



Integration Research on Driving Factors of Green Innovation in Tourism Enterprises

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Abstract. This paper sorts out the influencing factors and formation mechanism of corporate green innovation, and determines that the two-dimensional regulatory pressure of mandatory pressure and incentive pressure, and the three-dimensional normative pressure of customer environmental protection pressure, competitor imitation pressure, and media public opinion pressure affect enterprises. The basic framework of green innovation, and introduces two variables of corporate environmental protection ethics and executive adjustment focus. It aims to understand the complex mechanism of the formation process of corporate green innovation from the three levels of external system, corporate internal atmosphere and executive personal characteristics.

Keywords: regulatory pressure · environmental ethics · green innovation

1 Introduction

Research on the influencing factors of corporate green innovation has received widespread attention from the academic community. Research on the influencing factors of corporate green innovation has received widespread attention from the academic community. Berrone et al. (2013) and Horbach et al. (2012) both pointed out that institutional pressure and environmental regulation are the main sources of motivation for enterprises to carry out green innovation. Cai and Zhou (2014), Lin et al. (2014), Albino et al. (2012) considered that the green awareness and behavioral participation of stakeholders such as competitors, customers, suppliers, and NGOs can play a role in the exploration of corporate green innovation practices. To the positive effect [3–5]. Based on the resource-based perspective, many scholars have studied the influencing factors of corporate green innovation from the aspects of enterprise scale, technical capabilities, green dynamic capabilities, and human resources (Przychodzen and Przychodzen, 2018; Cuerva et al., 2014; Xing Liyun and Yu Huixin, 2018; Cainelli et al., 2015). Based on the resource-based perspective, many scholars have studied the influencing factors of corporate green innovation from the aspects of enterprise scale, technical capabilities, green dynamic capabilities, and human resources. But still there are following deficiencies. This paper takes the tourism industry as the research background, integrates the three levels of driving factors under the same research framework, and aims to clarify

the impact of the complex interaction of the external environment, internal organization culture and executive personal characteristics on corporate green innovation, and to provide incentives for the government. Provide management suggestions for tourism enterprises to carry out green innovation and enterprises to create a green and innovative image [3].

2 Theoretical Analysis and Research Hypothesis

2.1 Institutional Pressure and Corporate Green Innovation

According to Chen Litian et al. (2018), this study divides institutional pressure into two aspects: regulatory pressure and normative pressure [1]. The former refers to the direct command and control of related enterprises from the administrative body, that is, the government, and can be divided into compulsory regulation and incentive regulation. The latter refers to the pressure of stakeholders other than the government, such as customers, competitors, media, etc., on the decision-making and behavior choices of enterprises caused by actual or potential needs in certain aspects. Referring to the dimension division of normative pressure in existing studies, and considering the fact that this paper mainly studies the driving factors of corporate green innovation, normative pressure is divided into customer environmental protection pressure, competitor imitation pressure and media public opinion pressure [2].

2.1.1 Regulatory Pressure and Corporate Green Innovation

Environmental laws and regulations formulated by the government, corporate environmental assessment indicators and other relevant policies are conducive to enterprises to clarify the bottom line of their own environmental responsibilities, so that they can take the lead in formulating their own strategies, strategies and specific implementation measures in terms of environmental management, which in turn is conducive to guiding Enterprises should do a good job of green environmental protection planning in advance. Based on this, it is hypothesized that:

H1a: Mandatory regulatory pressure is conducive to green innovation.

H1b: Incentive regulatory pressure is conducive to green innovation.

2.1.2 Regulatory Pressure and Corporate Green Innovation

As far as customers' environmental protection pressure is concerned, some studies have pointed out that the more obvious customers' environmental protection requirements and environmental awareness are, the more willing they are to choose products, brands and services from resource-saving and environment-friendly enterprises (Zhu et al., 2007; Li et al., 2016) [4, 5].

As far as the pressure of media public opinion is concerned, according to the viewpoint of agenda-setting theory, the degree of media attention or coverage of a certain social phenomenon or issue will largely affect public opinion (McCombs, 2005) [6].

Based on the above, it is hypothesized that:

H2a: Environmental pressure is conducive to driving green innovation of enterprises.

H2b: Competitor imitation pressure is conducive to driving green innovation of enterprises.

H2c: The pressure of media and public opinion is conducive to driving green innovation.

2.2 Moderating Role of Environmental Ethics

Environmental ethics refers to the degree to which an enterprise integrates environmental protection into organizational culture, strategy formulation, and operation management (Chen Litian et al., 2018) [7]. This paper believes that facing the same degree of external system pressure, enterprises with high environmental ethics will develop more Green innovation attempts. Based on this, it is hypothesized that:

H3a/3b: Corporate environmental ethics positively regulates the driving effect of mandatory/incentive regulation on green innovation [9].

H3c/3d/3e: Corporate environmental ethics positively regulate the driving effect of customer environmental protection pressure/competitor imitation pressure/media public opinion pressure on green innovation.

2.3 The Moderating Effect of Executive Regulatory Focus

Regulatory focus theory was proposed by Higgins (1997), which has a good explanatory power for situations where differences in individual traits lead to different decisions and behaviors [8]. Regulatory focus can be divided into facilitative focus and defensive focus. Based on this, it is hypothesized that:

H4a/4b: Executive-promoted focus positively regulates the driving effect of mandatory/incentive regulation on green innovation.

H4c/4d/4e: Executive-promoted focus positively regulates the driving effect of customer environmental protection pressure/competitor imitation pressure/media public opinion pressure on green innovation.

H5a/5b: Executive defensive focus negatively regulates the driving effect of mandatory/incentive regulation on green innovation [10].

H5c/5d/5e: Defensive focus of executives negatively regulates the driving effect of customer environmental protection pressure/competitor imitation pressure/media public opinion pressure on green innovation.

3 Research Methods

3.1 Measurement of Variables

In this paper, a 7-point Likert scale (1 means very disapproved, 7 means very approved) is used to measure 9 main variables—coercive pressure, incentive pressure, customer environmental protection pressure, competitor imitation pressure, media public opinion pressure, corporate Environmental ethics, executive-promoted regulatory focus, executive defensive regulatory focus, and corporate green innovation are measured.

3.2 Collection of Data

In this study, questionnaires were collected in the form of questionnaires. A total of 410 questionnaires were distributed, and 240 questionnaires were returned. After careful screening, SPSS software was used to eliminate outliers, and manual inspection was used to eliminate questionnaires with certain regularity in answering. The final valid questionnaire There were 190 copies, and the effective recovery rate was 79.1%. Further data analysis can be carried out.

Regarding the demographic characteristics of the returned questionnaires, by gender, male employees accounted for 79.3% and female employees accounted for 20.7%; by age group, 15.6% were between 20–30, and 34.9% were between 30–40, over 40 years old accounted for 49.5%; in terms of working years, 1.2% for 1–3 years, 38.4% for 3–8 years, 60.4% for 8 years or more; in terms of education level, master's degree or above accounted for 1.2% 10.6%, undergraduate education accounted for 39.5%, junior college education accounted for 37.4%, high school education and below accounted for 12.5%.

4 Empirical Analysis

4.1 Reliability and Validity

Before the reliability and validity test, confirmatory factor analysis should be performed on the nine main variables in the model framework to judge the goodness of fit between the theoretical model and the research data. This paper uses the modeling software AMOS21.0 to implement. The factor loadings are all greater than 0.60, and the specific fitting indicators are as follows: $\chi^2(190) = 348.246$ ($p = 0.000$), $\chi^2/df = 2.261$, RMSEA = 0.069, NFI = 0.903, CFI = 0.912, IFI = 0.936, RFI = 0.881, Its goodness of fit is acceptable. This paper uses the Cronbach α coefficient, which is mostly used in the academic circles, for reliability analysis. The evaluation criteria are: if the value of Cronbach α is greater than 0.7, it means that the constructs in the research framework have good reliability. Validity includes two types of convergent validity and discriminant validity, and this paper uses the average extraction variance method to test. The evaluation criteria are: if the average extraction variance of a variable exceeds 0.5, the convergent validity will pass the test; if the square root of the average extraction variance of any variable is greater than the Pearson correlation coefficient between it and other variables, then the discriminant validity will pass the test. According to the descriptive statistical results in Table 1, the Cronbach α coefficient and the average extraction variance of each variable all meet the above-mentioned critical criteria. Therefore, the reliability and validity of the measurement in this paper meet the requirements.

4.2 Hypothesis Testing

This paper uses the hierarchical regression method to verify the direct effect of institutional pressure on corporate green innovation and the moderating effect of corporate environmental ethics and executive adjustment. The specific analysis results are shown in Table 2.

Table 1. Descriptive statistical analysis

| | average | Cronbach α | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--------------------------|---------|----------------------|----------|----------|----------|----------|----------|----------|---------|----------|-------|
| 1 Mandatory pressure | 4.5019 | 0.765 | 0.64 | | | | | | | | |
| 2 Motivational pressure | 3.728 | 0.831 | 0.365** | 0.531 | | | | | | | |
| 3 Environmental pressure | 4.2961 | 0.773 | 0.372** | 0.267** | 0.583 | | | | | | |
| 4 mimic stress | 4.132 | 0.735 | 0.247* | 0.301** | 0.322*** | 0.601 | | | | | |
| 5 Public pressure | 3.4693 | 0.82 | 0.420*** | 0.249** | 0.254** | 0.193** | 0.594 | | | | |
| 6 environmental ethics | 3.8662 | 0.861 | 0.396** | 0.408*** | 0.361*** | 0.340** | 0.421*** | 0.612 | | | |
| 7 Promoted adjust focus | 3.0321 | 0.786 | 0.197* | 0.265** | 0.196* | 0.254** | 0.245** | 0.380** | 0.595 | | |
| 8 Defensive adjust focus | 4.0572 | 0.833 | 0.168* | 0.209** | 0.240** | 0.221** | 0.196** | 0.154** | 0.037 | 0.541 | |
| 9 green innovation | 3.7644 | 0.798 | 0.467*** | 0.670** | 0.482*** | 0.653*** | 0.548*** | 0.762*** | 0.297** | -0.213** | 0.519 |

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ (two-sided); pearson correlation coefficients in matrix lower triangular; mean extraction variance in diagonal

First, from Step 2 in Table 2, it can be seen that the regression coefficient of corporate green innovation on mandatory pressure is positively significant ($\beta = 0.463, P \leq 0.001$), and the regression coefficient on incentive pressure is positively significant ($\beta = 0.582, P \leq 0.001$), the regression coefficient on customer environmental protection pressure is positively significant ($\beta = 0.318, P \leq 0.01$), the regression coefficient on competitor imitation pressure is positively significant ($\beta = 0.396, P \leq 0.01$), and the regression coefficient on media public opinion pressure Positively significant ($\beta = 0.501, P \leq 0.001$). So far, hypotheses H1 and H2 have been verified.

Secondly, from Step 4 in Table 2, it can be seen that the interaction coefficients of the two dimensions of regulatory pressure and the three dimensions of normative pressure are significant, and ΔR^2 is significant, so corporate environmental ethics has a significant moderating effect on institutional pressure and corporate green innovation. So far, hypothesis H3 has been verified.

Finally, it can be seen from Step 6 in Table 2 that, except for the insignificant coefficient of the interaction term of mandatory regulatory pressure, the coefficients of the interaction term of other dimension variables are all significant and ΔR^2 is significant, so Hypothesis 4a has not been verified, and Hypothesis 4b/4c/4d/4e are verified. Similarly, from Step 8 in Table 2, it can be seen that the interaction term coefficients of mandatory regulatory pressure and competitor imitation pressure are not significant, while the interaction term coefficients of incentive regulatory pressure, customer environmental protection pressure and media public opinion pressure are significant and ΔR^2 is significant, so Hypothesis 5a /5d is not verified, hypothetically 5b/5c/5e are verified.

Table 2. Hypothesis Test Results

| Explanatory variables | Dependent variable (corporate green innovation) | | | | | | | |
|---|---|----------|----------|----------|---------|---------|---------|---------|
| | Step1 | Step2 | Step3 | Step4 | Step5 | Step6 | Step7 | Step8 |
| control variable | | | | | | | | |
| gender | -0.004 | -0.034 | -0.123 | -0.143* | -0.137* | -0.105 | -0.031 | -0.051 |
| Age | 0.211** | 0.132* | 0.044 | -0.006 | 0.021 | -0.016 | -0.011 | -0.011 |
| education level | 0.021 | 0.054 | -0.008 | -0.017 | -0.002 | 0.121 | 0.009 | -0.012 |
| Seniority | 0.019 | -0.008 | -0.009 | -0.002 | -0.007 | -0.01 | -0.004 | -0.002 |
| independent variable | | | | | | | | |
| mandatory regulatory pressure | | 0.463*** | 0.423** | 0.381** | 0.258** | 0.229** | 0.173** | 0.201** |
| incentive regulatory pressure | | 0.582*** | 0.467* | 0.411** | 0.326** | 0.402** | 0.287** | 0.264** |
| Environmental pressure from customers | | 0.318** | 0.268** | 0.233** | 0.185** | 0.219** | 0.193** | 0.189** |
| competitor imitation pressure | | 0.396** | 0.229** | 0.138** | 0.116** | 0.196** | 0.228** | 0.214** |
| pressure from the media | | 0.501*** | 0.447*** | 0.419** | 0.319** | 0.321** | 0.406** | 0.388** |
| Moderator | | | | | | | | |
| Corporate Environmental Ethics | | | 0.521*** | 0.493*** | | | | |
| Executive Facilitated Focus | | | | | 0.263** | 0.247** | | |
| Executive Defensive Focus | | | | | | | -0.176* | -0.132* |
| interaction effect | | | | | | | | |
| Mandatory*Environmental Ethics | | | | 0.147** | | | | |
| Motivational* Environmental Ethics | | | | 0.138** | | | | |
| Customer pressure*Environmental ethics | | | | 0.093* | | | | |
| Competitive Pressure*Environmental Ethics | | | | 0.167** | | | | |
| Media Opinion*Environmental Ethics | | | | 0.173** | | | | |
| Compulsory* promotes focus | | | | | | 0.003 | | |
| Motivational* promotes focus | | | | | | 0.059** | | |
| Customer pressure* promotes focus | | | | | | 0.193** | | |
| Competitive pressure* promotes focus | | | | | | 0.042** | | |
| Media Opinion* Promotes Focus | | | | | | 0.113** | | |
| Mandatory* Defense Focus | | | | | | | | -0.009 |

(continued)

Table 2. (continued)

| Explanatory variables | Dependent variable (corporate green innovation) | | | | | | | |
|-------------------------------------|---|---------|---------|---------|---------|---------|---------|---------|
| | Step1 | Step2 | Step3 | Step4 | Step5 | Step6 | Step7 | Step8 |
| Motivational* Defense Focus | | | | | | | | -0.103* |
| Customer Pressure* Defense Focus | | | | | | | | -0.051* |
| competitive pressure* defense focus | | | | | | | | -0.002 |
| Media Opinion* Defense Focus | | | | | | | | -0.072* |
| F value | 3.461 | 12.369 | 15.628 | 14.588 | 16.321 | 13.635 | 14.451 | 14.386 |
| R ² | 0.024 | 0.153 | 0.237 | 0.341 | 0.383 | 0.415 | 0.432 | 0.463 |
| ΔR ² | 0.024*** | 0.129** | 0.084** | 0.104** | 0.042** | 0.032** | 0.017** | 0.031** |

5 Conclusions and Implications

5.1 Research Conclusions

Based on the existing research, this paper explores the influencing factors and formation mechanism of corporate green innovation from the three levels of external environment, corporate internal atmosphere and executive personal characteristics, and conducts empirical research on top managers of tourism companies in southern Anhui. Then some conclusions are formed: mandatory regulation and incentive regulation, customer environmental protection pressure, competitor imitation pressure, and media public opinion pressure all positively and significantly affect corporate innovation behavior. At the same time, corporate environmental ethics positively regulates the positive impact of regulatory pressure and normative pressure on corporate innovation behavior. The executive-promoting regulation focuses on the positive impact of the various dimensions of incentive regulation and normative pressure on corporate innovation behavior; the executive defensive regulation focuses on the negative regulation of regulatory pressure. Positive impact of corporate innovation behavior.

5.2 Research Implications

On the theoretical level, this paper puts the factors that may affect the green innovation of enterprises from multiple levels and perspectives, that is, institutional pressure, corporate environmental ethics and executive adjustment, into the same research framework, and deeply explores the complex mechanism among them. An important addition to existing research.

On the practical level, the relevant conclusions drawn from the empirical research in this paper can play an important guiding role for the government to encourage tourism enterprises to carry out green innovation, and for enterprises to devote themselves to building green enterprises and establishing a green brand image. First, the government side.

First, the conclusion of this study shows that both mandatory regulation and incentive regulation can effectively drive enterprises to carry out green innovation, and the driving effect of incentive regulation is stronger. This reminds government agencies that while constantly improving laws and regulations on environmental protection, they should pay more attention to the important role of incentive regulations. Specifically, they can adopt green innovation subsidy rates, failure compensation rates, and even actively carry out green technology innovation and management innovation. Enterprises provide incentive measures such as tax reduction and exemption to promote green innovation of enterprises.

Second, the conclusion of this study shows that the pressure of customers' environmental protection, the pressure of competitors' imitation and the pressure of media public opinion have obvious positive effects on the green innovation of enterprises. Therefore, the government should strengthen the popularization and publicity of environmental protection knowledge in the whole society, make people aware of the importance of environmental protection and the great harm of environmental damage, and improve the awareness of environmental protection of the whole people; the government can also actively carry out green innovation. Enterprises provide policy advantages, reduce their operating costs, and then inspire companies in the same industry to actively follow suit.

Third, this study shows that executive facilitative focus plays a positive moderating role in the process of regulatory pressure and normative pressure affecting corporate green innovation, which reminds relevant government agencies to examine tourism practitioners' qualification examinations to a certain extent. The personal characteristics of the personnel, under the same conditions, can give priority to those who have the characteristics of promotional adjustment and focus.

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