

Supply Chain Governance: Theoretical Basis and Research Review

Zhihui Xiong

Guangzhou College of Commerce, Guangzhou, Guangdong 511363, China

Abstract

Problems such as environmental pollution and ecological deterioration is highlighted, one-sided pursuit of economic interests while ignoring to the society and the environment to reduce supply chain become the negative effect brought by the environmental and social performance, to become each benefit main body on the supply chain the restriction factor of sustainable development, sustainable management of supply chain is an effective way to realize sustainable development of the supply chain. This paper studies the influencing factors and governance mechanism of supply chain sustainable governance, and takes the manufacturing industry as an example to put forward the strategy to realize the sustainable governance of manufacturing supply chain.

Keywords

Supply Chain Sustainable Governance; Influence Mechanism; Strategy and Tactics.

1. Introduction

The fifth Plenary Session of the 19th CPC Central Committee stressed that the development concept of "innovative, coordinated, green, open and shared" must be firmly established and implemented in order to achieve the development goals of the 14th Five-Year Plan period, solve development problems and cultivate development advantages. "Made in China 2025" proposes to adhere to the basic principle of "innovation-driven, quality first, green development, structural optimization, talent oriented". These policies emphasize green development and innovation-driven development. However, developing economy and protecting the environment seem to be two contradictory aspects. In order to accelerate economic development, people have been blindly developing economy at the cost of sacrificing the environment, which has caused the threat of resource reduction, environmental deterioration and ecological imbalance. Sustainable development is development that meets the needs of the present without jeopardizing the ability of future generations to meet their needs. The sustainability of supply chain refers to the reasonable utilization degree of resources in each link of supply chain operation. The study of sustainable governance mechanism of supply chain can measure the reasonable utilization degree of overall resources used in supply chain and determine whether each link of sustainable supply chain reaches the standard. So as to determine whether the sustainable supply chain is different from the traditional supply chain which simply pays attention to the economy and ignores the sustainable utilization of resources and environmental protection.

Compared with the high-tech industry, manufacturing industry is a manufacturing and processing industry mainly characterized by labor-intensive or capital-intensive, with traditional and general technology as the main means of production. As the leading industry in the industrial society, manufacturing consumes a lot of resources and energy and generates a lot of wastes and pollutants in the process of turning raw materials into final products. With the development of economy and the expansion of enterprise scale, the manufacturing industry's

demand for natural resources increases sharply, which leads to the over-exploitation of resources and energy and further deterioration of the environment. Based on this, manufacturing enterprises have to increase the cost of pollution control to enhance their competitiveness in the industry, which will greatly increase the social and production costs of enterprises.

Therefore, the sustainable governance of supply chain is an important way to realize the sustainable development of manufacturing supply chain. Taking this as a starting point, this study combs the research status and theoretical analysis of supply chain governance, and proposes the governance strategy for the sustainable development of manufacturing supply chain.

2. Literature Review

2.1. Factors Influencing Supply Chain Sustainability

The early ideas about sustainable supply chain developed from green supply chain. The earliest research on sustainable supply chain management began at the end of the 20th century. Drumwright (1994) proposed that enterprises should have a sense of social responsibility while pursuing economic interests, and organize the purchase, production and consumption of enterprises on this basis. This view is to add the idea of environmental protection and sustainability into the management of supply chain [1].

Carter and Rogers (2008) proposed that sustainable supply chain management is the strategic and transparent integration and realization of the social, environmental and economic objectives in an organization, so as to enhance the long-term economic benefits between enterprises and supply chains [2].

Jing Hao (2015) concluded that the main driving factors of sustainable supply chain include internal and external stakeholders, enterprise innovation capacity, enterprise strategic factors, government policies, laws and regulations, etc. The influence of internal stakeholders includes the support and commitment of managers and the participation of employees. External stakeholders include customer pressure, supplier coordination and social factors [3]. These factors are studied in depth and the relationship between these factors and environmental performance is further illustrated.

Zhu Qinghua (2009), based on 289 questionnaires, identified the influencing factors that restrict Chinese enterprises to implement green supply chain management, including enterprise consciousness and ability, financial performance and cost, supply chain impact and government regulations [4]. Through descriptive statistical analysis, correlation analysis and regression analysis, it is found that government regulations have the greatest influence on the restriction of GSCM, and the internal consciousness and ability of enterprises are the key to the implementation of GSCM. Chen Yanyan (2015) concluded that the influencing factors for the implementation of sustainable supply chain include environmental dimension, application dimension and performance dimension. The environmental dimension includes greenness level, popularization rate of greenness knowledge and investment rate of environmental protection. The application dimensions include the introduction of green technology, green recovery rate and green collaboration between enterprises. Performance dimensions include customer satisfaction, product cost control and product profitability [5]. Zhuang Kai (2013) conducted factor analysis on the driving factors affecting the implementation of green supply chain management in auto parts manufacturing enterprises with the help of SPSS statistical analysis software, and the results showed that the main factors were respectively the influence of green regulations and relevant policies, customers' green environmental protection needs and enterprises' own green environmental awareness [6].

2.2. Sustainable Governance

The concept of sustainable development was first put forward by the World Commission on Environment and Development in 1987. In its report "Our Common Future", the World Commission on Environment and Development elaborated on the concept of sustainable development for the first time and gained broad consensus in the international community. Sustainable development means meeting the needs of the present without compromising future generations' ability to meet their own needs.

Early in the research of sustainable development in our country, only emphasize the three pillars of economic, social and environmental coordinated development, but with the deepening of theoretical research and empirical research, we found that more and more three pillars just thinking on the level of development, not to the level of governance, so that sustainable development is impossible. Jiang Yan (2014) elaborated the theoretical basis of CSR report authentication, including sustainable development theory, principal-agent theory, resource dependence theory, corporate reputation theory and signal transmission theory. Corporate social responsibility steering Committee and corporate social responsibility strategy were taken as explanatory variables, and corporate size, debt scale, compilation basis and CSR sensitive industries were taken as control variables for analysis [7].

Han Chunwei (2009) from the Angle of sustainable development of the enterprise, the choice to the sustainable development theory, stakeholder theory and corporate social responsibility theory as the theoretical basis, the offspring will be expanded to enterprise stakeholders including human and non-human species, including the general community, emphasizes the enterprise demand for diverse stakeholders in the process of continuing operations meet [8]. The sustainable development of enterprises is regarded as an "ecology-economy-society" system, and the formation of enterprise performance is the result of mutual compromise between multiple stakeholders. The diversified subjects and their diversified interest requirements jointly point to the comprehensive and coordinated development of the three achievements of economy, society and environment [9]. Xu Jian and Tian Yu (2015) pointed out that the competition of modern enterprises has shifted from inter-enterprise brand competition to inter-supply chain competition. Enterprises' social responsibility in sustainable supply chain management is an inevitable requirement to improve their competitive advantages and conform to the standardization trend of social responsibility guidelines. In order to effectively manage corporate social responsibility in sustainable supply chain management, we need to include corporate social responsibility common governance standards in sustainable supply chain, and carry out risk assessment, supervision and management of corporate social responsibility [10].

Niu Xuejie (2013) further analyzed the expansion effect of ecological technological innovation on the ecological capacity of manufacturing industry by establishing ecological mathematical model [11,12]. It is pointed out that the ecological technological innovation is obvious to the sustainable development of manufacturing industry. Institutional innovation is particularly important in the process of encouraging the ecological transformation of technological innovation. Through institutional innovation, the operating subjects become the subjects of technological innovation, resource conservation and environmental protection. While pursuing the maximization of profits, the short-term gains and long-term gains, short-term goals and long-term goals are organically combined. The sustainable development of manufacturing industry can be achieved by introducing resource utilization and environmental costs into ecological technological innovation and promoting ecological management and control [13].

3. Sustainable Governance Strategy of Manufacturing Supply Chain

Supply chain sustainable governance involves all links of the supply chain, including procurement, design, production, marketing, recycling, etc. The cost factors that have an important impact on the sustainable governance of supply chain include: green procurement cost, design, manufacturing and marketing cost of environmentally friendly products, and recycling and disposal cost of waste products. These cost factors affect all links of the whole supply chain, while the technological level of enterprises producing environmentally friendly products affects the green design and manufacturing link. The following are the cost factors of each link.

(1) Green procurement

The traditional way of procurement is to carry out various remediation and treatment after the impact of procurement activities on the environment, while green procurement is to predict the possible situation, so as to treat the source. Looking at procurement alone, the cost of green procurement is bound to be greater than that of traditional procurement. However, in addition to the economic cost of procurement, the social cost should be reasonably evaluated. Green procurement can greatly reduce the processing cost, and there will be no punishment or green barriers of other countries for the final product not reaching the standard. Social benefits can be obtained as well as economic benefits. Green procurement activities should adopt appropriate packaging methods, and reduce packaging as far as possible on the premise of protecting the purchased goods and materials; At the same time, in terms of transportation, to reduce the impact of fuel consumption and pollution on the environment, it is necessary to rationally arrange freight outlets and distribution centers, increase the full load rate of transport vehicles to reduce freight costs, reduce environmental pollution and resource consumption. Green procurement increases the cost of a single link, but the main procurement should not only focus on the price of raw materials, but should focus on the total cost related to procurement, that is, in addition to delivery, quality, inventory and other traditional costs and environmental cost calculation. Green procurement should fully consider the impact of the scheme chosen in the supply process on the environment and other people, whether the rational use of resources, energy conservation, and how to recycle and dispose of. It is more important to choose suppliers from the perspective of sustainable supply chain. It is an inevitable trend of enterprise development to select appropriate suppliers through effective evaluation of suppliers and finally establish stable supply chain relations, which is more important for manufacturing enterprises.

(2) Sustainable design, manufacturing and marketing

In the process of sustainable product design and manufacturing, besides the influence of cost factor, it is accompanied by the problem of production technology level in Our country. Sustainable design and manufacturing refers to the continuous use of holistic preventive environmental strategies in products and services throughout the design and manufacturing process to increase productivity and reduce or reduce risks to humans and the environment. Requirements in the whole production process of all activities are in accordance with the ISO9000 standard or other environmental protection instructions production, in the production process to produce the lightest pollution, the use of raw materials and energy at least, reduce the discharge of waste and reduce its toxicity. Enterprise in the process of the implementation of green production, in addition to actively communicate with suppliers, understand the performance of materials, parts, but also to the related personnel to participate in the green production, including warehouse, inspection of SMT, heavy industry, material related training for staff, to ensure they have sufficient knowledge and understanding, so as to ultimately ensure the enforcement of sustainable manufacturing process. In the whole process of manufacturing, it is inevitable to increase the cost input of enterprises, but also there are

some technical level problems to increase the cost. Therefore, it is necessary to introduce advanced technology, improve the technical level, so that it can produce environmentally friendly products in a low-cost operating environment. As people attach more importance to the ecological environment, they have higher and higher requirements for green products, so as to prevent products from being discarded due to environmental requirements and resulting in serious losses. It is very necessary to invest in early learning and cost. Marketing is an important link in the supply chain, and sustainable marketing refers to the enterprise through a series of beneficial to environmental protection and resource conservation activities, setting up enterprise green image for promotional, stimulate consumer purchase desire of green goods, make consumers understand and agree with the enterprise green products, achieve sales target.

(3) Recycling link

The recycling process is reverse logistics, including: recycling, inspection and classification, reprocessing, waste disposal, and re-distribution. Through reverse logistics, enterprises can understand the distribution of product return rate and the reasons for customer return or repair, so as to provide feedback process for product design improvement, improve product competitiveness in the market, and reduce production costs. Although the cost of recovery is increased, under the pressure of raw material costs faced by manufacturing enterprises, useful parts or products recycled through reverse logistics can be processed and reproduced, so as to achieve recycling and reduce product costs to a certain extent. At the same time, it can ensure that the products that do not meet the requirements of the order can be returned in time, and ensure that the products with quality problems can be recalled in time, which increases the sense of trust in the enterprise. It provides more convenient channels for customers to return unsatisfied products or exchange and repair products, shortens the processing time, improves customer value and customer satisfaction, which also imperceptibly increases enterprise income and reduces costs. Reverse logistics requires the cooperation between upstream and downstream enterprises in the supply chain, and involves enterprises in the whole supply chain. Therefore, the strategic alliance in the supply chain is more important. Through the sustainable governance of the supply chain, the alliance of enterprises on the chain is strengthened, and the appropriate path is selected to reduce the cost of recycling and disposal of waste products.

4. Conclusion

As for the theme of supply chain sustainable governance, this paper only analyzes the influencing factors and governance mechanism from the perspective of manufacturing supply chain sustainable governance. Further related research can be carried out from the following two aspects: One is to expand the supply chain governance industry from manufacturing to other industries; Second, the sustainable governance of manufacturing supply chain can be deeply analyzed on its governance structure, governance model and governance framework.

References

- [1] Mike Porter. Competitive Advantage [M]. Beijing: Huaxia Publishing House,1997:33-53.
- [2] Liu li wen. The development process of supply chain management theory and methods,Journal of management science,vol.6(2003)No.2,p.81-88.
- [3] Ma Jinping, Wang Kanliang. Journal of China ocean university (social science edition), (2013) No. 05, p.45-50.
- [4] Zhang Jianhua. Comparison between E-commerce supply Chain Management and traditional supply Chain Management,Modernization of Shopping Malls,(2006),No.06,p.148-149.
- [5] Chen Yongchang. Making traditional Manufacturing bigger and stronger ,Northern Economics and Trade,(2004),No.2,p.10-11.

- [6] Xu Xiaoqin, HE Shuangyu. Development research,(2004),No,02,p.2-25.
- [7] Yang Haicheng. Construction of green Manufacturing System supported by Information Technology, China Manufacturing Informatization,(2006),No.16,p.36-37.
- [8] Marco Formentini, Paolo Taticchi, Corporate sustainability approaches and governance mechanisms in sustainable supply chain management,Journal of Cleaner Production, (2016), No.6, p. 113-127.
- [9] Gül E. Kremer, Karl Haapala, Alper Murat, Ratna Babu Chinnam, Kyoung-yun Kim, Leslie Monplaisir, Ting Lei. Directions for instilling economic and environmental sustainability across product supply chains,Journal of Cleaner Production, (2016),No.3,p.98-112.
- [10]Zhu Qinghua, GENG Yong. Research on green supply chain management factors of Chinese manufacturing enterprises,Chinese journal of management science,Vol.12(2004),No.3,p.81-85.
- [11]Zhu Qinghua, QU Ying. Statistical Analysis of Green Supply Chain management practice in Chinese Manufacturing Enterprises,.Management Science,(2005),No.2,p.2-7.
- [12]Chen Huiyi. Dynamic Supply Chain and Its Operation Index Analysis , China New Technology and New Product, (2009),No.18,p.224-225.
- [13]Zheng Pei. Research on Performance Evaluation Method of Dynamic Supply Chain, Hunan University, 2008.24-26.