

THE ROLE OF EMPLOYMENT AND INCOME IN POPULATION STABILITY IN RURAL SETTLEMENTS: A CASE STUDY OF VILLAGES IN THE CENTRAL PART OF BIRJAND COUNTY

O PAPEL DO EMPREGO E DA RENDA NA ESTABILIDADE DA POPULAÇÃO EM ASSENTAMENTOS RURAIS: UM ESTUDO DE CASO DE ALDEIAS NA PARTE CENTRAL DO CONDADO DE BIRJAND

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Abstract: One of the most important issues facing the villages today is the process of migration of the young and active population from villages, which compromises population stability in rural settlements. Thus, the question of what factors have basically affected population stability in rural areas has always been at stake. Accordingly, given the importance of the issue and the increasing trend of rural instability, this study seeks to investigate the factors affecting population stability in rural settlements of the central part of Birjand County. The method used in this research is descriptive – analytical. The statistical population consists of all the villages in the central part of Birjand County which had a population of over 100 people (89 villages) in the 2016 Census. To determine the statistical sample, 10% of the statistical population that had the largest population decline from 2006 to 2016 was selected. Then, based on the number of households in these 9 villages (691 households), 247 households were chosen as the statistical sample to complete the questionnaire using Cochran formula, and spatial distribution of the questionnaire was conducted among them. For data analysis, descriptive and inferential statistics methods have been employed with the aid of SPSS software. The obtained results demonstrated that from the respondents' point of view, the variables of employment and income have had an impact on population stability of above-average rural settlements while income has made the greatest effect on population stability in rural settlements. According to the results of one-sample t-test and Friedman test, employment and income have a significant impact on population stability of rural settlements. Further, there was a significant difference between the variables of employment and income in the mean rank, and the variable of income has gained the highest rank; that is, income has had the greatest impact on population stability in rural settlements, and employment is ranked second.

Keywords: Population Stability. Rural Settlements. Employment. Income. Birjand County.

Resumo: Uma das questões mais importantes que as aldeias enfrentam hoje é o processo de migração da população jovem e ativa das aldeias, o que compromete a estabilidade populacional nos assentamentos rurais. Assim, a questão de quais fatores basicamente afetaram a estabilidade da população nas áreas rurais sempre esteve em jogo. Nesse sentido, dada a importância do tema e a tendência crescente de instabilidade rural, este estudo busca investigar os fatores que afetam a estabilidade populacional em assentamentos rurais da parte central do município de Birjand. O método utilizado nesta pesquisa é descritivo - analítico. A população estatística consiste em todas as aldeias na parte central do Condado de Birjand que tinham uma população de mais de 100 pessoas (89 aldeias) no Censo de 2016. Para determinar a amostra estatística, foram selecionados 10% da população estatística que teve o maior declínio populacional de 2006 a 2016. Então, com base no número de domicílios nessas 9 aldeias (691 domicílios), 247 domicílios foram escolhidos como a amostra estatística para preencher o questionário usando a fórmula de Cochran, e a distribuição espacial do questionário foi realizada entre eles. Para a análise dos dados, métodos de estatística descritiva e inferencial foram empregados com o auxílio do software SPSS. Os resultados obtidos demonstraram que, do ponto de vista dos respondentes, as variáveis de emprego e renda impactaram a estabilidade populacional dos assentamentos rurais acima da média, enquanto a renda exerceu maior impacto na estabilidade populacional dos assentamentos rurais. De acordo com os resultados do teste t para uma amostra e do teste de Friedman, o emprego e a renda têm um impacto significativo na estabilidade populacional dos assentamentos rurais. Além disso, houve uma diferença significativa entre as variáveis de emprego e renda na classificação média, e a variável de renda obteve a classificação mais elevada; ou seja, a renda teve o maior impacto sobre a estabilidade da população nos assentamentos rurais e o emprego ficou em segundo lugar. Palavras-chave: Estabilidade da População. Assentamentos Rurais. Emprego. Renda. Condado de Birjand.

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Introduction and statement of the problem

One of the most important and yet most challenging topics that have attracted the attention of analysts in the demographic scope of developing countries, and, at the same time, is the concern of planners and statesmen, is population evacuation of rural settlements. Population stability in rural settlements seems to be subject to numerous economic, social, and environmental factors and these structural components are understood in a fluid and dynamic process and in interaction with one another. In this research, structural factors such as income, employment and facilities, and services are examined. Considering that the majority of the population residing in rural settlements of South Khorasan Province, including the studied area (central part of Birjand County), is engaged in agriculture and livestock farming, the creation of mechanisms that can make cost-effective the process of production to the sale of products is crucial. One of the major weaknesses of rural jobs in this area is their low productivity, to the extent that according to people with several jobs, monthly expenses cannot be provided, which indicates economic disadvantage in selling products relative to high production costs and high risk. Obviously, this, in addition to reducing the population stability index, has encouraged household members to migrate seasonally to Nehbandan, Birjand, and Sarbisheh for employment and income, and many households are reluctant about the activity of their male children in the rural environment (Hajipour, 2011: 3). The statement of this problem, in the author's opinion, is important in that unfortunately in the past and in all governments regardless of political orientations sustainable and balanced development, rather than viewed as an indigenous version that should be promoted and planned by understanding the realities, biological requirements, and economic and structural incentives of each region, has been considered as a function of models and versions that not only did not heal the pains and resolve the challenges, but also exacerbated problems and the resultant challenges due to the lack of attention to specific environmental and cultural requirements of each region. Among the results of these challenges is the migration of villagers and evacuation of rural settlements. Rural settlements in Birjand are small and dispersed units with regard to their natural, social and economic characteristics over time and based on guided or spontaneous movements in following water and soil resources. In such villages, the unemployment rate is high because of the limited resources of production. Consequently, the rate of migrant-sending is high in these villages. Additionally, communication constraints and difficulty in providing services to these villages, along with social developments, have made these villages unstable. In order to reduce the instability of such settlements, specialized research is necessary and inevitable. In this respect, the present study is intended to explain the factors affecting population stability in rural areas of the region. Therefore, the main research question is as follows: "What are the effective factors in population stability of rural settlements in the area under study? And which of these factors have the most impact on population stability of rural settlements in the central part of Birjand County?"

Research theoretical foundations

Rural settlements

The village can be contemplated as a phenomenon that develops in relation to its context and continues to survive. The pattern of residence and spatial replacement from small and medium-sized to large settlements is inevitable. Due to the implementation of inappropriate logistics policies in equipping and developing basic resources to stabilize rural population, the process of transferring the rural population from the marginal areas of the province to the major urban centers has always been accomplished in the last four decades, among the consequences of which is the instability of the spatial organization of rural settlements. The historical experience of governments facing the challenge of population instability in rural settlements shows that the approaches adopted and measures taken to increase the level of population stability and reduce the security consequences suggesting population dispersion and evacuation of villages in Iran are mostly imperative and commanding and have been applied from top to

bottom in an authoritative way, rather than resting on accurate field studies and socio-cultural strategies or, in other words, methods based on the recognition of indigenous dimensions of rural settlements. These approaches, consequently, cannot contribute to population stability in the long run or even in the medium term (Alipour et al., 2015: 39).

Factors affecting population stability in rural settlements

a) Income

Earning income and having a proper living requires the creation of infrastructures, systematic planning, and provision of efficient models. One of the most important pillars of sustainable development is sustainable rural development. To investigate sustainable rural development, the most basic criterion for measurement includes the indicators in this field that generally show the status of the population in question. In the literature of the subject, there are many theoretical and empirical debates about the effect of each of these two concepts on regional economic growth. Such debates are of particular importance to regional planners and policymakers. But in our country, rural and regional studies in this area are scant. Given the widespread impacts of the benefits of expertise and economic diversity, particularly the policies for the formulation of provincial preparation plans and more effective management of resources (natural, financial, and human capital) are relevant.

b) Employment

Entering the job market is another important motivation when deciding to leave or stay. Achieving population stability in rural settlements in the developing countries and keeping rural youth in villages are difficult and require the implementation of many development programs with regard to limited opportunities for youth employment in these areas while factors such as education, media and rural tourism raise the level of aspirations and tendencies of rural youth and lead to increased distance between their aspirations and tendencies with the existing employment opportunities in villages. This distance makes rural youth eventually encouraged to quickly leave the village and migrate to the metropolises (Poursina et al., 2010: 122).

Economic consequences of migration and the instability of rural settlements

Studies show that immigrant youth are mostly satisfied with migration to cities and their lives have improved economically. Moreover, they cause to improve their parents' living conditions and enhance their families' financial strength in the village by transferring money to their parents. Overall, rural-urban migration can be considered economically successful for young people because they could never earn the current income in the village. But as mentioned above, youth migration will have many economic consequences in villages, the most important of which are the recession of the agricultural and livestock economy in the village and the decline in rural production and productivity. Given that young people constitute the largest group of rural-urban migrants, those who stay in the village are old men and women who have little strength for extensive agriculture and are more engaged in subsistence and self-sufficient economy and grow as much as needed annually (Qasemi Siani, 2016: 33).

Research background

In an article, Soleimani et al. (2015) has explained "the factors affecting the instability of rural settlements in Iran". The findings demonstrated that based on the available knowledge, some of the factors influencing rural instability are divided into two categories: national and transnational factors. National factors include non-nativeness of theoretical foundations and patterns of development in Iran, deficiencies and problems governing the planning system, government's rent-seeking, educational deficits and low literacy levels, problems and shortcomings of rural management and poor facilities, and services. Transnational factors comprise the approach of rationalism and dominion over nature, the industrial revolution, population growth, and the nature of development.

Kanwal et al. (2015) investigated “the socio-economic factors affecting rural migration to cities”. The results indicate that there is a significant relationship between employment, agricultural lands, business, literacy, and marriage with migration decision.

In an article entitled “Core principles in creating and maintaining entrepreneurial spaces”, Otto (2009) concluded that one of the core principles in creating and maintaining successful entrepreneurial spaces is to try to create a favorable entrepreneurial space, provided that it is in close interaction with policymakers.

In an article concerning “the appraisal of the stability of 79 rural settlements in Ireland”, Moles et al. (2008) revealed that settlements with greater population are more stable. But this is not true for all settlements in a population group, and not all of them are at the same level of stability.

Research method

This study is an applied research in terms of purpose and a descriptive-analytical research in terms of nature and method. The statistical population embraces all the villages in the central part of Birjand County, which had a population of over 100 people (89 villages) in the 2016 Census. To determine the sample size, 10% of total villages (9 villages) that had the largest population decline from 2006 to 2016 were selected as the sample. Then, based on the number of households in these 9 villages (691 households), 247 households were chosen as the statistical sample to complete the questionnaire using Cochran formula, and, ultimately, the spatial distribution of the questionnaires was conducted with regard to the household share of each village using stratified random sampling.

Table 1. Spatial distribution of questionnaires in sample villages

No.	Village name	Rural district	Percentage of reduction	Total number of households	Number of sample households
1	Golunabad	Alqurat	36.36	126	45
2	Naqenj	Alqurat	47	123	44
3	Asnan	Shakhenat	41	65	23
4	Roshnavand	Fasharud	42	54	19
5	Siskan	Kahshang	38	48	17
6	Alqar	Kahshang	40	50	18
7	Ruqayya Abad	Kahshang	38	50	18
8	Khazan	Shakhen	40	98	35
9	Behdan	Baqeran	40	77	28
Total				651	247

Research tool and research validity and reliability assessment

In this study, a researcher-made questionnaire has been applied for data collection, whose validity has been measured based on the Delphi technique and in the evaluations made, face validity has been assessed as desirable by the masters. The questionnaire reliability has been measured by Cronbach’s alpha coefficient.

Table 2. Measurement of Cronbach’s alpha coefficient of questionnaire

Research variables	Cronbach’s alpha coefficient
Income	0.905
Employment	0.880

Given that Cronbach's alpha coefficient is greater than 0.7, the reliability of both parts was evaluated as desirable, and the internal validity was confirmed.

Table 3. Reliability test results related to the research variables

Variables	Kolmogorov-Smirnov statistic	P-value
Income	0.523	0.843
Employment	0.411	0.745

According to the results and since the p-value obtained for the tests is greater than our significance level ($\alpha = 0.05$), the assumption of data normality is accepted.

Results and findings

Inferential-analytical findings

The impact of increased job opportunities on preventing migration

Table 4. Percentage of the impact of increased job opportunities on migration prevention

Statistical index of options	Frequency	Percentage
Very low	1	0.4
Low	1	0.4
Medium	10	4
High	47	19
Very high	188	76.1
Total	247	100

According to the results, 95.1% of the respondents have evaluated the impact of increased job opportunities on migration prevention to be high and very high. Hence, in case of increasing job opportunities in the village, the migration process will decrease.

The impact of income shortage on rural migration

Table 5. The impact of income shortage on migration

Statistical index of options	Frequency	Percentage
Very low	1	0.4
Low	2	0.8
Medium	7	2.8
High	65	26.3
Very high	172	69.6
Total	247	100

Considering Table (5), it is observed that of the total sample of respondents, 0.4% evaluated the effect of income shortage on migration as very low, 0.8% evaluated as low, 2.8%

evaluated as medium, 26.3% evaluated as high, and 69.6% evaluated as very high. Based on the results, 95.9% of the respondents believed that the effect of income shortage on migration is high and very high.

The impact of income difference between city and village on rural migration

Table 6. Percentage of the impact of income difference between city and village on migration

Statistical index of options	Frequency	Percentage
Very low	1	0.4
Low	10	4
Medium	18	7.3
High	69	27.9
Very high	149	60.3
Total	247	100

According to the results, 88.2% of the respondents stated that the effect of income difference between city and village on migration is high and very high.

The impact of sufficient income on population retention in the village

Table 7. Percentage of the impact of sufficient income on population retention

Statistical index of options	Frequency	Percentage
Low	3	1.2
Medium	20	8.1
High	73	29.6
Very high	151	61.1
Total	247	100

Based on the results, 90.7% of the respondents stated that the effect of sufficient income on population retention in the village is high and very high.

The impact of development of other economic sectors (other than agriculture and livestock farming) on population retention

Table 8. Percentage of the impact of development of other economic sectors on population retention

Statistical index of options	Frequency	Percentage
Very low	2	0.8

Low	4	1.6
Medium	41	16.6
High	77	31.2
Very high	123	49.8
Total	247	100

According to Table (8), it is observed that of the total sample of respondents, 0.8% evaluated the effect of development of other economic sectors on population retention as very low, 1.6% evaluated as low, 16.6% evaluated as medium, 31.2% evaluated as high, and 49.8% evaluated as very high. With respect to the above results, 81% of the respondents believed that the effect of development of other economic sectors on population retention is high and very high.

The impact of supporting rural entrepreneurs on population retention

Table 9. Percentage of the impact of supporting rural entrepreneurs on population retention

Statistical index of options	Frequency	Percentage
Very low	2	0.8
Low	7	2.8
Medium	32	13.0
High	76	30.8
Very high	130	52.6
Total	247	100

Given the obtained results, 83.4% of the respondents have considered the effect of supporting rural entrepreneurs on population retention to be high and very high.

The impact of holding handicraft workshops on reducing population migration

Table 10. Percentage of the impact of holding handicraft workshops on reducing population migration

Statistical index of options	Frequency	Percentage
Low	16	6.5
Medium	36	14.6
High	79	32.0
Very high	116	47.0
Total	247	100

According to Table (10), it is observed that of the total sample of respondents, 6.5% evaluated the effect of holding handicraft workshops on reducing population migration as low, 14.6% evaluated as medium, 32% evaluated as high and 47% evaluated as very high. Based on the results, 79% of the respondents stated that the effect of holding handicraft workshops on reducing population migration is high and very high.

The impact of supporting home businesses on reducing population migration

Table 11. Percentage of the impact of supporting home businesses on reducing population migration

Statistical index of options	Frequency	Percentage
Low	13	5.3
Medium	34	13.8
High	85	34.4
Very high	115	46.5
Total	247	100

According to the results, 80.9% of the respondents have considered the effect of supporting home businesses on reduced population migration to be high and very high.

The impact of seasonal job opportunities on rural migration

Table 12. Percentage of the impact of seasonal job opportunities on migration

Statistical index of options	Frequency	Percentage
Very low	2	0.8
Low	10	4
Medium	53	21.5
High	93	37.7
Very high	89	36
Total	247	100

According to Table (12), it can be seen that of the total sample of respondents, 0.8% evaluated the effect of seasonal job opportunities on migration as very low, 4% evaluated as low, 21.5% evaluated as medium, 37.7% evaluated as high, and 36% evaluated as very high. Based on the results, 73.7% of the respondents stated that the effect of seasonal job opportunities on migration is high and very high.

First hypothesis

Income seems to have the greatest impact on population stability in rural settlements of the studied area.

Table 13. One-sample t-test (effect of income on population stability in rural settlements)

Test value= 3						
Number of respondents	Variable	Mean	SD	t-value	Degree of freedom	Significance level
247	Income	4.53	0.55	43.58	246	0.000

Result: According to Table (13), it can be seen that the observed mean value of the impact of income on population stability in rural settlements (43.58) is significantly different from the standard mean (3). Considering the significance level (sig = 0.000), it can be claimed that in respondents' opinion, income has a significant impact on population stability in rural settlements. As a result, the first research hypothesis is confirmed.

Second hypothesis

Employment seems to have a large impact on population stability in rural settlements of the area under study.

Table 14. One-sample t-test (effect of employment on population stability in rural settlements)

Test value= 3						
Number of respondents	Variable	Mean	SD	t-value	Degree of freedom	Significance level
247	Employment	4.29	0.55	36.36	246	0.000

Result: According to Table (14), it can be seen that the observed mean value of the impact of employment on population stability in rural settlements (36.36) is significantly different from the standard mean (3). Given the significance level (sig = 0.000), it can be claimed that in respondents' opinion, employment has a significant impact on population stability in rural settlements. As a result, the second research hypothesis is confirmed.

Table 15. Comparison of the mean rank of the effect of employment, income and facilities and services on population stability in rural settlements in respondents' view (Friedman test)

Variables	Mean rank
Income	2.55
Employment	2.01
N= 247 X ² = 171.72 df = 20 sig= 0/000	

According to the above table, from the viewpoint of respondents, the income variable has gained the highest rank (2.55); that is, the impact of income on population stability in rural settlements has been the greatest and employment is ranked next. The Friedman test results display that there is a significant difference between the mean rank of each of the variables of employment, income and facilities and services (sig = 0.000).

Conclusion and suggestions

The migration of the active force from villages to cities is one of the major challenges facing the rural community while the rules limiting the displacement are powerless in this regard. Since the beginning of the last century, the policies adopted in the field of economic and social modernization have led to the emergence of the phenomenon of migration and its increasing intensification with the passage of time. According to theoretical sources of the research and field studies on population retention in rural areas, practical responses show that expanding and developing job opportunities, increasing and diversifying income, and providing facilities and services to take advantage of regional comparative capabilities and advantages are among the most important strategies for population retention in rural areas. Besides, the grounds for hope can be strengthened in villages while boosting morale and increasing motivation through entrepreneurship development and participatory approach to rural development programs. In this way, it is possible to consolidate the motivation to stay in the village. The results of testing the first hypothesis revealed that income has had a significant effect on population stability in rural settlements. The findings obtained from testing the first hypothesis are consistent with the domestic studies by Qasemi Ardehaei; Sadeqi Cham Changi et al. (2016); Kiani et al. (2016); Ebrahimzadeh and Aqasizadeh (2015) and Velaei et al. (2015), and the foreign studies by Perma (2009) and Badri et al. (2006). In these studies, the impact of income as the most effective factor on population stability in rural settlements has been confirmed. Furthermore, the results of this part of the research are inconsistent with the results of the domestic research by Soroush (2015).

Moreover, the results of testing the second hypothesis showed that employment has had a significant effect on population stability in rural settlements. The findings obtained from testing the second hypothesis are congruent with the domestic studies by Kiani et al. (2016); Ebrahimzadeh and Aqasizadeh (2015); Velaei et al. (2015); Qasemi and Hosseini Rad (2008) and Mansourian and Mohammadi (2014), and the foreign studies by Egbula et al. (2010) and Kanwal et al. (2015). In these studies, overall, employment has been emphasized as one of the factors affecting population stability in rural settlements. Also, the results of this part of the research are not consistent with the domestic research by Soroush (2015).

Suggestions

1 - Entrepreneurship development and employment creation in sample villages through development of other economic sectors other than agriculture and livestock farming (solar and wind power plants, mining industry, handicrafts, geotourism etc.).

2 - Diversification of job opportunities and increased income and employment and reduced unemployment through the development of handicraft workshops and home businesses.

3 - Establishment of industrial estates and regions in talented villages and development and strengthening of complementary and conversion industries, especially strategic agricultural products of saffron, barberry, and jujube.

4 - Dredging and repair of aqueducts, establishment of agricultural water pools, creation of agricultural greenhouses, establishment of barberry and jujube packaging workshops, livestock production complexes such as dairy cattle complex, light and heavy livestock fattening (lamb, cow and calf) and handicraft workshops especially spinning and weaving in the villages under study, particularly Golunabad and Asnan, greatly help to stabilize the population in these villages.

5 - Training the handicrafts of carpet weaving, towel weaving, carpet tableau, basket weaving and cloth weaving, greenhouse complexes, towel weaving workshops, brick-baking and pottery workshops, and creating fish farming pools in the villages under investigation, especially Alqar and Ruqayya Abad.

6 - The establishment of Dehyaran Cooperative in Siskan and Ruqayya Abad villages and the creation of workshops on embroidery, sewing, towel weaving, traditional bread-baking, removing barberries, fish farming pool, processing and production of distillates from medicinal

plants such as jujube, barberry, thyme, cumin, wild thyme, yarrow, etc.

7 - Training and promotion of agricultural jobs that require little water, such as barberry planting, silkworm production, honeybee, industrial aviculture (broiler and laying hens), the establishment of a wind power plant due to being in the direction of air corridors and 120-day winds of Sistan, workshops on mulberry drying and packaging of mulberry, barberry, jujube, handicrafts and infrastructure development needed for investment in the tourism sector in Behdan and Roshnavand villages through providing low-interest and long-term facilities can help population stability in these villages.

8 - Creating livestock farming complexes (light and heavy), broiler aviculture, turkeys, establishing dairy and milk collection centers, changing cultivation patterns and using new irrigation methods, strengthening and developing workshops on towel weaving, carpet weaving and dried fruit packaging industries (mulberry, apricot, barberry and plum), developing telecommunications infrastructure, water supply, healthcare and treatment, gas supply, bakery, bank post offices and fuel station in Naqenj and Khazan villages increase employment and income and lead to population stability in these villages.

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