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I. Gusti Ayu Purnamawati

Gede Adi Yuniarta

Ferry Jie

Edith Cowan University

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Research article

Strengthening the role of corporate social responsibility in the dimensions of sustainable village economic development

I Gusti Ayu Purnamawati^{a,*}, Gede Adi Yuniarta^a, Ferry Jie^b

^a Faculty of Economics, Universitas Pendidikan Ganesha, Singaraja, Indonesia

^b School of Business and Law, Edith Cowan University, Joondalup, Australia



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ABSTRACT

Implementing green growth and digitalization programs as sustainable village economic development dimensions encounter challenges related to human resources, institutional design, and trade-offs between economic growth, environmental sustainability, and corporate social responsibility. This study aims to analyze the role of the green economy and digitalization for sustainable village economic development with corporate social responsibility as a moderating variable. This research is quantitative descriptive research conducted in the province of Bali. Research data using primary sources were collected using a questionnaire with a Likert scale. Respondents in this study were the community and village officials who carried out activities using technical assistance in government activities and agriculture and plantations. The research sample amounted to 98 people using purposive sampling. Data were analyzed using Structural Equation Modeling. The research results explain the importance of maintaining sustainable economic growth in the agricultural and plantation sectors in the Province of Bali with good cropping patterns. Green growth and digitalization significantly impact sustainable growth in the economic and financial sectors. Corporate social responsibility can moderate the influence of green growth and digitalization on sustainable village economic development. A green economy ensures that villages can realize economic growth that can reduce poverty and ensure social inclusion, environmental sustainability, and resource efficiency. The digital village program will increase the knowledge and competence of rural communities to use technology in developing their businesses, welfare, and local rural business capabilities. Mainly to improve production, marketing, reputation, and finances to compete with regional and national businesspeople.

1. Introduction

Indonesia began to experience intense and consistent economic growth of 6% in 15 years through the support of industrialization. Economic growth is a benchmark for an increase in the output produced by a country and will affect activities to fulfill people's needs for goods and services. Increased economic growth in the industrial sector provides opportunities for economic recovery in other sectors [1].

The industrial sector contributed significantly to Indonesia's economic growth of up to 20.7%. Indonesia has a high population growth rate and ranks fourth in the world. Its economic growth is the 10th largest based on purchasing power: Indonesia and its success

* Corresponding author.

E-mail address: ayu.purnamawati@undiksha.ac.id (I.G. Ayu Purnamawati).

in accelerating its poverty reduction program to below 10% in 2019. Indonesia is a country that experienced a significant decline in income in July 2021 and reached its lowest point of poverty rate of 9.7% in September [2]. It makes Indonesia the host of the G20 Presidency and supports all countries in achieving sustainable recovery due to the worst pandemic [3]. The increasing achievement of the state in economic growth also creates negative externalities, namely the natural environment in Indonesia. Indonesia's geographical condition with abundant natural resource potential is one of the factors of production in producing output. Various adverse environmental impacts also come from using non-renewable natural resources to facilitate productivity, and ecological damage also propagates to forest conditions due to deforestation.

These phenomena indicate a trade-off between economic growth and environmental sustainability, a challenge for the government. Based on the Environmental Kuznets Curve, the relationship between per capita economic growth and the quality of the natural environment is a hypothesis in world countries. The higher Gross Domestic Product resulted in increased environmental damage. At a certain point, the level of environmental damage will decrease even though there is still an increase in per capita economic growth. In research [4], show a bidirectional causality between CO₂ emissions and energy consumption. The same thing happened between economic growth-urbanization and economic growth to financial growth. Rapid urbanization can help reduce pollution levels and energy consumption by using technical innovations and ecological modernization. In addition, energy efficiency improvements, energy-saving projects, energy conservation, and energy infrastructure reduce the pollution generated by urban areas. Alternative biofuels can minimize emission intensity and meet future energy needs.

The emergence of complex problems that accompany economic growth and the environment encourages the concept of a green economy. A green economy leads to sustainable development. The goal is to improve welfare and social equality in society. The long term has a role in reducing the risk of environmental damage. Modernization in various fields of life indirectly poses a threat to the scarcity of natural and economic resources.

Development focusing on production growth can produce economic reforms but cannot overcome social and environmental problems. The population's average income inequality is among them in developed and developing countries. Market competition is getting more challenging, which indicates that the company continues to innovate to improve the green economy to gain a sustainable competitive advantage to positively impact company performance [5]. The company's green economic activities can realize reforestation for the product life cycle so that there is a win-win situation between economic benefits and the environment [6]. It can ultimately reduce the negative environmental impact, and the company's competitiveness continues to increase [7].

The development gap between urban and rural areas cannot be separated from the uneven distribution of demographics and economic capacity and the availability of adequate infrastructure, including the gap in information and communication technology. The number of villages that have yet to be touched by information and communication technology was around 40% in 2017. This gap makes it difficult for villages to develop. The development of technology that has entered the industrial revolution 4.0 will provide challenges regarding the running of the village government and economy [8]. Villages must be able to adapt to follow these technological advances to be included in all fields.

Indonesia's national digital transformation is a supporting part of economic development and closely relates to the economic foundation. It is identical to the cycle of development and circulation. It is essential to understand the critical aspects of the digital and economic development cycle and have a regulatory framework to control it. An increase in awareness and regulations regarding the environment, especially the use of production technology that is more environmentally friendly, will lead to a sustainable company [9].

Rural development has undergone significant changes both in concept and process. The current development pattern focuses on more than just the agricultural and infrastructure sectors but on implementing information and communication technology. The digital village is a program choice that synergizes service, service, and community empowerment by using the help of information technology in it. These developments include village potential, marketing, accelerating access and public services. In the end, it will reduce dependence on the domination of the government's role because the community begins to have the power of independence, innovation and creativity. Rural community development leads to institutional development and community participation in improving welfare. The principles of rural development include transparency, participation, service, accountability, and sustainability. Various factors are involved in it, such as social, economic, cultural, and technological, that interact with each other in the development process [10].

Talibeng Village is one of the villages in Karangasem Regency, one of the villages in the program that aims to implement digitalization in every village's economic and financial activity. These activities include marketing agricultural and plantation products, as well as savings and loan units through increasing the role of Village-Owned Enterprises. Economic growth is still low; the touch of technology and the application of green growth is one of the opportunities to improve the standard of living and welfare of the community by reaching a wider marketing area and a well-patterned financial management system. Villages in the Province of Bali are growing with the application of green growth and increasingly sophisticated digitalization, so implementing a green growth program in Indonesia can be a good start in line with increasing investment in the current era of industrialization. This increase in the level of investment will certainly have a good influence on increasing economic growth. However, on the one hand, increased investment can also mean growing adverse impacts that cause environmental quality to decline if industrialization activities do not pay attention to sustainability components. In response to this problem of decreasing environmental quality, the Indonesian government is committed to a green growth program with two main achievements: capacity building and green investment. The implementation of this program is expected to be the answer to realizing Indonesia's sustainable development.

The implementation of Green Growth in Indonesia itself is still experiencing several challenges. These challenges include a lack of concern for natural resources, investment with conventional patterns, institutional design problems, trade-offs between economic growth and environmental conservation, and allocative efficiency in the government's budget for research and development. The green growth program is not only a solution to the problem of environmental damage but also about green investment [11]. Therefore,

the green growth program should be implemented in every industrial sector in Indonesia. This is done to create a favourable investment climate to attract investors. Its challenges are also experienced in technology adaptation, where adequate human resources do not support the use of technology due to a lack of knowledge and guidance and internet networks that are difficult to reach if located in remote villages. Many village communities complain that they are still unfamiliar with digitalization, but the current activities must be able to be supported by technology.

This study aims to analyze the role of the green economy and digitalization for sustainable village economic development with corporate social responsibility as a moderating variable. The focus of this research is the challenge of implementing sustainable economic development policies towards a digitalized village. However, the challenges faced are limited human resources which still need to be digitally literate, so they are not evenly distributed to all the people of Talibeng village. The implementation of green growth and digitalization, which is still minimal, makes this research interesting. In addition, this research is also interesting because, considering that there have been many studies on the effects of sustainable economic development, the results are still mixed. This is presumably due to differences in analytical techniques and a direct or indirect relationship to variables of sustainable economic development. This study develops indicators in Hindu philosophy, namely the three causes of happiness or Tri Hita Karana; this philosophy is based on the relationship with implementing corporate social responsibility.

The variety of research results causes this research to be carried out to find new empirical evidence that strengthens previous studies' results by adding other factors. This research is an extension of Antasari's research (2019) which uses the green concept in researching sustainable economic development; the difference lies in this research testing green growth and digitalization variables as additional variables and using corporate social responsibility as a moderating variable. Another difference in the sample used is the government and the people of the Kediri area.

Institutional theory describes social structures that have relationships and impacts [12]. Institutions are social structures with rules, norms, and processes that guide society at a certain time [13] and this theory forms the CSR framework. Institutions face various regulatory, regulatory and reporting pressures [14]. Likewise, with normative as part of the rules in society. The traditional narrow view states that only financial performance is able to encourage CSR activities, then is expanded by an understanding of institutional theory [15] which complements the understanding of micro-organizations which are the core causes of corporate social behavior and uncovers organizational actions to break away from activities that are not socially responsible [16].

The results of this study are expected to be considered in making decisions related to sustainable economic development through the implementation of green growth and digitalization.

2. Literature review

2.1. Economic growth

Economic growth is one of the long-discussed investigations by economists: many figures and their thoughts or theories regarding development or economic growth so far. The theory of economic growth begins with the classical growth theory with the characters Adam Smith, David Ricardo, Robert Malthus, and John Stuart Mill; according to classical economists, many factors influence economic growth, such as population, the total stock of capital goods, land area and wealth. Nature, as well as the level of technology. The next theory, Schumpeter's theory, argues that an entrepreneur plays an essential role in economic growth. The next theory is based on the Harrod-Domar theory, where this theory sees growth from the demand side. The next theory of economic growth is neo-classical, developed by Abramovitz and Solow, looking at economic growth from the supply side. The next theory is Keynes's theory, where he argues that aggregate expenditure is public spending on goods and services, which is the main factor determining the level of economic activity a country achieves. An understanding of the theory of economic growth is very important. A theory is the result of empirical experience, this can be used as a reference for making policies and predicting economic conditions in the future. The discussion related to the theory of economic growth shows three components that are interrelated and become factors that encourage increased economic growth, namely production, technological progress, and adjustment of open ideology to accept new technology.

Measuring economic growth is done by using various elements that represent the current state of the economy with the previous period. Different proxies become standards in measuring economic growth, namely gross national product (GNP) or gross domestic product (GDP). Various main components influencing economic growth dominantly include natural and human resources, capital accumulation, managerial and production organization, science and technology, politics and administration, and socio-culture. A company will continue to grow to increase its economic activities when it conducts operations based on a sustainable environment [17]. [18] also argues that economic growth is a series of activities with four main factors: humans, capital accumulation, modern technology and outputs. Transformation of economic growth towards improving conditions for the better in the future. These developments increase the production of financial resources in the community's economic activities for the long term (sustainable development).

2.2. Sustainable development

Sustainable development is not only aimed at meeting the needs and benefits of the present but also must pay more attention to efforts to meet the needs of society in the future. Environmental sustainability is one of the main dimensions to which all levels of the organization must pay attention. The focus on overcoming issues related to the environment and its sustainability is an essential step in supporting the economic growth of a country. When implementing green economy policies, various efforts emphasize minimizing the use of scarce natural resources and seeking solutions or renewable energy alternatives. The next step is to carry out cost-effectiveness

and efficiency and reduce the negative impact of industrial waste. It will be a sustainable competitive advantage for the company [19].

Sustainable development has a primary mission to improve people's welfare and fulfil the needs and aspirations of human beings worldwide. Three main pillars serve as indicators for the development of the SDGs: first, indicators that fully emphasize human development in terms of education and health. The second indicator focuses on the environment in a smaller scope (social and economic development), providing environmental facilities, infrastructure, and economic growth. The third indicator covers the more considerable environmental development, namely efforts to provide natural resources and environmental quality that are better and more feasible than before. The UN documents, especially the results of the World Summit in 2005, also convey the three dimensions that are interconnected with each other and become the driving pillars of sustainable development, describing the following.

Based on Fig. 1, the sustainable development scheme is at a meeting point between the three pillars. Thus, sustainable development emphasizes problem-solving in an integrated and comprehensive manner by considering the three pillars. Sustainable development must consider several components: equity, justice, and an integrative approach. Sustainable development prioritizes the synergy between humans and the surrounding environment, economic, socio-cultural, political, defence and security. Overall, it aims at future sustainability in the long term. The province of Bali, with its strong tradition and Hindu community, recognizes the Tri Hita Karana philosophy, which is the same as the concept of sustainable development. This concept teaches about three causes of happiness in life: pawongan, which is in harmony with social or humanitarian activities; palemahan, which means maintaining balance with the surrounding environment; and parayangan which is the same as holding a relationship with God as the creator of the universe. The elements of sustainable development are goals that align with Tri Hita Karana.

Several indicators are generally put forward in evaluating the success of sustainable development in developing countries (such as Indonesia), including national income, economic growth; income per capita; national income distribution, poverty, public health; community education; community productivity; population growth; unemployed and underemployed. Development is a multidimensional process that leads to changes in the social structure and also to changes in the level of economic growth and poverty eradication. Sustainable development aims to enable each generation to promote economic opportunities and social welfare by utilizing natural resources. In its application, sustainable development in people's lives requires a series of factors of production that can be used to obtain the desired goods and services.

Sustainable development is essential to seek equitable distribution of development between current and future communities. Sustainable development is a prerequisite for community economic development that relies on natural resources and labour to increase community economic growth.

2.3. Green growth

Economic development will experience rapid growth by adopting a green economic system [20]. The green economy system is based on the relationship between natural ecosystems and human resources based on knowledge and technology. The green economy does not rely on fossil fuels. The existence of a green economy is a driving force in minimizing the impact of economic activities carried out by humans on climate change and global warming [21]. The green economy is the answer to the brown economy, which is an economic activity that produces a lot of carbon. Economic activities that use energy inefficiently (wasteful) but need to be more socially inclusive, that is, do not involve many people in the decision-making process. For example, cocoa economic activity is dominant in managing and utilizing mining materials and coal minerals.

2.4. Digital village concept

The digital village concept emphasizes the use of digital technology in supporting the acceleration of village development in terms of public services that reach various rural areas, such as infrastructure, information technology, communication, transportation, zoning, irrigation (drainage) and energy [22]. Digital villages are expected to reduce costs and improve rural communities' public services and living standards [23]. said that in developing countries, the development of digitalization has a very positive impact, especially in the context of sustainable development, which is supported by competent human resources as the key to realizing this. Technology is a tool to reduce costs and improve performance or services; by using technology, villages will be more advanced and independent [24]. said that towns no longer depend on regions and even the centre by utilizing digital technology or the Internet of Things (IoT). IoT can create Smart Energy, the automation of energy such as electricity and others. An innovative environment is an

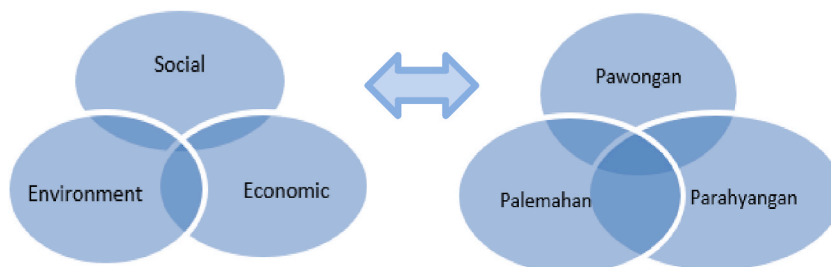


Fig. 1. Scheme of sustainable development and Tri Hita Karana Philosophy.

intelligent environment that can be controlled automatically by the Internet of Things (temperature, pollution and others). Smart Transportation (intelligent transportation) can speed up travel and increase energy. Smart Farming can increase crop yields to good distribution, reduce costs and increase farmers' profits. A good information system will support Smart Village Government, village government, and services electronically to reduce costs and improve public services.

2.5. Corporate social responsibility

The concept of responsibility is imposed on the company with the target of the community by making improvements to environmental performance, economic performance, the welfare of employees, business development and operations and corporate structure that can create a corporate image for stakeholders [25]. When there is a strategic human resource policy, a firm CSR policy is capable [26], where the company's CSR gives a positive image and is then known by stakeholders; this increases the company's value. Corporate social responsibility is realized when a company is committed to contributing to the interests of society by holding social activities. CSR is said to acknowledge the socio-economic and environmental dimensions and respond to its stakeholders. It is noted that CSR can reveal that the company is interacting with customers, vendors, and stakeholders. CSR is currently more complex, regulating pollution prevention, water management and conservation, recycling, or reusing a product. CSR activities in the Province of Bali are implemented to support the religious activities related to the subak system (water irrigation) in the rice field irrigation system for villagers and activities at places of worship called temples.

3. Hypothesis development

3.1. The effect of green growth on sustainable village economic development

In the 1985–1999 period, rapid industrial development made an excellent contribution to economic growth and poverty alleviation in Indonesia. It can be proven by the achievement of economic growth of 7.9% and the poverty rate, which has decreased by 49% [27]. The industry has a good and lousy impact that affects the condition of natural resources, as stated by Refs. [28,29], who say that green growth is very influential on sustainable development. The Indonesian Green Growth Program is a joint program implemented by the National Development Planning Agency (Bappenas) and the Global Green Growth Institute (GGGI) and involves several ministries and local governments. The green growth program has five long-term targets to be achieved. The five targets include; sustainable economic growth, inclusive and equitable growth, socio-economic and environmental resilience, provision of healthy and productive services to ecosystems, and reduction of greenhouse gas emissions.

Green growth is intended to support sustainable economic development to reduce environmental degradation because humans exploit natural resources faster than natural forces in renewing themselves. Green growth has a significant positive influence on sustainable economic development because green growth is sought to meet resource needs without compromising the rights of future generations using environmental management and protection. Green growth causes economic changes in business entities that initially only seek profit and welfare. Still, efforts have been made to become a green economy more oriented towards environmental sustainability, so it is expected to be able to overcome environmental problems, especially climate problems.

H₁: Green growth has a positive and significant effect on village economic sustainable development.

3.2. The effect of digitalization on sustainable village economic development

ICT is necessary for all people, not only those living in urban and rural areas. However, to implement the use of ICT, adequate infrastructure is needed. The infrastructure required to implement digital-based ICT in an area is the availability of internet networks, computer hardware, smartphones, mobile phones and accessories. Digitization is using ICT through digital devices such as mobile phones, smartphones and computers and their supporters so that previously manual processes and mechanisms turn into automatic ones. Implementing digitalization in rural areas becomes a challenge under the infrastructure needs. Communities in rural areas have the following limitations: (1) Low knowledge and competence of the community; (2) The low level of the community's economy; (3) The low quality of public health; (4) Limited access to finance, both for access to funding, and other financial services such as money transfers; (5) Limited access to local product marketing. Furthermore, as an archipelagic country, Indonesia has more rural areas than urban ones [30,31]. stated in their research that digitalization positively impacts sustainable economic growth, especially in the business world.

Digitalization plays a central role during the COVID-19 pandemic, especially in the economic field, where it can finally withstand heavy economic pressures. People, by utilizing digital, can survive with online business models and utilize internet media. The COVID-19 pandemic has created momentum for e-commerce and fintech companies to increase transactions and sales. Transactions using digital money, the number of internet users has increased, supported by ICT infrastructure and quality human resources. Amid depressed economic conditions and contraction, the digital economy has the resilience to keep it, so it continues to run.

H₂: Digitalization has a positive and significant effect on village economic development and sustainable

3.3. Corporate social responsibility moderates the effect of green growth on sustainable village economic development

Corporate social responsibility in helping green growth plays a large enough role in sustainable village economic growth [32] said;

that corporate social responsibility positively influences green growth to improve environmental performance and company competitiveness. CSR, associated with green growth, becomes a renewal implemented in the corporate environment where it meets the community’s needs and can provide a sustainable impact for the company. The continuity of both implementations gives the company a market value. Green growth is used as an environmental innovation where companies create product creations, processes and even marketing by reducing the use of natural resources to reduce environmental impacts [33].

H3: Corporate social responsibility can moderate the effect of green growth on sustainable village economic development.

3.4. Corporate social responsibility moderates the effect of digitalization on development sustainable village economy

The concept of corporate social responsibility makes a competitive advantage primarily related to the existence of a technological innovation of a company where when social responsibility is greater, the company’s ability to achieve digital technology is also more robust. CSR has high coordination requirements for stakeholders to encourage a company’s technological innovation. The company has superior competitive resources and capabilities that enable CSR relationships by utilizing digitalization to realize sustainable economic development. Due to its environmentally friendly implementation, the company can distribute all knowledge about its social responsibility through sophisticated digitalization to improve its image, employee skills, customer satisfaction, and the community [34].

H4: Corporate social responsibility can moderate the effect of digitalization on sustainable village economic development.

4. Materials and methods

This research was conducted with a quantitative descriptive approach. Collecting data in this study using primary sources through a questionnaire with a Likert scale of 1–5. The questionnaire indicators are built based on theory and adopt previous research that is relevant to developing the Tri Hita Karana philosophy in it which is the originality of this research.

The research population includes the entire population of Talibeng Karangasem village, namely 3696 people. The research sample was 98 people using purposive sampling. Talibeng Village is one of the villages in Karangasem Regency with a large number of people who are still below the poverty line. Only a few people can use technology to do work because of limited costs and a low standard of living. Even though this village is feasible to be developed because of its natural resource potential in the agricultural and plantation sectors. This study only used 98 samples because only a few people understand the technology and use it. This research focuses on the development of digitization so that only the community and village apparatus that have the potential to carry out activities using technological assistance in both the government and agriculture and plantation sectors are the samples. The sample was obtained through direct observation at the Talibeng Village head’s office.

Data were analyzed using Structural Equation Modeling using WarpPLS 5.0. The Endogenous variable used in the study is sustainable economic development. The Exogenous variable: green growth and digitalization. Corporate social responsibility as

Table 1
Variables definition and data sources.

Variable	Definition	Indicator	References
Sustainable Village Economic Development	A strategy in which the community seeks an economic development approach that also benefits the local village’s environment and quality of life [35].	Increased Equality, Unemployment Rate Average wages working hours, Prosperity Distribution GRDP Per Capita, Economic Welfare Tri Hita Karana	Questionnaire
Green Growth	The economic growth achieved also contributes to the responsible use of natural capital, helps prevent and reduce pollution, and creates national prosperity [36].	Economic growth, Environmental sustainability Poverty Reduction, Efficiency of sustainable natural assets A socially inclusive, healthy ecosystem Infrastructure, environmentally friendly	Questionnaire
Digitalization	Using digital technology to transform business models and provide new revenue and value-generating opportunities [37]	Web Features Internet Network Cloud-based system, data management and analytics	Questionnaire
Corporate Social Responsibility	Forms of social responsibility to the community and the surrounding environment [38]	Economy Social Environment	Questionnaire

Research Model: $Y = \gamma_1 X + \gamma_2 M + \gamma_3 XM + \varepsilon$ Information, Y: Endogenous variable. X: Exogenous variable. γ : Coefficient of influence of exogenous on endogenous latent variables. M: Moderating variable.

mediating variables. Variable measurements are summarized in the presentation of [Table 1](#).

This study investigates whether sustainable economic development influences green growth and digitalization mediated by corporate social responsibility. A regression model can be presented as follows.

5. Results

This data analysis was carried out by testing the outer model and then testing the inner model to determine the size of the influence of the path coefficient of the exogenous variable on the endogenous variable [39]. In the WarpPLS 5.0 software modeling, the following is the WarpPLS test in the study, which obtained results from information on the outer and inner models.

The design of the SEM analysis model with WarpPLS can estimate how the relationship between latent variables is whether the relationship is linear or non-linear and can correct the path coefficient value based on this relationship. WarpPLS is able to find true relationships between latent variables in SEM analysis. Therefore, the path coefficient associated with a strong effect can often be higher than estimated by other SEM software.

The outer model examines the feasibility of the validity and reliability of the questionnaire instrument used in the study. Convergent validity measures the discriminant test, the relationship between reflective and latent indicator scores.

The criteria for this validity are met if the loading value is 0.5–0.6. Convergent validity in this study is based on [Table 2](#) and [Table 3](#); it is known that the combined loadings and cross-loadings have met the criteria, so the validity is fulfilled.

In measuring reflective indicators regarding the value of cross-loading and latent variables, namely using a measure of discriminant validity ([Table 4](#)). The assessment uses a questionnaire by comparing the square root value of the average variance extract among all latent variables. If the value exceeds the relationship between variables as required, then the test of discriminant validity can be said to be fulfilled.

The reliability test is used to see each variable's feasibility level and must go through two instruments: composite reliability and Cronbach's alpha. Composite reliability becomes the assessment standard in measuring the stability and consistency of combined reliability. The questionnaire will have composite reliability, which can be said to be in a suitable category if the value is 0.7 (although this is not an absolute standard). Cronbach's alpha value of 0.5–0.6 is considered sufficient to measure reliability.

[Table 5](#) shows that the composite reliability value of each variable is more significant than 0.7, and the overall Cronbach's alpha value is above 0.5 (it has met the criteria for reliability). The R-square value shows the number of 0.726 with the interpretation that 72.6% of sustainable economic development variables can be explained by green growth, digitization and moderating variables represented by corporate social responsibility. Other variables influence the remaining value of 27.4%. The value of VIFs collinearity can be fulfilled if it is smaller than 3.3, as the model is said to be free from vertical collinearity problems, and its value can be said to be acceptable. The measurement of the Q-square coefficient becomes an assessment of predictive validity, which can be negative and greater than 0. [Table 5](#) meets the validity value of 0.569.

Hypothesis testing in [Table 6](#) adjusts to several research problem formulations. Hypothesis testing attempts to answer the formulation of the hypothesis based on the steps in the framework of thinking by testing exogenous, endogenous, and moderating models [40].

Based on the output of [Table 6](#), it is known that the fit and quality indices model for all criteria and the values of APC, ARS, AARS, AVIF, AFVIF to GoF can be accepted and can be used as analysis.

[Fig. 2](#) shows a direct relationship for the variables studied where the output results are models and path analysis test results. [Table 7](#) output results in path coefficient values are used to determine the magnitude of the influence of direct and indirect relationships (moderation). The results of the WarpPLS 5.0 output are expressed as the analysis whose data has been standardized. The results of the direct influence test are shown in [Fig. 2](#) and [Table 7](#). The value of path coefficients from green growth to sustainable economic development is 0.469 and p-values <0.001, which means highly significant, it is stated that green growth has a positive and significant effect on sustainable economic development. The value of path coefficients from digitization to sustainable business is 0.339, and p-

Table 2
Convergent validity.

Variable	Indicator	X1	X2	X3	Z	Y	P Value
Green Growth (X1)	X1.1	0.754					<0.001*
	X1.2	0.794					<0.001*
	X1.3	0.604					<0.001*
	X1.4	0.777					<0.001*
Digitalization (X2)	X2.1		0.819				<0.001*
	X2.2		0.869				<0.001*
	X2.3		0.715				<0.001*
Sustainable Economic Development (Y)	Y1			0.789			<0.001*
	Y2			0.843			<0.001*
	Y3			0.839			<0.001*
	Y4			0.814			<0.001*
Corporate Social Responsibility (Z)	Z1				0.870		<0.001*
	Z2				0.869		<0.001*
	Z3				0.836		<0.001*

Source: processed data (* = valid).

Table 3
Convergent validity.

Z*X1		Z*X2		P Value
Z1*X1.1	0.802	Z1*X2.1	0.795	<0.001**
Z1*X1.2	0.824	Z1*X2.2	0.851	<0.001**
Z1*X1.3	0.629	Z1*X2.3	0.840	<0.001**
Z1*X1.4	0.747	Z2*X2.1	0.673	<0.001**
Z2*X1.1	0.765	Z2*X2.2	0.797	<0.001**
Z2*X1.2	0.849	Z2*X2.3	0.795	<0.001**
Z2*X1.3	0.672	Z3*X2.1	0.690	<0.001**
Z2*X1.4	0.767	Z3*X2.2	0.763	<0.001**
Z3*X1.1	0.770	Z3*X2.3	0.771	<0.001**
Z3*X1.2	0.807			<0.001**
Z3*X1.3	0.602			<0.001**
Z3*X1.4	0.752			<0.001**

Source: processed data (* = multiplication; ** = valid).

Table 4
Discriminant validity.

Correlations among l.vs. With sq. rts. of AVEs							
	X1	X2	X3	Z	Y	Z*X1	Z*X2
Green Growth (X1)	0.717*						
Digitalization (X2)		0.803*					
Sustainable Economic Development (Y)			0.822*				
Corporate Social Responsibility (Z)				0.859*			
Z*X1						0.826*	
Z*X2							0.777*

Source: processed data (* = discriminant validity can be accepted; AVE value is greater than the correlation between latent variables in the same column).

Table 5
Latent variable coefficients.

	X1	X2	Z	Y	Z*X1	Z*X2
R-squared coefficients				0,726		
Adjusted R-squared coefficients				0,715		
Composite reliability coefficients	0,805	0844	0,894	0893	0,920	0932
Cronbach's alpha coefficients	0,675	0722	0,822	0839	0,904	0917
Average variances extracted	0,514	0646	0,738	0675	0,505	0604
Full collinearity VIFs	3213	2614	2822	2350	2918	3124
Q-squared coefficients				0,569		

Source: processed data.

Table 6
Model fit and quality indices.

No.	Model Fit and Quality Indices	Fit Criteria	Index	Information
1	Average path coefficient (APC)	p < 0.05	0,293	fulfilled
2	Average R-squared (ARS)	p < 0.05	0,726	fulfilled
3	Average adjusted R-squared (AARS)	p < 0.05	0,715	fulfilled
4	Average block VIF (AVIF)	acceptable if ≤ 5, ideally ≤ 3.3	3283	fulfilled
5	Average full collinearity VIF (AFVIF)	acceptable if ≤ 5, ideally ≤ 3.3	3207	fulfilled
6	Tenenhaus GoF (GoF)	small ≥ 0.1, medium ≥ 0.25, large ≥ 0.36	0,668	Fulfilled, large category
7	Sympson's paradox ratio (SPR)	acceptable if ≥ 0.7, ideally = 1	1000	fulfilled
8	R-squared contribution ratio (RSCR)	acceptable if ≥ 0.9, ideally = 1	1000	fulfilled
9	Statistical suppression ratio (SSR)	acceptable if ≥ 0.7	1000	fulfilled
10	Nonlinear bivariate causality direction ratio (NLBCDR)	acceptable if ≥ 0.7	0,800	fulfilled

Source: processed data.

values <0.001, which means highly substantial. It is stated that digitization has a positive and significant effect on sustainable economic development. The path coefficient value of corporate social responsibility moderating green growth on sustainable economic development is 0.196, and p-values 0.022 < 0.05; it is stated that corporate social responsibility can moderate the effect of green growth on sustainable economic improvement. The path coefficient value of corporate social responsibility moderating digitization on

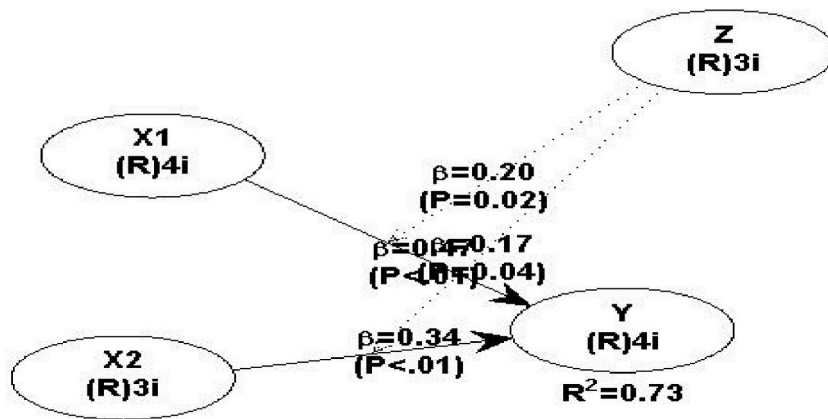


Fig. 2. The results of the analysis of the direct and indirect effect.

Table 7
Path Coefficients and p-values.

Variable	Criteria	P Values	Information
	Path coefficients		
Green Growth (X1)	0,469	<0,001***	Highly Significant
Digitalization (X2)	0,339	<0,001***	Highly Significant
Corporate Social Responsibility*	0,196	0022**	Significant
Green Growth (Z*X1)			
Corporate Social Responsibility *	0,170	0041**	Significant
Digitization (Z*X2)			

* The decision to test the hypothesis obtained p-value ≤ 0.10 , then weakly significant, p-value ≤ 0.05 , then significant and p-value ≤ 0.01 , then highly significant.

sustainable economic development is 0.170, and p-values $0.041 < 0.05$. It is stated that corporate social responsibility can moderate the effect of digitalization on sustainable economic development.

6. Discussion

The Bali Provincial Government continues to prepare Bali to become one of the best tourist destinations in Indonesia. Various tourist village destinations are found in all districts of Bali Province. One example is Talibeng Village, a Tourism Village where tourism management is community-based. Not different from other tourist villages in Bali, Talibeng Tourism Village also has a unique beauty of the Balinese countryside that is very well preserved. The village atmosphere is elegant, green, and clean. The gardens or gardens on the side of the road are neatly arranged to be beautiful to the eye. Indonesia is an archipelagic majority country and urgently needs tourism that implements green economy-based tourism. It is interesting to further study the potential and strategies for managing green economy-based tourism villages to increase people’s economic income during the Covid-19 pandemic.

The results of the research above show that the first hypothesis is accepted, which means that green growth has a positive and significant effect on sustainable economic development. The results of this study are similar to the research conducted by Refs. [41–43], that the higher the value of green growth, the higher the achievement of sustainable economic development. Green growth is said to be capital in applying the concept of sustainable development. There are two sides: the first is the protection of the environment, and the second is the possibility of economic growth. Governments across the country have adopted that should implement green growth to maintain a balance between the economy and the environment. Economic opportunities are created by being prepared to face challenges in preserving the environment. Green growth is a driver and economic development while maintaining natural resource assets to continue to prosper the community and the environment. According to Refs. [44,45], green growth can reduce environmental degradation and separate the use of natural resources to affect sustainable economic growth. Green growth benefits economic problems based on the environment [46]. So, green growth becomes the basic policy of the green industry for the company’s long-term growth. In supporting the implementation of the Green Growth Program, the OECD provides several policy recommendations, including Economic Surveys, Environmental Performance Reviews, Innovation Reviews, and Investment Policy Reviews. This program is considered very concerned about environmental sustainability and resource efficiency by Developing bankable projects. This program will develop bankable projects and further assist in the connection process, Incorporating green growth investment factors in every sectoral planning. The program seeks to include elements that can contribute to the advancement of green growth investment in each sectoral plan, Designing creative and innovative economic instruments and policies. This program, together with the government, tries to create stable economic conditions in the hope that the flow of capital in green investment will continue to

increase. It is also done to foster the confidence of investors, both domestic and foreign investors.

Furthermore, the results of the following study indicate that the second hypothesis is accepted, which means that digitalization has a positive and significant effect on sustainable economic development. Several researchers approved the study's results [47–49]. They state that there is a positive relationship between digital technology and sustainability. Digital technology can maximize more efficient solutions for green products and environmental-based services, maximize pollutants that are less harmful to society and minimize natural resources in a product process [50]. [51] shows that digitalization has increased management information and provided innovation and product development facilities with environmentally friendly designs. The products developed are expected to have components that can be reused, recycled or re-manufactured [52] by minimizing negative environmental impacts. Advanced digital technology can improve sustainable economic processes, efficiently collecting information on a product and controlling an environmental condition in real-time.

The implementation of rural development in this digital era requires a converged communication system involving interpersonal communication, mass media and mixed media (another term for the internet). The goal is that many parties from various generations can be applied and participate in accelerating development goals because the development process cannot ignore the involvement of multiple elements of society. Indonesia is a vast archipelagic country inhabited by various races, customs, and traditions. Indonesia has a prosperous natural wealth. Every place in Indonesia has its advantages, including its natural agility. Internationally, Indonesia has taken significant advantage of tourism agility in various forms. Of course, this has turned the tourism industry upside down. According to records, the ample space will increase the number of tourists to Indonesia and reflect the country's value. Tourism is considered an important sector in the development of the world economy. If the tourism sector can develop or even experience a decline, it will undoubtedly affect the economic sector in many countries. Tourism development will affect several management aspects of the economy, society, politics, and culture. The tourism industry will continue to develop dynamically with local and global strategic environmental conditions. For some people, travelling is to rebuild physical and spiritual fitness for suitable activities or entertainment. The tourist village is interpreted as unity between locations with beauty, supportive accommodation, and additional facilities. Overall, it presents the structure of people's lives and is integrated into a procedure with a tradition that can be said to be mainstream. Tourism Village is an area with several characteristics that make it a significant tourist attraction.

Furthermore, the moderation research results show that the three hypotheses are accepted, which means that corporate social responsibility can moderate the effect of green growth on sustainable economic development. This study's results align with research conducted by Refs. [53,54] that green growth is a new concept in promoting low-carbon natural resources so that it has an impact on corporate social responsibility that can restore the economy. The implementation of corporate social responsibility by entities based on implementing green growth seeks to create jobs that carry the green concept, streamline natural resources with ecological principles, provide social benefits for the surrounding community, minimize vulnerability to climate change and provide environmental services needed for human welfare so that they can achieve sustainable economic development. Green growth offers a concept where a green economy is used to support sustainability but still considers the local development context. Green growth is based on a strategy in the image of sustainable development where there is a process of economic, social, and environmental improvement in an entity process and village economic development. Green growth is believed to be a driving force for providing natural resources and the environment for human welfare by focusing on the synergy between sustainable development between the environment and the economy [55].

The results of further moderating research on the fourth hypothesis show conformity, which means that the fourth hypothesis is accepted where corporate social responsibility can moderate the effect of digitalization on sustainable economic development. This study's results align with research conducted by Refs. [56,57] that digitalization can analyze the carbon footprint to reduce greenhouse gas emissions and waste, which contributes to increasing corporate social responsibility [58]. Also, corporate social responsibility can be realized maximally when digitalization opens the potential for a sustainable environment and economy. So digital technology can contribute to developing environmentally friendly products and green-based businesses, which plays an essential role in corporate social responsibility. In the transformation of digital tourism villages, the digitization and digitalization processes take place simultaneously. This digital transformation in the tourist village will change the tourism village business/business to be more optimal, efficient, and effective. Digital transformation tends to adopt a more comprehensive digital technology, and there is a cultural change. Digital transformation places more emphasis on people/humans than on digital technology. The trigger for the shift in tourist villages in digital transformation is getting faster is the customer's desire for service speed that continues to increase.

7. Conclusion

The research results above have shown that the two independent variables and the moderating variable provide research results in the form of green growth and digitalization have a positive and significant effect on sustainable economic development. The moderating variable shows that corporate social responsibility can moderate the effect of green growth and digitalization on sustainable economic development.

The research that has been done and the results obtained, the practical implications of this research are as input for rural communities and local governments. To provide the understanding and additional policies regarding the realization of the implementation of green growth, digitalization and corporate social responsibility support sustainable economic development in Indonesia. In addition, local governments must strive for maximum supervision so that the practices carried out follow what is expected. Each region in Indonesia can also implement a green growth program through regulations made by the Regional Government. Furthermore, all Indonesian people can realize and understand the importance of implementing a green growth program to learn about economic and environmental sustainability. In addition, the principle of corporate social responsibility reflects the Tri Hita Karana philosophy adopted by Hinduism, especially in Bali.

Theoretically, the elements of CSR and digitalization can bring about economic growth, so further research is needed to develop a theory of economic growth. The research findings are inconsistent with previous studies where several last research variables were not included in this study. While the social implications, where there is a strengthening of the role of CSR, the strength of networks and cooperation between business actors in marketing their products, and socialization and training are needed by the local village government.

This research has several drawbacks; in terms of the variables used in the study, there are only two independent variables, including green growth and digitalization variables, as well as moderating variables, namely corporate social responsibility, so they are still not optimal in showing their role in sustainable economic development. In addition, the research was only aimed at the community and Talibeng village apparatus, who carried out their work using technological assistance. It did not cover all villages in the Province of Bali, so it did not represent villages in the Province of Bali.

The limitations of this study are in the use of variables and sample sizes that can be generalized by taking into account other villages in the Province of Bali as well as a wider coverage area. Especially in developing a tourist village, you can add collaborative governance variables. Different analysis techniques can be used to strengthen research results such as Path Analysis, Confirmatory Factor Analysis, and Structural Equation Modeling.

Author contribution statement

I Gusti Ayu Purnamawati: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Wrote the paper. Ferry Jie; Gede Adi Yuniarta: Contributed reagents, materials, analysis tools or data.

Data availability statement

Data included in article/supplementary material/referenced in article.

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