

Mountain Adventurer's Personality Trait and Decision-making based on Complexity method: The Process and Effect

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Abstract. Mountain adventure is an important part of outdoor sports. Since mountain outdoor sports is full of risk, it is valuable to study on the complex relationship between adventurers' personality traits and decision-making. We administered a survey to collect the view of 383 adventurers in the Mount Si guniang Scenic Spot and used the fuzzy set comparative analysis method (fsQCA), The result revealed: low level adventure cognitive and low level self-confidence, low level self-center, and low level planning tendency led to low level adventure decision-making. High level uncertainty tendency and high level goal-oriented, based on the conditions of other antecedents in the causal recipe, served as both a positive and a negative indicator of adventure decision-making. Therefore, the effect of high level uncertainty tendency and high level goal oriented on adventure decision-making had certain complexity and uncertainty. This study also revealed that high level adventure decision-making person must be high level sensation seeking and low level process oriented. Low level adventure decision-making must had low level adventure cognitive and low level risk avoidance awareness. High level income and outdoor adventure enthusiast are more likely to make high level adventure decision and vice versa. While depending on the attributes of other antecedent, demographic variables such as gender, age, marital status, and education background, the causality effects are complex and uncertain.

1. Introduction

Outdoor sports and mountain adventures have always been regarded as "brave" games. It originated from the mountaineering in the Alps at the end of the 18th century and the early adventure and scientific expeditions (Sang et al 2017) [1]. Outdoor sports were introduced into China in the 1980s and developed rapidly (Guo, 2008) [2]. Nowadays, it is regarded as a fashion sport and a healthy lifestyle (Ma et al 2015) [3]. Outdoor sports gradually become national fitness activities from the exclusive to a few people. According to the National Development and Reform Commission's Consumption Development Report of Chinese Residents 20171, in 2017, the general outdoor sport population (participating in outdoor sports at least once a year) reached 130-170 million and 60-70 million people participated in mountain outdoor sports regularly. The Mountain Outdoor Sports Industry Development Plan issued by the State Administration of Sports (2016)2

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¹ National Development and Reform Commission of the People's Republic of China. 2017 China Residents Consumption Development Report

<http://www.ndrc.gov.cn/fzgggz/hgjj/201805/t20180522886774.html>, 2018-05-22.

² General Administration of Sports et al, Mountain Outdoor Sports Industry Development Plan, <http://www.sport.gov.cn/n316/n340/c774637/content.html>, 2016-11-08.

aims to achieve a total scale of 400 billion RMB by 2020. Behind the rapid development of the industry, accidents were happened frequently in the outdoor sports, like mountaineering, with 70 deaths in 2017 and 63 deaths in 2016, which were the same as the highest mortality rate in 2014 and 44 deaths in 2015³. This problem are affecting sustainable development of mountain outdoor sports. Nowadays, China scholars mainly focus on five core areas likes outdoor specialty, outdoor recreation, outdoor education, outdoor competition, outdoor adventure (Song et al, 2018)[4] from the “competitiveness” and “safety” perspective(Guo; Song et al, 2018)[2,4].The specific outdoor adventure research mostly focuses on the summary the inspiration of international research (Ma et al.,2015[3]) International researchers focus on outdoor sport or adventure from psychology (Zuckerman, 1979; Jack & Ronan, 1998; Figner & Weber, 2015) [5-7]; sociology (Butler,2019)[8]; management (Buckley, 2007)[9] perspective to conduct multi-perspective research, involving personality (Figner&Weber,2015; Tsung et al,2015)[7][10] motivation (Pomfret, 2006) [11], behavior and satisfaction (Tsung et al, 2015) [10], The impact of adventure tourism on the natural environment and cultural norms of destination (Nehal,2008; Pope,2018)[12], risk prevention and safety management of adventure activities (Bentley, 2008; Nwankwo et al,2018)[13-14] .Therefore, this paper will focus on the mountain adventure 'personality traits and adventure decision-making. Since mountain outdoor sports full of risks, adventurers would face the risks of hypoxia, hypothermia, slipping, falling, mountain torrents, Alpine disease (Bentley, 2008)[13], while those mountain adventurers usually has a high adventure cognitive; sensation seeking (Zuckerman, 1979; Pomfret, 2006)[5][11]; Self-confidence (Dann,1977; Pomfret, 2006; Qiu, 2005)[11][15]; Self-Center (Cheng&Luo, 2016)[16] and other personality traits. And also repents process-oriented or goal-oriented (Pomfret, 2006)[11], planning tendency and uncertainty tendency (Cheng& Luo, 2016) [16], strong and weak Adventure risk avoidance consciousness (Tok, 2011)[17] behavior characteristic etc. Therefore, the mountain outdoor adventure decision-making is highly complex, but most of the research were based on simple linear interaction (Tok, 2011[17]; Tsung et al, 2015[10]; McEwan et al, 2019[18]). This paper will explore the personality trait and mountain outdoor adventure decision-making from the perspective of complexity theory, and try to reveal intrinsic logic of the complex relationship between the personality traits and adventure decision-making behavior, that has great practical significance to the sustainable development of mountain outdoor sports.

2. Literature Review

2.1. Personality Traits and Behaviour Characteristics

Personality, is a relatively stable psychological characteristic formed by long-term development of individuals (Figner& Weber, 2015)^[7]. Personality is closely related to behaviour, and personality influences behaviour. Behaviour is the reflection of personality trait. People with different personalities also shows different characteristics in their adventure decision-making behaviour. Generally, personality is considered to be an important factor in people's participation in risky sports (Jack & Ronan, 1998)^[6]. As early as 1960, Berlyne believed that everyone had their own optimal stimulation level (OSL), while people with low OSL did not tend to choose risky activities such as mountaineering, skydiving, cross-continental travel or vice versa (Weber, 2001). Zuckerman (1979) believed that “sensation seeking as seeking of varied, novel, complex and intense sensations experiences and the willingness to take physical, social, legal and financial risks for sake of such experiences”. Researchers had also revised four-factor structure of “sensation seeking”. Thrill and adventure seeking, experience seeking, disinhibition, boredom susceptibility (Zuckerman, 1979, 1994; Pomfret, 2011)^{[5][11]}. Zuckerman (1979) further studies found that people who was sensation seeker, tend to choose jobs involving high levels of change, flexibility and some

³China Mountaineering Outdoor Sports Accident Information Platform. <http://cmasports.sport.org.cn/zt/xxpt/sbg/2015-05-25/471067.html>,2018-7-13.

kind of risks^[5]. In addition, Dann (1977) explained travel behaviour with push-pull theory, believing that self-confidence was the driving factor of decision-making like escape, social recognition and sociality. Self-confidence also affected travel decision-making (Qiu, 2005)^[15]. Pomfret (2016) further believed that self-confidence was the driving factor of mountaineering. In addition, self-center (Cheng& Luo, 2016) were also considered to an important personality trait of adventurers. In addition, as a risky outdoor sport, Pomfret (2006)^[11] confirmed that adventure cognitive influences the adventure decision-making, with higher the individual's adventure cognitive, the more inclined to choose the adventure behaviour. Scholars had proposed that mountain adventurers who were process oriented paying attention to excitement and pleasure in the process. And “goal oriented” were (Pomfret, 2006)^[11] seeking goal achievement and recognition (Cheng& Luo, 2016^[16]), McEwan et al, 2019^[18] confirmed that personality trait and goal oriented significantly affect the participation of high-risk sports. Cheng and Luo (2016)^[16] further proposed that adventurer 'behavior characteristic could be divided into “planning tendency” and “uncertainty tendency”. As a high-risk sport, risk avoidance consciousness also affects adventure decision-making. Tok (2011) indicated that extroverted, open, low level risk avoidance consciousness people were more willing to participate in risk sport. Therefore, this paper studied the adventure cognitive, sensation seeking, self-confidence, self-center, risk avoidance consciousness, goal oriented or process oriented, planning tendency or uncertainty tendency as the “causal” of adventure decision-making.

2.2. Adventure Decision-making

Decision-making refers to participants evaluated relevant alternatives and made their final choice (Carroll & Johnson, 1990)^[19]. It mostly discussed from Expected Utility Theory, Prospect Theory, Regret Theory, Satisfaction Theory and Planning Behaviour Theory. In tourism research, decision-making is usually influenced by internal and external factors such as environment, risk preference, psychological, economic condition, group support, gender, personality trait and so on (Qiu et al, 2004)^[20], in which personality trait is important factor for decision-making (Carroll & Johnson, 1990; Tok, 2011)^{[17][19]}. Tsung et al (2015)^[10] research on white water rafting and scuba diving, introverted and open personality trait significantly affected risk-taking attitude, while risk-taking attitude significantly affected adventure behaviour. McEwan et al (2019)^[18] considered that sensation seeking, extroversion and impulse had significant effects on high-risk sports participation. Pomfret (2018)^[21] believed that skills development, seeking experience, close to natural, challenges, risks, sensation seeking and achievement and experiencing flow and increasing collective efficacy were also driving factors for adventure. Pomfret (2012)^[22] showed that packaged mountaineering people decisions-making was related to risk perception. In addition, such as social advocacy and promoting of certain behaviours, as well as the behaviour of individual reference groups, which play an important role in decision-making, while economic factors become the basic constraints of decision-making (Qiu&Wu,2004)^[20]. For gender, women were more sensitive to social environment and group attitudes in decision-making, while men were more susceptible to landscape (Qin&Lin, 2014)^[23].

2.3. Complexity Theory

Complexity theory is used to explain the non-linear and dynamic process of complex phenomena in various disciplines. It is based on Boolean algebra, Consistency and Coverage are used as indicators in asymmetric analysis. Consistency index gauges the degree to which the cases share a simple or complex condition in displaying the outcome in question. The coverage index assesses the degree to which a simple and complex causal condition (Woodside, 2014)^[24]. Olya (2018)^[25] and other scholars were applied to sub-disciplines of management, such as marketing and tourism. The study assessed the model results according to the complexity theory to understand the complex interactions of personality traits and behaviour characteristics in mountain outdoor sports and adventure decision-making.

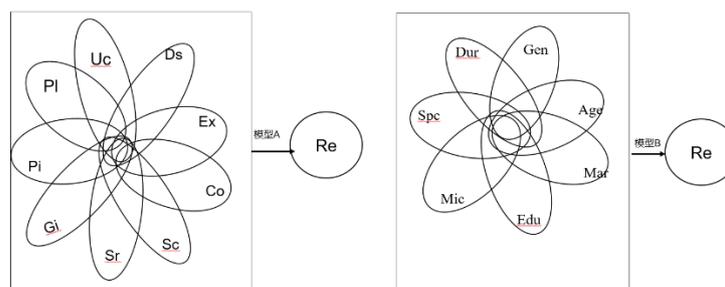


Figure 1 Proposed Model.

The proposed model consists of two parts (Figure 1). The causal configuration of the personality traits and behaviour characteristics antecedents of predicting adventure decision-making is indicated with model A, demographic variables antecedent of predicting adventure decision-making is indicated with model B. The outcomes represents under which circumstances, people participate in the adventure outdoor sports again and recommend to friends and others.

3. Methodology

3.1. Research process

SPSS 25.0, Smart PLS 2.0 and fsQCA 3.0 were used to analyse data, reliability were checked with SPSS25.0 in the first step. Then Smart PLS 2.0 was used to check the composite reliability and construct validity. In the second step, standard deviations, correlation, and cross-tabulation of the variables were calculated using SPSS25.0. In the third step, fsQCA3.0 software were applied for predicting high and low score for adventure decision-making outcomes.

3.2. Measurement instruments

Based on the mountain adventure decision-making model proposed by Cheng and Luo (2016), and the scale items were derived from relevant literature and modified based on the suggestion of experts. The responses to all items were on a five-point Likert scale ranging from 1=strongly disagree to 5=strongly agree. The questionnaire consisted of two sections. The first explored personality traits, behavioural characteristic and decision-making. While the second captured respondents' profiles and behavioural variables (frequency, duration, mode of travel, etc.)

3.3. Data and procedure

In order to further improving the content of the questionnaire, 60 data were collected from May and August 2017 in mount Siguniang. Siguniang is national scenic spot, the National Geopark. At present, there are outdoor sports such as mountaineering, horse riding, ice climbing, hiking, rafting and so on. The data were tested by reliability, validity and form final questionnaire. The surveys was administered from September 2017 to January 2018. A total of 408 visitors completed the survey and 25 invalid questionnaires were excluded, resulting in 383 valid questionnaires, a response rate of 93.87%.The respondents included, 228(59.5%) men and 155 (40.5%) women. Of the respondents, 45.7% were 18-25 years old, 36.8%were aged 26-35, 13.1 were aged 36-45 and 4.2% were aged 46-60. 67.9% of participants were unmarried. The monthly income of 25.1% the respondents was less than 2000 RMB, while 27.2% earned 2001-5000 RMB, 23.8% earned 5001-8000 RMB and 23.5%earned exceeded 8001 RMB. In terms of education background, 75.7% had bachelor or master degree. The duration of participation 67.4%was mainly 2-3 days. In this sample, 67.4% were general outdoor sports enthusiasts, 20.1% were outdoor sports enthusiasts while 5.5% were mountain outdoor adventure guide and 1.5% were professional adventurers.

4. Results

4.1. Reliability and Validity

The reliability of this study was checked using Cronbach's alpha, the values of overall reliability of this study was 0.946, each variable Cronbach's alpha range from 0.630 to 0.911, indicating that it had a high reliability (Woodside,2014)^[24]. To check construct validity, the composite reliability, average variance extracted were calculated. It revealed the composite reliability(CR)were larger than the commonly accepted level (0.7), range from 0.773to 0.924, which meant this research was validity. To confirm the measurement model, the psychometric approach CFA was needed to evaluate and refine the resulting scales. The results of CFA indicated that the standardized factor loading for each item was both greater than the recommended threshold (0.5).AVE of all factors was greater than corresponding value of composite reliability for each factor, which was evidence of convergent validity. According to Smart PLS, The results of coefficients showed, the predictive relevance Q^2 greater than 0(goal oriented $Q^2= 0.291$, process oriented $Q^2=0.211$, risk avoidance consciousness $Q^2 =0.308$, planning tendency $Q^2 =0.386$ uncertainty tendency $Q^2 =0.478$, Revisit and recommendation $Q^2 =0.434$), indicating that the prediction correlation of this study was significant, the goodness of model fit GOF is 0.506, indicating that the model had a good goodness of fit. In summary, it could be determined that the nine antecedents were suiTable and could be combined for fsQCA analysis.

4.2. Cross-tabulation

Woodside (2014)^[24] stated not all the cases support a negative or positive relationship between the independent and dependent variable, conventional research that was applied to a symmetrical approach provides misleading results. As Table 1 showed there were contrarian cases in the study: high level adventure cognitive not necessarily led to low level adventure decision-making (13 cases)

Table1 Results of Cross-Tabulation of Adventure cognitive and Adventure Decision-making.

			Adventure Decision-making					Total
			1	2	3	4	5	
Adventure Cognitive	1	Count	3	0	0	0	0	3
		% of Total	0.8%	0.0%	0.0%	0.0%	0.0%	0.8%
	2	Count	1	3	3	1	1	9
		% of Total	0.3%	0.8%	0.8%	0.3%	0.3%	2.3%
	3	Count		0	22	14	3	40
		% of Total	0.3%	0.0%	5.7%	3.7%	0.8%	10.4%
	4	Count	1	9	45	117	72	244
		% of Total	0.3%	2.3%	11.7%	30.5%	18.8%	63.7%
	5	Count	1	2	10	33	41	87
		% of Total	0.3%	0.5%	2.6%	8.6%	10.7%	22.7%
Total		Count	7	14	80	165	117	383
		% of Total	1.8%	3.7%	20.9%	43.1%	30.5%	100.0%

4.3. Results of fsQCA

From Table 2, it could be seen that the solution coverage was 0.495 and solution consistency was 0.935, which indicated that the explanatory of this model was good since the cutoffs for coverage and consistency were 0.20 and 0.8 respectively. At the same time, there was only one causal recipe (A1-1:Ds*Ex*Co*Sc*Sr*Gi*Pi*PI*Uc) leading to the high-level adventure decision-making.A2-3 (Uc*~PI*Pi*~Gi*~Sr*~Sc*~Co*~Ex*~Ds) had the highest consistency, which was 0.998. It showed that high level uncertainty, low level planning tendency, high level process

oriented, low level goal oriented, low level risk avoidance consciousness, low level self-confidence, low level personal center, low level sensation seeking and low level adventure cognitive led to low level adventure decision-making. Beside, low level adventure cognitive and low level self-confidence, low level self-center and low level planning tendency led to low level adventure decision-making, which had been confirmed in three causal recipes. In addition, high level tendency uncertainty and high level goal oriented led to both low and high level adventure decision-making.

Table2 Configural Models Support for adventure decision-making and Its Negation (Models A).

Models for Predicting High Score of Outcomes A1:Re = f(Ds,Ex,Co,Sc,Sr,Gi,Pi,Pl,Uc)				Models for predicting the negation of Outcomes A2:~ Re = f(Ds,Ex,Co,Sc,Sr,Gi,Pi,Pl,Uc)			
	RC	UC	C		RC	UC	C
1:Ds*Ex*Co*S c* Sr*Gi*Pi*Pl*U c	0.49 5	0.49 5	0.93 5	1:~Uc*~Pl*~Pi*~Sr* ~Co*Ex*~Ds	0.45 4	0.06 5	0.95 2
Solution coverage: 0.495 Solution consistency: 0.935				2:~Uc*~Pl*~Pi*~Gi* ~Sr*~Sc*~Co*~Ds	0.55 5	0.14 0	0.98 3
				3:Uc*~Pl*Pi*~Gi*~Sr*~Sc*~Co*~Ex *~Ds	0.24 9	0.03 3	0.99 8
				Solution coverage:0.662 Solution consistency: 0.940			

Note: The logic “Non” represented by the [~]; “And”, represented by the [*]

Table 3 the results of necessary condition analysis.

Antecedent condition	Outcome condition				Antecedent condition	Outcome condition			
	High level decision-making		Low level decision-making			High level decision-making		Low level decision-making	
	Consistency	Coverage	Consistency	Coverage		Consistency	Coverage	Consistency	Coverage
Ds	0.651	0.776	0.247	0.912	~Sr	0.823	0.281	0.949	0.891
~Ds	0.826	0.285	0.939	0.892	Gi	0.862	0.618	0.402	0.890
Ex	0.936	0.506	0.520	0.867	~Gi	0.846	0.314	0.828	0.949
~Ex	0.807	1.000	0.704	0.972	Pi	0.689	0.573	0.359	0.921
Co	0.806	0.648	0.357	0.888	~Pi	0.905	0.314	0.833	0.892
~Co	0.860	0.302	0.858	0.932	Pl	0.742	0.616	0.351	0.898
Sc	0.870	0.489	0.525	0.911	~Pl	0.877	0.304	0.850	0.911
~Sc	0.843	0.365	0.706	0.944	Uc	0.668	0.560	0.360	0.932
Sr	0.641	0.803	0.233	0.904	~Uc	0.819	0.317	0.830	0.885

Table4 Configural Models Support for adventure decision-making and Its Negation (Models B).

Models for Predicting High Score of Outcomes B1:Re =f(Gen,Age,Mar,Edu,Mic,Spc ,Dur)				Models for predicting the negation of Outcomes B2:~Re =f(Gen,Age,Mar,Edu,Mic, Spc,Dur)			
	RC	UC	C		RC	UC	C
1:Dur*Mic*~Spc*Mar* ~Age	0.4 15	0.0 44	0.7 11	1:Dur*~Edu*~Spc*Mar	0.6 86	0.0 06	0.8 98
2:~Gen*Dur*~Edu*~Spc*Mar *~Age	0.2 85	0.0 04	0.7 84	2:~Edu*~Spc*Mar* Age	0.6 93	0.0 05	0.8 95
3:~Dur*~Mic*~Edu*~Spc*Ma r*Age	0.2 91	0.0 26	0.8 05	3:Dur*Mic*~Spc*Mar	0.6 29	0.0 11	0.9 01
4:~Gen*~Dur*Mic*	0.2	0.0	0.7	4:Dur*~Spc*Mar*Age	0.7	0.0	0.9

~Edu*Mar*Age	68	36	98		12	14	06
5:Gen*~Mic*Edu*Spc*Mar*Age	0.302	0.027	0.831	5:Gen*Dur*~Mic*~Edu*Mar	0.249	0.003	0.954
6:Gen*Dur*~Mic*~Edu*Spc*Mar*~Age	0.304	0.009	0.849	6:Gen*Dur*~Edu*~Spc*Age	0.432	0.014	0.922
7:~Gen*Dur*~Mic*Edu*~Spc*Mar*Age	0.266	0.017	0.835	7:~Gen*Mic*~Edu*Mar*Age	0.306	0.003	0.995
8:Gen*~Dur*Mic*Edu*~Spc*Mar*Age	0.237	0.010	0.871	8:Gen*Mic*~Spc*Mar*Age	0.388	0.002	0.922
Model B1: Solution coverage: 0.561 Solution consistency: 0.601 Model B2: Solution coverage: 0.847 Solution consistency: 0.888				9:Gen*~Mic*Edu*Spc*Mar*Age	0.217	0.004	0.994
				10:Gen*Dur*~Edu*Mar*Age	0.446	0.003	0.922
				11:Dur*Mic*~Edu*Mar*Age	0.593	0.000	0.910

Note: The logic “Non” represented by the [~]; “And”, represented by the [*]

According to Schneider (2010)^[57], the recommended necessity consistency threshold of 0.9 was used to select the necessary conditions. Table 3 shows that high level sensation seeking and low level process oriented are necessary conditions for high level adventure decision-making. Low level adventure cognitive and low level risk avoidance consciousness were the necessary conditions for low level adventure decision-making.

There were eight configurations (Table4) that led to high level adventure decision-making. The causal recipe (B1-8: Gen*~Dur*Mic*Edu*~Spc*Mar*Age) had the highest consistency (0.871), indicating that male, highly educated, non-married, non-young, high monthly income, low duration, mountain enthusiasts were more likely to lead to high level adventure decision-making. And men, highly educated, non-married, non-young, low-income, non-mountain enthusiasts were more likely to lead to low level adventure decision-making.

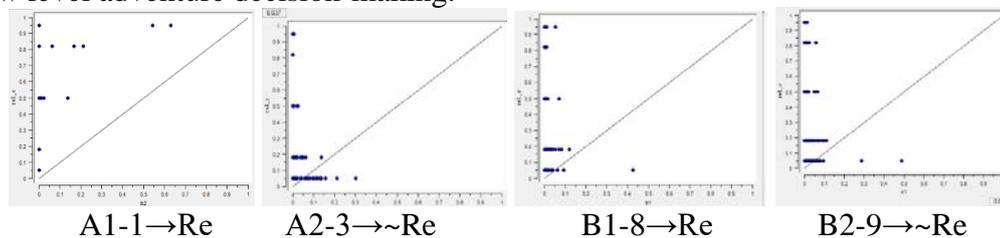


Figure2 The XY plots revealed an asymmetric relationship between outcomes and its causal models.

The XY plot is an intuitive representation of the causal recipe in the model, in this study, we choose causal recipes A1-1, A2-3, B1-8 and B2-9 from (model A1, model A2, model B1 and model B2) for XY plot. As could be seen from Figure 3, the relationship between condition X and corresponding result Y was asymmetric. It showed that all four condition X were sufficient for corresponding result Y, but the result Y could not only be explained by this condition.

4.4. Predictive Validity

To check the predictive validity of proposed configurational model. The study sample was divided into two subsamples. The fsQCA was performed for asymmetrical modeling in subsample1, then causal recipes for simulating the outcome condition was analyzed using the subsamples2. Table5 showed S2(~Uc*~Pl*~Pi*~gl*~Sr*~Sc*~Co*~Ds), this result of recipe with subsample 1 provided the same consistent result similar to a causal recipe for predicting high adventure decision-making score in a whole samples. Using subsamples 2 present the XY plots, the results showed that the relationship between condition X (S1 and S2) and outcome Y (low level adventure decision-making) is asymmetric (Figure3), these results verified the predictive validity of the proposed configural model.

Table5 Results of predictive validity.

Models for predicting the negation of Outcomes S:Re =f(Ds,Ex,Co,Sc,Sr,Gi,Pi,Pl,Uc)	RC	UC	C
S1:~Uc*~Pl*~Pi*~Sr*~Co*Ex*~DS	0.589	0.077	0.926
S2:~Uc*~Pl*~Pi*~gl*~Sr*~Sc*~Co*~Ds	0.693	0.181	0.970
S3:Uc*Pl*Pi*gl*Sr*Sc*Co*Ex*Ds	0.176	0.015	0.827
Solution coverage: 0.784 Solution consistency: 0.898			

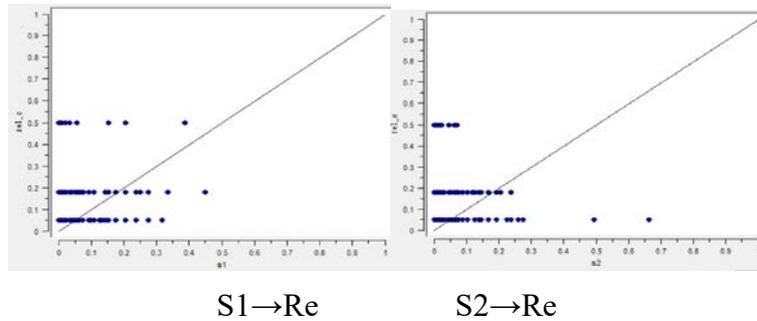


Figure3 The XY plots revealed an asymmetric relationship between outcomes and its causal models.

5. Conclusion

Firstly, low level adventure cognitive and low level self-confidence, low level self-center and low level planning tendency led to low level adventure decision-making. High level tendency uncertainty and high level goal oriented led to both high and low level adventure decision-making, the influence of tendency uncertainty and goal oriented on adventure decision-making was uncertain. High level sensation seeking and low level process oriented were the necessary conditions for high level adventure decision-making. Low level adventure cognitive and low level risk avoidance consciousness are the necessary conditions for low level adventure decision-making. Therefore, those who had sensation seeking traits was not necessarily high level adventure decision-making, but those with high level adventure decision-making was sensation seeker. This result confirmed that many scholars opinion that sensation seeking was an important adventurers personality traits (Zuckerman et al) ^[5]. People who were high-level adventure decisions may pay more attention to the goal achievement rather than the process (low level process oriented was a necessary condition for high-level adventure decisions).At the same time, high level goal oriented may lead to high and low level adventure decisions, it showed that high level goal oriented was not necessary for adventure decision-making. In addition, low level adventure decision-makers had low level adventure cognitive, low level risk avoidance consciousness, it showed that outdoor adventure decision was not in random, but was well “prepared”. When an individual lacks adventure cognitive and do not prepare well for all of this, also when it could not guarantee for safe, without knowledge and skills of adventure, and could not sure of their physical and equipment were in good condition were unlikely to participate in it. And they were less likely to recommend other people too.

Based on demographic characteristics, male, non-young, non-married and highly educated people led to both high and low level adventure decision-making. Therefore, gender, age, marital status and education causality effects were complex and uncertain. High level income, outdoor adventure enthusiasts were more likely to lead to high adventure decision-making, while low level income, non-outdoor adventure enthusiasts were more likely to lead to low level adventure decision-making. It showed that people involved in outdoor sports and recommended to others because they loving it. Gender, age, marital status and education can only affect but not had a decisive impact on the adventure decision-making. Professional outdoor adventure activities might require more equipment, so high income people were more likely to participate. Finally, people were more inclined to choose short-distance outdoor adventure activities in this study.

6. Contribution and Limitation

The main contributions of this paper were as follows: firstly, empirically studied on the theoretical model of mountain outdoor explorers' adventure decision-making proposed by Cheng Li and Luo Pian, and tried to explain the configurational relationships among “personality traits”, “behavioral characteristics” and “decision-making” of mountain adventure with complex theory. It can further enrich, explore and apply the dimensions of personality traits, behavioral characteristics and adventure decision-making.

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1) National Development and Reform Commission of the People's Republic of China. 2017 China Residents Consumption Development Report <http://www.ndrc.gov.cn/fzgggz/hgjj/201805/t20180522886774.html>, 2018-05-22.

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