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Identifying and evaluating the components of improving the capacity to implement sustainable production policies in the agricultural sector of Sistan and Baluchistan Province

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Abstract

The current research has been carried out to identify and evaluate the components of improving the capacity to implement sustainable production policies in the agricultural sector of Sistan and Baluchistan province. The present research method has a descriptive survey approach in terms of practical purpose and terms of the type of research, and it has been used quantitatively. The study's statistical population consists of 354 employees of the Department of Agriculture of Sistan and Baluchistan province, who were selected using the rule of structural equation model and simple random sampling method. In this research, a researcher-made questionnaire was used to collect data, and the reliability and validity of the interview and questionnaire were also examined and confirmed. Statistical tests and measurement models were used to analyze the data. The software used in descriptive and inferential statistics, as well as SPSS and SmartPLS software, were used. The results showed that the research model includes 6 factors, factors related to the allocation of financial resources, structural factors, factors related to policy implementers, factors related to the policy environment, technological factors, and enabling factors, and the validity of the model was confirmed by experts in the field.

Keywords: policy making, policy implementation, sustainable production
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1 Introduction

Globalization has become an increasingly prevalent phenomenon in today's interconnected world, intensifying competition between developed and developing nations. Economies are now deeply intertwined, fostering social, economic, and political interconnectedness. Developing economies strive to enhance economic growth through increased economic activities, while poverty eradication remains a top priority. Additionally, they seek to adopt distinctive global policies to gain a competitive edge. Economic growth and poverty reduction are inextricably linked. Industrialization, urbanization, and high production capacity contribute significantly to poverty eradication. Without these advancements,

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alleviating poverty becomes a formidable challenge at both national and global levels. Consequently, to foster economic growth, nations must enhance economic activities such as trade, foreign and domestic investment, production levels, and industrialization [5]. However, rapid economic, environmental, and technological changes necessitate a paradigm shift in development models and economic policies. These transformations heavily rely on the utilization of energy and other finite resources for product and service delivery, leading to environmental degradation [1]. Agriculture plays a pivotal role in Iran's economy, constituting one of the most critical sectors contributing to the nation's livelihood and overall well-being [22]. According to the 2015 Labor Force Survey, approximately 50% of rural employment is concentrated in the agricultural sector. In 2005, agriculture accounted for 24.7% of the country's total employment rate. This figure has since declined to 23.2% in 2006, 18.6% in 2011, and 17.9% in 2014. This steady decrease in the agricultural employment rate raises concerns about the sector's impact on the nation's overall production and economy.

Given agriculture's profound impact on Iran's economy, implementing effective policies is crucial to ensure its continued growth and sustainability. These policies should encompass strategies such as adopting electronic irrigation systems, implementing comprehensive water resource management plans, and prioritizing sustainable development practices [22]. Embracing sustainable development in the agricultural sector not only guarantees food security, a fundamental component of the government's economic and public security agenda, but also fosters economic growth, and rural development, and stimulates advancements in other industries due to the multiplier effect of agriculture [22]. Agriculture plays a crucial role not only in fostering domestic production for consumption and employment generation but also in paving the way for export development to various countries through the production of healthy products. However, despite an increase in the number of agricultural workers in the past two decades, the share of workers in this sector has been on a downward trend due to numerous challenges. Consequently, agricultural workers are forced to migrate and seek employment in informal sectors of the economy, leading to various forms of unemployment within society [2]. The problems faced by agriculture today are more extensive than ever before and have a significant impact on the economy. To address these issues and plan for agricultural development, a sustainable production approach is essential. Sustainable agriculture is paramount to balancing the needs of the current and future populations, especially as the world's population grows and food security becomes a pressing concern. Furthermore, population growth, land degradation for human settlements, and global warming pose significant challenges that demand a reduction in the negative environmental externalities of the agricultural sector. To address these challenges, humanity must adopt a comprehensive and well-planned approach guided by sustainable production principles. In light of the foregoing discussion, one of the most critical issues facing agriculture today is promoting sustainable production practices.

Policymaking refers to a structured approach grounded in the technical aspects of governance, where frameworks for thought and performance records are established based on a set of defined approaches. Policymaking plays a significant role in political science and even geographical literature [4]. Policymaking procedures can foster dynamism and drive, serving as a foundation for initiating change [4]. Policy focuses on what the government actually does in practice, not merely what it proposes or intends to do, distinguishing policy from a decision that is simply a specific option among others [19]. In general, there are a series of problems and limitations to implementing policies in organizations, including a lack of system, detailed, general, lack of precise information systems, formal and superficial policies, deregulation of policy processes, policy-related barriers to the nature of the policy, policymakers and policy users, including barriers to personality traits as well as lack of expertise, lack of attention to target groups and obstacles relevant to the implementation organization [10]. There are many challenges to the implementation of the policy and governments need to avoid the obstacles of implementing public policies as much as possible, taking into consideration the effective factors in implementing policies successfully. And all societies in terms of transition policy and its effective and successful implementation are more or less facing the same problems and problems in developing countries and developing countries. And each society, based on its individual circumstances and evil, has its own particular problems in the policy-making process [16]. Therefore, in this research, the identification and evaluation of capability improvement measures in the agriculture sector in Sistan and Baluchestan province has been studied.

2 Theoretical framework

The concept of sustainable production is an attempt to combine growing concepts from environmental issues in addition to socio-economic subjects. Sustainable production and development is a major shift in understanding the relationship between humans and nature. Today, sustainability emphasizes various aspects of the organization in terms of economic, social and environmental aspects. Currently, manufacturing systems use methods and technologies that are not generally sustainable, thus establishing sustainable production for organizations as an important issue that prepares organizations for sustainable development [14]. In the present age, achieving stability is a fundamental challenge for organizations in all societies. Therefore, all-encompassing management requires an integrated framework

of social, environmental and economic performance and in some areas, technological performance [9]. Therefore, economic theories, such as the principle of maximizing utility for the consumer and maximizing the profit for the producer, do not work, encouraging them to use unreservedly economic resources regardless of the negative effects. Therefore, the principle of stability in production and consumption in the sustainable development process is considered a basic axe. Economic theories such as the principle of maximizing utility for the consumer of the producer, which encourages them to exploit economic resources regardless of the negative effects, have lost their effectiveness. Therefore, the principle of stability in production and consumption in the sustainable development process is considered as the basic axes [7].

Govindan [9] stated in their research that the food industry would undergo major changes due to the significant increase in the world population in the future. One of the goals of the sustainable food supply chain is to reduce food waste. In the food industry, stakeholders can be stable in terms of food consumption and production. Climate change and global population increase will be two major problems and challenges for production organizations in the future and each of the supply chain members must participate because there is no sustainable consumption without sustainable production and vice versa. These two realities are together and serve the goals of sustainable development together.

Luthra et al. [17] assessed sustainable stimuli for manufacturing and consumption in India, and have suggested that support management can continuously help improve sustainable production practices. Moktadir et al. [18] have also proposed that for sustainable production methods, senior management can manage the whole process of implementation. Sometimes, they argued, consumers might help leather companies transform the linear economy into a circular economy rather than a sustainable manufacturing and circular economy. They examined stimuli for sustainable production practices and circular economy within the framework of the leather industry and claimed that education has a great impact on sustainable production practices. Large industries are developing their capabilities required to achieve sustainable production. Hillary [12] identified both obstacles and drivers to improve SME's environmental management system. He is a researcher who has studied knowledge scarcity, cost of implementation, education and development, company size and characteristics of SMEs as barriers to sustainable practices [8]. Hoque and Clarke [13] reviewed that the use of chemicals and polluting wastewater associated with it can be reduced in all stages of production organizations. Palamutcu [20] has emphasized that knowledge and awareness about energy efficiency in production organizations is not yet at the required level and needs to provide and update accurate measurement [11]. Based on the theoretical framework of the research, the research parameters and indicators are presented as follows:

3 Methodology

This research is applied in terms of its purpose and field in terms of data collection, and it is survey research in terms of strategy. The research method of this study is applied in terms of its purpose and has a descriptive survey approach in terms of the type of research. In this study, the current status of the model components was examined and the research model was validated. The statistical population of this research is all employees of the Department of Agriculture of Sistan and Baluchestan Province. Considering that in this study, the structural equation model was used to analyze the data and for this purpose, a minimum sample size of 200 people is required, 354 people were selected as a sample using the simple random sampling method. The most important methods and tools for collecting information in this research are as follows:

- **Library Studies:** In this section, to collect information in the field of theoretical foundations and research literature on the subject, Persian and Latin library resources, domestic articles or translated articles from reputable foreign and university sources, required books, and the World Wide Web (Internet) were used.
- **Field Research:** In this section, to collect data and information for analysis, a field method and a researcher-made questionnaire were used.

In this research, confirmatory factor analysis, divergent validity and convergent validity were used to check the validity. In the confirmatory factor analysis, the amount of factor load and the significance of the relationships between the items and the structure of the research are examined, and the items that have a factor load of less than 0.5 and a significance of less than 1.96 are removed from the analysis. Also, the AVE coefficient, Fourner-Larker index and a cross-sectional load of the items have been used to check divergent and convergent validity. The reliability of the research tool is also calculated based on shared reliability, combined reliability and Cronbach's alpha coefficient. The information related to the validity and reliability of the research tool is described in the following table:

Table 1: Research components and indicators

Component	Index
Factors related to the allocation of financial resources	Financing system
	Financial and Business Development
	Lining up for green investments
	The lowest cost management methods
	Collection and Absorption of Income
	Saving
	Foreign direct investment
	Conserving green resources
Structural factors	Resilience
	Leadership policy
	Human resource development
	Green Missions and Strategies
	Social counseling
	Integrating decision-making centers and multi-center prevention
Factors related to policy makers	Update policies
	Determining level of co-operation with businesses
	Boosting literacy and knowledge
	Provide reports on the performance of managers and agencies
	Attention to the personality and behavioral characteristics of policy makers
Factors related to the policy environment	Government expenditure
	pressure groups
	Bureaucratic society
	Environmental Policy & Regulation
	Religious culture
	Diversity in the World's Cultures and Changes
	Considering monetary and banking laws and considering advantages and capabilities
Technological factors	Establishing knowledge-based companies
	Sustainable Consumption and Production Initiatives
	Knowledge transfer and promotion of environmental and green education
	Rapid technological innovation
Enabling factors	Building leadership capacity
	Promoting a culture of labor and entrepreneurship
	Supporting and changing policies
	Participation and cooperation in the green process

Table 2: Validity and reliability of the research tool

Component	Cronbach's alpha	AVE	1	2	3	4	5	6
Factors related to the allocation of financial resources	0.713	0.512	0.498					
Structural factors	0.859	0.598	0.451	0.223				
Factors related to policy makers	0.841	0.544	0.369	0.241	0.325			
Factors related to the policy environment	0.756	0.562	0.352	0.369	0.314	0.325		
Technological factors	0.749	0.563	0.354	0.347	0.347	0.347	0.325	
Enabling factors	0.708	0.532	0.347	0.365	0.385	0.345	0.398	0.315

Considering that Cronbach's alpha is more than 0.7, AVE is more than 0.5 and the correlation of each factor with other factors is less than AVE, it can be said that the validity and reliability of the research tool are confirmed. Descriptive and inferential statistics methods have been used to perform the analyses according to the items obtained from the research indicators. Also, to describe the variables of the research, mean, standard deviation, skewness and kurtosis are used. It should be noted that operations related to descriptive statistics were performed using Spss-21 software. In the inferential part, tests such as the sample T-Tech test and structural equation modelling (confirmatory factor analysis) using SPSS-v21, and Smart Pls-v3 software have also been used.

Nonlinear Structural Equation Model

The traditional linear structural equation model is typically made up of two parts: the measurement model describing the relationships between the observed and latent variables and the structural model describing the relationships between the latent variables. Given a vector of p observed variables Z_i for the ith individual in a sample of size n and

a vector of q latent variables f_i, the linear structural equation model system can be written:

$$Z_i = \mu + \Lambda f - i + \epsilon_i, \tag{3.1}$$

$$b_o + B_o f_i = \delta_{oi} \tag{3.2}$$

where in the measurement model, the matrices $\mu(p \times 1)$ and $\Lambda(p \times q)$ contain fixed or unknown scalars describing the linear relation between the observations Z_i and the common latent factors f_i, and represents the $(p \times 1)$ vector of random measurement error independent of f_i such that $E(\varepsilon_i) = 0$ and $Var(\varepsilon_i) = \Psi$ with fixed and unknown scalars in; and in the structural model, the matrices $b_o(d \times 1)$ and $B_o(d \times q)$ contain fixed or unknown scalars defining d different additive linear simultaneous structural equations relating the factors to one another plus the $(d \times 1)$ vector of random equation error δ_{oi}, where $E(\delta_{oi}) = 0$ and $Var(\delta_{oi}) = \Delta_o$ with fixed and unknown scalars in Δ_o.

The simultaneous linear structural model as written in (3.2) is very general. For many practical research questions which can be addressed by simultaneous structural models, it is useful to model specific variables in terms of the rest of the variables, i.e., it is useful to consider some of the latent variables as endogenous and others as exogenous, where endogenous variables are those that are functions of other endogenous and exogenous variables. Let $f_i = (\eta_i', \xi_i')'$ where η_i are the d endogenous latent variables and ξ_i are the $q - d$ exogenous latent variables. Then a commonly used form for the structural model (3.2) becomes:

$$\eta_i = b + B\eta_i + \Gamma\xi_i + \delta_i, \tag{3.3}$$

where it is assumed the equation errors δ_i have $E(\delta_i) = 0$, $Var(\delta_i) = \Delta$ and are independent of the ξ_i as well as independent of ϵ_i in (3.1), and the matrices $b(d \times 1)$, $B(d \times d)$, $y(d \times (q - d))$, and $\Delta(d \times d)$ are fixed or unknown scalars. The structural model (3.3) is said to be in implicit form, implicit because it has endogenous variables on both sides of the equations, i.e., it is not "solved" for the endogenous variables. It is assumed that the diagonal of B is zero so that no element of η_i is a function of itself. A sufficient condition for solving (3.3) is that $(I - B)$ is invertible, then (3.3) can be solved for the endogenous variables and written as

$$\eta_i = b^\star + \Gamma^\star\xi_i + \delta_i^\star \tag{3.4}$$

where $b^\star = (I - B)^{-1}b$, $Y^\star(I - B)^{-1}y$, and $Var(\delta_i^\star) = (I - B)^{-1}\delta(IB)^{-1}$.

The structural model (3.4) is said to be in reduced form as the η_i now appears only on the left-hand side of the equation. It is important to note the assumption that the equation errors δ_i were additive and independent of the ξ_i in the implicit form (3.3) results in the equation errors $\delta_i^\star$ in the reduced form (3.4) also being additive and independent of the η_i.

Given p, q and d, additional restrictions must be placed on μ, A, Y, b_o, B_o, and Δ_0, in (3.1)-(3.2) in order to make all the unknown parameters identifiable. The assumption that (3.2) can be written in reduced form (3.4) is the typical restriction placed on the structural model. Additionally, a common restriction placed on the measurement model (3.1) is the errors-in-variables parameterization where q of the observed variables are each fixed to be equal to one of the q different latent variables plus measurement error. For a thorough discussion of identifiability in linear structural equation models see, e.g., Bollen [3]. Finally, it should be noted that there is no inherent distributional assumptions needed for ϵ_j, δ_{oi}, nor f_l at this point of model specification although distributional assumptions may be added eventually to perform estimation.

A mixture SEMs for a $p \times 1$ random vector y_i is defined as follows:

$$f(y_i) = \sum_{k=1}^{K} \pi_k f_k(y_i|\mu_k, \Sigma_k), \qquad i = 1, \cdots, n, \tag{3.5}$$

where K is the number of components which can be unknown, π_k's are component probabilities which are nonnegative and sum to 1.0, $f(y|\mu_k, \Sigma_k)$ is a multivariate normal density function with an unknown mean vector μ and a covariance matrix Σ_k. Conditional on the kth component, suppose that y satisfies the following measurement model:

$$y = \mu_k + \Lambda_k\omega_k + \epsilon_k \tag{3.6}$$

where μ_k is an $p \times 1$ Intercept vector, Y_k is a $p \times q$ factor loading matrix, ω_k is a $q \times 1$ random vector of latent variables, is a $p \times 1$ random vector of error measurements with distribution $N(0, \Psi_k)$ which is independent of ω_k, and Ψ_k is a diagonal matrix. Let ω_k be partitioned into $(\eta_n^T, \xi_k^T)^T$ where η_k is a $q1 \times 1$ vector, ξ_k is a $q2 \times 1$ vector, and $q1 + q2 = q$. The structural equation is defined as

$$\eta_k = B_k\eta_k + \Gamma_k\xi_k + \delta_k \tag{3.7}$$

where B_k and Y_k are $q1 \times q1$ and $q1 \times q2$ matrices of unknown parameters; and random vectors $\xi_k \lambda_k$ are independently distributed as $N(0, \phi_k)$ and $N(0, \phi_{\lambda k})$ respectively; and ϕ_k is a diagonal matrix.

We assume that $B_{ok}(q1 - B)$ is nonsingular and (l_{q^l} is Independent of any elements in $B_{k^\star}$). One specific form of B_k that satisfles this assumption is the lower or upper triangular matrix.

As the mixture model defined in (3.5) is invariant with respect to permutation of labels $k = 1, \cdots, K$, adoption of an unique labeling for identifiability is important. Roeder and Wasserman [21], and Zhu and Lee [15] proposed to impose the ordering $\mu_{1,1} < \cdots < \mu_{K,1}$ for eliminating the label switching (jumping between the various labeling subspace), where $\mu_{K,1}$ is the first element of the mean vector μ_k. This method works fine if $\mu_{1,1}, \cdots, \mu_{K,1}$ are well separated. However, if $\mu_{1,1}, \mu_{K,1}$ are close to each other, it may not be able to eliminate the label switching, and may Introduce incorrect results. Hence, it is necessary to find a sensible identifiability constraint. In this chapter, the random permutation sampler developed by Frühwirth-Schnatter [6] will be applied for finding the suitable Identifiability constraints. See the following sections for more details.

Moreover, for each $k = 1, \cdots, K$, structural parameters in the covariance matrix Σ_k corresponding to the model defined by (3.6) and (3.7) are not identified. A common method in structural equation modeling for identifying the model Is to fix appropriate elements in A_k, B_k, and/or Y_k at preassigned values. The positions of the preassigned values of the fixed elements in these matrices of regression coefficients can be chosen on a problem-by-problem basts, as long as each σ_k is identified. In practice, most manifest variables are usually clear indicators of their corresponding latent variables. This give rather clear prior information to specify the zero values to appropriate elements in these parameter matrices. See the illustrative example in Section 5 for a more concrete example. For clear discussion of the proposed method, we let $\prod = (\prod_1, \ldots, \prod_K)$, and O be the vector which contains all unknown parameters in the covariance matrices that defines an identified model.

4 Findings

In this research, the demographic characteristics of the respondents were investigated at first. Based on the results, 219 of the respondents were men and 135 were women. Also, 19 people are under 30 years old, 98 people are between 30-40 years old, 159 people are between 40-50 years old, and 78 people are over 50 years old. Based on the results, 12 of the respondents have a bachelor's degree, 147 have a master's degree, and 195 have a doctorate or higher. In the following, the variables are examined and described. In the table below, the central and dispersion indicators related to the research variables are displayed.

Table 3: Statistical characteristics of the research model

Component	Average	sd	Skewness	elongation
Factors related to the allocation of financial resources	2.959	.044	.400	-.295
Structural factors	3.398	.035	.453	-.473
Factors related to policy makers	3.238	.046	.200	.187
Factors related to the policy environment	3.184	.044	.484	-.584
Technological factors	3.566	.039	-.098	.193
Enabling factors	3.457	.037	.399	-.422

Based on the results, all the variables of the model, except the factors related to the allocation of financial resources, have an average above 3. The normality of the data related to the research variables was investigated using the Kolmogorov-Smirnov test. The results showed that the significance level of the Kolmogorov-Smirnov test for all variables is less than 0.05, so the null hypothesis (data normality) is rejected. That is, the data does not have a normal distribution. In the following, the structural equation model based on the partial least squares method was used to check the validity of the structure as well as the ranking and check the causal relationships between the components. The main research model is in the form of the following figures.

Index of coefficient of determination (R^2) dependent variables

The value of (R^2) for the structures of the main model has been calculated as 0.482, 0.612, 0.317, 0.929, 0.465, 0.211.

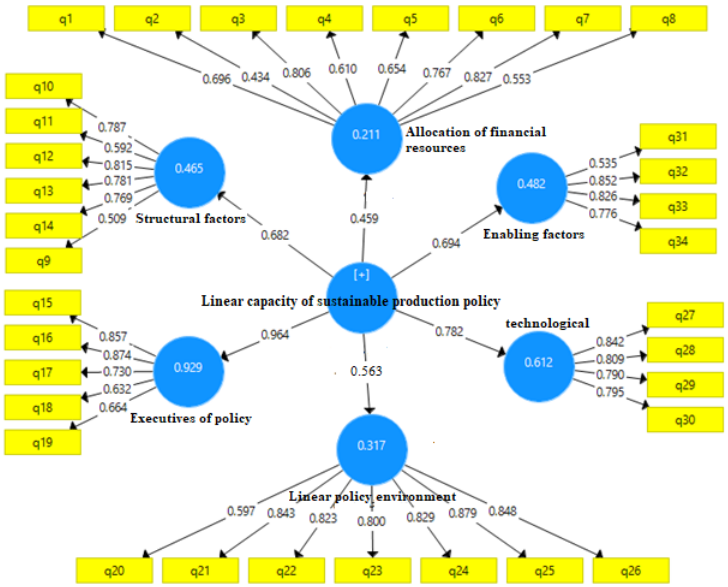

Figure 1: Factor loadings of the original model

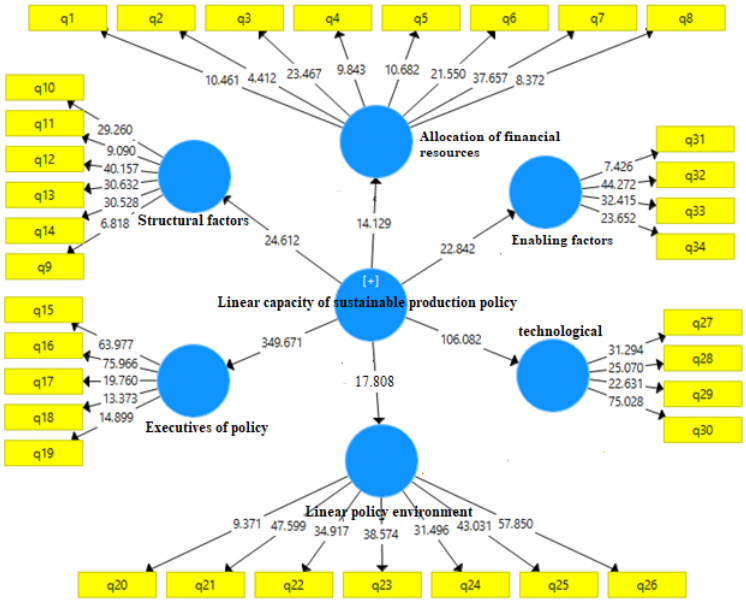

Figure 2: Significance of the original model

Predictive correlation index Q^2

The value of Q^2 for research variables is 0.236, 0.214, 0.298, 0.254, 0.264, 0.274, 0.261, which is positive and at the desired level. Based on this, it can be said that the predictive power of the model regarding the variables is favorable.

GOF index

$$GOF = \sqrt{\overline{\text{communality}} \times \overline{R^2}} = \sqrt{0.547 \times 0.502} = .524$$

The model fit index of the examined sample is 0.524, which is except for large sizes. According to these findings, it can be concluded that the tested model has a good fit in the examined sample. To check the fit of the model, a model evaluation questionnaire was prepared to determine the degree of fit of the model in the form of a five-level spectrum and provided to 11 experts in this field. Then, the collected data was evaluated using the one-sample t-test, the results of which can be seen in the following table:

Table 4: T-test results of a sample to determine the degree of suitability of the proposed model to present the final model

Expected mean = 3							
Row	item	questions	Average	sd	t	df	Sig.
1	Match	Are concepts generated from the reviewed data?	3.23	0.710	78.99	299	0.000
2	ability to understand	Are the concepts recognized and linked in a systematic way?	3.36	0.676	86.31	299	0.000
3		Are the categories well developed?	3.33	0.731	78.96	099	0.000
4	Ability to generalize	Has the theory been explained in such a way that it takes into account changing conditions?	3.58	1.046	59.28	299	0.000
5		Are the larger conditions that may affect the studied phenomenon explained?	3.84	1.225	11.90		0.000
6	Control	Do the theoretical findings seem significant?	3.66	1.338	8.62	299	0.000

The results of the above table show:
In comparison, the calculated t statistic (78.99) is significant at the 0.01 level. Comparing the average of this part of the model (3.23) with the expected average shows that the model adaptation is valid according to experts and has been confirmed with 99% confidence. In the understanding of the model, the calculated t statistic (86.31) is significant at the 0.01 level. Comparing the average of this part of the model (3.36) with the expected average shows that the model's comprehensibility is valid from the point of view of experts and it has been confirmed with 99% confidence. Regarding comprehension questions, the t statistic calculated for both questions is significant at the 0.01 level and the average observed in each of these two questions is higher than the expected average (3); Therefore, according to experts, it is considered part of the understanding of the model. In the generalizability of the model, the calculated t statistic (59.28) is significant at the 0.01 level. Comparing the average of this component of the model (3.58) with the expected average shows that the generalizability of the model is valid from the point of view of experts and has been confirmed with 99% confidence. Regarding generalizability questions, the t statistic calculated for both questions is significant at the 0.01 level and the average observed in each of these two questions is higher than the expected average (3); Therefore, according to experts, it is considered part of the generalization ability of the model. In model control, the calculated t statistic (8.62) is significant at the 0.01 level. Comparing the average of this part of the model (3.66) with the expected average shows that the controllability of the model is valid according to experts and it has been confirmed with 99% confidence. Regarding the control questions, the t statistic calculated for both questions is significant at the 0.01 level and the average observed in each of these two questions is higher than the expected average (3); Therefore, according to experts, it is considered part of model control.

5 Conclusion and Recommendations

Based on the results, the components of improving the capacity to implement sustainable production policies in the agricultural sector of Sistan and Baluchistan province are as follows:

Factors related to the allocation of financial resources: These factors include the financing system, financial and commercial development, creating a platform for attracting green investments, the least expensive management methods, collecting and absorbing income, saving, foreign investment, and saving resources. are green The increasing development of industrial activities and the use of new and emerging technologies have created a competitive environment in the field of production and global trade. In this competitive environment, developing countries are trying to expand these markets and developed countries are trying to maintain domestic and international consumption markets and for fundamental changes and upgrading and industrial development. The most important economic effect of this revolution is the establishment and spread of the digital economy with the direction of sustainable economic growth, which is the main focus of policymaking in developed economies. Expanding the economy based on digital platforms is an inevitable necessity for developing countries with structural barriers in production, trade and competitiveness, low economic growth and productivity of production factors. A static or sustainable economy is one that is designed to balance growth with environmental integrity. This economy helps in the efficient use of natural resources and, at the same time, seeks to distribute the wealth resulting from the development of those resources fairly. Of course, in this type of economy, the focus will only be on the use of renewable resources such as water and energy resources; But at the speed that this resource can be rebuilt safely. This can reduce the intensity of industrial societies' use of these resources. Also, the most important aspect of this component is attracting green investments. The use of sustainable technologies and innovations in the agricultural sector leads to the improvement of the productivity of natural resources,

the preservation of biodiversity and the reduction of environmental pollution emissions. Investing in these fields can lead to increased production, reduced wastage and increased income for farmers. Green investments in the field of developing new technologies related to agriculture, improving irrigation systems and water resources management, modifying agricultural structures for better soil productivity and crop nutrition, and encouraging the use of biological farming methods and organic production. Promoting the use of renewable energy reducing dependence on fossil energy sources and fair distribution of handicraft products in the market helps. According to these cases, green investments can help create sustainable production in the agricultural sector, which leads to greater productivity, reduction of greenhouse gas emissions, conservation of natural resources and better quality of life for society.

Structural factors: Structural factors include resilience, leadership policy, human resource development, green missions and strategies, social consultation, integrating decision-making centers and preventing polycentricity. The meaning of structural factors is all the elements, factors and physical and human conditions of the organization that are connected with a special order and rule and form the physical and material body of the organization. From a structural point of view, the degree of concentration in the ruling policy system is one of the determining indicators of its structural features. By increasing the amount of movement towards creating decentralization in the policy-making system, a suitable platform for creating networks is provided. If it is not natural for emergency and critical situations or to react to unexpected events, policy-making actions are not carried out immediately, but during stages as a process, including operations that complexly consider various factors and variables within the organization. or its external environment includes. The result of the interaction of all organizational and non-organizational variables during various stages prepares the general policy for formulation, approval and implementation. Also, the important factor in this field is green missions and strategies. Green missions and strategies can significantly lead to sustainable production growth in the agricultural sector. These adjustments increase the productivity of natural resources, reduce environmental impacts related to agriculture, and promote the conservation of water and soil resources. The promotion of sustainability in agricultural production is related to the provision of food security and protection of biodiversity to the promotion of economic lifestyle and human happiness. The use of advanced technologies and innovation in agriculture can lead to improved efficiency and increased production. Some of these technologies include intelligent agricultural management systems, cultivation and precision agriculture. The use of agriculture and natural management methods can help preserve biodiversity, reduce the use of pesticides, and maintain water quality. Cognitive symptoms of the brain are used as a basis for identifying optimal agricultural plans. The use of sustainable agricultural production systems (such as organic and sustainable agriculture) can ensure the establishment of a food supply for society. In addition, increasing the penetration of products for international markets and increasing product diversity can help promote the country's trade and economy.

Factors related to policy makers: These factors include updating policies, determining the level of cooperation with businesses, increasing literacy and knowledge, providing reports on the performance of managers and institutions, and paying attention to the personality and behavioural characteristics of policymakers. Actors and institutions play an essential role in the policy process. The term actor includes the government and social actors. Some of them are deeply involved and some are marginally involved in the policy process. Some actors are directly involved in the policy process as members of policy networks. In formulating a policy, naturally, all actors must present their views and opinions completely, and a one-sided policy and model should never be formulated. Here the organization must use its scientific methods and experts to develop a model communicate with all the actors and prepare its final report for the legitimizing institution. In the legitimacy of the policy, after preparing the policy, it should be noted that the higher the institutional status of the policy authority, the more likely the policy will be successful. At the head of the policy-making institutions is undoubtedly the Islamic Council to formulate laws in the field of human resources development.

Factors related to the policy environment: This factor includes government spending, pressure groups, bureaucratic society, environmental regulations and policies, religious culture, diversity in culture and changes made in the world and considering monetary and banking laws and attention to advantages and capabilities. Actions at the national level usually require the cooperation of different entities. For example, cooperation between ministers and agencies at an institutional level, cooperation between different institutional levels such as the central and federal government, local governments, etc. Also, the interaction between the government and private organizations, businesses and non-governmental organizations in the success of the line Policies are important. What improves the capacity of policies today is the existence of policy networks. Policy networks create a link between the environment and the government. Accurate interaction with the near and far environment is considered as a factor in improving capacity. In the close environment of the policies, the interaction of the executive branch

with the parliament and other active actors in this field reduces the gap between the drafting of bills and plans with their becoming law and their implementation in practice. In fact, an important part of policy capacity lies in interactions.

Technological factors: This component includes the establishment of knowledge-based companies, sustainable consumption and production initiatives, knowledge transfer and promotion of environmental and green education, and rapid technological innovation. In a brief look at the role of science and technology parks and knowledge-based companies in the development of science-based business, we find that the general policy of these centers with the approach of their entrepreneurial behavior should be seriously revised in Iran. In the public policy process, problems and challenges are mostly manipulated by people because of the heterogeneity of information and knowledge. The effects of difficulties will be greatly reduced and even controllable by the integration of information technology. Utilization of information technology is based on separated tasks between employees and technological systems. The second case (technological systems or information technology) plays an intermediary role. This case is for storing and analyzing a huge amount of data. which helps managers in the search for a solution. The goal is to create a digital work environment that takes its information sources as interaction and a dynamic link between organizational capabilities. Environmental and green education can show farmers how to responsibly deal with natural resources and reduce damage to the environment. This includes proper use of chemical fertilizers and pesticides, management of water resources and conservation of biodiversity. By reducing the damage to the environment, the efficiency and sustainability of agricultural production will also increase. Environmental and green education can guide farmers towards greener farming methods. This includes the use of organic farming and horticulture methods, the development of sustainable irrigation systems and the use of renewable energy sources. By moving to greener agriculture, we will have more sustainable production and the least negative effects on the environment. Also, environmental and green training can teach farmers how to increase the productivity of different agricultural sectors. Higher productivity means the optimal use of natural resources such as soil, water and energy, which can lead to the growth of production in the agricultural sector.

Enabling factors: This component includes building capacity in leadership, promoting work culture and entrepreneurship, supporting and changing policy, and participation and cooperation in green processes. One of the concerns of policymakers is the improvement and empowerment of policies. For this purpose, using various tools to empower public policies to achieve the goal is a common and usual thing in different countries. In empowerment programs, management styles will change to leadership styles. This change is always challenging. Because it requires questioning the usual working methods, taking risks and experimenting, focusing on team activities, increasing the scope of employees' authority, paying attention to new values, willingness to exchange organizational information and improving methods that are often resisted. All organizational levels will be followed closely. Also, two-way communication is a means that will expand the knowledge of employees in the organization's communication channels to better serve customers. The distribution of information to employees is vital for the high performance of the organization. Communication and information channels in organizations also promote organizational knowledge and trust. Partnership and cooperation improve the productivity of resources such as water, soil and energy in the agricultural sector. Optimum use of resources leads to preventing waste of resources and increasing the performance of products. Green processes usually cause minimal environmental pollution. By using natural methods and proper filtration, water and soil can be protected from chemical and oil pollution. This issue leads to the preservation of biodiversity and the maintenance of productive conditions for the healthy cultivation of crops. By participating and cooperating in green processes, it is possible to produce products without contaminated and toxic chemicals. These products will be healthier for consumers and prevent food hygiene problems. Green processes have continuity and high flexibility. Due to climate change, these processes can improve agricultural products and show resistance against environmental threats. In this regard, it is suggested:

- Improvement of water efficiency: optimal use of water resources and improvement of agricultural irrigation systems such as irrigation to the soil near springs and rivers, drip irrigation and the use of intelligent systems and irrigation automation.
- Sustainable use of soil: using sustainable agricultural methods such as meaningful interventions in soil geology, correct use of fertilizers and pesticides, and using continuous methods to prevent soil erosion and waterlogging.
- Learning precision agriculture: By using accurate tracking technologies such as Global Positioning System (GPS), it is possible to determine the best time to plant, irrigate and harvest crops. This method reduces the consumption of water resources and increases productivity in agriculture and the tourism industry.

- Use of technological innovation: The use of new technologies such as artificial intelligence, Internet of Things and data analysis in agriculture can facilitate the improvement and improvement of the performance of agricultural products and improve the quality and quantity of products.
- Empowerment of farmers: Training and providing information to farmers about the optimal use of resources and the use of new technologies can improve and improve the economy and entrepreneurship in rural areas.

References

[1] A. Androniceanu, J. Kinnunen, and I. Georgescu, *Circular economy as a strategic option to promote sustainable economic growth and effective human development*, J. Int. Stud. **14** (2021), no. 1, 60–73.

[2] B. Basri and A. Jahangard, *An examination of job-creation capacity in Iranian agriculture*, Agricul. Econ. Dev. **15** (2007), no. 3, 119–146.

[3] K.A. Bollen, *Structural Equations with Latent Variables*, John Wiley & Sons, 1989.

[4] X. Cui, Ch. Wang, J. Liao, Zh. Fang, and F. Cheng, *Economic policy uncertainty exposure and corporate innovation investment: Evidence from China*, Pacific-Basin Finance J. **67** (2021), 101533.

[5] B. Darvishi, A. Moridian, M. Motalebi, and F. Havasbeigi, *Globalization, energy consumption and environmental degradation in Iran: Empirical evidence from the maki cointegration test*, QJER **21** (2021), no. 2, 59–82.

[6] S. Frühwirth-Schnatter, *Fully Bayesian analysis of switching Gaussian state space models*, Ann. Inst. Statist. Math. **53** (2001), no. 2, 31–49.

[7] A.I. Gaziulusoy, C. Boyle, and R. McDowall, *System innovation for sustainability: A systemic double-flow scenario method for companies*, J. Clean. Prod. **45** (2013), 104–116.

[8] B.C. Giri and S. Bardhan, *Coordinating a supply chain with backup supplier through buyback contract under supply disruption and uncertain demand*, Int. J. Syst. Sci.: Oper. Logist. **1** (2014), no. 4, 193–204.

[9] K. Govindan, *Sustainable consumption and production in the food supply chain: A conceptual framework*, Int. J. Prod. Econ. **195** (2018), 419–431.

[10] I. Guceri and M. Albinowski, *Investment responses to tax policy under uncertainty*, J. Financ. Econ. 141 (2021), no. 3, 1147–1170.

[11] M. Hashim, M. Nazam, M. Abrar, Z. Hussain, M. Nazim, and R. Shabbir, *Unlocking the sustainable production indicators: A Novel TESCO based fuzzy AHP approach*, Cogent Bus. Manag. **8** (2021), no. 1, 1870807.

[12] R. Hillary, *Environmental management systems and the smaller enterprise*, J. Cleaner Prod. **12** (2004), no. 6, 561–569.

[13] M.A. Hoque and A.C. Clarke, *Greening of industries in Bangladesh: Pollution prevention practices*, Acad. Manag. Proc. **1** (2012), no. 1, 1321.

[14] M. Koho, M. Tapaninaho, and S. Torvinen, *Towards Sustainable Development and Sustainable Production in Finnish Manufacturing Industry*, 4th Int. Conf. Chang. Agil. Reconfigurable Virtual Prod. (CARV2011), Montr. Canada, 2011, pp. 422–427.

[15] S.Y. Lee, X.Y. Song, and X.Y. Mo, *Del comparison of nonlinear structural equation models with fixed covariates*, Psychometrika **68** (2001), no. 4, 27–47.

[16] B. Liu, H. Meng, and M. Zhou, *Optimal investment and reinsurance policies for an insurer with ambiguity aversion*, North Amer. J. Econ. Finance **55** (2021), 101303.

[17] S. Luthra, K. Govindan, and S. Kumar, *Structural model for sustainable consumption and production adoption: A grey-DEMATEL based approach*, Resources Conserv. Recycl. **125** (2017), 198–207.

[18] A. Moktadir, T. Rahman, H. Rahman, S. N. Ali, and S. K. Paul, *Drivers to sustainable manufacturing practices and circular economy: A perspective of leather industries in Bangladesh*, J. Clean. Prod. **174** (2018), 1366–1380.

[19] M. Moslehi, S. Salajegheh, and M. Pourkiiani, *Organizational policy model of employee performance based on justice*, J. Strategic Manag. Stud. **11** (2020), no. 42, 213–231.

[20] S. Palamutcu, *Electric energy consumption in the cotton textile processing stages*, Energy **35** (2010), no. 7, 2945–2952.

[21] L. Roeder and Wasserman, *Practical Bayesian density estimation using mixtures of normals*, J. Amer. Statist. Assoc. **22** (1997), no. 439, 894–902.

[22] O. Vasyl'yeva, *Assessment of factors of sustainable development of the agricultural sector using the Cobb-Douglas production function*, Baltic J. Econ. Stud. **7** (2021), no. 2, 37–49.