

## *Chapter VIII*

**CHAPTER VIII**

**SMALL-SCALE BUSINESS OPPORTUNITIES FOR WOMEN  
ENTREPRENEURS – A DECISION MAKING MODEL USING  
FUZZY SOFT SETS**

The author of this thesis intended to develop a Decision Making Model using Fuzzy Soft Sets to facilitate women entrepreneurs to select the best business venture, from the various alternatives available, that satisfies their expectations.

In recent years, empowerment of women has been recognized as vital in improving the status of Indian women. They constitute one of the most important target groups for the provision of social welfare service. It is a proved maxim that women who are empowered economically and socially become a strong and vigorous force for the removal of poverty and for the overall development of the society. The consistent efforts of both central and state governments and the liberal financial assistance through banks and other financial institutions encouraged women to involve themselves in gainful self-employment activities that fetch earnings and uplift the socio economic condition of such women entrepreneurs.

Though a vast number of self-employment opportunities are available, it is the individual to select a particular avenue that suits best her capabilities and expectations. A venture best selected is half the success attained. There are avenues which are capital intensive, risky, skill oriented, seasonal, less remunerative and so on. Many of the women entrepreneurs find it difficult to decide upon the venture they have to select among the vast alternatives available. To facilitate scientific decision making, the author attempted to develop decision making model using Fuzzy Soft Sets based on the data collected from women entrepreneurs of Coimbatore city. The study has been confined to small-scale

ventures mostly preferred by the population in the study area. The various features (expectations) that influenced the womenfolk to carry on the ventures of their choice have been taken into account to develop the model.

The author adopted convenient sampling technique and solicited response from 100 sample respondents. Sufficient care was taken to include respondents from all ventures. The various small scale self-employment opportunities and the features (expectations) that influenced women entrepreneurs were identified and listed below:

**Small-Scale Business Ventures:**

V<sub>1</sub> – Tailoring Unit

V<sub>2</sub> – Beauty Parlour

V<sub>3</sub> – Catering Service

V<sub>4</sub> – Craft and Art Making Unit

V<sub>5</sub> – Baby Care Unit

V<sub>6</sub> – Marketing (Home Made Eatables)

V<sub>7</sub> – Marketing (Fruits and Vegetables)

**Features (Expectations):**

P<sub>1</sub> – Low Capital

P<sub>2</sub> – High Returns

P<sub>3</sub> – Safety of Capital

P<sub>4</sub> – Simple Legal Formalities

P<sub>5</sub> – Low Operational Risk

P<sub>6</sub> – Minimum Man Power

P<sub>7</sub> – Flexible Timing

P<sub>8</sub> – Minimum Work Space

P<sub>9</sub> – Scope for Development

To apply Fuzzy Soft Sets to this Decision Making Model, consider the various ventures as the universal set.  $U = \{ V_1, V_2, V_3, V_4, V_5, V_6, V_7 \}$  and the features influencing the choice as the set of parameters  $E = \{ P_1, P_2, P_3, P_4, P_5, P_6, P_7, P_8, P_9 \}$ .

Based on the opinion of the respondents, the Fuzzy Soft Sets  $(F_i, P_i)$ ,  $i = 1$  to 9 were framed by considering the membership value  $\mu_{F_i(P_i)}(V_j)$  as the ratio between the number of respondents who opined the presence of the factor  $P_i$  on the investment avenue  $V_j$  and the total number of respondents.

$(F_1, P_1) = F_1(\text{Low Capital})$

$$= \{V_1/0.4, V_2/0.4, V_3/0.8, V_4/0.9, V_5/0.8, V_6/0.9, V_7/1\}$$

$(F_2, P_2) = F_2(\text{High Returns})$

$$= \{V_1/0.9, V_2/0.9, V_3/0.9, V_4/0.7, V_5/0.8, V_6/0.6, V_7/0.6\}$$

$(F_3, P_3) = F_3(\text{Safety of Capital})$

$$= \{V_1/0.9, V_2/0.9, V_3/0.6, V_4/0.5, V_5/0.7, V_6/0.2, V_7/0.2\}$$

$(F_4, P_4) = F_4(\text{Simple Legal Formalities})$

$$= \{V_1/0.5, V_2/0.4, V_3/1, V_4/1, V_5/0.3, V_6/1, V_7/1\}$$

$(F_5, P_5) = F_5(\text{Low Operational Risk})$

$$= \{V_1/0.5, V_2/0.7, V_3/0.4, V_4/0.9, V_5/0.1, V_6/0.6, V_7/0.5\}$$

$(F_6, P_6) = F_6(\text{Minimum Man Power})$

$$= \{V_1/0.5, V_2/0.7, V_3/0.2, V_4/0.8, V_5/0.6, V_6/0.9, V_7/0.9\}$$

$$(F_7, P_7) = F_7(\text{Flexible Timing})$$

$$= \{V_1/0.2, V_2/0.2, V_3/0.2, V_4/0.8, V_5/0.6, V_6/0.9, V_7/0.8\}$$

$$(F_8, P_8) = F_8(\text{Minimum Work Space})$$

$$= \{V_1/0.2, V_2/0.2, V_3/0.1, V_4/0.9, V_5/0.3, V_6/0.8, V_7/0.9\}$$

$$(F_9, P_9) = F_9(\text{Scope for Development})$$

$$= \{V_1/0.9, V_2/0.9, V_3/0.9, V_4/0.7, V_5/0.7, V_6/0.8, V_7/0.6\}$$

The author developed a Decision Making Model using fuzzy soft relations by considering a set of features preferred by an entrepreneur to identify the venture that suits best the expectations of the said entrepreneur.

### **Case 1: Features preferred by an entrepreneur X**

#### **Minimum Man Power ( $P_6$ ) and Flexible Timing ( $P_7$ ).**

The problem can be solved by virtue of the definition 4, a fuzzy soft relation ( $R, C$ ) among the fuzzy soft sets ( $F_6, P_6$ ) and ( $F_7, P_7$ ) of the business venture that ensures Minimum Man Power and Flexible Timing is formed

$$(R, C) = R (\text{Minimum Man Power, Flexible Timing})$$

$$= \{V_1/0.10, V_2/0.14, V_3/0.04, V_4/0.64, V_5/0.36, V_6/0.81, V_7/0.72\}$$

Therefore, the business venture that best satisfies the expectations of the entrepreneur X is the venture which has the largest membership value in the above relation. Here  $V_6$  has the largest membership value (0.81). Hence Marketing (Home Made Eatables) best suits the expectations of the entrepreneur X.

In the same manner the choice of business venture of any entrepreneur can be arrived at by taking into account any set of features expected by her. Some of such are given below:

**Case 2: Features preferred by an entrepreneur Y**

**Low Capital (P<sub>1</sub>), High Returns (P<sub>2</sub>) and Scope for Development (P<sub>9</sub>).**

(R, C) = R (Low Capital, High Returns, Scope for Development)

$$= \{V_1/0.324, V_2/0.324, V_3/0.648, V_4/0.441, V_5/0.448, V_6/0.432, V_7/0.36\}$$

Here V<sub>3</sub> has the largest membership value (0.648). Hence Catering Service best suits the expectations of the entrepreneur Y.

**Case 3: Features preferred by an entrepreneur Z**

**Low Capital (P<sub>1</sub>), High Returns (P<sub>2</sub>), Minimum Man Power (P<sub>6</sub>) and Minimum Work Space (P<sub>8</sub>).**

(R, C) = R (Low Capital, High Returns, Minimum Man Power, Minimum Work Space)

$$= \{V_1/0.0360, V_2/0.0504, V_3/0.0144, V_4/0.4536, V_5/0.1152, V_6/0.3888, V_7/0.486\}$$

Here V<sub>7</sub> has the largest membership value (0.486). Hence Marketing (Fruits and Vegetables) best suits the expectations of the entrepreneur Z.

**Case 4: Features preferred by an entrepreneur A**

**Safety of Capital (P<sub>3</sub>), Simple Legal Formalities (P<sub>4</sub>), Low Operational Risk (P<sub>5</sub>) and Flexible Timing (P<sub>7</sub>).**

(R, C) = R (Safety of Capital, Simple Legal Formalities, Low Operational Risk, Flexible Timing)

$$= \{V_1/0.0450, V_2/0.0504, V_3/0.048, V_4/0.360, V_5/0.0126, V_6/0.108, V_7/0.080\}$$

Here V<sub>4</sub> has the largest membership value (0.360). Hence Craft and Art Making Unit best suits the expectations of the entrepreneur A.