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The Effect of Green Value Chain Applications on the Performance of Companies in Ensuring the Sustainability of Enterprises: Kayseri Province Application

İşletmelerin Sürdürülebilirliğinin Sağlanmasında Yeşil Değer Zinciri Uygulamalarının İşletme Performansı Üzerindeki Etkisi: Kayseri İli Uygulaması

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ABSTRACT

Green value chain practices mean that businesses create value in order to create a sustainable competitive advantage at different stages from designing their products to after-sales services. At this point, businesses need to minimize environmental pollution, protect the environment and make proactive arrangements in order to create value that has strategic importance. In this study, the relationship between green value chain applications and business performance, which is a tool based on ensuring the sustainability of enterprises, is investigated. The hypothesized relationship of the research model tested with data collected from 175 manufacturing firms by using SPSS and simple regression analysis. Green value chain applications; examined as green basic activities and green support activities, business performance is also considered as economic and socio-ecological performance in two dimensions. In this research, it was found that green value chain applications positively affect the economic and socio-ecological performance of enterprises, but the power of this effect is relatively weak. In order to provide a competitive advantage, enterprises create value at the rate they create. Green value chain applications, which are a means of creating value in enterprises, have an impact on enterprises' performance.

ÖZ

Yeşil değer zinciri uygulamaları işletmelerin ürünlerinin tasarımından satış sonraki hizmetlerine kadarki farklı aşamalarında sürdürülebilir rekabet üstünlüğü oluşturmak için değer yaratmasını ifade etmektedir. Bu noktada, değer yaratma stratejik bir önem taşımakla birlikte tüm faaliyetlerin odağında çevresel etkilerin ve kirliliklerin minimuma indirilmesi, çevrenin korunması ve hatta mümkünse proaktif düzenlemelerin yapılması faaliyetlerini içermektedir. Bu çalışmada işletmelerin sürdürülebilirliklerin sağlanmasını temel alan bir araç olan yeşil değer zinciri uygulamaları ve işletme performansı arasındaki ilişki araştırılmaktadır. Araştırma modelinin varsayımsal ilişkisi 175 imalatçı firmadan toplanan verilerle SPSS ve basit regresyon analizi kullanılarak test edilmiştir. Yeşil değer zinciri uygulamaları; yeşil temel faaliyetler ve yeşil destek faaliyetleri olarak ele alınırken işletme performansı da ekonomik ve sosyo-ekolojik performans olarak iki boyutta ele alınmıştır. Araştırmada yeşil değer zinciri uygulamalarının işletmelerin ekonomik ve sosyo-ekolojik performansını pozitif yönlü etkilediği fakat bu etkinin gücünün nispeten zayıf olduğu tespit edilmiştir. İşletmelerin rekabet üstünlüğü sağlayabilmeleri değer yaratabilmeleri oranında gerçekleşmektedir. İşletmelerde değer yaratmanın bir aracı olan yeşil değer zinciri uygulamaları işletme performansı üzerinde etkili olmaktadır.

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1. Introduction

In order to sustain their assets and increase their profitability and productivity, enterprises have a structure that affects their environment positively or negatively, as well as being affected by the environment. Although the scale of this interaction varies from business to business, its negative impact on the environment and the resulting outcomes have been effective in society for the last fifteen years, in terms of making ecological (environmental) problems the most important and prioritized social issue in enterprises at a strategic level (Akatay and Aslan 2008). In particular, enterprises that are the biggest creators of environmental pollution have to behave with environmental sensitivity and within the scope of legal regulations.

Sustainability, environmental awareness and developing environmental management practices in this context are very useful, but they are also difficult to achieve. These practices, which can also be referred to as environmental management practices, take place within a wide range from purchasing raw materials to disposing of products (purchasing, production, marketing, waste management…). At this stage, enterprises benefit from techniques that can guide environmental management such as green value chain applications. According to Wang et al. (2019) businesses will have to use green value chain practices for sustainable development in the future.

Green value chain practices mean that businesses create value in order to have a sustainable competitive advantage at different stages from designing their products to after-sales services. At this point, while creating value is of strategic importance, the focus of every activity is to minimize the environmental impact and pollution, to protect the environment and even to make proactive arrangements, if possible (Gupta 1995).

On the other hand, without the sensitivity, support and leadership of the top management in the enterprises, environmental activities cannot be implemented. Leaders perform two basic functions in enterprises. The first of these functions is the establishment of a strategic vision about the direction of the business, and the second is the ability to gather its viewers / employees around these strategic decisions / decisions. At this point, sensitive leaders in green management and green value chain practices train their employees on the creation of green strategies in their enterprises.

In the academic literature that focuses on environmental issues, there are a few studies (Gupta 1995; Starik and Rands 1995; Shrivastava 1995; Hart 1995; Tan 2005; Gonzalez and Gonzalez 2005; Cater et al. 2009; Yulihasri and Jin 2010; Handfield et al. 1997) that are based on the testable hypotheses of the place of environmental management on the value chain, and that the effect of environmental concerns on the performance of enterprises is determined by how environmental management practices and activities (which can be expressed as environmentally sensitive management, environmental management, ecological management or green management) are also related to the performance of enterprises. The performances of enterprises are mostly economic such as product quality, efficiency and productivity, sales, increasing profit margins, cost savings, new market opportunities or an increasing market share. These are evaluated within the framework of socio-ecological performance criteria such as decreased numbers of environmental complaints related to their products, decreasing waste and emissions, increased recycling practices, and an improved business image and social cohesion. Therefore, it is considered that there may be a positive relationship between green value chain applications (GVCI) and its economic and socio-ecological performance in order to achieve a more permanent competition among other competitors. In this context, the purpose of the research is to determine the effect of green value chain applications on the performance of businesses. For this, firstly GVCI and operational performance concepts will be briefly discussed and the findings of the research will be explained within the framework of the developed model.

2. Literature Review

2.1. Green Value Chain

The concept of the value chain was first defined by Porter (1985) as the evaluation of nine general activities that create value in enterprises in order to gain a competitive advantage. However, Handfield et al. (1997) stated that the value chain is evaluated as a group of different activities such as design, supply, logistics, assembly, production, marketing, sales and after-sales service that are applied throughout the lifetime of a product. The green value chain involves adding a new environmental dimension to the traditional value chain (Solavang et al. 2006). In this context, the green value chain refers to the evaluation of activities that create value by considering the natural resources and the environment in an enterprise's basic functions with a holistic and sustainable perspective. The green value chain is used as a means of revealing the advantages and weaknesses of a company's activities through an ecological evaluation. According to Akdogan (2003), the most important use of this tool is to evaluate businesses as a whole; not only popular marketing and advertising issues, but also to determine the situation within the scope of environmental sensitivity.

In the literature, green value chain applications have been examined from different perspectives. The most widely accepted one is Porter's (1985) value chain analysis, developed within the scope of basic and auxiliary activities (Saha and Darnton 2005; Ndubisi 2008; Solvang et al. 2006) evaluated value chain practices within the framework of waste reduction approaches in the process ranging from suppliers to consumers. Sitkin (2011) evaluated the green value chain's functions within the scope of upstream (sourcing and production) and downstream (packaging and logistics) activities (2013). Table 1 summarizes the green value chain's practices within the framework of core activities and support activities (internal support activities, external support activities (Aykan and Sevim 2013).

Table 1
The Green Value Chain

Internal Support Activities	Primary Activities				External Support Activities	Economic Conditions
	Green Operations	**Green Logistics**	**Green Marketing and Sales**	**Green Services**		
Green Infrastructure Development	Recyclable packaging	Transport impact, transportation and storage modes	Raw materials, supply	Receipt and environmental disposal of used products		
Green Technology	Pollution minimization and control, energy efficiency	Waste management, alternative energy sources	Packaging reduction	Restorations and improvements		**NGOSs**
Green Human Resource Management	Corporate environmental awareness, corporate culture, training programs	Contracts, supplier selection, staff selection	Internal and external communications, community-liaison	Incentives, rewards for green ideas and practices		**State**
Green Regulations/ Management Systems	"Just-in-time" processes	Recyclability	Green product development, green product supply	Environmental standards		**Government Policies**

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Economic theories and models have led enterprises to maximum profitability rather than sustainability in the long run. However, according to Gauthier (2005), environmental adversity and accidents force businesses to act in accordance with the sustainability principles in environmental issues. Akdogan (2003) considered green value chain implementation to be a tool for adopting an approach of going from cradle to grave pollution, which means killing pollution before its birth in enterprises. Green value chain practices, which are expressed as a means of ensuring ecological sustainability, are composed of basic activities and support activities. While the main activities are handled in four dimensions, namely, green logistics, green operations, green marketing and sales, and green services, support activities are examined in two groups, internal and external.

Green value chain practices in Turkey to examine the situation in the practical work done in the electronics industry and the automotive sector, firms in Turkey reached it yet to the green value chain application that finds that about GVCI these businesses have been referred to the need (Imamoglu et all., 2010).

In the literature review on green value chain applications, there are studies stating that the companies performing green value chain applications in their companies differ from their competitors, increase their competitiveness, improve their production and environmental performance, and improve product and process quality (Wijethilake, 2017; Molina-Azorin, JF et all., 2009).

In another study, it is stated that green value chain practices can positively affect corporate sustainability performances by reducing energy consumption to businesses, reducing material usage, improving stakeholder participation, reducing costs and increasing product quality (Cankaya and Sezen, 2019).

In the current study on green value chain applications, the issues related to companies minimizing their environmental impact while presenting their goods and services, and therefore GVCI formulations and applications, were addressed (Rabbi et all., 2010).

2.1.1. Business Performance

According to Bingol (2014), performance refers to a job's level of efficiency, or the behavior of an employee or the results obtained by performing an assigned job within a certain period of time. Business performance includes the actual output or results of an organization. Performance criteria in enterprises enable businesses to focus on areas that require attention. The aim here is to improve by evaluating how well the work is done in terms of cost, quality and time, and to survive by responding to world-class competitive pressure (Skrinjhar et al. 2008).

Different methods are recommended for performance measurement in enterprises. The most widely used and widely accepted are quantitative financial indicators and methods (Venkatraman and Ramanujam 1986). However, (Maskell 1992) stated

that financial indicators are not sufficient for measuring business performance, and that qualitative indicators such as customer service and satisfaction, product quality, learning and innovation should be evaluated, according to other studies (Kaplan and Norton 1996; Hult et al. 2008) emphasized the need for financial, operational and organizational performance measures for business performance measurement.

In the literature research, it is stated that another variable that affects the business performance is ecological - economic performance. Therefore, it is thought that the companies that apply the green value chain will create an environment in line with the mutual (regulators, communitiesand consumers) win - win principle in sustainable competition. (Schaltegger and Synnestvedt 2002; Gandhi et al. 2006). These practices attempt to minimize damage to the environment in enterprises, respond to the demands of green consumers and to increase the importance of eco-efficient products. These results provide a sustainable competitive advantage for businesses. According to Annunziata et al. (2018), the performance criteria for creating a sustainable competitive advantage through green value chain analysis can be analyzed as financial, social and ecological performance. Cater et al. (2009) also reported that they might be examined according to financial and non-financial performance, or economic and socio-ecological performance (Aykan 2014).

2.1.2. Economic Performance

During the literature review, it is seen that the factors such as superior market performance with green value chain applications and wealth return, profitability of investment partners are important factors in obtaining sustainable competitive advantage (Bharadwaj et al. 1993; Cagno et al. 2005; Cater et al. 2009).

2.1.3. Socio-Environmental Performance

Also, the nonfinancial socio-environmental performance of a company can be shown by indicators such as acquired environmental standards, improved customer loyalty, greater employee satisfaction etc. This can only be achieved by implementing a systematic approach to setting environmental objectives and targets (Cater 2009).

It is stated that the companies that make GVCI can improve their environmental performance, image of their business and social performance as a result of their activities. According to Yulihasri and Jin (2010), they state that these performances will play a role in sustainable competition as well as improvement.

3. Methodology

3.1. Purpose of the Research

Achieving a sustainable competitive advantage, which is defined as the application of a value-creating strategy that cannot be implemented at the same time by its current or potential competitors and whose benefits cannot be copied (Barney 1991), has become the priority of enterprises today. Green value chain practices are a useful tool for environmentally conscious countries, businesses and employees to provide a competitive advantage. In this context, it is assumed that there may be a positive relationship between green value chain practices and the economic and socio-ecological performance of enterprises in order to provide a sustainable competitive advantage. From this point of view, one aim of this study is to determine the relationship between green value chain applications and the business performance of enterprises. Another aim of the study is to determine the impact of the green value chain implementation dimensions, green basic and green support activities on economic and socio-ecological performances, which make up enterprise performance.

3.2. Data Collection

Manufacturing industry companies operating in Kayseri Organized Industrial Zone constitute the main mass of the research. There are 940 enterprises registered in Kayseri Organized Industrial Zone Directorate. 390 of these enterprises are medium and large (employing over 50 personnel) sized manufacturing enterprises. A questionnaire was tried to be conducted through face-to-face interviews with the managers of the quality department of 390 manufacturing enterprises and department managers responsible for environmental practices, which constitute the sample of the study. The survey was carried out between the dates of January 2019 - June 2019. Response from the surveys was received from 175 of these enterprises, and the return rate was calculated as 44.87%.

Questionnaire method was used to collect data for the application of the research. The first part of the survey consists of 10 questions to determine the demographic characteristics of the participants. In the other part of the questionnaire, there are 23 statements to understand green value practices. In the last part of the questionnaire, there are 17 statements to measure business performance. The scales used in this study are as follows:

Green value chain practices: Developed by Yang et al. (2011) on a five-point Likert scale product designs and measured using 23 statements such as, "the plans in our company tried to be environment-oriented". On the scale, 1 means "strongly disagree" and 5 means "strongly agree". The reliability of the scale, the Cronbach's Alpha value, was calculated as 0.934.

Business performance: Measured using 17 expressions which were developed by Rao and Holt (2015) such as "productivity increased after green value chain applications in our business". The reliability of the scale, the Cronbach's Alpha value, was calculated as 0.941. On the scale, 1 means "strongly disagree" and 5 means "strongly agree".

3.3. Research Model

In the literature, it is stated that green management practices have positive results such as clean and green practices, improvements and developments in processes, profitability, a competitive advantage in products and services, increased market share, good business image, improved management systems, customer services and satisfaction, product quality, learning and innovation (Kaplan and Norton 1996; Neely et al. 2002; Saha and Darnton 2005; Tan 2005; Ndubisi 2008; Cater et al. 2009; Cabuk et al. 2010; Tan and Zailani 2010; Silpthep 2010; Yulihasri and Jin 2010). However, according to some studies are (Tan 2005; Tan and Zailani 2010; Slipthep 2010; Yulihasri 2010; Annunziata et al. 2018) the results of green value chain applications are mostly evaluated within the framework of enterprises' sustainable competitive advantage and social responsibility. While economic or financial performance constitutes the competitive advantage dimension of green value chain applications, non-financial or socio-ecological performance is evaluated within the scope of enterprises' social responsibility. In this context, the following hypotheses were developed:

Hypothesis 1 (H₁): There is a significant and positive relationship between green value chain applications and business performance in enterprises.

Hypothesis 2 (H₂): Green core activities positively affect the economic performance of enterprises.

Hypothesis 3 (H₃): Green core activities positively affect the socio-ecological performance of enterprises.

Hypothesis 4 (H₄): Support activities positively affect the economic performance of enterprises.

Hypothesis 5 (H₅): Support activities positively affect the socio-ecological performance of enterprises.

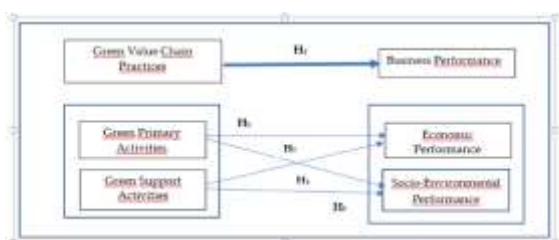The research model of the study was determined as follows

Figure 1. Research Model

3.4. Data Analysis

SPSS Statistical program was used to analyze the data. A Kolmogorov-Smirnov (n> 50) test was performed to prove the normality of the distribution. In addition, the kurtosis-skewness values (+ 1.5 / - 1.5) were found to be within the range. Parametric tests have been used since there are normally distributed data. It was calculated using the cronbach alpha value for the reliability of the scales. Also, while exploratory factor analysis was used for the construct validity of the scales, fit indices were determined by analyzing the Confirmatory Factor Analysis (CFA) to determine whether the new sample group was confirmed or not (H₁). A simple regression analysis was used to determine the effect of the independent variable on the dependent variable (H₂, H₃, H₄, H₅).

4. Finding

In this section, findings regarding research analysis are included. First of all, demographic data are included for the managers and their businesses participating in the research, and then the analysis results for testing the hypotheses are explained.

4.1. Demographic Features

70.1% of the participants were under the age of 40, 19.4% were within the 31-40 age range and 6.9% were within the 41-50 age range. 2.9% were 51 years or older. 89.1% of the participants were male. It can be seen that 113 of the 175 participants who participated in the study had received an undergraduate or higher education. 13.1% of the enterprises employing the participants had 50-100 employees, 8% had 101-200 employees and 78.9% had more than 201 employees.

4.2. Validity and Reliability Findings

The Cronbach's Alpha Coefficient was used for the scales' reliability analysis. The reliability of the green value chain applications scale was calculated as a Cronbach's Alpha value of 0.934 and the reliability of the enterprise performance scale as 0.941. The fact that this coefficient was above 0.90 indicates that this scale is reliable.

4.3. Factor Analysis for Green Value Chain Practices and Business Performance

In the explanatory factor analysis, it was desirable that the factor loadings were 0.50 or above for the variables under the factors (Nunnally 1978). Since KMO 0.88 is required between 23.58 and 0.855 and the sample adequacy coefficient is determined as KMO 0.88, this research may be considered suitable for factor analysis. According to the Varimax rotation method, the scale is collected under two factors as in the original form, and it takes place in table 2. The factor names were given as; green basic activities and green support activities. The cumulative total variance explanation ratio for both

factors was 56.93%, above the acceptable value of 50%

Table 2
Factor Analysis for Green Value Chain Practices

Variables	Statements	Factor Loading	Factor Validity	Factor Variance
Green Base Activities	In our company, the environmental impact of the materials and processes is reduced and the environmental requirements are met.	.855	.901	35.03
	Product designs and plans are made to focus on the environment.	.851		
	When planning products and processes, recycling and utilization opportunities are evaluated.	.764		
	The compliance of the materials and suppliers with regard to the environmental regulations is evaluated in our company.	.742		
	In our company, green products are classified and stored in different places than other products.	.716		
	Quality control is carried out in an environment-oriented manner.	.706		
	Serious environmental protection measures are taken in our facility.	.694		
	Energy and resource savings are made in our facility.	.679		
	Reduction, control, reuse and / or recycling of emissions, waste in processes are carried out in our facility.	.675		
	Green products are labeled, and the information is monitored and reviewed.	.655		
	Green products can be shaped according to external demands.	.639		
Green Support Activities	Environmental requirements, regulations and legislative provisions are taken into consideration in our business and are understood.	.780	.803	21.89
	Our company shares its environmental results and records with the public.	.729		
	In our company, training is provided for our employees on environmental protection.	.696		
	In our company, corrective and protective activities are being established about the environment.	.687		
	Process and equipment adjustments are recorded.	.671		
	The provisions of environmental regulations and legislation are periodically reviewed.	.661		
	A department responsible for the management and control of environmental waste and emissions has been established in our facility.	.592		
KMO= 0.884　p=0.00		Total Variance=56.925		

Table 3
Factor Analysis for Business Performance

Variables	Statements	Factor Loading	Factor Validity	Factor Variance
Socio-Environmental Performance	Environmental protection and awareness have increased in our business.	.852	.906	33.21
	Recycling practices have increased in our company.	.779		
	The environmental image of our business has improved.	.775		
	Solid / liquid waste has been reduced in our facility.	.755		
	Social commitment has increased in our business.	.721		
	The efficiency of our business has increased.	.716		
	Environmental complaints made to our business have decreased.	.709		
	Emissions have been reduced in our facility.	.628		
Economic Performance	The profit margin of our business has increased.	.845	.872	27.18
	The market share of our business has increased.	.811		
	Our business sales have increased.	.763		
	The prices of the products in our business have increased.	.690		
	Cost savings have been achieved in our facility.	.686		
	New market opportunities have emerged.	.579		
	The efficiency of our business has increased.	.569		
KMO= 0.877　p=0.00		Total Variance=60.40		

The original business performance scale has two sub-dimensions, namely, economic and socio-ecological factors. Explanatory factor analysis was applied to understand whether the dimensions of the study in which the scale was taken or not appeared. As shown in Table 3, the factor analysis with the varimax rotation method showed that the scale had more than two factorial distributions and that some items were not of the required size, so that 17 were analyzed using the factor fixation method in order to stay true to the two-factor structure of the original scale. Thus, a two-dimensional structure was

reached, as on the original scale. As a result of the factor analysis, it was concluded that both dimensions explained 60.4% of the total variance and the KMO sample adequacy value was 0.88, which was sufficient for the factor analysis. Therefore, it is understood that the scale used in this research is similar to the original scale in terms of structure and has construct validity.

In the study conducted on 175 participants working in production companies, as a result of the confirmatory factor analysis performed to verify the structure of the scales, the 23-item structure with two factors had a significant t value in DFA analysis of 5 items. This item has been removed from the scale and the DFA model has been rebuilt. It is seen that the items in the CFA model with 18 expressions are not compatible with the factors, since the items in the scale are not compatible with the factors. The fit index values of the green value chain application scale were found to be $\chi2 / (df)$ 4.97, RMSEA 0.015, CFI 0.707. It appears to be an acceptable agreement

as this is in the range of $0 \le \chi2 / (df) = 4.97 \le 5$. When the RMSEA value is less than 0.015 critical value, it shows a good fit index according to Schermelleh et al. (2003). CFI and RMSEA values had an acceptable fit index (Schermelleh et al. 2003; Capik 2014). Again, as a result of the confirmatory factor analysis applied to the 17-expressive structure of the enterprise performance scale, since these two items were seen to be incompatible, it was concluded that the expressions of the DFA model consisting of 15 items were not incompatible. The fit index values of the enterprise performance scale were calculated as $\chi2 / (df)$ 4.55, RMSEA 0.014, CFI 0.809, GFI 0.755, and all values are understood to be acceptable.

4.4. Findings Regarding the Research Hypotheses

According to the results of this study, the correlation matrix showing the relationships between green value chain applications and business performance is given below

Table 4
Correlation Matrix

	Mean	Std. Dev.	1	2	3	4	5	6
1. Green Primary Activities	3.69	.71	1					
2. Green Support Activities	3.61	.70	.702**	1				
3. Economic performance	3.61	.68	.171*	.401**	1			
4. Socio-Environmental Performance	3.98	.65	.203**	.303**	.646**	1		
5. Green Value Chain Practices	3.65	.65	.923**	.922**	.309**	.274**	1	
6. Business Performance	3.80	.60	.206**	.389**	.912**	.903**	.322**	1

** $p>0.01$, * $p>0.05$

In this study, the green basic and support activities constituting green value chain applications had above average scores (3.69, 3.61, 3.65). The socio-ecological performance constituting the enterprise performance had a higher score than the economic performance (3.61) with an average of 3.98. As can be seen in Table 4, there is a statistically significant positive relationship between the dimensions of the green value chain applications and the enterprise performance dimensions. The strength of the relationships is weak and moderate, indicating that

business performance increases as green value chain practices increase. This situation requires the acceptance of the H1 hypothesis that "there is a significant and positive relationship between green value chain applications and enterprise performance" ($R = 0.322$; $p> 0.01$).

A simple linear regression analysis and findings for testing hypotheses are presented in the tables below.

Table 5
Coefficient Table of Regression Analysis to Determine the Impact of Green Basic Activities on Economic Performance

	Unstandardized Coefficients		Standardized	t	Sig.
	Beta	Standard Error	Beta		
Constant	3.012	0.271	0.171	11.11	0.00
Green Primary Activities	0.164	0.072		2.28	0.02

Table 6
Results of the Regression Analysis to Determine the Impact of Green Core Activities on Economic Performance

	R	R²	Adjusted R²	Std. Error of The Estimate	F	Sig.
Green Primary Activities	0.171	0.029	0.023	0.677	5.185	0.02

P<0.05, Dependent Variable: Economic Performance

As can be seen in Table 6, it can be said that 0.029 of the change in economic performance can be explained by the variable independent of the green

basic activities in the research model. When the relationship between variables is analyzed, the beta coefficient of 0.171 is for a positive and weak

relationship between green primary activities and economic performance. Accordingly, this research's H$_2$ hypothesis that "green basic activities positively affect the economic performance of enterprises" is accepted.

Table 7
Coefficient Table of Regression Analysis to Determine the Impact of Green Core Activities on Socio-Environmental Performance

	Unstandardized Coefficients		Standardized	t	Sig.
	Beta	Standard Error	Beta		
Constant	3.292	0.257	0.203	12.79	0.00
Green Primary Activities	0.187	0.068		2.74	0.00

Table 8
Results of Regression Analysis to Determine the Impact of Green Core Activities on Socio-Environmental Performance

	R	R²	Adjusted R²	Std. Error of The Estimate	F	Sig.
Green Primary Activities	0.203	0.041	0.036	0.643	7.473	0.00

$P < 0.05$, Dependent Variable: Socio-Environmental Performance

Again, it can be said that the change in economic performance, 0.041, can be explained by green basic activities. When the relationship between the variables is analyzed, it is seen that there is a positive and weak relationship between basic green activities and economic performance with 0.171 beta coefficient. Accordingly, this research's H$_3$ hypothesis that "green core activities positively affect the socio-environmental performance of enterprises" is accepted.

Table 9
Coefficient Table of Regression Analysis to Determine the Impact of Green Support Activities on Economic Performance

	Unstandardized Coefficients		Standardized	t	Sig.
	Beta	Standard Error	Beta		
Constant	3.012	0.271	0.171	11.11	0.00
Green Support Activities	0.164	0.072		2.28	0.02

Table 10
Results of Regression Analysis to Determine the Impact of Green Support Activities on Economic Performance

	R	R²	Adjusted R²	Std. Error of The Estimate	F	Sig.
Green Support Activities	0.401	0.160	0.156	0.623	33.064	0.00

$P < 0.00$, Dependent Variable: Economic Performance

In order to see the effect of the employee-perceived green support activities independent variable on economic performance, which is a dependent variable, the regression analysis results show that green support activities are statistically significant (p = 0.00) and positive (β value 0.171), and H4 hypothesis is accepted.

Table 11
Coefficient Table of Regression Analysis to Determine the Impact of Green Support Activities on Socio-Environmental Performance

	Unstandardized Coefficients		Standardized	t	Sig.
	Beta	Standard Error	Beta		
Constant	2.966	0.248	0.303	11.55	0.00
Green Support Activities	0.281	0.067		4.17	0.00

Table 12
Results of Regression Analysis to Determine the Impact of Green Support Activities on Socio-Ecological Performance

	R	R²	Adjusted R²	Std. Error of The Estimate	F	Sig.
Green Support Activities	0.303	0.092	0.086	0.625	17.44	0.00

$P < 0.05$, Dependent Variable: Socio-Environmental Performance

When the above two tables are considered, it can be seen that green support activities have an effect of 8.6% on socio-environmental performance. A positive beta value indicates that this relationship is correct. In other words, socio-environmental performance increases as green support activities increase. The relationship is a weak one (R = 0.303). The significance level was p <0.00. This result leads to the acceptance of the H5 hypothesis.

5. Results, Conclusion and Recommendations

The need for today's enterprises to maintain a cost-benefit balance for a sustainable competitive advantage has increased as a result of environmental pollution and accidents. Through recognizing thenecessity of protecting the natural environment and the limitation of resources, the awareness of sustainable development has gained importance in the world and enterprises have turned to environmental management practices. They act with this awareness at every stage of business activity with environmentally friendly business activities. Green value chain practices are among the most important tools to be used for environmental management. Despite the profit motive, which constitutes enterprises' most important objective, environmental protection and practices are considered to be cost-increasing activities for enterprises and have been implemented within their frameworks of legal obligations and obligations. This situation has led to the evaluation of economic criteria before social and ecological criteria. Due to this global phenomenon of change and development, businesses that want to survive in globalizing economies have to focus on providing a competitive advantage in their products and processes. Therefore, environmental management practices and environmental performance criteria, which are the results of these applications, have increased in importance for enterprises.

The aim of this study is to determine the relationship between green value chain applications and the business performance of enterprises, and to determine the impact of green value chain implementation, along with green basic and green support activities, on economic and socio-ecological performance.

In this research, green value chain applications and enterprises' business performance averages are quite high. This may be due to the fact that approximately 80% of the enterprises participating in this study consist of medium / large and institutional enterprises. In the literature, according to authors such as (Trotman and Bradley 1981; Deegan 1996), corporate enterprises are expected to become more aware of environmental practices.

As a result of the study, a statistically significant positive relationship was found between green value chain applications and business performance. In this case, as green value chain applications increase, operational performance also increases. This situation requires the acceptance of the hypothesis that "there is a significant and positive relationship between green value chain applications and business performance." Previous studies reported positive relationships between environmental implementations and operational performance criteria such as a decrease in environmental accidents, an increase in research and development, a decrease in process costs and

an increase in quality (Tan 2005; Gonzalez and Gonzalez 2005). Similarly, this study's findings indicate that environmental practices are related to enterprises' economic performances (Holt 2005; Cater et al. 2009; Yang et al. 2011; Aykan and Sevim 2013) and their studies on both economic and socio-ecological performance (Gonzalez and Gonzalez 2005; Yulihasri and Tin 2010; Aykan and Sevim 2013) support this.

This research has some limitations. First, it was conducted with enterprises in a certain region and in a certain sector. This may pose a problem for the generalizability of this research. Local elections in Turkey in 2019 have caused economic uncertainty and limitations on business performance due to risk assessments. In addition, due to the fact that the concept of environmental sensitivity varies from person to person and from institution to institution, subjectivity may be involved in evaluating the participants' applications in their enterprises. It is of utmost importance that the intelligent, experienced senior executives of the companies that struggle for life in a dynamic environment lead the processes of creating vision and making important decisions. These leaders perform tasks such as identifying the endpoints of green value chain practices, choosing the best paths, and implementing the most effective methods, while playing an active role in the adoption, sharing, and integration of these practices by employees.

At this point, trainings should be given in order to inform, raise awareness about environmental management and green value chain applications of senior managers and leaders. Environmental education and training and education process will enable individuals who are responsible for the environment to exhibit responsible behaviors and encouraging knowledge, skills and value judgments, increasing efficiency and efficiency within the enterprise will result in increased business performance.

It is known that environmental management practices in enterprises are carried out mostly within a framework of legal obligations. By considering them as a cost element in the short term and reflecting these practices to the company within the framework of individual environmentalism (volunteerism) understanding of the managers, it prevents the development of enterprises in this regard. At this point, it can be suggested that researchers who plan to work on this subject should examine green supply chain practices in a sample of enterprises that have the ISO 14001 environmental management system standard. Similarly, how green supply chain practices can create value in different sample groups; the various approaches and personality and leadership characteristics of managers; the relationships between variables such as business structure and green value chain applications; and the effects of these relationships on the efficiency of enterprises can also be suggested.

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