# City Brand Attractiveness on Tourism using Rasch Model Approach

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Abstract— The study presented in this paper analyzes City Brand Attractiveness. Focusing on the city in Indonesia, namely West Bandung Regency, this study aims to examine the factors that affect the City Brand Attractiveness. The empirical application is performed on the basis of a sample of 373 visitors who have traveled to West Bandung Regency, analyzed by using Rasch Model. The findings show that tourists response to the city's attractiveness is low, the Ancillary Service factor with a low response, and the Tourism Attraction factor get high expectations from tourists responses. To the researcher understanding, there are limited studies on city brand attractiveness from the perspective of visitors, this could be a novelty of this paper is to explain how the city brand attractiveness affect city branding, Hence, the findings provide a guideline for future researchers or city branding stakeholders an overview of city brand attractiveness on city branding.

**Keywords**— City Brand Attractiveness, Supply chain, Tourism Attraction, Ancillary Service, Rasch Model.

## 1. Introduction

City branding has developed as a research interest for the past 30 years. Conceptual and empirical science, as well as at the level of practice, many city stakeholders seek answers to how cities as brands can be designed and managed[1].

The success of managing city branding is that it can attract tourists, investors, and potential residents [2], thereby increasing the economy of the place. The current literature review advises stakeholders to carry out various important roles to determine the success and failure of applying the place branding concept [3][4][5].

Research on city brand attractiveness attracts researchers to conduct studies in this field [6][7][8] [9][10][11] the popularity of branding requires a special approach to finding more critical concepts[12][13], the foundation of the concept requires special treatment in building branding with

more complex conceptualization and management systems.

This paper proposes the application of city brand attractiveness by considering several items that are a priority for stakeholders in the field of tourism in managing the city.

Additionally, studies in tourism had focused on city brand attractiveness[6], and city supply chain [14], They are challenged to adapt quickly and effectively to new opportunities in a global environment, very dynamic and competitive to attract anything that can generate wealth [15]. The aim is to increase investment, tourism and develop communities by strengthening local identities and activating social forces.

There is a need to evaluate and identify city branding factors that cause gaps inconsistencies in the literature[16][17] to get past significant shortcomings and to evolve from the descriptive stage to the normative stage and build a strong theory. The aim of this study is to produce a holistic view and provide strategies to facilitate city brand development for Bandung. Future theories using rash model analysis [18] and build on existing thought repositories where new theories and models may be built with additional adjustments made. The main contribution of this research is to uncover systematic items from the subject through rash model analysis and inductive point of view. This study is an effort to develop a framework for structuring future research on city branding, especially city brand attractiveness.

## 2. Literature Review

## 2.1 City Branding Concept

The concept of the brand is widely used in various fields. Brands are not defined narrowly as mere physical products[19][20][21]. By definition, brands include personal brands, country brands,

and city brands [22]. Among these definitions the place branding concept is applied to city branding. City branding requires broader consideration, compared to branding products or services such as geography, tourist attractions, natural resources, local products, institutions, resident characteristics, and infrastructure [23]. Research shows that places can be branded when they have characteristics that are different from other places.

City Branding and other theme has developed in the past thirty years [17]. The scope of developing city branding knowledge consists of conceptual, empirical, and practice levels. Some stakeholders are trying to develop cities as brands by designing and managing brands [24][1] there is also city branding from focusing on promotional and marketing activities towards more strategic branding.

## 2.2 City Branding Concept

The appeal of the city center is evaluated by customer preferences and experience. The central attraction of the city is related to the share of customer expenditure, share of visits, and time. Each retail agglomeration is usually built on specific attributes and attributes identified are; accessibility, parking conditions, tenant mix, product range, merchandise value and sales personnel, atmosphere, orientation and infrastructural facilities [25].

Oner[26] explained that the key factors for the attractiveness of a place were based on several important elements of the city: labor market, architecture, public services, cultural infrastructure, service sectors and shops. In addition, other aspects that contribute to place attractiveness are natural amenities such as open space, parks and green areas, urban forest, farmlands and water covers.

## 2.3 Resident and Visitor Concept

### 2.3.1 Resident

Strategic population is the most valued segment of those targeted by place marketing practitioners [27]. Place marketing has been used as a method to seduce people from outside to settle in a community [28]. When competing for residents, cities focus on building strong and profitable identities to strengthen current population identification with the place [29].

To attract residents, city planners must meet the expectations and needs of current and potential residents [27]. The potential and residents of the city are now looking for an attractive environment [30], which can include factors such as safety, access to quality public services and a balanced social structure [31].

#### 2.3.2 Visitor

Visitors to the other target groups investigated by Zenker[32] mentioned that atmosphere, nightlife, entertainment, shopping, outdoor events and cultural activities are valuable attributes for visitors in the city center. [17] developed this by calling shops and restaurants the main attraction for visitors. [17] support this statement and claim that various retailers are most valued by visitors to the small town center, followed by offers of events and activities, and the atmosphere of the physical environment. Öner[26] adds this by stating that the concentration of stores in the market attracts visitors from other places (similar to tourist attractions).

# 3. Methodologhy

This study investigates the extent to which the attributes of city brand attractiveness in Indonesia. This topic was chosen because it was in accordance with the development of city branding that had not yet reached the expectations of the national target market and significant strategic problems faced by local governments had an impact on the development of the city. The paradigm of this research is a quantitative approach, where nonexperimental designs are applied to research phenomena. The collected data is processed by measurements that match the standards to be identified between empirical observations and quantitative mathematical expressions. Primary data was collected through questionnaires designed and distributed online using the e-form application of the Ministry of Education and Culture. The because questionnaire uses Indonesian, respondent is an Indonesian citizen.

The study sample consisted of 345 people, all of whom had experience traveling to West Bandung regency, the respondents were divided into two namely local residents and tourists from outside.

Table I shows the profile of the respondent according to the demographic profile of each respondent. Gender, age, education and domicile. Respondent's profile provides information about the domicile of the respondents, the majority of tourists from outside are 72.92% (272 people) and the local population is 27.08% (101 people). It can be seen that the sample consisted of men 42.09% (157 people) and women 57.91% (216 people), the majority were aged between 15-25 and educated S1.

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Table I. The profile of research respondents

		Person	Proportion
Category	Details	(n)	(%)
Gender	Male	157	42.09%
	Female	216	57.91%
	15-25	149	39.95%
	26-35	110	29.49%
	36-45	86	23.06%
	46-55	21	5.63%
	>=56	7	1.88%
Education			
Level	SMA	76	20.38%
	S1	161	43.16%
	S2	121	32.44%
	S3	15	4.02%
Domicile	Visitor	101	27.08%
	Resident	272	72.92%

Table II shows the attributes of city brand attractiveness used in the questionnaire. Respondents were asked to assess the importance of this attribute. When choosing the city brand attractiveness attribute, they use a Likert rating scale, which is 1. Very Disagree, 2. Disagree, 3. Disagree, 4. Agree, 5. Strongly Agree

**Table II.** The preferred attributes

Construct	Items	Code
	Clean tourist destination is primary	
	attraction	n1
Tourism	This tourist attraction is safe for me	n2
Attraction	All information in the tourist	
Attraction	attraction is easily accessible	n3
	Generally speaking this tourist	
	attraction is interesting to visit	n4
A accordibility	The distance between tourist	
Accessibility	attraction is not too far from	n5

	strategic places	
	Condition for vehicle to go to the	
	tourist attraction is good	n6
	There are tourist signs to get to the	
	tourist attraction	n7
	Public transportation to go to the	
	tourist attraction is in good condition	n8
	This the tourist attraction has money	
	exchange facility and atm	n9
	Many restorants with various menus	
	in the tourist attraction are available	n10
Ancillary	The tourist attraction has	
Service	accomodations with affordable price	n11
	The distance between health facility	
	and the the tourist attraction is not	
	too far	n12
	Fast internet connection	n13
	Spacious parking lot in the tourist	
	attraction	n14
	There is separate parking area for	
Amenity	personal vehicle and group vehicle	n15
rincinty	There is security post in the the	
	tourist attraction	n16
	There is security staff in the tourist	
	attraction	n17

Data collected through questionnaires were evaluated by Rasch analysis, analysis methods allow ordinal data from questionnaires to be converted into interval data [33]. note that the Rasch model is the most appropriate method for basic analysis in the field of human sciences where instruments (questionnaires) are used, and measurements produce ordinal data.

Fraser[34] revealed that the Rasch model is based on probability, it allows people's responses to be accurately predicted on all items according to the measurement model, using only people's parameters (such as people's size) and item parameters on the same scale (such as parameters size of difficulty). The Rasch model changes the item scores measured on a Likert rating scale (which is ordinal data), into an interval scale called "unit of opportunity logarithms" (logit). Statistics of item compatibility and people indicate the extent to which the data obtained is appropriate, reliable and appropriate with basic steps, as well as providing information about the quality measurements [35].

According to bambang [36] there are several indications in the Rasch model that are very important for people and goods, including psychometric properties, such as outfit mean square (MNSQ), Z-standardized outfit (ZSTD), and Point measure correlation (PT-Measure Corr.) The model evaluation begins by observing the MNSQ outfit value, where the value must be between 0.5 and 1.5 intervals. This means it is suitable for

measurement. If the MNSQ values are not located on their Intervals, it is necessary to study the ZSTD values obtained, which should be between intervals .91.9 and 1.9, indicating that the data has reasonable predictability. Consistency of internal reliability refers to the average correlation between instrument items. The Cronbach  $\alpha$  coefficient is used as an internal reliability consistency index: if the value is close to 1 it indicates that the consistency of interval measurements is good.

The data is tabulated with Microsoft Excel software and analyzed using Winstep software version 3.7, then the data that has the appropriate interval measurement and meets all the criteria of validity and reliability of the instrument is processed by analyzing the Rasch Model.

# 4. Empirical Result And Discussion

# 4.1 Summary Statistics

Summary Statistics provides overall information about the quality of respondents measured using Winstep software version 3.7, which measures the quality of instruments used and interactions that occur between people and items.

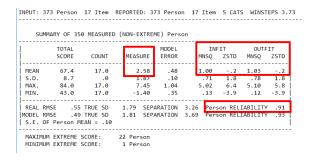


Figure 1. Summary Statistics Measured Person

SUI	MMARY OF 17	MEASURED (	(NON-EXTREME)	Item				
	TOTAL			MODEL	I	NFIT	OUTF	IT
	SCORE	COUNT	MEASURE	ERROR	MNSQ	ZSTD	MNSQ	ZSTD
MEAN	1498.2	373.0		.10	.99	2	1.03	.0
S.D.	74.7	.0	.80	.01	.19	2.2	. 25	2.2
MAX.	1675.0	373.0	1.13	.12	1.50	5.7	1.72	4.7
MIN.	1383.0	373.0	-2.07	.09	.82	-2.3	.78	-2.5
	RMSE .11		.79 SEPAR		7.46 It	em REL	IABILITY	.98
MODEL I	RMSE .10	TRUE SD	.79 SEPAR	RATION	7.73 It	em KEL	TARILLIA	.98
S.E. (	OF Item MEAN	= .20						
Item RAN	TA POINTS. L	EASURE COR	RRELATION = · HOOD CHI-SQUA	ARE: 88				000

Figure 2. Summary Statistics Measured Item

Figure 1 shows the Person Measure = +2.58 logit showing the average value of respondents in the City Brand Attractiveness instrument. The average logit value of more than 0.0 shows the tendency of respondents who agree to agree on each question in

various items. Person reliability shows logit value 0.91, it can be concluded that the consistency of respondents' answers to items is very good, and MNSQ INFIT MNSQ and OUTFIT for person measure tables are 1.00 and 1.03 this has implications for measurement in good conditions [35].

Figure 2 shows Item Measure = +0.98. It can be concluded that the quality of items made in City Attractive Brand instruments is special with Item Reliability> 0.94.

The Cronbach Alpha value seen in Figure 3 is used to measure reliability, namely the interaction between percent and items in a whole, the value of Cronbach Alpha = +0.95 shows that the interaction that occurs is great in the measurement process.

	TOTAL			MODEL	IN	FIT	OUTF	IT
	SCORE	COUNT	MEASURE	ERROR	MNSQ	ZSTD	MNSQ	ZSTD
MEAN	68.3	17.0	2.91	.56				
S.D.	9.8	.0	2.39	.34				
MAX.	85.0	17.0	8.71	1.85				
MIN.	17.0	17.0	-7.88	.35	.13	-3.9	.12	-3.9
	E .70		2.28 SEPA					
AODEL RMS	E .66	TRUE SD	2.29 SEPA	RATION	3.48 Per:	son RELI	IABILITY	.93
S.E. OF	Person ME	AN = .12						

Figure 3. Cronbach Alpha

## 4.2 Rating Scale

Rasch Model Analysis provides a verification process for the ranking assumptions given in the instrument, there are five choices in the City Brand

Attractiveness instrument in the form of a likert rating for each item, figure 4 shows the average observation starts from logit -0.37 logit for the choice of score 1 (i.e. strongly disagree), then the choice with a score of 2 (ie disagree) is -0.46 and increases to logit +4.82 for the choice of score 5 (strongly agree). It can be seen that between choices 1 and 2 there is an increase in logit value, indicating the respondent can confirm choice 1 (strongly disagree) and 2 (disagree). Another measure that can be done is Andrich Threshold which moves from NONE then negative and continues to lead to positive logit values in sequence, this shows that the options given are valid for the respondent, because the instrument used has met the requirements for further measurement.

ATEG	ORY	OBSER	VED	OBSVD S	MPLE	INFIT O	UTFIT	ANDRICH	CATEGORY	
ABEL	SCO	RE COUN	IT %	AVRGE E	KPECT	MNSQ	MNSQ	THRESHOLD	MEASURE	
					+		+			
1	1	35	1	37	1.38	1.66	1.96	NONE	( -4.68)	1
2	2	226	4	46*	50	1.05	1.13	-3.50	-2.51	2
3	3	1077	17	.71	.81	.94	.97	-1.43	43	3
4	4	3263	51	2.48	2.45	.93	1.01	.49	2.48	4
5	5	1740	27	4.82	4.84	1.01	1.01	4.44	( 5.55)	5

Figure 4. Rating Scale

# 4.3 Unidimensionality

Instrument unidimensionality is a very important measure for evaluating the instruments developed capable of measuring the extent to which diversity of instruments measures what should be measured, in city brand attractiveness construct in figure 5 raw variance measurement is 53.1%, this indicates that the minimum unidimensionality requirements are 20% has been fulfilled, even more than 40% which means better results.

Figure 5. Unidimensionalitas

## 4.4 Person Measure

Figure 5 provides information about the logit of each respondent, the value of the person logit of the respondent 053LB and other respondents with the logit value of +8.71 indicating that respondents have a tendency to have a high interest in city brand attractiveness compared to other respondents.

INPUT:	373 Pers	on 17	Item REP	ORTED: 37	3 Person	17 Item	5 CATS	WINS	TEPS 3	.73	
Person:	REAL SE	P.: 3.2	5 REL.:	.91 I	tem: REAL	SEP.: 7.4	6 REL.	: .98			
	Person	STATIS	TICS: ME	ASURE ORDE	∃R						
LENTRY	TOTAL	TOTAL		MODELI	INFIT	OUTFIT	IPT-MEA	SURE	EXACT	MATCH	i i
NUMBER	SCORE	COUNT	MEASURE	S.E. MNS							
ļ											
53		17		1.84		M MEASURE					053LB
107	85	17		1.84		M MEASURE					107LZ
179	85	17		1.84		M MEASURE					179PZ
187	85	17		1.84		M MEASURE					187PZ
198	85	17	8.71	1.84	MAXIMU	M MEASURE	.00	.00	100.0	100.0	198PZ
203	85	17		1.84		M MEASURE					203PZ
205	85	17	8.71	1.84	MAXIMU	M MEASURE	.00				205LZ
208	85	17	8.71	1.84	MAXIMU	M MEASURE	.00	.00	100.0	100.0	208PZ
210	85	17	8.71	1.84	MAXIMU	M MEASURE	.00	.00	100.0	100.0	210PZ
212	85	17	8.71	1.84	MAXIMU	M MEASURE	.00	.00	100.0	100.0	212PZ
233	85	17	8.71	1.84	MAXIMU	M MEASURE	.00	.00	100.0	100.0	233LZ
237	85	17	8.71	1.84	MAXIMU	M MEASURE	.00	.00	100.0	100.0	237PZ
241	85	17	8.71	1.84	MAXIMU	M MEASURE	.00	.00	100.0	100.0	241LZ
243	85	17	8.71	1.84	MAXIMU	M MEASURE	.00	.00	100.0	100.0	243PB

Figure 6. Person Measure

## 4.5 Item Measure

Figure 6 gives information about Items, the item logit value for N13 is +1.13 logit shows that this item is the most difficult to approve by the respondent, in city brand instrument attractiveness N13 is an Ancillary Service factor with questions about fast internet network, while item N1 with value - 2.07 logit is the item that is most easily approved by the respondent, namely the Tourism Attraction factor with the statement that clean tourist sites are the main attraction.

			Item REP									73	
	Item S	TATIST	CS: MEAS	URE ORDE	R								
ENTRY	TOTAL	TOTAL		MODEL	IN	FIT	OUT	FIT	PT-MEA	SURE	EXACT	MATCH	
NUMBER	SCORE	COUNT	MEASURE	S.E. I	4NSQ	ZSTD	MNSQ	ZSTD	CORR.	EXP.	OBS%	EXP%	Item
13	1383	373	1.13	.09 1	1.28	3.3	1.28	3.3	.76	.75	58.6	62.1	N13
12	1401		.97							.75	68.6	62.9	N12
8	1406	373	.93	.09 1	1.01	.1	1.03	.4	.78	.75	66.6	63.1	N8
9	1411	373						7		.75	67.4	63.8	N9
5	1434	373	.68	.10 1	.27	3.2	1.45	4.7	.64	.74	61.1	64.7	N5
15	1455	373	.48	.10	.96	5	.96	4	.74	.74	67.1	65.7	N15
6	1486	373	.17	.10	.91	-1.0	.93	8	.74	.73	70.0	66.8	N6
11	1491	373	.12	.10	.89	-1.3	.84	-1.8	.75	.73	68.9	67.5	N11
14	1509	373	06	.10	.89	-1.3	.84	-1.8	.75	.72	73.4	68.4	N14
10	1520	373	18	.10	.83	-2.1	.81	-2.2	.72	.72	72.3	68.9	N10
3	1524	373	22	.10 1	1.05	.7	1.03	.3	.71	.71	68.0	69.0	N3
7	1537	373	36	.11	.82	-2.3	.78	-2.5	.74	.71	77.4	69.6	N7
16	1547	373	48	.11	.82	-2.2	.78	-2.4	.76	.71	74.9	69.9	N16
17	1549	373	50	.11	.90	-1.1	.82	-1.9	.75	.70	72.3	70.0	N17
2	1557	373	59	.11 1	1.04	.4	1.11	1.1	.67	.70	73.7	70.4	N2
4	1585	373	92	.11	.95	6	1.24	2.1	.65	.69	73.4	71.0	N4
1	1675	373	-2.07					3.9	.53	.62	61.1	71.7	N1
	4400.0	272.0										67.4	
			.00								69.1		
5.0.	/4.7	.0	.80	.01	.19	2.2	. 25	2.2			5.1	3.0	

Figure 5. Item Measure

# 4.6 Conclusion

The research question of this study is, 'how do tourists respond to city brand attractiveness in West Bandung Regency? 'In the Rasch measurement model analysis map, we note from the variable map, that most tourists are located below the average test item. Only a few tourists with higher responses, logs and some tourists with weak responses. Log values are obtained from the maximum size and minimum size. Thus, we can state the response to city brand attractiveness is very low because most of them cannot respond well to questions and the items are quite difficult for them. In other words, the attractiveness of the city is considered not to function well enough in accordance with the wishes of tourists and separating tourists into the level of expectation mismatch.

The reason is that tourists are not familiar with the larger concepts of city brand attractiveness. Things like accessibility, easy transportation and other concepts are explored in this study. This study showed that participants did not find facilities that met their expectations and overall did not find a

high level of attractiveness. Therefore, to get a good response from tourists, it is recommended that more items be added to the survey and the number and diversity of respondents be expanded.

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