Research Paper: Evaluating the Effectiveness of Rural Employment Credits in Developing Sustainable Entrepreneurship in the Agricultural Sector (Case Study: Zanjan City)

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Citation: Hasanloo, L., Einali, J., & Hasanloo, M. (2024). Evaluating the Effectiveness of Rural Employment Credits in Developing Sustainable Entrepreneurship in the Agricultural Sector (Case Study: Zanjan City). *Journal of Sustainable Rural Development, 8*(2), 299-312. https://doi.org/10.22034/jsrd.2024.428596.1170

https://doi.org/10.22034/jsrd.2024.428596.1170

Article info:
Received: 01 Apr. 2024
Accepted: 22 Agu. 2024

Keywords:
Rural Credits, Rural Entrepreneurship, Agricultural Entrepreneurship, Zanjan City

ABSTRACT

Purpose: This research aims to examine the impact of paid credits on the economic, social, and environmental dimensions of sustainable entrepreneurship in Zanjan City.

Methods: The research is applied and descriptive-analytical. The statistical population of this research consists of households in the villages of Zanjan City that have utilized rural employment credits. There are 188 natural and juridical persons with rural employment credits in 185 villages of Zanjan City. All 188 credit recipients were selected as samples. Data was collected using library and field methods (questionnaires). Descriptive statistics, including mean and standard deviation, and inferential statistics (binomial tests, one-sample t-test, and linear regression) were used to analyze the data.

Results: The findings from the descriptive statistics of this study indicate that the highest mean score is 2.74, observed in the social dimension, while the lowest mean score is 2.65, observed in the environmental dimension. Additionally, the average score for sustainable entrepreneurship is 2.69. The results from the linear regression test show that, among the variables of loan amount, repayment period, education of loan recipients, job of loan recipients, and type of credits received, only the variable of loan amount, with a beta value of 0.294, significantly affects sustainable entrepreneurship in the studied villages.

Conclusion: The results regarding the credits paid to foster entrepreneurship and employment in rural areas indicate that these credits have not achieved the desired outcomes in terms of entrepreneurship and employment. They have only been effective in increasing the relative income of the target groups. According to the investigations, the most significant factor contributing to the ineffectiveness of the credits on the mentioned indicators is that the largest portion of the credits was used for purchasing livestock. This does not create new jobs but rather continues existing ranching jobs with increased relative and unstable income.

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1. Introduction

Today, rural areas in developing countries face numerous economic, social, and environmental challenges in their development process. The development strategies previously adopted for rural development have not been entirely successful and have failed to address issues such as poverty, employment, health, capital formation, food security, infrastructural failures, and environmental sustainability. Additionally, these strategies have not been successful in distributing the benefits of growth and development, leading to spatial inequality in these countries. Consequently, in recent decades, the entrepreneurial approach, as one of the strategies for rural development, has attracted the attention of theoreticians, planners, and government executives. This approach aims to reduce the economic and social problems that plague these areas by providing new solutions and methods (Chowdhury, 2007: 240-38). Considering that most of the rural population in developing countries is directly or indirectly dependent on agricultural activities or farm-related labor wages for their livelihood (Acharya, 2006; Das, 2014:178), and due to the socio-economic changes, that have occurred in some rural areas, which have led to the decline of agriculture from its dominant position in creating employment and income opportunities, it is inevitable to focus on the development of entrepreneurship. This can be achieved by combining resources and considering complementary sectors of agricultural activities, such as transformation and complementary industries, handicrafts, food industries, and tourism (Saxena et al., 2012).

2. Literature Review

Researchers view entrepreneurship as a complex phenomenon shaped by the social and economic conditions of society. Therefore, entrepreneurship can be considered both an attitude and a process (Feher et al., 2017). As an attitude, entrepreneurship reflects a trait in people's personalities that prepares them to face new challenges, improve existing components in their environment, and take an active and creative stance toward their surroundings. As a process, entrepreneurship refers to the creation and development of a commercial institution (business or economic enterprise) (Marks-Bielska & Babuchowska, 2013). Therefore, entrepreneurial activities are determining factors for success, prosperity, growth, and opportunities in any country (Okeke & Nwankwo, 2017). Agricultural entrepreneurship, in particular, aligns with the goals of sustainable agriculture and is a reliable path to achieving sustainable development (Rahmaninkoshkaki & Zarei, 2018). Moreover, the development of the agricultural chain, diversification of agriculture and the rural economy, innovation and technological advancements in agriculture, increased productivity, exploitation of competitive and commercial comparative advantages, creation of productive employment, increased added value, introduction of higher-quality and new products, market expansion for agricultural products, and investment in agriculture all result from the development of agricultural entrepreneurship (Rahmaninkoshkaki & Zarei, 2018).

Considering that the problems and challenges facing rural areas in developing countries, especially Iran, are mostly rooted in economic issues, it is essential to focus on entrepreneurship to achieve the economic development of these rural areas. Some experts have introduced rural entrepreneurship as the primary engine of growth and transformation for the local economy (Feher et al., 2017). With sufficient attention and proper planning, rural entrepreneurship can reduce or prevent rural-urban migration (Okeke & Nwankwo, 2017), promote the formation and accumulation of capital in rural areas, create productive employment, generate wealth, and reduce economic waste. Additionally, it can foster innovation, enhance market communication, improve production competitiveness, increase productivity, and create added value. Furthermore, it contributes to food security, the development of local capacities, and the empowerment and self-confidence of rural residents. Lastly, it aids in protecting rural cultural and natural resources and increasing the satisfaction of rural inhabitants.

According to some experts, the key goals of rural entrepreneurship can be examined through this concept (Zabaznova et al., 2014; Dias et al., 2019): a) development of non-agricultural entrepreneurship based on micro-business, and b) agricultural development. In this regard, Zabaznova et al. (2014) identified a successful solution for the development of entrepreneurship in agricultural activities, highlighting four strategic goals: a) the formation of micro-business activities, b) creating competitive products using new technologies, c) creating the necessary financial, economic, engineering, and communication infrastructures, and d) human capital development and the formation of a dynamic social environment. Dias et al. (2019) also consider the success of agricultural entrepreneurship in rural development to be related to the diversification of agricultural businesses, optimal integration with non-agricultural activities, innovation in production, and better communication with market channels. Zomelda (2018) associates the

motivation and persistence of agricultural entrepreneurship with reducing the challenges faced by small-scale farmers by enhancing the entrepreneurial environment. This can be achieved through granting farmers greater freedom of action and improving the institutional and economic-political environment at regional and local levels. According to Okeke & Nwankwo (2017), the success of rural entrepreneurship is linked to the good management of local resources. Increasing production, creating employment, and reducing rural-urban migration through rural entrepreneurship development, especially in agriculture, requires overcoming challenges such as insufficient funds, incomplete markets, and lack of support from government institutions involved in price policy and new technologies. Rahmaninkoshkaki & Zarei (2018) consider factors such as social capital, mental norms, belief in self-sufficiency, and the performance of local institutions, along with the efficiency of government organizations in facilitating laws, financing, and improving public infrastructure, as effective in the success of small-scale agricultural entrepreneurship.

According to the aforementioned, the shift towards commercial and competitive agriculture based on market forces has changed farmers' activities compared to the past. In terms of innovation and creativity, 'agricultural producers' have evolved into 'agricultural entrepreneurs' who can better identify and exploit market opportunities (Rahmaninkoshkaki & Zarei, 2018). The Ministry of Agriculture Jihad defines small agricultural businesses as activities in production, packaging, and various agricultural fields such as crop and horticultural farming, livestock breeding, beekeeping, fish farming, and more.Natural and juricdical persons after completing the necessary procedures and obtaining a license, are permitted to carry out these activities within the limits set by the organization.

One of the most significant challenges facing agricultural micro-entrepreneurship in developing countries, especially in Iran, is project financing. Experts consider the provision of credit as one of the most effective policies for empowering and enhancing the production capacities of rural areas, leading to improved income, job creation, self-employment, and reduced vulnerability (Ali & Alam, 2010; Osunde & Mayowa, 2012). In development theories, providing small-scale credits for launching entrepreneurial projects and consequently promoting and diversifying economic activities, especially for the employment and income of villagers, has been eulogized as a magic bullet of poverty alleviation (Karim, 2008). Granting credits to agricultural producers allows them to secure the liquidity or working capital needed for production periods and agricultural inputs procurement. This method of financing is especially important for countries where the agricultural sector plays a significant economic role. Given agriculture's role in providing food and employment, its low capital-to-production ratio, and minimal dependence on foreign currency, financing production activities in this sector has always been a priority for experts and economic managers (Arabmazar & Jamshidi, 2006). Therefore, one solution to farmers' financial problems is granting small-scale credits through official sources. This approach plays an important role in consolidating and directing the small capitals of villagers, fostering a spirit of cooperation and teamwork. In recent years, it has been at the forefront of government programs as a direct intervention method in rural development.

The study area for this research includes the political region of Zanjan City in Zanjan Province. Zanjan City consists of three districts with 327 rural points. In Zanjan City, over 1,515 applicants for rural employment facilities in agriculture have registered in the Kara system, and 188 plans have reached the payment stage. This highlights the importance of agricultural activity in the rural areas of Zanjan City. Therefore, this research investigates and evaluates the effectiveness of rural employment credits provided by official financial sources in the formation and development of entrepreneurial activities in the agricultural sector within the study area.

Based on the research problem, the questions are summarized and presented as follows:

- What is the relationship between the provided credits and the sustainability of agricultural entrepreneurial activities?

- Which dimension of agricultural entrepreneurship has the greatest effects by the provided credits?

Studies on entrepreneurship have explored the issue from various perspectives, including:

Zabaznova et al. (2014) in an article entitled "Mechanism of rural entrepreneurship development on the base of micro-business" concluded that a strategic management model for agricultural entrepreneurship, focusing on optimal selection and territorial development priorities with attention to small businesses, can enhance motivation for rural development. Therefore, designing a support system through planning activities and addressing agricultural challenges such as financing, market supply, and product processing is crucial for agricultural

entrepreneurship development, significantly impacting rural development.

Okeke & Nwankwo (2017) in an article titled "Rural Entrepreneurship and Rural Development in Nigeria" associate the success of rural entrepreneurship with good management of local resources and conclude that it can increase production, create employment, and reduce rural-urban migration.

Dias et al. (2019) in an article titled "What's new in the research on agricultural entrepreneurship?" concluded that due to agriculture's effective role in regional and local development over the last two decades, entrepreneurship has garnered significant attention among researchers. The article's findings reveal three main themes: a) entrepreneurial skills and behaviors, b) entrepreneurial strategies, and c) community and entrepreneurial activity, identified in recent research.

Rahmaniankoshkaki et al. (2019) in an article titled "Analysis of Individual and Social Constructions Affecting the Development of Rural Entrepreneurship with an Emphasis on the Agriculture Sector in Kamfiruz District of Marvdasht County" found that all five main hypotheses of the research were accepted. Each of the individual and social constructs (social capital, mental norms, perceived family support, belief in self-efficacy, and emphasis on local institutions) had a positive and significant effect on the dependent variable. Overall, about 54% of the variance in rural entrepreneurship development was explained by emphasizing the agricultural sector in the studied area.

Abdi et al. (2019) in an article titled "Assessing the Impact of Government's Microfinance on the Entrepreneurship and Sustainable Rural Development of Javanrud" demonstrated that the provision of microcredit has been most effective on the economic dimension, followed by the sociocultural dimension, and then the physical dimension. Additionally, there is a positive and significant correlation between government microcredits and the dimensions of sustainable rural development.

Sani Heidary et al. (2019) in an article titled "The Role of Microcredit in Sustainable Rural Development: A Case Study of Selected Villages of Torbat-e-Jam County of Iran" found that the heterogeneity of auxiliary variables disappeared after matching, with mean and skewness reduced to below twenty. The results of the sorting algorithm showed that the effects of microcredits on the sustainable development index were positive. On average, the sustainable development index of recipient households increased by four percent compared to non-recipient households. According to the research findings, it is possible to propose expanding the institutions responsible for cooperative and promotion services, supporting local microfinance institutions, creating and expanding cooperative structures, and enhancing the capacity of these institutions to meet the increasing demand.

Hosseininia et al. (2019) in an article titled "Identification of agricultural entrepreneurship opportunities (case study: the Golbaf county, Kerman province)" identified agricultural entrepreneurial opportunities in Golbaf, a county in Kerman. This qualitative research selected 17 experts and entrepreneurs in the field of agriculture using a purposeful sampling method. Through qualitative content analysis, 25 entrepreneurial opportunities were identified and prioritized in four different fields: production, processing, trade, and infrastructure in the agricultural sector of Golbaf. The prioritization showed that the highest priorities in Golbaf's agricultural entrepreneurship opportunities were the packaging and processing of medicinal plants, the establishment of a tarragon essential oil workshop, and the construction of a date packaging and processing workshop.

Yazdani et al. (2020) in a study titled "Study of Factors Affecting Rural Development, With A Focus on the Role of Agricultural Entrepreneurship (Case Study: North Khorasan Province)" examined the effects of innovation, production, financial resources, and market factors on rural development through the mediating role of agricultural entrepreneurship among 42 exemplary entrepreneurs in North Khorasan Province. The sample size matched the community size. Data was collected using a standard questionnaire. For statistical analysis, SPSS software and the bootstrap method were used to test indirect effects. The results showed that agricultural entrepreneurship positively and significantly impacts rural development and that innovation, production, financial resources, and market factors are directly linked to rural development. Overall, the results indicate that the four factors—production innovation, production factors, financial resources, and market factors—have both direct and indirect (via rural entrepreneurship) influences on rural development.

Rezaei et al. (2020) in an article titled "Factors Affecting the Development of Agricultural Entrepreneurship for Rural Development (Case Study: Kermanshah Township)" examined the factors affecting the development of agricultural entrepreneurship in Kermanshah Township. This research is applied in purpose and be-

longs to the qualitative research group in terms of paradigm. The inductive content analysis method was used for data analysis, and the required information was collected through semi-structured interviews. The statistical population of the present study included faculty members of the Faculty of Agriculture at Razi University and entrepreneurs in the agricultural sector. Purposive sampling was used to select the participants, and theoretical saturation was achieved after conducting ten interviews. To check the validity of the findings, participant and expert review methods were used, along with simultaneous data collection and analysis. By analyzing the content of the interview texts, 52 conceptual codes were identified as factors affecting the development of agricultural entrepreneurship. The complete list of codes was grouped into six thematic categories based on conceptual affinity: natural resources, financial-supportive capital, entrepreneurial characteristics, and culture, support and training, laws, regulations and policies, and infrastructural factors.

Monjezi (2021) in an article titled "Identifying and Prioritizing Entrepreneurship Development Strategies in the Agricultural Sector of Khuzestan Province" aimed to analyze the strengths, weaknesses, opportunities, and threats of entrepreneurship development in the agricultural sector of Khuzestan Province using the AHP-SWOT integrated approach. The research method is applied in terms of purpose and descriptive-analytical. Data was collected using questionnaires and interviews with 20 specialists. Strengths, weaknesses, opportunities, and threats were determined using the SWOT method, and the weight of strategies was calculated using the AHP method. The results of the research showed that the studied area is facing 7 strengths with a final score of 2.869, 14 weaknesses with a final score of 2.895, 11 opportunities with a final score of 2.894, and 13 threats with a final score of 1.083. The results also showed that the most important strengths are the province's diverse climate and variety in agricultural production. The most significant weakness is the lack of support from government institutions and insufficient access to government facilities. The greatest opportunity is the presence of natural capacities and potential for investment in the agricultural sector, while the high risk of investment in agriculture by the private sector is the most critical threat to the development of agricultural entrepreneurship in Khuzestan Province.

Ahmadi et al. (2019) in an article titled "Designing a Sustainable Agricultural Entrepreneurship Development Model among Rural Women (Case Study: Kurdistan Province)" evaluated the determinants of sustainable agricultural entrepreneurship development among rural women in Kurdistan Province. The statistical population of this research includes all women entrepreneurs living in rural areas of Kurdistan Province (Sanandaj, Marivan, Saqqez, and Baneh cities). These entrepreneurs were engaged in agriculture from 2011 to the end of 2017. Data analysis was conducted through correlation analysis and structural equation modeling using SPSS and Smart PLS software. The model evaluated in the research demonstrated acceptable fit indices. Structural equation modeling showed that social components ($\gamma = 0.438$, $t = 5.66$), marketing ($\gamma = 0.36$, $t = 3.41$), policy making ($\gamma = 0.336$, $t = 4.48$), psychological ($\gamma = 0.284$, $t = 3.7$), and technical ($\gamma = 0.231$, $t = 2.62$) explain about 62% of the changes in the agricultural entrepreneurship ability variable. Additionally, this variable ($\gamma = 0.555$, $t = 8.68$) explains 40.2% of the changes in sustainable agricultural entrepreneurship development among the rural women under study.

In this context, various views and definitions of entrepreneurship have been presented, which can contribute to rural development.

- From the perspective of mercantilist followers, merchants involved in the gold and silver trade were considered entrepreneurs.

- Physiocrats, also known as naturalists, regarded land as the origin of wealth creation and considered agricultural workers to be entrepreneurs.

- The classics identified labor, capital, and raw materials as the primary factors of entrepreneurial wealth

Table 1 shows the evolution of entrepreneurship in economic theories:

3. Methodology

The current research serves a practical purpose and employs a descriptive-analytical approach to describe the characteristics of the statistical population and identifying patterns, and is based on a questionnaire in terms of tools. Data collection methods include library and field surveys using questionnaires. Initially, scientific resources such as books, research articles, theses, and dissertations (master's and doctoral degrees), and various documents, including statistics from the Iranian Statistics Center, maps, and information files from executive bodies were utilized to establish a research background. Subsequently, a survey method was employed to investigate the current situation.

Table 1. The evolution of entrepreneurship in economic theories

School Name	Main Theorist	Type of Activity	The main factor emphasized
Mercantilist	Thomas Mann	Trade	Gold and silver
Naturalists	François Quesnay, Richard Cantillon	Agriculture	Land and land owner
Classics	Adam Smith, Baptiste	Industry	Labor, capital, raw materials, entrepreneur
Institutional Economists Consequentialism	Menger and Walras	Production	Profit
Neoclassic	Alfred Marshall, Francis Edgeworth	Production	Increase in new demand
Marxists	Karl Marx	Industrialization	Technology
Traditional German-Austrian school	Thunen, Schumpeter	Creative destruction	Innovation
Chicago School of Economics	Frank Knight, Schult	Production	Uncertainty, risk, human resources
Institutionalism	Kvass and Williamson	Conduct transactions	Institution
Modern Austrian School	Mises and Kreisner	Production	Information, human resources

Reference: Aghajani et al. (2010: 4)

Table 2. Definitions of entrepreneurship

Researcher	Entrepreneurship Definition
Thornton (2005)	The entrepreneur bears the risks caused by changes in market demand. Entrepreneurs buy inputs at a certain price to sell later at an unknown price. The entrepreneur coordinates price and production with demand.
Haynie et al. (2003:963-989)	From the perspective of strategic management science, entrepreneurship is an emerging concept that combines behaviors focused on simultaneously searching for opportunities and competitive advantages.
Kuratko & Hodgetts (2007:4)	Entrepreneurship is a dynamic process that harnesses people's power and motivation to create and implement new ideas, providing practical solutions. It stands as one of the most effective social factors capable of accelerating development.
Kuratka & Richard (2001)	Entrepreneurship is a mechanism whereby business knowledge stimulates economic growth. It is a dynamic process of creating incremental wealth, requiring individuals to assume significant risks in terms of equity, time, and professional commitment to deliver value through innovative products or services.
Gürol & Astan (2006:25-38); Ahmad et al. (2011)	Small and medium-scale entrepreneurship is defined by the establishment of an environment conducive to entrepreneurship, focused on developing local capacities, mobilizing and motivating participants, and fostering self-confidence through empowerment. This serves as the driving force behind local development and is recognized as central to local economic growth.
Panagiota & Nastis (2011:114)	Entrepreneurship is a dynamic process of creating added value by individuals who exhibit high risk-taking characteristics and innovate with the goal of personal benefit.
Lordkipanidze (2005: 25); Mohapatra et al. (2007:163)	Entrepreneurship emphasizes the power of creative thinking, the organized use of available resources, the recognition of opportunities, and the ability to accept risk. In this context, entrepreneurship involves identifying profitable and undiscovered opportunities in society as the foundation for developing activities.
Kobia & Sikalieh (2010)	Entrepreneurship is the process by which an individual or a group of individuals uses organized efforts and tools to control value creation and seize growth opportunities by satisfying wants and needs through innovation and uniqueness, regardless of available resources.

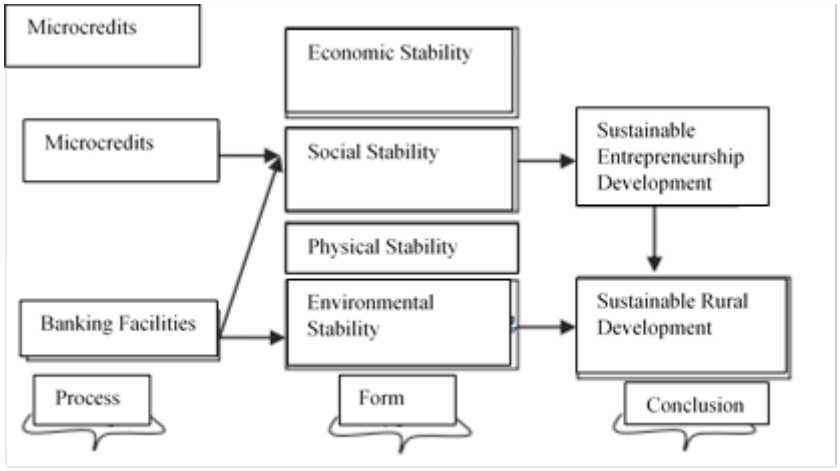

Figure 1. Research conceptual model

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Vvariables in this study refer to conditions or characteristics the researcher manipulates, controls, or observes. The independent variable is the effectiveness of rural employment credits in Zanjan City while the dependent variable is the development of sustainable entrepreneurship in the agricultural sector of the studied villages in Zanjan City. The statistical population comprises recipients of rural employment facilities in the villages of Zanjan City. According to the 2016 population and housing census, Zanjan city has 86,508 rural residents, 25,467 households, 13 rural districts, and 260 inhabited villages. A sample of 188 individuals was selected for a comprehensive study representing all natural and juridical persons who received agricultural sector facilities in the villages of Zanjan City between 2017 and 2020.

Low-interest facilities (6% in Zanjan province) were allocated from the National Development Fund for villages and towns with populations of less than 10,000, from the beginning of 2017 to the end of 2020, to create employment in rural areas. The following information is derived from the Kara system, a specialized platform for registering and assessing job creation projects based on priority categories.

Facilities provided in Zanjan city's agricultural sector include 188 natural and juridical persons, distributed across 99 villages.

Previous studies on sustainable development indicators both domestic and international provide a suitable and acceptable basis for defining variables operationally and compiling research indicators. Building upon this foundation, sustainable development indicators have been formed across four dimensions: economic, environmental, social, and physical. These dimensions are designed to address research questions and examine hypotheses effectively.

Table 3. Priority jobs in the three sectors: Agriculture, industry, and services

Sector Name	Name of supported categories
Industry	Clothing - shoes and leather products - furniture and wooden products - handwoven carpets and handwoven - manufacturing agricultural machinery and tools - processing small-scale mineral products – handicrafts
Agriculture	Saffron and medicinal plants - cold storage and product storage - breeding of light and heavy livestock - breeding and processing of poultry and bees - fisheries and aquatics - food, transformation, and supplementary agriculture industries - greenhouse products - the cultivation of seedlings and seeds - packaging of fruits, vegetables, bread, spices and dry fruits for export
Services	Ecotourism - specialized and technical services in agricultural engineering, veterinary medicine, and herbal medicine - tourism and nature tourism - transportation and logistics services - commercial and marketing services for agricultural and livestock products - information technology (content) - sports services - modernization services for car repair, agricultural tools, and mechanization - series of programs in the field of health - development of health tourism - community-oriented health care - development and expansion of health services - development and expansion of scientific traditional medicine - development and expansion of health services in home businesses - development of software and new technologies in the field of health

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Table 4. Full payment and installments of rural employment facilities (entire province)

Row	Sector name	No. of payments	Amount of payment (million rials)
1	Agriculture	1543	1550313.5
2	Industry	909	310448.6
3	Services	367	595350
Total Sum		2819	2456112.1

Source: Kara system

Table 5. Full payment and installments of rural employment facilities (Zanjan City)

Row	Sector name	No. of payments	Amount of payment (million rials)
1	Agriculture	188	274194.5
2	Industry	79	70305
3	Services	51	174060
Total Sum		318	518559.6

Source: Kara system

Table 6. Full payment and installments of rural employment facilities (Separated by natural and legal persons of the entire Zanjan province)

Row	Sector Name	No. of natural persons	Amount (million rials)	No. of legal persons	Amount (million rials)
1	Agriculture	1514	1262410.8	29	287902.7
2	Industry	904	263939	5	46509.6
3	Services	357	405720	10	189630
Total Sum		2775	1932069.8	44	524042.2

Source: Kara system

Table 7. Full payment and installments of rural employment facilities (Separated by natural and legal persons of Zanjan City)

Row	Sector Name	No. of natural persons	Amount (million rials)	No. of legal persons	Amount (million rials)
1	Agriculture	177	177801.9	11	96392.7
2	Industry	79	70305	0	0
3	Services	51	174060	3	81480
Total Sum		304	340686.9	14	177872.7

Source: Kara system

Table 8. Full payment and installments of rural employment facilities (According to the priority categories in the agricultural sector of Zanjan City (

Row	Priority category name	No.
1	Breeding of light and heavy livestock	146
2	Breeding and processing of poultry and bees	10
3	Development services for seedling and seed cultivation	3
4	Saffron and medicinal plants	8
5	Fisheries and Aquatics	1
6	Transformation and complementary industries	7
7	Greenhouse products	9
8	Other cases	4
Total		188

Source: Kara system

Table 9. The number of projects implemented by rural district (Zanjan City)

Rural district name	No. of projects	Rural district name	No. of projects
Chaypareh-ye Bala	8	Qareh Poshtelu-e Pain	10
Chaypareh-ye Pain	9	Bonab	20
Zanjanrud-e Pain	8	Bughda Kandi	8
Ghanibeyglu	30	Zanjanrud-e Bala	24
Soharin	17	Taham	5
Qareh Poshtelu-e Bala	30	Qoltuq	1
Mojezat	14		

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Table 10. Indicators and items for measuring sustainable development in the studied villages

Dimension	Criteria	Indicator
Economic	Income	Diversification of household income sources, creation of income opportunities, increase in villagers' income, and access to financial and credit services for villagers, satisfaction with income.
	Employment	Creation of processing and conversion industries, availability of alternative job opportunities for household heads, creation of non-agricultural job opportunities, increase in government and non-government sector investment and its effect on youth employment, and job satisfaction.
	Productivity	Investment by villagers in production sectors, access to communication infrastructure (roads, telephones, vehicles, etc.), usage of durable household appliances (refrigerators, televisions, etc.), improvement of agricultural and animal husbandry methods, optimal use of production resources, and attraction of capital from immigrants and entrepreneurs
Social	Culture	Preservation of old culture and traditions, increased permanence in the village, increased hope for the future, social and cultural homogeneity among residents, low prevalence of consumer culture in the village compared to cities, low prevalence of the urban way of life (housing construction, lifestyle, decoration, etc.), reduction of rural-urban migration, introduction of new public services to the village, respect for privacy, and respect for the elderly.
	Justice and security	Creating a sense of security for residents, increasing care for the elderly and retired population in the village, increasing the village population during holidays and hot seasons, increasing access to technology and information, and providing food security for the family
Environmental	Vegetation	Low level of vegetation destruction due to excavation and construction of houses on village slopes, low level of excessive vegetation use (for livestock, medicinal plants, etc.), increased knowledge of residents about medicinal plants, and low incidence of intentional fires in pastures and vegetation
	Waste disposal	Paying attention to the improvement of waste and garbage disposal methods, maintaining the cleanliness of the environment, collecting and disposing of surface water within the village, improving the village road network for health reasons, and reducing air and soil pollution
	Natural resources	The low rate of changes in garden use within the village context, the extent of landscape and natural beauty preservation, the minimal hunting activity, and the decrease in animal biodiversity
Physical	Passages	The suitability of road conditions for passage, improving the quality of village roads (paving, street curbs), enhancing communication infrastructure outside the village, improving access to infrastructure services, and enhancing access to transportation facilities
	Lands	Improving the condition of green spaces within residential areas, development of construction within the legal framework of the village, spatial distribution and dispersion of houses in the village, and reduction of changes in the use of agricultural and garden lands

References: Rezvani et al. (2010); Farahani et al. (2011); Hashemi et al., (2011); Sojasi Ghidari et al. (2011); Faraji Sabokbar et al. (2011); Mohammadiyeganeh et al. (2014); Varmazyari et al. (2010); Pourtaheri et al. (2011)

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In determining the validity of the questionnaire, construct validity was assessed by calculating the average variance extracted, and content validity was ensured through a panel of experts in sustainable entrepreneurship development. Based on their opinions and suggestions, necessary amendments were made to the questionnaire. Reliability estimation involved using Cronbach's alpha coefficient test and composite reliability.

A panel of 15 experts specializing in agricultural entrepreneurship was selected to assess the validity of the research questionnaire. The questionnaire was submitted to these experts for preliminary approval, and based on their feedback, research indicators were adjusted to confirm qualitative and face validity. The quantitative face validity of the research indicators was confirmed using a Likert scale. Experts evaluated aspects such as relevance to the subject, access to information, transparency, validity, measurability, and comparability over time and place, after which the average indices were calculated. In measuring the quantitative validity index of the content, indicators rated above 3 by the experts were retained, while the others were removed. The reliability of the research questionnaire was calculated using Cronbach's alpha method, yielding a value of 0.73.

4. Findings

Among the 188 respondents and heads of households receiving facilities, the largest group, comprising 31.3 percent, falls within the age group of 36 to 45 years, while the smallest group, at 2.6 percent, belongs to the age group of 15 to 25 years and older. The gender characteristics of the respondents showed that 90.42% of the 188 heads of households receiving facilities were male, while 9.57% were female. The evaluation of the literacy status of the respondents is presented based on Table and Graph 3-4. The obtained results indicate that 86.7% of respondents have a high school diploma or lower education level, while only 1.5% have a master's degree or higher.

This research investigated the employment status of the respondents across four categories. The results indicate that 64.3% of the total sample of beneficiaries were farmers, 9% held government or retired positions, 9.5% were housewives, and 17% were involved in business. The highest number of loans was disbursed to applicants in 2019.

The desirability of sustainable development dimensions of entrepreneurship

In assessing the desirability of sustainable entrepreneurship dimensions in the studied villages, a one-sample t-test was used. According to the descriptive statistics, the highest numerical average is related to the social dimension, with a value of 2.74, and the lowest is related to the environmental dimension, with a value of 2.65. The overall value of the sustainable entrepreneurship component is 2.69.

The inferential results related to the one-sample t-test indicate that for the four dimensions and the overall sustainable entrepreneurship component, the obtained t-statistic is negative. Specifically, the t-statistic for the rural sustainable entrepreneurship component is -9.461, indicating an unfavorable situation for sustainable entrepreneurship in the studied villages.

Factors affecting the sustainability of entrepreneurship in the studied villages

In the following part of the research, a linear regression test was used to investigate the factors affecting the sustainability of entrepreneurship in the studied villages. The results indicate that based on the R values, the fit of the test to estimate the factors is at a favorable level.

Table 11. Descriptive statistics of one-sample t-test

	N	Mean	Std. Deviation	Std. Error Mean
Economic dimension	188	2.6729	.67125	.04896
Social dimension	188	2.7447	.53388	.03894
Environmental dimension	188	2.6543	.48865	.03564
Physical dimension	188	2.7110	.85547	.06239
Total	188	2.6957	.44098	.03216

Table 12. Inferential statistics of one-sample t-test

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Economic dimension	-6.682	187	.000	-.32713	-.4237	-.2306
Social dimension	-6.557	187	.000	-.25532	-.3321	-.1785
Environmental dimension	-9.701	187	.000	-.34574	-.4160	-.2754
Physical dimension	-4.632	187	.000	-.28901	-.4121	-.1659
Total	-9.461	187	.000	-.30430	-.3677	-.2409

JSRD

Table 13. Linear regression test

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.694a	.482	.458	.32451

a. Predictors: (Constant), q20, q13, q16, q19, q17, q18, q15, q14

JSRD

In the following, the values related to the test statistic and the significance level indicate the existence of a relationship between the research variables and sustainable entrepreneurship in the studied villages.

The results from the linear regression test show that, among the variables of loan amount, repayment period, education of loan recipients, job of loan recipients, and type of credits received, only the variable of loan amount, with a beta value of 0.294, significantly affects sustainable entrepreneurship in the studied villages.

Table 14. Test statistic and significance level

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.515	8	2.189	20.790	.000[b]
	Residual	18.850	179	.105		
	Total	36.365	187			

a. Dependent Variable: Kol

b. Predictors: (Constant), q20, q13, q16, q19, q17, q18, q15, q14

JSRD

Table 15. Linear regression test coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.747	.165		4.535	.000
	Loan amount	.200	.047	.294	4.289	.000
	Repayment period	.038	.054	.053	.713	.477
	Education of loan recipients	.072	.051	.107	1.422	.157
	The job of loan recipients	.062	.045	.095	1.373	.172
	Type of credits received	-.008	.050	-.011	-.152	.879

a. Dependent Variable: Kol

JSRD

5. Discussion

The results regarding the credits paid to foster entrepreneurship and employment in rural areas indicate that these credits have not achieved the desired outcomes in terms of entrepreneurship and employment. They have only been effective in increasing the relative income of the target groups. According to the investigations, the most significant factor contributing to the ineffectiveness of the credits on the mentioned indicators is that the largest portion of the credits was used for purchasing livestock. This does not create new jobs but rather continues existing ranching jobs with increased relative and unstable income. The loans received were between 201 and 1000 million Rials, corresponding to the component with the highest number of recipients for livestock purchases. As a result, the 145 livestock purchase projects created 216 jobs, averaging one to two jobs per project. These figures indicate a lack of familiarity with the concepts of entrepreneurship, job creation, and ultimately increasing income. These findings align with the conclusions of Mohammadiyeganeh et al. (2014), Aghajani & Safaei (2010), and Ahmadi et al. (2010).

In line with this research and based on the results obtained, as well as the problems mentioned by the villagers, some suggestions are presented:

- Considering the employment and living conditions of the villagers, especially the poor and needy farmers and herders, regarding the payment of facilities.

- Reviewing the criteria and thresholds of loan payments and helping to accelerate the disbursement of said loans.

- Aligning the conditions and regulations of the operating banks, the Housing Foundation of the Islamic Revolution, and Agriculture Jihad in paying loans. For example, in paying loans related to livestock or breeding, addressing the strict requirements of operating banks and the Housing Foundation regarding the place to keep livestock.

- Accepting deeds for rural houses and copies of agricultural lands as bank guarantees.

- Avoiding the definition of priority ranks and refraining from communicating them to all provinces of Iran, due to the differences among villages nationwide in terms of social, economic, cultural, and livelihood conditions.

Acknowledgements

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of Interest

The authors declared no conflicts of interest.

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