

# Social Marketing - Predicting the Impact of Government Aided Health Insurance Project in Rural Tamil Nadu

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## Abstract

Social marketing is using marketing principles to influence the acceptability of social ideas. In developing countries, one of the contexts of social marketing is using marketing principles to foster the use of various health-related products and services independent of non-governmental organizations (NGOs) and donors through local organizations - state owned, state supported, and private. In India, there is a growing demand for quality medical care due to poor quality of state owned hospitals, increase in lifestyle diseases, increasing private healthcare costs, and cost of medicines. This makes health insurance a necessity today more than a luxury. To mitigate the problem of quality health care at affordable costs, there are state interventions, the notable ones being Yeshasvini of Karnataka, Arogyasri of Andhra Pradesh, & "Chief Minister Insurance Scheme for life saving treatments" of Tamil Nadu. "Chief Minister Insurance Scheme for life saving treatments" in Tamil Nadu is one of the innovative health insurance schemes introduced by Tamil Nadu Government in 2009 for below poverty line (BPL) families covering a population of 14 million with an annual income of INR 72000 (USD 1400 ; 1 USD = 50 INR in 2009) or less. The scheme was implemented through 663 hospitals (20 public sector hospitals and 643 private hospitals). This scheme assures treatment and saves peoples' lives from 51 types of diseases. This study is the second part of a study that is aimed at studying the public - private partnership in health care with specific reference to the "Chief Minister Insurance Scheme for life saving treatments" scheme of Tamil Nadu, India. While the first part looked at awareness and satisfaction, the present study focused on its impact through qualitative and quantitative research methodologies. The study indicated the impact that the scheme has created in the lives of the people is significant. People who cannot afford treatment from the private hospitals are now highly dependent on this scheme for their health care needs.

**Keywords:** social marketing, Chief Minister Insurance Scheme, government aided health insurance, private public partnership (PPP), Tamil Nadu, awareness, satisfaction

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The context of social marketing in developing countries was to foster the use of various health-related products and services (Harvey, 1999; Manoff, 1985); whereas, in the developed world, the context was to reduce behavioral risk factors for diseases (Lefebvre & Flora, 1988; Lefebvre, 2011; Walsh, Rudd, Moeykens, & Moloney, 1993). In developing countries, to mitigate the problem of quality health care at affordable costs, there are interventions by local organizations that are state owned, state supported, and private.

According to U.S. Agency for International Development (n.d.) "Social marketing is the use of commercial marketing techniques to achieve a social objective. Social marketers combine product, price, place, and promotion to maximize product use by specific population groups" (p.2). In the health arena, social marketing programs in the

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developing world traditionally have focused on increasing the availability and use of health products, such as contraceptives or insecticide-treated nets (United States Agency for International Development, n.d.).

Majority of financial support for social marketing programs across the world come from government and international aid organizations that define social marketing by whether or not they are tied to the development of more efficient and responsive promotion and distribution systems of socially beneficial products and services (Meadley, Pollard, & Wheeler, 2003 ; United Nations Population Fund, 2002; United States Agency for International Development, n.d.). Nirodh condom project in 1967 was noted as the first attempt to incorporate marketing practices in social healthcare in India (Harvey, 1999 ; Meadley et al., 2003).

The health insurance market has expanded in India very rapidly. According to Punitha and Kuruvilla (2011) "health insurance has emerged as one of the fastest growing segments in the non-life insurance industry with 30% growth in 2010-11. For the purpose of regulation, health insurance companies are classified as non-life companies. Health insurance's annual premium collections are over ₹ 6,000 crores. Despite the high growth, the business is a huge challenge for insurers because of the high losses over soaring medical expenses" (para 1).

In spite of its tremendous potential, the level of health insurance coverage among the poor remains low (Cannon, 2009 ; Conover, 2009) and available evidence shows that only about 3% to 5% of Indians are covered under different health insurance schemes. Therefore, in India, there is a growing demand for quality medical care due to poor quality of state owned hospitals, increase in lifestyle diseases, increasing private healthcare costs, and cost of medicines and this makes health insurance a necessity today more than a luxury (Swaminathan & Viswanathan, 2015).

## Literature Review

Most health insurance schemes in India use TPA for claim processing. Sane and Singh (2012) elaborated on TPA as a third party administrator. The TPA is an intermediary between the insurer and the customer. TPAs were introduced by the Insurance Regulatory and Development Authority of India (IRDA) in the year 2001. IRDA defines TPA as a, "Third Party Administrator who, for the time being, is licensed by the Authority, and is engaged for a fee or remuneration, in the agreement with an Insurance Company, for the provision of health services." (IRDA Notification, 2001, p. 1; Sane & Niharika, 2011). However, TPAs not only increase the cost, but also sometimes result in delays in settlement of claims. Therefore, to mitigate the problem of quality health care at affordable costs, there are state interventions and generally, the health insurance schemes of governments target low income groups.

**(1) Health Care and Government** : The First Health Insurance Act was introduced in India in 1912 and was modified in 1938. In 1972, the insurance industry was nationalized and brought 107 private insurance companies under the umbrella of General Insurance Corporation (GIC). Insurance and Regulatory Development Act (IRDA) enacted in 1999 included the provision of permitting foreign companies. The Government of India has introduced Community Health Insurance (CHI) as part of its National Rural Health Mission to reduce the burden of out-of-pocket payments on households in India (Devadasan, Criel, Van Damme, Manoharan, Sarma, & Van der Stuyft 2010). It was a smart card based health insurance system introduced for its poorest 300 million people as part of the National Health Insurance Program. On similar lines of Government of India, several state governments followed suit, and established government sponsored schemes, the notable ones being Yeshasvini of Karnataka, Arogyasr of Andhra Pradesh, and 'Chief Minister Health Insurance Scheme for Life saving Treatment' of Tamil Nadu.

Yeshasvini Cooperative Farmers Health Scheme of Karnataka commenced in 2003 with a mission to provide quality health care within the reach of rural co-operatives based on the collective power of masses to provide for themselves, expensive health care through 'self funded' scheme and is considered as one of the largest health insurance schemes for the rural poor for providing health security. It is estimated that in 2014, about 3.45 million

widely dispersed peasant farmers were covered for surgical and outpatient care for a low annual premium of approximately INR 200.00 (USD 3.00) per each member with a special package of 15% discount for more than five members enrolled in a family (1 USD = 62 INR in 2014) (Yeshaswini Co-operative Farmers Health Care Scheme, n.d).

Arogyasri Community Health Insurance Scheme is another health insurance scheme for the poor in the State of Andhra Pradesh which was started in April 2007. The scheme covers a population of 65.4 million in the state. The scheme provides coverage for meeting expenses for hospitalization and surgical procedures for the beneficiary members up to INR 1,50,000.00 (USD 3000.00 ; 1 USD = 50 INR in 2009 ) per family per year in any of the network hospitals. The scheme ensures that the beneficiaries get 100% subsidized OPD (out patient department) consultation, diagnostic tests, and medical treatment regardless of whether they ultimately require surgery or not (Joseph & Rajagopal, 2011; Yelliah, 2013; India.gov.in - Rajiv Aarogyasri Community Health Insurance Scheme Andhra Pradesh, n.d.).

**(2) Chief Minister Insurance Scheme for Life Saving Treatments – Tamil Nadu :** 'Chief Minister Health Insurance Scheme for Life saving Treatment' is one of the innovative health insurance schemes introduced by Tamil Nadu Government in 2009 for below poverty line (BPL) families covering a population of 14 million with an annual family income of INR 72000.00 (USD 1400.00 ; 1 USD = 50 INR in 2009 ) or less. The scheme was implemented through 663 hospitals (20 public sector hospitals and 643 private hospitals). This scheme assured treatment and saves peoples' lives from 51 types of diseases. The scheme was widely accepted by many international organizations including World Bank for its unique feature of safeguarding health of the poor people without collecting any premium from them. This scheme is a classical example of public-private partnership (PPP). The government, Star Health Insurance, and hospitals (both private and government) are the three stakeholders of this scheme (Joseph & Rajagopal , 2011 ; Tamil Nadu Health Systems Project, Department of Health and Family Welfare, Government of Tamil Nadu , n.d.).

The scheme provided cashless insurance protection against a host of identified high-cost medical contingencies that required surgical care and hospitalization. The scheme provided an insured amount of INR 1,00,000.00 (USD 2000.00 ; 1 USD = 50 INR in 2009 ) for a period of 4 years for per family and covered more than 100 critical life saving treatments . The treatment was done only through empanelled hospitals. A minimum of six hospitals in each district and 15 major hospitals were identified. Claim process included pre-authorization by medical teams of Star Insurance (private partner) based on field information available from hospital, field visit by doctor from Star Insurance, hospitals claims based on actual provision of treatment, and claim case processing by team of validators and medical approvers. Financial settlement was done mostly by electronic transfer. A team of doctors were assigned exclusively for this. Hospitalization of patients was based on proving their identity as BPL category. (Joseph & Rajagopal , 2011 ; Tamil Nadu Health Systems Project, Department of Health and Family Welfare, Government of Tamil Nadu , n.d.).

Joseph and Rajagopal (2011) described the “Chief Minister Insurance Scheme for life saving treatments” as a supply chain process (KKT- SCM) wherein the government guarantees the financial part of the scheme. The amount for this is budgeted every year and transferred to Star insurance company. The company has a direct contact with the designated hospitals which act as major health care (service) providers.

## **Research Gap and Hypotheses Formulation**

In as much as various governments and government bodies have entered into a PPP model to mitigate problems of quality healthcare at affordable costs, the current literature does not capture the key question namely the impact of the scheme. Apart from Joseph and Rajagopal (2011), literature survey does not seem to indicate any similar research on Chief Minister Insurance scheme (Swaminathan & Viswanathan, 2015). Hence, this empirical

research study was undertaken during the year 2011 -2012. This study aimed at focusing on the public - private partnership (PPP) in health care with specific reference to the “Chief Minister Insurance Scheme for life saving treatments” scheme in terms of impact through qualitative and quantitative research methodologies. The research tools that were used were qualitative and quantitative. Focus groups and in-depth interviews were used for the exploratory research and quantitative research to test the hypotheses.

Focus group and in-depth interviews were conducted in Thirukazhukundram Taluk, Chengleput District of Tamil Nadu to study the scheme as a whole and understand the various communication methodologies used by the Government to promote the scheme. The focus group was conducted in various villages, covering respondents of various demographics, to study their awareness levels.

Various questions were asked to test their understanding about the project, their perceived value of the project, their perception on the usefulness of the project, and the overall impact which the project created in their lives. In-depth interviews were also conducted across various resident subjects - who were beneficiaries, doctors in the hospital which were covered under this scheme, various hospital authorities, the insurance company, Government officials, and so forth.

After conducting the focus group and personal in-depth interviews it was found out that there were three parameters which we considered while doing a quantitative research. They are :

- (i) Awareness level among the people,
- (ii) Satisfaction ,
- (iii) Impact on the society.

Awareness and satisfaction have been covered by us in an earlier study (see Swaminathan & Viswanathan, 2015). The scope of this paper is confined to classifying and predicting the impact of the “Chief Minister Insurance Scheme for life saving treatments”.

## **Hypotheses**

The following hypotheses were formulated :

**H0** : The PPP is not effective / beneficial in the implementation of the TNHSP scheme.

**H1** : The PPP is effective / beneficial in the implementation of the TNHSP scheme.

## **Parameters**

(i) **Dependent Variables** : Awareness, satisfaction, and effectiveness.

(ii) **Independent Variables** : Age, gender, marital status, education, family size, medium of awareness, awareness on how many diseases are covered, awareness on how many hospitals are covered, satisfaction of service, satisfaction of treatment, satisfaction of amenities, cost saved because of this scheme, and dependency on this scheme.

## **Methodology**

(1) **Qualitative Research** : One of the methods of conducting exploratory research is through focus groups for the purpose of gaining information relevant to the research problem (Greenbaum ,1988). In this study, focus group and

in-depth interviews were conducted in Thirukazhukundram Taluk, Chengleput District of Tamil Nadu and in all the focus group discussions, the moderator acted as an objective leader to the pre-screened audience and conducted the entire meeting in an unstructured and natural fashion. Interaction among the participants was ensured at the best possible level so that key insights could be sifted from all focus group interviews.

**(2) Quantitative Research :** Quantitative research, sometimes referred to as “survey research,” is research involving structured questions where a large number of respondents are involved (Burns & Bush, 2009) . In this study, as a sequel to the qualitative research that led to the identification of the above -mentioned three parameters, quantitative research was done to test certain hypotheses that would have implications to the policy making people. A survey method was used with a set of prepared questionnaire instrument to measure : awareness, satisfaction, and impact of the scheme . Respondents from various demographics were administered the Instrument on a Likert scale (1-5).

While conducting a survey, the following criteria were considered : Two sets of sample population was considered, 50 respondents who had not availed this insurance scheme facility and 40 who had availed this facility. Our motive was to measure and compare the impact level of respondents in these two sets of sample population. Both telephonic and personal survey methodology were employed and villages in and around Chengalpattu were covered. However, telephonic calls were also made to people who were from other parts of Tamil Nadu.

### **(3) Analytical Tools**

**Predictive Modeling :** In addition to regression analysis, predictive modeling using logistic regression and neural network involving multi-layer perceptron was explored to determine whether a potential consumer will avail of the insurance scheme. According to Gartner (n.d), “Predictive modeling is a commonly used statistical technique to predict future behavior. Predictive modeling solutions are a form of data-mining technology that works by analyzing historical and current data and generating a model to help predict future outcomes. In predictive modeling, data is collected; a statistical model is formulated; predictions are made; and the model is validated (or revised) as additional data becomes available” (paragraph 1). For example, if health insurers could accurately predict secular trends (for example, utilization), premiums could be set appropriately, profit targets could be met with more consistency, and health insurers would be more competitive in the marketplace.

A brief description of both the approaches is outlined below :

Logistic regression is a variation of ordinary regression in which the dependent variable is binary in the sense it takes only two values 0 or 1. The dependent variable that is categorical usually represents the occurrence or non-occurrence of an event and the independent variables can be continuous, categorical, or both. Logistic Regression has been widely used in the financial service industry for credit scoring models. On theoretical grounds, logistic regression is a more appropriate statistical tool than linear regression, given the fact that the dependent variable is categorical that has two discrete classes in credit risk namely a customer is a defaulter or a non-defaulter. Ordinary least square (OLS) regression will be fraught with problems in predicting the probability of default, which has to be between 0 and 1. It cannot guarantee that estimated probability will always fall in the range of 0 to 1. On the contrary, logistic regression will ensure the estimated probability to fall in the range of 0 to 1 because it is based on a sigmoid function. In logistic regression, the individual parameters can be tested for statistical significance. The model has clarity when it comes to writing the equation connecting the dependent variable with a host of independent variables. This facilitates predicting the default probability for a new customer asking for loan.

Neural networks can be used effectively in corporate credit decisions and credit scoring (Khashman, 2009 ; Pacelli & Azzollini ,2011) . The initial work on neural networks was motivated by the study on human brain and the idea of neurons as its building blocks. Artificial intelligence researchers introduced a computing neuron model to simulate the way neurons work in human brain. This model provided the basis for many later neural networks

developments. Neural networks are universal approximation and extremely powerful as a predictive analytic tool. If the main objective is hypothesis testing, then one should go to traditional and proven statistical modeling. If the main objective is predictive power, then neural network is a strong contender and often can provide more accurate results than statistical regression modeling. Neural network cannot directly assess the change in the dependent variable caused by the change in the independent variable.

## Results and Discussion

**(1) Reliability Analysis :** The survey was conducted among a total of 90 people. We segmented our survey group into two - people who had used this scheme and people who had not used this scheme. The data we got from the survey of both the groups is found to be reliable vide Tables 1a and 1b . The Cronbach alpha is greater than 0.6 in both the cases vide Tables 1a & 1b, which indicates the sample survey was of high quality.

**(2) Impact :** For measuring the impact level among the sample who had availed this facility, the following parameters were considered:

**Dependent Variable :** Overall impact,

**Independent Variables :** Age, gender, marital status, education, family size, satisfaction, impact-savings, impact –dependency.

The adjusted *R* squared value vide Table 2 is found to be good and from the satisfaction parameter, it is found that

**Table 1(a). Reliability Statistics - People who Haven't Availed the Facility**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.649	.612	10

**Table 1(b). Reliability Statistics - People who Have Availed the Facility**

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.686	.735	16

**Table 2. Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
dimension0 1	.953a	.909	.891	.091

a. Predictors: (Constant), Satisfaction, Impact Dependency, Family Size, Education, Age, Gender, Impact Saving, Marital Status

**Table 3. ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.344	8	.418	51.037	.000a
	Residual	.336	41	.008		
	Total	3.680	49			

a. Predictors: (Constant), Satisfaction, Impact Dependency, Family Size, Education, Age, Gender, Impact Saving, Marital Status

b. Dependent Variable: Impact Overall

**Table 4 - Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.957	.348		11.380	.000
	Age	-.114	.038	-.356	-3.014	.004
	Gender	-.070	.057	-.107	-1.229	.226
	Marital Status	-.143	.097	-.226	-1.470	.149
	Education	.204	.036	.350	5.607	.000
	Family Size	.072	.019	.276	3.837	.000
	Satisfaction	.200	.040	.466	5.011	.000
	Impact Saving	.101	.048	.137	2.110	.041
	Impact Dependency	-.111	.035	-.188	-3.203	.003

a. Dependent Variable: Impact Overall

the Cronbach alpha (Tables 1a & 1b) is also good. Hence, a linear regression was performed and the following results were obtained.

From the ANOVA (Table 3), it can be deduced that the Impact is significant, thereby contributing to the overall success of the policy. As the significance ( $p$ -value) is less than 0.05 or 5%, it can be concluded that this test was significant and therefore the null hypothesis, that is, the PPP is not effective / beneficial in the implementation of the TNHSP scheme is rejected.

From the coefficients (Table 4), it can be inferred that the amount that the family saves by availing treatment through this insurance scheme is significant at 0.041 and also, it can be seen that the families were indeed relying upon this insurance scheme indicated by significance at 0.003 ( $p$ -value).

From the Pearson correlation (Table 5), it is observed that more qualified the people were, less dependent were they on this scheme and the impact this scheme has created on the people was purely a measure of how much money they actually saved by availing this facility. In fact, if this scheme weren't there, then people would have not gone to hospitals to get treatment.

Hence,

↳ The impact this scheme has created was significant.

↳ The amount of money that people would have actually saved by not incurring cost of treatment was in itself a major impact on the people.

↳ Less qualified people were fully dependent on this scheme. By this, it means that if they had not had this card and they had to undergo a major surgery, then these respondents would not have gone to hospitals as the cost was high.

**(3) Logistic Regression** : The logistic regression model has an overall accuracy of 97.8% in terms of correct classification. Only two out of the 100 respondents have been wrongly classified (Table 6). From the next table (Table 7), while all the variables used for the predictive capability of logistic regression are statistically not significant, based on EXP(B) that gives the odds ratio, we see that gender, education, media, and awareness level of disease increase the probability for availing the scheme in an overwhelming manner.

In the Neural Network (Table 8), the overall accuracy in the training sample is 97.1%, in the testing sample of 20 respondents, the predictive accuracy is 100% in terms of classification. The Figure 1 succinctly captures the relative importance of the predictor variables.

**Table 5. Correlations**

	ImpactOver all	Age	Gender	MarStat	Education	FamSize	Satisfacti on	ImpactSavin g	ImpactDepe ndency	
Pearson Correlation	ImpactOver all	1	-0.377	0.157	0.166	0.672	0.424	0.746	0.676	-0.193
	Age	-0.377	1	0.05	-0.834	-0.191	0.045	-0.359	-0.235	-0.269
	Gender	0.157	0.05	1	-0.298	0.243	-0.347	0.336	-0.032	-0.39
	MarStat	0.166	-0.834	-0.298	1	-0.072	-0.09	0.355	0.118	0.368
	Education	0.672	-0.191	0.243	-0.072	1	0.021	0.353	0.408	-0.197
	FamSize	0.424	0.045	-0.347	-0.09	0.021	1	0.182	0.418	0.23
	Satisfacti on	0.746	-0.359	0.336	0.355	0.353	0.182	1	0.5	-0.138
	ImpactSavin g	0.676	-0.235	-0.032	0.118	0.408	0.418	0.5	1	0.071
	ImpactDepe ndency	-0.193	-0.269	-0.39	0.368	-0.197	0.23	-0.138	0.071	1
Sig. (1- tailed)	ImpactOver all	-	0.003	0.139	0.125	0	0.001	0	0	0.09
	Age	0.003	.	0.364	0	0.092	0.377	0.005	0.05	0.03
	Gender	0.139	0.364	.	0.018	0.045	0.007	0.009	0.414	0.003
	MarStat	0.125	0	0.018	.	0.308	0.268	0.006	0.208	0.004
	Education	0	0.092	0.045	0.308	.	0.444	0.006	0.002	0.085
	FamSize	0.001	0.377	0.007	0.268	0.444	.	0.103	0.001	0.054
	Satisfacti on	0	0.005	0.009	0.006	0.006	0.103	.	0	0.17
	ImpactSavin g	0	0.05	0.414	0.208	0.002	0.001	0	.	0.311
	ImpactDepe ndency	0.09	0.03	0.003	0.004	0.085	0.054	0.17	0.311	.
N	ImpactOver all	50	50	50	50	50	50	50	50	50
	Age	50	50	50	50	50	50	50	50	50
	Gender	50	50	50	50	50	50	50	50	50
	MarStat	50	50	50	50	50	50	50	50	50
	Education	50	50	50	50	50	50	50	50	50
	FamSize	50	50	50	50	50	50	50	50	50
	Satisfacti on	50	50	50	50	50	50	50	50	50
	ImpactSavin g	50	50	50	50	50	50	50	50	50
	ImpactDepe ndency	50	50	50	50	50	50	50	50	50

**Table 6. Classification Table<sup>a</sup>**

	Observed	Predicted		Percentage Correct	
		Availed Status			
		Not Availed	Availed		
Step 1	Availed Status	Not Availed	38	2	95.0
		Availed	0	50	100.0
Overall Percentage			97.8		

a. The cut off value is 0.500



**Table 7. Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Age			0	4	1	
Age(1)	-43.163	38099.937	0	1	0.999	0
Age(2)	-41.964	37167.092	0	1	0.999	0
Age(3)	-44.491	30937.654	0	1	0.999	0
Age(4)	-64.663	29928.985	0	1	0.998	0
Gender(1)	1.67	14247.749	0	1	1	5.311
Education			0	3	1	
Education(1)	104.104	38756.49	0	1	0.998	1.63E+45
Education(2)	117.048	39731.129	0	1	0.998	6.82E+50
Education(3)	117.691	41077.845	0	1	0.998	1.30E+51
Media			0	2	1	
Media(1)	-14.293	18358.796	0	1	0.999	0
Media(2)	5.118	15034.266	0	1	1	166.956
AwareDisease	56.824	16461.095	0	1	0.997	4.767E+24
AwareHospital	-0.915	9832.606	0	1	1	0.401
ImpactOverall	-26.92	12963.641	0	1	0.998	0
ImpactDependency	4.128	6857.386	0	1	1	62.029
Constant	-109.034	50097.499	0	1	0.998	0

Step 1<sup>a</sup>

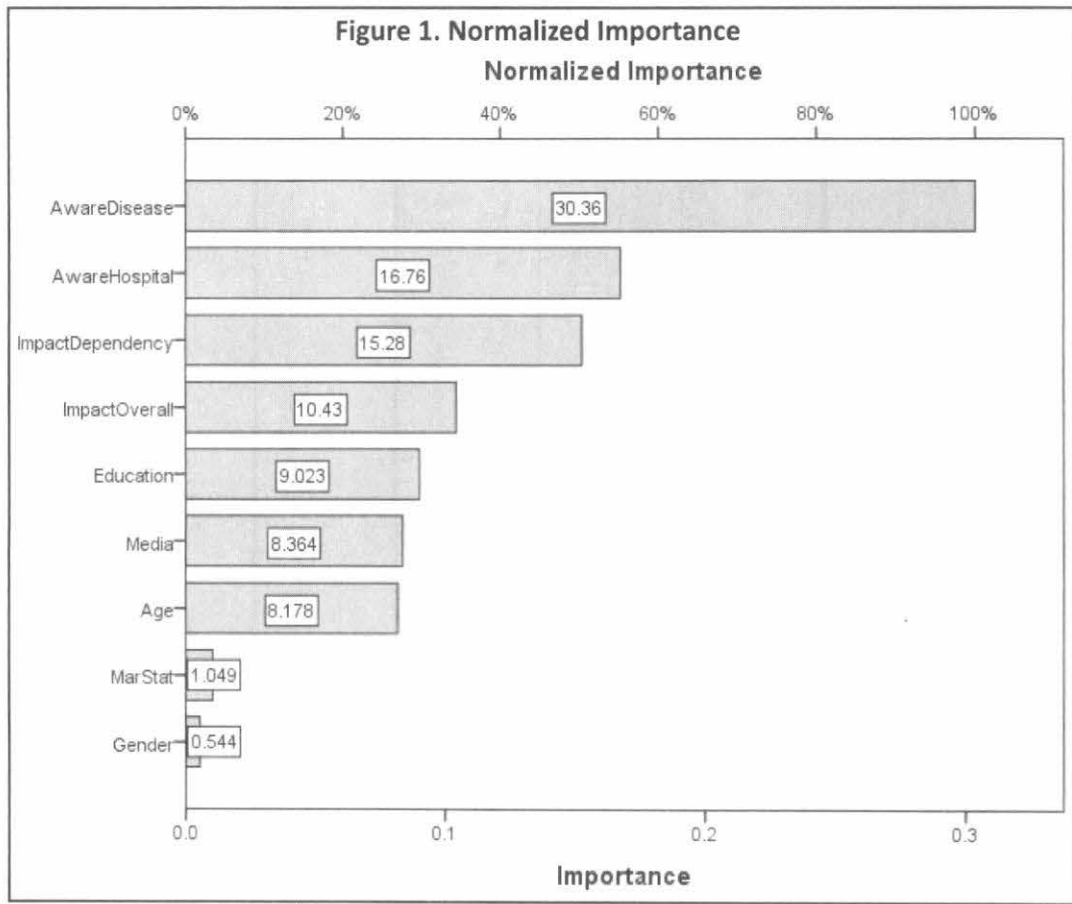
a. Variable(s) entered on step 1: Age, Gender, Education, Media, AwareDisease, AwareHospital, ImpactOverall, ImpactDependency

**Table 8. Neural Network Classification**

Sample Observed	Predicted		Percent Correct
	Not Availed	Availed	
Training Not Availed	30	2	93.8%
Availed	0	38	100.0%
Overall Percent	42.9%	57.1%	97.1%
Testing Not Availed	8	0	100.0%
Availed	0	12	100.0%
Overall Percent	40.0%	60.0%	100.0%

Dependent Variable: Availed Status

Awareness about disease, awareness about hospital, and impact dependency are the top three predictor variables. Impact overall, education, media, and age are moderate in terms of predictive power. Gender is not a significant predictor.



## Findings and Conclusion

- ✎ The impact this scheme has created was significant.
- ✎ The amount of money that people would have actually saved by not incurring cost of treatment was in itself a major impact on the people.
- ✎ Less educated/ qualified people were fully dependent on this scheme. By this it means that if they had not had this card and they had to undergo a major surgery, then these respondents would not have gone to hospitals as the cost was high.

From the above, it can be summarized that the impact that the scheme has created in the lives of the people is significant. People who cannot afford to spend for the treatment from the private hospitals are much relieved and they are now highly dependent on this scheme for their health needs.

## Implications for Policy Makers

Though the general public awareness about this scheme was lower (Swaminathan & Viswanathan, 2015), the impact that this scheme had created among the poor masses was significant. The people were highly satisfied with the overall functioning of this scheme and the services provided by the hospitals. The cure for the diseases, which, the poor cannot afford otherwise, was provided to them through a clearly defined network of hospitals and an efficient operational system adopted by the insurance provider. There is no doubt that this scheme, implemented

through a public-private partnership, is set to bring about a health revolution in the state of Tamil Nadu and has the potential to increase the average life expectancy of the people of Tamil Nadu.

## Limitations of the Study

- ✎ This study was done in only in certain parts of Tamil Nadu and the entire state was not covered.
- ✎ Details of patients were obtained from few hospitals in Chennai though the sample population was from many parts of the state.
- ✎ Several specialty hospitals were not covered in this study. Only general surgery and cardiac specialty hospitals were considered for the study.

To the extent possible, this study overcomes the limitations stated above by selecting typical part of Tamil Nadu that represents the state apart from ensuring randomness in selecting hospitals and patients for the survey.

## Suggestions for Future Research

Future studies can :

- ✎ Cover more hospitals varying in their specialty.
- ✎ Cover all districts of Tamil Nadu.
- ✎ Survey and focus groups to be conducted in districts which are governed by both ruling and non-ruling parties so that bias and sampling error could be eliminated.
- ✎ Explore predicting whether a chosen respondent will fall into the category of availing / not availing benefits, through predictive modeling using logistic regression, discriminant, and neural network.

## References

- Burns, A. C., & Bush, R. F. (2009). *Marketing research* (5th. ed., pp 200-231). New Delhi : Pearson Education (Dorling Kindersley India Pvt.Ltd.) .
- Cannon, M. F. (2009). Regulation in China, India, and The United States. *Health Affairs*, 28(1), 295-296. DOI: 10.1377/hlthaff.28.1.295-a
- Conover, C. J. (2009). China and India : Good news and bad news. *Health Affairs*, 28 (1), 296-297. doi: 10.1377/hlthaff.28.1.296
- Devadasan, N., Criel, B., Van Damme, W., Manoharan, S., Sarma, P. S., & Van der Stuyft, P. (2010). Community health insurance in Gudalur, India increases access to hospital care. *Health Policy & Planning*, 25 (2), 145-154.
- Gartner. (n.d). IT glossary – predictive modelling. Retrieved from <http://www.gartner.com/it-glossary/predictive-modeling/>
- Greenbaum, T. I. (1988). *The practical handbook and guide in focus group research*. Lexington, MA: D C Heath.

- Harvey, P. (1999). *Let every child be wanted : How social marketing is revolutionizing contraceptive use around the world*. Westport, CT : Auburn House.
- India.gov.in. (n.d.). *Rajiv Aarogyasri Community Health Insurance Scheme : Andhra Pradesh*. Retrieved from <http://www.archive.india.gov.in/citizen/health/viewscheme.php?schemeid=1800>
- Insurance Regulatory and Development Authority of India. (2001). *IRDA (Third Party Administrators – Health Services) Regulations 2001*. Retrieved from [https://www.irdai.gov.in/ADMINCMS/cms/frnGeneral\\_Layout.aspx?page=PageNo25&flag=1](https://www.irdai.gov.in/ADMINCMS/cms/frnGeneral_Layout.aspx?page=PageNo25&flag=1)
- Joseph, C.S., & Rajagopal, N. (2011) Performance evaluation of 'Kalaingar Health Insurance Scheme For Life Saving Treatment' : A study among the beneficiaries of Madurai District. *Journal of Contemporary Research in Management*, 6(4), 1-17.
- Khashman, A. (2009). A neural network model for credit risk evaluation. *International Journal of Neural Systems*, 19, 285. DOI: <http://dx.doi.org/10.1142/S0129065709002014>
- Lefebvre, R. C. (2011). An integrative model for social marketing. *Journal of Social Marketing*, 1(1), 54-72. DOI : <http://dx.doi.org/10.1108/20426761111104437>
- Lefebvre, R.C., & Flora, J.A. (1988). Social marketing and public health intervention. *Health Education Quarterly*, 15(3), 299-315.
- Manoff, R.K. (1985). *Social marketing : A new imperative for public health*. New York, NY : Praeger.
- Meadley, J., Pollard, R., & Wheeler, M. (2003). *Review of DFID approach to social marketing*. London : DFID Health Systems Resource Centre. Retrieved from <http://www.heart-resources.org/wp-content/uploads/2012/10/Review-of-DFIDs-approach-to-social-marketing.pdf>
- Pacelli, V., & Azzollini, M. (2011). An artificial neural network approach for credit risk management. *Journal of Intelligent Learning Systems and Applications*, 3(2), 103-112. DOI: 10.4236/jilsa.2011.32012
- Punitha, H., & Kuruvilla, L. (2011). *Health insurance in India : A general overview*. Retrieved from <http://www.medindia.net/patients/insurance/health-insurance-in-india-a-general-overview.htm>
- Sane, S., & Singh, N. (2012). A study on consumer perception with reference to third party administrators (TPAs). *Indian Journal of Marketing*, 42, (12), 16 - 22.
- Swaminathan T.N., & Viswanthan, P. K. (2015). Social marketing - Awareness & satisfaction levels of government aided health insurance project in rural Tamil Nadu. *Indian Journal of Marketing*, 45 (6), 7- 20. DOI: 10.17010/ijom/2015/v45/i6/79930
- Tamil Nadu Health Systems Project, Department of Health and Family Welfare, Government of Tamil Nadu. (n.d.). *Chief minister's comprehensive health insurance scheme*. Retrieved from <http://www.tnhsp.org/chief-ministers-comprehensive-health-insurance-scheme>
- United Nations Population Fund. (2002). *Strategic guidance on HIV prevention*. UNFPA, New York. Retrieved from <http://unfpa.org/publications/index.cfm?ID=78>
- United States Agency for International Development. (n.d.). *SHOPS private sector health glossary*. Retrieved from <http://shopsproject.org/sites/default/files/resources/SHOPS Project Private Sector Health Glossary.pdf>

- Walsh, D.C., Rudd, R.E., Moeykens, B.A., & Moloney, T.W. (1993). Social marketing for public health. *Health Affairs*, 12 (2), 104 - 119. doi: 10.1377/hlthaff.12.2.104
- Yelliah, J. (2013). Health insurance in India : Rajiv Aarogyasri Health Insurance Scheme in Andhra Pradesh. *IOSR Journal of Humanities and Social Science*, 8 (1), 7-14.
- Yeshaswini Co-Operative Farmers Health Care Scheme (YCFHS). (n.d.). *Mission*. Retrieved from <http://www.yeshasvini.kar.nic.in>