Demographic and Behavioural Segmentation of Tourist at Pilgrimages in Satara of Maharashtra State

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Abstract—Paper aims to understand demographic and behavioural tourist segmentation at pilgrimage destinations of Satara district. There are places known for pilgrimage however, 3 well-known destinations viz. Aundh, Wai and Sajjangarh are selected for study. Structured schedule executed to interview 97 tourists at tourist sites. Descriptive and Multivariate statistical tools are used i.e. two step cluster analysis to determine the segmentation. Hypotheses proposed to test viz. There is significant difference among the demographic variable of the sample. ANOVA was used to test the hypothesis. The results show that there is significant difference in the demographic variables available in sample data. Based on demographic variables two clusters were sorted and based on behavioural pattern 2 clusters found at Wai and Sajjangarh and 3 at Aundh. Scale of demographic variable cluster quality is just adequate at all pilgrimage centres. However at behavioural based quality scale is poor at Wai, satisfactory at rest of the destination. Demographic profile denote that majorit of tourist come from other than Maharashtra, family tourist, Day visitors, repeaters found more and majority have used personal car to visit the sites. Friends and relatives reference used to know the site.

Keywords—Tourism Marketing, Pilgrimage, Demographic, Segmentation, Behavioural, Cluster.

I. INTRODUCTION

As during eighteenth century Satara was Marathas capital. Many people migrated from Satara throughout India. Many people in recent past migrated to Poona and Mumbai metro hub. But their religious deities remained in their natives of Satara. Satara is gifted with two most popular hill stations of Maharashtra Mahabaleshwar and Panchgani. People plan hill station and pilgrimage simultaneously, so pilgrimage Tourism has gained importance. There are number of temples built in Satvanya’s Hemadapanthi style. As Satara was administrative place during the Maratha rule, several temples were built in that period which reflects the architecture of the Maratha style. Historical background of Aundh and Wai were princely state of Peshwa’s and Sajjangarh is known for Samarth Ramdas swami who was guru of Chhatrapati Shivaji Maharaj greatest and most popular ruler of Maharashtra. Devotees flock to the place on the auspicious days. Wai Ganpati Temple is significant pilgrimage site. It is called the Dakshin Kashi of India. It is located about 33 kilometres away from Satara. Mahagaon Temple is visited by the pilgrims to worship the presiding deity. The Yamai Devi Temple, Aundh is yet another pilgrimage spot. Sajjangad is also visited as a holy destination by number of tourists. This is the place of a great saint Samartha Ramdas Swami. Ramdas Swami is renowned for his message of mental and physical exercise. He had established temples of God Hanuman all across the country. Similar temples are situated around Satara. The tourist arrival at Aundh in April 2010-2011 was 80988 and in April 2011-12 it rose to 82474. At Sajjangarh the figure was just double of previous year in July 2010-11 were 43800. At Wai tourist flow is also better. It shows that Satara destination attracts pilgrimage tourism.

About Pilgrimage Attraction:

A pilgrimage is a journey or search of moral or spiritual significance. Many religions attach spiritual importance to particular places: the place of birth or death of founders or saints, or to the place of their “calling” or spiritual awakening, or of their connection (visual or verbal) with the divine, to locations where miracles were performed or witnessed, or locations where a deity is said to live or be “housed,” or any site that is seen to have special spiritual powers. Devotees are encouraged to visit for their own spiritual benefit: to be healed or have questions answered or to achieve some other spiritual benefit. A person who makes such a journey is called a pilgrim.¹

¹https://en.wikipedia.org/wiki/Pilgrimage, accessed on 20/07/2013 at 12:52PM
²http://www.aroundpune.com/aundh.htm, accessed on 20/07/2013 at 10:44AM.
Aundh is famous for Bhavani Museum in India. It is the village of Devi Yamai and the famous museum created by Shri Bhagwanrao Pantpratinidhi - the king of Aundh. Devi Yamai temple is built on a small hill which is very old but very attractive. The head of Rakshas Aundhasur, well carved Nandi the Shivling in the temple is worth to see. The idol of Devi Mahishasur Mardini Yamai is almost 2 meters high and creates a pleasant atmosphere.

Sajjangarh, a Holy Place
Sajjangad (Fort) is a very famous place for pilgrims in Maharashtra. It is situated just 9 kilometers away from Satara city. Sajjangad is 3000 feet above sea level. Spiritual guru of Shivaji Maharaj-Sant Ramdas Swami, who inspired him in his fight for Swaraj, lived here for whole of his life and attained 'Samadhi' here only. Sajjangad is also known as the spiritual Capital of Shivshahi during Chatrapati Shivaji’s Period.

Ganpati Temple at Wai
At the west end of the town the river Krishna forms a pool partly by the aid of a stone weir built from the steps about fifty yards above a large temple of Ganapati. In the four corners are separate shrines dedicated to Vishnu, Lakshmi, Ganapati, and Surya.

Data Analysis:

Table 1: Tourist Profile

<table>
<thead>
<tr>
<th>1. Tourist State of Origin</th>
<th>Maharashtra</th>
<th>35.05%</th>
<th>Other than Maharashtra</th>
<th>64.95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Gender</td>
<td>Male</td>
<td>68.04%</td>
<td>Female</td>
<td>31.96%</td>
</tr>
<tr>
<td>3. Age Group</td>
<td>25-45</td>
<td>65.98%</td>
<td>45&amp;above</td>
<td>34.02%</td>
</tr>
<tr>
<td>4. Occupation</td>
<td>Self Employed</td>
<td>13%</td>
<td>Supervisory Level</td>
<td>6%</td>
</tr>
<tr>
<td></td>
<td>Shop Owners</td>
<td>2%</td>
<td>Junior Officer and executive</td>
<td>14%</td>
</tr>
<tr>
<td>5. Tourist Pattern</td>
<td>With Family</td>
<td>57.73%</td>
<td>Alone</td>
<td>4.12%</td>
</tr>
<tr>
<td>6. Purpose of Visit</td>
<td>Leisure</td>
<td>12.37%</td>
<td>Tourism</td>
<td>21.65%</td>
</tr>
<tr>
<td>7. Mode of Travel</td>
<td>Personal Car</td>
<td>68.04%</td>
<td>Two Wheeler</td>
<td>13.40%</td>
</tr>
<tr>
<td>8. Type of Visitors</td>
<td>Overnight</td>
<td>11.34%</td>
<td>Day Visit/Excursion</td>
<td>72.16%</td>
</tr>
<tr>
<td>9. Source Used to Know</td>
<td>Friends and Relatives (55.67%)</td>
<td>21.54%</td>
<td>Website</td>
<td>22.68%</td>
</tr>
<tr>
<td>10. Type of Visit</td>
<td>1st Time</td>
<td>24.74%</td>
<td>Repeat</td>
<td>75.26%</td>
</tr>
</tbody>
</table>

Source: (Field Data)

Table 1 shows that majority sample tourist are from other than Maharashtra. Male sample tourist found more compared to female. Majority belong to the age group 25-45. Family visits and repeat visitors are more for the purpose of religion and pilgrimage. Personal car and Day visits are more preferred to visit the destinations. Majority of them have taken reference of friends and relative to know the destination.
Table 2: ANOVA for Wai

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Variable</th>
<th>Cluster</th>
<th>Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gender</td>
<td>Mean Square</td>
<td>df</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.228</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Age group</td>
<td>6.272</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Occupation</td>
<td>135.120</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 2 depicts that the calculated F statistics is 1.504 and probe value for testing hypotheses is 0.232. Since the probe value is larger than all of our levels of significance (α =.10, .05, .01, etc) so one cannot reject null hypotheses. However, the calculated ‘F’ statistics 8.586 and probe value for testing hypotheses is 0.000 which is significant with age group and F statistics is 173.350 and probe value for testing hypotheses is 0.000 which is significant at occupation variable. It shows hypotheses test is significant at age group and occupation variable that there is significant difference from age group and occupation. But gender wise there is no significant difference from each other since the convenient sampling technique. There is enough evidence to reject the null hypothesis that there is significant difference from variable age group and occupation among demographic variable at 0.01 levels (two tailed).

Table 3: Cluster Summery and Cluster Quality Scale at Wai based on Demographic Segmentation

<table>
<thead>
<tr>
<th>Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algorithm</td>
</tr>
<tr>
<td>Inputs</td>
</tr>
<tr>
<td>Clusters</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cluster Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silhouette measure of cohesion and separation</td>
</tr>
<tr>
<td>Poor</td>
</tr>
</tbody>
</table>

Table 3 talks about two clusters which are drawn from 3 variables viz. gender, age group and occupation in the form of input. Above table depicts two clusters from 3 inputs with independent cluster quality scale. Two clusters were obtained however; the cluster quality is not depicted towards fair enough.
Largest cluster size is 56.8 and ratio between two clusters is 1.3.

*Table 4: Distribution of Input Importance within the clusters at Wai based on Demographic Segmentation*

<table>
<thead>
<tr>
<th>Clusters</th>
<th>Input (Predictor) Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Cluster</strong></td>
<td><strong>2</strong></td>
</tr>
<tr>
<td>Label</td>
<td>56.8% (21)</td>
</tr>
<tr>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>Inputs</td>
<td></td>
</tr>
<tr>
<td>Age Group 3 (66.7%)</td>
<td>Age Group 4 (43.8%)</td>
</tr>
<tr>
<td>Occupation 13 (47.6%)</td>
<td>Occupation 11 (31.2%)</td>
</tr>
<tr>
<td>Gender 1 (66.7%)</td>
<td>Gender 1 (100.0%)</td>
</tr>
</tbody>
</table>

Age group 25-35 and occupation i.e. students is most predictor within the clusters whereas gender is least.

**Behaviouristic Segmentation** Model Summary based on the behavioural tourist pattern by length of stay, travel pattern, stay arrangement, average spending, and source used to know the destination, purpose of visit, and frequency of visit is shown below.

*Table 5: Cluster Summery and Cluster Quality Scale at Wai based on Behaviouristic Segmentation*

<table>
<thead>
<tr>
<th>Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Algorithm</strong></td>
</tr>
<tr>
<td><strong>Inputs</strong></td>
</tr>
<tr>
<td><strong>Clusters</strong></td>
</tr>
</tbody>
</table>

Table 5 orates two clusters which is drawn from 8 inputs viz. Travel Pattern, Purpose of Visit, Mode of Travel, Average Spending, Stay Arrangement, Source to know the destination and Frequency of visit One input is reduced in this analysis since the tourists have not preferred to stay at site. Two clusters are obtained and the cluster quality reflects poor.
The size of largest cluster is 70.3% and the ratio between two clusters is 2.36.

Table 6: Distribution of Input Importance within the clusters at Wai based on Behaviouristic Segmentation

<table>
<thead>
<tr>
<th>Cluster Label</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>70.3% (26)</td>
<td>29.7% (11)</td>
</tr>
<tr>
<td>Inputs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A3: Travel Pattern</td>
<td>4 (61.5%)</td>
<td>1 (27.3%)</td>
</tr>
<tr>
<td>A4: Purpose of Visit</td>
<td>2 (53.8%)</td>
<td>2 (63.6%)</td>
</tr>
<tr>
<td>A5: Mode of Travel</td>
<td>2 (65.4%)</td>
<td>3 (72.7%)</td>
</tr>
<tr>
<td>A6: Length of Stay</td>
<td>2 (65.4%)</td>
<td>1 (63.6%)</td>
</tr>
<tr>
<td>A7: Average Spending</td>
<td>8 (30.2%)</td>
<td>4 (30.4%)</td>
</tr>
<tr>
<td>A9: Stay Arrangement</td>
<td>7 (55.4%)</td>
<td>6 (54.6%)</td>
</tr>
<tr>
<td>A10: Source to Know the destination</td>
<td>2 (55.4%)</td>
<td>2 (72.7%)</td>
</tr>
<tr>
<td>A11: Frequency of visit</td>
<td>5 (38.5%)</td>
<td>5 (38.5%)</td>
</tr>
</tbody>
</table>

** (A3: Travel Pattern, A4: Purpose of Visit; A5: Mode of Travel; A6: Length of Stay; A7: Average Spending; A9: Stay Arrangement; A10 Source to Know the destination and A11 stands for Frequency of visit.)

From above table Mode of travel, length of stay and travel pattern is showing more importance whereas stay arrangement and frequency of visit least important for segmentation. Mode of travel is used personal car and day visits is common and family tourist are more compared group at pilgrimage site. Thus, tourist who visit pilgrimage site of Satara district with family and by personal car but preferred day visit rather than stay.
At Aundh

**Table 7: ANOVA for Aundh**

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Variable</th>
<th>Cluster Mean Square</th>
<th>df</th>
<th>Error Mean Square</th>
<th>df</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gender</td>
<td>.555</td>
<td>2</td>
<td>.235</td>
<td>27</td>
<td>2.356</td>
<td>.114</td>
</tr>
<tr>
<td>2</td>
<td>Age group</td>
<td>10.333</td>
<td>2</td>
<td>1.407</td>
<td>27</td>
<td>7.342</td>
<td>.003</td>
</tr>
<tr>
<td>3</td>
<td>Occupation</td>
<td>308.733</td>
<td>2</td>
<td>.963</td>
<td>27</td>
<td>320.608</td>
<td>.000</td>
</tr>
</tbody>
</table>

Above table depicts that ‘F’ statistics is significant with age group and occupation variable and not significant with gender since the convenient sampling technique. It shows that there is significant difference into the samples belongs to different clusters with respect to age group and occupation. Test is significant which shows there is difference in the demographic variable so it shows that there is enough evidence to reject the null hypothesis at 0.05 levels.

**Demographic Segmentation** by considering gender, age group and occupation the summery is depicted as follows.

**Table 8: Cluster Summery and Cluster Quality Scale at Aundh based on Demographic Segmentation**

**Model Summary**

- Algorithm: TwoStep
- Inputs: 3
- Clusters: 2

**Cluster Quality**

- Silhouette measure of cohesion and separation

Table 8 represents two clusters drawn from three inputs of demographic variable age, occupation and gender. The scale depicts cluster quality is slight fair enough and not good.

**Cluster Sizes**

- Size of Smallest Cluster: 14 (46.7%)
- Size of Largest Cluster: 16 (53.3%)
- Ratio of Sizes: Largest Cluster to Smallest Cluster: 1.14

**Fig.3: Distribution of Cluster Sizes at Aundh based on Demographic Segmentation**

From the above figure two clusters are sorted, largest cluster size is 53.3% and ratio between largest and smallest is 1.14.
Table 9 reveals 55 and above age group represent high importance followed by occupation unskilled worker whereas gender carries least.

**Behaviouristic Segmentation**

Table 10: Distribution of Cluster Summary and Cluster Quality Scale at Aundh based on Behaviouristic Segmentation

Table 10 shows the 3 clusters which is drawn from 8 inputs viz. Travel Pattern, Purpose of Visit, Mode of Travel, Length of Stay, Average Spending, Stay Arrangement, Source to know the destination and Frequency of visit Thus, 3 clusters could be sorted out from behavioural segmentation at Aundh and scale shows that the cluster quality is quite fair.
From above figure largest cluster size is 60% and the 3 clusters are drawn and ratio between largest and smallest cluster is 4.60.

Table 11: Distribution of Input Importance within the Clusters at Aundh based on Behaviouristic Segmentation

<table>
<thead>
<tr>
<th>Clusters</th>
<th>Input (Predictor) Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cluster</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label</td>
<td>1.0</td>
<td>0.8</td>
<td>0.6</td>
</tr>
<tr>
<td>Description</td>
<td></td>
<td>26.7%</td>
<td>13.3%</td>
</tr>
<tr>
<td>Size</td>
<td>60.0%</td>
<td>26.7%</td>
<td>13.3%</td>
</tr>
<tr>
<td>Inputs</td>
<td>2A5</td>
<td>2A5</td>
<td>2A6</td>
</tr>
<tr>
<td></td>
<td>4 (100.0%)</td>
<td>4 (100.0%)</td>
<td>5 (100.0%)</td>
</tr>
<tr>
<td></td>
<td>2A3</td>
<td>2A3</td>
<td>2A3</td>
</tr>
<tr>
<td></td>
<td>2 (100.0%)</td>
<td>3 (75.0%)</td>
<td>3 (100.0%)</td>
</tr>
<tr>
<td></td>
<td>2A11</td>
<td>2A11</td>
<td>2A11</td>
</tr>
<tr>
<td></td>
<td>2 (68.9%)</td>
<td>2 (100.0%)</td>
<td>1 (100.0%)</td>
</tr>
<tr>
<td></td>
<td>2A4</td>
<td>2A4</td>
<td>2A4</td>
</tr>
<tr>
<td></td>
<td>5 (100.0%)</td>
<td>5 (75.0%)</td>
<td>5 (50.0%)</td>
</tr>
<tr>
<td></td>
<td>2A7</td>
<td>2A7</td>
<td>2A7</td>
</tr>
<tr>
<td></td>
<td>2 (68.9%)</td>
<td>2 (50.0%)</td>
<td>1 (100.0%)</td>
</tr>
<tr>
<td></td>
<td>2A10</td>
<td>2A10</td>
<td>2A10</td>
</tr>
<tr>
<td></td>
<td>7 (88.9%)</td>
<td>7 (75.0%)</td>
<td>7 (100.0%)</td>
</tr>
<tr>
<td></td>
<td>2A6</td>
<td>2A9</td>
<td>2A9</td>
</tr>
<tr>
<td></td>
<td>5 (100.0%)</td>
<td>5 (100.0%)</td>
<td>5 (100.0%)</td>
</tr>
</tbody>
</table>

** (A3: Travel Pattern, A4: Purpose of Visit; A5: Mode of Travel; A6: Length of Stay; A7: Average Spending; A9: Stay Arrangement; A10 Source to Know the destination and A11 stands for Frequency of visit.)

From above table travel pattern and mode of travel shows most importance whereas the stay arrangement and length of stay shows least importance since tourist made day visit.

**At Sajjangarh**

Table 12: ANOVA for Sajjangarh

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Variable</th>
<th>Clusters</th>
<th>Error</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean Square</td>
<td>df</td>
<td>Mean Square</td>
<td>df</td>
</tr>
<tr>
<td>1</td>
<td>Gender</td>
<td>.561</td>
<td>3</td>
<td>.192</td>
<td>26</td>
</tr>
<tr>
<td>2</td>
<td>Age group</td>
<td>7.325</td>
<td>3</td>
<td>.955</td>
<td>26</td>
</tr>
<tr>
<td>3</td>
<td>Occupation</td>
<td>116.243</td>
<td>3</td>
<td>.874</td>
<td>26</td>
</tr>
</tbody>
</table>

Table 12 shows that ‘F’ statistics is significant with age group and occupation variable and not significant with gender. It shows that there is significant difference into the samples belongs to different clusters with respect to age group and occupation. It shows that there is enough evidence to reject the null hypothesis and accept alternative hypotheses at 0.01 levels in case of two variables age group and occupation.
Demographic Segmentation:

Table 13: Cluster Summary with Cluster Quality Scale at Sajjangarh Based on Demographic Segmentation

Table 13 reveals two clusters from three inputs viz. gender, age group and occupation. Thus from summary two clusters are sorted out and scale depicts cluster quality fair.

Figure 5 represents two clusters are drawn and largest cluster size is 70% and ratio between largest and smallest cluster is 2.33.

Table 14: Input Importance within the Clusters at Sajjangarh Based on Demographic Segmentation
Table 14 represents occupation officer/executive junior carry more importance in segments compared to other two variables age group 35-45 male.

**Behaviouristic Segmentation:**

*Table 15: Cluster Summery with Cluster Quality Scale at Sajjangarh Based on Behaviouristic Segmentation*

Table 15 represents two clusters from 8 inputs viz. Travel Pattern, Purpose of Visit, Mode of Travel, Length of Stay, Average Spending, Stay Arrangement, Source to know the destination and Frequency of visit. Thus, data depicts that two clusters shows fair quality in behavioural segmentation.

*Fig.6: Distribution of Cluster Size at Sajjangarh Based on Behaviouristic Segmentation*

From the figure 6 largest cluster size is 86.7% between 2 sorted clusters and ratio is 6.50.

*Table 16: Distribution of Importance of Input within the Clusters at Sajjangarh Based on Behaviouristic Segmentation*
From the table 16, length of stay i.e., day visitors are more, average spending less than Rs. 500 and stay arrangement not required depicts high importance compared to the rest of variables in tourist pattern.

III. CONCLUSION

To conclude majority sample tourists are from other than Maharashtra, preferred personal car with their family to visit. Day visits and repeats visitors found more. There is significant difference in the demographic variables available in sample data. Based on demographic variables, two clusters found each at Wai, Sajjangarh and Aundh, and based on behavioural pattern 2 each at Sajjangarh, Wai, 3 at Aundh. The demographic based scale of cluster quality is just fair and behavioural point of view it is poor at Wai.

REFERENCES