

Study and development of awareness prediction model of women welfare schemes using statistical analysis

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Abstract

India is a progressive nation. India government is striving hard to excel in every field to progress together as a nation. Various policies and schemes have been designed by the government to ensure welfare and growth in every sector. Women are epicentre of human life and considered superior human beings. During the time, the status and respect of women has been decreased due to wrong doings of man. Government and its various departments are striving hard so that welfare of women is ensured to keep the status of women at par with men. Various policies have been designed in the field of medicine, education, financial sectors which support women economically and morally. In order to understand the effectiveness of such schemes we need a development index. Such development index predicts that the welfare scheme will be successful or not. Measurement of rate of development is an important factor that can be implemented in each and every sector of government. This lead to proper financial management and wastage of money can be prevented. The development index can be prepared using various parameters through which rate of development is affected; this can be done through regression modelling considering various development affecting factors.

Keywords: analysis, development, effectiveness, finance, growth, women

INTRODUCTION

Our study is based on statistical analysis various development aspects of a particular government scheme. The amount of impact the scheme is creating can be analysed and future growth can be predicted using our statistical model. We had conducted this analysis on Indira Gandhi Matritva Sahyog Yojna(IGMSY) which is a maternity benefit scheme started in 2010 by Ministry of Women And Child Development, Government Of India. It is a cash transfer programme for pregnant and lactating women for first two live births. The program was developed to provide financial compensation to the mother for wage loss during the child-birth and childcare. This program is implemented in all 36stated/UTs of the country. This government programme has been found quite successful in area where awareness of such scheme is quite a high. Hence awareness of any government policy has direct relation with development index. Various factors such as literacy rate, GDP, unemployment rate, media coverage are responsible for awareness of any government programme. A statistical analysis of these factors can be helpful in prediction of awareness of government scheme. Such model can be prepared using multiple regression of every affecting factor. Hence such data can be useful for preparing a development index of any government policy.

ANALYSIS OF IGMSY PROGRAMME:

A primary evaluation of IGMSY programme was carried out by NITI AAYOG on April 2017, the report of NITI AAYOG was useful in understating the level of impact program creating in different states. However, the analysis was unable to tp predict the future growth of the programme.

The usefulness and productivity of this conditional cash transfer program (CCT) has also been discussed by Bell, R.T. (2011). It states that's that: the main aim of the scheme was to provide money for increased rest and nutrition during pregnancy it was important to assess how much time the women currently took off during maternity and explore their normal nutritional intake.[2]

PROBLEM STATEMENT:

With the literature review, the awareness of the women development schemes launched by the central government of India, many factors play important role in increasing the awareness. The education level of the women, the family income, GDP, the internet penetration level of internet and computer literacy in that state. The above factors help us to predict the awareness level of different government schemes among the women of the state.

OBJECTIVES:

- To identify the factors affecting the awareness of different social schemes for women
- To develop a model to increase the awareness of different social schemes of women
- To identity some critical factors for the schemes
- To draw conclusion based on this study
- To identify the challenges faced by women to avail of the schemes.

DATA COLLECTION:

The data has been collected though journals, articles, and internet. The main source of data is the secondary data. The previous work has been studied on the relevant topics and field to gather the data.

Hypothesis:

H₀: Education level helps us to predict the awareness of Social schemes among women

H₁: Education level does not helps us to predict the awareness of Social schemes among women

DATA ANALYSIS:

The data figures obtained from the different secondary data sources a multiple regression model is developed with the factors discussed above. The model helps in prediction of awareness level and helps to determine the increase and decrease in penetration level of the social government schemes of the government. The expression for awareness factor Y is given by:

$$Y = 60.874 + 0.115 X_1 + 1.107X_2 - 0.303X_3 - 0.972x_4 - 0.590x_5$$

Table 1: Factors Determined Using Multiple Linear Regressions

<i>component</i>	<i>X Variable</i>	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
	Intercept	60.87426734	30.85885003	1.972668	0.061231
literacy rate	X Variable 1	0.115979718	0.53176532	0.218103	0.829359
internet connectivity	X Variable 2	1.107507972	2.634599972	0.42037	0.678292
schools with computers	X Variable 3	0.30313922	0.196652875	1.541494	0.137459
State GDP	X Variable 4	0.972700617-	1.037700371	-0.93736	0.35875
unemployment rate	X Variable 5	-0.590462257	0.986913871	-0.59829	0.555756

The model indicates that every 1% increase in Literacy rate the predicted Awareness increases by 0.11%. As all other variables are held constant, internet has very high effect on the awareness as indicated by the table.[1]

Table2:ANOVA

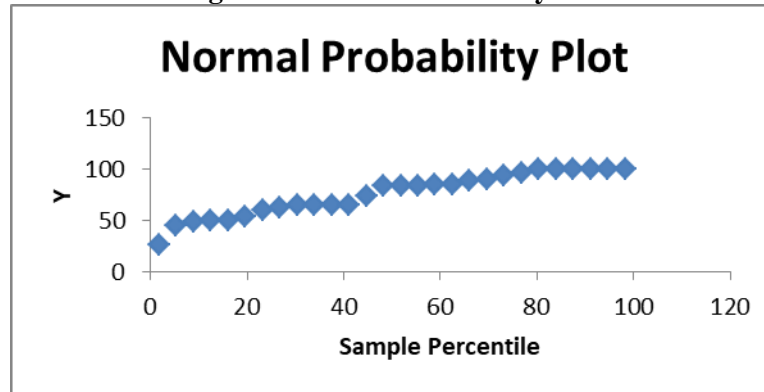
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	2308.861263	461.7723	1.074814	0.40118493
Residual	22	9451.857308	429.6299		
Total	27	11760.71857			

From the ANOVA table, the F value is 1.0748. As $p = 0.4$, the F value is not significant.

Table 3: Regression Statistics

<i>Regression Statistics</i>	
Multiple R	0.44307984
R Square	0.196319744
Adjusted R Square	0.013665141
Standard Error	20.72751499
Observations	28

Figure 1: Normal Probability Plot

**OBSERVATION:**

During the study of IGMSY programme, it has been observed that the program was quite successful where literacy rate of the state was above the literacy rate of the state. Awareness of programme became higher as literacy rate increased. States like Kerala and Gujarat were much forward as compared to other states in relation with literacy rate. Unemployment rate created a negative impact on the IGMSY program, states like Uttar Pradesh and Bihar were most affected due to higher unemployment rate. Thus the awareness level was quite low in these areas. Internet and telephonic connection also affected the awareness level; states like Rajasthan where such communications are low reduced the effected the program. GDP of state played important role in determining the awareness model, states with very high GDP had increased level of awareness, yet number of people accessing the scheme was average, while low GDP states had reduced number of had lower level of awareness but accessibility of scheme was higher.

This concludes that development index model needs more improvement to predict accurately the outcome of any program. This can be achieved by minor rectifications and more data analysis.

LIMITATIONS:

Our predictive model had some basic limitations, which are listed below:

- Limited sample space
- Improper and manipulated data by the local government agencies
- Fewer dependent factors included

FUTURE IMPROVEMENT:

- Inclusion of more dependent factors
- Analysis using primary data
- More sample space should be included
- Detailed data should be provided by government such as expenditure, economic distribution to ensure accurate prediction.

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