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Need identification and sensitivity analysis of consumers using Bayesian Network: A case of Fuji Shopping Street Town

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Abstract

Shopping streets at local city in Japan became old and are generally declining. In this paper, we handle the area rebirth and/or regional revitalization of shopping street. We focus on Fuji city in Japan. Four big festivals are held at Fuji city. Many people visit these festivals including residents in that area. Therefore a questionnaire investigation to the residents and visitors is conducted during these periods in order to clarify residents and visitors' needs for the shopping street, and utilize them to the plan building of the area rebirth and/or regional revitalization of shopping street. There is a big difference between Fuji Shopping Street and Yoshiwara Shopping Street. Therefore we focus Fuji Shopping Street in this paper. These are analyzed by using Bayesian Network. Sensitivity analysis is also conducted. As there are so many items, we focus on "The image of the surrounding area at this shopping street" and pick up former half and make sensitivity analysis in this paper. The analysis utilizing Bayesian Network enabled us to visualize the causal relationship among items. Furthermore, sensitivity analysis brought us estimating and predicting the prospective visitors. Sensitivity analysis is performed by back propagation method. These are utilized for constructing a much more effective and useful plan building. We have obtained fruitful results. To confirm the findings by utilizing the new consecutive visiting records would be the future works to be investigated.

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1 Introduction

Shopping streets at local city in Japan are generally declining. It is because most of them were built in the so-called “High Growth Period (1954-1973)”. Therefore they became old and area rebirth and/or regional revitalization are required everywhere.

There are many papers published concerning area rebirth or regional revitalization. Inoue (2017) has pointed out the importance of tourism promotion. Ingu et al.(2017) developed the project of shutter art to Wakkanai Chuo shopping street in Hokkaido, Japan. Ohkubo (2017) has made a questionnaire research at Jigenji shopping street in Kagoshima Prefecture, Japan and analyzed the current condition and future issues. For about tourism, many papers are presented from many aspects as follows.

Yoshida et al. designed and conducted a visitor survey on the spot, which used a questionnaire to investigate the activities of visitors to the Ueno district in Taito ward, Tokyo. Doi et al. analyzed the image of the Izu Peninsula as a tourist destination in their 2003 study “Questionnaire Survey on the Izu Peninsula.” Kano conducted tourist behavior studies in Atami city in 2008, 2009, 2014 and in other years.

In this paper, we handle the area rebirth and/or regional revitalization of shopping street. We focus on Fuji city in Japan. Fuji city is located in Shizuoka Prefecture. Mt. Fuji is very famous all around the world and we can see its beautiful scenery from Fuji city, which is at the foot of Mt. Fuji. There are two big shopping street in Fuji city. One is Yoshiwara shopping street and another one is Fuji shopping street. They became old and building area rebirth and regional revitalization plan have started. Following investigation was conducted by the joint research group (Fuji Chamber of Commerce & Industry, Fujisan Area Management Company, Katsumata Maruyama Architects, Kougakuin University and Tokoha University). The main project activities are as follows.

A. Investigation on the assets which are not in active use
B. Questionnaire Investigation to Entrepreneur
C. Questionnaire Investigation to the residents and visitors

After that, area rebirth and regional revitalization plan were built.

In this paper, we handle above stated C.

Four big festivals are held at Fuji city. Two big festivals are held at Yoshiwara shopping

street and two big festivals at Fuji shopping street.
At Yoshiwara Shopping Street, Yoshiwara Gion Festival is carried out during June and Yoshiwara Shukuba (post-town) Festival is held during October. On the other hand, Kinoene Summer Festival is conducted during August and Kinoene Autumn Festival is performed during October at Fuji Shopping Street. Many people visit these festivals including residents in that area.
Therefore questionnaire investigation of C is conducted during these periods.
Finally, we have obtained 982 sheets (Yoshiwara district: 448, Fuji district: 534).
Basic statistical analysis and Bayesian Network analysis are executed based on that.
In this paper, a questionnaire investigation is executed in order to clarify residents and visitors' needs for the shopping street, and utilize them to the plan building of the area rebirth and/or regional revitalization of shopping street. There is a big difference between Fuji Shopping Street and Yoshiwara Shopping Street. Therefore we focus Fuji Shopping Street in this paper. These are analyzed by using Bayesian Network. Sensitivity analysis is also conducted. As there are so many items, we focus on "The image of the surrounding area at this shopping street" and pick up former half and make sensitivity analysis in this paper. By that model, the causal relationship is sequentially chained by the characteristics of visitors, the purpose of visiting and the image of the surrounding area at this shopping street. The analysis utilizing Bayesian Network enabled us to visualize the causal relationship among items. Furthermore, sensitivity analysis brought us estimating and predicting the prospective visitors. Sensitivity analysis was conducted by back propagation method.
Some interesting and instructive results are obtained.

The rest of the paper is organized as follows. Outline of questionnaire investigation is stated in section 2. In section 3, Bayesian Network analysis is executed which is followed by the sensitivity analysis in section 4. Remarks is stated in section 5.

2 Outline and the Basic Statistical Results of the Questionnaire Research

2.1 Outline of the Questionnaire Research

A questionnaire investigation to the residents and visitors is conducted during these periods in order to clarify residents and visitors' needs for the shopping street and utilize them to the plan building of the area rebirth and/or regional revitalization of shopping street. The outline of questionnaire research is as follows. Questionnaire sheet is attached in Appendix 1.

(1)	Scope of investigation	:	Residents and visitors who have visited four big festivals at Fuji city in Shizuoka Prefecture, Japan
(2)	Period	:	Yoshiwara Gion Festival: June 11,12/2016 Yoshiwara Shukuba (post-town) Festival: October 9/2016 Kinoene Summer Festival: August 6,7/2016 Kinoene Autumn Festival: October 15,16/2016
(3)	Method	:	Local site, Dispatch sheet, Self writing
(4)	Collection	:	Number of distribution 1400 Number of collection 982(collection rate 70.1%) Valid answer 982

2.2 Basic Statistical Results

Now, we show the main summary results by single variable.

2.2.1 Characteristics of answers

(1) Sex (Q7)

Male 43.3%, Female 56.7%

These are exhibited in Figure 1.

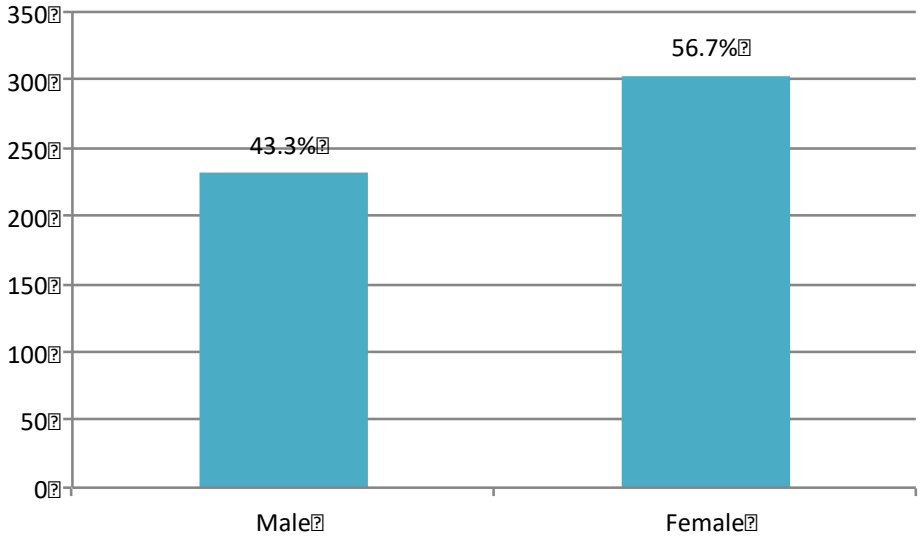

Figure 1: Sex (Q7)

(2) Age (Q8)

10^{th} 20.6%, 20^{th} 16.7%, 30^{th} 25.3%, 40^{th} 17.0%, 50^{th} 10.1%, 60^{th} 6.9%, More than 70 3.4%

These are exhibited in Figure 2.

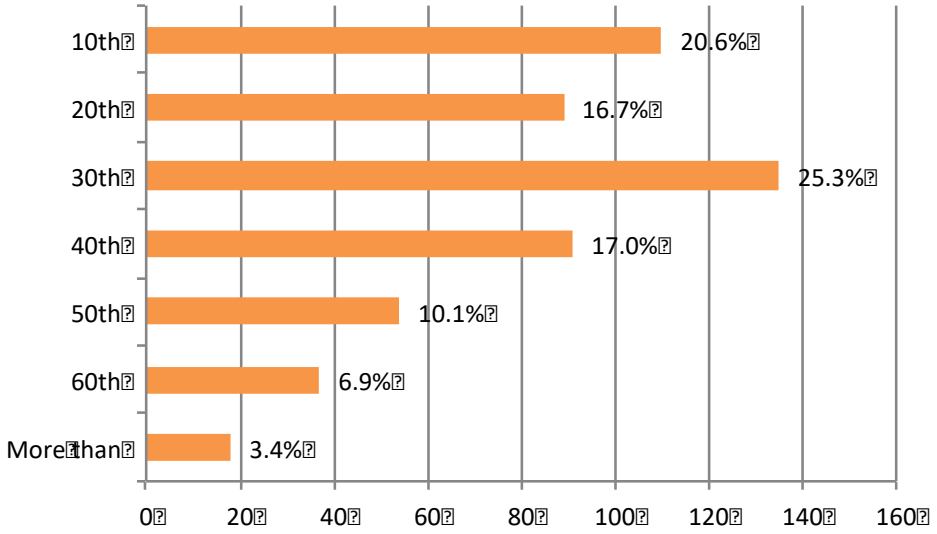

Figure 2: Age (Q8)

(3) Residence (Q9)

a. Fuji city 82.8%, b. Fujinomiya city 8.8%, c. Numazu city 2.1%, d. Mishima city 0.7%, e. Shizuoka city 0.9%, F. Else (in Shizuoka Prefecture) 2.1%, g. Outside of Shizuoka Prefecture 2.6%

These are exhibited in Figure 3.

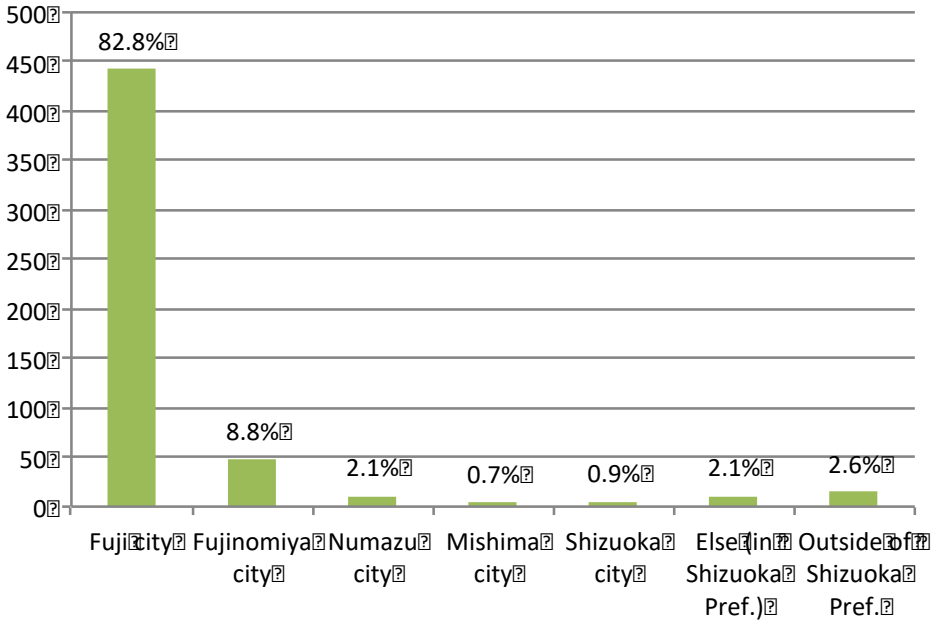

Figure 3: Residence (Q9)

(4) How often do you come to this shopping street? (Q1)

Everyday 21.2%, More than 1 time a week 17.2%, More than 1 time a month 22.7%, More than 1 time a year 26.8%, First time 3.0%, Not filled in 4.1%

These are exhibited in Figure 4.

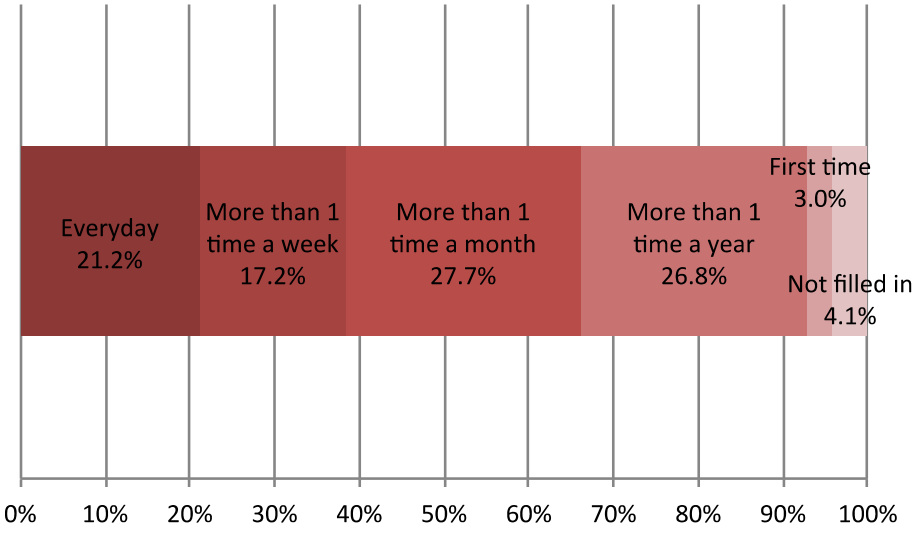

Figure 4: How often do you come to this shopping street? (Q1)

(5) What is the purpose of visiting here? (Q2)

Shopping 17.2%, Eating and drinking 13.6%, Business 7.4%, Celebration, event 34.1%, Leisure, amusement 6.1%, miscellaneous 21.6%

These are exhibited in Figure 5.

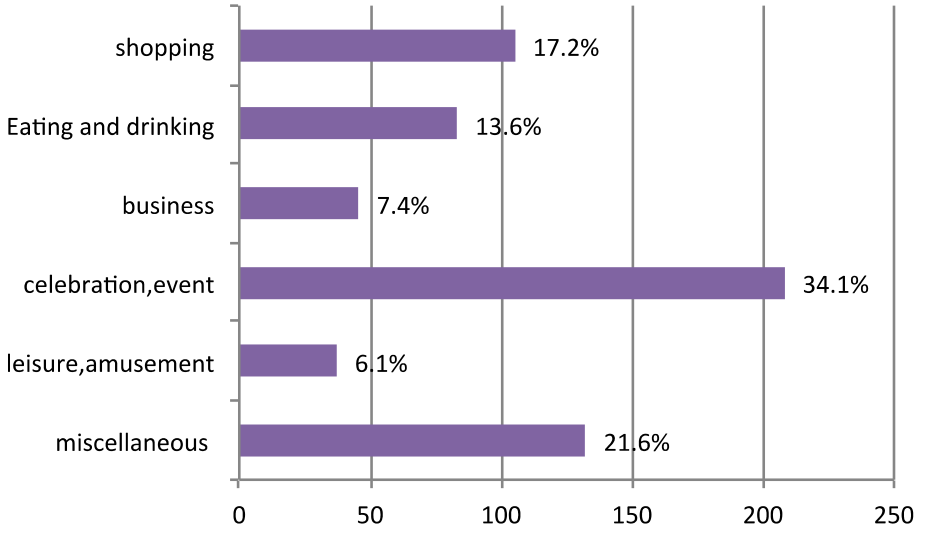

Figure 5: What is the purpose of visiting here? (Q2)

(6) How do you feel about the image of the surrounding area at this shopping street? (Q3)

Beautiful 51.2%, Ugly 48.8%, Of the united feeling there is 44.3%, Scattered 55.7%,

Varied 38.5%, Featureless 61.5%, New 37.1%, Historic 62.9%, Full of nature 37.1%, Urban 62.9%,
Cheerful 44.1%, Gloomy 55.9%, Individualistic 42.0%, Conventional 58.0%, Friendly 57.8%,
Unfriendly 42.2%, Healed 53.3%, Stimulated 46.7%, Open 44.8%, exclusive 55.2%, Want to reside 43.6%,
Do not want to reside 56.4%, Warm 55.1%, Aloof 44.9%, Fascinating 42.1%, Not fascinating 57.9%,
Want to play 47.1%, Want to examine deliberately 52.9%, Lively 36.8%, Calm 63.2%,
Atmosphere of urban 28.0%, Atmosphere of rural area 72.0%
These are exhibited in Figure 6.

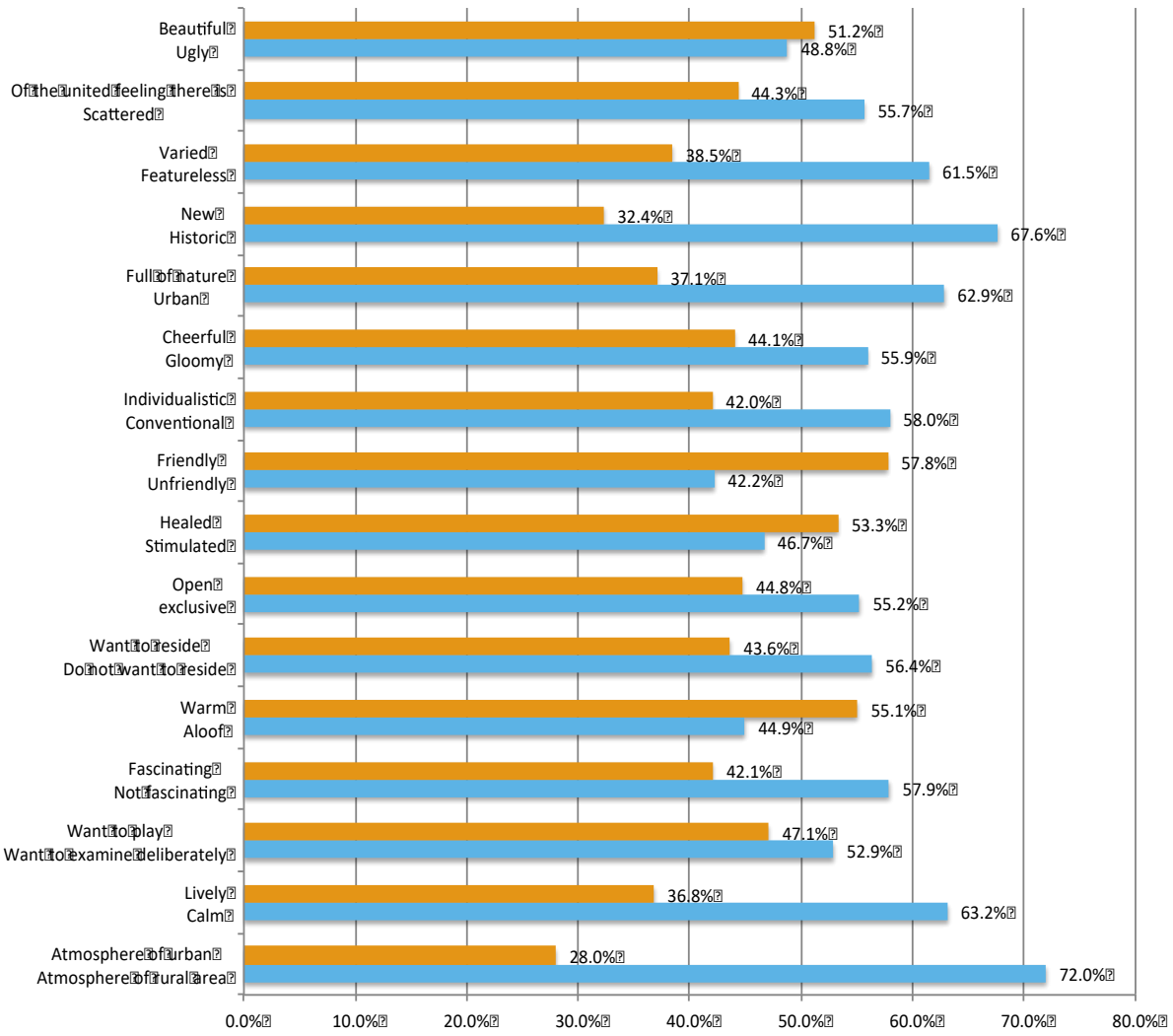

Figure 6: How do you feel about the image of the surrounding area at this shopping street? (Q3)

(7) There are many old buildings at the age of nearly 50 years. Do you think we can still use them? (Q4)

. Can use it 48.7%, Cannot use it 29.2%, Have no idea 22.1%

These are exhibited in Figure 7.

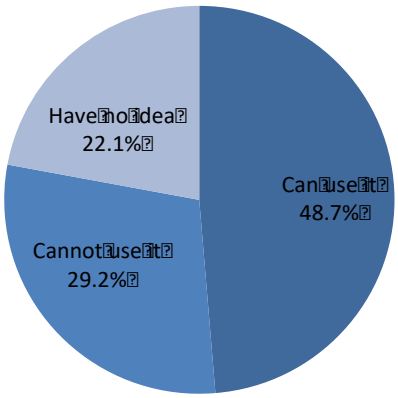

Figure 7: There are many old buildings at the age of nearly 50 years. Do you think we can still use them? (Q4)

3 Bayesian Network Analysis

In constructing Bayesian Network, it is required to check the causal relationship among groups of items.

Based on this, a model is built as is shown in Figure 8.

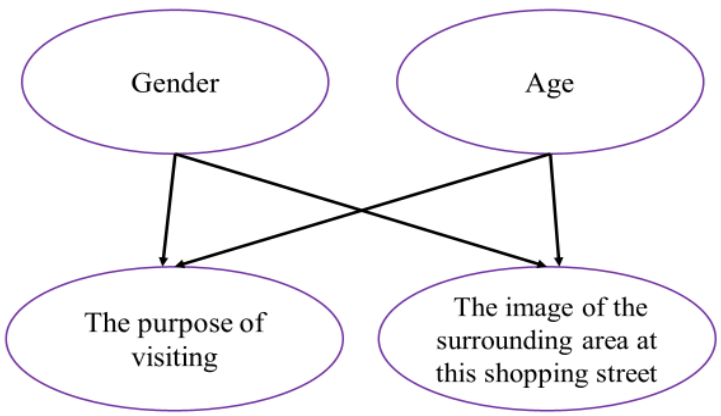

Figure 8: A Built Model

We used BAYONET software (http://www.msi.co.jp/BAYONET/). When plural nodes exist in the same group, it occurs that causal relationship is hard to set a priori. In that case, BAYONET system set the sequence automatically utilizing AIC standard. Node and parameter of Figure 8 are exhibited in Table 1.

Table 1: Node and Parameter

Node	Parameter									
	1	2	3	4	5	6	7	8	9	10
Gender	Male	Female								
Age	10th	20th	30th	40th	50th	60th	More than 70			
The purpose of visiting	Shopping	Eating and drinking	Business	Celebration、event	Leisure, amusement	miscellaneous				
The image of the surrounding area at this shopping street	Beautiful	Ugly	Of the united feeling there is	Scattered	Varied	Featureless	New	Historic	Full of nature	Urban

Node	Parameter									
	11	12	13	14	15	16	17	18	19	20
The image of the surrounding area at this shopping street	Cheerful	Gloomy	Individualistic	Conventional	Friendly	Unfriendly	Healed	Stimulated	Open	Exclusive

Node	Parameter									
	21	22	23	24	25	26	27	28	29	30
The image of the surrounding area at this shopping street	Want to reside	Do not want to reside	Warm	Alo of	Fascinating	Not fascinating	Want to play	Want to examine deliberately	Lively	Calm

Node	Parameter	
	31	32
The image of the surrounding area at this shopping street	Atmosphere of urban	Atmosphere of rural area

In the next section, sensitivity analysis is achieved by back propagation method. Back propagation method is conducted in the following method (Figure 9).

$$Pr(X = x) = \alpha\lambda(x)\pi(x)$$
$$\pi(x) = \sum_{u} P(x|U = u)\prod_{U_i} \pi_{U_i X}(u)$$
$$\lambda(x) = \prod_{Y_j} \lambda_{Y_j X}(x)$$
$$\pi_{XY_j}(x) = \pi(x)\prod_{k \neq j} \lambda_{Y_k X}(x)$$
$$\lambda_{XU_i}(u) = \sum_{x} \lambda(x) \sum_{k \neq i} P(x|U)\prod_{k \neq i} \pi_{U_k X}(u_k)$$

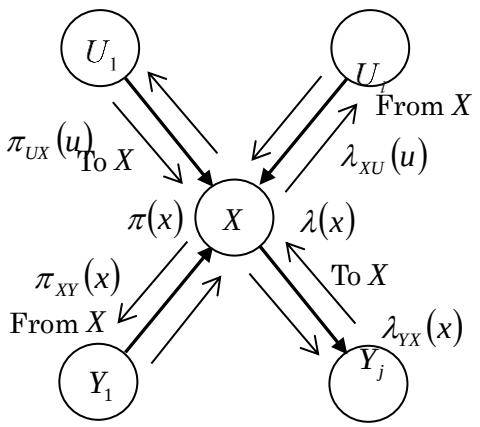

Figure 9: Back propagation method (Takeyasu et al., 2010)

4 Sensitivity Analysis

Now, posterior probability is calculated by setting evidence as, for example, 1.0. Comparing Prior probability and Posterior probability, we can seek the change and confirm the preference or image of the surrounding area at this shopping street. We set evidence to all parameters. Therefore the analysis volume becomes too large. In this paper, we focus on "The image of the surrounding area at this shopping street" and pick up former half and make sensitivity analysis. We prepare another paper for the rest of them.

As stated above, we set evidence for each parameter, and the calculated posterior probability is exhibited in Appendix 2. The value of "Posterior probability – Prior probability" (we call this "Difference of probability" hereafter) is exhibited in Appendix 3. The sensitivity analysis is executed by mainly using this table.

Here, we classify each item by the strength of the difference of probability.

・Strong (++,－－): Select major parameter of which absolute value of difference of probability is more than 0.05

・Medium (+,－): Select major parameter of which absolute value of difference of probability is more than 0.01

・Weak: Else

In selecting items, negative value does not necessarily have distinct meaning, therefore we mainly pick up positive value in the case meaning is not clear.

Now we examine each for Strong and Medium case.

4.1 Sensitively Analysis for "The image of the surrounding area at this shopping street"

(1) Setting evidence to "Beautiful"

After setting evidence to "Beautiful", the result is exhibited in Table 2.

Table 2: Setting evidence to "Beautiful" case

Eating and drinking	－
Business	－
Celebration、event	－
Scattered	－
Full of nature	＋
Cheerful	＋
Individualistic	＋
Friendly	＋
Open	＋
Exclusive	－
Warm	＋

Aloof	−
Fascinating	+
Want to play	+
Lively	+
Male	−
Female	+
Age: 10th	++
Age: 20th	+
Age: 30th	+
Age: 40th	−
Age: 50th	−
Age: 60th	−

We can observe that “Those who have an image of the surrounding area at this shopping street as “Beautiful” had come under the image of the surrounding area at this shopping street as “Full of nature”, “Cheerful”, “Individualistic”, “Friendly”, “Open”, “Warm”, “Fascinating”, “Want to play” or “Lively” of an age of “**10th**”,”20th“ or “30th” in which the gender is “Female”.

(Strong part is indicated by bold font.)

(2) Setting evidence to “Ugly”

After setting evidence to “Ugly”, the result is exhibited in Table 3.

Table 3: Setting evidence to “Ugly” case

Open	−
Want to play	−
Age: 10th	−
Age: 20th	−−
Age: 30th	−
Age: 50th	++
Age: 60th	−−
Age: More than 70	+

We can observe that “Those who have an image of the surrounding area at this shopping street as “Ugly” had come by an age of “**50th**“ or ” More than 70 “.

(3) Setting evidence to “Of the united feeling there is”

After setting evidence to “Of the united feeling there is”, the result is exhibited in Table 4.

Table 4: Setting evidence to “Of the united feeling there is” case

Eating and drinking	−
Business	−
Celebration、event	−
Cheerful	＋
Individualistic	＋
Conventional	−
Friendly	＋
Unfriendly	−
Open	＋
Exclusive	−
Want to reside	＋
Warm	＋
Aloof	−
Fascinating	＋
Want to play	＋
Lively	＋
Age: 10th	＋＋
Age: 30th	＋
Age: 40th	−
Age: 50th	＋
Age: 60th	−−
Age: More than 70	＋＋

We can observe that “Those who have an image of the surrounding area at this shopping street as “Of the united feeling there is” had come under the image of the surrounding area at this shopping street as “Cheerful”, “Individualistic”, “Friendly”,, “Open”, “Want to reside”, “Warm”, “Fascinating”, “Want to play” or “Lively” of an age of “**10th**”,”30th“, “50th” or “**More than 70**”.

(4) Setting evidence to “Scattered”

After setting evidence to “Scattered”, the result is exhibited in Table 5.

Table 5: Setting evidence to “Scattered” case

Eating and drinking	+
Business	+
Celebration、event	+
Beautiful	−
Ugly	+
Varied	−
Featureless	+
Full of nature	−
Cheerful	−
Gloomy	+
Individualistic	−
Conventional	+
Friendly	−
Unfriendly	+
Healed	−
Stimulated	+
Open	−
Exclusive	+
Want to reside	−
Do not want to reside	+
Warm	−
Aloof	+
Fascinating	−
Not fascinating	+
Want to play	−
Lively	−
Calm	+
Age: 10th	−−
Age: 20th	−−
Age: 40th	++
Age: 50th	++
Age: 60th	++
Age: More than 70	+

We can observe that “Those who have an image of the surrounding area at this shopping street as “Scattered” had come with the purpose of visiting for “Eating and drinking”, “Business” or “Celebration、event” under the image of the surrounding area at this shopping street as “Ugly”, “Featureless”, “Gloomy”, “Conventional”, “Unfriendly”, “Stimulated”, “Exclusive”, “Do not want to reside”, “Aloof”, “Not fascinating” or “Calm” of an age of “**40th**”,”**50th**“, “**60th**” or “More than 70”.

(5) Setting evidence to “Varied”
After setting evidence to “Varied”, the result is exhibited in Table 6.

Table 6: Setting evidence to “Varied” case

Individualistic	＋
Age: 10th	＋＋
Age: 20th	－
Age: 40th	－
Age: 50th	＋
Age: 60th	－－
Age: More than 70	－－

We can observe that “Those who have an image of the surrounding area at this shopping street as “Varied” had come under the image of the surrounding area at this shopping street as “Individualistic” of an age of “**10th**” or “50th”.

(6) Setting Evidence to “Featureless”
After setting evidence to “Featureless”, the result is exhibited in Table 7.

Table 7: Setting evidence to “Featureless” case

Leisure, amusement	＋
Scattered	＋
Cheerful	－
Unfriendly	＋
Healed	－
Stimulated	＋
Open	－
Exclusive	＋
Fascinating	－

Want to play	−
Lively	−
Age: 10th	−
Age: 20th	−−
Age: 40th	+
Age: 50th	++
Age: 60th	++
Age: More than 70	+

We can observe that “Those who have an image of the surrounding area at this shopping street as “Featureless” had come with the purpose of visiting for “Leisure, amusement” under the image of the surrounding area at this shopping street as “Scattered”, “Unfriendly”, “Stimulated” or “Exclusive” of an age of “40th”,”**50th**“, “**60th**” or “More than 70”.

(7) Setting Evidence to “New”
After setting evidence to “New”, the result is exhibited in Table 8.

Table 8: Setting evidence to “New” case

Male	−
Female	+
Age: 10th	−
Age: 20th	+
Age: 40th	+
Age: 50th	−
Age: 60th	+

We can observe that “Those who have an image of the surrounding area at this shopping street as “New” had come by an age of ”20th“, “40th” or “60th” in which the gender is “Female”.

(8) Setting evidence to “Historic”
After setting evidence to “Historic”, the result is exhibited in Table 9.

Table 9: Setting evidence to “Historic” case

Male	−
Female	＋
Age: 20th	−
Age: 30th	＋
Age: 40th	−
Age: 50th	＋
Age: 60th	−−
Age: More than 70	−−

We can observe that “Those who have an image of the surrounding area at this shopping street as “Historic” had come by an age of “30th” or “50th” in which the gender is “Female”.

(9) Setting evidence to “Full of nature”
After setting evidence to “Full of nature”, the result is exhibited in Table 10.

Table 10: Setting evidence to “Full of nature” case

Eating and drinking	−
Business	−
Celebration、event	−
Leisure, amusement	＋
Beautiful	＋
Cheerful	＋
Individualistic	＋
Conventional	−
Friendly	＋
Open	＋
Exclusive	−
Warm	＋
Fascinating	＋
Want to play	＋
Lively	＋
Male	−
Female	＋
Age: 10th	＋＋

Age: 20th	＋
Age: 40th	－－
Age: 50th	－
Age: 60th	－
Age: More than 70	＋＋

We can observe that “Those who have an image of the surrounding area at this shopping street as “Full of nature” had come with the purpose of visiting for “Leisure, amusement” under the image of the surrounding area at this shopping street as “Beautiful”, “Cheerful”, “Individualistic”, “Friendly”, “Open”, “Warm”, “Fascinating”, “Want to play” or “Lively” of an age of “**10th**”, ”20th“ or “**More than 70**” in which the gender is “Female”.

(10) Setting evidence to “Urban”
After setting evidence to “Urban”, the result is exhibited in Table 11.

Table 11: Setting evidence to “Urban” case

Age: 10th	＋
Age: 20th	－
Age: 30th	－
Age: 40th	－
Age: 50th	＋
Age: 60th	＋＋
Age: More than 70	－

We can observe that “Those who have an image of the surrounding area at this shopping street as “Urban” had come by an age of “10th”, “50th” or ”**60th**“.

(11) Setting evidence to “Cheerful”
After setting evidence to “Cheerful”, the result is exhibited in Table 12.

Table 12: Setting evidence to “Cheerful” case

Celebration、event	－
Leisure, amusement	－
Of the united feeling there is	＋
Scattered	－
Varied	＋

Individualistic	＋
Conventional	－
Friendly	＋
Unfriendly	－
Healed	＋
Open	＋
Exclusive	－
Want to reside	＋
Warm	＋
Aloof	－
Fascinating	＋
Not fascinating	－
Want to play	＋
Lively	＋
Male	－
Female	＋
Age: 10th	＋＋
Age: 20th	＋＋
Age: 30th	＋
Age: 40th	＋
Age: 50th	－－
Age: 60th	－－
Age: More than 70	－－

We can observe that “Those who have an image of the surrounding area at this shopping street as “Cheerful” had come under the image of the surrounding area at this shopping street as “Of the united feeling there is”, “Varied”, “Individualistic”, “Friendly”, “Healed”, “Want to reside”, “Warm”, “Fascinating”, “Want to play” or “Lively” of an age of “**10th**” or ”**20th**“, “30th” or “40th” in which the gender is “Female”.

(12) Setting evidence to “Gloomy”
After setting evidence to “Gloomy”, the result is exhibited in Table 13.

Table 13: Setting evidence to “Gloomy” case

Eating and drinking	＋
Business	＋
Celebration、event	＋
Beautiful	－
Of the united feeling there is	－
Scattered	＋
Varied	－
Individualistic	－
Conventional	＋
Friendly	－
Unfriendly	＋
Healed	－
Stimulated	＋
Open	－
Exclusive	＋
Warm	－
Aloof	＋
Fascinating	－
Not fascinating	＋
Want to play	－
Lively	－
Male	＋
Female	－
Age: 10th	－－
Age: 20th	－
Age: 30th	－
Age: 40th	＋
Age: 50th	＋＋
Age: 60th	＋＋
Age: More than 70	＋＋

We can observe that “Those who have an image of the surrounding area at this shopping street as “Gloomy” had come with the purpose of visiting for“Eating and drinking”, “Business” or “Celebration、event” under the image of the surrounding area at this shopping street as “Scattered”, “Conventional”, “Unfriendly”, “Stimulated”, “Exclusive”,

“Aloof” or “Not fascinating” of an age of “40th”, “**50th**”, ”**60th**“ or “**More than 70**” in which the gender is “Male.

(13) Setting evidence to “Individualistic”
After setting evidence to “Individualistic”, the result is exhibited in Table 14.

Table 14: Setting evidence to “Individualistic” case

Eating and drinking	−
Business	−
Celebration、event	−
Of the united feeling there is	＋
Scattered	−
Varied	＋
New	−
Full of nature	＋
Cheerful	＋
Friendly	＋
Unfriendly	−
Healed	＋
Open	＋
Exclusive	−
Want to reside	＋
Warm	＋
Aloof	−
Fascinating	＋
Want to play	＋
Lively	＋
Male	−
Female	＋
Age: 10th	＋＋
Age: 20th	−
Age: 30th	−−
Age: 40th	−−
Age: 50th	＋
Age: 60th	−−
Age: More than 70	−−

We can observe that “Those who have an image of the surrounding area at this shopping street as “Individualistic” had come under the image of the surrounding area at this shopping street as “Of the united feeling there is”, “Varied”, “Full of nature”, “Cheerful”, “Friendly”, “Healed”, “Open”, “Want to reside”, “Warm”, “Fascinating”, “Want to play” or “Lively” of an age of “**10th**” or “50th” in which the gender is “Female”.

(14) Setting evidence to “Conventional”
After setting evidence to “Conventional”, the result is exhibited in Table 15.

Table 15: Setting evidence to “Conventional” case

Eating and drinking	＋
Business	＋
Celebration、event	＋
Beautiful	－
Of the united feeling there is	－
Scattered	＋
Varied	－
Full of nature	－
Cheerful	－
Gloomy	＋
Friendly	－
Unfriendly	＋
Healed	－
Stimulated	＋
Open	－
Exclusive	＋
Want to reside	－
Warm	－
Aloof	＋
Fascinating	－
Not fascinating	＋
Want to play	－
Lively	－
Male	＋
Female	－

Age: 10th	－－
Age: 20th	＋
Age: 30th	＋＋
Age: 40th	＋
Age: 50th	＋＋
Age: 60th	＋＋
Age: More than 70	＋

We can observe that “Those who have an image of the surrounding area at this shopping street as “Conventional” had come with the purpose of visiting for“Eating and drinking”, “Business” or “Celebration、event” under the image of the surrounding area at this shopping street as “Scattered”, “Gloomy”, “Unfriendly”, “Stimulated”, “Exclusive”, “Aloof” or “Not fascinating” of an age of “20th”, “**30th**”, “40th”, “**50th**”, ”**60th**“ or “More than 70” in which the gender is “Male”.

(15) Setting evidence to “Friendly”
After setting evidence to “Friendly”, the result is exhibited in Table 16.

Table 16: Setting evidence to “Friendly” case

Eating and drinking	－
Business	－
Celebration、event	－
Beautiful	＋
Of the united feeling there is	＋
Scattered	－
Varied	＋
New	－
Full of nature	＋
Cheerful	＋
Gloomy	－
Individualistic	＋
Conventional	－
Healed	＋
Stimulated	－
Open	＋
Exclusive	－

Want to reside	＋
Do not want to reside	－
Warm	＋
Aloof	－
Fascinating	＋
Not fascinating	－
Want to play	＋
Lively	＋
Calm	－
Male	－
Female	＋
Age: 10th	＋＋
Age: 20th	－
Age: 30th	－
Age: 40th	－－
Age: 50th	－
Age: 60th	－－
Age: More than 70	－－

We can observe that “Those who have an image of the surrounding area at this shopping street as “Friendly” had come under the image of the surrounding area at this shopping street as “Beautiful”, “Of the united feeling there is”, “Varied”, “Full of nature”, “Cheerful”, “Individualistic”, “Healed”, “Open”, “Want to reside”, “Warm”, “Fascinating”, “Want to play” or “Lively” of an age of “**10th**” in which the gender is “Female”.

(16) Setting evidence to “Unfriendly”
After setting evidence to “Unfriendly”, the result is exhibited in Table 17.

Table 17: Setting evidence to “Unfriendly” case

Leisure, amusement	＋
Of the united feeling there is	－
Scattered	＋
Varied	－
Cheerful	－
Individualistic	－

Conventional	＋
Healed	－
Stimulated	＋
Open	－
Exclusive	＋
Warm	－
Aloof	＋
Fascinating	－
Want to play	－
Lively	－
Age: 10th	－－
Age: 20th	－
Age: 30th	－
Age: 40th	＋
Age: 50th	＋＋
Age: 60th	＋＋
Age: More than 70	＋＋

We can observe that “Those who have an image of the surrounding area at this shopping street as “Unfriendly” had come with the purpose of visiting for “Leisure, amusement” under the image of the surrounding area at this shopping street as “Scattered”, “Conventional”, “Stimulated”, “Exclusive” or “Aloof” of an age of “40th”, “**50th**”, ”**60th**“ or “**More than 70**”.

5 Remarks

The Results for Bayesian Network Analysis are as follows.
In the Bayesian Network Analysis, model was built under the examination of the causal relationship among items. Sensitively Analysis was conducted after that. The main result of sensitively analysis is as follows.

We can observe that “Those who have an image of the surrounding area at this shopping street as “Beautiful” had come under the image of the surrounding area at this shopping street as “Full of nature”, “Cheerful”, “Individualistic”, “Friendly”, “Open”, “Warm”, “Fascinating”, “Want to play” or “Lively” of an age of “**10^{th}**”,”20^{th}“ or “30th” in which the gender is “Female”.

We can observe that “Those who have an image of the surrounding area at this shopping street as “Of the united feeling there is” had come under the image of the surrounding area at this shopping street as “Cheerful”, “Individualistic”, “Friendly”,, “Open”, “Want to reside”, “Warm”, “Fascinating”, “Want to play” or “Lively” of an age of “**10th**”,”30th“, “50th” or “**More than 70**”.

We can observe that “Those who have an image of the surrounding area at this shopping street as “Scattered” had come with the purpose of visiting for “Eating and drinking”, “Business” or “Celebration、event” under the image of the surrounding area at this shopping street as “Ugly”, “Featureless”, “Gloomy”, “Conventional”, “Unfriendly”, “Stimulated”, “Exclusive”, “Do not want to reside”, “Aloof”, “Not fascinating” or “Calm” of an age of “**40th**”,”**50th**“, “**60th**” or “More than 70”.

We can observe that “Those who have an image of the surrounding area at this shopping street as “Full of nature” had come with the purpose of visiting for “Leisure, amusement” under the image of the surrounding area at this shopping street as “Beautiful”, “Cheerful”, “Individualistic”, “Friendly”, “Open”, “Warm”, “Fascinating”, “Want to play” or “Lively” of an age of “**10th**”, ”20th“ or “**More than 70**” in which the gender is “Female”.

We can observe that “Those who have an image of the surrounding area at this shopping street as “Cheerful” had come under the image of the surrounding area at this shopping street as “Of the united feeling there is”, “Varied”, “Individualistic”, “Friendly”, “Healed”, “Want to reside”, “Warm”, “Fascinating”, “Want to play” or “Lively” of an age of “**10th**” or ”**20th**“, “30th” or “40th” in which the gender is “Female”.

We can observe that “Those who have an image of the surrounding area at this shopping street as “Gloomy” had come with the purpose of visiting for“Eating and drinking”, “Business” or “Celebration、event” under the image of the surrounding area at this shopping street as “Scattered”, “Conventional”, “Unfriendly”, “Stimulated”, “Exclusive”, “Aloof” or “Not fascinating” of an age of “40th”, “**50th**”, ”**60th**“ or “**More than 70**” in which the gender is “Male.

We can observe that “Those who have an image of the surrounding area at this shopping street as “Friendly” had come under the image of the surrounding area at this shopping street as “Beautiful”, “Of the united feeling there is”, “Varied”, “Full of nature”, “Cheerful”, “Individualistic”, “Healed”, “Open”, “Want to reside”, “Warm”,

“Fascinating”, “Want to play” or “Lively” of an age of “**10th**” in which the gender is “Female”.

6 Conclusion

Shopping streets at local city in Japan became old and are generally declining. In this paper, we handle the area rebirth and/or regional revitalization of shopping street. We focus on Fuji city in Japan. Four big festivals are held at Fuji city. There is a big difference between Fuji Shopping Street and Yoshiwara Shopping Street. Therefore we focus Fuji Shopping Street in this paper. Many people visit these festivals including residents in that area. Therefore a questionnaire investigation to the residents and visitors is conducted during these periods in order to clarify residents and visitors’ needs for the shopping street, and utilize them to the plan building of the area rebirth and/or regional revitalization of shopping street. These are analyzed by using Bayesian Network. Sensitivity analysis is also conducted. As there are so many items, we focus on “The image of the surrounding area at this shopping street” and pick up former half and make sensitivity analysis in this paper. By that model, the causal relationship is sequentially chained by the characteristics of visitors, the purpose of visiting and the image of the surrounding area at this shopping street.
The Results for Bayesian Network Analysis are as follows.
In the Bayesian Network Analysis, model was built under the examination of the causal relationship among items. Sensitively Analysis was conducted after that. The main result of sensitively analysis is as follows.

We can observe that “Those who have an image of the surrounding area at this shopping street as “Scattered” had come with the purpose of visiting for “Eating and drinking”, “Business” or “Celebration、event” under the image of the surrounding area at this shopping street as “Ugly”, “Featureless”, “Gloomy”, “Conventional”, “Unfriendly”, “Stimulated”, “Exclusive”, “Do not want to reside”, “Aloof”, “Not fascinating” or “Calm” of an age of “**40th**”,”**50th**“, “**60th**” or “More than 70”.

We can observe that “Those who have an image of the surrounding area at this shopping street as “Full of nature” had come with the purpose of visiting for “Leisure, amusement” under the image of the surrounding area at this shopping street as “Beautiful”, “Cheerful”, “Individualistic”, “Friendly”, “Open”, “Warm”, “Fascinating”, “Want to play” or “Lively” of an age of “**10th**”, ”20th“ or “**More than 70**” in which the gender is “Female”.

We can observe that “Those who have an image of the surrounding area at this shopping street as “Cheerful” had come under the image of the surrounding area at this shopping street as “Of the united feeling there is”, “Varied”, “Individualistic”, “Friendly”, “Healed”, “Want to reside”, “Warm”, “Fascinating”, “Want to play” or “Lively” of an age of “**10th**” or ”**20th**“, “30th” or “40th” in which the gender is “Female”.

We can observe that “Those who have an image of the surrounding area at this shopping street as “Friendly” had come under the image of the surrounding area at this shopping street as “Beautiful”, “Of the united feeling there is”, “Varied”, “Full of nature”, “Cheerful”, “Individualistic”, “Healed”, “Open”, “Want to reside”, “Warm”, “Fascinating”, “Want to play” or “Lively” of an age of “**10th**” in which the gender is “Female”.

The analysis utilizing Bayesian Network enabled us to visualize the causal relationship among items. Furthermore, sensitivity analysis brought us estimating and predicting the prospective visitors. Sensitivity analysis was achieved by back propagation method. These are utilized for constructing a much more effective and useful plan building.
Although it has a limitation that it is restricted in the number of research, we could obtain the fruitful results. To confirm the findings by utilizing the new consecutive visiting records would be the future works to be investigated.

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APPENDIX 1

Questionnaire Sheet about the Image Around the Shopping Street

1. How often do you come to this shopping street?

a. Everyday b. ( ) times a week c. ( ) times a month d. ( ) times a year

e. miscellaneous ( )

2. What is the purpose of visiting here? (Plural answers allowed)

a. shopping b. eating and drinking c. business d. celebration、event e. leisure, amusement

f. miscellaneous ( )

3. How do you feel about the image of the surrounding area at this shopping street?

Select the position

Beautiful	·	·	·	·	·	Ugly
Of the united feeling there is	·	·	·	·	·	Scattered
Varied	·	·	·	·	·	Featureless
New	·	·	·	·	·	Historic
Full of nature	·	·	·	·	·	Urban
Cheerful	·	·	·	·	·	Gloomy
Individualistic	·	·	·	·	·	Conventional
Friendly	·	·	·	·	·	Unfriendly
Healed	·	·	·	·	·	Stimulated
Open	·	·	·	·	·	exclusive
Want to reside	·	·	·	·	·	Do not want to reside
Warm	·	·	·	·	·	Aloof
Fascinating	·	·	·	·	·	Not fascinating
Want to play	·	·	·	·	·	Want to examine deliberately
Lively	·	·	·	·	·	Calm
Atmosphere of urban	·	·	·	·	·	Atmosphere of rural area

4. There are many old building at the age of nearly 50 years. Do you think we can still use them?

a. Can use it b. Cannot use it C. Have no idea

5. Is there any functions or facilities that will be useful?

6. Comments

7. Sex

a. Male b. Female

8. Age

a.10th b.20th c.30th d.40th e.50th f.6th g. More than70

9. Residence

a. Fuji City b. Fujinomiya City c. Numazu City d. Mishima City e. Shizuoka City f. Miscellaneous in Shizuoka Prefecture

g. Outside of Shizuoka Prefecture［ ］

APPENDIX 2
Calculated posterior probability

name_fuji	state	Prior	The purpose of visiting					The image of the surrounding area at this shopping street															
			Shopping	Eating and drinking	Business	Celebration、event	Leisure, amusement	Beautiful	Ugly	Of the united feeling there is	Scattered	Varied	Featureless	New	Historic	Full of nature	Urban	Cheerful	Gloomy	Individualistic	Conventional	Friendly	Unfriendly
The purpose of visiting	Shopping	0.215	1	0.211	0.208	0.211	0.233	0.216	0.211	0.212	0.214	0.209	0.215	0.222	0.216	0.217	0.211	0.214	0.215	0.208	0.214	0.210	0.222
	Eating and drinking	0.174	0.172	1	0.197	0.191	0.155	0.167	0.178	0.163	0.183	0.166	0.175	0.181	0.173	0.166	0.169	0.169	0.180	0.157	0.187	0.163	0.178
	Business	0.103	0.101	0.117	1	0.113	0.090	0.099	0.105	0.096	0.106	0.098	0.102	0.103	0.102	0.099	0.099	0.099	0.106	0.092	0.112	0.097	0.104
	Celebration、event	0.396	0.392	0.433	0.435	1	0.374	0.380	0.407	0.374	0.416	0.381	0.401	0.404	0.394	0.380	0.390	0.372	0.410	0.364	0.421	0.373	0.411
	Leisure, amusement	0.089	0.098	0.080	0.079	0.084	1	0.091	0.086	0.088	0.090	0.087	0.091	0.092	0.090	0.092	0.090	0.085	0.089	0.088	0.087	0.088	0.096
The image of the surrounding area at this shopping street	Beautiful	0.339	0.342	0.324	0.328	0.326	0.346	1	0	0.347	0.328	0.347	0.336	0.336	0.341	0.349	0.339	0.352	0.331	0.352	0.330	0.350	0.331
	Ugly	0.292	0.287	0.299	0.299	0.300	0.285	0.000	1	0.288	0.301	0.293	0.294	0.288	0.293	0.290	0.295	0.284	0.296	0.294	0.296	0.290	0.298
	Of the united feeling there is	0.255	0.251	0.239	0.241	0.240	0.253	0.260	0.251	1	0	0.264	0.250	0.248	0.255	0.260	0.257	0.268	0.247	0.273	0.241	0.267	0.243
	Scattered	0.381	0.381	0.399	0.392	0.400	0.390	0.368	0.392	0	1	0.368	0.392	0.389	0.380	0.369	0.386	0.354	0.395	0.361	0.398	0.361	0.406
	Varied	0.175	0.171	0.167	0.167	0.168	0.171	0.179	0.176	0.181	0.169	1	0	0.170	0.176	0.180	0.177	0.182	0.170	0.187	0.169	0.183	0.168
	Featureless	0.490	0.491	0.491	0.487	0.496	0.503	0.484	0.494	0.481	0.504	0	1	0.493	0.489	0.485	0.496	0.473	0.497	0.482	0.496	0.480	0.506
	New	0.124	0.128	0.129	0.124	0.127	0.128	0.123	0.122	0.120	0.127	0.120	0.125	1	0	0.122	0.122	0.123	0.125	0.117	0.126	0.119	0.127
	Historic	0.561	0.565	0.557	0.556	0.559	0.570	0.564	0.563	0.562	0.560	0.564	0.561	0	1	0.564	0.560	0.561	0.560	0.564	0.559	0.563	0.562
	Full of nature	0.370	0.374	0.350	0.358	0.355	0.381	0.380	0.367	0.379	0.359	0.379	0.367	0.364	0.372	1	0	0.382	0.362	0.386	0.360	0.382	0.364
	Urban	0.231	0.228	0.225	0.223	0.228	0.235	0.231	0.233	0.233	0.235	0.233	0.234	0.227	0.231	0	1	0.228	0.233	0.239	0.229	0.233	0.235
	Cheerful	0.259	0.259	0.251	0.249	0.244	0.249	0.268	0.252	0.273	0.241	0.269	0.250	0.256	0.259	0.267	0.255	1	0	0.277	0.244	0.273	0.239
	Gloomy	0.432	0.434	0.444	0.445	0.447	0.435	0.421	0.438	0.419	0.448	0.420	0.439	0.435	0.431	0.422	0.434	0	1	0.413	0.445	0.416	0.451
	Individualistic	0.238	0.232	0.214	0.213	0.218	0.237	0.247	0.240	0.255	0.226	0.254	0.235	0.226	0.239	0.248	0.246	0.254	0.228	1	0	0.257	0.226
	Conventional	0.438	0.440	0.471	0.479	0.466	0.432	0.426	0.445	0.416	0.458	0.422	0.444	0.447	0.437	0.426	0.434	0.414	0.453	0	1	0.416	0.457
	Friendly	0.443	0.434	0.413	0.416	0.417	0.435	0.456	0.439	0.465	0.421	0.464	0.435	0.427	0.445	0.457	0.447	0.468	0.427	0.479	0.420	1	0
	Unfriendly	0.236	0.245	0.242	0.242	0.246	0.257	0.230	0.241	0.225	0.252	0.226	0.244	0.242	0.236	0.232	0.240	0.218	0.246	0.223	0.246	0	1
	Healed	0.285	0.279	0.279	0.282	0.275	0.267	0.291	0.283	0.295	0.271	0.295	0.278	0.277	0.285	0.291	0.283	0.301	0.276	0.300	0.275	0.297	0.268
	Stimulated	0.180	0.187	0.182	0.185	0.183	0.193	0.178	0.183	0.176	0.188	0.174	0.184	0.182	0.179	0.180	0.184	0.174	0.185	0.178	0.184	0.174	0.192
	Open	0.257	0.254	0.236	0.239	0.237	0.256	0.266	0.247	0.273	0.238	0.268	0.250	0.248	0.256	0.265	0.257	0.276	0.245	0.276	0.240	0.273	0.237
	Exclusive	0.393	0.407	0.413	0.404	0.411	0.407	0.381	0.401	0.377	0.412	0.376	0.400	0.406	0.393	0.383	0.391	0.373	0.407	0.370	0.408	0.372	0.418
	Want to reside	0.241	0.243	0.230	0.231	0.230	0.246	0.246	0.239	0.250	0.233	0.247	0.239	0.237	0.241	0.247	0.244	0.252	0.236	0.256	0.232	0.250	0.235
	Do not want to reside	0.395	0.397	0.396	0.392	0.400	0.406	0.388	0.395	0.390	0.405	0.387	0.401	0.398	0.394	0.389	0.399	0.382	0.403	0.388	0.399	0.386	0.407
	Warm	0.398	0.393	0.375	0.370	0.375	0.395	0.409	0.393	0.416	0.381	0.413	0.392	0.391	0.398	0.409	0.402	0.422	0.383	0.427	0.377	0.418	0.378
	Aloof	0.252	0.254	0.264	0.269	0.265	0.251	0.244	0.259	0.243	0.263	0.244	0.256	0.253	0.252	0.245	0.252	0.237	0.262	0.240	0.263	0.241	0.265
	Fascinating	0.223	0.222	0.205	0.210	0.208	0.223	0.232	0.217	0.237	0.207	0.233	0.217	0.216	0.224	0.232	0.223	0.240	0.214	0.242	0.210	0.238	0.208
	Not fascinating	0.423	0.424	0.435	0.430	0.436	0.428	0.415	0.429	0.413	0.438	0.415	0.429	0.427	0.422	0.416	0.425	0.406	0.432	0.410	0.433	0.411	0.438
	Want to play	0.218	0.217	0.202	0.198	0.200	0.216	0.228	0.207	0.233	0.198	0.229	0.210	0.215	0.218	0.226	0.214	0.242	0.204	0.235	0.201	0.234	0.196
	Want to examine deliberately	0.312	0.321	0.314	0.312	0.313	0.330	0.310	0.310	0.310	0.318	0.306	0.316	0.317	0.311	0.312	0.315	0.307	0.316	0.308	0.314	0.306	0.323
	Lively	0.181	0.178	0.175	0.176	0.173	0.174	0.186	0.179	0.188	0.172	0.188	0.177	0.177	0.181	0.186	0.180	0.193	0.175	0.191	0.174	0.190	0.170
	Calm	0.520	0.530	0.528	0.527	0.528	0.538	0.514	0.521	0.511	0.533	0.508	0.526	0.527	0.519	0.515	0.523	0.507	0.530	0.508	0.529	0.507	0.539
	Atmosphere of urban	0.097	0.095	0.099	0.097	0.099	0.090	0.095	0.099	0.097	0.097	0.097	0.096	0.097	0.097	0.095	0.096	0.097	0.097	0.097	0.097	0.097	0.095
	Atmosphere of rural area	0.629	0.630	0.633	0.626	0.635	0.643	0.623	0.631	0.622	0.641	0.623	0.635	0.633	0.628	0.624	0.633	0.615	0.636	0.621	0.635	0.621	0.642
Gender	Male	0.433	0.364	0.485	0.556	0.492	0.285	0.390	0.444	0.425	0.442	0.416	0.431	0.380	0.419	0.392	0.436	0.384	0.476	0.393	0.477	0.413	0.421
	Female	0.567	0.636	0.515	0.444	0.508	0.715	0.610	0.556	0.575	0.558	0.584	0.569	0.620	0.581	0.608	0.564	0.616	0.524	0.607	0.523	0.587	0.579
Age	10th	0.205	0.172	0.082	0.088	0.111	0.197	0.244	0.195	0.292	0.137	0.273	0.185	0.141	0.208	0.248	0.236	0.278	0.163	0.343	0.117	0.295	0.135
	20th	0.166	0.203	0.219	0.256	0.169	0.124	0.177	0.136	0.168	0.133	0.148	0.142	0.189	0.159	0.176	0.137	0.225	0.153	0.138	0.178	0.158	0.141
	30th	0.251	0.229	0.263	0.286	0.277	0.261	0.263	0.240	0.216	0.247	0.258	0.248	0.253	0.259	0.253	0.220	0.216	0.242	0.191	0.281	0.245	0.234
	40th	0.170	0.168	0.225	0.139	0.203	0.143	0.130	0.174	0.159	0.198	0.140	0.179	0.212	0.165	0.119	0.158	0.156	0.186	0.133	0.175	0.135	0.178
	50th	0.102	0.081	0.140	0.146	0.136	0.058	0.089	0.160	0.079	0.146	0.108	0.115	0.089	0.104	0.097	0.119	0.076	0.118	0.116	0.127	0.091	0.135
	60th	0.070	0.079	0.051	0.053	0.066	0.133	0.063	0.056	0.056	0.103	0.048	0.093	0.080	0.064	0.066	0.099	0.032	0.091	0.052	0.082	0.049	0.116
	More than70	0.035	0.069	0.019	0.032	0.037	0.086	0.034	0.039	0.030	0.037	0.025	0.038	0.035	0.041	0.041	0.030	0.017	0.047	0.025	0.039	0.026	0.061

The image of the surrounding area at this shopping street																Gender		Age						
Healed	Stimulated	Open	Exclusive	Want to reside	Do not want to reside	Warm	Aloof	Fascinating	Not fascinating	Want to play	Want to examine deliberately	Lively	Calm	Atmosphere of urban	Atmosphere of rural area	Male	Female	10th	20th	30th	40th	50th	60th	More than70
0.210	0.222	0.212	0.222	0.216	0.216	0.212	0.216	0.214	0.214	0.213	0.220	0.211	0.219	0.211	0.215	0.181	0.240	0.180	0.262	0.196	0.212	0.170	0.240	0.419
0.171	0.175	0.160	0.183	0.165	0.174	0.164	0.183	0.160	0.179	0.162	0.174	0.169	0.176	0.179	0.175	0.195	0.158	0.070	0.229	0.182	0.230	0.240	0.127	0.095
0.102	0.105	0.096	0.106	0.097	0.101	0.096	0.109	0.096	0.105	0.093	0.102	0.101	0.103	0.103	0.102	0.132	0.080	0.044	0.158	0.117	0.084	0.148	0.077	0.095
0.383	0.401	0.366	0.414	0.377	0.400	0.373	0.417	0.367	0.408	0.362	0.396	0.379	0.401	0.404	0.399	0.449	0.355	0.214	0.402	0.437	0.473	0.531	0.371	0.419
0.083	0.093	0.088	0.092	0.090	0.091	0.089	0.088	0.090	0.089	0.089	0.092	0.085	0.091	0.084	0.090	0.058	0.112	0.085	0.066	0.092	0.075	0.050	0.168	0.216
0.347	0.335	0.352	0.329	0.347	0.334	0.349	0.328	0.353	0.333	0.356	0.337	0.349	0.335	0.335	0.336	0.306	0.365	0.403	0.362	0.354	0.259	0.297	0.305	0.333
0.290	0.296	0.280	0.298	0.289	0.292	0.288	0.300	0.284	0.296	0.278	0.290	0.288	0.293	0.298	0.293	0.300	0.286	0.278	0.238	0.279	0.298	0.460	0.233	0.323
0.264	0.250	0.271	0.244	0.264	0.252	0.266	0.245	0.270	0.248	0.271	0.253	0.265	0.250	0.254	0.252	0.250	0.258	0.363	0.258	0.219	0.238	0.197	0.204	0.220
0.362	0.397	0.352	0.400	0.368	0.390	0.364	0.398	0.353	0.394	0.345	0.387	0.361	0.390	0.382	0.388	0.388	0.375	0.253	0.305	0.374	0.443	0.546	0.556	0.399
0.182	0.170	0.183	0.168	0.179	0.172	0.182	0.170	0.183	0.172	0.184	0.171	0.182	0.171	0.176	0.173	0.169	0.180	0.233	0.156	0.180	0.144	0.186	0.120	0.124
0.478	0.500	0.476	0.499	0.484	0.497	0.482	0.497	0.476	0.497	0.470	0.495	0.478	0.496	0.487	0.495	0.488	0.491	0.441	0.419	0.482	0.516	0.552	0.651	0.533
0.120	0.125	0.120	0.128	0.122	0.125	0.122	0.125	0.120	0.125	0.123	0.126	0.121	0.126	0.124	0.125	0.109	0.135	0.085	0.141	0.125	0.154	0.109	0.142	0.124
0.562	0.560	0.561	0.562	0.562	0.560	0.562	0.561	0.564	0.561	0.563	0.560	0.561	0.560	0.563	0.561	0.543	0.575	0.569	0.537	0.578	0.546	0.574	0.509	0.656
0.378	0.370	0.383	0.360	0.379	0.364	0.380	0.361	0.384	0.363	0.385	0.369	0.380	0.367	0.364	0.367	0.335	0.397	0.447	0.390	0.372	0.260	0.354	0.349	0.430
0.230	0.237	0.232	0.230	0.234	0.234	0.234	0.231	0.231	0.232	0.227	0.233	0.230	0.233	0.228	0.233	0.233	0.230	0.266	0.190	0.202	0.215	0.272	0.327	0.199
0.274	0.250	0.278	0.246	0.270	0.250	0.275	0.244	0.278	0.249	0.287	0.255	0.275	0.252	0.260	0.253	0.229	0.281	0.350	0.350	0.222	0.237	0.194	0.116	0.124
0.418	0.445	0.413	0.447	0.423	0.441	0.415	0.448	0.413	0.441	0.402	0.437	0.416	0.440	0.431	0.437	0.474	0.399	0.342	0.398	0.416	0.473	0.500	0.556	0.581
0.251	0.236	0.257	0.225	0.252	0.234	0.256	0.226	0.257	0.231	0.256	0.235	0.251	0.233	0.239	0.235	0.217	0.255	0.399	0.198	0.181	0.187	0.272	0.178	0.172
0.424	0.448	0.410	0.456	0.421	0.443	0.415	0.457	0.411	0.449	0.403	0.441	0.422	0.446	0.439	0.442	0.483	0.404	0.251	0.469	0.490	0.452	0.549	0.513	0.485
0.462	0.429	0.472	0.420	0.459	0.433	0.465	0.423	0.471	0.430	0.476	0.434	0.464	0.432	0.442	0.437	0.423	0.458	0.637	0.421	0.432	0.352	0.394	0.309	0.333
0.222	0.252	0.218	0.251	0.230	0.244	0.225	0.249	0.221	0.244	0.213	0.244	0.222	0.245	0.233	0.241	0.230	0.241	0.155	0.200	0.220	0.248	0.314	0.389	0.409
1	0	0.300	0.272	0.292	0.277	0.295	0.275	0.299	0.278	0.301	0.279	0.299	0.278	0.287	0.280	0.288	0.283	0.365	0.334	0.280	0.237	0.275	0.145	0.162
0	1	0.172	0.189	0.181	0.184	0.176	0.188	0.173	0.184	0.167	0.187	0.174	0.186	0.175	0.182	0.177	0.182	0.154	0.203	0.121	0.165	0.248	0.295	0.285
0.270	0.245	1	0	0.268	0.251	0.272	0.240	0.279	0.246	0.284	0.253	0.272	0.249	0.253	0.252	0.252	0.260	0.388	0.284	0.246	0.207	0.120	0.211	0.162
0.375	0.412	0	1	0.384	0.403	0.375	0.412	0.370	0.404	0.362	0.403	0.373	0.404	0.396	0.398	0.387	0.397	0.251	0.392	0.345	0.494	0.489	0.465	0.656
0.247	0.242	0.252	0.235	1	0	0.250	0.235	0.252	0.237	0.253	0.242	0.248	0.240	0.239	0.239	0.226	0.253	0.315	0.261	0.195	0.217	0.217	0.233	0.247
0.383	0.404	0.387	0.405	0	1	0.388	0.403	0.386	0.401	0.381	0.401	0.383	0.401	0.393	0.399	0.409	0.383	0.367	0.343	0.357	0.463	0.380	0.538	0.495
0.413	0.388	0.422	0.380	0.412	0.391	1	0	0.421	0.387	0.430	0.394	0.415	0.390	0.397	0.394	0.352	0.433	0.549	0.402	0.363	0.363	0.343	0.331	0.210
0.243	0.262	0.236	0.265	0.245	0.257	0	1	0.238	0.259	0.229	0.255	0.241	0.257	0.254	0.255	0.285	0.227	0.183	0.237	0.234	0.279	0.340	0.280	0.409
0.234	0.214	0.243	0.210	0.233	0.218	0.237	0.212	1	0	0.248	0.219	0.236	0.217	0.221	0.219	0.210	0.233	0.332	0.238	0.216	0.176	0.131	0.145	0.220
0.412	0.432	0.406	0.435	0.415	0.430	0.411	0.435	0	1	0.400	0.427	0.411	0.429	0.425	0.427	0.441	0.410	0.348	0.381	0.416	0.472	0.503	0.505	0.485
0.231	0.201	0.241	0.201	0.228	0.210	0.235	0.199	0.240	0.207	1	0	0.234	0.209	0.218	0.213	0.180	0.246	0.322	0.247	0.232	0.207	0.071	0.095	0.086
0.306	0.325	0.307	0.320	0.313	0.317	0.309	0.315	0.307	0.315	0	1	0.307	0.319	0.308	0.315	0.301	0.321	0.283	0.343	0.261	0.329	0.309	0.436	0.388
0.190	0.175	0.192	0.172	0.186	0.176	0.189	0.173	0.191	0.176	0.195	0.178	1	0	0.181	0.178	0.175	0.186	0.234	0.215	0.181	0.144	0.157	0.116	0.086
0.507	0.539	0.505	0.535	0.517	0.528	0.510	0.531	0.506	0.527	0.500	0.530	0	1	0.515	0.524	0.516	0.522	0.444	0.535	0.463	0.556	0.560	0.695	0.656
0.097	0.094	0.095	0.098	0.096	0.096	0.097	0.097	0.096	0.097	0.097	0.095	0.096	0.096	1	0	0.098	0.096	0.094	0.086	0.097	0.124	0.112	0.047	0.086
0.618	0.637	0.618	0.638	0.624	0.636	0.622	0.636	0.618	0.635	0.615	0.634	0.618	0.634	0	1	0.629	0.629	0.585	0.566	0.620	0.679	0.657	0.764	0.656
0.438	0.427	0.426	0.427	0.405	0.449	0.383	0.490	0.408	0.451	0.359	0.417	0.419	0.430	0.439	0.433	1	0	0.433	0.433	0.433	0.433	0.433	0.433	0.433
0.562	0.573	0.574	0.573	0.595	0.551	0.617	0.510	0.592	0.549	0.641	0.583	0.581	0.570	0.561	0.567	0	1	0.567	0.567	0.567	0.567	0.567	0.567	0.567
0.263	0.175	0.310	0.131	0.269	0.191	0.283	0.149	0.305	0.169	0.304	0.186	0.266	0.175	0.200	0.191	0.205	0.205	1	0	0	0	0	0	0
0.195	0.188	0.184	0.166	0.180	0.145	0.168	0.156	0.178	0.150	0.189	0.183	0.197	0.171	0.147	0.150	0.166	0.166	0	1	0	0	0	0	0
0.247	0.170	0.241	0.221	0.203	0.228	0.229	0.234	0.243	0.247	0.268	0.210	0.252	0.224	0.251	0.248	0.251	0.251	0	0	1	0	0	0	0
0.141	0.156	0.137	0.214	0.153	0.199	0.155	0.189	0.134	0.190	0.162	0.179	0.135	0.182	0.219	0.184	0.170	0.170	0	0	0	1	0	0	0
0.098	0.140	0.048	0.126	0.092	0.098	0.088	0.137	0.060	0.121	0.033	0.101	0.088	0.110	0.117	0.106	0.102	0.102	0	0	0	0	1	0	0
0.036	0.115	0.058	0.083	0.068	0.096	0.058	0.078	0.046	0.084	0.031	0.098	0.045	0.094	0.034	0.085	0.070	0.070	0	0	0	0	0	1	0
0.020	0.056	0.022	0.059	0.036	0.044	0.019	0.057	0.035	0.040	0.014	0.044	0.017	0.044	0.031	0.037	0.035	0.035	0	0	0	0	0	0	1

APPENDIX 3

Difference of probability

name_fuji	state	Prior	The purpose of visiting					The image of the surrounding area at this shopping street															
			Shopping	Eating and drinking	Business	Celebration、event	Leisure, amusement	Beautiful	Ugly	Of the united feeling there is	Scattered	Varied	Featureless	New	Historic	Full of nature	Urban	Cheerful	Gloomy	Individualistic	Conventional	Friendly	Unfriendly
The purpose of visiting	Shopping	0.215	1	-0.004	-0.006	-0.003	0.019	0.002	-0.004	-0.002	-0.001	-0.005	0.000	0.008	0.001	0.002	-0.003	0.000	0.000	-0.007	-0.001	-0.004	0.007
	Eating and drinking	0.174	-0.002	1	0.023	0.017	-0.020	-0.007	0.004	-0.011	0.009	-0.008	0.001	0.007	-0.001	-0.008	-0.005	-0.005	0.006	-0.017	0.013	-0.011	0.004
	Business	0.103	-0.001	0.015	1	0.010	-0.012	-0.003	0.002	-0.006	0.003	-0.004	0.000	0.001	-0.001	-0.003	-0.003	-0.004	0.004	-0.010	0.009	-0.006	0.002
	Celebration、event	0.396	-0.004	0.038	0.040	1	-0.022	-0.015	0.011	-0.022	0.020	-0.015	0.005	0.008	-0.001	-0.016	-0.006	-0.023	0.014	-0.032	0.025	-0.022	0.016
	Leisure, amusement	0.089	0.009	-0.009	-0.010	-0.004	1	0.002	-0.003	-0.001	0.001	-0.002	0.002	0.003	0.001	0.003	0.001	-0.003	0.000	-0.001	-0.002	-0.001	0.007
The image of the surrounding area at this shopping street	Beautiful	0.339	0.003	-0.015	-0.012	-0.013	0.006	1	0	0.008	-0.011	0.008	-0.004	-0.004	0.001	0.010	0.000	0.012	-0.008	0.013	-0.009	0.011	-0.008
	Ugly	0.292	-0.005	0.007	0.007	0.008	-0.006	0	1	-0.004	0.009	0.001	0.003	-0.003	0.001	-0.002	0.003	-0.008	0.004	0.002	0.004	-0.002	0.006
	Of the united feeling there is	0.255	-0.003	-0.016	-0.014	-0.014	-0.002	0.006	-0.004	1	0	0.009	-0.004	-0.007	0.000	0.006	0.002	0.013	-0.008	0.018	-0.013	0.013	-0.012
	Scattered	0.381	0.000	0.018	0.011	0.019	0.009	-0.012	0.011	0	1	-0.013	0.011	0.008	-0.001	-0.011	0.006	-0.027	0.014	-0.020	0.017	-0.019	0.026
	Varied	0.175	-0.005	-0.008	-0.008	-0.007	-0.004	0.004	0.001	0.006	-0.006	1	0	-0.006	0.001	0.004	0.001	0.007	-0.005	0.011	-0.007	0.008	-0.007
	Featureless	0.490	0.001	0.002	-0.003	0.006	0.014	-0.006	0.004	-0.008	0.014	0	1	0.004	0.000	-0.005	0.006	-0.017	0.008	-0.008	0.007	-0.009	0.016
	New	0.124	0.004	0.005	0.000	0.003	0.004	-0.001	-0.001	-0.003	0.003	-0.004	0.001	1	0	-0.002	-0.002	-0.001	0.001	-0.007	0.003	-0.004	0.003
	Historic	0.561	0.003	-0.004	-0.005	-0.002	0.009	0.002	0.002	0.000	-0.001	0.002	0.000	0	1	0.003	-0.001	0.000	-0.002	0.002	-0.002	0.002	0.001
	Full of nature	0.370	0.004	-0.020	-0.012	-0.015	0.011	0.010	-0.003	0.009	-0.011	0.009	-0.003	-0.006	0.002	1	0	0.012	-0.008	0.016	-0.010	0.012	-0.006
	Urban	0.231	-0.003	-0.007	-0.008	-0.003	0.004	0.000	0.002	0.002	0.004	0.002	0.003	-0.004	-0.001	0	1	-0.003	0.001	0.008	-0.002	0.002	0.004
	Cheerful	0.259	0.000	-0.008	-0.009	-0.015	-0.010	0.009	-0.006	0.014	-0.018	0.010	-0.009	-0.003	0.000	0.008	-0.003	1	0	0.018	-0.014	0.015	-0.020
	Gloomy	0.432	0.002	0.013	0.014	0.015	0.004	-0.011	0.006	-0.012	0.016	-0.012	0.007	0.003	-0.001	-0.009	0.003	0	1	-0.018	0.014	-0.016	0.019
	Individualistic	0.238	-0.007	-0.025	-0.025	-0.020	-0.001	0.008	0.002	0.017	-0.012	0.015	-0.004	-0.012	0.001	0.010	0.007	0.016	-0.010	1	0	0.019	-0.012
	Conventional	0.438	0.001	0.033	0.040	0.028	-0.006	-0.012	0.007	-0.023	0.020	-0.016	0.006	0.008	-0.001	-0.012	-0.004	-0.024	0.014	0	1	-0.023	0.019
	Friendly	0.443	-0.009	-0.030	-0.027	-0.026	-0.008	0.014	-0.003	0.022	-0.022	0.021	-0.008	-0.016	0.002	0.014	0.004	0.025	-0.016	0.036	-0.023	1	0
	Unfriendly	0.236	0.008	0.006	0.005	0.009	0.021	-0.006	0.005	-0.011	0.016	-0.010	0.008	0.006	0.000	-0.004	0.004	-0.018	0.010	-0.013	0.010	0	1
	Healed	0.285	-0.006	-0.006	-0.003	-0.010	-0.018	0.006	-0.002	0.010	-0.014	0.010	-0.007	-0.008	0.000	0.006	-0.002	0.017	-0.009	0.015	-0.010	0.012	-0.017
	Stimulated	0.180	0.007	0.002	0.005	0.003	0.013	-0.002	0.003	-0.004	0.008	-0.005	0.004	0.002	-0.001	0.000	0.005	-0.006	0.006	-0.002	0.004	-0.006	0.012
	Open	0.257	-0.003	-0.021	-0.017	-0.019	-0.001	0.010	-0.010	0.017	-0.019	0.011	-0.007	-0.008	0.000	0.009	0.001	0.020	-0.011	0.020	-0.017	0.017	-0.019
	Exclusive	0.393	0.014	0.020	0.011	0.018	0.014	-0.011	0.008	-0.016	0.020	-0.017	0.008	0.013	0.000	-0.010	-0.001	-0.020	0.014	-0.023	0.015	-0.021	0.025
	Want to reside	0.241	0.002	-0.011	-0.010	-0.011	0.005	0.005	-0.002	0.009	-0.008	0.006	-0.002	-0.004	0.000	0.006	0.003	0.011	-0.005	0.015	-0.009	0.009	-0.006
	Do not want to reside	0.395	0.002	0.002	-0.003	0.005	0.011	-0.006	0.000	-0.004	0.010	-0.008	0.006	0.003	-0.001	-0.006	0.005	-0.013	0.009	-0.006	0.005	-0.008	0.013
	Warm	0.398	-0.005	-0.023	-0.028	-0.023	-0.003	0.012	-0.005	0.018	-0.017	0.015	-0.006	-0.007	0.001	0.011	0.004	0.025	-0.014	0.030	-0.021	0.020	-0.019
	Aloof	0.252	0.002	0.012	0.017	0.013	-0.001	-0.008	0.007	-0.009	0.012	-0.008	0.004	0.002	0.000	-0.007	0.000	-0.015	0.010	-0.012	0.011	-0.011	0.013
	Fascinating	0.223	-0.001	-0.018	-0.013	-0.016	0.000	0.009	-0.006	0.014	-0.016	0.010	-0.006	-0.007	0.001	0.009	0.000	0.017	-0.009	0.018	-0.014	0.015	-0.015
	Not fascinating	0.423	0.001	0.012	0.007	0.013	0.005	-0.008	0.006	-0.011	0.014	-0.008	0.006	0.004	-0.001	-0.007	0.002	-0.017	0.009	-0.013	0.010	-0.012	0.015
	Want to play	0.218	-0.001	-0.016	-0.020	-0.018	-0.001	0.011	-0.010	0.015	-0.020	0.011	-0.008	-0.003	0.001	0.009	-0.004	0.024	-0.014	0.018	-0.017	0.016	-0.022
	Want to examine deliberately	0.312	0.009	0.002	0.000	0.000	0.018	-0.002	-0.002	-0.003	0.005	-0.007	0.003	0.005	-0.001	-0.001	0.003	-0.005	0.004	-0.004	0.002	-0.006	0.010
	Lively	0.181	-0.003	-0.006	-0.005	-0.008	-0.008	0.005	-0.003	0.007	-0.009	0.007	-0.004	-0.004	0.000	0.005	-0.001	0.012	-0.007	0.009	-0.007	0.008	-0.011
	Calm	0.520	0.010	0.009	0.007	0.008	0.018	-0.006	0.001	-0.009	0.014	-0.012	0.007	0.008	-0.001	-0.004	0.004	-0.013	0.010	-0.012	0.009	-0.013	0.019
	Atmosphere of urban	0.097	-0.002	0.003	0.000	0.002	-0.006	-0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	-0.002	-0.001	0.001	0.000	0.000	0.000	0.000	-0.001
	Atmosphere of rural area	0.629	0.001	0.004	-0.003	0.006	0.014	-0.005	0.003	-0.007	0.012	-0.006	0.006	0.004	-0.001	-0.005	0.004	-0.014	0.007	-0.008	0.006	-0.008	0.013
Gender	Male	0.433	-0.068	0.052	0.123	0.059	-0.148	-0.043	0.011	-0.008	0.009	-0.016	-0.002	-0.052	-0.014	-0.041	0.004	-0.049	0.043	-0.040	0.044	-0.020	-0.012
	Female	0.567	0.068	-0.052	-0.123	-0.059	0.148	0.043	-0.011	0.008	-0.009	0.016	0.002	0.052	0.014	0.041	-0.004	0.049	-0.043	0.040	-0.044	0.020	0.012
Age	10th	0.205	-0.033	-0.123	-0.117	-0.094	-0.009	0.038	-0.010	0.087	-0.069	0.068	-0.020	-0.064	0.003	0.043	0.030	0.073	-0.043	0.138	-0.088	0.090	-0.071
	20th	0.166	0.037	0.053	0.090	0.002	-0.043	0.011	-0.030	0.002	-0.033	-0.018	-0.024	0.023	-0.007	0.009	-0.029	0.059	-0.013	-0.028	0.012	-0.008	-0.025
	30th	0.251	-0.022	0.012	0.034	0.026	0.009	0.011	-0.011	-0.036	-0.004	0.007	-0.004	0.002	0.007	0.001	-0.031	-0.036	-0.009	-0.060	0.030	-0.006	-0.017
	40th	0.170	-0.002	0.055	-0.031	0.033	-0.027	-0.040	0.004	-0.011	0.028	-0.030	0.009	0.042	-0.005	-0.051	-0.012	-0.014	0.016	-0.037	0.005	-0.035	0.008
	50th	0.102	-0.021	0.039	0.045	0.035	-0.044	-0.013	0.058	-0.023	0.044	0.006	0.013	-0.013	0.002	-0.004	0.018	-0.025	0.016	0.014	0.026	-0.011	0.034
	60th	0.070	0.008	-0.019	-0.018	-0.004	0.062	-0.007	-0.014	-0.014	0.032	-0.022	0.023	0.010	-0.007	-0.004	0.029	-0.039	0.020	-0.018	0.012	-0.021	0.045
	More than70	0.035	0.033	-0.016	-0.003	0.002	0.050	-0.001	0.004	-0.005	0.002	-0.010	0.003	0.000	0.006	0.006	-0.005	-0.018	0.012	-0.010	0.004	-0.009	0.026

The image of the surrounding area at this shopping street																Gender		Age						
Healed	Stimulated	Open	Exclusive	Want to reside	Do not want to reside	Warm	Aloof	Fascinating	Not fascinating	Want to play	Want to examine deliberately	Lively	Calm	Atmosphere of urban	Atmosphere of rural area	Male	Female	10th	20th	30th	40th	50th	60th	More than70
-0.005	0.008	-0.003	0.007	0.001	0.001	-0.003	0.001	-0.001	0.000	-0.002	0.006	-0.004	0.004	-0.004	0.000	-0.034	0.026	-0.035	0.048	-0.019	-0.003	-0.044	0.025	0.204
-0.003	0.001	-0.014	0.009	-0.009	0.000	-0.010	0.009	-0.014	0.005	-0.012	0.000	-0.005	0.002	0.005	0.001	0.021	-0.016	-0.104	0.055	0.008	0.056	0.066	-0.047	-0.079
0.000	0.002	-0.007	0.003	-0.005	-0.001	-0.007	0.007	-0.007	0.002	-0.009	0.000	-0.002	0.001	0.000	-0.001	0.029	-0.022	-0.059	0.055	0.014	-0.019	0.045	-0.026	-0.008
-0.012	0.005	-0.030	0.019	-0.019	0.004	-0.023	0.021	-0.029	0.012	-0.034	0.000	-0.016	0.006	0.008	0.004	0.054	-0.041	-0.182	0.006	0.041	0.078	0.135	-0.025	0.023
-0.005	0.005	-0.001	0.003	0.001	0.002	0.000	-0.001	0.001	0.000	0.000	0.004	-0.004	0.003	-0.004	0.001	-0.030	0.023	-0.004	-0.023	0.003	-0.014	-0.038	0.079	0.127
0.008	-0.004	0.013	-0.010	0.007	-0.006	0.010	-0.011	0.013	-0.007	0.016	-0.002	0.010	-0.004	-0.004	-0.003	-0.034	0.026	0.064	0.022	0.015	-0.080	-0.042	-0.034	-0.006
-0.001	0.005	-0.011	0.006	-0.003	0.000	-0.004	0.009	-0.008	0.004	-0.014	-0.002	-0.004	0.001	0.006	0.001	0.008	-0.006	-0.014	-0.053	-0.013	0.007	0.168	-0.059	0.031
0.009	-0.005	0.017	-0.010	0.010	-0.003	0.012	-0.010	0.015	-0.006	0.017	-0.002	0.010	-0.004	0.000	-0.003	-0.005	0.004	0.108	0.003	-0.036	-0.017	-0.058	-0.051	-0.035
-0.018	0.016	-0.028	0.019	-0.012	0.010	-0.017	0.017	-0.027	0.013	-0.035	0.007	-0.020	0.010	0.001	0.007	0.008	-0.006	-0.127	-0.076	-0.007	0.062	0.165	0.176	0.018
0.006	-0.005	0.008	-0.007	0.004	-0.003	0.007	-0.006	0.008	-0.003	0.009	-0.004	0.006	-0.004	0.001	-0.002	-0.007	0.005	0.058	-0.019	0.005	-0.031	0.011	-0.055	-0.052
-0.012	0.011	-0.013	0.010	-0.005	0.007	-0.008	0.008	-0.013	0.007	-0.019	0.005	-0.012	0.006	-0.002	0.005	-0.002	0.002	-0.049	-0.070	-0.007	0.026	0.062	0.161	0.043
-0.003	0.001	-0.004	0.004	-0.002	0.001	-0.002	0.001	-0.004	0.001	-0.001	0.002	-0.003	0.002	0.000	0.001	-0.015	0.011	-0.039	0.017	0.001	0.031	-0.015	0.018	0.000
0.000	-0.002	0.000	0.000	0.000	-0.001	0.001	-0.001	0.002	-0.001	0.002	-0.002	0.000	-0.001	0.001	-0.001	-0.018	0.014	0.007	-0.024	0.017	-0.015	0.013	-0.052	0.095
0.008	0.000	0.013	-0.010	0.009	-0.006	0.010	-0.009	0.014	-0.007	0.015	-0.001	0.010	-0.003	-0.006	-0.003	-0.035	0.027	0.077	0.020	0.002	-0.110	-0.016	-0.021	0.060
-0.002	0.006	0.001	-0.001	0.003	0.003	0.002	0.000	0.000	0.001	-0.004	0.002	-0.001	0.002	-0.003	0.002	0.002	-0.001	0.034	-0.041	-0.029	-0.016	0.040	0.096	-0.032
0.016	-0.009	0.020	-0.013	0.012	-0.008	0.016	-0.015	0.019	-0.010	0.028	-0.003	0.017	-0.007	0.001	-0.006	-0.029	0.022	0.092	0.092	-0.037	-0.021	-0.064	-0.142	-0.135
-0.014	0.014	-0.019	0.015	-0.009	0.009	-0.016	0.017	-0.019	0.010	-0.030	0.006	-0.016	0.008	0.000	0.005	0.043	-0.033	-0.090	-0.033	-0.016	0.041	0.068	0.125	0.149
0.013	-0.003	0.018	-0.014	0.014	-0.005	0.017	-0.012	0.018	-0.007	0.017	-0.003	0.013	-0.006	0.000	-0.003	-0.022	0.017	0.160	-0.040	-0.057	-0.052	0.033	-0.060	-0.067
-0.014	0.010	-0.028	0.017	-0.017	0.004	-0.023	0.019	-0.028	0.011	-0.035	0.003	-0.016	0.007	0.000	0.004	0.044	-0.034	-0.188	0.031	0.051	0.014	0.110	0.074	0.046
0.020	-0.014	0.029	-0.023	0.016	-0.010	0.022	-0.020	0.029	-0.013	0.033	-0.009	0.021	-0.011	-0.001	-0.006	-0.020	0.015	0.195	-0.022	-0.011	-0.091	-0.048	-0.134	-0.110
-0.014	0.016	-0.018	0.015	-0.006	0.008	-0.012	0.012	-0.016	0.008	-0.024	0.008	-0.014	0.009	-0.003	0.005	-0.006	0.005	-0.081	-0.036	-0.016	0.012	0.078	0.153	0.173
1	0	0.015	-0.013	0.007	-0.008	0.010	-0.010	0.014	-0.007	0.016	-0.006	0.014	-0.007	0.002	-0.005	0.003	-0.002	0.080	0.049	-0.005	-0.048	-0.010	-0.139	-0.123
0	1	-0.008	0.009	0.001	0.004	-0.004	0.008	-0.007	0.004	-0.013	0.007	-0.006	0.007	-0.004	0.002	-0.003	0.002	-0.026	0.024	-0.058	-0.015	0.068	0.115	0.105
0.013	-0.011	1	0	0.012	-0.005	0.016	-0.016	0.022	-0.010	0.028	-0.004	0.015	-0.007	-0.004	-0.004	-0.004	0.003	0.132	0.027	-0.010	-0.050	-0.137	-0.046	-0.095
-0.018	0.019	0	1	-0.009	0.010	-0.018	0.020	-0.023	0.011	-0.030	0.010	-0.020	0.012	0.003	0.006	-0.005	0.004	-0.142	-0.001	-0.048	0.101	0.096	0.073	0.264
0.006	0.001	0.011	-0.006	1	0	0.009	-0.006	0.011	-0.004	0.012	0.001	0.007	-0.001	-0.002	-0.002	-0.016	0.012	0.074	0.020	-0.047	-0.024	-0.024	-0.008	0.006
-0.011	0.010	-0.008	0.010	0	1	-0.006	0.008	-0.009	0.006	-0.013	0.006	-0.011	0.007	-0.001	0.005	0.015	-0.011	-0.028	-0.051	-0.037	0.068	-0.015	0.144	0.100
0.015	-0.010	0.024	-0.018	0.015	-0.007	1	0	0.023	-0.010	0.032	-0.004	0.018	-0.007	-0.001	-0.004	-0.046	0.035	0.151	0.004	-0.035	-0.035	-0.055	-0.067	-0.188
-0.008	0.010	-0.016	0.013	-0.007	0.005	0	1	-0.014	0.007	-0.023	0.003	-0.011	0.005	0.002	0.003	0.033	-0.025	-0.069	-0.015	-0.018	0.027	0.088	0.028	0.157
0.011	-0.009	0.020	-0.013	0.010	-0.005	0.013	-0.011	1	0	0.025	-0.004	0.012	-0.006	-0.002	-0.004	-0.013	0.010	0.108	0.015	-0.008	-0.047	-0.092	-0.078	-0.003
-0.011	0.009	-0.017	0.012	-0.008	0.006	-0.012	0.012	0	1	-0.023	0.004	-0.012	0.006	0.002	0.004	0.018	-0.014	-0.075	-0.042	-0.008	0.049	0.080	0.082	0.061
0.014	-0.017	0.024	-0.017	0.010	-0.008	0.018	-0.019	0.022	-0.011	1	0	0.016	-0.009	0.001	-0.005	-0.037	0.028	0.105	0.030	0.014	-0.011	-0.146	-0.123	-0.132
-0.007	0.013	-0.005	0.008	0.001	0.005	-0.003	0.003	-0.005	0.003	0	1	-0.006	0.006	-0.005	0.002	-0.012	0.009	-0.029	0.031	-0.052	0.016	-0.004	0.124	0.076
0.009	-0.006	0.011	-0.009	0.005	-0.005	0.008	-0.008	0.010	-0.005	0.014	-0.003	1	0	0.000	-0.003	-0.006	0.004	0.053	0.034	0.000	-0.037	-0.024	-0.065	-0.095
-0.013	0.019	-0.014	0.015	-0.003	0.009	-0.009	0.011	-0.014	0.007	-0.020	0.011	0	1	-0.004	0.005	-0.004	0.003	-0.076	0.016	-0.057	0.036	0.040	0.175	0.137
0.001	-0.002	-0.001	0.001	-0.001	0.000	0.000	0.001	-0.001	0.000	0.000	-0.001	0.000	-0.001	1	0	0.001	-0.001	-0.002	-0.011	0.000	0.028	0.015	-0.049	-0.011
-0.011	0.008	-0.011	0.009	-0.005	0.007	-0.007	0.007	-0.011	0.006	-0.014	0.005	-0.011	0.005	0	1	0.000	0.000	-0.044	-0.063	-0.009	0.050	0.028	0.135	0.027
0.005	-0.006	-0.007	-0.006	-0.028	0.016	-0.050	0.057	-0.025	0.018	-0.074	-0.016	-0.014	-0.003	0.006	0.000	1	0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
-0.005	0.006	0.007	0.006	0.028	-0.016	0.050	-0.057	0.025	-0.018	0.074	0.016	0.014	0.003	-0.006	0.000	0	1	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0.058	-0.030	0.105	-0.074	0.063	-0.015	0.078	-0.056	0.100	-0.037	0.099	-0.019	0.060	-0.030	-0.005	-0.014	0.000	0.000	1	0	0	0	0	0	0
0.028	0.022	0.018	0.000	0.014	-0.022	0.002	-0.010	0.011	-0.017	0.023	0.017	0.031	0.005	-0.019	-0.017	0.000	0.000	0	1	0	0	0	0	0
-0.004	-0.082	-0.010	-0.031	-0.049	-0.024	-0.022	-0.018	-0.009	-0.004	0.016	-0.042	0.001	-0.028	0.000	-0.004	0.000	0.000	0	0	1	0	0	0	0
-0.029	-0.014	-0.033	0.044	-0.017	0.029	-0.015	0.018	-0.036	0.020	-0.008	0.009	-0.035	0.012	0.048	0.013	0.000	0.000	0	0	0	1	0	0	0
-0.004	0.039	-0.054	0.025	-0.010	-0.004	-0.014	0.036	-0.042	0.019	-0.068	-0.001	-0.013	0.008	0.016	0.005	0.000	0.000	0	0	0	0	1	0	0
-0.034	0.045	-0.012	0.013	-0.002	0.026	-0.012	0.008	-0.024	0.014	-0.040	0.028	-0.025	0.024	-0.036	0.015	0.000	0.000	0	0	0	0	0	1	0
-0.015	0.021	-0.013	0.024	0.001	0.009	-0.017	0.022	-0.001	0.005	-0.021	0.009	-0.018	0.009	-0.004	0.002	0.000	0.000	0	0	0	0	0	0	1