

# A Study on Attitudinal Approach on Currency in Circulation

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**Abstract.** The recurring need of circulating clean, legal banknotes is a problem which has to be addressed constantly, more so in a country like India where the velocity of circulation of banknotes is high and the demand for banknotes with increasing .This paper tries to throw light on the use of currency that is in circulation by the public and hence it is essential to study the attitude of the people towards it, the effects of holding it by different sections of the people and the level of acceptance of the new structure in the currency note in the form of polymer currency, if introduced in India, as stated by Reserve Bank of India (RBI).

**Keywords:** Currency, Polymer Currency, Knowledge on Currency.

## 1. Introduction

*“Money is a special kind of economic good”*

*Aristotle (384-322 B.C.), Greek Philosopher*

Cash as a percentage of money supply in India is about 18-20 percent against 5-6 in developed countries and 8-10 percent in developing countries such as Thailand, Malaysia and the Philippines. While coins are minted by the Government of India based on the advice of the RBI (and forms its liability), printing of banknotes is done by RBI with the consensus of the Government of India. Thus currency components plays a vital role in India by way of minting and printing costs such as manufacturing and issue cost, wear costs, opportunity cost of capital, cost of transport, and cost of acceptance.

Above all, currency determines the liquidity holdings by the public in any economy based on which monetary policies are framed and executed. It is needless to quote here the importance attached by Keynes on liquidity preference, which holds the key not only for the day to day transaction of human beings done with currency but also his future expectations. Hence the study of banknotes and the substrate used becomes an important study of research.

### 1.1. Sample Area

The area of study is Chennai City. This city is the fourth largest metropolitan and the 5<sup>th</sup> most populous city in India. To obtain the views of the general public about the current currency in circulation, their views were obtained by a scheduled questionnaire. Different sections of people handle currency and they do so in different denominations. Hence all strata of people like low income, middle income and high income people were approached. Apart from them, merchants who handle lot of cash everyday were approached. It is from the banks that money is released to the general public. Also, they too handle cash every day in huge quantity. Hence their views were also taken. Thus, the views of the public from all angles were assessed by the researcher through the primary data. The sample area of Chennai city was stratified into East, West, North, South and Central Chennai. A simple random sampling of the different strata of people was collected.

### 1.2. Objectives

- To find out the possibility of introducing polymer currency in the study area.
- To assess the reaction of the respondents on introducing polymer currency in the study area.

### 1.3. Model Specification

The logit equation is specified as:

$$Y_i = \beta + \sum_q \omega_q A_q + e_i$$

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Where:

$Y_i$  = the dependent variable which takes value 1 for the respondent  $i$ 's answer is "yes" to the question that "Will you welcome the new type of currency?" and 0 otherwise;

$A_q$  = is a vector of attitudinal variables which includes:

- A dummy defined as 1 if the respondent possesses the knowledge of microbes growth in soiled banknotes, 0 otherwise.
- A dummy defined as 1 for possessing knowledge about RBI introducing polymer currency, 0 otherwise.
- A dummy defined as 1 if the respondent possesses the knowledge of identifying forged notes from a legal one and 0 otherwise.
- A dummy defined as 1 if the respondent possesses knowledge of how banknotes are being recycled, 0 otherwise.

## 2. Review of Literature

Igumbor et al (2007)<sup>1</sup> have examined used and new bank-notes in various denominations, circulating in the Limpopo province of South Africa, for the presence of microorganisms, collecting samples from open-air markets, banks, filling-stations, supermarkets, residential homes and hostels. They have concluded in their study that immune-compromised person's stand the risk of acquiring opportunistic infections through handling of contaminated banknotes and advocated that the practice of keeping money in brassieres, handkerchiefs and in shoes should be discouraged. Public education on proper handling and care of currency was also advocated in their recommendations. This study is noteworthy because Indians too have the habit of placing banknotes as mentioned in the authors' study and hence the probability of contaminated notes could be very high in India too.

PolyTeQ Services, (2008)<sup>2</sup> has come out with another comparison between polymer coated substrate and uncoated paper substrate banknotes and has diagnosed the various features between the two. While discussing the disadvantage of paper banknote getting soiled due to heavy circulation, there is a problem of ink wear in the case of polymer banknote. After a thorough weighing of notes, wear, timeframes and characteristics giving equal importance to primary and secondary causes of wearing of banknotes, the presenter has concluded that ink wear is a slower process than soiling and that coating polymer banknotes improves cleanliness and extends the life of the note.

Table 1: Polymer Currency Across the world

Name of the country	Year of issue of Polymer	World Ranking in polymer issue	Current status	No. of polymer banknotes	Whether likely to continue with polymer banknotes?
Australia	1996	1	Only polymer	8	Yes
Bangladesh	2000	17	Paper	1	No. But contemplating reissue
Brazil	2000	15	Paper	1	No
Negara Brunei Darussalam	1996	7	Polymer	9	Yes
Chile	2004	23	Polymer + Paper	1	Yes
Zhonghua Renmin Gongheguo	2000	16	Paper	1	Unclear
Republic of Guatemala	2007	26	Polymer + paper	1	Yes
Hong Kong Special Administrative region	2007	25	Polymer + paper	1	Yes
Indonesia	1993	2	Paper	2	No

<sup>1</sup> Igumbor E.O. , Obi C.L, Bessong P.O., Potgieter N., Mkasi T.C., "Microbiological analysis of banknotes circulating in the Venda region of Limpopo province, South Africa", South African Journal of Science, vol.103 no.9-10, Pretoria, Sept./Oct. 2007.

<sup>2</sup> Poly TeQ Services (Global technology support for Guardian polymer substrate), "Over coating polymer banknotes the key to note quality, longer life & cleanliness", Banknote Conference, April 7<sup>th</sup>, 2008.

Israel	2008	27	Polymer + paper	1	Yes
Kuwait	1993	5	Paper	2	Unclear
Malaysia	1998	10	Polymer + paper	2	Yes
Estados Unidos Mexicanos (mexico)	2002	21	Polymer + paper	3	Yes
Nepal	2002	20	Paper	Paper	No
New Zealand	1999	8	Polymer	6	Yes
Republic of Nicaragua	2009	28	Polymer + paper	3	Yes
Federal Republic of Nigeria	2007	24	Polymer + paper	1	Yes
Northern Ireland	1999	14	Paper	1	No
Independent state of png	1991	4	Polymer + paper + Hybrid	10	Yes
Republicadel Paraguay			Paper		Expected
Romania	1999	13	Polymer	13	Yes
Samoa	1990	3	Polymer + paper + Hybrid	1	Yes
Republicof Singapore	1990	2	Polymer + paper	5	Yes
Solomon Islands	2001	18	Paper	1	No
Sri lanka	1998	9	Paper	1	No
Taiwan – Republic of China	1999	12	Paper	1	No
Thailand	1996	8	Paper	3	No
Vietnam	2001	19	Polymer	7	Yes
Zambia	2003	22	Polymer + paper +	2	Yes
Republic of Costa Rica	1983	Not ranked	Paper	1	No
Republic of Haiti	1980	Not ranked	Paper	6	No
Isle of Man	1983	Not ranked	Paper	1	No
Republika Bulgarija (Bulgaria)	2005	1 <sup>st</sup> in hybrid	Hybrid + Paper	1 hybrid	Unclear

Source: Polymer banknotes of the world by Stane Straus, retrieved from [www.polymerbanknotes.org](http://www.polymerbanknotes.org)

Table 1 shows the list of countries who had adopted polymer currency, some continue, some withdrew while some are contemplating on the same. From table 1 it is clear that seventeen countries are happy with the introduction of polymer currency and they like to continue issuing banknotes in polymer currency. A few countries have polymer currency with hybrid variety too, the latter being a coating on the paper substrate. However, with effective research and development, Australia was successful in 1996 ranking itself as the first country in the world to have changed to polymer currency. Today Australia, New Zealand, Brunei are some of the countries who have fully switched all their currencies to polymer. Even smaller countries like Nigeria and Nicaragua are happy with polymer currency in their respective countries after its introduction in 2007 and 2009 respectively. India has been contemplating on the issue of polymer currency since 2002 but

has come out with a concrete decision with the same in 2010 to issue polymer banknotes on pilot basis in 5 cities in India.

The basic aim of this research study is to empirically provide an insight into the attitude of the people towards the change in the physical structure of the current banknotes that are in circulation and whether it would affect the confidence of the public in the legal tender if the change takes place.

### 3. Hypotheses of the Study

Table 2: Attitudinal Variables: Model 4

The following hypotheses based on primary data collection are framed:				
Number of obs.	=	400		
LR chi2(4)	=	93.24		
Prob. > chi2	=	0.0000		
Log likelihood	=	- 141.9349	Pseudo R <sup>2</sup>	= 0.2473
Welcoming new (polymer) currency	Coefficient	z	P> z	$\delta P / \delta X_i$
Knowledge of germs growth in soiled Banknote	2.235553	6.22	0.000	0.2553431
Knowledge to identify forged Banknote from a legal one	0.276487	0.83	0.405	0.0238745
Knowledge of RBI's introduction of polymer banknotes	1.577217	3.01	0.003	0.1206597
Knowledge of recycling of unfit Banknotes	0.4177284	0.71	0.478	0.0334725
Constant	0.1093491	0.52	0.603	

Source: Computed by the researcher from the primary data collected.

1 **H<sub>0</sub>**: There is no association between knowledge of germ growth among soiled banknotes and welcoming new (polymer) currency by the respondents.

*Infectious bacteria are carried by the dirty, decayed, soaked, soiled, and smeared currency notes as they change hands as a normal daily activity.*

**Result 1:** The coefficient value is positive and significant at 1 percent level. Hence the null hypothesis is rejected and it is concluded that there is an association between knowledge of germ growth among soiled banknotes and the preference to hold paper banknotes among the respondents.

2 **H<sub>0</sub>**: There is no association between the knowledge to distinguish between a forged banknote from a legal one and the welcoming of new (polymer) currency by the respondents.

*The value of counterfeit currency detected in 2007-08 rose by 137% in India.*

**Result 2:** It can be inferred that the impact is positive, it is not significant. Hence we accept the null hypothesis.

3 **H<sub>0</sub>**: There is no association between knowledge of RBI's introduction of polymer banknotes and the welcoming of new (polymer) currency by the respondents.

*India's emergence as an Asian powerhouse could prompt the authorities to upgrade the security of the rupee.*

**Result 3:** There is a high positive significance for this variable which indicates the null hypothesis to be rejected.

4 **H<sub>0</sub>**: There is no association between knowledge of recycling of banknotes and the welcoming of new (polymer) currency by the respondents.

*Unfit paper notes that are being shredded and briquetted by RBI find no takers for recycling.*

**Result 4:** Table shows insignificance though the coefficients are positive. Hence we accept the null hypothesis.

5 **H<sub>0</sub>:** There is no association between attitudinal variables welcoming new (polymer) currency by the respondents.

**Result 5:** The magnitudes of the test values of the parameters, when compared with the critical chi-square ( $q=4$ ) for 95 percent confidence levels, shows a high level of significance. Hence it is concluded that the set of attitudinal variables have joint significance in influencing the dependent variable.

#### 4. Conclusion

Countries which have switched to polymer currency have reaped the profits of reduction in cost of printing in the long run, longer life of the currency in circulation, recycling of polymer banknotes into better and useful plastic products of daily use, clean banknotes with lesser contamination and lesser forgeries. New Zealand has reduced its cost incurred to issue polymer banknote to 1.8 cents per Note In Circulation (NIC) from 3.3 cents per NIC from paper banknotes. Counterfeit banknotes reduced to just 0.3 million in 2006-08 from 3.9 million in 1999-2000. There was a reduction in total cost to run the currency function by 70 percent after switching over to polymer currency. Central bank of Romania has obtained views from its citizens on the polymer currency circulated in that country and have stated that 78 percent of retailers and, 82 percent of public welcomed it. The indicators such as clean currency were rated as high as 93 percent by the respondents and quality as high as 80 percent. Brazil has stated that fit polymer banknotes, when compared to paper banknotes stood at 98.1 percent in 2002 while there was nil counterfeit banknotes in polymer. Australia has come out with the statistics that 53 percent of respondents rated polymer currency as efficient as paper banknotes during ATM transactions, 82 percent of the respondents had stated that they are more efficient than paper banknotes during note validation and 44 percent more efficient at note counters when compared to paper banknotes. Euro zone countries have zero percent security features incorporated on polymer currencies when compared to 9 percent in paper banknotes. Polymer currency can take as many security features as paper currency can. Many advanced economies like England, Australia, New Zealand, Canada, Hong Kong etc. had incorporated 21.4 percent of security features in their polymer currencies when compared to 6.7 percent on paper currencies; Latin American countries like Costa Rica, Nicaragua, Chile, Mexico, Brazil, Guatemala etc. could incorporate 21.4 percent when compared to just 7.1 percent for the same comparison and developing countries like Malaysia, Romania, Bangladesh, Thailand etc., could incorporate 18.8 percent security features in polymer banknotes when compared to 7.4 percent in paper banknotes. Canada has stated that the cost requirement has reduced a lot in that country due to adoption of polymer currency while Australia is convinced of the longer life of the banknotes in circulation. In order to combat counterfeit banknotes, paper quality is being enhanced by many countries with increased security features. There are various methods of acquiring banknotes. In India, around 5 percent of currency paper is produced while a majority is imported. This is a major concern in two aspects – increase in forged banknotes in circulation threat and increase in the import bill for the exchequer. The size, security features, number of denominations and rate of increase in demand all contribute to the increase in the cost of printing of banknotes. Countries like Malaysia are convinced of clear, germ less, reduced counterfeited banknotes in their countries, after introduction of polymer banknotes.

#### 5. References

- [1] Bharatiya Reserve Bank Note Mudran (P) Ltd., Press Release, March 2010
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