CHAPTER VI

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APPLICATION OF SUPER FUZZY COGNITIVE MAPS IN THE ANALYSIS OF OPINION ABOUT THE EMPLOYMENTS IN 'INFORMATION TECHNOLOGY SECTOR' [10]

Introduction

At present, IT sector provides ample employment opportunities to the educated youth in India and plays a significant role in the socio-economic development of our country. It has become the aspiration of most of the educated youth in India to become a software engineer. The new education policy in India facilitated enormous growth in the number of institutions, offering higher education in the fields of medicine, engineering, arts and science. The lucrative jobs in IT sector and the existence of more number of educational institutions motivated Indian youths to prefer IT profession. Such human resource elevated the status of our country to new heights in the global arena.

Opinion about the Employments in IT Sector in the Present Scenario

Indian IT sector has vast employment potential, consequently contributes much for economic development. Majority of the educated youth are much fascinated by the jobs in IT sector due to various reasons like attractive salary, foreign assignment, career advancement, easy mobility, recognition of talents and skills, status in the society and so on. However, the other side of the coin has certain negative features like work stress, harassment by team leaders, night shifts, health hazards, lack of time to fulfill family and social obligations and so on. If one gives weightage to the advantages of jobs in IT sector he joins in such jobs. Otherwise he prefers the jobs in other sector.

A study has been made to analyse the opinion about employments in IT sector using Super Fuzzys Cognitive Maps and collected data from five groups of people whose role influence the choice of career either directly or indirectly.

Application of Super Fuzzy Cognitive Maps

An interview schedule was administered to 30 respondents of each of the following five groups to express their opinion about employments in IT sector :

1. College / University students preferring employments in IT sector.
2. College / University students not preferring employments in IT sector.
3. Staff working in IT sector.
4. Public having knowledge about employments in IT sector.
5. College / University teachers.

Based on the opinion of the majority of respondents in each group, a list of both favourable and adverse features were listed and further analysis was made using super FCM as detailed below :

1. College / University students preferring employments in IT sector

F_1^1 - High salary

F_2^1 - High status

F_3^1 - More opportunities for jobs in abroad

F_4^1 - Development of skills

F_5^1 - Healthy social movement

F_6^1 - Talent based work

F_7^1 - Talent based reward

2. College / University students not preferring employments in IT sector

F_1^2 - High salary

F_2^2 - Work pressure

F_3^2 - Prolonged work hours

F_4^2 - Health problems

F_5^2 - Lack of time to care family affairs

F_6^2 - Lack of time to fulfil social obligation

F_7^2 - Healthy social movement.

3. Staff working in IT sector

F_1^3 - High salary

F_2^3 - High status

F_3^3 - More opportunities for jobs in abroad

F_4^3 - Healthy social movement

F_5^3 - Health problems

F_6^3 - Lack of time to fulfil social obligations

F_7^3 - Lack of time to care family affairs

F_8^3 - Talent based reward

4. Public having knowledge about employments in IT sector

F_1^4 - High salary

F_2^4 - High status

F_3^4 - Work pressure

F_4^4 - Lack of time to care family affairs

F_5^4 - More opportunities for jobs in abroad

5. College / University Teachers

F_1^5 - High salary

F_2^5 - Development of skills

F_3^5 - Healthy social movement

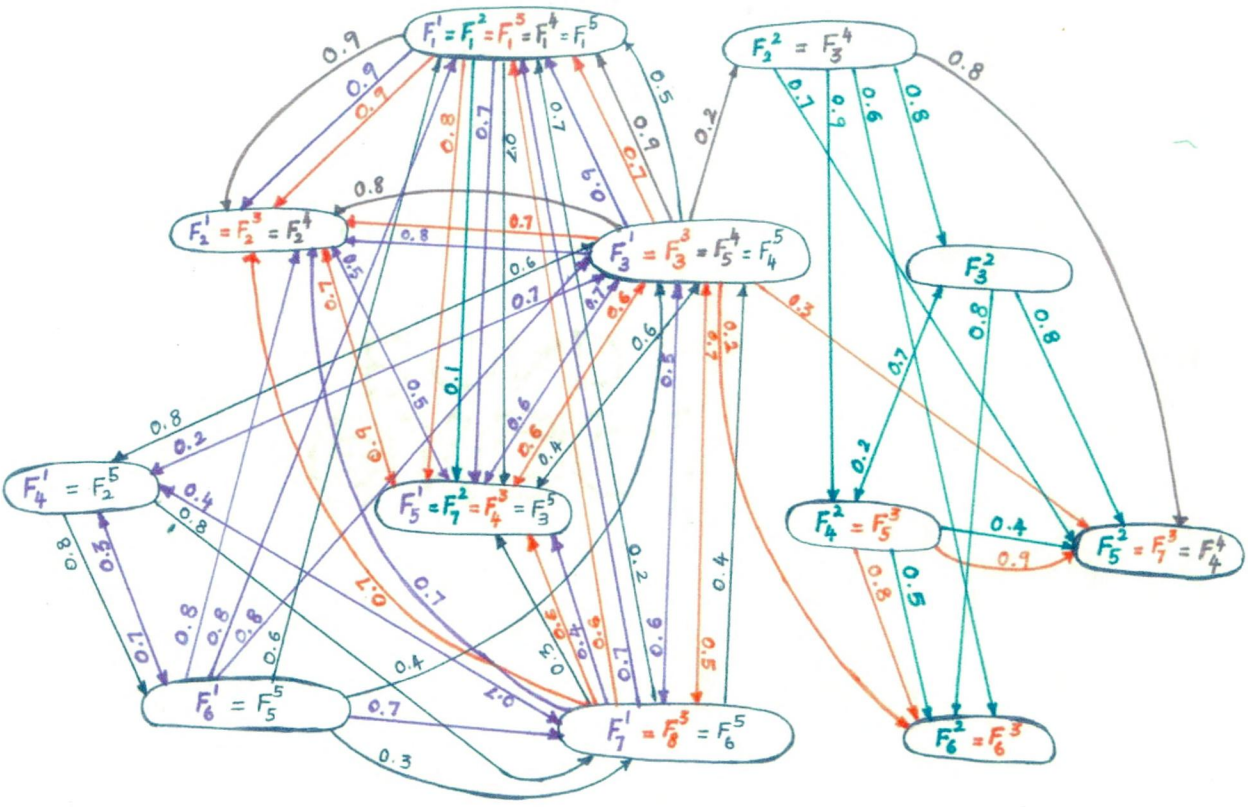
F_4^5 - More opportunities for jobs in abroad

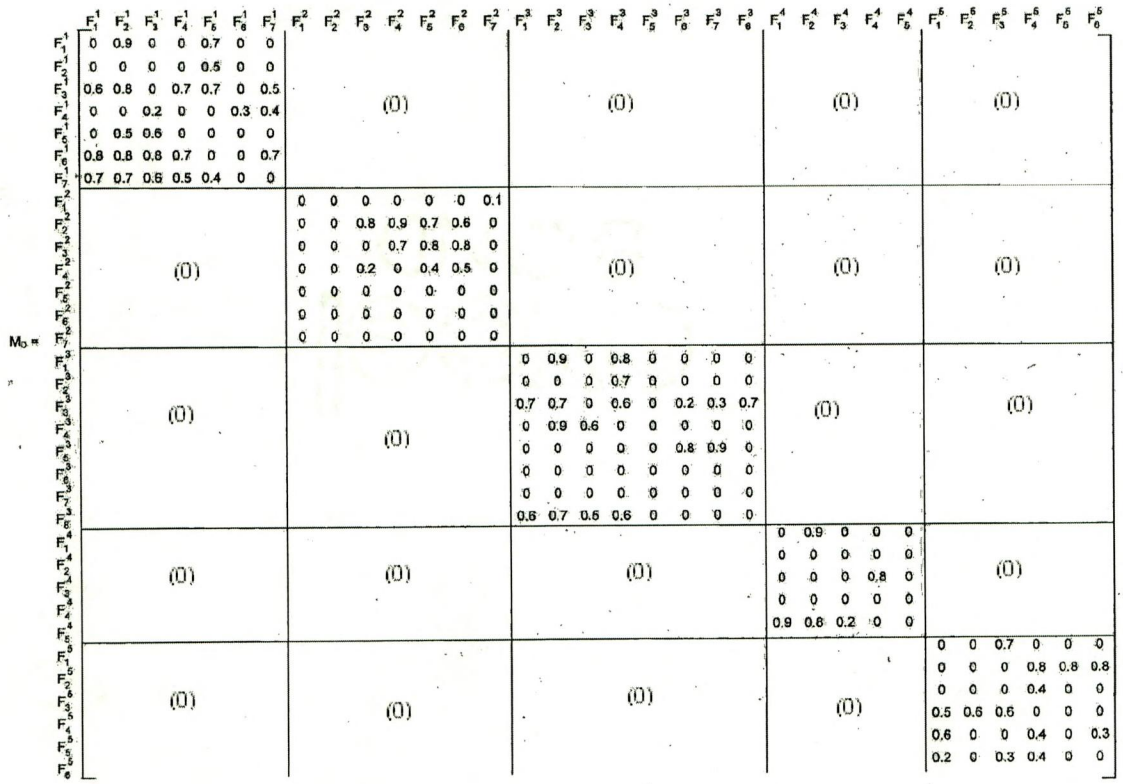
F_5^5 - Talent based work

F_6^5 - Talent based reward.

Based on the opinion given by the respondents on the causal relation between the features (nodes), a Super FCM was framed. Here the FCM is a weighted directed graph. The weightage for each edge is the ratio between the number of respondents who opined the existence of causal relation between two features (nodes) and the total number of respondents.

The Super FCM and the Super fuzzy connection matrix are presented below :





'High salary' being the variable identified by all the five groups, the author intended to study the effect of the said variable on the other variables.

For this purpose, the authors studied the effect of the vector

X = [1 0 0 0 0 0 0 0 | 1 0 0 0 0 0 0 | 1 0 0 0 0 0 0 0 0 |
1 0 0 0 0 | 1 0 0 0 0 0] on M_D.

X. M_D = [0 0.9 0 0 0.7 0 0 | 0 0 0 0 0 0 0.1 | 0 0.9 0 0.8 0 0 0 0 |
0 0.9 0 0 0 | 0 0 0.7 0 0 0]

after updating and thresholding we get

X_1 = [1 0.9 0 0 0.7 0 0 | 1 0 0 0 0 0 0.1 | 1 0.9 0 0.8 0 0 0 0 |
1 0.9 0 0 0 | 1 0 0.7 0 0 0]

X_1. M_D = [0 0.9 0.6 0 0.7 0 0 | 0 0 0 0 0 0 0.1 |
0 0.9 0.6 0.8 0 0 0 0 | 0 0.9 0 0 0 | 0 0 0.7 0.4 0 0]

after updating and thresholding we get

X_2 = [1 0.9 0.6 0 0.7 0 0 | 1 0 0 0 0 0 0.1 | 1 0.9 0.6 0.8 0 0 0 0 |
1 0.9 0 0 0 | 1 0 0.7 0.4 0 0]

$X_2 . M_D$ = [0.6 0.9 0.6 0.6 0.7 0 0.5 | 0 0 0 0 0 0 0.1 |
0.6 0.9 0.6 0.8 0 0.2 0.3 0.6 | 0 0.9 0 0 0 | 0.4 0.4 0.7 0.4 0 0]

after updating and thresholding we get

X_3 = [1 0.9 0.6 0.6 0.7 0 0.5 | 1 0 0 0 0 0 0.1 |
1 0.9 0.6 0.8 0 0.2 0.3 0.6 | 1 0.9 0 0 0 | 1 0.4 0.7 0.4 0 0]

$X_3 . M_D$ = [0.6 0.9 0.6 0.6 0.7 0.3 0.5 | 0 0 0 0 0 0 0.1 |
0.6 0.9 0.6 0.8 0 0.2 0.3 0.6 | 0 0.9 0 0 0 |
0.4 0.4 0.7 0.4 0.4 0.4 0.4]

after updating and thresholding we get

X_4 = [1 0.9 0.6 0.6 0.7 0.3 0.5 | 1 0 0 0 0 0 0.1 |
1 0.9 0.6 0.8 0 0.2 0.3 0.6 | 1 0.9 0 0 0 | 1 0.4 0.7 0.4 0.4 0.4]

$X_4 . M_D$ = [0.6 0.9 0.6 0.6 0.7 0.3 0.5 | 0 0 0 0 0 0 0.1 |
0.6 0.9 0.6 0.8 0 0.2 0.3 0.6 | 0 0.9 0 0 0 |
0.4 0.4 0.7 0.4 0.4 0.4]

after updating and thresholding we get

X_5 = [1 0.9 0.6 0.6 0.7 0.3 0.5 | 1 0 0 0 0 0 0.1 |
1 0.9 0.6 0.8 0 0.2 0.3 0.6 | 1 0.9 0 0 0 | 1 0.4 0.7 0.4 0.4 0.4]

which is a fixed point.

Results

The effect of the variable "High Salary" on the other variables for each of the five groups is found as follows:

Group I

The effect of "High Salary" is

0.9 degree on "High status",

0.6 degree on "More opportunities for jobs in abroad",

0.6 degree on "Development of skills",

0.7 degree on "Healthy social movement",

0.3 degree on "Talent based work" and

0.5 degree on "Talent based reward".

Group II

The effect of "High Salary" is

0.1 degree on "Healthy social movement" and it has no effect on other features".

Group III

The effect of "High Salary" is

0.9 degree on "High status",

0.6 degree on "More opportunities for jobs in abroad",

0.8 degree on "Healthy social movement",

0.2 degree on "Lack of time to fulfil social obligations",

0.3 degree on "Lack of time to care family affairs" and

0.6 degree on "Talent based reward and no effect on health problems".

Group IV

The effect of "High Salary" is

0.9 degree on "High status and it has no effect on other features".

Group V

The effect of "High Salary" is

0.4 degree on "Development of skills",

0.7 degree on "Healthy social movement",

0.4 degree on "More opportunities for jobs" and

0.4 degree on "Talent based reward".

Conclusion

In the present competitive world, ample job opportunities are available to the educated youth. It is a great challenge to them to choose the job that best fit their aspirations. The above scientific and logical analysis helps them to take right decision in the selection of career.