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RESEARCH ARTICLE

Factors Affecting The Implementation Of The Circular Economy And The Impact Of The Circular Economy On Sustainable Development: Research On Small And Medium

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ABSTRACT

This article aims to assess the impact of customer pressure, environmental uncertainty and government support on the implementation of circular economy and the implementation of the circular economy model impacts sustainable development through economic efficiency, social efficiency, and environmental efficiency in Vietnamese small and medium enterprises. For small and medium enterprises in Vietnam, this research is necessary and is the basis for preserving resources in Vietnam and reducing costs for small and medium enterprises, open new business opportunities, build a generation of innovative businesses, and create jobs, integration opportunities, and social cohesion. Data was collected by sending questionnaires to business managers of 250 small and medium enterprises in Vietnam and the number of votes meeting the requirements for inclusion in analysis was 208. Data were analyzed by applying the PLS-SEM model through SmartPLS 3 software. Research results have shown that customer pressure and support from the government have positive impacts on the implementation of circular economy in Vietnamese small and medium enterprises and the implementation of circular economy has a positive impact on economic efficiency, social efficiency, and environmental efficiency.

INTRODUCTION

According to Decree No. 80/2021/ND-CP dated August 26, 2022, it is stipulated that small and medium enterprises in Vietnam are enterprises with a capital of less than 100 billion VND and no more than 200 employees participate in social insurance (Government, 2021). According to the World Bank's statistical results in 2019, in Vietnam, small and medium enterprises account for 97.5% and are contributing about 40% of GDP and creating nearly 60% of jobs. This result is consistent with the study of Mittal et al. (2018), who stated that small and medium enterprises are the backbone of the economies of developed or developing countries. SMEs create opportunities across many sectors and geographies through employment and economic value, providing opportunities to develop skills, drive innovation, and contribute directly to inclusive growth (OECD, 2020). However, the operations of small and medium enterprises face many difficulties in the global competitive environment, Dey et al. (2020) pointed out that small and medium-sized enterprises are characterized by a lot of competition, uncertainty about aggregate product demand, cash flow problems, a lack of standardized business methods, and a lack of skills among employees. This negatively impacts small and medium enterprises' production and business activities.

In a competitive economy with an uncertain business environment, small and medium-sized enterprises need to aim for and achieve sustainable development (including economic, environmental, and social factors). Geissdoerfer et al. (2017), said that to optimize economic, environmental, and social factors, businesses need to convert the linear economic model to a circular economic model (CE). CE was described by Geissdoerfer et al. (2017) identified as an economic system that represents a paradigm shift in the interrelationship between humans and nature, aims to prevent resource depletion, close energy and materials loops, and facilitate sustainable development at both the micro and macro levels. The circular economy model approach is a natural extension of lean thinking and manufacturing governed by the philosophy of delivering value to customers without waste. A circular economy involves thinking about resource inputs in terms of alternative fuels and raw materials, energy efficiency, and waste reduction for the benefit of all stakeholders. Circular economy contributes to increasing value for businesses, reducing resource exploitation, reducing waste treatment costs, minimizing environmental pollution and moving towards sustainable development. At the 13th Vietnam Party Congress, the Minister of Natural Resources and Environment emphasized: "Circular economy is inevitable for sustainable development in the new context. As natural resources are increasingly degraded and depleted, the environment is polluted, and climate change is happening fiercely". Therefore, transforming the circular economy model towards sustainable development is inevitable for businesses in Vietnam in general, and small and medium-sized enterprises in Vietnam in particular.

According to Lopez-Perez et al. (2017), in emerging economies, small and medium-sized enterprises have limited financial resources, time, and skills, leading to the need to consider ways to encourage these companies to engage in activities that are efficient and have little impact on the environment. Therefore, it is necessary to consider specific characteristics and contexts to successfully support the implementation of CE towards sustainable development. Successful implementation of the CE model depends on many factors inside and outside the enterprise. Such as cultural barriers, market barriers and lack of government intervention (Kirchherr et al., 2017); resources, processes, and state policies (Graces-Ayerbe et al., 2019).

From the above analysis, it can be seen that there is a relationship between the circular economy and sustainable development (including economic efficiency, social efficiency, and environmental efficiency), and there are many objective factors affecting the implementation of the circular economy in businesses. Especially for small and medium-sized enterprises in Vietnam, this research is necessary and is the basis for preserving natural resources in Vietnam, reducing costs for small and medium-sized enterprises, opening new business opportunities, building a generation of innovative businesses, and creating jobs - opportunities for integration - and social cohesion. The research includes the following objectives: (1) Measure the impact of external factors on CE implementation in small and medium enterprises in Vietnam; and (2) Measure the impact of CE on sustainable development through three aspects: financial efficiency, environmental efficiency, and social efficiency. Besides the introduction, the rest of the article is organized as follows: Part 2 is an overview of the research; Parts 3 and 4 present research methods; Part 5 shows the results of data analysis according to the PLS Sem model; and Part 6,7,8 are conclusions and recommendations.

2. LITERATURE REVIEW

Circular economy

The concept of circular economy was first mentioned by Pearce and Turner (1990), circular economy is used to refer to a new economic model based on the basic principle "everything is an input to something else". According to the Ellen MacArthur Foundation (2013), a circular economy describes an economy that is designed and operated with the main goal of minimizing, controlling, and eliminating the harmful effects of toxic chemicals and enhancing renewable energy.

According to the United Nations Industrial Development Organization (UNIDO), a circular economy is a closed cycle in which waste is reused and becomes raw materials for production, thereby reducing any negative impacts on the environment, ecosystem, and human health. In Vietnam, the

concept of circular economy is mentioned in Article 142, Law on Environmental Protection, specifically: "Circular economy is an economic model in which design, production, consumption, and services to reduce the exploitation of raw materials, extend product life cycles, limit waste generated and minimize negative impacts on the environment."

CE is implemented in businesses with three main goals, which are narrowing the flow of resources - minimizing (using fewer resources to produce each product); slowing down the resource-reuse cycle (extending product life); and resource closure-recycling (circular use of resources by connecting the post-use phase and the production phase) (Ormazabal et al., 2018). According to Goyal et al. (2018), the principle of "reduction" is the reduction of non-renewable resource consumption through input substitution, process improvement, and increased management supervision at the production and consumption stages. The principle of "reuse" is the introduction of end-of-life products into the supply chain in a variety of ways to extend the life cycle and avoid waste. The principle of "recycling" is the reprocessing of waste materials into other products.

There are many studies on CE application in small and medium-sized enterprises, such as Katz-Gerro and Sintas (2018), Prieto-Sandoval et al. (2018), Graces-Ayerbe et al. (2019)… Researching a sample of 11,000 small and medium-sized enterprises in European Union countries, Katz-Gerro and Sintas (2018) showed that the goals of CE implementation are waste reduction, energy planning, product redesign, and renewable energy use. There are many barriers to applying CE in businesses, Kirchherr et al. (2017) identified cultural barriers (lack of consumer interest and awareness), market barriers (environmental uncertainty), and a lack of government intervention are factors affecting the implementation of CE in businesses. Prieto – Sandoval et al. (2018), researched small and medium-sized enterprises in Spain and showed that the implementation of CE in enterprises depends on both internal and external factors. Factors within the enterprise include resources and the capacity of managers. Factors external to a business include government policies, market conditions, and stakeholders such as customers. Graces-Ayerbe et al. (2019) identified the factors affecting CE implementation in small and medium-sized enterprises in the EU as resources, processes, and state policies.

Sustainable Development

According to the World Commission on Environment and Development (1987), sustainable development is defined as "A development process in which the needs of the present generation are met without depriving them of the opportunity to meet their own needs of future generations". According to Holmberg and colleagues (1992), sustainable development includes economic sustainability (especially economic growth), social sustainability (especially realizing progress and social justice, hunger eradication, poverty reduction, and job decisions), and environmental sustainability (especially treating and overcoming pollution, restoring and improving environmental quality, preventing fire and deforestation, rational exploitation, and economical use of natural resources). Cleaner energy production and efficient consumption have been identified by scholars as strategies to achieve sustainable development goals (Prashar, 2019).

Small and medium-sized enterprises contribute greatly to the global economy, but these businesses operate with limited resources (Games and Rendi, 2019). According to Ndubisi et al. (2019), aggregate environmental damage causes SMEs to out-produce in some sectors that of their larger competitors, even though their environmental impact may be relatively low. Therefore, SMEs "must use resources efficiently and economic growth must be carried out in harmony with the environment" (Ndubisi, 2008, p164) to achieve sustainable development. Pinto (2020) pointed out that there is a need to push SMEs towards investing in sustainable activities, with environmental and social factors becoming more prominent in their performance.

Circular economy towards sustainable development

The United Nations (2019) has identified six goals of sustainable development, including urban and peri-urban development; Sustainable and fair economy; Reduce energy carbon emissions; Food systems and nutritional models; Human health and capacity; and global common environmental

benefits, in which circular economy is an important factor to achieve the above goals. Circular economic development is an inevitable trend of sustainable development. The four main reasons that force this transition include: The increase in demand for raw materials, while these raw materials are increasingly depleted, especially for mineral resources, and non-renewable resources; Dependence on other countries, especially countries that depend on other countries for raw materials. This dependence leads to global political tensions; Impacts on climate change (emission of greenhouse gases, especially CO2) increase the process of extreme climate change, causing extremely serious consequences. The transition to a circular economy with the goal of sustainable energy use will reduce climate change; Create economic opportunities, especially for business and science in the areas of innovation, design, recycling and creativity.

Turkeli et al. (2018) and Katz-Gerro et al. (2019) studied the effectiveness of the CE model in China and European countries to address growth issues and socio-environmental goals. Prieto – Sandoval et al. (2018) pointed out that implementing CE in businesses brings many opportunities for small and medium-sized enterprises, including increasing market reputation, reducing operating costs, growing business, and restoring the environment through through reduced CO2 emissions, and increased sustainability. Dey, P. K. et al. (2022) studied 130 SMEs in the UK Midlands, this study has identified implementation, production, distribution, use, and recovery activities as the operational areas of CE, and "production" - "use" activities contribute the most to economic - environmental - social efficiency. Cavicchi, C. et al. (2022) in a study of agricultural SMEs, showed that energy management plays an important role in increasing knowledge about sustainable production methods and accountability, and form the micro-foundation of capabilities needed to sense, capture, and reconfigure the business model around CE, enabling sustainable performance. Energy management, along with promoting an organizational culture of energy conservation, also enhances knowledge and implementation of CE business models.

3. RESEARCH MODEL

Hussainey & Salama (2010), reflected the perception of the relationship between customers and CE implementation. When the green consumerism model is formed, consumers' willingness to buy green products is ready. The role of consumers in the CE process allows products at the end of their life cycle to be returned to the manufacturer and this is an important player in the closed-loop process (Parajuy et al., 2020). Customers' attitudes towards remanufactured products are then the main driving force contributing to the decision to implement CE in businesses. Mostaghel, R. (2021) researched that in the retail sector, brands are under constant pressure from policymakers and customers to achieve sustainability goals. With the increasing pace of development, customer attitudes towards sustainability and consumption are changing, and they are demanding more information and action aimed at sustainability and CE goals. Rodríguez-Espíndola et al. (2022) studied Mexican small and medium enterprises, showing that there is a significant influence of customer pressure on the implementation of CE principles. Therefore, the first hypothesis to be tested is:

H1: Customer pressure positively impacts the implementation of a circular economy in small and medium enterprises in Vietnam.

According to Kumar et al. (2019), government policy plays an important role for businesses in shaping the circular economy transition. In the study by Pan and colleagues (2015), it was shown that when the government is not fully aware of the benefits of CE, it cannot lead, guide businesses, and make appropriate policies. At that time, it is difficult for businesses to determine vision, goals, and targets during the CE implementation process. Therefore, the author considers the following hypothesis:

H2: Support from the government positively impacts the implementation of circular economy in small and medium enterprises in Vietnam.

Environmental uncertainty stems from changing customer demands, the increasing complexity of global supply chains, and government policies (O'Connor, 2008). Govindan and Hasangic (2018)

identified the market as the main premise for implementing CE in businesses. When the environment has a high level of risk, it will affect the implementation of activities towards sustainable development. The cost of investing in implementing the CE model is quite expensive. When the market is not ready to receive circular products, managers will hesitate to implement the CE model in their businesses (Kirchherr et al., 2018). Therefore, this study tests the following hypothesis:

H3: Uncertain environmental pressure positively impacts the implementation of circular economy in small and medium enterprises in Vietnam.

By developing a business model based on 'waste' (Goyal et al., 2018), industry in developing countries like India can learn to optimize resource use, save costs by using developing technologies and creating a global market for CE products. Dey and colleagues (2022) surveyed 130 randomly selected SMEs in the UK Midlands, and the results showed that all areas of circular economy action (acquisition, production, distribution, use and recovery) of small and medium-sized enterprises are all correlated with economic performance. More small and medium-sized enterprises applying CE in the supply chain will help businesses achieve higher revenue and business growth in the long run (Dey et al., 2022). Therefore, this study aims to test the following hypothesis:

H4: Implementing circular economy has a positive impact on economic efficiency in small and medium-sized enterprises in Vietnam.

Park and colleagues (2010) in their study found that environmental awareness improved significantly when businesses implemented CE. CE improves waste utilization and waste streams, enhancing the availability of materials allowing for the protection of natural resources, water, energy, and minerals MacArthur (2013). MacArthur (2013) also stated that the application of CE leads to reduced demand for energy, chemical fertilizers and land reclamation, reduced fossil fuel consumption, and reduced greenhouse gas emissions. CE activities such as lean practices, energy saving measures, and using renewable energy in production help businesses achieve higher environmental efficiency (Dey et al, 2022). Therefore, the author considers the hypothesis that the implementation of circular economy positively affects environmental performance:

H5: Implementing circular economy has a positive impact on environmental performance in small and medium enterprises in Vietnam.

CE promotes the more appropriate and environmentally friendly use of resources to realize a greener economy, characterized by new business models and innovative employment opportunities (Ellen Macarthur Foundation, 2012; Stahel, 2014), as well as by improving well-being and impacting intergenerational equity in both resource use and access: "A world in which poverty is endemic will always be vulnerable to ecological and other disasters" (World Commission on Environment and Development, 1987). The circular economy is considered a new business model that is expected to lead to more sustainable development and a harmonious society (Mathews and Tan, 2011; Naustdalslid, 2014). Enterprises that perform closed supply chain functions according to the principles of reduce, reuse, and recycle will promote a favorable environment for CE, thereby achieving greater social efficiency. Therefore, the author hypothesizes:

H6: Implementing a circular economy has a positive impact on social efficiency in small and medium enterprises in Vietnam.

The scales of this study are inherited from Gadenne et al. (2009); Kohli & Jaworski (1990); Kirchherr et al. (2017); Liu & Bai (2014); Mahpour (2018); Rodríguez-Espíndola et al. (2022).

Table 1.Coded scale table

Scale	Code	Sources
Customer pressure	**CP**	Gadenne et al. (2009); Mostaghel and Chirumalla (2021); Rodríguez-Espíndola et al. (2022)
Customer environmental awareness	CP1	
Environmental issues influence customers' purchasing decisions	CP2	
Customer requirements are increasingly difficult to predict	CP3	

Governmental pressure The Government has environmental policies The Government guides the implementation of environmental policies	**GP** GP1 GP2	Govindan and Hasangic (2018); Mahpour (2018); Zeng et al. (2017)
Market uncertainty Actions of competitors Businesses lack an understanding of environmental change The business environment is unpredictable	**MU** MU1 MU2 MU3	Jambulingam et al. (2005); Dey et al. (2022)
CE Design Production Distribution Usage/ consumption Reverse Logistics	**CE** CE1 CE2 CE3 CE4 CE5	Prieto-Sandoval et al. (2018); Katz-Gerro and Lo´pez Sintas (2019); Dey et al. (2022);
Economic performance Revenue Business growth Contribution to local economy	**ECP** ECP1 ECP2 ECP3	Dey et al. (2022); Malesios et al. (2018)
Environmental performance Energy efficiency Resource efficiency Waste reduction	**EVF** EVF1 EVF2 EVF2	Dey et al. (2022); Malesios et al. (2018)
Social performance Employee wellbeing Health and safety Social wellbeing	**SOP** SOP1 SOP2 SOP3	Dey et al. (2022); Malesios et al. (2018)

Source: Researchers' elaboration, 2024

4. METHODOLOGY

The authors used the random sampling method to select 250 small and medium enterprises in Vietnam and sent out survey questionnaires. Each business was sent 01 survey form and the respondents were business managers. The form of information collection is through Google form and sent to businesses via email and social networking applications. The questionnaire consisted of two parts, the first part included questions about customer pressure, government support, and environmental uncertainty affecting CE implementation. The second part includes questions about CE activities impacting economic performance, environmental performance, and social performance. The questions in the survey used a 5-level Likert scale: 1: strongly disagree; 2: disagree; 3: neutral; 4: agree; and 5: strongly agree. Through screening the answer sheets, the number of votes that met the requirements for inclusion in the analysis was 208.

With the goal of researching the impact of external factors affecting the implementation of CE, and the impact of CE on sustainable development in small and medium-sized enterprises in Vietnam, the author uses quantitative, specific research. PLS-SEM can be applied through SmartPLS 3 software. According to Henseler & Chin (2010), when applying PLS-SEM, the research model is evaluated through two steps: evaluating the measurement model and the structural model. First, the measurement model is evaluated through assessing the reliability, convergent validity and discriminant validity of the measurement concepts in the model. Next, the structural model is evaluated through the coefficient of determination R2, the impact coefficient.

Of the total 208 enterprises surveyed, in terms of ownership form, 65 enterprises are private enterprises, 105 enterprises are joint stock enterprises, and 38 enterprises are state-owned enterprises. Regarding geographical area, there are 95 enterprises in the Northern region of Vietnam, there are 45 enterprises in the Central region of Vietnam, and there are 68 enterprises in the Southern region of Vietnam. Regarding business lines, there are 42 enterprises in the manufacturing

sector, 65 enterprises in the service sector, 24 enterprises in the energy exploitation sector, 45 enterprises in the construction sector, and 32 enterprises in the agricultural sector.

5. RESEARCH RESULTS

Measurement model analysis

The first step in analyzing the measurement model, the authors evaluate the quality of observed variables and the reliability of the scale. The research results are summarized in Table 2. According to Hair et al (2014), observed variables are considered quality when the outer loading factor is greater than or equal to 0.708. According to the survey results, 21 observed variables all have the outer loading factor from 0.714 to 0.961, therefore all 21 observed variables are considered to be of good quality and are eligible to conduct further research. Particularly, the variable "Customer requirements are increasingly difficult to predict" has an outer loading coefficient of 0.656 < 0.708, so according to Hair et al. (2014), the observed variable CP3 is considered to not ensure quality and eliminated in subsequent assessments.

After 21 observed variables were evaluated to ensure quality, the author evaluated the reliability of the scale. The reliability of the variables in the measurement model is evaluated through two main indicators: Cronbach's Alpha and Composite Reliability. However, Composite Reliability is preferred by many researchers. Hair et al (2010), Bagozzi & Yi (1988) agreed that 0.7 is the appropriate assessment threshold. Research results show that the Composite Reliability values of the scales in this study all ensure reliability, specifically Customer pressure (0.805), Governmental pressure (0.750), Market uncertainty (0.808), CE (0.757), Economic performance (0.892), Environmental performance (0.742), and Social performance (0.707). Therefore, the research scales ensure reliability and are used to test convergence and discrimination.

Table 2. Composite Reliability, Cronbach's Alpha, Loading Factors and Average Variance Extracted

Constructs	Item	Composite Reliability	Cronbach's Alpha	Outer loadings	AVE
Customer pressure	CP1	0.911	0.805	0.916	0.837
	CP2			0.914	
	CP3			0.656	
Governmental pressure	GP1	0.888	0.750	0.876	0.799
	GP2			0.911	
Market uncertainty	MU1	0.875	0.808	0.883	0.701
	MU2			0.734	
	MU3			0.886	
CE	CE1	0.838	0.757	0.770	0.516
	CE2			0.805	
	CE3			0.822	
	CE4			0.747	
	CE5			0.711	
Economic performance	ECP1	0.933	0.892	0.928	0.824
	ECP2			0.829	
	ECP3			0.961	
Environmental performance	EVF1	0.853	0.742	0.825	0.659
	EVF2			0.823	
	EVF3			0.786	
Social performance	SOP1	0.830	0.707	0.757	0.620
	SOP2			0.778	
	SOP3			0.825	

(Source: processed primary data, 2024)

The next step in evaluating the measurement model is to focus on testing the convergence and discrimination of the scales. To evaluate convergence, the author relies on the average variance extracted index (AVE). The standard result to evaluate the scale's convergence is AVE of 0.5 or higher (Hock & Ringle, 2010). Analysis of the measurement model in Table 2 shows that the scales are all within the threshold of 0.518 - 0.837. Therefore, the convergence of the variables is accepted.

Next, the author used the Fornell-Larcker Criterion to test the discriminant validity of all measurement models. Fornell and Larcker (1981) recommend that discrimination is assured when the square root of the AVE for each latent variable is higher than all correlations between the latent variables. Table 3 shows that the square root of the AVE values of all variables Customer pressure, Governmental pressure, Market uncertainty, CE, Economic performance, Environmental performance, and Social performance are all higher than the correlation value between the latent variables. Therefore, the discrimination between variables in the study is guaranteed.

Table 3. Fornell-Larcker Criterion

	CE	CP	ECP	EVF	GP	MU	SOP
CE	0.718						
CP	0.770	0.915					
ECP	0.471	0.463	0.908				
EVF	0.788	0.563	0.368	0.812			
GP	0.313	0.191	0.339	0.240	0.894		
MU	0.215	0.112	0.154	0.169	0.582	0.837	
SOP	0.712	0.605	0.755	0.766	0.312	0.166	0.787

(Source: processed primary data, 2024)

Analyze structural models

From the results of analyzing the measurement model through factors such as quality of observed variables, reliability, convergence, and discrimination, the authors continued to analyze the structural model. Before conducting structural model analysis, the author checks and evaluates the multicollinearity phenomenon among the latent variables. According to Hair et al. (2019), if the VIF is 3 or more, the model has a very high possibility of multicollinearity. The analysis results in Table 4 show that the resulting VIF coefficients are all less than 3, so multicollinearity does not occur in the model.

Table 4. Inner VIF Values

	CE	CP	ECP	EVF	GP	MU	SOP
CE			1.000	1.000			1.000
CP	1.038						
ECP							
EVF							
GP	1.551						
MU	1.513						
SOP							

(Source: processed primary data, 2024)

To evaluate the impact relationships, the authors used the results of Bootstrap analysis. The analysis results in Table 5 show that the P-Values of the 5 impact relationships (CP -> CE, GP -> CE, CE -> ECP, CE -> EVF, CE -> SOP) are all less than 0.05, so these effects are all statistically significant. Specifically, the results of PLS-Sem confirm that Customer pressure has a positive impact on CE (Original sample is 0.737, hypothesis H1 is accepted); Governmental pressure has a positive impact on CE (Original sample is 0.143, hypothesis H2 is accepted); CE has a positive impact on Enomic performance (Original sample is 0.787, hypothesis H4 is accepted); CE has a positive impact on Environmental

performance (Original sample is 0.712, hypothesis H5 is accepted); CE has a positive impact on Social performance (Original sample is 0.712, hypothesis H6 is accepted). As for the relationship between Market uncertainty and CE, the research results show that P-Values are 0.388 > 0.05, so this relationship is not statistically significant, or in other words, hypothesis H3 is rejected. .

Table 5. Hypothesis Testing, R2 and f2

Hypothesis	Original sample	SD	T-Value	P-Value	R Square Adjusted	f	Result
CP -> CE	0.737	0.035	21.103	0.000	0.618	1.389	Supported
GP -> CE	0.143	0.062	2.301	0.022		0.035	Supported
MU -> CE	0.050	0.057	0.864	0.388		0.004	Unsupported
CE -> ECP	0.788	0.054	8.724	0.000	0.219	0.286	Supported
CE -> EVF	0.712	0.026	30.410	0.000	0.619	1.639	Supported
CE -> SOP	0.788	0.029	24.856	0.000	0.505	1.031	upported

(Source: processed primary data, 2024)

To evaluate the impact of one or more independent variables on a dependent variable in the SEM model, the author uses the adjusted R-squared index. In addition, to evaluate the importance of the independent variable on the dependent variable, Cohen (1988) proposed the f-squared index. For the first impact relationship (impact of CP -> CE and GP -> CE), the adjusted R square of CE is 0.618, so the independent variables of CP and GP can be explained. 61.8% of the variation of the CE variable. The f-squared index of CP on CE is 1.389, GP on CE is 0.035, so the impact of CP is much higher than the impact of GP. For the second impact relationship (impact of CE -> ECP), the adjusted R square of ECP is 0.219, meaning that the CE variable explains 21.9% of the variation of ECP. The f-squared index of CE on ECP is 0.286, so this impact is considered average. For the third impact relationship (impact of CE -> EVF), the adjusted R-squared of ECP is 0.619, meaning that the CE variable explains 61.9% of the variation of EVF. The f-squared index of CE on EVF is 1.639, so this impact is considered large. For the 4th impact relationship (impact of CE -> SOP), the adjusted R square of SOP is 0.505, meaning that the CE variable explains 50.5% of the variation of SOP. The f-squared index of CE on SOP is 1.031, so this impact is considered large.

6. DISCUSSION

Research results show that customer pressure positively impacts the implementation of circular economy in small and medium-sized enterprises in Vietnam. This result is similar to many previous studies. Mostaghel, R. (2021) posited that the main factors influencing the perception and acceptance of circular solutions are the customer's personal characteristics; their knowledge, understanding and experience; social concerns; and other psychological factors. In Sweden, a study of 1,000 customers between the ages of 17 and 70 found that 66% considered sustainability an extremely important factor, and 29% considered it an important factor, when purchasing services and products (Rana Mostaghel et al., 2021). In Vietnam, small and medium-sized enterprises are often price-accepting businesses, heavily influenced by businesses with large market shares, so understanding and meeting customer needs is always an influencing factor to the decisions of administrators in general and the decision to transition to a circular economy in particular.

Research results show that support from the government positively impacts the implementation of circular economy in small and medium-sized enterprises in Vietnam. This result is contrary to some previous studies. P., Despoudi, S., Dey, P. (2022) in a study in Mexico found that there is no consensus between government support and CE implementation at businesses. However, Kazancoglu et al. (2021) argue that government support can stimulate the transition of SMEs to the CE model because the government plays the role of coordinator, mediator and supporter of stakeholders. In Vietnam, policies and guiding documents from the government are always the orientation for small and medium enterprises in Vietnam.

Research results show that uncertain environmental pressure has no impact on the implementation of circular economy in small and medium-sized enterprises in Vietnam. This result is similar to the

research of P., Despoudi, S., Dey, P. (2022). In Vietnam, there are very few production and business industries that are subject to an uncertain business environment, so this is not a factor that small and medium-sized enterprise administrators are interested in when implementing a circular economy.

Research results show that implementing circular economy has a positive impact on economic efficiency in small and medium-sized enterprises in Vietnam. Studies by Lee (2008), Lumar et al. (2019), Dey et al. (2022) had similar results to this study. Among them, the results of Dey et al. (2022), SMEs implementing CE in France achieve higher economic efficiency than in Greece, Spain, and the UK. When businesses make the transition from a linear economy to a circular economy, creating green products and services and improving business competitiveness, leading to improved financial results.

Research results show that implementing circular economy has a positive impact on environmental performance in small and medium-sized enterprises in Vietnam. The study results are consistent with previous studies in different countries. CE has a close relationship with environmental performance (Liu et al., 2018; Dey et al., 2022). The results of Dey et al. (2022), SMEs implementing CE in France, Greece, Spain, and the UK all achieved higher environmental performance. Energy and resource efficiency, and waste reduction are much higher when implementing CE. CE improves waste utilization and waste streams, enhancing the availability of materials enabling the protection of natural resources, water, energy, and minerals.

Research results show that implementing circular economy has a positive impact on social efficiency in small and medium-sized enterprises in Vietnam. The results of Dey et al. (2022), CE practices have the potential to contribute positively to the social performance of SMEs in all four countries studied, but the results are uneven. SMEs in France achieve higher social performance when using CE compared to Greece, Spain, and the UK. However, many previous studies have had the opposite result, claiming that there is no relationship between CE and social sustainability (Gray et al., 2014; Haynes et al., 2015).

7. Some Suggestions

The research results provide an information base to help small and medium-sized enterprises in Vietnam implement a successful circular economy model; and implement circular economy towards sustainable development through improving economic efficiency, social efficiency, and environmental efficiency. Based on the research results, the author offers the following opinions:

First, policymakers have an important role in providing a favorable environment for small and medium-sized enterprises to successfully access and apply CE. Therefore, governments at all levels need to have supportive measures and creative initiatives to make business managers aware of the importance of CE in protecting the environment and creating social efficiency. Local governments can promote SMEs to implement all aspects of CE through policy reforms, training programs to increase managers' awareness, evaluate performance related to climate plans and especially financial support through preferential loan policies.

Second, small and medium-sized enterprises in Vietnam need to strengthen relationships with customers to be able to reach customers' level of environmental awareness. From there, businesses design products, build production processes, and build supply chains in accordance with CE to meet customer needs and improve economic, social and environmental efficiency.

8. CONCLUSION

Implementing a circular economy is an inevitable requirement for small and medium-sized enterprises in Vietnam to improve economic efficiency, social efficiency, and environmental protection, through which businesses aim for sustainable development. With a survey of 208 small and medium-sized enterprises in Vietnam, research results have shown that customer pressure and support from the government have positive impacts on the implementation of circular economy, and the implementation CE positively impacts economic, social and environmental performance in small and medium enterprises in Vietnam. However, knowledge about CE among small and medium-sized

enterprises in Vietnam is not high. Small and medium-sized enterprises in Vietnam need to design products, production processes and facilities that are capable of creating favorable conditions for businesses to successfully implement CE. This article studies small and medium-sized enterprises spread across Vietnam and in all industry sectors. However, each field and each profession will have its own requirements for implementing CE. Therefore, researching the factors affecting CE and the impact of CE on financial - social - environmental performance in a specific production and business field will be suggestions for further research.

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