Research Paper: Investigating the Effects of Banking Facilities in the Physical Development of Rural Areas, Khoshkebijar District of Rasht County, Iran

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ABSTRACT

Purpose: The current research aimed to investigate physical development related to financial facilities in the Khoshkebijar District of Rasht County villages.

Methods: The current study is applied in terms of purpose and analytical in terms of method. It also uses quantitative research methods. SPSS software and the gray model were used for data analysis.

Results: The results showed that the housing quality and facilities, construction quality, housing identity and physical changes of the houses after receiving the financial facilities were evaluated favourably. Also, the Spearman correlation test results showed a significant and positive relationship between two variables (banking facilities and the physical development of houses) at a significance level of 0.000. Furthermore, In the regression equation, the beta coefficients showed that "Balancing loan amount with the improvement and retrofitting expenses of rural houses" contributes more in predicting positive changes among the independent items. Also, the item of "help to increase the quantitative and qualitative capacity of rural housing" has the most direct effects on the physical development of rural housing. The study found that construction quality with a weight of 0.065, housing quality and facilities with a weight of 0.056, physical changes with a weight of 0.043, and housing identity with a weight of 0.031 have the highest to the lowest rank. In Haji Bekandeh Rural District, Chaparpord Zaman Village, with a weight of 0.678, is ranked first. In Noshar Rural District, Noshar Village, with a weight of 0.700, is ranked first, which has a more suitable situation than other villages.

Conclusion: Sustainable development of rural settlements should be the main criterion for any rural housing planning. Also, other aspects of development need to be noticed; otherwise, there will be harmful consequences for the life and livelihood of villagers.

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1. Introduction

The lack of development is not limited to a village or rural area, and the scope of the influence expands to small and large cities. Therefore, the urban problems might be rooted in the disorder of rural development. The connected nature of the lack of rural development has always prompted the policy to come up with solutions. Giving loans to rural communities is one of these solutions to remove economic poverty and cultural and social disadvantages from the villages. Rural poverty in various dimensions is the main obstacle to creating motivation, creativity and entrepreneurship, which makes the villagers choose migration from the village. This will end up fading away villages and appearing new unpleasant issues for the cities. Rural loans are given to the villagers for agriculture, livestock, housing, and health, which creates satisfaction and empowerment and makes the population willing to stay in the village (Motiee Langroodi & Bakhshi, 2008: 32).

Based on this, various plans were designed to achieve rural development in Iran. One of the essential prerequisites of rural development is rural housing, which is considered in many development plans. Granting financial credits, including housing loans to the villagers, was one of the means that was part of the annual budget. Housing, as the smallest form of physical embodiment of settlements, plays an essential role in forming physical-spatial structure and the identity of rural architecture (Sartipi Pour, 2008: 16). housing is also a starting point of settlement development. It depends on socio-economic transformations and technical knowledge of societies (Saidi, 2009: 104). In other words, the housing sector is a leading part of any economy, which is vital from an economic, social and cultural point of view (Roshan Ghiyas, 2013: 14).

In this regard, and in line with Article 31 of the Constitution (providing suitable housing for the needs of Iranian individuals and families), the Islamic Revolution Housing Foundation implemented the rural housing retrofitting plan due to frequent natural disasters. In this plan, applicants have been given bank loans for rural housing construction since 2014 to modernize rural life and settlements. Despite challenges such as high profits and interests, short-term loan repayment, bureaucratic difficulties, and low amount of loan, the financial facilities have social, economic, physical and environmental impacts (Riahi et al., 2015: 76). The rural housing loans given by the Islamic Revolution Housing Foundation seeks improving and strengthening the rural housing. However, there are positive and negative consequences, which affect the lives of the villagers and farmers and their living environment (Ghasemi Ardahani & Rostam Alizadeh, 2012: 69). The rural housing loans affect the physical indicators in housing, such as quality and facilities, the identity of housing, quality in construction and physical changes. These indicators show the different amounts in different villages. Because of receiving financial facilities and being near the free trade zone, Khoshkebijar District has seen fundamental transformations in recent years. Therefore, this research intends to study the effects of housing loans on the physical development of housing in the rural areas of the Khoshkebijar District of Rasht County.

2. Literature Review

Rural communities have always faced many issues in the field of housing and physical development. Problems such as the lack of durability of rural housing, erosion, and interference with living and livelihood spaces are among the most critical issues (Mohammadi Yeganeh et al., 2017: 51). A significant reason for these problems stems from the lack of capital and credits, which made policymakers to try strategies to solve them. So, banks gave credit to rural communities for physical development, housing remodelling and housing retrofitting. In other words, villagers were given a public budget in the form of credits to retrofit rural housing (Islamic Revolution Housing Foundation, 2007: 25). The purpose of allocating these credits for housing is to upgrade and improve the quality of rural Housing (Anabastani et al., 2010: 64). Rural families with varying level of income are provided with micro-loans for activities such as repairs, renovation and improvement of the existing physical structure, land purchase, construction of a new building, and even improvement of sewage (Kumar & Newport, 2007: 2).

Rural housing credits may get the house owners to use durable materials and technical principles and regulations. Also, using engineers and increasing the strength and resistance of housing can lead to the security and comfort of families and their readiness for future disasters. In addition, improving the quality of life through proper housing and creating better economic opportunities are actual indicators of success. Housing financial facilities, as an integral part of poverty reduction programs, can help solve the problem of inadequate housing and services (Vertivel, 2010: 435). In this regard, the credit-granting approach is one of the most important programs implemented in housing renovation in devel-

oping countries. A general goal of granting loans is to improve housing (Shirazi, 2009: 11). Daphnis defines housing loans as comprehensive financial services that allow poor and low-income people to finance their housing needs through small loan methods (Daphnis, 2004, as cited in Kihato, 2013: 17). In other frameworks, the provision of credit and other financial services tend to provide a livelihood for the poor in rural, semi-urban or urban areas, so they can raise their income levels and improve their living standards (Rao & Priyadarshini 2013: 98). Housing loans are fundamental from two points of view. First, it can help low-income families and their basic needs, such as creating shelter in developing countries. Second, housing loans can help the business development of financial institutions, especially credit institutions, which are in the interest of middle and low-income families. Also, housing credits are considered a financial tool to support investment in housing components, including land purchase or access, provision or improvement of services, and complete or incremental construction of housing and its renovation (Daphnis, 2004 quoted from Merill, 2009:2 & Kihato, 2013:7).

One of the primary and vital roles of rural housing credits is to increase the quantity and quality of living, increase production and investment, and reduce rural-urban migration, social and economic damage, and unexpected incidents in rural settlements. When Rural housing credits have a systematic, coordinated, targeted approach and are adapted to comprehensive policies and plans, they will play a significant role in transforming the rural society's economic, social and physical structures (Rabat et al., 2016: 20).

A review of the literature about physical development and financial facilities showed that the theoretical approaches related to rural and physical development include integrated development, comprehensive rural development, basic needs, asset-based, sustainable development, rural governance, and empowerment strategies. Sustainable housing and physical development approaches include market-oriented, state-oriented, community-oriented, and rural financing facilities. Rural Housing is believed to have architectural values such as simplicity, visual and aesthetic patterns, adaptation to the natural environment, coordination with biological and livelihood functions, use of local materials and indigenous knowledge. Therefore, in a general classification, the physical changes in rural housing can be examined in the form of quality indicators in facilities, the identity of housing, quality in construction, and physical changes. How can we link housing financial facilities to the geographical environment, hence villages and higher scales? In this regard, this study used theoretical approaches of sustainable development, asset-based development, governance and aesthetics to analyze financial facilities in the villages of Khoshkebijar District of Rasht County (Figure 1).

The asset-based policy is a new approach to the development of local communities. Unlike need-based local social development, the type of asset and the basis of that asset will focus on capacity building. This approach is process-oriented and comprehensive. Anti-poverty policies are based on mobilizing the total resources available to a group or a local community, not necessarily what the community needs, so it causes capacity building. The general definition of capacity (in the local community) includes financial, physical and social assets (Glickman & Serven, 1998: 497-539). Local community assets usually include social capital and physical capital.

In this regard, the main goal of the asset-based approach is physical capital, which affects social capital and social relationships by providing neighbourhood communication, mutual relations, and spatial visualization of governing norms in social neighbourhoods (Piri, 2004: 260). On the other hand, there is a rural governance aspect in financial facilities due to villagers' relationship with local and public organization managers. Rural communities have the right to make decisions about their community and habitat. As John Locke believed: No one likes to be subject to others' will or authority. As Locke mentioned, we need to value the participation of rural communities in all of their personal and social life, especially in rural management. Development is considered a process with various variables that influence each other. One of these variables is participatory management with good governance. Rural planning in Iran has a gap in using rural communities for development activities regarding their residential environment. The principles and criteria of good rural governance require public participation, accountability, responsibility, legality, transparency, efficiency and effectiveness, justice and equality, legitimacy, and consensus (UNDP, 2002: 36-37). In addition , the aesthetic approach can be practical in terms of physical traits, as people always try to increase their aesthetic satisfaction. This can be the case for a house, house objects and house functions. Regarding that housing is only a part of a broader and more complex system, it confirms that housing has little meaning outside of the situation and context where it is located (Rappport, 2008: 113).

In the following, a background of national and international studies is provided about financial facilities, housing and rural development.

Azizpour and Sadeghi (2018) studied the effects of a particular improvement plan on the development of rural housing in the Abrisham Rural District. They concluded that the quantitative and qualitative developments of new residential units in the plan met the needs of the majority of the villagers (sample households). However, the plan should be reviewed and modified regarding attitude and management. Abdi et al.(2019) studied the effect of government microcredits on entrepreneurship and sustainable rural development in Javanrood County. They found that microcredits affected the economic, sociocultural and physical dimensions. Also, Pearson's correlation results show a positive and significant correlation between government microcredits and the dimensions of sustainable rural development. Government microcredits have played an important role in creating sustainable entrepreneurship and employment and, ultimately, sustainable rural development at 95% confidence. Sani Heidari et al.(2019) investigated the role of microcredits in sustainable rural development and concluded that the effect of microcredits on the sustainable development indicator is positive. In other words, on average, the sustainable development indicator increased by four per cent in households that received loans compared to other families. Based on the findings, it is possible to propose the expansion of the institutions in charge of services, support of local micro-financing institutions, and creation and expansion of cooperative structures. Sani Heidari et al. (2020) analyzed the effects of microcredit on the components of sustainable rural development (using the regression approach of PSM (Propensity Score Matching) and bootstrap algorithm. They concluded that the effect of microcredit on economic and social indicators is positive, while on the environmental indicators, it was negative. Durrani et al. (2011) studied the role of microfinance in reducing poverty. Looking at social factors, they concluded that access to microcredit could enable the poor to manage their risks better, gradually build their assets, develop their small businesses, and increase their earning capacity, improving their quality of life. With a little effort, the performance of microfinance institutions can be improved, and these institutions can play their role better than usual in reducing poverty.

Ekwere and Edem (2014) investigated the evaluation of agricultural credit facilities in agricultural products and rural development. They found that access to agricultural credit has a positive effect on the production of agricultural products. Hartarska et al. (2015) studied agricultural credit and their economic growth in target rural areas. They found a positive relationship between agricultural loans and the growth of agrarian GDP per person living in rural areas. The results showed that the positive relationship between credit and economic development in rural areas is due to loans by banks and financial institutions. Finally, Mishra and Sahu (2020) investigated financial facility centres in rural areas and worked on developing these centres as places to integrate different types of facilities in a single place. This integration will maximize accessibility.

Finally, sustainable development theory emphasizes social, economic and physical change that affects the local community's cultural, social, ecological and physical systems. Also, its successful realization depends on consistent political, planning, management, monitoring and Social learning. In addition, political efficiency depends on the active participation of residents, which draws out the assistance of the government, social institutions and well-managed communication of all stakeholders.

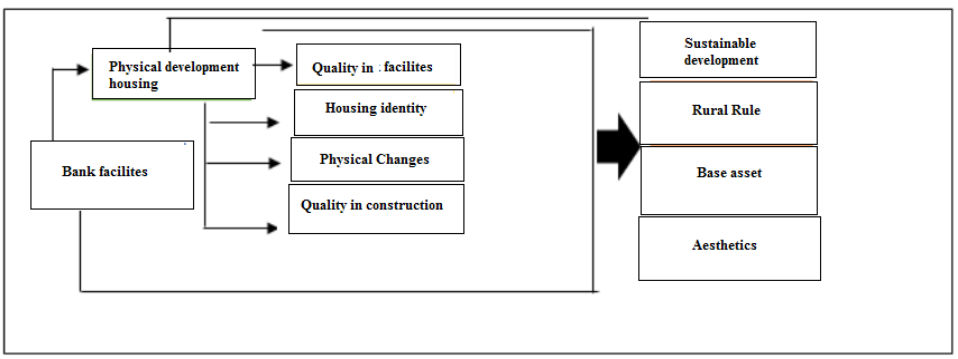

Figure 1. Conceptual framework of the study

3. Methodology

The current study is applied in terms of purpose and analytical in terms of method. It also uses quantitative research methods. SPSS software and the gray model were used for data analysis. The research tool is a questionnaire, which was structured based on studies of the theoretical foundations and research background. Research indicators were designed for two variables (financial facilities as an independent variable and physical development as a dependent variable) (Tables 2 and 3). The validity of the questionnaire was confirmed through informed and knowledgeable people. For reliability, the pre-test was conducted, and Cronbach's alpha coefficient was 0.87. This score for housing identity, the quality of constructions, and physical changes were, respectively, 0.84, 0.85, and 0.78. Therefore, it can be said that the measurement tool (researcher-made questionnaire) has adequate reliability. Also, for the reliability of the questionnaire (banking facilities), Cronbach's alpha was 0.88, which indicates acceptable reliability for this questionnaire.

The statistical population in the first part of the research includes all the villages in Haji Bekandeh and Noshar Rural District, whose residents have received housing financial facilities. To select the sample, first, the total number of identified beneficiaries equals 906 households. Based on Cochran's formula, the sample size was determined to be 269 households, and then, the share of each village was determined by the proportional percentage. Rural respondents have used financial facilities for rural housing in the last two decades. In other words, every household that has received housing financial facilities in the last twenty years has been considered as a possible sample (Table 1):

Table 1. The number of samples in the studied villages

Row	Rural district	Village	Number of financial facilities	Number of samples	Row	Village	Number of financial facilities	Number of samples
1	Haji Bekandeh	Chaparpord	46	14	9	Haji Bekandeh	25	7
2		Pir Ali Deh	20	6	10	Amin Abad	41	12
3		Sar Khoshki	16	5	11	Shahrestan	52	15
4		Amir Bekandeh	69	20	12	Gilva Mahaleh	31	9
5		Chaparpord Zaman	59	18	13	Jirkuyeh	46	14
6		Bagh-e Amir Bekandeh	17	5	14	Tazeh Abad	16	5
7		Chukadeh	4	1	15	Balaskaleh-ye Emam Jomeh	7	2
8		Talesh Mahalleh	10	3	16	Siah Estalakh Seghat al-molk	9	3
17	Noshar	Yousef Abad	4	1	28	Jurkuyeh	35	10
18		Vishka	43	13	29	Shishe-Gorab	13	4
19		Rofooh Chah	15	4	30	Baleskeleh-ye Seyyed Abol Qasem	17	5
20		Forshom	22	7	31	Noshar	61	18
21		Kurijan	4	1	32	Alman	35	10
22		Moridan	35	10	33	Baghche-Baneh	8	2
23		Tamal	59	18	34	Basteh Dim	12	4
24		Rud Posht	30	9	35	Siah Estalkh Mirza Rabee	12	4
25		Gol Bazu	1	0	36	Yusef Mahaleh	0	0
26		Neysa Chah	2	1	37	Jirsar-e Vishka	22	7
27		Mashal Alam	8	2		Total	906	269

The statistical population in the second part of the research includes informants (village councils and rural mayors) in the studied villages. In this regard, targeted sampling was used. In this regard, 30 informants (members of the village council and rural mayors) were selected as the sample population in the studied villages.

Table 2. Research components and indicators (independent variable)

Components	Indicator
Financial and economic support	Granting financial facilities with low interest
	Reducing bureaucracy for getting financial facilities
	Giving loan more to damaged houses
	Balancing loan amount with the improvement and retrofitting expenses of rural houses
	Help with reconstruction
	Provision of working capital
	The proper intervals to repay the instalments
	Help to increase the quantitative and qualitative capacity of rural housing.

Source: Ghasemi & Yar Ahmadi, 2019

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Table 3. Research components and indicators (dependent variable)

Indicator	Item	Scale	Source:
Quality and facilities	The quality of housing in terms of facilities and construction equipment	Ordinal	Kim, 2014, Sattarzadeh, 2009, Saeedi, 2015
	Housing quality in terms of comfort (heat, cold)	Ordinal	Kim, 2014, Sattarzadeh, 2009, Saeedi, 2015
	Housing quality in terms of comfort (audio and visual)	Ordinal	Kim, 2014, Sattarzadeh, 2009, Saeedi, 2015
	Housing quality in terms of access to infrastructure services	Ordinal	Kim, 2014, Sattarzadeh, 2009, Saeedi, 2015
	Housing status in terms of residential services	Ordinal	Kim, 2014, Sattarzadeh, 2009, Saeedi, 2015
	Health and hygiene quality of the house	Ordinal	Kim, 2014, Sattarzadeh, 2009, Saeedi, 2015
	Having electricity, telephone	Ordinal	Rezvani et al. (2019)
	Having tap water, gas supply	Ordinal	Rezvani et al. (2019)
Housing identity	The relaxing physical body of the house	Ordinal	Raisi, 2017, Pourzagar, 2015, Pour dayhimi et al., 2013
	The evocative nature of housing elements	Ordinal	Raisi, 2017, Pourzagar, 2015, Pour dayhimi et al., 2013
	People show interest to talk in the housing	Ordinal	Raisi, 2017, Pourzagar, 2015, Pour dayhimi et al., 2013
	Women show interest to talk in the housing	Ordinal	Raisi, 2017, Pourzagar, 2015, Pour dayhimi et al., 2013
	The daily meeting of people in the village housing	Ordinal	Raisi, 2017, Pourzagar, 2015, Pour dayhimi et al., 2013
	A sense of belonging to the village among households	Ordinal	Raisi, 2017, Pourzagar, 2015, Pour dayhimi et al., 2013
	A sense of belonging to the village among youth	Ordinal	Raisi, 2017, Pourzagar, 2015, Pour dayhimi et al., 2013
	Feeling proud to live in the housing	Ordinal	Raisi, 2017, Pourzagar, 2015, Pour dayhimi et al., 2013

Table 3. Research components and indicators (dependent variable)

Indicator	Item	Scale	Source:
Construction quality	A feeling of financial security in housing	Ordinal	Raisi, 2017, Pourzagar, 2015, Pour dayhimi et al., 2013
	A feeling of security in housing	Ordinal	Raisi, 2017, Pourzagar, 2015, Pour dayhimi et al., 2013
	Feeling responsible for repairing the damage in the village	Ordinal	Raisi, 2017, Pourzagar, 2015, Pour dayhimi et al., 2013
	Pre-planned infrastructure (water and electricity)	Ordinal	Mohammadi Yeganeh et al.; 2019, Ahmadi et al., 2017
	Following health principles in housing	Ordinal	Mohammadi Yeganeh et al.; 2019, Ahmadi et al., 2017
	Housing plans and maps suitable for living and subsistence needs	Ordinal	Mohammadi Yeganeh et al.; 2019, Ahmadi et al., 2017
	Selection of land location considering natural hazards	Ordinal	Mohammadi Yeganeh et al.; 2019, Ahmadi et al., 2017
	Land location with access to services	Ordinal	Mohammadi Yeganeh et al.; 2019, Ahmadi et al., 2017
	Paying attention to the durability of structure and types of materials	Ordinal	Mohammadi Yeganeh et al.; 2019, Ahmadi et al., 2017
	Using the standard architectural view	Ordinal	Mohammadi Yeganeh et al.; 2019, Ahmadi et al., 2017
	Indigenous architecture in the village	Ordinal	Mohammadi Yeganeh et al.; 2019, Ahmadi et al., 2017
	Rural architecture preference for housing renovation	Ordinal	Mohammadi Yeganeh et al.; 2019, Ahmadi et al., 2017
	The quality of residential units against earthquakes and floods	Ordinal	Pourtahari et al., 2012
	Resistance and quality of building materials	Ordinal	Pourtahari et al., 2012
	Repair and improvement of damaged houses	Ordinal	Pourtahari et al., 2012
	Improving the quality of the facade of houses	Ordinal	Pourtahari et al., 2012
	The extent of following traditional designs and patterns in the construction to preserve the physical identity of the village	Ordinal	Pourtahari et al., 2012
	The number of spaces inside a residential unit to meet the needs of household activities (residence, agriculture, animal husbandry)	Ordinal	Pourtahari et al., 2012
	The increase in building floors for vertical development and preventing uneven development of the village	Ordinal	Pourtahari et al., 2012
	The amount of control over construction and preventing informal construction	Ordinal	Pourtahari et al., 2012
	Health status of houses and sewage disposal system	Ordinal	Pourtahari et al., 2012
Physical changes	Size of residential unit	Nominal	Azimi et al., 2014
	Number of rooms in residential unit	Nominal	Azimi et al., 2014
	Number of households in a residential unit	Nominal	Azimi et al., 2014
	Type of structure in a residential unit	Nominal	Azimi et al., 2014
	The main materials used in the building	Nominal	Azimi et al., 2014
	Type of roof in a residential unit	Nominal	Azimi et al., 2014
	Building facade type	Nominal	Azimi et al., 2014
	Having electricity	Nominal	Azimi et al., 2014
	Availability of piping gas supply	Nominal	Azimi et al., 2014
	Having line telephone	Nominal	Azimi et al., 2014
	The location of the toilet in the building	Nominal	Azimi et al., 2014

Geographical area of study

Khoshkebijar District is one of the six districts of Rasht County. This district has 15 kilometres of coastline, the largest coastline in Rasht County. Some years ago, Khoshkebijar included three villages, Haji Bekandeh, and Kate Sar and many villages that were separated from this district. The approximate area of this district was about 167 square kilometres, which is reduced to 95 square kilometres. Silk weaving is one of the many handicrafts made in this city. However, these industries gradually disappeared because of not economical. Khoshkebijar is located at 49 degrees and 46 minutes east longitude and 37 degrees and 22 minutes north latitude. It is limited to the Caspian Sea from the north, Lasht-e Nesha from the east, Khomam from the west, and Kuchesfahan from the south. According to the 2016 census, Khoshkebijar District has 18,857 people and 6,652 households. Also, according to the latest national divisions, this district has one city and two rural districts named Noshar, which has 21 villages, and Haji Bekandeh Rural District, which contains 16 villages. It has a total of 37 inhabited rural points (Statistical Yearbook of Gilan Province, 2016).

4. Findings

Before any analysis regarding the impact of financial facilities on the physical development of rural houses in the Khoshkebijar District, the Kolmogorov-Smirnov test was used to check the normality of the indicators (physical development). This test is used as a test of distribution for quantitative data. This test is based on the difference between the relative cumulative frequency of observations and the expected value under the null hypothesis. In other words,

The test's null hypothesis is (HO): The normality of the distribution of indicators.

The opposite hypothesis is (H1): The distribution of indicators is not normal.

If the significance level of the test is less than 0.05, the null hypothesis is rejected, and with 95 per cent confidence, the data distribution is not normal. Conversely, if the significance level of the test is greater than 0.05, we accept the null hypothesis, and the data distribution is normal.

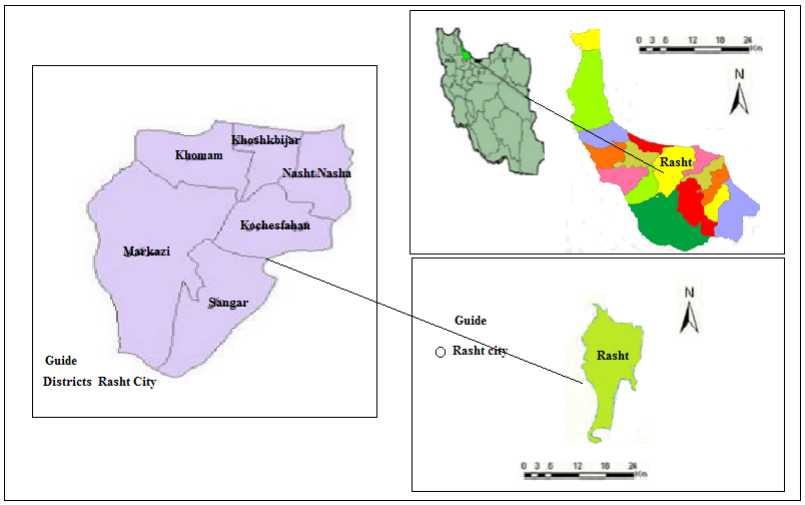

Figure 2. Geographical area of the study. Source: Research Findings, 2022

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Table 4. Kolmogorov-Smirnov test

Indicator	Kolmogorov-Smirnov Z value	Significance level	Result
Housing quality and facilities	1.103	0.175	Accepting the null assumption - the variable is normally distributed. P>0.05
Housing identity	1.241	0.094	Accepting the null assumption - the variable is normally distributed. P>0.05
Construction quality	1.231	0.100	Accepting the null assumption - the variable is normally distributed. P>0.05
Physical changes	0.874	0.532	Accepting the null assumption - the variable is normally distributed. P>0.05

Source: Research Findings, 2022

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According to the results of Table 4, since the significance level of the indicators' Kolmogorov-Smirnov test (normality) is more than 0.05; therefore, the null hypothesis is accepted, and they are typically distributed. As a result, a parametric test (T-sample) can be used for the study.

Table 5. Housing quality and facilities indicator before and after receiving financial facilities

Indicator	Receiving financial facilities	Mean	T	Significance (2-tails)	Confidence interval for the difference in means is 0.95	
					High	Low
The quality of housing in terms of facilities and construction equipment	Before receiving the financial facility	2.23	19.231	0.000	2.34	2.11
	After receiving the financial facility	3.33	21.432	0.000	3.43	3.21
Housing quality in terms of comfort (heat, cold)	Before receiving the financial facility	2.11	19.176	0.000	2.21	2.03
	After receiving the financial facility	3.21	21.334	0.000	3.34	3.14
Housing quality in terms of comfort (audio and visual)	Before receiving the financial facility	2.14	19.183	0.000	2.19	2.04
	After receiving the financial facility	3.22	19.230	0.000	3.31	3.11
Housing quality in terms of access to infrastructure services	Before receiving the financial facility	2.44	19.543	0.000	2.54	2.32
	After receiving the financial facility	3.13	21.443	0.000	3.25	3.01
Housing status in terms of residential services	Before receiving the financial facility	2.10	19.175	0.000	2.20	2.04
	After receiving the financial facility	3.21	21.334	0.000	3.34	3.14
Health and hygiene quality of the house	Before receiving the financial facility	2.35	19.334	0.000	2.41	2.21
	After receiving the financial facility	3.45	21.456	0.000	3.54	3.33
Having electricity, telephone	Before receiving the financial facility	2.88	19.654	0.000	2.91	2.76
	After receiving the financial facility	3.13	21.554	0.000	3.24	3.03
Having tap water, gas supply	Before receiving the financial facility	2.65	19.445	0.000	2.76	2.56
	After receiving the financial facility	3.09	21.341	0.000	3.20	3.00

Source: Research Findings, 2022

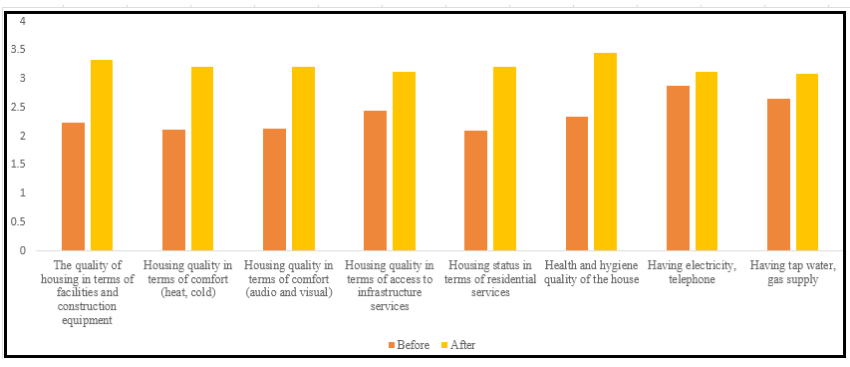

Figure 3. Housing quality and facilities indicator before and after receiving financial facilities.
Source: Research Findings, 2022

As shown in Table 5 and Figure 3, the status of the housing quality and facilities indicator before receiving the financial facility was below the average number 3, which was undesirable. However, after receiving the financial facility, the status of this indicator in all the mentioned items was higher than the average number of 3, which is desirable.

Table 6. Housing identity indicator before and after receiving financial facilities

ndicator	Receiving financial facilities	Mean	T	Significance (2-tails)	Confidence interval for the difference in means is 0.95	
					High	Low
The relaxing physical body of the house	Before receiving the financial facility	2.33	19.332	0.000	2.43	2.21
	After receiving the financial facility	3.46	21.443	0.000	3.56	3.31
People show interest to talk in the housing	Before receiving the financial facility	2.33	19.321	0.000	2.41	2.22
	After receiving the financial facility	3.11	21.334	0.000	3.34	3.09
Women show interest to talk in the housing	Before receiving the financial facility	2.22	19.254	0.000	2.33	2.11
	After receiving the financial facility	3.31	21.332	0.000	3.42	3.24
The daily meeting of people in the housing	Before receiving the financial facility	2.14	19.223	0.000	2.21	2.02
	After receiving the financial facility	3.44	21.342	0.000	3.56	3.31
A sense of belonging to the housing among households	Before receiving the financial facility	2.37	19.422	0.000	2.45	2.22
	After receiving the financial facility	3.44	21.446	0.000	3.54	3.22
A sense of belonging to the housing among youth	Before receiving the financial facility	2.21	19.223	0.000	2.32	2.11
	After receiving the financial facility	3.41	21.334	0.000	2.53	3.33
Feeling proud to live in the housing	Before receiving the financial facility	2.38	19.443	0.000	2.45	2.22
	After receiving the financial facility	3.55	21.554	0.000	3.65	3.43

Source: Research Findings, 2022

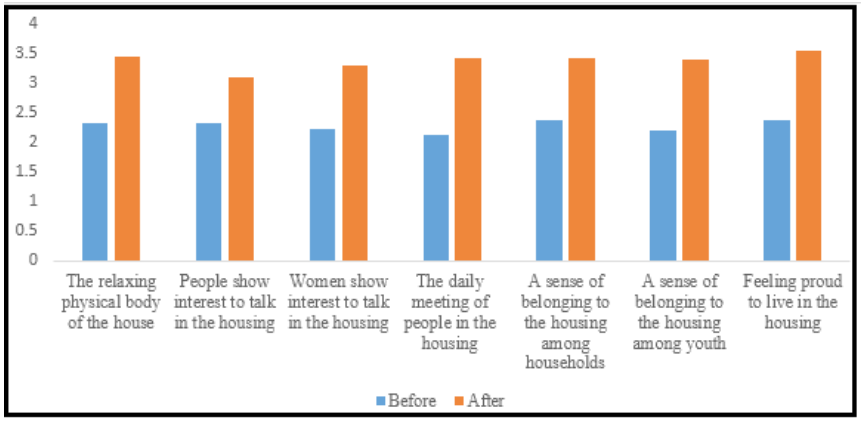

Figure 4. Housing identity indicator before and after receiving financial facilities Source: Research Findings, 2022

As shown in Table 6 and Figure 3, the status of the housing identity indicator before receiving the financial facility was below the average number 3, which was undesirable. However, after receiving the financial facility, the status of this indicator in all the mentioned items was higher than the average number of 3, which is desirable.

Table 7. Construction quality indicator before and after receiving financial facilities

Indicator	Receiving financial facilities	Mean	T	Significance (2-tails)	Confidence interval for the difference in means is 0.95	
					High	Low
Following health principles in housing	Before receiving the financial facility	2.11	19.113	0.000	2.21	2.00
	After receiving the financial facility	3.21	21.231	0.000	3.34	3.11
Housing plans and maps suitable for living and subsistence needs	Before receiving the financial facility	3.54	1.445	0.000	3.65	3.44
	After receiving the financial facility	2.34	19.223	0.000	2.45	2.22
Selection of land location considering natural hazards	Before receiving the financial facility	2.33	19.321	0.000	2.43	2.22
	After receiving the financial facility	3.51	21.449	0.000	3.67	3.43
Land location with access to services	Before receiving the financial facility	2.09	19.114	0.000	2.15	2.00
	After receiving the financial facility	3.31	21.234	0.000	3.43	3.21
Paying attention to the durability of structure and types of materials	Before receiving the financial facility	2.15	19.113	0.000	2.22	2.03
	After receiving the financial facility	3.33	21.243	0.000	3.45	3.24
Using the standard architectural view	Before receiving the financial facility	2.28	19.243	0.000	2.38	2.18
	After receiving the financial facility	3.11	21.267	0.000	3.23	3.01
Indigenous architecture in the village	Before receiving the financial facility	2.67	19.556	0.000	2.75	2.55
	After receiving the financial facility	3.33	21.334	0.000	3.43	3.21
Rural architecture consideration for housing renovation	Before receiving the financial facility	2.21	19.334	0.000	2.34	2.11
	After receiving the financial facility	2.89	21.234	0.000	3.97	2.77
The quality of residential units against earthquakes and floods	Before receiving the financial facility	2.11	19.123	0.000	2.21	2.00
	After receiving the financial facility	3.34	21.223	0.000	3.45	3.22
Resistance and quality of building materials	Before receiving the financial facility	2.11	19.143	0.000	2.24	2.00
	After receiving the financial facility	3.13	21.223	0.000	3.25	3.03
Repair and improvement of damaged houses	Before receiving the financial facility	2.22	19.332	0.000	2.34	2.13
	After receiving the financial facility	3.45	21.432	0.000	3.54	3.32

Table 7. Construction quality indicator before and after receiving financial facilities

Indicator	Receiving financial facilities	Mean	T	Significance (2-tails)	Confidence interval for the difference in means is 0.95	
					High	Low
Improving the quality of the facade of houses	Before receiving the financial facility	2.10	19.154	0.000	2.21	2.02
	After receiving the financial facility	3.33	21.334	0.000	3.45	3.21
The extent of following traditional designs and patterns in the construction to preserve the physical identity of the village	Before receiving the financial facility	3.00	21.113	0.000	3.13	2.89
	After receiving the financial facility	2.21	19.332	0.000	2.33	2.11
The number of spaces inside a residential unit to meet the needs of household activities (residence, agriculture, animal husbandry)	Before receiving the financial facility	3.03	21.115	0.000	3.15	2.88
	After receiving the financial facility	2.65	19.554	0.000	2.77	2.54
The increase in building floors for vertical development and preventing uneven development of the village	Before receiving the financial facility	2.22	19.234	0.000	2.34	2.11
	After receiving the financial facility	3.11	21.267	0.000	3.23	3.01
The amount of control over construction and preventing informal construction	Before receiving the financial facility	2.00	19.113	0.000	2.11	1.88
	After receiving the financial facility	3.03	21.118	0.000	3.16	2.87
Health status of houses and sewage disposal system	Before receiving the financial facility	2.11	19.114	0.000	2.21	2.01
	After receiving the financial facility	3.23	21.334	0.000	3.33	3.11
A feeling of financial security in housing	Before receiving the financial facility	2.21	19.332	0.000	2.33	2.11
	After receiving the financial facility	3.57	21.456	0.000	3.67	2.44
A feeling of security in housing	Before receiving the financial facility	2.11	19.223	0.000	2.21	2.00
	After receiving the financial facility	3.48	21.336	0.000	3.55	3.32
Feeling responsible for repairing the damage in the housing of the village	Before receiving the financial facility	2.11	19.221	0.000	2.29	2.00
	After receiving the financial facility	3.31	21.345	0.000	3.41	3.19

Source: Research Findings, 2022

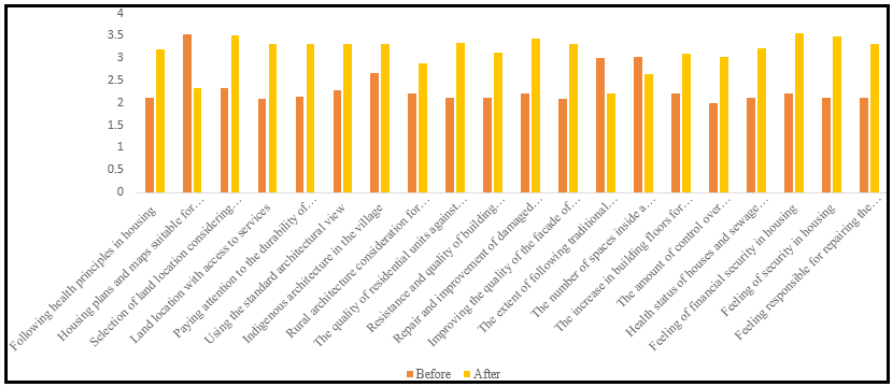

Figure 5. Construction quality indicator before and after receiving financial facilities Research Findings, 2022

As shown in Table 7 and Figure 5, the status of the housing identity indicator was higher than the average number of 3, except for the number of spaces inside a residential unit to meet the needs of household activities, the extent of following traditional designs and patterns in the construction to preserve the physical identity of the village, housing plans and maps suitable for living and subsistence needs.

Table 8. Physical changes indicator before and after receiving financial facilities

Indicator	Receiving financial facilities	Mean	T	Significance (2-tails)	Confidence interval for the difference in means is 0.95	
					High	Low
Size of residential unit	Before receiving the financial facility	2.11	19.113	0.000	2.21	2.00
	After receiving the financial facility	3.21	21.233	0.000	3.34	3.11
Changes in the number of rooms in a residential unit	Before receiving the financial facility	2.10	19.114	0.000	2.19	2.00
	After receiving the financial facility	3.33	21.332	0.000	3.43	3.22
Changes in the number of households in a residential unit	Before receiving the financial facility	2.04	19.113	0.000	2.13	1.89
	After receiving the financial facility	3.11	21.132	0.000	3.23	3.00
Changes in the type of structure in a residential unit	Before receiving the financial facility	2.19	19.221	0.000	2.29	2.10
	After receiving the financial facility	3.21	21.332	0.000	3.34	3.11
Changes in the main materials used in the building	Before receiving the financial facility	2.00	19.111	0.000	2.11	1.88
	After receiving the financial facility	3.33	21.332	0.000	3.43	3.23
Changes in the type of roof in a residential unit	Before receiving the financial facility	2.21	19.223	0.000	2.33	2.11
	After receiving the financial facility	3.44	21.334	0.000	3.56	3.21
Changes in Building facade type	Before receiving the financial facility	2.21	19.185	0.000	2.31	2.11
	After receiving the financial facility	3.45	21.334	0.000	3.55	3.31
Having electricity	Before receiving the financial facility	2.00	19.113	0.000	2.11	1.88
	After receiving the financial facility	2.11	19.213	0.000	2.23	2.01
Availability of piping gas supply	Before receiving the financial facility	2.04	19.113	0.000	2.14	1.88
	After receiving the financial facility	2.21	19.254	0.000	2.33	2.04
Having line telephone	Before receiving the financial facility	2.11	19.113	0.000	2.21	2.00
	After receiving the financial facility	3.00	21.330	0.000	3.13	2.88
The location of the toilet in the building	Before receiving the financial facility	2.10	19.113	0.000	2.21	2.00
	After receiving the financial facility	3.13	21.223	0.000	3.24	3.02

Source: Research Findings, 2022

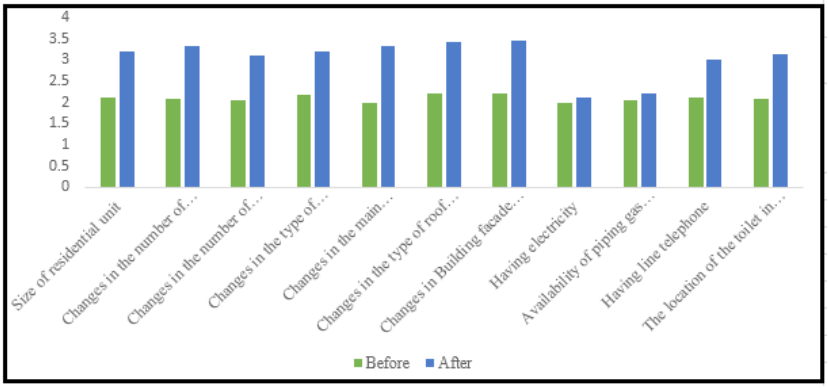

Figure 6. Physical change indicator before and after receiving financial facilities Source: Research Findings, 2022 JSRD

As shown in Table 8 and Figure 6, the status of the physical change indicator was high but in both positive and negative ways. Due to the gradual decrease in household size, the average size of residential units in the villages has decreased. According to the results, the share of large residential units (100 square meters and larger) has been reduced. After receiving financial facilities, the share of houses with small size units (less than 75 square meters) has increased. Also, due to the trend of nuclear families in villages, the number of residential households living in new residential units has decreased significantly. In addition, after receiving the facility, the number of rooms in new units reduced considerably compared to before receiving loans. While the old houses have more bedrooms, the new houses have a limited and similar range. The share of one, three and four-bedroom residential units has been reduced, and the percentage of two-bedroom residential units has been increased. The size of the residential unit is like the changes in the household size.

The main goal for low-interest rural housing loans is to build a house resistant to natural disasters, so villagers must comply with technical standards, especially using concrete or metal frames, to receive a loan. Comparing the skeleton structure type of the residential unit before and after using housing loans shows that the new houses utilized more concrete and metal frames. Also, the primary materials used in the walls of the building indicate the improvement of the quality. At the same time, materials have been changed on their roofs. Although the condition of the facade of the building is not part of the technical requirements for housing low-interest financial facilities, villagers use new materials, especially stone, in the villages of Khoshkebijar District after receiving loans. In new constructions, the share of residential units with stone and brick facades has increased, and there are fewer buildings without facades or cement facades. Regarding the comfort facilities of the new residential units, apart from having landlines, there is no difference in other facilities. The main reason is that basic amenities have been provided in most rural areas for about two decades.

Furthermore, in the stepwise regression analysis, eight items (financial facilities) were analyzed as independent variables. Four indicators (housing quality and facilities, housing identity, construction quality and physical changes) were dependent variables. Before the regression analysis, the two-way relationship between variables was investigated using the Pearson correlation test.

Pearson's correlation coefficient values indicate that the correlation between financial facilities and physical development is positive, and there is a significant relationship between the two variables at the 99% confidence level. Further, as shown in Table (10), based on the adjusted coefficient of determination, 95% of changes in the dependent variable (physical development) are explained by eight items of financial facilities. After five consecutive steps, all eight indicators with an F value equal to 398/112 were significant, indicating the regression's significance. This situation shows that bank facilities significantly impact the physical development of the villages of the Khoshkebijar District of Rasht County.

Table 11 also shows that the independent variable is significant at the 99% confidence level. By comparing the standard beta coefficients, one can understand the importance and role of each independent variable (financial facilities) in predicting the dependent variable (physical development). In the regression equation, the beta coefficients showed that among the independent items, the item "Balancing loan amount with the improvement and retrofitting expenses of rural houses" contributes more in predicting positive changes.

Table 9. Correlation analysis between financial facilities and physical development of villages in Khoshkebijar District

Receiving financial facilities	Dependent variable	r	P	Correlation coefficient
Granting financial facilities with low interest	Physical development	0.496	0.000	Spearman
Reducing bureaucracy for getting financial facilities		0.467	0.000	Spearman
Giving loan more to damaged houses		0.471	0.000	Spearman
Balancing loan amount with the improvement and retrofitting expenses of rural houses		0.478	0.000	Spearman
Help with reconstruction		0.466	0.000	Spearman
Provision of working capital		481/0	0.000	Spearman
The proper intervals to repay the instalments		0.491	0.000	Spearman
Help to increase the quantitative and qualitative capacity of rural Housing		0.461	0.000	Spearman

Source: Research Findings, 2022

Table 10. Independent variable coefficients in explaining the variance of financial facilities in physical development

Independent variable	Multiple correlation coefficient (R)	Coefficient of determination (R2)	Adjusted coefficient of determination (Adjusted R^2)
Granting financial facilities with low interest	0.556	0.453	0.334
Reducing bureaucracy for getting financial facilities	0.554	0.432	0.334
Giving loan more to damaged houses	0.445	0.556	0.561
Balancing loan amount with the improvement and retrofitting expenses of rural houses	0.600	0.445	0.561
Help with reconstruction	0.512	0.554	0.600
Provision of working capital	0.449	0.561	0.662
The proper intervals to repay the instalments	0.578	0.567	0.621
Help to increase the quantitative and qualitative capacity of rural Housing	0.445	0.560	0.605

Source: Research Findings, 2022

Table 11. Factors influential in the physical development of villages in Khoshkebijar District based on the regression analysis

Independent variable	B	Std-Error	Beta	t	P
Granting financial facilities with low interest	1.321	0.043	0.512	7.543	0.000
Reducing bureaucracy for getting financial facilities	0.955	0.035	0.433	7.154	0.000
Giving loan more to damaged houses	1.321	0.058	0.564	21.443	0.000
Balancing loan amount with the improvement and retrofitting expenses of rural houses	1.456	0.065	0.643	24.654	0.000
Help with reconstruction	1.143	0.053	0.611	21.543	0.000
Provision of working capital	1.332	0.065	0.643	24.654	0.000
The proper intervals to repay the installments	0.983	0.036	0.453	7.543	0.000
Help to increase the quantitative and qualitative capacity of rural Housing	1.102	0.041	0.502	17.355	0.000

Source: Research Findings, 2022

The study used path analysis to identify the direct and indirect effects of the role of each of the financial facility items. All (8) indicators directly related to the physical development of houses in Khoshkebijar villages at the level of P=0.000 (99% confidence). These eight items were used as important variables associated with the physical development of rural houses to draw a structural causal model. These effects were shown and prioritized in Table 12. The multiple correlation coefficient (R=0.981) indicates that the relationship between the research's independent and dependent variables is significant, and the F value (F=187.213) is statistically

significant. According to the results, the item "help to increase the quantitative and qualitative capacity of rural housing" has the most direct effects on the physical development of rural housing.

In the following, the study used the gray model to rank each village in terms of physical development, focusing on financial facilities. First, the matrix of raw data was formed in the form of rural points for the villages of Haji Bekandeh and Noshar. Then, after normalization, each indicator was weighted to determine the importance of each indicator. Finally, the Shannon entropy method was used to determine the weight of the indicators (Table 13).

As shown in Table 13, construction quality with a weight of 0.065, housing quality and facilities with a weight of 0.056, physical changes with a weight of 0.043, and housing identity with a weight of 0.031 have the highest to the lowest rank. In the next step, for the gray ranking, the weight was multiplied by the coefficients of the relationship of the gray to calculate the final score of the indicators. The biggest score is the best option. Therefore, the higher the gray rank, the more favourable the village is in terms of physical development (Table 14).

Table 12. The effects of financial facilities on the physical development of rural houses

Row	Abbreviation	Indicator	Direct effects	Indirect effects	Sum of causal effects
1	X1	Granting financial facilities with low interest	0.113	0.031	0.144
2	X2	Reducing bureaucracy for getting financial facilities	0.121	0.021	0.142
3	X3	Giving loan more to damaged houses	0.141	0.044	0.185
4	X4	Balancing loan amount with the improvement and retrofitting expenses of rural houses	0.131	0.087	0.218
5	X5	Help with reconstruction	0.141	0.031	0.172
6	X6	Provision of working capital	0.121	0.025	0.146
7	X7	The proper intervals to repay the installments	0.090	0.043	0.133
8	X8	Help to increase the quantitative and qualitative capacity of rural Housing	0.166	0.038	0.204

Source: Research Findings, 2022

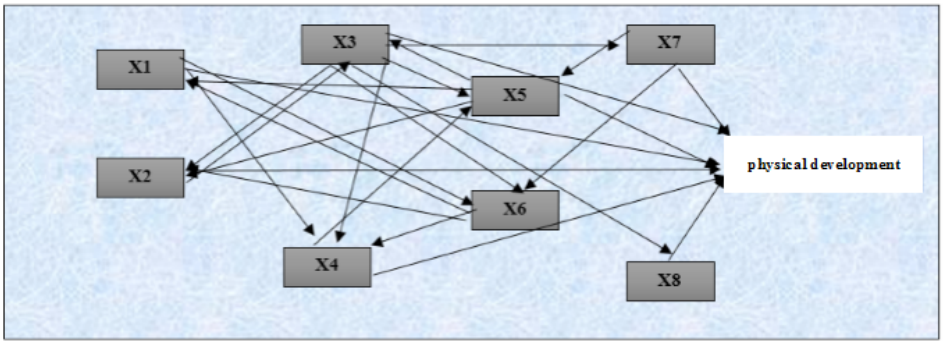

Figure 7. Casual pattern of financial facilities in the physical development, Source: Research Findings, 2022

Table 13. Scores obtained in physical development indicators

Indicator	Housing quality and facilities	Housing identity	Construction quality	Physical changes
Weight	0.056	0.031	0.065	0.043

Source: Research Authors, 2022

Table 14. Ranking of Haji Bekandeh Rural District based on gray analysis

Village	Chapar-pord	Pir Ali Deh	Sar Khoshki	Amir Bekandeh	Chapar-pord Zaman	Bagh-e Amir Bekandeh	Chuka-deh	Talesh Ma-hallah
Weight	0.543	0.511	0.432	0.621	0.678	0.467	0.300	0.356
Rate	3	5	12	2	1	10	16	13
Village	Jirkuyeh	Tazeabad	Balaskaleh-ye Emam Jomeh	Siah Estalakh Seghat al-molk	Amin Abad	County	Gilva Mahaleh	Haji Bekan-deh
Weight	0.480	0.478	0.311	0.321	0.522	0.500	0.456	0.501
Rate	8	9	15	14	4	7	11	6

Source: Research Findings, 2022

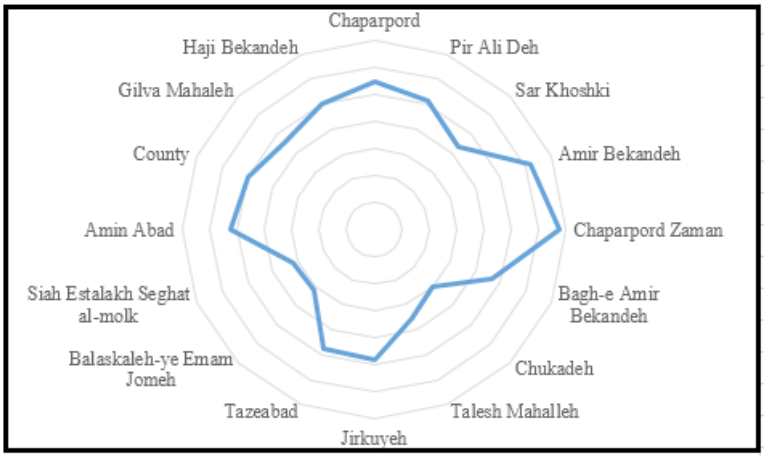

Figure 8. Ranking of the villages of Haji Bekandeh Rural District in terms of physical housing development.
source: Research Findings, 2022

As shown in Table 14 and Figure 8, Chaparpord Zaman Village, with a weight of 0.678, is ranked first, which has a more suitable situation than other villages. Also, Amirbekandeh Village is ranked second with a weight of 0.621. In Siah Estalakh Seghat al-Molk, Balaskaleh-ye Emam Jomeh, and Chukadeh, the financial facilities did not have a positive result on the physical development.

Table 15. Ranking of Noshar Rural District based on gray analysis

Village	Yousef Abad	Vishka	Rofooh Chah	For-shom	Kurijan	Tamal	Rud Posht	Siah Estalkh Mirza Rabee	Yusef Mahaleh	Basteh Dim	Gol Bazu
Weight	0.311	0.654	0.423	0.500	0.309	0.688	0.533	0.409	0.211	0.412	0.245
Rate	16	3	11	8	17	2	7	13	21	12	20
Village	Neysa Chah	Mashal Alam	Jurkuyeh	Shishe-Gorab	Baleskel-eh-ye Seyyed Abol Qasem	Now-sher	Al-man	Jirsar-e Vishka	Baghche-Baneh	Mori-dan	
Weight	0.288	0.300	0.644	0.388	0.456	0.700	0.567	0.488	0.345	0.567	
Rate	19	18	4	14	10	1	5	9	15	5	

Source: Research Findings, 2022

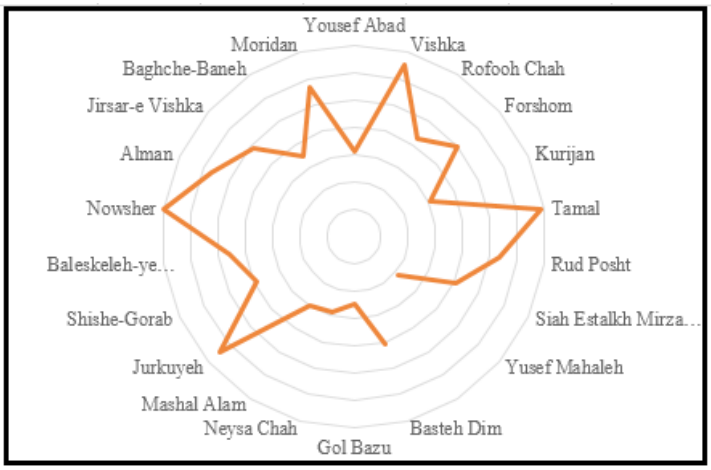

Figure 9. Ranking of the villages of Noshar Rural District in terms of physical housing development. source: Research Findings, 2022

As shown in Table 15 and Figure 9, Noshar Village, with a weight of 0.700, is ranked first, which has a more suitable situation than other villages. Also, Tamal Village is ranked second with a weight of 0.688. In the villages of Mashal Alam, Neysa Chah, and Gol Bazu, the financial facilities did not positively affect physical development.

5. Discussion

Nowadays, most researchers consider rural development a multi-dimensional process whose ultimate goal is to improve the quality of the residents of rural areas. Housing in rural areas has been crucial in people's lives due to its critical functions. However, most of the rural houses in Iran are not of good quality, so the government has provided housing improvement credits to the villagers in the form of the rustic housing improvement plan in recent decades. One of these areas is Khoshkebijar District in Rasht County. The research results showed a significant and positive relationship between financial facilities and the physical development of rural housing. Therefore, the physical changes of the housing after receiving the facilities are more than before receiving the financial facilities. Also, the level of physical development of houses was not the same in the two rural districts (Haji Bekandeh and Noshar). Chaparpord in Haji Bekandej, Noshar Village in Noshar Rural District, had the largest amount of physical development for housing. Finally, the study's results are consistent with the study of Sani Heidari et al. (2019). Finally, in line with the research results, we suggest the following.

A qualitative study should be conducted to find effective drivers in rural housing banking facilities.

Research should be conducted on the physical, economic, social and environmental development of housing with an emphasis on financial facilities in the villages of Khoshkebijar District of Rasht County.

It was found that no specific design and implementation principles for new rural houses need to be created. Therefore, in addition to retrofitting rural housing, the authentic and native architecture of the villages needs to be noticed.

Acknowledgements

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Conflict of Interest

The authors declared no conflicts of interest.

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