricity Markets (Ofgem) (Ibid:277).

U.S.A.

The Federal Energy Regulatory Commission (FERC) Order 888 of April 1996 divided the power sector into transmission and generation functions and offered open non discriminatory access to transmission networks for wholesale buyers and sellers, under the same tariff as applied to their own wholesale sales and purchases of electricity. About 13 states have adopted this plan of electricity restructuring. California, was the first state to deregulate the electricity market, following the Deregulation Bill of September 1996. Its three main utilities, Pacific Gas and Electric (PG&E), Southern California Edison (SCE) and the state's big shareholder-owned company, San Diego Gas and Electric sold their generating assets, but retained ownership and responsibility for the maintenance of the T & D assets. An Independent System Operator (ISO) has been created that allows transmission-owning utilities to keep legal title to their transmission facilities, while the operational control is taken over by the ISO (Lave, et.al.2004:11-26).

Senegal

Senegal's power sector reform falls within the frame work of a general reformation of energy sector. Under the economic policy of Senegal, the energy sector is assigned the objective of reducing the technical costs of production; strengthen the competitive edge of power companies, eradication of their inefficiency, reduction of supply costs, enhancing the funding of the power development programmes. To achieve these objectives Senegal adopted strategies like modification of the legal and regulatory frame work so as to encourage a high level of competition and participation of the private sector in investment ventures and in the management of the power sector and privatisation and restructuring of Societe Nationale Dlectricite Du Senegal (SENELEC) (Fall, 2002:2). The objectives of Senegal Power Sector reform are, (Ibid:3) (i) ensuring a stable electricity supply for the general population and other consumers, under the best possible conditions, (ii) accelerate the pace of rural electrification. To achieve these objectives Senegal adopted policies

involving private sector in the power sector, to consolidate and improve efficiency and to change the ownership. Other policies include restructuring the power sector industry and establishing an independent regulatory commission (Ibid).

Power Sector reform in Senegal started in 1998 with the Act 98-29 and 98-06, which authorised creation of a regulatory body and change of SENELEC into a stock company enabling the privatisation (Fall and Wamukonya, 2003:195). Since then there have been two attempts made to privatise SENELEC. In 1998 Senegal Government invited a tender to buy capital stock in SENELEC requiring a minimum purchase of 33 percent. In 1999 a consortium of Hydro-Quebec of Canada and Elyo of France acquired 34 percent of shares for \$66 million while the employees got 10 percent and the local private partner 15 percent. The government retained the balance and was a largest shareholder but the consortium was granted full management (Ibid:197). Soon after that there a problem arose between consortium and government on the allocation of shares resulting in derailment of implementation of contractual agreements particularly the development of additional generation capacity. There after the government cancelled the contract and buy back the shares renationalising the SENELEC (Ibid).

The second attempt to privatise SENELEC was made in 2001 by again calling for the tenders. Vivendi Environment a French company was initially awarded the tender but there after replaced by AES Corporation of USA. The agreements between awarded company and the government was not finalised and Senegal finally withdrew the privatisation process of SENELEC in 2002 (Ibid:194).

However, Senegal carried out the restructuring process and established Regulatory Commission called Commission for Regulation of the Electricity Sector in 1998 with objectives such as (Ibid:196), (i) enhance the rational development of the electricity supply, (ii) preserve the economic and financial equilibrium of the power sector and the economic conditions necessary for its viability, (iii) safeguard the interest of consumers and protect their rights with respect to cost, supply and quality of electricity, (iv) enhance competition and private sector participation in generation, transmission, distribution and sale of electricity, and (v) safeguard the conditions favouring the financial viability of companies operating in the power sector. The regulatory commission is composed of three members appointed by the President of the country. Its responsibilities are to (Ibid:197): investigate application for licence and concessions, monitor compliance with the terms of licence and concessions, particularly those dealing with an obligation to maintain certain services, ensure respect for healthy competition in the sector and determine the structure and composition of tariffs.

Chile

Chile is the first country in the world which implemented reforms in the power sector by establishing the National Energy Commission (NEC) in 1978 which subsequently became an Act in 1982 (Pollitt, 2004:1). The main motivating reasons behind these reforms were reducing public debt in the sector and obtain private financing (Dussan, 1996:16). This

reform was based on the separation of generation and distribution activities, establishment of a competitive whole power market deregulation of wholesale prices and extensive privatisation of state owned power utilities (Ibid:1).

Following the break-up of these integrated companies many regional power markets based on the concept of an Integrated System Operator (the CDEC) were established in 1986. There are two main regional power markets, the SIC covering the southern and central areas including Santiago and the SING covering the northern part of the country. Within these markets generators were required to declare availability and plant marginal cost every hour which would be used to dispatch power plants to set the basic marginal energy price or spot price. This price has to be used by the power generators to trade electricity among themselves to meet contract (Politt, 2004:4). Regulated prices for generated electricity are determined on the basis of the expected spot price of energy over the next 4 years and this price is fixed for six months in April and November (Ibid).

In transmission the generators would have to pay for transmission to get electricity to their customers based on negotiated tariffs coupled with compulsory right of access if capacity was available (Vignolo, 2000:20). The new connections and lines were to be paid for by the generators who were free to negotiate terms with transmission companies or build their own (Ibid).

The regulatory framework established in 1982 consists of different institutions. The National Energy Commission has responsibility for advising the Minister of Economy on electricity policy and setting of regulated distribution charges. A Superintendent of prices of Electricity and Fuels (SEC) has responsibility for data collection and the implementation of service quality, fines and customer compensations (Politt, 2004:6).

Thailand

Electricity generation started in Thailand in 1884 since which government owned enterprise Electricity Generating Authority of Thailand (EGAT) completely controlled the generation, transmission and distribution to retail services till the reform in 1988 (Nuntavorakarn, 2004:64). The whole Thailand was divided into three zones and EGAT is responsible for generation and transmission all over the country, Metropolitan Electricity Authority (MEA) and Provincial Electricity Authority (PEA) was responsible for distribution and retail in greater Bangkok area and rest of the country respectively (Ibid:64). In 1989 to analyse the future electricity demand and formulate strategies the Government of Thailand established National Energy Policy Office (NEPO) to study the required generation and investment which subsequently formulated a policy to privatise and liberalise the sector. There after the whole sector was divided into various sub-sectors and different institutions was established to look after the generation, transmission and distribution segments with large-scale introduction of private sector in the electricity business (Ibid:67).

The first step towards privatisation was to partially privatise some of EGAT's power plants, therefore, the Electricity Generating Company (EGCO) was established under

public company in 1992 to own and operate two of EGAT's power plants that were highly profitable. Following the establishment of EGCO, private participation in electricity generation was implemented under two programmes, Independent Power Producers (IPPs) and Small Power Producers (SPPs) (Ibid). In the same year (1992) government passed an act EGAT Amendment Act, 1992 allowing private power producers to gain long term supply concessions. While EGAT retained control of transmission system operation and the dispatching of power plants, private producers were to generate electricity according to long-term power purchase agreements (PPAs) (Greacen and Greacen, 2004:523).

The second measure in the process of reform was full restructuring of the electricity supply industry. In October 2000 the government unbundled the generation, distribution and transmission of electricity in order to create competition in the power sector (Ibid:525). Based on this strategy separating the EGAT, PEA and MEA and selling the bulk of their assets to private investors and private generators (GENCOs) bid into a wholesale power pool. An Independent System Operator (ISO) is responsible for dispatching power plants on the basis of generation prices for system security and for financial settlement for bulk power purchases, determining the prices of electricity on the economics of supply and demand subject only to adjustment necessary to ensure system stability and security (Ibid:526). EGAT remained holding company with a regulated transmission subsidiary (TRANSCO) and hydro power generation. Electricity distribution is the responsibility of distribution companies (DISCOs) (Ibid).

Australia

In Australia the central government initiates policies and measures to co-ordinate the activities in the energy sector having inter-state ramifications and develops and regulates the national market for electricity, the State and Territory governments have the primary responsibility for electricity generation and distribution within their respective boundaries. In other words before the introduction of reforms in 1990, the Australian power sector comprised vertically integrated public sector companies in each states, working on the bases of policies laid down by the centre government. Australian power generation is largely based on coal, which it has got huge resources. This huge supply of coal for electric production made easier and stronger over whelmed production of electricity (Rao, et.al., 1998:138). In 1991 the Australian central government entrusted the Industry Commission (IC), a long standing federal statutory body, to review the electricity industry and to achieve efficiency gains and cost reduction shifted the focus to restructuring the industry by unbundling the functions of generations, transmission and distribution, corporatising or privatising the industry and introducing commercial accounting practices.

At the same time the National Grid Management Council was set up to develop a national market for electricity. The Industry Commission recommended for separation of functions of generation, transmission and distribution and forms an inter-state transmission network. In 1995 the Council of Australian Governments (COAG) a consortium of state government and federal government agreed to a package of reforms known as the Competition Principles of Agreement and the Competition Reform Policy Act 1995, and

Commonwealth legislation supporting the Agreement was passed by Parliament. In June 1995 the Australian Competition Consumer Council (ACCC) was established to regulate the electricity industry at the national level. This council acts as the regulatory commission as a whole in the power sector. The main objectives of power sector reforms of Australia Electricity Industry are, to achieve efficiency gains, to improve responsiveness to price signals to encourage better demand management and dampen the peak demand.

Then increased price responsiveness and greater competition are intended to improve investment decisions and provide better incentives for greater efficiency in the use of capital. By introducing multiparty players in the industry of the region, the restructuring programme aims at providing customers wider choice in purchasing electricity from alternative sources and at lower prices. For this an independent regulatory body is setup in each state to ensure customer protection (Ibid:143).

It should be noted however, that although reforms have been implemented in these countries, their final success or impact has not yet been definitely evaluated (Bacon, 1995:2). In the world very few countries actually implemented a reform program and several countries including India and Bangladesh are fairly advanced in their planning.

The relation between energy and economic development is as crucial in the developing countries as it was and continues to be in the industrialised nations (Energy for Rural Development, 1976:3). The process of economic growth is traceable in large part to the substitution of energy for muscle in the performance of every type of agricultural, industrial and domestic task. Decisions play a crucial role in any field. They too have high pay off potential often centre on the economies of energy supply and demand in the developing countries as in any country. The first step in the appraisal of economic feasibility must be although assessment of present and potential technical capabilities and of the human and material resources required and realise these capabilities.

As a report stated, examination of the energy demand of agriculture reveals a much higher degree of net energy usage and a closer correlation of energy application to productivity than had seen and anticipated (Pimentel:443-449). Much of phenomenal output of agriculture in the US and other major food exporting countries can be traced in large part to the massive application of power and fertiliser to land, labour inputs per unit of output diminished very rapidly as the pull of higher wages in manufacturing and services increased. Although this shows the importance of electricity to increase the productivity in agriculture it would have same impact on other sectors production as well.

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Testing Wagner's Law for India's Social Sector: A Panel Data Analysis

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ABSTRACT

The paper tries to empirically analyze the relationship between public expenditure in social sector and economic growth of India using yearly data for twenty-seven Indian states over the time-period of 1993-94 to 2013-14. We have aimed to assess the much talked about hypothesis of public expenditure led by economic growth. The per capita GDP (representing economic growth) comes out to be stationary whereas per capita expenditure in social sector has a unit root at its level. Further, the fixed and random-effects model are applied to compute the elasticity of per capita expenditure in social sector which comes out to be 2.04 when the per capita GDP changes by one unit. The Hausman-specification test is then applied to test the suitability of the Fixed and Random effects estimators. Finally, we make use of Generalized estimating equations to predict the target allocation of 2.06 percent of state GDP to social sector.

Keywords: Expenditure, Economic Growth, Stationarity, Hausman-specification, Lagrange-Multiplier

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Introduction

Since decades, the relationship between government expenditure and economic growth has been an important subject of analysis and debate among economists around the world. Basically two major approaches arise from the literature concerning the relationship between these economic indicators. These two well-known approaches are “Wagner’s law” and “Keynesian hypothesis”. Wagner’s Law says that, there is a positive relationship between economic activities and government expenditure. With an increase in economic activity, an upward trend in government activity occurs. In complete contrast with the Wagner’s proposition, Keynesian view assumes that growing government expenditure may lead to a higher level of aggregate demand, which in turn stimulates economic growth. The Wagner’s Law explains that an expansion of a country’s level of economic development leads to an increase in its relative size of public sector. This statement compares the development between private and public sectors. According to Wagner’s law when the national economy widens, the public sector will grow at a faster rate than the private sector. Various underlying reasons are causing this result. First, with economic growth, industrialization and urbanization would increase the government expenditures. Development of the economies causes legal relationships between the economic agents to become more complex, that further triggers the administrative, regulatory and protective functions of the government. Second, real income growth would lead to a higher level of demand for basic infrastructure. In such a case, there would be a need for increased provision of social and cultural goods and services. As a result, when the economy develops, expenditures pertaining to social welfare of society such as education and health increase. Following these explanations and debates on a theoretical level, Wagner’s law has also been empirically tested by various researchers. The empirical evidence concerning the relationship between public income and expenditure is based on the assessment of the elasticity of expenditure to income. Only if such elasticity is greater than one and the coefficient sign is positive, it can be confirmed that the link between the two variables exists and it is consistent with Wagner’s hypothesis. Wagner’s Law has been a topic of discussion for long. The government expenditure-national income nexus is important for many fiscal policy related issues. Fiscal policy is one of the most important policy tools in recessionary periods for governments. For example, central authorities can boost their economy by strengthening the share of government spending to national income. The assessment of long-run relationship between government expenditure and national income in advance would permit the identification of a basis, against which one can identify the fiscal policy stance adopted by particular governments. Therefore, the paper tries to show an inter-relationship between per capita public expenditure in social sector and per capita economic growth across twenty-seven¹ Indian states, and the empirical evidence is derived from the relevant data of Indian economy. The next section summarizes the important literature on this topic. Data and methodology have been discussed in its subsequent section. The section that follows it illustrates the results of empirical analysis. Finally, the conclusions of the study are presented in the last section.

Note: ¹The twenty-seven states taken in our study are: Andhra Pradesh, Gujarat, Haryana, Karnataka, Maharashtra, Punjab, Rajasthan, Tamil Nadu, West Bengal, Uttar Pradesh,

Bihar, Madhya Pradesh, Jharkhand, Odisha, Uttarakhand, Chattisgarh, Kerala, Himachal Pradesh, Assam, Jammu & Kashmir, Arunachal Pradesh, Manipur, Meghalaya, Nagaland, Tripura, Goa, and Sikkim.

Literature Review

There is a vast literature pertaining to the topic of study discussed here. Renelt and Levine (1991) raise the question of what the appropriate unit of study should be, i.e. should countries be the appropriate unit to study, or should analysis be conducted at a more disaggregated level? Since countries comprise of states, any country's growth rate will depend on the growth of its different states. A second issue with using country as a unit of study involves sampling. Regression analysis assumes that data has been taken from a single population. It is not clear, however, whether states have been drawn from same population. Different Indian states can be a part of the same analysis because they have several factors in common. They are broadly governed by the same legal system; they have same broad health and education policies devised by the central government; and have same constitution. But there are also differences. The economic, social-cultural and political differences are there. Thus a study at the state level not only provides an opportunity for analysis at disaggregate level but also allows the assumption of regression analysis to be maintained (e.g., data points should be from the same population). Henrekson (1992) points out, that the test of Wagner's law should focus on time series behavior of public expenditure in a country for as long the time period as possible rather than on a cross-section of countries at different income levels.

Tulasidhar and Sarma (1993) did a comparative study of different states of India with respect to public expenditure, infant mortality and medical care. They found that in all the states per capita real public spending grew faster than real per capita state domestic product. Rowley and Tollison (1994) in their study compared the Wagner's law with the principle of comparative advantage. According to them, 'Wagner's law explains the complementarity between the growth of the industrial economy and the associated growth in demand for public services of an economic background such as transport, waste disposal, communication network and other related services, undertaken majorly by the government agencies.

Biswal et al. (1999) tested Wagner versus Keynesian Relation by investigating the relationship between national income and total government expenditure for Canada between 1950 to 1995. They used econometric techniques like, Granger Causality Co-integration, Error Correction Models (ECM), Unit root testing etc. Their findings support the Keynesian hypotheses, and the conclusions of the study produced evidence for short-run causation implying that national income has increased by increase in government expenditure in the short run. Mahal et al. (2000) tried to find the distribution of public health subsidies in India in different states. Despite a considerable desire for "equity" in public policy documents, it was found that subsidies on health are distributed quite unequally across different socio-economic groups in India. At the all-India level, the share of the richest 20 percent of the population in total public sector subsidies is approximately

31 percent, nearly three times the share of the poorest 20 percent of the population. Mitra and Varoudakis (2002) examined the effects of infrastructure on manufacturing industries' total factor productivity and technical efficiency for the Indian states. The results showed that differences in infrastructure endowments across Indian states explain their differences in industrial performances.

Loizides and Vamvoukas (2005) state that a study aimed to examine the causality between government expenditure and national income should be based on both bivariate and trivariate frameworks. They proposed that one of the most significant weaknesses of many of the earlier studies on Wagner's Law was the failure to adjust for the co-integration result of the time series in the case of the trivariate framework. A third variable needs to be introduced to the system that would alter the causal inference based on the simple bivariate system, and also the magnitude of the estimates. Tang (2008) investigated the relationship between government expenditure and economic growth in the light of Wagner's Law and the Keynesian Relation for Malaysia. The results indicated that the relationship between government expenditure and economic growth is not stable. Through this analysis, it was observed that causality between government expenditure and economic growth supports Wagner's Law during the time period 1985 to 2000, whereas the Keynesian relation was present only before 1980.

Pradhan (2009) investigated the causality between public education spending and economic growth in India during the period 1951-2001. He carried out the Error Correction Modelling for the empirical investigation. His findings suggest that there is unidirectional causality between education and economic growth in India. The direction of causality is from economic growth to education spending and not vice versa.

Samudram et al. (2009) tested the Keynesian relation and Wagner's Law on the role of government expenditure on economic growth for Malaysia during the period of 1970-2004. The authors used the Auto-Regression Distributed Lag (ARDL) model to explain the evidence of a long run relationship between Government Expenditure and Gross National Product (GNP). Their results showed that the long run relationship is bi-directional for GNP and government expenditure on administration and health, with a structural break in 1998. Thus, they found supporting evidence for both the Keynesian Relation as well as the Wagner's Law. Chandra (2010) tested for a causal relationship between education investments and economic growth for India for the time period 1951-2009 using linear and non-linear Granger causality methods. He found that there is bi-directional causality between education spending and GDP for India.

Data and Methodology

Data and Variables

The objective of this paper is to investigate the dynamics of the relationship between public expenditure and economic growth in India using the yearly per capita data for twenty-seven Indian states for the time-period 1993-94 to 2013-14 which includes 567 panel data points. The two main variables of this study are economic growth, and public

expenditure in social sector. Net State Gross Domestic Product (GDP) is used as the proxy for representing economic growth in Indian states and we represent it at constant prices measured in Indian Rupee (INR). All required data for the sample period are obtained from the Reserve Bank of India documents, Handbook of Statistics on Indian Economy, 2013-14 and State Finances: A Study of Budgets of 2013-14, published by Reserve Bank of India. Natural logarithms of all the variables have been taken to avoid the problem of heteroskedasticity. Using the time period, 1993-94 to 2013-14 for India, this study aims to examine the Wagner's Law. The estimation methodology employed in this study is the fixed effects and random effects model with AR(1) linear regression since AR(1) is a time-varying, first-order process in which the value to be predicted for the coming period will depend linearly on the value of the immediately preceding period.

The Stationarity Test (Unit Root Test)

Levin-Lin-Chu (LLC) Test

When dealing with panel data, a number of econometric issues can influence the estimation of parameters using OLS. Therefore, prior to testing for Co-integration, we need to examine the stationarity for each individual time series. The test used for checking stationarity here is the most widely used, Levin-Lin-Chu (LLC) test. We consider a simple panel-data model with a first-order autoregressive component:

$$y_{it} = \rho y_{i,t-1} + z_{it}'\gamma_i + \varepsilon_{it} \quad \text{-----(1)}$$

where $i = 1, \dots, N$ indexes panels; $t = 1, \dots, T_i$ indexes time; y_{it} is the variable being tested;

and ε_{it} is a stationary error term with a null hypothesis that the panel data has a unit root. The z_{it} term can represent any of panel-specific means, panel-specific means with a time trend, or nothing. The test for a unit root is conducted on the coefficient of y_{t-1} in the regression equation. If the coefficient is significantly different from zero (less than zero), then the null hypothesis that y contains a unit root is rejected. Null and alternative hypothesis for the existence of unit root in panel data is $H_0: \rho_i = 1$ for all i versus $H_1: \rho_i < 1$. Rejection of null hypothesis implies stationary time series.

Econometric Specification (Hausman Specification)

Hypotheses

The random and fixed effects models yield different estimation results, especially if number of time periods (T) is small and number of panel units (N) is large. The difference between these estimates gave rise to a specification test given by (Hausman 1978). The null hypothesis is that there is no misspecification, i.e., individual and time-effects are not correlated with the x_{it} 's:

$H_0: q^* = \beta_{FE} - \beta_{RE} = 0$, where β_{FE} and β_{RE} are the fixed-effect and random-effect estimators respectively.

$H_1: q^* = \beta_{FE} - \beta_{RE} \neq 0$.

Model Specification

The reason for selecting this model is based on the fact that it allows for generation and estimation of all the necessary parameters. The Wagner's Law takes the form:

$$EXP=f(GDP) \text{-----}(2)$$

where GDP is gross domestic product and EXP is public expenditure.

The link between public expenditure and economic growth can be described using the following model in linear form:

$$\ln(EXP) = \alpha + \beta \ln(GDP) + \varepsilon_i \text{-----}(2.1)$$

$\alpha, \beta > 0$. ε_i is the error term assumed to have a distribution that is normal, identical and independent in nature.

Here, GDP_i shows the gross domestic product annual growth rate at a particular time. The coefficients of regression, α and β_i represents the constant and slope respectively. The slope, β indicates how a unit change in the independent variable (gross domestic product) affects the dependent variable (public expenditure). The error term, ε_i has been incorporated in the equation to account for other factors that may influence public expenditure. The log-log model has been used to generate the desired linearity in parameters and the estimate of coefficient represents the elasticity, thereby enabling us to interpret the relationship of per capita expenditures and per capita income.

Step – I: Ordinary Least Square Method:

Here, we will assume that the hypothesis considering no relationship between the variables under study to be true. To confirm our hypothesis, we represent this by simple regression equation:

$$\ln(EXP) = \alpha + \beta \ln(GDP) + \varepsilon_i$$

This study is aimed to examine the Wagner's Law for twenty-seven states of India between 1993-94 and 2013-14.

Step – II: Fixed-Effects Model Estimation

Fixed effects models partial out, the effects of time-invariant variables with that of time-invariant effects. Time-invariant variables are the values of the variables that do not change across time. When the variable has the same effect across time, time-invariant effects are said to occur. Some of the methods used here include:

Demeaning variables: The within-subject means for each variable (both the Xs and the Y) are subtracted from the observed values of the variables. Hence, within each subject, the demeaned variables all have a mean of zero. For the case of time-invariant variables, e.g. gender, the demeaned variables will attain a value of 0 for every case, and since they are constants they will drop out of any further analysis. This helps to get rid of all between-

subject variability and leaves only the within-subject variability to be analyzed. The fixed-effects model is:

$$Y_{it} = \beta_i X_{it} + \alpha_i + u_{it} \quad \text{-----(3)}$$

Where α_i ($i=1,2,\dots,n$) refers to the unknown intercept for each entity (n entity-specific intercepts) and u_{it} is the error term.

Step-III: Random-Effects Model Estimation

In a random effects model, the unobserved variables are assumed to be uncorrelated with (or, more strongly, statistically independent of all the observed variables. An advantage of random effects is that you can include time invariant variables. In the fixed effects model these variables are absorbed by the intercept. Random Effects (RE) allows to generalize the inferences beyond the sample used in the model and hence can be estimated via Generalized Least Squares (GLS). The random-effects model is:

$$Y_{it} = \beta X_{it} + \alpha + u_{it} + \varepsilon_{it} \quad \text{-----(4)}$$

Where u_{it} is between-entity error and ε_{it} is within-entity error.

Testing for random effects: Breusch-Pagan Lagrange Multiplier (LM) Test

The LM test helps to decide what to choose between a random effects regression and a simple OLS regression. The LM test has provided a standard means of testing parametric restrictions for a variety of models. Its main advantage among the three set of tests (LM, Likelihood Ratio (LR), Wald) generally used in likelihood based inference is that the LM statistic is computed using only the results of the null, restricted model, that is in most cases, simpler than the alternative, unrestricted model.

The null hypothesis in the LM test is that variances across entities is zero, i.e., the random effects have zero variance. The alternative hypothesis in the LM test is that random-effects have a non-zero variance:

$$H_0: \sigma_u^2 = 0, H_1: \sigma_u^2 \neq 0.$$

LM test for testing the random effects in a linear model is based on pooled OLS residuals, while estimation of the alternative model involves generalized least squares either based on a two-step procedure or maximum likelihood.

Step-IV: Hausman Specification Test

A specification test based on the difference between the fixed- and random-effects estimates is given by (Hausman 1978). The basic idea behind this test is that while, the fixed effects estimator β_{FE} is consistent whether the fixed-effects either or not correlated with the x_{it} 's, the random effects estimator β_{RE} is efficient under the null hypothesis but is biased and inconsistent when the effects are correlated with the x_{it} 's.

The drawback of the FE estimator is that it is less efficient than the RE estimator (i.e. higher variance), and also the time invariant characteristics of the coefficients cannot be recovered. The null hypothesis is that the coefficients estimated by the efficient random effects estimator are the same as the ones estimated by the consistent fixed effects estimator. If they are, then it is safe to use random effects. If we get a statistically significant p-value, however, we should use fixed effects.

The difference between these estimators $\hat{q} = \beta_{FE} - \beta_{RE}$ tends to or is nearly zero in probability limits under the null hypothesis and is non-zero under the alternative.

Generalized Estimating Equations

Generalized Estimating Equations (GEE) fit the population-averaged panel-data models. In particular, they fit the generalized linear models and specify the within-group correlation structure for the panels. They characterize the marginal expectation (average response for observations sharing the same covariates) as a function of covariates. GEE is specification of likelihood for the (univariate) marginal distributions of y_{ij} and a "working" correlation matrix for the vector of repeated observations from each subject. Generalized linear models (GLM) are an extension of general linear models with the range of dependent variable being restricted (e.g., binary) and the variance of dependent variable depends on the mean. Here, for this study the GLM's are used for predicting the target allocation of GDP to the social sector for policy making purposes.

The marginal regression model is represented as:

$$g(E[Y_{ij}|x_{ij}]) = x_{ij}\beta \quad \text{-----(5)}$$

where x_{ij} is a p times 1 vector of covariates, β consists of the p regression parameters of interest, $g(.)$ is the link function, and Y_{ij} denotes the j^{th} outcome (for $j=1,2,\dots,J$) for the i^{th} subject (for $i=1,2,\dots,N$).

Empirical Analysis And Discussion

Unit Root Test

The data obtained is in the form of a balanced panel since the data obtained for all twenty-seven states is for all the years, i.e. from 1993-94 to 2013-14, with no missing values in data set. Table-1 presents the results of the unit root test. The results show that per capita GDP is stationary at the level and per capita public expenditure in social sector has a unit root at the level, using LLC test. The LLC unit root test examines for the existence of a unit root with intercept and trend to take into account the impact of trend on the series. The adjusted t-statistic or the p-value can be used for interpretation of results. If the LLC bias-adjusted t-statistic is significantly less than zero or the p-value is less than significance level (α), we reject the null hypothesis of a unit root in the panel.

Table-1: LLC Unit Root Test Results**Levin-Lin-Chu Test (Unit Root) for Per Capita GDP**

Ho: Panels contain unit roots		Number of panels = 27
Ha: Panels are stationary		Number of periods = 21
AR ^a parameter:	Common	Asymptotics: N/T -> 0
Panel means:	Included	
Time trend:	Included	
ADFF regressions: 1 lag		
LT ^c Variance: Bartlett kernel, 8.00 lags average (chosen by LLC)		
	Statistic	p-value
Unadjusted t	-9.1682	—
Adjusted t*	-3.2461	0.0006

^aAR stands for Autoregressive; ^bADF stands for Augmented Dickey Fuller; ^cLT stands for

Lead Time**Levin-Lin-Chu Test (Unit Root) for Per Capita Expenditure**

Ho: Panels contain unit roots		Number of panels = 27
Ha: Panels are stationary		Number of periods = 21
AR parameter:	Common	Asymptotics: N/T -> 0
Panel means:	Included	
Time trend:	Included	
ADF regressions: 1 lag		
LT Variance: Bartlett kernel, 8.00 lags average (chosen by LLC)		
	Statistic	p-value
Unadjusted t	-6.6505	—
Adjusted t*	1.4238	0.9228

Source: Stata 11 Output

Results from Table-1 revealed that the adjusted t-statistic (-3.2461) is significantly smaller than zero and the p-value (0.0006) is lesser than significance level (0.05) for GDP. However, the adjusted t-statistic (1.4238) is significantly greater than zero and the p-value (0.9228) is greater than the significance level (0.05) for public expenditure in social sector.

Thus, the per-capita GDP is stationary in nature and the per capita social sector public expenditure has a unit root at level. Since the per-capita GDP is stationary at level, there is no need to test for co integration.

Ordinary Least Square Technique

In ordinary least square method, we reject the null hypothesis that there is no relationship between the variables and the results of the ordinary least squares regression are summarized in Table-2. The empirical analysis on the basis of OLS method suggests that there is a direct positive relationship between public expenditure and GDP, implying the Wagner's Law holds for the Indian states under study.

In the Wagner's Law model, estimated coefficient on GDP is positive. Therefore, it is

statistically revealed that economic growth is instrumental in influencing the level of public expenditure in India. The coefficient of determination, R^2 shows that 52 percent level of public expenditure in social sector is being influenced by economic growth in India.

The regression equation for Wagner's Law estimated by the ordinary least squares method is:

$$\ln(EXP) = -4.10559 + 1.173 \ln(GDP) \quad \text{-----(6)}$$

Table-2: Ordinary Least Square Method

Source	SS ^a	Df ^d	MS ^b	Number of obs = 567		
				F(1, 565)	= 615.78	
				Prob>F	= 0.0000	
Model Residual	203.87198	1	203.87198	R-squared ^e	= 0.5215	
	187.058345	565	0.331076717	Adj R-squared	= 0.5207	
Total	390.930325	566	0.69068962	Root MSE ^c	= 0.57539	
$\ln exp^f$	Coefficient	Std. Err.	t	P> t	[95% Confidence Interval]	
$\ln gdp^g$	1.173025	0.0472708	24.82	0.000	1.080178	1.265873
constant	-4.10559	0.4783676	-8.58	0.000	-5.045186	-3.165994

^aSS stands for Sum of Squares ^bMS stands for Mean Squares ^cMSE stands for Mean Squared Error
^dDf stands for Degrees of Freedom ^eR-squared stands for Coefficient of Determination ^f $\ln exp$ is $\log(\text{Per Capita Expenditure})$ ^g $\ln gdp$ is $\log(\text{Per Capita GDP})$

Source: Stata 11 Output

Fixed-Effects Model

The results reported in the Table-3 suggest that all the coefficients are statistically significant and have the expected signs. There is a positive relationship between the per capita expenditure and per capita GDP given by:

$$\ln(EXP) = -13.225 + 2.075 \ln(GDP) \quad \text{-----(7)}$$

Table-3: Fixed-Effects Model

Fixed-effects (within) regression				Number of obs = 567		
Group variable: state				Number of groups = 27		
R-square : within = 0.8873				Obs per group: min = 21		
between = 0.3206				avg = 21.0		
overall = 0.5215				max = 21		
Corr (u _i , X _b) = -0.6579				F(1,539) = 4242.31		
				Prob>F = 0.0000		
Inexp ^c	Coefficient	Std. Err.	t	P> t	[95% Confidence Interval]	
lngdp ^d	2.075355	0.0318634	65.13	0.000	2.012763	2.137947
constant	-13.22526	0.3221838	-41.05	0.000	-13.85815	-12.59237
σ _u ^a	0.7144938					
σ _e ^b	0.23179347					
ρ	0.90477598 (fraction of variance due to u _i)					
F test that all u=0		F(26,539) = 113.18		Prob>F = 0.0000		

^a σ_u is the standard deviation of the residuals inside (within) each group i

^b σ_e is the standard deviation of the residuals after excluding the variability inside each group i

^c $\ln exp$ is $\log(\text{Per Capita Expenditure})$; ^d $\ln gdp$ is $\log(\text{Per Capita GDP})$

Source: Stata 11 Output

For the F-test, since the p-value is almost zero, the null hypothesis is rejected and hence the fixed effects are present. The model explains the 52 percent of the variation in expenditure overall, but 89 percent of the variation within states over time and 32 percent of the variation across states (as can be observed from the R-squared-within, between and overall values in the upper part of Table-3). The errors u_i are correlated with the regressors in the fixed-effects model which is seen by the correlation value of -0.6579. An estimate of $\sigma_u = 0.71$, if there were no omitted variables, is the fixed-effects estimator of the random effects model.

Random-Effects Model

The results reported in Table-4 suggest that there is positive relationship between public expenditure and economic growth given by:

$$\ln(EXP) = -12.858 + 2.039 \ln(GDP) \quad \text{-----(8)}$$

Table-4: Random-Effects Model

Random effects GLS regression			Number of obs = 567		
Group variable: state			Number of groups = 27		
R-square : within = 0.8873			Obs per group: min = 21		
between = 0.3206			avg = 21.0		
overall = 0.5215			max = 21		
Random effects $u_i \sim$ Gaussian			Wald chi ² (1) = 3867.27		
Corr (u_i, X) = 0 (assumed)			Prob>chi ² = 0.0000		
Inexp ^c	Coefficient	Std. Err.	Z	P> z	[95% Confidence Interval]
lngdp ^d	2.039058	0.0327889	62.19	0.000	1.974793 2.103323
constant	-12.85841	0.3417665	-37.62	0.000	-13.52826 -12.18856
σ_u^a	0.41341288				
σ_e^b	0.23179347				
ρ	0.76082359 (fraction of variance due to u_i)				

^a σ_u is the standard deviation of the residuals inside (within) each group i

^b σ_e is the standard deviation of the residuals after excluding the variability inside each group i

^clnexp is log(Per Capita Expenditure) ^dlngdp is log(Per Capita GDP)

Source: Stata 11 Output

For the F-test, since the p-value is almost zero, the null hypothesis is rejected and hence the random effects are present. The percentage variation in expenditure overall, within and between states is the same as that of fixed-effects model (as observed from the R-squared values given in upper part of Table-4). The errors are uncorrelated with the regressors in random-effects model and is evident by the correlation value being zero.

Breusch-Pagan Lagrange Multiplier (LM) Test:

Table-5 represents the LM test results. Since the p-value is approximately equal to zero, the null hypothesis is rejected and we conclude that the random effects are appropriate.

Table-5: Breusch-Pagan Lagrange Multiplier (LM) Test

lnexp [state, t] = $X_{it} + u[\text{state}] + e[\text{state}, t]$		
Estimated results:		
	Variance	s.d. ^a = sqrt (Variance)
lnexp ^b	0.6906896	0.8310774
e	0.0537282	0.2317935
u	0.1709102	0.4134129
Test: variance(u)=0 Chi ² (1) = 2011.27 Prob>chi ² = 0.0000		

^as.d. stands for standard deviation ^blnexp is log(Per Capita Expenditure)

Source: Eviews 7.0

Thus, the random effects regression should be adopted between the OLS and random effects regressions.

Hausman Specification Test

Table-6: Hausman Specification Test

	Coefficients		
	(b) Fixed	(B) Random	(b-B) Difference
lngdp ^a	2.075355	2.075355	0

^alngdp is log(Per Capita GDP)

Source: Stata 11 Output

An inspection of the figures in Table-6 reveal that the coefficients obtained from fixed effects model (b) are same as coefficients obtained from random effects model (B). Hence, the difference (b-B, i.e. 2.075355 – 2.075355) = 0. Therefore, it is statistically revealed that we should use random effects model in our study.

Generalized Estimating Equations:

Table-7 represents the generalized estimating equations results. The generalized linear model is:

$$Ln(EXP) = -13.092 + 2.062 Ln(GDP) \text{-----(9)}$$

**Table-7: Generalized Estimating Equations
GEE Population-averaged model**

Group variable:	state	Number of obs	=	567		
Link:	identity	Number of groups	=	27		
Family:	gaussian	Obs per group: min	=	21		
Correlation:	exchangeable	avg	=	21.0		
		max	=	21		
		Wald chi²(1) ^a	=	4234.81		
		Prob>chi²	=	0.0000		
lnexp ^b	Coefficient	Std. Err.	z	P> z	[95% Confidence Interval]	
lngdp ^c	2.062185	.0316892	65.08	0.000	2.000075	2.124294
constant	-13.09215	.3472105	-37.71	0.000	-13.77267	-12.41163

^aWald chi² is the Wald test statistic value; ^blnexp is log(Per Capita Expenditure)

^clngdp is log(Per Capita GDP)

Testing for Generalized Estimating Equations

test lngdp	= 0
(1) lngdp	= 0
chi2(1)	= 4234.81
Prob> chi ²	= 0.0000
test lngdp = 0, accumulate	
(1) lngdp	= 0
(2) lngdp	= 0
Constraint 2 dropped	
chi2(1)	= 4234.81
Prob>chi2	= 0.0000

Source: Stata 11 Output

The results show that there is a significant interaction between public expenditure in social sector and economic growth (p-value = 0.0000 < 0.05).

Conclusion

This paper aims to empirically investigate the Wagner's law for India, by examining the relationship between per capita GDP and per capita social sector expenditures at state level for the period 1993-94 to 2013-14. The unit root properties of the data were examined using the Levin-Lin-Chu (LLC) test, post which the fixed and random-effects model were estimated. The generalized estimating equations were also estimated in order to predict the target allocation of GDP to the social sector. The following were the major findings from the study:

The unit root test clarified that per capita economic growth is stationary at the level and per capita public expenditure is non-stationary at the level. Hence the cointegration cannot be carried out.

The elasticity of social sector expenditure when net state GDP, i.e., effective GDP of twenty-seven states changes is only 2.04 which suggests that for every one percent

increase in state per capita income, the public expenditure in the social sector has increased by 2.04 percent. A spending of nearly 2 percent of the GDP on social sector is fairly low. However, one reason for this low percent could be the fact that most of the expenditure is on staff salaries leaving little or nothing, for rural development. Another reason for this low allocation is the central government policies which consider that the states would receive additional funds as recommended by the Finance Commission. The problem does not lie in the Indian states, but that historically state spending has been so low. The government curbs the expenditure to meet its fiscal deficit target each year. The large existing network of public social sector facilities should be used more effectively with the help of private partnerships to enable a better delivery specially in terms of achieving a higher economic growth. At the state level, governments have the target of allocating only 2.06 percent (which is slightly more than the current allocation) of GDP to social sector. This includes the social services, agriculture and allied areas and loans and advances. Increased social sector expenditure would provide a greater economic stability and raise the standard of living. In the richer countries, the non-poor benefit from social insurance and the poor benefit from social assistance programmes and labor market interventions. But, in India, due to a disorganized formal sector, both the poor and the non-poor are benefiting from labor market interventions. The focus of government in India should be to pursue growth. This will bring more people above poverty and will also help achieve the target of government revenues, necessary for increased spending on social sector. Thus we can conclude that India should continue its focus on the development of social sector by enhancing the required technology to expand its capacity in terms of food storage & warehousing. Since the Wagner's law model is found to be valid for India, the country should enhance its economic growth to enhance the public expenditure.

Limitations of Study

The per capita GDP series came to be stationary in our study. Hence, we could not carry the cointegration testing. Thus, the long-run relation between per capita expenditure in social sector and per capita economic growth could not be found out. While using fixed or random-effects model, the lagged dependent variable becomes correlated with the error term, leading to problems of heterogeneity and biases. However, due to certain time constraints, this study was unable to use the panel generalized method of moments (GMM) estimator that uses instrumental variables for the lagged dependent variable.

Scope for Further Study

The economists and researchers should look at the past trends of government allocation of GDP to the social sector, the current budget policies and develop a model that predicts the elasticity of social sector expenditure accurately and for a longer period. Various other factors and sources of funding for the states, including the social protection schemes, such as Mahatma Gandhi National Rural Employment Guarantee Act (NREGA), should be studied in depth to understand the allocation of GDP to social sector.

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Determinants and Pattern of Saving Behavior in Rural Households of Western Odisha: A Micro Level Analysis

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ABSTRACT

This study examines the determinants and patterns of saving behavior in rural household of western Odisha. The determinants and patterns of saving behavior differ from rural to urban region. In rural areas, the marginal propensity to consume (MPC) is more rather than the marginal propensity to save (MPS). The study is conducted through primary survey with 300 households, drawing a sample from rural villages of Sundargarh district of Odisha. These 300 households from Sundargarh district are selected and a cross-sectional primary data is collected by personal interview method. The determinants of saving are analyzed empirically by a linear regression method. The income, level of expenditure, consumption pattern and saving behavior are taken as the criteria for drawing the samples. The present study reveals that the average propensity to consume (APC) and MPC of the rural households vary in terms of the distribution of income and occupation i.e. in other words, the lowest income groups (the agricultural laborer and the non-agricultural laborer) have the highest marginal propensity to consume which leads to lowest marginal propensity to save as compared to the other occupational groups. This study finds that most of the rural households have low educational status which is resulting in less awareness of the people towards the benefits of saving. They are even careless towards their health standard as the consumption of local liquor is very prominent in these households which in a way or the other, deteriorates the health as well as the financial condition of these households.

Keywords: Household, Savings, Financial institutions, Consumer Spending Pattern, Average Propensity to Save, Odisha

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Introduction

Saving is a significant variable to be considered for the economic growth and development of any country and is a vital macroeconomic variable to be studied under the purview of the economic arena on individual as well as household basis. According to classical economists like Adam Smith, David Ricardo and J.S. Mill, "saving is an important determinant of economic growth". The determinants and patterns of saving differ from rural to urban region. In rural areas, the marginal propensity to consume is more rather than the marginal propensity to save which seems to be vice-versa in urban areas where the marginal propensity to save is more than that of the marginal propensity to consume. According to Lewis (1954), the central problem in the theory of economic development is to understand the process by which a community which was previously saving and investing four or five percent of its national income changes into an economy where voluntary saving is running at about twelve to fifteen percent or more of the national income. In the developed countries, income is generated at a higher rate which encourages people to have more savings which opens to more investment, leading to more capital formation. But in a country like India, the income standard is almost uncertain and leads to more consumption rather than saving. In India, as in many developing countries, most households are poor and do not save. Here, there is a requirement of mobilization of rural saving for financial growth. In the Indian economy, the household sector contributes a lion's share of the total saving which needs to be stepped up. Odisha is a state which is rich in natural resources and it is also counted among the poorest states of the country. According to the National Human Development Report (2010), Odisha lies far below the national level of development in every aspect. The present study focuses to examine the main determinants of the saving pattern in the rural population of Odisha especially in the context of aggregate saving behavior. India is fast losing its status as a country of big savers. According to RBI Annual Report (2011), "the persistence of inflation at a high average rate of about nine per cent during 2011-12 further atrophied to stave off the downward pressure on their real consumption or lifestyle". Today's saving in rural areas mainly consists of the assets in the form of animals, metals and also due to some awareness about the saving institutions available nearby it encourages people to save so as to enjoy the rate of interest from the amount saved from time to time. Odisha is one of the major states of the Indian Union, with a population of 43.73 million in 2011. Saving is a very important component which is responsible for combating or meeting any emergency faced by the individuals or the households or any corporate agencies. Saving is meant for meeting contingencies but sometimes it also acts as a form of investment. But sometimes people are not inclined towards saving and the very delicate reason is lack of awareness. To study on rural savings in India, we need to look into four aspects; namely, the determinants of savings, the composition of savings, the methods of measuring savings, and the pattern of saving. The present study tries to analyze the determinants

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and pattern of saving behavior among rural households in Odisha. The present study can be a relevant one so as to know the reason of dissaving and if saving occurs then what are the determinants which are responsible for saving. For effective economic planning, the planners should have an idea regarding the volume of saving of different groups of people and the method by which saving can be increased in a better way. To advocate appeals for saving, there is a need to know about the saving motives of the individuals. An understanding of the saving preferences also helps in calculating the saving instruments which can efficiently arouse saving.

The present study examines and identifies the determinants of the saving behavior among the rural household population of Sundargarh district of Odisha. The study also examines the changing pattern of saving behavior among rural households of Odisha. This paper is organized into five sections including the introduction. The next section briefly discusses both theoretical and empirical review of literature. Its subsequent section discusses the methodology of the study and sample design while its following section is about analysis and findings. The last section presents the summary and conclusion with some policy suggestions.

Review of Literature

There have been a lot of studies conducted on the national and international levels which have reflected the savings behavior: the pattern of savings and the determinants of saving behavior in the rural households. Muradoglu and Taskin (1996) aimed at examining the differences in household savings behavior in developing and industrial countries from a cross-country perspective. Income, wealth, rate of returns, inflation, foreign savings, and demographic variables were taken as the determinants of saving whereas Chandra and Long (2003) examined the determinants of household saving in the process of economic development, in the context of the Taiwanese experience for the duration of the period 1952–99. They found that the household saving rate rises with both the intensity and the rate of augmentation of household disposable income and that the real deposit rate has a significant affirmative impact on saving whereas some authors like Hasnainet. al. (2006) evaluated the determinants of household saving in the process of economic development in the light of Pakistan's experience during the period 1972–2003. They experienced that growth rate of per capita income, per capita income and interest rate were positively affecting; young dependency ratio, old dependency ratio and inflation rate were negatively influencing public saving in the long run as well as in the short run.

Some studies dealt with the factors which are responsible for dissaving, as Nga (2007) examined a general idea of household saving in South Africa for the phase 1983 to 2003. She identified the main factors responsible for the lack of a commitment to saving, viz.: lack of income (due to unemployment), inadequate income, over-consumption (due to obvious consumption, procedural rationality and the bandwagon effect) and market failures, such as incomplete or even no information, lack of financial literacy, cultural and political factors. Income was found to be the main determinant of savings. Komicha (2007) examined to understand and explain farm household economic behavior with

reference to saving, credit and production efficiency under imperfect financial market conditions based on data obtained from farm household survey conducted in two districts of southeastern Ethiopia from September 2004 to January 2005. As evident in this article, about 62% of the farm households had savings in financial and physical assets but almost all farm households (about 90%) had savings held informally. Again in the context of saving determinants, Kraay (2007) analyzed a variety of statistical issues that clouds the measurement of aggregate and household saving in China, and witnessed that the determinants of household saving reflect favorably on two complementary explanations (expectations of future income growth and the role of subsistence consumption) and the factors captured only a small fraction of the cross-provincial variation in household saving rates. Newman et. al. (2008) investigated the determinants of household savings in rural Vietnam which revealed wealthier households were more likely to save. Negative effects of age of household head were found; no education effects were found; financial savings were low and share of formal savings were relatively small in rural Vietnam. In a general view leading to saving factors, Buragohain (2009) discussed the trend and pattern of savings in general, and household sector savings, in particular. The time series data consists of four elements (a) seasonal fluctuations, (b) cyclical variations, (c) systematic trend and (d) residual. In an annual time series, seasonal fluctuations are automatically eliminated in the aggregating/averaging of weekly/monthly/quarterly income, consumption and savings; similarly some other authors like Abdelkhalek et. al. (2009) observed the microeconomic factors which elucidate the household savings behavior in Morocco and found the household saving functions are anticipated in order to test households' responses to income, monetary or non-monetary wealth and socio-demographic variables in urban and rural areas and the study revealed that Moroccan women save more than men. Issahaku (2011) studied on a microeconomic approach of estimating the determinants of financial saving and investment in one of the most underprivileged district capitals in Ghana, the Nadowli in the Nadowli District of the Upper West Region and identified that age composition and assets do not have a major effect on saving. The factors that make household investment are occupation, expenditure, assets and saving. Turner and Manturuk (2012) highlighted that how individual, institutional, and structural determinants impact the decision-making processes that guide participants' savings behavior. The factors such as obligation to family, upbringing, and employment experiences affect participants' attitudes toward savings and their confidence in their ability to save. Gedela (2012) examined the determinants of the saving behavior of the tribal and rural households in the district of Visakhapatnam, India and highlighted that the age of the head of the household, sex, dependency ratio, income and medical expenditure are significantly influencing the saving behavior with an ever highlighting scenario of saving. Bakshi et.al (2012) found household incomes were under reported in rural areas and household incomes were lower than the aggregate of consumption and savings.

From the earlier literature, we find that the savings do not depend upon income alone, rather on the consumption pattern of the individuals also. The relative and permanent income hypothesis holds that the relationship between consumption and income is proportional whereas the relationship of the life cycle hypothesis is non-proportional. The relationship

between saving and the age-structure of the population is also a current topic of debate. By the above theories it is clear that when the income grows the population is encouraged to save and the dissaving occurs with the old generation due to no or less income. It is therefore necessary to furnish a relationship between income, consumption and saving.

Methodology and Sample Design

The study is focused on collection of primary data from the field. The secondary data is used to draw a general background and over all scenario in a cross states context. Constraint of time did not allow a census mode by visiting every household. A proportionate sample was drawn based on principle of stratification on random basis giving weightage to physical, social and demographic factors. Cross-sectional primary data were collected by interview method from household level and used in this study. Main variables of interest related to households includes: education level of respondent, occupation, dependency ratio, the various expenditures, income from various sources, land size owned, deposit and lending rates, incomes, transport costs to financial institutions of saving, service charges by financial institutions, savings/deposits and credits/loans. The methodology involved the estimation of a saving rate function derived with in the life cycle framework while paying attention to the structural characteristics of a developing economy. It is found that the saving rate rises with both the level and the rate of growth of disposable income and the magnitude of the impact of the former is smaller than that of the latter. Terms of Trade changes and inward remittances by expatriate Indians seem to have a negative impact on the saving rate. There is also a clear role for fiscal policy in increasing total saving in the economy, with the private sector considering public saving as an imperfect substitute for its own saving. The study was conducted with 300 households drawing a sample from rural villages of Sundargarh district. 300 households from Sundargarh district were selected ensuring balanced representation of the elements in universe. The income, level of expenditure, consumption pattern and saving behavior are taken as the criteria for drawing the samples.

The present study examines the determinants of saving behavior by using the linear regression method. The result of estimated linear regression model of the saving behavior of the rural households in the selected study area is elaborately discussed in the next section. This analysis has been carried out for the entire sample of 300 observations collected from thirteen villages. The study selected eight independent variables, such as land acres, marital status, gender, house type, number of family members, primary occupation, and age and educational qualification regressed with one dependent variable i.e. saving.

Selected villages for the study are Bartoli, Jabapanposh, Dalposh, Jamsera, Jagitoli, Bijadahi, Tankitoli, Pugarabahal, Lahanda, Semerta, Kadalibahal, Gariabahal and Langkoi from Jamsera, Ankurpali and Santoshpur panchayats of Sundergarh district of Odisha. Each of these villages consists of their own socio-economic, cultural, religious and traditional or ethnicity features. Hence, the samples selected also tell about the socio-economic features.

The setting of livelihood in the rural areas is to a great extent reflected in the socio-economic factors of households, which in turn persuade the households' economic behavior. Social institutions and government policies need to adapt to changing saving trends to cater to an ever increasing demand for the needs of the present economic situation. However, together with income trends, the saving behavior of the population is increasingly seen as an important component of the demographic profile and a gradually changing pattern in the income and saving structure warrants thorough investigation of the saving population, as well as the long term implications of these trends. The demographic characteristics include the income, consumption and saving pattern of the society. A number of factors affect these characteristics. The population, number of dependents, education, occupation, the size of the family, income, age composition etc., has a direct impact on the saving pattern of the society or community as a whole. The importance of saving reveals that it is important for children's education, children's marriage, medical expenses, social security purpose, precaution for natural calamity like flood, drought etc. which is demonstrated in Table-1.

Table-1: Socio-economic Profile of the Study Area

Household characteristics	Percentage	Household characteristics	Percentage
Occupation groups		Family type	
Agriculture Labor	19.3	Joint family	24
Daily wage workers	53.3	Nuclear family	76
Artisan	3.7		100
Service	13		
Business	5.3		
Others	5.4		
	100		
Age groups		Marital status	
10-24 years	12	Unmarried	10.3
25-44 years	39	Married	80.0
45-64 years	41	Widowed	8.7
65 years and above	8	Divorced	1.0
	100		100.0
Religion		Family size	
Hindu	52.3	1-5	67.4
Christian	47.7	6-10	29.4
	100	11-15	3.3
			100
Income category		Size of land holdings(in acres)	
500-1000	3.0	0	41.7
1000-2000	9.0	1-5	39.4
2000 & above	88.0	6-10	16
	100	10 and above	6.9
			100
Level of education		Sex ratio	
Illiterate	57.7	Male	54
Primary	11.7	Female	46
Secondary	16.0		100
Up to Seventh	5.3		
Intermediate	4.0		
Graduate	5.3		
	100		

Total observation =300; Source: Author's Calculation

Analysis and Findings

There is a positive relationship between saving, income and consumption. As the income of the individual increases, consumption increases and simultaneously saving also increases. The relationship involving consumption, income and saving affects each other which can be shown with the equation:

$$C=f(Y)$$

$$Y=C+S$$

$$S=Y-C$$

Here, C=Consumption, S=Saving and Y=Income

Here, the analysis of the saving and income of the individuals with the other independent variables are given through a linear regression analysis. This can be given through the following description:

$$Y= f (GEN, AGE, MAR_STA, EDU, PR_OCCU, FA_MEM, HS_TP, LAND)$$

Where,

Y=Income of the individuals,

GEN=Gender,

AGE=Age of the Respondents,

MAR_STA =Marital Status,

EDU=Educational Qualification,

PR_OCCU=Primary Occupation,

FA_MEM=Family Members,

HS_TP= House Type and

LAND= Details of Land Acres.

Table-2: Determinants of Household Income and Saving Behaviour

Dependent Variables	Independent Variables	Coefficient	Std. Error	't' Statistics	Significant
Income of the individuals	(Constant)	.923	.227	4.062	.000
	Gender	.014	.061	.229	.819
	Age	-.002	.002	-.830	.407
	Marital status	-.029	.067	-.428	.669
	Educational qualification	.106	.029	3.616	.000*
	Primary occupation	-.127	.027	-4.662	.000**
	Number of family members	-.007	.011	-.618	.537
	House type	-.111	.041	-2.716	.007*
	Details of land acres	.011	.009	1.245	.214

* $r^2 = 0.85$ Adj. $r^2 = 0.67$

Dependent Variables	Independent Variables	Coefficient	Std. Error	't' Statistics	Significant
Money Owed to the Households	(Constant)	.679	.230	2.957	.003
	Gender	-.037	.061	-.611	.542
	Age	-.004	.002	-1.678	.095*
	Marital status	.043	.067	.637	.525
	Educational qualification	.028	.030	.952	.342
	Primary occupation	.015	.028	.549	.583
	Number of family members	-.048	.011	-4.259	.000**
	House type	-.098	.041	-2.389	.018*
	Details of land acres	.032	.009	3.432	.001*

* $r^2 = 0.79$ Adj. $r^2 = 0.56$

Money Deposited in Banks	(Constant)	.923	.227	4.062	.000
	Gender	.014	.061	.229	.819
	Age	-.002	.002	-.830	.407
	Marital status	-.029	.067	-.428	.669
	Educational qualification	.106	.029	3.616	.000*
	Primary occupation	-.127	.027	-4.662	.000**
	Number of family members	-.007	.011	-.618	.537
	House type	-.111	.041	-2.716	.007*
	Details of land acres	.011	.009	1.245	.214

* $r^2 = 0.65$ Adj. $r^2 = 0.54$

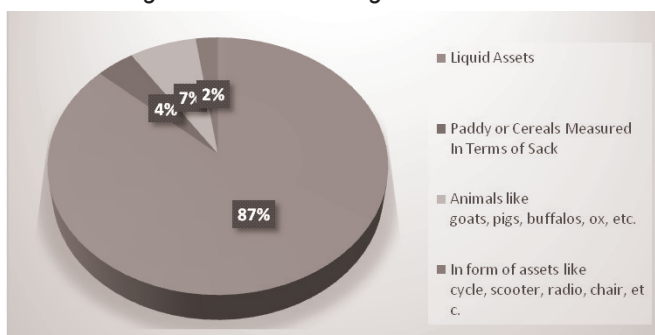
Source: Author's Calculation

Note: *: significant at 1 percent level ** : Significant at 5 percent level

Table-2 represents the determinants of household income and saving behavior of the rural western Odisha. It is evident from the table that educational qualification and primary occupation of the individuals have a positive impact on their level of income. Many people fail to save what they need after retirement (Munnell, Webb, and Golub-Sass 2009). The life-cycle hypothesis implies that individuals plan both their consumption and savings behavior over the long-term and intend to even out their consumption in the best possible manner over their entire lifetimes. The key assumption of all individuals who choose to maintain stable lifestyles implies that they usually don't save up a lot in one period to spend furiously in the next period, but keep their consumption levels approximately the same in every period. The rural households have very less income and high consumption as their marginal propensity to consume is high and they save less which significantly puts an impact on their investment pattern.

Most of the rural people have a discouraging attitude towards saving. Saving may be in form of physical or financial. In rural areas people save in different ways. Some people save in form of liquid asset or cash in hand, some save in form of gold, silver, and other precious metals, some save in form of paddy or cereals measured in terms of sack, saving in terms of animals like goats, pigs, cows, buffaloes, ox and in form of assets like cycle, scooter, radio, chair etc. are done.

Figure-1: Mode of Savings of Households



Source: Author's Calculation

The study shows 86.7 percent people save in form of liquid asset and 4 percent people save in form of paddy or cereals measured in terms of sack and 7 percent people save in form of animals.

Table-3: Preference of Saving in Financial and Non-Financial Institutions

Preference of Saving	Percentage
Commercial banks	41.3
Local banks	12.3
Corporate banks	1.7
At home	37.7
Post-office	7.0

Source: Author's Calculation

The study conducted on the villages show an incredible availability of the financial institutions where the rural people save. A number of financial institutions like commercial banks namely United Bank of India, State Bank of India, Union Bank of India, Overseas Bank, local banks like Mini bank and Jena bank are available. Most of the people save in post offices, Life Insurance Corporation (LIC), Sahara India, Micro Finance and SHGs. Around 41.3 percent people save in commercial banks, 12.3 percentage people save in local banks, 1.7 percentages of people save in corporate banks, 37.7 percentage people save at home and 7 percentage people save in post office.

Table-4: Types of Account Available in Banks or Financial Institutions

Savers Preference of Accounts in Financial Institutions	Percentage
Not applicable	38.0
Current account	2.3
Savings account	45.3
Fixed deposit	12.0
Recurring deposit	2.3

Source: Author's Calculation

The financial institutions available nearby encourages the people to save where the preference of saving over a year signifies short term, middle term and on a long term basis where short term saving accounts to daily, monthly and quarterly and medium term saving accounts to half yearly, yearly and more than one year where as long term saving are applied on a two year, five years and on an above five-year basis. The peoples interest and preference towards the amount of saving in different period is below rupees 5000.

Conclusion

India is a country full of diverse culture, tradition and ethnicity. After achieving independence, the country has been experiencing a lot of variations in the context of social, religious and economic situations. A lot of government policies have been affecting the economic and social status of people in India. The implementation of Five Year Plans was done to eradicate developmental problems and to achieve higher capital formation, balanced economy, eradication of poverty, improving infrastructural facilities, improving social status by raising the standard of living etc. But the plans and programmes have not been successful yet as the socio-economic status of most of the people in the country is still marginalized. In the present context, the rural dominated society is experiencing mass poverty, unemployment, low income, low saving and low occupational status. The present study has made an attempt to analyze the socio-economic background and the saving pattern determinants of the rural households in the Sundargarh district of Odisha. The marginal propensity to save of the rural communities is very nominal because of less income and more consumption. If we look into their saving pattern, we find that savings are accounted to be very low as because of their low occupational status and low income. Most of their income is spent on consumption and it is very difficult to meet the consumption needs in case of larger family size. The increase in the financial institutions like banks, micro finance institutions, SHGs and other local banks provided an opportunity to the rural people to save more. The increase in awareness among the people for their future security as through the unforeseen cases like sudden death of a family member, medical emergency and any other financial crisis, education of their children, marriage of a family member has made people inclined to save. The present study found that most of the rural households are subjected to fewer saving. Most of the rural households are engaged in agriculture and they have their own land which forms an asset for them during any emergency. Large percentage of the rural mass is poor having a low economic and social status. The dependency ratio (the percentage of children and old age population) is increasing day by day which leads to more consumption and less saving. They are even careless towards their health standard as the consumption of local liquor is very prominent in these households which in a way or the other, deteriorates the health as well as the financial condition of these households. An efficient wage act policy should be implemented by the government as many of the rural people are the daily wage workers amounting them to proper ways which can meet the consumption needs and some portions of the income can be saved. A rigorous health checkup should be provided which can raise their health standards and reduce the medical expenses.

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Proposing the Role of Mental Accounting and Financial Cognition on Personal Financial Planning: A Study in Indian Context

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ABSTRACT

This paper is trying to find out the influence of one of the important implicit characteristics of Indian households Personal Financial Planning i.e. mental accounting in both economic and finance and also trying to find out the role of mental accounting in influencing personal financial planning of Indian households. The study also proposed the influence of financial cognition in individuals' personal financial planning process. The financial cognition process includes financial attitude, risk attitude and financial knowledge and personal financial planning includes cash-flow management, investment planning, insurance planning, taxation planning, retirement planning and estate Planning. To measure mental accounting process among Indian households, the present study considered three components from behavioral life cycle hypotheses i.e. current income, current assets, future income and mental budgeting. The present study hypothesized the role of mental accounting as a mediator between financial cognition and personal financial planning. The main aim of the present study would to replicate and extend the previous work supporting mental accounting as an explanation of the effect of prior outcomes in the form of temporary income changes on intertemporal choices in Indian context.

Keywords: Mental Accounting, Financial Knowledge, Financial Attitude, Risk Attitude, Personal Financial Planning

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Introduction

When it comes to utilizing domestic resources, the allocation of household resource has always been an area of interest for researcher, as well as to the policy maker. A nation's savings and investment propensities play a key role in reaching targeted economic growth. Studying savings and investment profile of households, the destination of investment, the profile of investors and savers and their perceptions and motivations have always attracted researcher's interest. Households and individual investors supply a pool of capital that creates liquidity in the market and make it dynamic. Thus, household income, its consumption and its distribution are fundamental to any economic analysis. These determine the nature and rate of saving in an economy which, in turn, implies the rate of economic growth. Sustained research in this field thus becomes imperative in order to understand the patterns of savings and capital formation in our country.

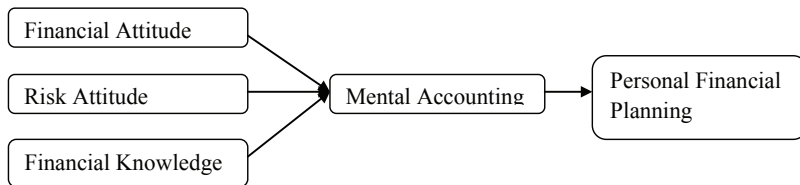
Over the past few decades many financial theories have evolved with varying level of complexity and explanatory powers, explained about the financial market and risks involved in various types of investments and also on the return expectation of investors. However the rationality of investors has always been criticized on its lack of reality and practicality. Evidence reveals repeated patterns of irrationality, inconsistency and incompetence in the ways human beings arrive at decisions and choices when faced with uncertainty (Bernstein, 1996).

The difficulty of the traditional theories in explaining the anomalies in various financial decisions of investors gave birth to a new field of finance known as "behavioural finance". This concerns the psychological behaviour of the investors and explores the contextual understanding about irrational behaviour. Behavioral Finance is the combination of Sociology, Psychology and Finance. Though the concept of Mental Accounting (MA) first mentioned in the prospect theory (Kanheman & Tversky, 1979), but Thaler (1980, 1999) established and conceptualized the concept. MA is all about the psychological phenomena where they segregate the sources of money and the intention of each account. It is help full for the decision makers which normally give them the reference to determine the losses and gains.

The aim of the present study is to analyze the role of MA in influencing personal financial planning (PFP) of Indian households and would also try to analyze the role of financial cognition (FC) in individuals' PFP process and to check the mediation role of MA in between FC and PFP among Indian households. The study defines Personal Financial Planning (PFP), as a process of shaping all types of future financial needs in an efficient manner. The present study identified six components of PFP (Altfest, 2004) i.e. cashflow management (CM) is all about managing inflow and outflow of money to increase savings; investment planning (INV) is about putting money in different short term or long term avenue to increase rate of return and cope up with inflations; insurance planning (INSU) to prepare for future financial uncertainties; tax planning (TAX) to reduce tax burden; retirement planning (RP) to prepare for financial security at old age and estate planning (EP) is for distribution of wealth among future generation. The present study defines MA

as a cognitive process of segregating incomes based on the source and amount of income and generating a spending habit where each category of income has different propensity to consume. To measure formation of MA, four components of the Behavioral Life Cycle are considered i.e. mental budgeting (MB) is the process of mental segregation of money by providing a particular budget to each type of expenditure; current income (CI) it is the cognitive focus on incomes that are regularly received and expected to be regularly received; current assets (CA) it is the cognitive focus on part of regular income with a discretionary portion for saving and future income (FI) it is the cognitive focus on incomes expected to be received at a future point in time. The present study defines FC as the psychological influence of individuals' financial thinking based on certain assumptions. Three attributes of individuals are consider under FC component i.e. financial attitude (FA), as a mental disposition towards the application of financial principles to manage finances; risk attitude (RA), as the individuals' positive or negative state of mind towards the probabilities of taking risk in a given financial uncertainty; and financial knowledge (FK), as the individuals' understanding about various financial concepts, terms and products and awareness about various financial risk and opportunities to make informed financial decisions.

Conceptual Model



Review of Literature in the Context of Mental Accounting

Individual often use MA to restrain spending by allotting budget limits in certain categories (Heath & Soll, 1996). By doing so, individual categorize their expenses and assigned a particular expenses to an earmarked mental account, to be monitored and elude overspending on tempting products. MA is a perceptive process of bookkeeping that individuals practice to keep track of expenses and control their consumption (Gourville & Soman, 1998; Thaler, 1985, 1999). In general, understanding MA processes helps us understand choice. As per the MA theory people subjectively frame the utility of a transaction in their mind which they expect to receive. The detailed application of MA has been given by Shefrin and Thaler (1988), in their behavioural life cycle hypothesis. They conclude that people mentally divide their assets in current income (CI), current assets (CA) and future income (FI), based on marginal propensity consume (MPC) which is different for each account. The MPC is greater if money is taken from a current spendable income account than from current assets. They also mention that MA violates an important concept of economic theory i.e. the principle of fungibility and treat money as non-fungible.

CI is the most tempting class of account for a household to spend the money, for example cash on hand and money market or checking accounts. Money in these accounts is routinely spent each period. Money cognitively kept in CA accounts are comparatively less tempting to spend which include a range of liquid asset accounts such as savings accounts, stocks and bonds, mutual funds, and so on. These funds are typically designated for saving. Next in the hierarchy is FI accounts are the least tempting category of accounts. The funds kept in this account include money that will be earned later in life i.e. designated retirement savings accounts such as provident fund account, pension account. In a study of specific buying decision Karlsson et al (1997), highlights that willingness to buy was higher when subjects used money from current income than from current assets also conclude that buying decisions are lower when individuals have to use their current assets rather than current income. More caution and unwillingness to use current assets than current income may reflect that long-term preferences to a larger extent are considered when using current assets.

The Extent to which people consider future consequences of their behaviour has been shown to differ between individuals (Strathman et al. 1994). It could also be the case that the extent to which people consider future consequences varies between situations. The greater willingness to buy when using money from current income than from current assets may, in part, stem from a greater consideration of future consequences or consumption when using current assets.

Review of findings in the context of Financial Attitude, Risk Attitude and Financial Knowledge

In social psychology, attitude is the belief, perception and judgment that reflects the classification and evaluation of persons, objects, situations, with a like or dislike label. Attitude influences an individual choice of action and responses to challenges, incentives and rewards. The study defined financial attitude as “the application of financial principles to create and maintain value through decision making and proper resource management which measures individual personal disposition toward financial matters. The study considered following factors as important to decide one’s attitude towards personal finances like Current income, Liability, Net savings, Expenditure, Financial goals.

Many studies observed risk attitude by observing their portfolio shares (Riley & Chow, 1992; Bucciol & Miniaci, 2011), or even also directly through experiments (Andersen et al. 2008; Dohmen et al 2010a; Von et al. 2011) or surveys (Guiso & Paiella, 2008). Though these observed affect can tell about the risk borne of individual but all these results does not explain about risk attitude fully, there are few specific assumption on households’ expectation and their investment behaviour conditionally draw the risk attitude of individual households. Whereas no or little correlation has been found between general risk attitude and risky investment choices by individual investors (Morse, 1998; Warneryd, 1996), there is a significant correlation between the more specific investment risk attitude, which captures the risk propensity in investing, and the riskiness of investment portfolios

(Warneryd, 1996). This is in accord with the hypothesis that risk taking is domain specific (Weber et al. 2002). In addition, people with high incomes (Cicchetti & Dubin, 1994; Grable et al., 2004) and men (Weber et al. 2002) have more positive attitudes toward financial risk taking than people with lower incomes and women. Present study would analyze the influence of risk attitude in individual personal financial planning process and how mental accounting influence risk attitude of individual in their financial planning as a mediating factor.

A strong relationship between financial knowledge and households' well-being has been demonstrated by various households' surveys in developed countries. Households with low levels of Financial knowledge tend not to plan for retirement (Lusardi & Mitchell, 2007a), borrow at higher interest rates (Lusardi & Tufano, 2009; Stango & Zinman, 2009), acquire fewer assets (Lusardi & Mitchell 2007b) and participate less in the formal financial system relative to their more financially-literate counterparts (Van et al. 2007; Hogarth & O'Donnell 1999). An improved financial knowledge can potentially improve the household financial decision making and which ultimately increase savings and welfare and will result in well-organized personal financial planning. For people lacking financial experience, financial education programs have been identified as a key to improving financial knowledge and promoting personal financial responsibility (Elliot 2000; Peng et al. 2007). In a study of 924 undergraduates from 14 college campuses, Chen and Volpe (1998) found that students with higher financial knowledge were both more likely to keep financial records and more likely to select the correct choice when given a hypothetical scenario regarding a financial decision compared to students with less financial knowledge. Although the current literature finds a positive association between improved financial knowledge and effective financial behaviors, studies also show that students have not received a proper education in financial knowledge and management (Brobeck 1991). Many researchers have echoed the call for early financial education of young adults (Hayhoe et al. 1999; Hayhoe et al. 2000; Munro & Hirt 1998; Roberts & Jones 2001). Peng et al (2007) found a significant association between participation in college level personal finance classes and higher investment knowledge; however no significant association was found between participation in high school level classes and higher investment knowledge. In a recent review, Fox and colleagues (Fox et al. 2005) found support that even short financial seminars had a positive impact on both financial knowledge and attitudes regarding both installment and credit card debt.

Review of findings in the Context of Personal Financial Planning

All organisations starting from Tata Motors down to single person households have some explicit/implicit accounting system which influences their decision making process unexpectedly. Fear of risk is the most important constraint in any financial decision and which is also a most important reason which makes every individual to think before any financial decision. Therefore personal financial planning is important to avoid that frightening anticipation of risk. For modern financial planning the ground breaking event was the Harry Markowitz discloser in 1952, "I was stuck with the notion that you should be

interested in risk as well as return” and for evaluation of this simple notion Markowitz was awarded with Nobel prize in 1990. Even before Markowitz, Benjamin Graham, the father of fundamental investment theory suggested in support of importance risk that “investment decisions are 25% intelligence and 75% psychology. In another study Peter Bernstein told “risk is in the eyes of beholder and the eyes may be myopic”.

The most common areas are:

- Cash flow planning to maintain a balance between savings and spending policies is one of the most important factors to consider in individual PFP process. Present study analyzes the how individual households’ planning saving and spending pattern gets influenced by mental accounting and other financial cognition specially by their financial and risk attitude and their financial knowledge.
- Investment planning for skillful dissemination of resources to earn desirable future profit is also very important and the study would be analyzing the investment planning process of the personal financial planning process in the presence of influence of mental account and also would analyze the role of financial knowledge and individual financial and risk attitude in their investment planning.
- Risk management in terms of insurance and other practices to limit household exposures to uncertainty. The study analyzes how Indian households plan to manage their insurance in the presence of various cognitive process.
- Tax planning to minimize tax burden. Minimizing income tax burden is one of the important concept in personal financial planning, keeping in mind the importance of it, The study analyzes the income tax planning process of Indian households with relation to their mental accounting formation based on their source of income how it influences their personal financial planning process.
- Retirement planning which is planning for the future period in which work-related income ceases Retirement planning is a very important sub-process of the financial planning process and the study analyzes how individual plan their retirement and how it gets influence by their cognitive and mental accounting biases.
- Estate planning by organizing finances for other household members and other people for the period beyond the demise of the asset holder.

Saving and asset creation are the two important things to be taken care for a proper financial plan. Savings occur when current income exceeds current consumption and savings lead to assets creation. The Behavioral life cycle hypothesis developed by Shefrin and Thaler (1988) provides the theoretical framework for savings and assets creation. As individual are tempted to spend and for savings they required self-control effort to reduce spending or they need to put their own created constraints to resists their spending habits. To do that individual use some self created rules such as restricting borrowing to certain types of purchases, paying off credit card bills every month, or setting a goal to save a certain amount each month (Moore et al. 2001). In some cases, individuals use “precommitment constraints,” techniques to impose restriction on choosing current

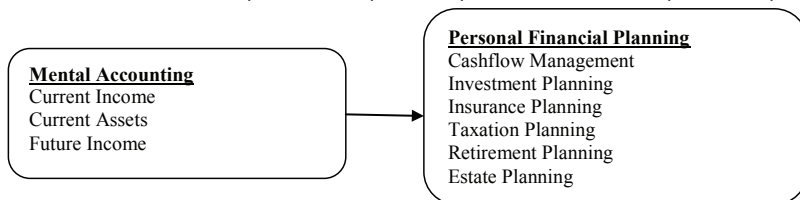
pleasure at the expense of future pleasure i.e. contribution towards pension plans are deducted from a person's paycheck, to eliminate the responsibility of making conscious decision to save (Maital, 1986), households prefer to choose automatic debits from savings or checking accounts to purchase stocks, bonds, or mutual fund shares; over withholding of income taxes (Neumark, 1995). Maital & Maital, (1994) also mentioned that "the result of the successful and sophisticated imposition of welfare-improving, self imposed constraints on spending" is the implication of behavioral theory on households. The second suggestion of behavioral life cycle hypothesis is that people use the systems of mental accounts to impose constraints to limit their expenses and segregate the income based on the source and amount of inflow and earmarked the income as spending money or asset (Shefrin & Thaler, 1988). Large gains and irregular incomes are designated as current assets and the marginal propensity to consume for those are less than the money in current income account (Thaler, 1990). Various studies used survey data to analyze and support the evidence of mental accounts in individual financial decisions (Shefrin & Thaler, 1988; Winnett & Lewis, 1995). As per the theory of mental accounting individuals formulated mental accounts for particular expenses and impose pre-commitment constraints to limit their expenses.

The present paper attempts to bridge this gap by analysing existence of mental accounting process in Indian households by presenting recent findings of mental accounting process within a specific framework that can be applied in financial planning practice. The understanding and application of this general decision-making framework can illuminate human behavior and provide practical insight for the financial planner. The study is also using financial attitude, financial knowledge and risk attitude as financial cognition process of individual and studies their influence in financial planning. Mental accounting in financial decision making is frequently observed in the construction of portfolios. Personal financial planning (PFP) has grown rapidly over the past centuries and it has established itself as a relatively important discipline in the area of finance. This article traces the origins of mental accounting in the process of personal finance planning of Indian households. The outcomes would be beneficial from academic, professional, and consumer perspectives. The goal of the study is to develop a model on Indian households personal financial planning with it relation to mental accounting and individual implicit psychological factor like their financial attitude, financial knowledge and risk attitude.

Propositions

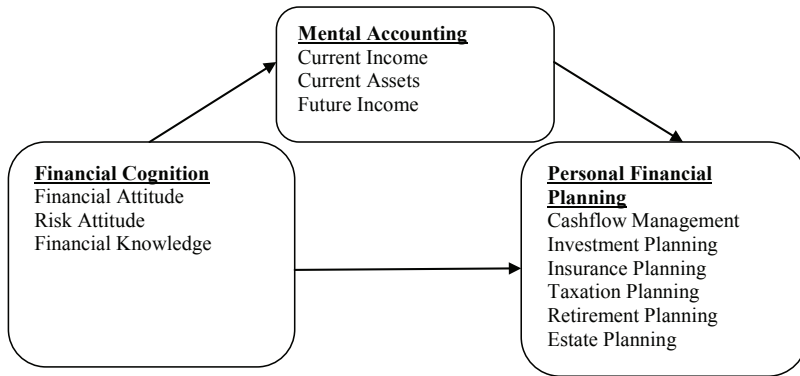
Propositions 1:

Mental accounting will have a positive impact on personal financial planning processes



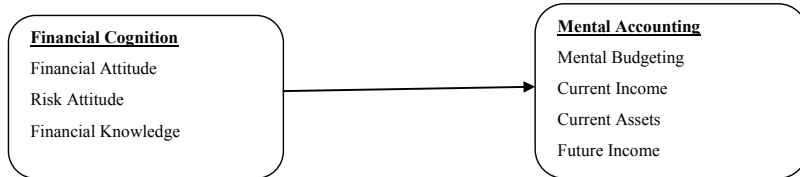
Propositions 2:

Financial cognition process will have a positive impact on personal financial planning process mediating by mental accounting.



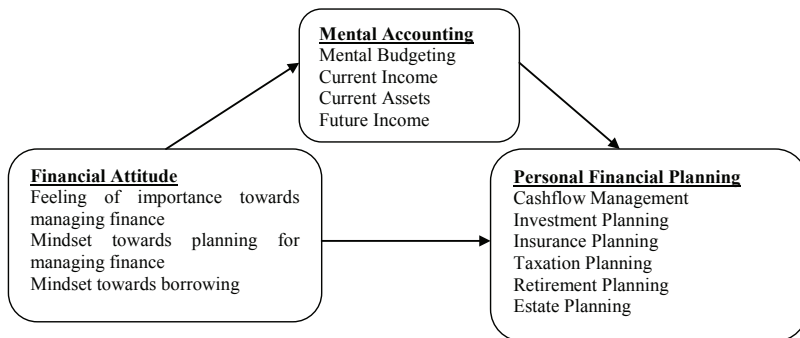
Propositions 3:

There is a positive impact between financial cognition and mental accounting



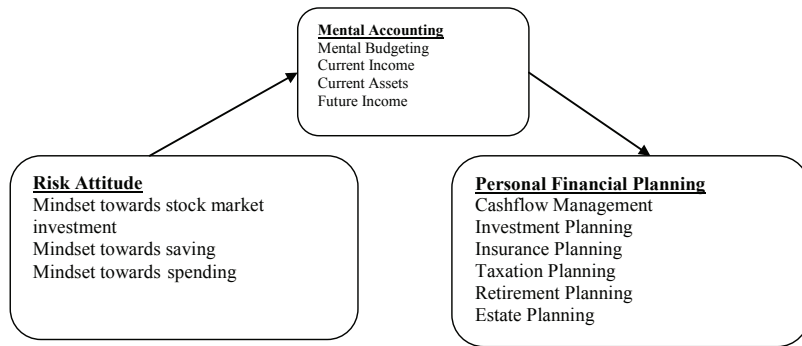
Propositions 4:

Financial attitude will have a positive impact on personal financial planning mediating by mental accounting.



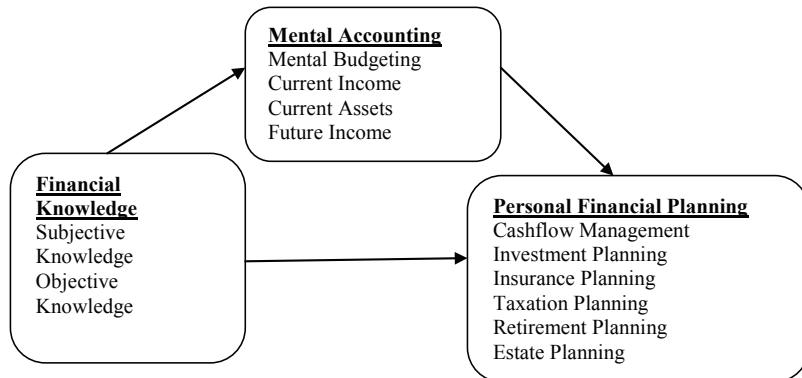
Propositions 5:

Risk attitude will have a positive impact on personal financial planning process mediating by mental accounting.



Propositions 6:

Financial knowledge will have a positive impact on personal financial planning process mediating by mental accounting.



Application of the Framework to Personal Financial Planning Process

Present study defines personal financial planning as a process of organizing and managing of an individual household's incomes to fulfill all his present as well as future financial requirements in a significant way. Shefrin & Thaler's (1988) behavioral life-cycle (BLC) hypothesis provided the theoretical framework for this study. Shefrin and Thaler developed the BLC hypothesis to provide a framework that better explains household behavior and to enrich the life cycle hypothesis by incorporating three psychological components: self-control, mental accounting and framing. Present study is considering mental accounting as a mediating factor between financial cognition and personal financial planning of Indian households. However, no study has been found to be considered mental accounting as mediating factor to investigate personal financial planning process among Indian

households. The study would also propose to analyze individual component of financial cognition i.e. financial attitude, risk attitude and financial knowledge of individual and would study their influence in financial planning.

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Exchange Rate Pass - Through in India: A Post Reform Period Analysis

Ankush Sharma¹ and G Raghavender Raju²

ABSTRACT

Exchange rate pass through, is the behavior of the domestic prices in respect of the changes in the external value of the domestic currency. This phenomenon is not so extensively discussed in a developing economy like India. In the present study we are trying to break the ice by marching into two important parameters a) Is India experiencing the pass-through since the post reform period. b) If yes then has the pass through decreased as the time has passed by. The study found the pass-through is there. And with the passage of time the pass-through has decreased.

Keywords: Exchange Rate, Pass Through, Exports and Imports, Econometric Modelling

Introduction

Exchange rate pass through is the behavior of the domestic prices in respect of the changes in the external value of the domestic currency. One for one response of the import prices to the changes in the exchange rate is known as complete exchange rate pass-through. For the manifestation of this result two conditions are to be satisfied;

- Marginal costs have to be constant.
- Mark-ups of price over cost have to be constant.

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As we know it is difficult to meet the above mentioned conditions, so we find the incomplete pass-through in maximum cases. Pass through is measured between 0 and 1. When exchange rate pass-through is 1 it is said to be complete otherwise incomplete. It is quite interesting to see that the pass through earlier was very closely associated between the movements in the exchange rate and the prices at the national level.

As the Indian domestic market is increasingly integrating with the global markets, it has become important to understand the behavior of prices to the fluctuations in the exchange rate. Post economic reforms of 1991, exchange rate pass-through is even more important for the external adjustment of the country. This in turn contributes significantly for the implications of monetary conditions including the prices level behavior within the country. Therefore, an analysis of the changes in the exchange rate leading to the disturbances in the domestic price level is important particularly since the inception of the floating exchange rate regime.

Objectives of Study

- To examine if the Indian economy has experienced exchange rate pass-through during the post-reform period.
- To analyze the responsiveness of the unit value index of imported goods, wholesale price index and consumer price index to the exogenous shocks of the nominal exchange rate.
- To examine the unexpected exchange rate shift affect over the domestic price indices and to investigate its distribution along the internal pricing chain.
- To investigate whether the pass-through has reduced in Indian economy as the time has passed by.

As explained earlier transmission of exchange rate changes into the import and export prices of specific goods in the destination market currency is known as the exchange rate pass through. Pass through is measured between 0 and 1. When exchange rate pass-through is 1 it is said to be complete otherwise incomplete. It is quite interesting to see that the pass through earlier was very closely associated between the movements in the exchange rate and the several price level at the national level. With a better work and deep study it was found that the exchange rate movements and the price level are weakly associated at the consumer price level.

In all the studies that are carried till date on the exchange rate pass-through, six major factors have been identified which explains the exchange rate-pass through. 1) A scenario of high inflation with great volatility leads to the high pass-through. 2) As firms presume any rise in the cost of production to be persistent. 3) Hence a credible and effective monetary policy will prove to be healthy in lowering the pass-through by controlling the inflation expectation level. 4) Now by trusting on the policy, firms do not react to the cost shock. 5) Volatility of exchange rate is also a reason given for the exchange rate pass-

through to deter. 6) Though literature shows both pros and cons, so it cannot be fully justified whether it is positive or negative.

Dependence on the imports is also quite essential to note. If the share of the imports is high in the consumption basket, then obviously pass-through would be high. Also if the proportion of the inputs in the production is high, surely the producer's price will experience a high level of impact of the exchange rate. Therefore with a greater degree of the openness of an economy, there has to be a larger pass-through co-efficient. Compositions of imports also have got a great deal of influence on the aggregate pass-through. For example, pass-through to energy and raw materials is found out to be more than that of the manufactured products. So the dependence of a nation, whether it's more on the former or the later is one of the reason given for the proportion of the aggregate pass-through.

Rules such as tariffs and quantitative restrictions are the trade distortions which act as a barrier and result in a lower pass-through. In the existence of asymmetry, the pass-through generally is dependent over the rate of appreciation and the depreciation and also the extent of the exchange rate variability in the various sub periods. When it comes to define the exchange rate pass-through it can be comprehended as the existing relationship between the changes in the nominal exchange rate and the domestic price level. After disaggregating exchange rate pass-through could be assessed with respect to various categories of goods such as consumer goods and investment goods.

An establish fact in literature is that the intermediate goods price can indirectly impact the price level of both the investment as well as the consumer goods. An example to the same is through oil prices. Oil prices have got a remarkable impact over the consumer prices while taking both direct and indirect effects of changes in the oil prices. If wages are indexed to the consumer price indices, a persistent increase in the consumer prices tends to increase the wage rate. Therefore an external shock leading to the depreciation in the exchange rate may lead to the spiraling effect on inflation. Here again if the central bank is slow in the policy formulation towards the price shock, then the results may vary.

In other words, it is the expenditure switching effect that is caused by high degree of pass-through. So for a more supportive monetary policy, low exchange rate pass-through is a better scenario. Explanation given for this behavior is that due to which high exchange rate pass-through people are more likely to switch to imported products that are relatively cheaper in comparison with the domestically produced goods.

The pass-through of the changes in the exchange rate to the domestic prices is a vital factor in the shock transmission and also to an adequate policy response. A degree of pass-through is very crucial for the monopolistic producers in representing their prices. One vital decision that an exporter needs to take is about the currency in which he is going to set his price. It can be either the producers own currency i.e. referred to as PCP (Producer Currency Pricing) or the consumer currency i.e. LCP (Local Currency Pricing).

Quite extensively economists have used both PCP and LCP. An important issue in this level

is that the degree of pass-through is high for import price and low for the consumer price. The reason for this is that the distribution sector comes in between the imported sectors and the consumers. If the tradable goods are sold to the consumers with a significant share of the local value added, surely consumer prices will not be so sensitive to the changes in the exchange rate.

Imports are also used as intermediate goods. So these goods are mixed with the domestically produced goods to produce final goods which are at last sold to the consumers. At this stage the pricing decisions are made at two levels.

- Intermediate goods producers
- Final goods producers combine the foreign intermediate goods and the domestic goods and are assumed to set prices in the local currency

When it comes to the developing countries, we come across a scenario, basically when the foreign exporters sell the good to the local importer in the foreign currency. Now, the local distributor obviously sells the good to the local public in the home currency. Here if the market is competitive, importers tend to partly absorb the effect of the exchange rate changes by adjusting the mark-up prices. Hence the pass-through is left incomplete. As explained the Pass-through is measured between 0 and 1. When it comes to check the effect of the pass-through, it is found that pass-through is highest for the imported goods prices. Then comes the producer prices that are at last lowest in the case of the consumer price levels.

Data and Methodology

Data used in the study is on yearly basis. Total number of variables in the study is seven in number. Variables are international oil prices (OIL), Gross domestic product at constant prices (GAP), High powered money (HPM), Nominal exchange rate (ER), unit value of Import prices (IMP), Wholesale price index (WPI) and Consumer price index (CPI).

Data on Gross domestic product at constant prices (GAP), High powered money (HPM), Nominal exchange rate (ER), unit value of Import prices (UVIMP), Wholesale price index (WPI) and Consumer price index (CPI) are taken from the RBI Handbook of statistics. Data on international oil prices is taken from World Bank IFS. All the variables other than the Gross Domestic Product at constant prices are taken as they are in the study. We have filtered the Gross Domestic Product (by the method of HP filtering) and considered the potential output. Then the potential output is subtracted from the actual value of Gross Domestic Product resulting to output gap. This output gap is depicted as GAP in our study.

Empirical Results

OLS method helps us to capture the pass-through effect over the price level because of the fluctuation in the exchange rate. Quantifiable estimate is generated when we use the OLS. In our study we want to analyze the pass-through to import, wholesaler and

consumer prices. By using the ordinary least square method we can estimate the effect of the nominal exchange rate over the unit value index of imports, wholesale and consumer price index. This model is studied for 20 years that is from 1993-2012. Variables used in the model are nominal exchange rate, unit value index for imports, wholesale price index and consumer price index. Three equations are estimated. Equation 1 takes unit value index of imports as dependent variable and nominal exchange rate as the independent variable. In equation 2 wholesale price index is considered as dependent variable and nominal exchange rate as the independent variable. In equation 3 consumer price index is taken as the dependent variable and nominal exchange rate as the independent variable.

After writing down the theoretical assumptions and also by going through previous empirical results we are expecting the highest degree of exchange rate pass-through on import prices and lowest on the consumer price level. It is the internal price distribution channel that pacifies the effect of the initial external price shock.

Equation-1: In this equation unit value index of imports (UVIMP) is taken as the dependent variable and the nominal exchange rate (ER) is considered as an independent one.

$$D(\log UVIMP) = 0.038 + 0.815 D(\log ER) + 0.479 (DUM)2011$$

(1.27) (1.84)

$$AdjR^2 = 0.50 \quad D.W. Stat = 2.80 \quad F-Stat = 10.15$$

Both the variables are stationary at first difference (by applying augmented dickey fuller criterion) and are converted into log forms. Value of coefficient is 0.82 explains that the value of pass-through is 0.82. This states if the exchange rate depreciates by 10% the imports are expected to rise by 8.2%. Value of the t-statistic is significant, but the pass-through is incomplete, since the value of the coefficient is less than 1%. Reason for taking dummy for the year 2011 is that the global financial meltdown shock started affecting the Indian economy. Along with this the external oil shock and food price shock also hampered Indian economy in 2011.

Equation-2: Here we considered the wholesale price index as the dependent variable and nominal exchange rate as the independent variable.

$$D(\log WPI) = 0.118 + 0.346 D(\log ER) + 0.968 (DUM 2)2000$$

(1.02) (1.77)

$$ADJR^2 = 0.27 \quad D.W. Stat = 2.4 \quad F-stat = 4.47$$

In the equation 2 the value of co-efficient is 0.34 means that if the exchange rate gets depreciated by 10% then the imports are expected to rise by 3.4%. We considered a dummy for the year 2000. t statistic value in this case is significant but the pass-through is incomplete in this case as well. We have taken dummy for 2010 because this time the monsoon failure hampered the output gap.

Equation-3: In equation 3 we considered the CPI as the dependent and the nominal exchange rate as the independent variable.

$$D(\log \text{CPI}) = 0.0.009 + 0.336 * D(\log \text{ER}) + 0.969 (\text{DUM } 3) \text{ 1998,1999.}$$

(0.14) (0.34)

ADJR² = 0.62

D.W. Stat = 1.52

F-stat = 15.75

In the equation 3 the value of the co-efficient being 0.33 % states that a depreciation of 10% in exchanger rate of rupee is expected to cause the rupee price of total CPI increase by 3.3 %, t statistic in this case is significant but incomplete. Here too we considered dummy variable for two years 1998 and 1999 and the reason for this is that aftereffects of East Asian Crises were felt now on the Indian economy. This time only the negative effects of the oil shocks were observed.

Things we can analyze by looking at the above equations are:

- a. Pass through effect is highest on the imported prices and lowest in the case of consumer price index.
- b. Difference in the pass-through is more between the imports and wholesale price index, and less in the case of wholesale price index and consumer price index. Through this information we can infer that the burden of the fluctuation in the exchange rate is borne by those firms whose exports are to India. Following are reasons which can be attributed for this behavior:
 - i. Exporters to India do not want to lose the market share in India.
 - ii. Mark-ups set by these firms are very high. So they do not mind to absorb the exchange rate shock.
 - iii. Effective monetary policy does not let the high import prices penetrate the wholesale price index and consumer price index.
- c. Difference between the consumer price index and wholesale price index is 0.1%. This shows that the maximum burden of the rise in the prices are carried by consumers. For example, imported price of a particular good rises by 100 rupees. Now the wholesaler will sell the good to the consumer at the previous price +99 rupees extra.

Vector Autoregressive Model (VAR)

Above mentioned OLS technique is good for the basic knowledge of the pass-through, but the fluctuation in the nominal exchange rate is much more dynamic and this dynamism can be captured in a better way by the usage of Vector Autoregressive Framework. We have used the VAR framework to analyze the pass-through. VAR methodology is helpful in

our study because two important objectives can be met. a) we can understand the price distribution mechanism in a dynamic way. b) Also it can be find out whether the pass-through is decreasing as the time is passing by for the Indian context.

In this section we have divided the data in two halves; first is from 1993-2002 and second from 2003-2012. Reason for doing this is that it is widely believed that the pass-through is declining. So by going ahead with our proposition we should find that the pass-through is less for the second period.

Assumption based on the ordering of the VAR 1 and VAR 2 are:

- a. Oil prices do not respond to any of the endogenous variables present in the model
- b. Exchange rate is contemporaneously affected by external price shock
- c. All the endogenous variables contemporaneously affect the domestic price level.

VAR1

Time period considered in this study is for ten years that is from 1993-2002. Variables used here are international oil prices, nominal exchange-rate, and unit value of import prices, wholesale price index and consumer price index. Unrestricted VAR framework is used over here.

Results of VAR1

After using the VAR framework for model 1 and using the impulse response function we got the response of the nominal exchange rate to the exogenous shock. Reason for calculating this is to see the absorption capability of the exchange – rate to the exogenous price shock. Absorption capability is reduced if the exposure of the exchange rate to the oil price is less. Higher and durable responsiveness of exchange-rates to the oil price shock reduces the transmission of price effect to the domestic prices. This behavior upsets the expected inflationary pressures which are originated thorough the negative external price shock. Hence, the exchange rate operates as an external price shock absorber.

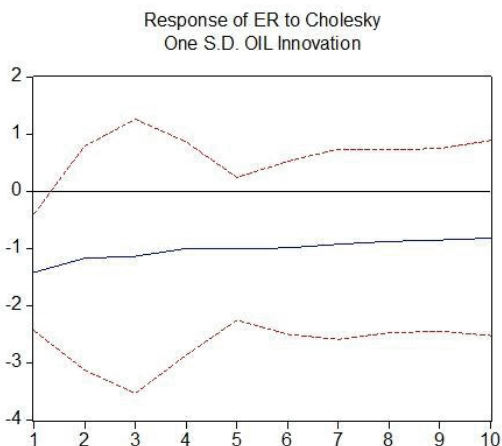
Oil as an exogenous shock to the economy have got an impact over the Aggregate demand. Growth of real incomes is reduced by an increase in the inflation rate. In turn it puts the downward pressure on consumer demand. Company profit margins are squeezed by the higher input cost. It has got two fold-effects; the growth of demand will be slow and respectively there is a cut back in planned investment spending.

In order to dampen down the spending the monetary policy might respond back by increasing the short-term interest rate. A full range of inflation indicators are viewed thoroughly before setting the interest rates.

If in case tightened policy come into existence we can expect slower economic growth. This can lead to increase in the unemployment rate and reduction in the ability of the workers to ask for an increase in their allowances that keeps pace with inflation. Negative output gap is created by the deflationary policies designed to control cost-push inflation as it reduces the actual national output below potential. Therefore, if slowdown turns

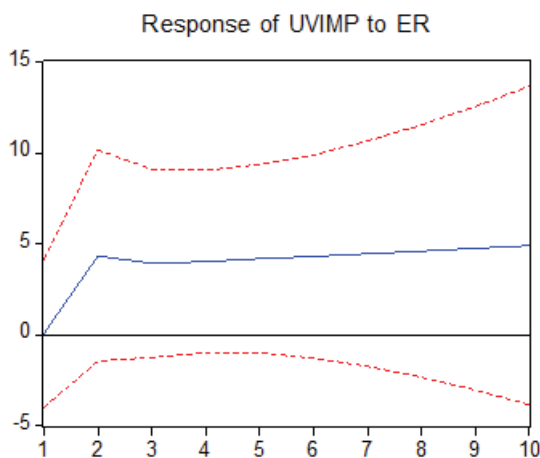
out to be recessionary in nature then the overall demand will decline putting pressure on international oil prices.

Figure-1: Response of ER to OIL



From Figure-1 we can see the pressure of the external oil shock lead to initial shock in the exchange rate till period three, after which the shocks are absorbed by the exchange rate.

Figure-2: Response of UVIMP to ER



From Figure-2 Diagrammatic representation, we can see the state of import prices when a shock in form of nominal exchange rate exist. Till the second time period the shock of the exchange rate further aggravated the Imports. This can be seen from the above diagram as the fluctuation in the import prices is observed till the second time period. And further the affect is absorbed by the import prices.

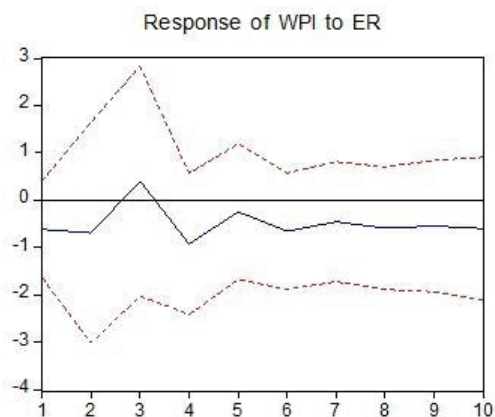
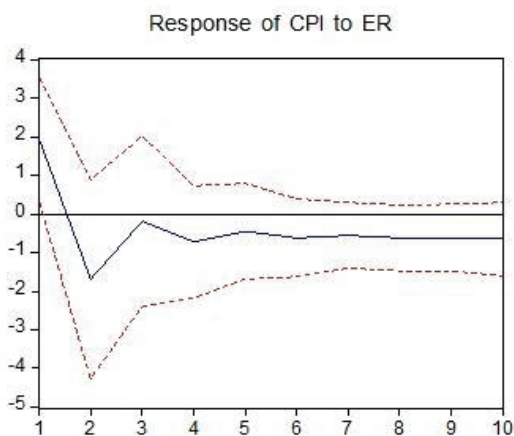
Figure-3: Response of WPI to ER

Figure-3 also explains how the exchange rate shock impacts the wholesale price index. The variation in the fluctuation at the wholesale price because of the shock in the exchange rate is more, but the width of these fluctuations is less in comparison with the import prices.

Figure-4: Response of CPI to ER

CPI also responds to the shock in the initial phase. It takes around four periods to attain the sustainability.

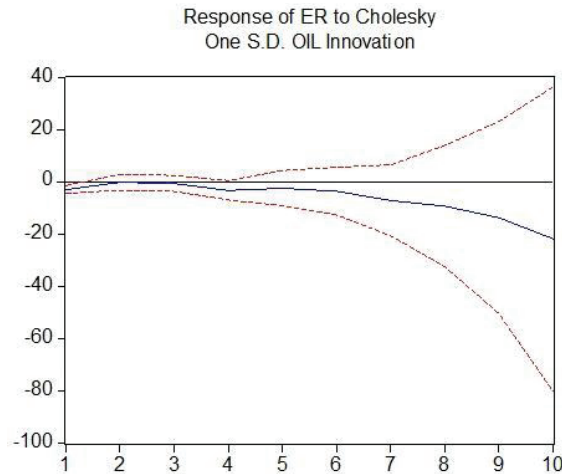
Some observations drawn by looking at the above three figures (2, 3, 4) are:

- Pass through affect are carried forward in the price chain mechanism starting from the consumer to the importers, consumer to producer and at last to the consumers.
- Import prices react to the exchange rate shock in the initial stage and after second period no fluctuation is observed.
- Wholesale prices find the fluctuations almost till eighth time period.
- The fluctuations in the consumer prices are felt till fifth time period.
- In all three cases the equilibrium level is not reached.

VAR 2

This study is also comprised for ten years from 2003-2012. Variables used here are international oil prices, nominal exchange-rate, and unit value of import prices, wholesale price index and consumer price index. Unrestricted VAR model is used in the study.

Figure-5: Response of ER to OIL



When the external price shock in the form of oil prices is given to the nominal exchange rate. As we know that the higher price responsiveness of the exchange rate to the oil price shock reduces the transmission of price effect to the domestic prices. Over here the international price shock do affect the exchange rate, but the variability can be seen more in the later time frame.

Figure-6: Response of UVIMP to ER

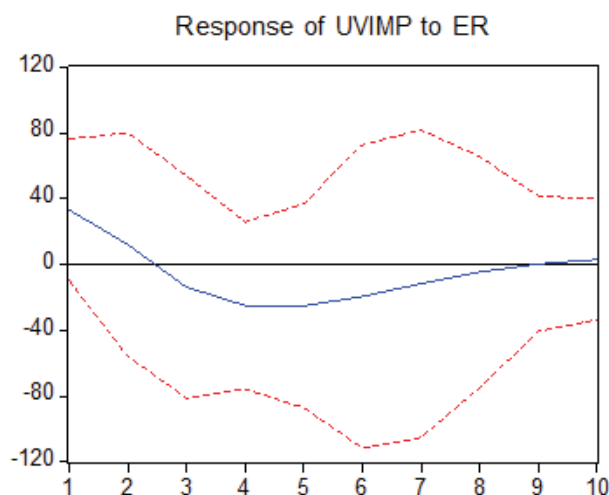
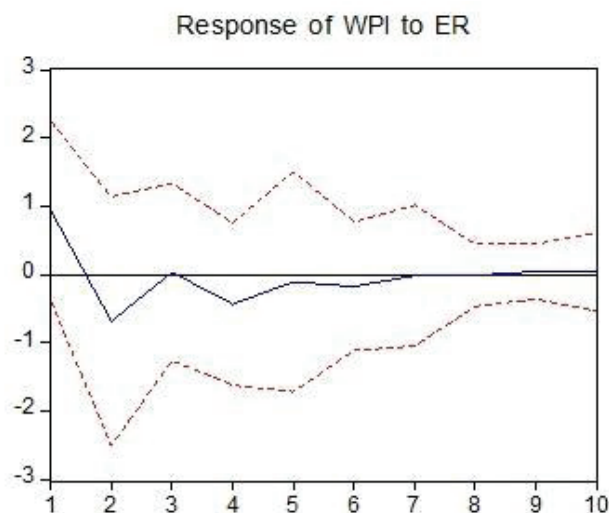


Figure-6 explains the imports react from the positive front. Within third time period it goes to the negative front and throughout it remains there. By the ninth period equilibrium is attained.

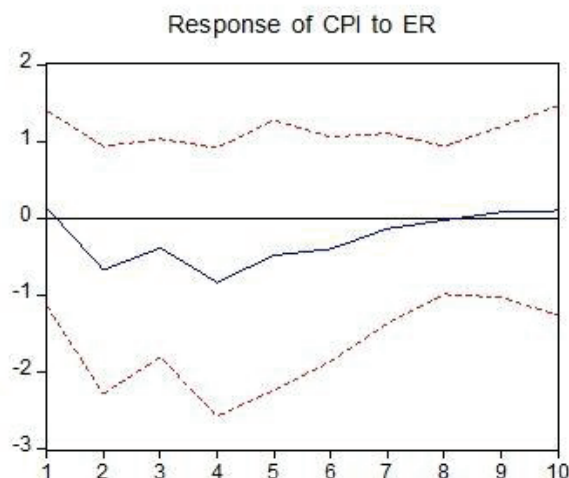
Figure-7: Response of WPI to ER



From Figure-7 we can see the fluctuations start from positive side and enter the negative

front within second time period. Then it remains in the negative. Though fluctuations are continuous but, by seventh time period the equilibrium is attained.

Figure-8: Response of CPI to ER



From Figure-8 we can see that the variations are less when compared to the wholesale price index. Equilibrium state is reached by the eighth time period.

Comparing VAR1 and VAR2

After the oil price shock the variability in the exchange rate is more in VAR 2 when compared to VAR 1.

When the shocks were given to the prices the behavior of imported inflation is different in VAR 1 than that of W.P.I. and C.P.I. In VAR 2 all the prices react in almost similar manner.

In VAR 1 equilibrium state is not attained by any of the three prices, whereas in VAR 2 the equilibrium point is reached by all the three prices.

VAR 1 can comprehensively tell that the pass-through is decreasing with time even for the Indian economy. Also by looking the effect of the shock to all the prices we can find out the distribution scenario that the pass-through is most for import prices and least for the consumer prices.

VAR 2 In this case the technique of the variance decomposition is used for price level. The reason for incorporating this system is to show the influence of the exchange rate over the consumer price level. Also to know that the other determinants are also there that could influence the price level at the consumer level. Since we are using many variables in our study hence we are considering 20 years i.e., from 1993 to 2012.

VAR 3

Following (McCarthy, 2000) Pass-through of Exchange Rate and Import Prices , we will be using the pricing chain mechanism for the period 1993-2012. Variables for this study are oil prices, GDP at constant prices, Money Supply(high powered money), nominal exchange-rate, unit value of import prices, wholesale price index and consumer price index. Over here variables behave as a shock in the following ways:

Oil prices.....supply shock

Output Gap.....Demand Shock

Money Supply.....Monetary Shock

Nominal Exchange Rate.....Exchange-rate shock

Price levelprice shock

In evaluating this model we use the method of variance decomposition. No doubt that the impulse response functions are critical in evaluating the pass-through, but variance decomposition is also important in determining the importance of exchange rate in the variation of consumer prices. By the usage of the variance decomposition we also get to know about the other factors that determine the variation in the prices. In the Table-1 shown below the results of the average variance decomposition of the consumer prices between 1-10 years ahead intervals are reported.

Table-1: Variance Decomposition of CPI

Period	S.E.	OIL	GAP	ER	HPM	UVIMP	WPI	CPI
1	2.358725	57.18983	8.681634	0.014789	16.57447	0.116932	4.396253	13.02609
2	2.622246	48.78894	7.041071	12.57051	13.72046	1.377494	5.802482	10.69904
3	2.838821	41.89719	6.468753	22.75589	11.82635	1.254041	6.645753	9.152017
4	3.009531	37.46212	5.924977	30.14719	10.52275	1.178911	6.568907	8.19515
5	3.086261	35.63851	7.563495	30.71939	10.00627	1.122616	7.154125	7.795593
6	3.228114	34.55929	12.11696	28.18965	9.381412	1.08363	7.35633	7.312737
7	3.47875	33.4615	17.6178	25.32352	8.48076	1.249178	7.272642	6.594599
8	3.878069	32.07976	22.15806	24.5718	7.531173	1.552821	6.396585	5.709793
9	4.379589	29.99017	24.24472	26.98885	6.754306	1.904149	5.280316	4.83749
10	4.901232	27.68347	24.21898	31.11423	6.336266	2.205976	4.28244	4.158646

Cholesky Ordering: OIL GAP ER HPM UVIMP WPI CPI

Majority of the variation in the consumer prices is explained by the oil prices for the first period. We can see that the relative importance of oil is declining over the intervals. Second largest contributor is the high powered money. Contribution of the output gap is

comparatively less in the initial years. Noticeable fact about the exchange rate and output gap is that their relative importance increases over the intervals.

We notice that the variation explained by the high powered money is second highest in the first two intervals, but as the intervals increases the importance of it decreases. Still it is an important variable because the role of moderator played by it between the consumer prices and the other variables is a key factor in the study.

Things we can infer from VAR 3 are:

- Very minimal variations are explained by the consumer prices; therefore the role of persistent domestic inflation in determining the pass-through is weakly associated in the Indian case.
- Over the sample period the oil prices, exchange rate and output gap have played a vital role in explaining the price variation.
- The role of oil prices are declining though it has remained an important factor in all the periods.

Summary and Conclusions

Our major objective was to examine if the Indian economy has experienced exchange rate pass-through during the post-reform period, by using the technique of the ordinary Least Square and Vector Autoregressive methodology we found out that the pass-through effect exist in Indian case. International oil prices have behaved in an erratic manner in last two decades. Sometime in form of negative shock and sometime as positive one. Surely it has affected the exchange rate and further penetrated to pricing chain via the effect of pass-through. Output gap also affects the exchange rate. As sometimes gap is created because of the supply side shock and sometimes because of the demand side. In both the cases the equilibrium between India and rest of the world gets disturbed and surely the impact is visible on the exchange rate and further pass-through is affected. By the usage of the variance decomposition we saw that the output gap and oil prices came as an essential determinant to enhance the price inflation.

Our next objective was to analyze the responsiveness of the unit value index of imported goods, wholesale price index and consumer price index to the exogenous shocks of the nominal exchange rate, we observed that the changes in the price rate do affect the imports, producer and consumer prices. Through the OLS estimation we found that the relationship between the nominal exchange rate and import, wholesale and consumer prices is positive. The estimation showed that 10% depreciation in the exchange rate leads to 8.2% increase in the unit value index of imports, 3.4% increase in the wholesale price index and 3.3% rise in the consumer price index.

Our third objective was to examine the unexpected exchange rate shift affect over the domestic price indices to investigate its distribution along the internal pricing chain. By looking at the OLS estimation upfront we can see that pass-through effect is not much

coming on the consumer price index. It is around 0.33% that consumers have to bear the price burden. Little concern over here could be that the majority of the pass-through was observed by those who are exporting to India. But almost entire burden of prices that comes to producers are shifted over to consumers by them. Just 0.1% is absorbed between the producers and consumers.

The last objective was to investigate whether the pass-through has reduced in Indian economy as the time has passed by and we saw that to give a comprehensive result for this answer we estimated the VAR framework in two subsequent periods that is 1993-2002 and 2003-2012. Then the technique of Impulse Response Function was applied for both sample periods. Results have shown that the pass-through have reduced in the second period. Even by the technique of the variance decomposition of VAR framework we can see that the money supply works as a lubricant to reduce the friction that is generated because of the volatility in the exchange rate. So a better monetary policy in the recent period has led to the reduction in the rate of pass-through.

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Return Migration: A Review of the Recent Experiences

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ABSTRACT

In this research short note our endeavor was to look at the phenomenon of return migration, which is relatively less researched, in light of recent experiences. We started with the modern definition of return migration along with background reasons. In the literature it has been found that occupational choice of return migrants depends upon various factors such as schooling, foreign language proficiency, social contacts and savings accumulated abroad. It is observed that return migrants are less likely to actively participate in the labor market; they are more likely to choose self-employment rather than dependent employment upon return, mainly take up non-agricultural occupations. The return migrants are more likely to experience spells of unemployment in the first year upon return. This one year is spent with the accumulated savings which give them the edge to find proper jobs for them. The savings accumulated abroad is an incumbent need for the return migrants. Sometimes they also help building a new class of entrepreneurs. The prime reason for such occupational shift is the availability of seed money needed for business which is clearly scarce in most of the emigrating countries. At the end of this note we also tried to glance through the Indian experiences where return migration is predominantly domestic in nature. It is also observed that a part of rural-urban migration also comes under the purview of return migration. In this literature review we have tried to furnish a lot of examples of return migrants in respect of different countries. The return migration is primarily based on the different aspects such as occupational hazards, homesickness, completion of job contracts and mental upgradation. This trend is found among the migrants hailing from different countries in different ways and motives. In fine return migration plays an important role in the life of an individual.

Keywords: Return Migrants, Self-Employed, Savings Accumulated, Human Capital Accumulation, Remittances, Occupational Choice

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Introduction

Conventionally, migration can be considered as a core problem in the international arena where it is always exploited by the politicians¹ in a rather de humanizing manner. As one of the most debated and major topics in this twenty first century, which led many state-heads to sign several treaties between them for peaceful transfer of people, it is the very way of moving of people from one place to another, which is not limited to domestic boundary, for the purpose of taking up permanent or semi-permanent residence through which they can earn and live peacefully. A person who has migrated abroad from his homeland, for at least one month can be labeled as a migrant². The semi-permanent migration, a crucial part of migration can also be titled as temporary migration. This temporary migration takes different forms such as seasonal migration, circular migration and return migration. Seasonal migration is mainly linked with agriculture and the service sector while the circular migration is mainly the back and forth movement between the home country and one more destination, and lastly the return migration deals with when a migration abroad is followed by permanent settlement in the home country. In this essay, we are going to broadly discuss the issue of return migration and its reasons, and also the occupations taken after return migration and its effects in the world as well as Indian economy.

Factors Inducing Migration

As described earlier, return migration takes place when people settle permanently in their home country after few years of staying abroad. It is assumed that the return migrants bring with them additional human capital, while the remittances that they send during their staying in abroad, often helps to ease poverty and provides a help in investment in the small and medium size businesses, mainly in the third world countries. This type of migration mainly occurs in developing countries (such as India, Bangladesh) and is a part of optimal life-cycle location decision. People migrate for various reasons, some have targets of accumulating as much savings as possible and some have targets of accumulating as much knowledge as possible. Mainly the target of accumulating as much saving, are for an age above 28 and the target of accumulating knowledge, are for the age below 28. The main reason for migration is basically for the rich employment opportunities

1 In West Bengal in 2005, the present W.B Chief Minister had said that Bangladeshi illegal immigrants have destroyed Bengal and that they were being brought in by the Left for votes. In the recent past she has said that she would protect and safeguard the interests of each and every infiltrator. From the comments we can infer that there is some political benefits for the chief Minister of West Bengal behind her comments. In 2005 she was the opposition leader, so she was against the infiltration. Now as she is in the power so there can be some political benefit in her mind when she is speaking for the infiltrators. It is evident that infiltrators are harmful for a country.

In some recent events, the terrible plight of the thousands of Rohingya "boat people" fleeing Myanmar (Burma) in small boats with nowhere to go and almost no country willing to take them has stirred pity around the world. Numerous boatloads of refugees have tried to enter neighbouring Thailand. For those who have managed to settle their life can still be a struggle. Some of them are still on the sea sailing with no food to eat. They are waiting for the permission of Thailand Government.

2 Matloob Piracha and Florin Vadean. (2010). Return Migration and occupational choice: Evidence from Albania. World Development.

and several opening options available in abroad. The employment opportunity induces a person to migrate so that he can get the exposure in the employment world. A person decides to migrate in order to accumulate a sufficiently large amount of capital of any sort that will enable them to start new higher level activities after return. Immigrants stay in the host country as long as the marginal benefit of higher savings exceeds the marginal cost of savings. For example, in some countries like Germany there are some unemployment benefits, so migrant people in Germany stay there until they are sure that their stay in Germany will earn them more than their return to home country. Now there are various reasons for return, spontaneous choice for economic, social and/or family-related reasons, part of labor migration arrangements: end of temporary period of work abroad, post-conflict/crisis situations, including voluntary repatriation of refugees, IDPs³ and/or prisoners of war, part of strategy to address irregular migration and secure national borders (unsuccessful asylum seekers and other unauthorized migrants), potential returnees may belong to vulnerable groups: require special attention and consideration (victims of trafficking and unaccompanied minors). Some returns migrations are even forced. These forced returns are done to deter irregular migration, which sends a clear message to traffickers and smugglers that governments are determined to combat irregular migration and can help preserve migration management systems. The smugglers are mainly the irregular migrants who do illegal businesses all over the world. In India, when the Government took steps to pare gold imports, people used all sorts of tricks as the smuggling business boomed – from simply tucking the metal under a turban to jamming it up their rectums. Premiums have evaporated for black-market bullion valued at about \$8 billion in 2014, industry data show. Whereas when the import tax was decreased the Illegal shipments have slowed down and imports have jumped.

Country Experiences

It is found in Albania that 45% of the own account workers⁴ have returned because of failing in their migration target and most of the entrepreneurs have returned after having accumulated enough savings in the host country. The returnees not participating in the labor market have returned because of failing in their initial migration target (34%), due to family reasons (27%) or are circular/seasonal migrants (27%). In china, mainly the rural people migrate to urban area. This migration is temporary as there are some policy problems prevailing, that restrict the rural people from permanent settlement in urban areas. Students mainly migrate to the countries which have established themselves as learning hubs, which provide educational services above those demanded domestically. These countries are mainly United States of America, United Kingdom, Germany, France, Australia, Canada and New Zealand. The higher returns in the home country to the human capital acquired in the host country, unexpected events either in the host or home country are also some reasons for the return migration. It is found in Germany that when increases

3 IDP Education is an international education organization offering student placement in Australia, and to New Zealand, the USA, UK, and Canada

4 A self-employed person; a person working independently and who has no employees.

by 10% from an initial level of one, the propensity of returning for an 18-year-old immigrant falls by 37% while the propensity of returning for 50-year old immigrants increases by 7%. From this we can say that higher purchasing power parity decreases the return propensity of younger immigrants while increasing it for the older ones. This means that the substitution effect, the opportunity cost of the purchasing power of foregone savings, dominates for younger immigrants: the income effect, the higher purchasing power of already accumulated savings, dominates for older immigrants.

Migration basically serves two purposes: to obtain gainful employment, which contribute to human capital accumulation and to raise financial capital from higher wage income abroad, in order to start up a business upon return. Migration can be viewed as a strategy for rural households to diversify income sources so as to reduce income variability. Remittances sent by migrants to their rural families are expected to help secure income and alleviate poverty in rural areas. According to Du, Park and Wang (2005), in China a household having a migrant increase its household's income per capita by 8.5-13.1%. However the poorest people do not migrate because in the first instance they don't have sufficient money to migrate, and secondly even if they are provided with money, they are afraid of not making enough profit after migration to return to their home country. So, their standard of living remains the same. Huang and Zhan (2005), argue that remittances are used more for consumption than for investment as these have a short-term impact on poverty reduction. The propensity to save for the migrants becomes high during their staying in abroad. Return migration is useful in several ways, both for the home country and the host country, where the people usually migrate. According to some literary point of views, return migration can help revitalize rural economies and alleviate poverty in less developed areas in China. The repatriated capital is a key or stimulating factor in promoting rural entrepreneurial activities. Return migrants bring back accumulated human, social and financial capital, which can enable them to start their own businesses upon return, and benefit their village of origin. Zhao (2002) finds that return migrants invest twice more in productive farm assets as compared to non-migrants. Ma (2002) finds that skilled returnees are more prone to, and successful at mobilizing social capital upon return, thus promoting their entrepreneurial activities. The students those have migrated come back to their home country accumulating skills to apply it in their home country. These students have a high endowment of the skill, as these skills are more valued in their home country. Co et al. (2004) in his paper found that there was no wage premium for male returnees who had worked abroad, whereas women who had previously worked in OECD countries earned a considerable premium over the wage of comparable stayers. This may be because of higher returns to skills acquired abroad for women returning to specific sectors(e.g. financial sectors). A survey in Romania by Epstein and Radu (2007) finds that on average return migrants earn 25% more after returning compared to before migration and that this income differential is higher for more skilled migrants. The reason for this is that the migrants return with more skills and accumulated capital to get better jobs and get better returns from their investment. Hazans (2008) surveyed in Latvia, and he proposed three reasons for the increase in the income of the returnees. Firstly due to their savings from working abroad, migrants can search longer for better jobs upon return.

Secondly he suggests that the returnees are more confident to aim for higher position in any occupation. Thirdly the returnees value wages more than the non-migrants. We can also say Return migration is beneficial for economic development in the home country for two reasons. First, there is skill accumulation for the returnees. Second, there is a higher financial transfer from temporary migrants compared to permanent migrants.

Employment Return

The return migrants lack characteristics that are valued on the home labor market (e.g. network ties, specific labor market experience and local human capital) but they have entrepreneur skills and risk taking mind set. There are some gains from policy perspective for Return migration. First, this makes it more attractive for potential migrants to leave their home countries temporarily. Second, it will motivate potential migrants to invest more in human capital, which in the event of return will have positive impact on average schooling. This will offset the effects of a "brain drain". Third, income premium upon return implies that a migrant will have a stronger incentive to return once the economic outlook of the host country worsens relative to the home country. Some companies from developed countries who are new to their home country in the business line, they migrate to some developing countries for starting their business. Now the consumers of the developing country have always a greater preference for the goods of developed country, than their own countries goods. So this migrated company will earn a good amount of profit. After its target profit or savings are reached, this company will come back to its home country and settle to continue its business.

After returning to homeland, the migrants' occupational choices depend upon their skills, capital, savings accumulated and educational level. There are different propensities of returnees in several countries to become self-employed as own account workers and entrepreneurs and particularly, self-employment is a sign of development. Return migrants are more likely to find employment in the industrial sector rather than in services, than non-migrants. According to statistical study, likelihood of becoming a return migrant decline with growing age, therefore the return migrants are mostly young during their return. In Albania, even if the non-migrants were provided with micro-lending, there were no ambition or business skills to expand more employs, i.e. lack of entrepreneur skills. Albania a mass emigrant country, more than 25% of its population lives abroad. It was found that about 53% of unemployed Albanian people intended to migrate abroad for a short spell. Albanian own account workers irrespective of their past migration experience, have low average incomes. After return the own account workers after some time find their way into paid employment conforming Harris-Todaro's "parking lot"⁵ hypothesis. There are migrants who often work abroad in the harvest, holiday, and / or construction season and then after return, spend the rest of the year at home consuming from the savings accumulated. From the total population in Albania, 65% of own account workers and 85% of the entrepreneurs

5 According to dualist and Harris-Todaro models of labor markets in developing countries, in the absence of sufficient employment opportunities in the formal sector, small (and often informal) self-employment activities are used to bide time by those aspiring to move into formal employment (Harris & Todaro, 1970).

are return migrants respectively. Past migration has a positive effect on both own account work and entrepreneurship with the latter effect being significantly stronger. Among the return migrants, the own account workers have characteristics closer to non-participants in the labor market (i.e. lower education levels), while entrepreneurship is related to secondary and tertiary education levels with proficiency in Italian (i.e. the language of Albania's main trading partner). Dustman and Kirchkamp (2002) and Raduu and Epstein (2007) found a positive relationship between schooling and self-employment activities. It was found in 1990 that the economic status of return migrants was significantly lower compared to that of non-migrants (3.55 vs. 3.80). This data shows that mainly the poorer households had migrated from rural to urban areas, to improve their standard of living. After return, the non-participants, wage employees, and entrepreneurs mainly live in Urban areas, while over 50% of the own account workers live in rural areas. In China, the participation in self-employment includes various factors such as individual traits, entrepreneurial abilities, risk-aversion and human capital, family characteristics, institutional factors such as access to credit and liquidity constraint and factors related to labor market conditions. Individuals who have saved a lot during their period of migration are likely to be entrepreneurs on return, since for them the opportunity costs of capital is less than for those who must borrow in local capital markets. By the end of 2008 in China, 16200 return migrants had set up 1113 enterprises and 6199 individual enterprises. Mesnard (2004) found evidence, that high savings brought back migration to positively influence the choice of becoming an entrepreneur after return. It is found that, out of 384 individuals in the working labor force, 298(78%) are non-migrants and 86(22%) are return migrants. So we see very less amount of return migrants are in the working labor force. The proportion of non-migrants who have not received formal education is 44% while that of returnees is 27%. From these we can say that non-migrants are less educated than return migrants. Wahba and Zenou (2012) found that for temporary work abroad there is a gain in human and physical capital, but there is a loss of social capital back home, for this the returnees face difficulties sometimes if they are self-employed. There are some losses of social networks for the people who migrate, but this loss of social networks for return migrants is compensated by the accumulation of human and physical capital. Some migrants sell some of their lands to acquire money to migrate. So after return they have fewer amounts of lands with them. The average land endowment per person is significantly lower for return migrants who have 0.04824 ha per person, as compared to 0.07169 ha per person for non-migrants. This is a reason for a higher propensity of returnees to engage in off-farm activities. For Return migrant, self-employment is by far the top occupation with 44 % of returnees engaged in self-employment, followed by farm labor 22% and skilled work 20%. Quarter of self-employed return migrants are engaged in farming-related activities, such as large-scale aquatic production (crabs, fish, and pearls), and greenhouse vegetable cultivation. Then after this the retail business such as small village groceries and a variety of individual vendors followed by manufacturing activities like brick-making, glue-making and rain-coat production. Zang et al. (2006) has found that if the return migrant is married man then marriage will positively influence him to involve in self-employment after return. In China before migration, 51% of individuals were in farm labor and 26% had no job (i.e. there were students, homemakers or waiting

for a job). After return it has been found that there was a sharp decline in farm labor participation, which was compensated by an increase in self-employment as well as in wage work. Self-employment individuals are found to perform better than wage earners in China. Immediately after return the migrants are three times likely not to participate in the labor market than non-migrants. Data shows that the saving motive of the immigrants in Germany was very high. A survey of Dustmann and Kirchkamp (2002) found that 6% of migrants from Germany in Turkey after returning were working as salaried workers whereas 51% of the returnees were self-employed and the rest 43% were retired.

Indian Experiences

If we see from the perspective of Indian economy, we will see that in some parts return migration is helping some sectors, whereas in some areas this has no effect, moreover increasing the unemployment rate. India has experienced an increased out flow of highly skilled professionals to the western world, mainly to Australia, US, UK, New Zealand, etc. and the less skilled migrants to Gulf and other south Asian countries. Emigration which is mainly skilled migration to the developed countries has resulted in skill shortages in the high end of the labor market in India. In 2009-10, Remittances from Indian migrants from overseas stood at ₹2500 billion (US\$40 billion), the highest in the world, but their share in FDI remained low at around 1%; however remittance inflow is concentrated in certain states where remittances contribute, like Kerala (31%), Goa (21%) and Punjab (12%) to State domestic product. In India, the return migration to rural areas had doubled from 6.5% (1993-94) to 12%(2007-08), while in urban areas it had doubled too from 5.4% to 11% in the same time period. However the rate of return migrants is higher for males than females both in rural and urban areas. There is difference in number of male and female returnees. For rural areas it is as high as 24% for males and 11% to females while for urban areas there is very less male-female difference. It is also found that the return of rural migrants is more than urban migrants where as average age of return migrants is 45 years, and also return migrants are well educated than the general population. Male return migrant illiterates are only 8% while female returnees 58%. It is observed that 12% returned for marriage and 12% returned along with their migration of parent or earning head, 10% migrated because of social and political problems in the host country, 14% returned for employment or business in the country of origin which includes search for employment (2.5%), better employment (1.2%), transfer of service or contract (4.7%) and for business (2.5%). The female migrants mainly return because of their male companion. There was hardly any woman who returned for the reason of starting a business in home country. For males around 19% returned for economic reasons either for employment or business reasons, social and political problems (10%), migration post retirement (9%), migration of parent or earning member (7%), and health care which is 6%. If we look at the distribution of return migrants in different industrial categories, there is not much difference except electricity, gas and water category. But the higher proportion of population of return migrants belong to service sector (44%), in agricultural activities (21%), whereas around 19% of return migrants engage in activities related to construction sector. Out of all Return migrants in rural areas 39% are engaged in manual work and 38% of return migrants

are engaged in non-manual work in cultivation and other activities. Return migrants working as manual work in cultivation like ploughing, harvesting, weeding etc. are 14% and other 10% are engaged in fishing, forestry etc. The NSS data on the employment category of return migrants, before and after returning back to their home place showed the difference has increased in self-employed group and there is a huge decrease in regular wage and salaried employment. The return migrants, who relatively belong to the older age group open enterprises than to work for anyone else as a regular wage worker and there has been positive increase in return migrants as employers too. It has been found that self-employed category has increased many fold after migrants return from abroad. It has increased from 3.2% to 26.8%. There has been increase in regular wage earners among females from 3% to 12% and around 5% are in casual wage employment category. The male returnees make use of their savings abroad and the knowledge gained to open production units for their survival at the place of origin. But there has been sharp decline in the regular wage earners from 67% to 11% before and after return. Kerala is facing a complex array of socio-economic problems faced by Gulf returnees. Due to the lack of entrepreneurial opportunities here, many migrant returnees are forced to remain unproductive for the rest of their lives. The number of return migrants touched 12.28 lakh in 2014, which is around 52% of the total emigrant population. Many of them are still unemployed, with no employment support schemes from the government. In 2001 out of the total 1019 return emigrants it was found that, 381 (37%) persons spent their savings on construction of buildings, 277 (27%) on wedding celebrations, 266 (26%) on purchase of land and 127 (12%) on higher education. The largest amount was spent on construction of houses, about 36% of the total. About 29% was spent for purchasing agricultural land. Almost an equal amount was spent on marriage of daughters, sisters and other close relatives. Only a small proportion (8%) was spent on higher education. On an average a return emigrant spent Rs 31,000 for agricultural land, 28,000 for marriage, 27,000 on building construction and 18,000 for higher education. An important point to note is that only about 507 of the 1001 return migrants spent part of their savings on purchasing of land, construction of buildings, marriage or higher education. The foreign savings of the other half were entirely used for subsistence, loan repayment etc. and not for investment of any type.

Conclusion

A person who undertakes return migration may be well equipped either with knowledge and skill or with financial solvency. Such person may start a new life after returning to his home country, with much vigor and enthusiasm, and earns a lot of money and social prestige. Thus he enriches his social status of his family and enhances the wealth of his country. His efforts, skills and wealth uplift the economic status of his country. Sometimes a returned migrant tries to invest his capital in business only for individual gain, but ultimately it leads to social development as a whole. On the other hand, some migrants capitalize their skills, knowledge and wealth and invest them in social welfare of the country directly influencing the country's economic developments and at the same time they add to the enhancement of the per capita income of the country under their

patronization. Thus return migration is always a boon to the wellbeing of one's home country unless and until it hampers the socio-political bond of the country. In this short essay we have attempted to review some recent country experiences characterized by return migration, which is relatively neglected in the existing literature. We have primarily focused on the causes of return migration along with the changing pattern of employment on their return to home country.

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Training Calendar

List of Programmes for the Year 2017-18

S No	Title of Programme	Dates	Coordinator (s)
August 2017			
1	Turnaround Strategies	Aug 7-8, 2017	Mr KRS Sastry
2	Workshop on "MoU: DPE Parameters of Performance Evaluation & Monitoring and Global Perspective"	Aug 18-19, 2017	Prof RK Mishra & Ms J Kiranmai
3	Project Management	Aug 22-24, 2017	Mr S Satish Kumar
4	Business Analytics for Effective Decision Making: Basics and Advances	Aug 29-31, 2017	Dr Shaheen & Dr KV Anantha Kumar
September 2017			
1	Risk Management	Sept 4-5, 2017	Mr KRS Sastry
2	Supplier Development Training / Strategic Sourcing	Sept 11-13, 2017	Mr S Satish Kumar & Mr CV Sunil Kumar
3	International Conference on "Ease of Doing Business (EoDB) in Asia : Policies and Perspectives"	Sept 14-15, 2017	Dr P Geeta, Dr Usha Nori & Dr PS Janaki Krishna
4	Reservation Policy For SCs, STs & OBCs in CG, CPSEs, SLPEs And Banks	Sept 18, 2017	Prof RK Mishra & Ms J Kiranmai
5	e-Procurement	Sept 19-20, 2017	Mr AS Kalyana Kumar
6	Project Appraisal, Financing and Management	Sept 21-22, 2017	Dr SS Murthy
7	Social Media Marketing and Web Analytics	Sept 25-27, 2017	Dr Anup Kumar
October 2017			
1	Public Finance	Oct 2-7, 2017	Dr Ch Lakshmi Kumari & Urban Action School
2	Tenders & Contract Management	Oct 3-4, 2017	Mr KRS Sastry
3	Ethical Hacking & Cyber Security	Oct 4-6, 2017	Mr A Rakesh Phanindra
4	Corporate Finance – Insights for Investors, Policy Makers and Finance Professionals	Oct 11-13, 2017	Dr A Pawan Kumar
5	Managing Corporate Social Responsibility For High Impact	Oct 16-17, 2017	Dr Shulagna Sarkar & Dr Deepti Chandra
6	Finance For Non-Finance Executives	Oct 25-27, 2017	Mr KV Ramesh
7	Board Development Programme	Oct 25-27, 2017	Mr KRS Sastry
8	Certificate Course: Advanced Leadership Programme	Oct 30-4 Nov, 2017	Mr KRS Sastry & Mr S Satish Kumar

S No	Title of Programme	Dates	Coordinator (s)
November 2017			
1	Managing Change in Organizations	Nov 1-3, 2017	Dr Anupama Sharma
2	Urbanization and Environment	Nov 5-25, 2017	Dr Ch Lakshmi Kumari & Urban Action School
3	Valuation Using Financial Models	Nov 8-10, 2017	Mr M Chandra Shekar
4	Workshop for Liaison Officers of SCs, STs and OBCs in CPSEs, SLPEs and Banks	Nov 10, 2017	Prof RK Mishra & Ms J Kiranmai
5	Enhancing Effectiveness At Workplace	Nov 15-17, 2017	Dr A Sridhar Raj
6	Understanding Foreign Currencies and Global Finance	Nov 21-22, 2017	Dr G Rajesh & Dr M Karthik
7	Essentials of Business Analytics for Effective Decision Making	Nov 28-30, 2017	Dr KV Anantha Kumar and Dr Shaheen
8	Logistics Management and Analytics	Nov 29-30, 2017	Mr CV Sunil Kumar
December 2017			
1	Applied Financial Management	Dec 4-9, 2017	Mr KRS Sastry
2	Leadership and Change Management	Dec 7-8, 2017	Mr V Anji Raju
3	e-Marketing For Competitive Advantage	Dec 13-15, 2017	Mr P Mahesh
4	Strategic Financial Management	Dec 14-15, 2017	Dr SS Murthy
5	Workshop on Corporate Governance for Senior Executives of CPSEs	Dec 17, 2017	Prof RK Mishra & Ms J Kiranmai
6	National Conference on Diversity in Management-Development of Women Executives	Dec 27-28, 2017	Mr KRS Sastry & Dr Narendranath K Menon
January 2018			
1	International Conference on Decision Making Excellence in Management Research	Jan 8-9, 2018	Mr CV Sunil Kumar
2	Cloud Computing For Business Professionals across The Globe	Jan 9-11, 2018	Mr A Rakesh Phanindra
3	Board Development Programme	Jan 22-24, 2018	Mr KRS Sastry
4	Development Planning and Policy Design Using System Dynamics	Jan 29-31, 2018	Dr Anup Kumar
February 2018			
1	National Conference on Cyber Security	Feb 8-9, 2018	Mr AS Kalyana Kumar
2	Conference on "Data Analytics, Operations Research and Internet of Things"	Feb 15-16, 2018	Dr Shaheen & Dr KV Anantha Kumar
3	Conclave of Vigilance Officers	Feb 20-21, 2018	Mr KRS Sastry
4	Working Towards Organizational Excellence	Feb 22-23, 2018	Dr S Vivek



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There is a growing realization that long-term business success can only be achieved by companies that recognize corporate social responsibility (CSR) as part of the process of wealth creation and as providing a competitive advantage. The conference aims at discussing CSR in the existing perspective and future outlook with focus on lighting up the challenges and the best practices in CSR.

Conference Objectives

- To discuss the existing practices and future prospects of Corporate Social Responsibility in a globalized economy.
- To highlight the 'Best Practices in CSR' in the context of business sustainability.
- To discuss implementation models and structures that can be used in all sectors of industry.
- To explore ways of aligning CSR to the business agenda for sustainability.
- To create awareness of the latest thinking on CSR and governance issues as a driver of change, innovation and sustainable profit.

Discussion Themes at the conference (Yet not limited to...)

- Perspectives of CSR in the Global Economy
- CSR and Sustainability
- Governing CSR
- Evaluation, Monitoring and Documenting CSR practices
- Accounting for value: Measuring and managing social investment
- Social Auditing Integrating CSR with Business Policy
- Cascading the CSR strategy
- Creating impact and ensuring sustainability of community based programmes
- Partnership – Engaging Stakeholders
- Ethical issues in CSR
- Leading Sustainability Change
- Benchmarking CSR practices
- Turning CSR into Corporate Social Innovation (CSI)
- Case Studies on Best practices in CSR (Private and Public sector)
- Making CSR mandatory
- CSR: Sectoral perspective
- Empowering the next generation: Engaging youth in CSR
- Entrepreneurship opportunities within CSR Participation
- Best practices in CSR

Participation

The conference is a platform for intellectual deliberations related to the area of Corporate Social Responsibility is open to:

- Businesses – Corporate and Small & Medium Enterprises (SMEs)
- Company Chairmen, Directors and Practicing Managers
- NGOs
- Consultants
- Academicians, Research Scholars and Management students,
- Government Policymakers

Call for Papers: Submission guidelines

All submissions must be in MS Word form in around 3500 - 7000 words, text typed in Times New Roman in 12 font size with heading in 14 font size. It should be printed on A4 size white paper. Each paper should include Title page that should contain title of the paper, name(s), affiliation(s), complete mailing address, telephone and fax number, and e-mail ID. All papers should use Harvard style of referencing only.

Please visit website for detailed guidelines for authors. Only those papers that adhere to the author's guidelines will be considered for review. **All papers are to be submitted by electronic mail to: gcsrcongress@ipeindia.org**

Conference Schedule

The conference will be held in the City of Hyderabad, India at Institute of Public Enterprise. The program will be divided into technical sessions. Each session shall be chaired by an expert from academia/industry. Each author will be given 10 minutes to present which will be followed by discussion for about five minutes.

Important Dates

- | | |
|---|---|
| 15th November, 2017 | : Last date for submission of full papers |
| 30th November, 2017 | : Confirmation of paper acceptance |
| 20th December, 2017 | : Last date for registration & submission of power point presentation |
| 15th January, 2018 | : Communication of final schedule |
| 1st - 2nd February, 2018 | : Conference |

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For further queries kindly contact

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