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AN EMPIRICAL INVESTIGATION OF THE PURCHASING POWER PASS – THROUGH TO INFLATION AND STOCK MARKET INDICES IN INDIA

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Abstract

The concept inflation has been found creating tension and stress in the Indian economy for few decodes. The inflation rate has been found increasing day by day and so is the price of the commodities as well. This is all because of the misconceptions of inflation. Ironically the People's Purchasing Power has been found increasing basing on the empirical observation. Due to the chaos found in the economy, the PPP has been always considered as decreasing though it is not so in reality. There were arguments pinpointing about the erroneous calculation of inflation in India. But it was just succumbed to changing the base from WPI to CPI. The researcher is trying to establish that the PPP shall be the most important factor indicator of any economy. Policy changes and economic strategies shall be based upon PPP and the technical term inflation must be considered in line with PPP. If due importance for PPP has been given, it could be established that Indian economy is growing par at excellence in a better fashion than any other economy in the world. In the stage II of this research paper, a causal analysis has also been conducted between Inflation rates of India and BSE Stock Market Index (Sensex). In the stage III of this research paper, various retailing companies have been analysed with Bob Adams.NET and thus the credit availability in the economy along with its impact on the economy have been analysed with.

Keywords: Inflation; BSE S&P Sensex, Constructive approach, Exchange related factors, Currency Revaluation.

Introduction

The inflation rate has been found increasing day by day and so is the price of the commodities as well. This is all because of the misconceptions of inflation. Ironically the People's Purchasing Power has been found increasing basing on the empirical observation. Due to the chaos found in the economy, the PPP has been always considered as decreasing though it is not so in reality. There were arguments pinpointing about the erroneous calculation of inflation in India. But it was just succumbed to changing the base from WPI to CPI. The researcher is trying to establish that the PPP shall be the most important factor indicator of any economy. Policy changes and economic strategies shall be based upon PPP and the technical term inflation must be considered in line with PPP. If due importance for PPP has been given, it could be established that Indian economy is growing par at excellence in a better fashion than any other economy in the world. In the stage II of this research paper, a causal analysis has also been conducted between Inflation rates of India and BSE Stock Market Index (Sensex). In the stage III of this research paper, various retailing companies have been analysed with Bob Adams.NET and thus the credit availability in the economy along with its impact on the economy have been analysed.

Hypothesis 1: The purchasing power of people in India have been increasing from the time of adopting New Economic Policy.
Hypothesis 2: Inflation in the economy is a factor affecting the increase/decrease in the stock market indices.
Hypothesis 3: Credit availability in India has been increasing and this is leading to increase in the People's Purchasing Power and it provides symptoms of an economic crisis in the future.

Key Definitions

"Inflation occurs when the general level of prices is rising. The rate of inflation is defined as the rate of change of the price level (as measured, say, by the consumer price index, or CPI) is measured as follows:
Rate of inflation (year *t*)

$$= ((\text{Price Level (year } t) - \text{Price Level (year } t\text{-1}))/(\text{Price Level (year } t\text{-1}))) \text{ x100"}$$

Vol. 13. Paul A. Samuelson and William D. Nordhaus, *Economics*, *Inflation: Definitions and Costs*, New York; McGraw-Hill, 1989, PP 306
"Misconceptions People often get confused about inflation. Here are some questions that reflect common misconceptions along with the correct answers.

Does inflation mean that goods are expensive? No, inflation means that the average price level is rising.

Doesn't inflation mean that we are getting poorer? Not necessarily. Our incomes tend to rise rapidly during inflationary periods, so our real incomes (incomes corrected for the cost of living) may go up or down during inflationary times."

Vol. 13. Paul A. Samuelson and William D. Nordhaus, *Economics, Inflation: Definitions and Costs,* New York; McGraw-Hill, 1989, PP 308.

When the Currency Purchasing Power is decreasing and People's Purchasing Power is increasing, the causes to the inflation are not seemed really economic but are only exchange related. Exchange related causes are not dangerous to the economy. A better economic policy shall easily solve the evil effects due to this inflation. A new focus on economic factors, need to be exercised and thus the real pulse of the economy has to be tapped.

Many economies do not give focus to the People's Purchasing Power. The two main causes to the inflation have to be studied. 1. Economic factors/causes and 2. Exchange related factors/causes. Demand, supply and competition are major economic factors and these factors do affect the economy adversely. **'Constructive approach'** could be the only solution for revamping the economy. The exchange related factors are not market derived. They are generated from the precautionary outlook of people. For example is the appreciation of land prices. The reasons thereof may be chaos, fear, precautionary and the like. But these factors are not harmful to the economy. An active involvement of the central bank will bring them under control.

The present system of inflation calculation in many countries: A case analysis from India.

Situation 1: In the year 2000, the price of 1 kg rice was Rs.10. In the year 2014, the price of the same rice is 30. It has been observed that in India, the inflation rate was increasing throughout.

Situation 2 (an extension of the first situation): In the year 2000, the price of 1 kg rice was Rs.10. In the year 2014, the price of the same rice is 30. In the year 2000, the labour charge was Rs.100 per day. But in the year 2014, the labour charge is Rs.500 per day and in some places more than that. It indicates that the common man was receiving revenue five times more that what he was receiving in the year 2000. The causes of inflation here are just exchange related and there is nothing wrong with the economy. Since the revenue has increased in a better way, it should be considered that the growth rate of inflation is not dangerous to our economy. But It may be observed that in India, the inflation rate was increasing throughout.

The Key independent variable: Prices of commodities and Inflation rate
The key dependent variable: Labour charges and S&P BSE SENSEX

Assumptions

1. Demand is stable
2. There is no competition
3. People's Purchasing Power is increasing
4. Currency Purchasing Power is decreasing.

Data Analysis has been conducted and the findings thereof have been mentioned after the **'Pitch Template'.**

Pitcher's Name	Shino P.Jose, Prof. (Dr.)T. Asokan
(A) Working Title	An Empirical Investigation of the Purchasing Power Pass – Through to Inflation and Stock Market Indices in India
(B) Basic Research Question	Is the Peoples Purchasing Power increasing in India?and is it correlated with the stock market indices?
(C) Key paper(s)	Kapur Nee Baweja, Radhika. *Empirical Study of Relation Between Oil Price Shocks and Stock Market Behaviour*. Delhi: Delhi University, Ph.DThesis
(D) Motivation/Puzzle	Motivation: It has been very visible and evident by observation that the Purchasing Power of People is increasing in India. But still it has been a cause of worry among people of India the growing rate of inflation. Puzzle: Is there any relationship between People's Purchasing Power and BSE Sensex?
THREE	**Three** core aspects of any empirical research project i.e. the "**ID**io**T**s" guide
(E) Idea?	When the Currency Purchasing Power is decreasing and People's Purchasing Power is increasing, the causes to the inflation are not seemed really economic but are only exchange related. Exchange related causes are not dangerous to the economy. A better economic theory shall easily cover up theevil effects due to this inflation. A new focus on economic factors, need to be exercised and thus the real pulse of the economy has to be tapped.

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(F) Data?	(1) Both Primary and secondary data has been used. Primary data has been used to analyse the Purchasing Power and Secondary data has been used to identify the relationship between inflation and BSE Sensex. Unit of Analysis: Individual, Sampling: Periodic and annual, Focus: Inflation and Stock Market Index (2) Sample Period: 01-02-15 to 10-04-2015 (3) Data Sources: Primary and secondary. Primary data has been collected by questionnaire and the secondary datafrom the website of Bombay Stock Exchange and from http://www.inflation.eu/inflation-rates/india/historic-inflation/cpi-inflation-india.aspx. Findings are novel. (4) Data Collection: Mostly manual.
(G) Tools?	Tabular Analysis and Bob Adams. Net
TWO	**Two** key questions
(H) What's New?	What should be the best possible method for calculating People's Purchasing Power? A detailed study of inflation with stock market indices in a stable economy will bring interesting results.
(I) So What?	With the currency revaluation, the present issues of Indian economy could be resolved.
ONE	**One** bottom line
(J) Contribution?	It brings into the requirement of taking into consideration the people's purchasing power for the policy decisions. If the PPP is considered, it would be simply assumed that the current inflation rate is misleading. The present issuecould be solved by currency revaluation which is a move required to be taken by the Government. So a new method of using People's Purchasing Power along with inflation has to be adopted for policy decisions. It has been observed that when the economy is stable, we find an orthodox relationship between closing stock prices and Inflation. Thus it may be established that the decrease/increase in currency value is a major cause affecting the stock market index fluctuations under the very assumption that the economy is stable. But when we consider People's Purchasing Power and Inflation together and compare the movement of stock market indices, we get a better picture.
(K) Other Considerations	**Collaboration/ Challenges** **Data: The authenticity of the primary data and the misleading economic theories are some challenges.** **Is the scope appropriate: Yes.**

tage I

Based on the questionnaires distributed and collected through 'Face book' and emails, a tabular analysis has been conducted. The period of survey was from 01-02-2015 to 10-04-2015. Questionnaires were distributed to 400 people choosing the respondents randomly. 119 respondents were there. The researchers relied more on 'Face book' rather than emails because it was identified very effective for collecting primary data. Moreover a 'Pilot Test' was conducted in January 2015, whereby it was very evident that data collection is easy with 'Face book'. So the researchers relied more on 'Face book'.

Variables were 'Essential White Goods' and the like items because such items are very much suitable for studying 'People's Purchasing Power'. The inflation as well is more closely attached to the studied variables. They were selected by observation and the selection process was subjective.

Table 1.1: Age parameters of respondents

Age					
1	26-35	36-45	46-55	Above 56	Total
2	1	25	61	32	119
Total	1	25	61	32	119

Table 1.1 provides the age-wise classification of the respondents

Table 1.2: Your House Roofing 15 Years Ago

		House Roofing 15 Years Ago			Total
		Katcha	Tile	Concrete	
	19-25	0	0	0	0
	26-35	0	1	0	1
	36-45	3	18	4	25
Age	46-55	15	36	10	61
	Above 56	2	24	6	32
Total		20	79	20	119

It has been observed that most of the customers had their house roofing made of tile and the concrete houses which were comparatively costly had been used by very few respondents.

Table 1.3: Your House Roofing Today

		House Roofing Today			Total
		Katcha	Tile	Concrete	
	19-25	0	0	0	0
	26-35	0	0	1	1
	36-45	0	0	25	25
Age	46-55	0	0	61	61
	Above 56	0	0	32	32
Total		0	0	119	119

All the customers are using concrete houses now though the tile made houses are comparatively cheap.

Table 1.4: Tick on the electronic items you had at home 15 years ago

		Tick on the electronic items you had at home 15 years ago					Total
		19-25	26-35	36-45	46-55	Above 56	
1.	TV	0	1	18	46	25	90
2.	Refrigerator	0	1	15	32	22	70
3.	Iron Box	0	1	24	57	27	109
4.	Grinder	0	1	24	51	25	101
5	Air Conditioner	0	0	0	1	0	1
Total		0	4	81	187	99	371

The number of electronic items, may be approximate number has been arrived at.

Table 1.5: Tick on the electronic items you have at home today

		Tick on the electronic items you have at home today					Total
		19-25	26-35	36-45	46-55	Above 56	
1.	TV	0	1	25	61	32	119
2.	Refrigerator	0	1	25	61	32	119
3.	Iron Box	0	1	25	61	32	119
4.	Grinder	0	1	25	61	32	119
5	Air Conditioner	0	0	1	3	0	4
Total		0	4	101	247	128	480

It could be observed that all the respondents are using TV, Refrigerator, Iron box and Grinder today. Though these four electronic items are very essential for life, they were not very common due to the weak purchasing power and this table proves that the Purchasing power of people has increased.

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Table 1.6: Tick on the number of vehicles you had at home 15 years ago

		Number of vehicles at home 15 years back					Total
		19-25	26-35	36-45	46-55	Above 56	
1.	Two wheeler	0	0	3	7	2	12
2.	Car	0	0	0	2	0	2
3.	Jeep	0	0	0	1	2	3
4.	Bus	0	0	0	0	0	0
5	Any other	0	0	0	3	4	7
Total		0	0	3	13	8	24

There were just a total of 24 vehicles owned by the respondents 15 years ago, though it is an approximate calculation

Table 1.7: Tick on the number of vehicles you have at home 15 today

		Number of vehicles at home 15 years back					Total
		19-25	26-35	36-45	46-55	Above 56	
1.	Two wheeler	0	1	17	27	13	58
2.	Car	0	0	6	9	7	22
3.	Jeep	0	0	2	5	2	9
4.	Bus	0	0	0	0	0	0
5	Any other	0	0	1	7	4	12
Total		0	1	26	48	26	101

But it is now 101 and it is an **amazing increase in the level of purchasing power**

Table 1.8: The approximate monthly income you had 15 years back

		The approximate monthly income 15 years back					Total
		=<1,000	1001-5000	5001-15000	15001-30000	30000<	
1.	19-25	0	0	0	0	0	0
2.	26-35	0	1	0	0	0	1
3.	36-45	1	21	2	1	0	25
4.	46-55	5	49	4	2	1	61
5	Above 56	2	27	3	0	0	32
Total		8	98	9	3	1	119

Table 1.9: The approximate monthly income you have today

		The approximate monthly income you have today					Total
		=<1,000	1001-5000	5001-15000	15001-30000	30000<	
1.	19-25	0	0	0	0	0	0
2.	26-35	0	0	1	0	0	1
3.	36-45	0	1	6	16	2	25
4.	46-55	0	2	14	35	10	61
5	Above 56	0	0	13	19	0	32
Total		0	3	34	70	12	119

The two tables above prove that the income level as well has been increased with. All the classes of customers feel the raise in income level.

With these nine tables above, it could be easily arrived at the conclusion that the key word inflation alone is irrelevant. Since the purchasing power, Standard of Living and Income level of People have been increased, we may conclude that the rise in price is just due to exchange related factors and not due to inflation.

Findings of Stage I:
It brings into the requirement of taking into consideration the 'People's Purchasing Power' as one of the most important factors for economic policies. If the PPP is considered in policy decisions, the divide between the organised and unorganised

sectors may get reduced with. The present issue of high inflation could be solved by currency revaluation which is a move required from the part of the Government.

Stage II

An attempt has been made to relate the inflation rate calculated by the present method with the Bombay Stock market index S&P BSE SENSEX.

Causal Analysis of Inflation and Sensex

Table 2.1

Year					Inflation	BSE Sensex
1992	New	Economic	Policy		8	2,615.37
1.1993					8.64	3,346.06
2.1994					9.47	3,926.90
1995					**9.69**	**3,110.49**
1996					**10.41**	**3,085.20**
1997					**6.29**	**3,658.98**
1998					**15.32**	**3,055.41**
1999		**Normal**	**Economy**		**0.47**	**5,005.82**
2000					**3.48**	**3,972.12**
2001					**5.16**	**3,262.33**
2002					**3.2**	**3,377.28**
3.2003		Crisis	2002		3.72	5,838.96
4.2004					3.78	6,602.69
4.2005					5.57	9,397.93
6.2006					6.53	13,786.91
2007		**Normal**	**Economy**		**5.51**	**20,286.99**
2008					**9.7**	**9,647.31**
7.2009		Crisis	2008		14.97	17,464.81
2010					**9.47**	**20,509.09**
8.2011	International	Oil price	Issues		6.49	15,454.92
9.2012					11.17	19,426.71
2013		**Normal**	**Economy**		**9.13**	**21,170.68**

Source:1. http://www.inflation.eu/inflation-rates/india/historic-inflation/cpi-inflation-india.aspx.
(Annual Inflation was adopted from the above site.).
2. http://www.bseindia.com/(Value of stock at the end of each year has been adopted from the above site).

Findings of Stage II

It has been observed that when the economy is normal, we find many at times an orthodox relationship between closing stock prices and Inflation. The increase/decrease of both inflation and sensex has been identified by comparing the current year figure with the just previous year figure.In some years, both seemed moving in the same direction as well and these years may be termed as 'Crisis Years'. Thus it can be established that the increase/decrease in inflation along with 'PPP' is amajor cause affecting the stock market index fluctuations under the very assumption that the economy is stable. In all the 'NormalYears', the 'PPP' might be increasing at a better fashion. It is very much observed that the inflation and stock prices were moving in an unpredictable manner in 'Crisis Years', i.e., they move in the same line. As it is given above in the table, secondary data have been analysed from the year 1992 to 2013. It may be assumed that in 'Normal Years', when the inflation comes down the sensex should go up and vice-versa ('Opposite Effect'). The 'Crisis' years and 'Normal Years' given in the table have been identified from observation and 'Opposite Effect' and they have been coloured blue and green respectively. The years from 1992 to 1996 were years of economic reformation in India. All the crisis years have been numbered from 1 to 9. Due to the reformation, many factors have affected the Indian Economy and it has been strong enough to face the national and international challenges and the economy could come back very effectively after each crisis era.

In the years when inflation and stock market indices have gone up in the increasing path, the PPP as well could have taken as gone up (Year 2003, 04, 05, 06, 12). Unless and otherwise a force like 'PPP' has not gone up in these years, no hike in sesex would have occurred. So in this aspect, we can conclude that only in the year 2011 that India faced the real economic crisis (Indicator: The country was even forced to change the RBI Governor after this year). So all the 'Crisis Years' mentioned in the table, except the year 2011, have not faced any economic crisis since it is found that the 'PPP' has been in an increasing trend in all these years. In the year both inflation and sensex slashed and it may be established that 'PPP' has come down in the year 2011. So it's 'PPP' and not 'Inflation Rate' responsible for the change in sesex.

So when reading the Inflation rate and PPP together, it may be established that though there were crisis internationally, they have not affected Indian economy at all except in the year 2011. Even in the years of increasing inflation rate, the PPP has been increasing.

Stage III
The credit availability in the country is more. It may lead to a future economic crisis. Retailing companies have been selected for the analysis as they are more related to Consumer Price Index. Companies were selected randomly.
Bob- Adams.NET Analysis of Annual Report of Retail Companies

Table 3.1

COMPANY	CPCAR	CPCI	CPCLD	CPCCP	D to E	WCR
FUTURE	.87	1.14	UP	-1.18	122%	1.31
Pantaloons	18.91	.16	UP	-0.66	68%	1.04
Shoppers St	1.07	NIL	NIL	0.00	NIL	NIL
Trent	1.02	.94	UP	-0.23	26%	2.50
Cantabil	1.21	.89	DOWN	-0.09	10%	.84
Provogue	.97	1.06	DOWN	-0.09	11%	2.39
Reliance In	1.21	1.08	UP	-0.19	38%	1.42
ITC LRBD	0.60	1.00	UP	0.07	6%	1.82
McDonald's	.92	.96	UP	-1.29	145%	1.52
AB Nuvo	1.16	1.06	DOWN	-0.19	20%	1.08
Titan C Ltd.	1.16	1.03	UP	2.05	3%	1.01
Kewal K Ltd.	.90	.85	UP	0.09	3%	4.35

Findings of Stage III
1.CPCAR – Comparing the Prior Year Accounts receivable Ratio with that of the Current Year. (The result significantly less than one is very concerning.).
There were five companies to be considered under dangerous conditions and there is only one company (i.e., ITC LRBD under very dangerous position in this section… Good.

.2. CPCI – Comparing the Prior Year ITR with the Current Year ITR. (Excess inventories hurt profitability and the goods may become obsolete.)
Almost all the companies are using their stocks intelligently…Good.

3. CPCLD – Comparing the Prior Year Long Term Debt with the Current Year Long Term Debt (Debt Reduction is a Sign of Prosperity.)
Eight companies have used more debts and so this is supporting with the argument of more and more credit availability in the country...Good. (For a good Financial Manager, using more and more debt capital is advisable in a good economy where the cost of debt is cheaper than the cost of equity).

4. CPCCP – Comparing the Prior Year Cash Position with the Current Year Cash Position. (This value, when positive, offers price support in a down market and reduces the cash-at-risk.)

Eight companies cash position is not so good. Those companies have good cash position have been identified as using more debt capital. So all the companies have been found vulnerable to risk...Not good.

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5.D to E – Debt to Equity. (Normal Balance Sheet = 25% Debt and 75% equity when based on LT Debt. This would represent a strong balance sheet. A weak balance sheet might have a 70% Debt and 30% equity. More than anything else, it's debt that determines which companies will survive and which will go bankrupt in a crisis.

There are just three companies have been identified with a weak balance sheet...Good.

6.WCR – Working Capital Ratio: Less than 2:1 is a danger sign
There are eight companies under the dangerous sign. Not good
So CPCCP and WCR are not found very good and they provide another research gap.

Since four out of six parameters of Bob Adams. NET indicate positive remarks about retailing companies, it may be concluded that the credit availability in the country is more but the economy will not face any crisis in the near future as it has sufficient strength in its base.

To conclude, for the policy decisions, 'PPP' also must be considered equally with inflation, otherwise the divide between the organised and unorganized sector will grow further and that will bring danger to the economy. For instance, when the dearness allowance is declared by the government, Consumer Price Index alone should not be the base but instead the 'PPP' as well must be equally considered. Otherwise it will create two sections in the society and the larger unorganized sector of the society will become poorer and thus an economic crisis can develop in the future. A common method for calculating PPP worldwide is the need of the hour. The People's Purchasing Power shall be given due importance while taking policy decisions.

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