

# Research Paper: Assessing the COVID-19 Pandemic impact on the Sustainability of the Tourism Economy (Case Study: Tourism Target Villages of Zanjan Province, Iran)

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## ABSTRACT

**Purpose:** The present study aims to assess the COVID-19 pandemic on the second home economics in the tourism target villages of Zanjan in northwest Iran.

**Methods:** The current research is applied and descriptive-analytic, using a questionnaire for the understudied villages. The statistical population includes the tourism target villages of Zanjan province. Due to the limitation of time and cost, the spread of Coronavirus, etc., only one sample from each region was selected for a comprehensive study. Based on the Cochran formula (assuming p and q equal 0.5), 327 out of 2690 households of sample villages s were selected, and the questionnaire was r distributed using simple random sampling. As some families were uncooperative with us due to the COVID-19 outbreak, 270 questionnaires were completed for the statistical analysis.

**Results:** The results of the one-sample t-test demonstrated that the indicators of "influence on the sustainability of tourism activities" (2.11) and "influence on income ad its diversity in tourism sectors" (2.28), respectively, took the highest negative impacts from the spread of the COVID-19. The results of the retrospective analysis of the pre-and post-COVID-19 pandemic periods showed that the indicators of "influence on non-monetary indicators of household welfare" (-14.230), "job opportunities in tourism" (-14.202), and "income and its diversity in the tourism sector" (-14.143), respectively, indicates the biggest difference in the two understudied periods from the respondent's point of view. The results of the regression model demonstrated that, in total, the dimensions of tourism economy sustainability; and tourism sustainability had an overall impact of 0.428 and 0.417 on second homes based- tourism economy in the studied villages, respectively.

**Conclusion:** The results revealed that despite the negative impacts of the COVID-19 pandemic outbreak on job opportunities, income, household welfare, and the sustainability of tourism activities, its positive effects on investment indicators, tourism infrastructure, and attracting capital investments outside the village, such as landscaping, improving access and communication, and creating parking and rest areas near attractions in addition to creating and developing second homes shouldn't be ignored.

## Keywords:

Pandemic diseases, biological disasters, rural tourism, rural economy, Zanjan province

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## 1. Introduction

The rapid spread of severe acute respiratory syndrome known as COVID-19 is considered the world's deadliest epidemic outbreak that comes along with a systemic global healthcare crisis, financial crisis, and economic downturn (Fotiadis et al., 2021) that forced the World Health Organization (WHO) on March 11, 2020, to declare the global pandemic. Since then, many countries have taken extensive steps to control the outbreak and prevent healthcare and emergency services saturation. The outbreak of the COVID-19 pandemic has posed significant threats to the tourism industry and similar industries (Higgins-Desbiolles, 2020; Jamal & Budke, 2020). The domestic and international travel restrictions, along with quarantine measures and no-essential economic sector closure, were maintained by many countries. Thus, the tourism and hospitality sector must deal with a paradigm change caused not only by the current circumstances induced by the health crisis but also by the potential travel behavior changes of visitors and tourists associated with their subjectivities and perceptions (Fotiadis et al., 2021; Zoğal et al., 2022). During the pandemic, second homes have been used as a privileged escape from the big cities where the virus has spread stronger in many host tourist areas. In other words, fear of contracting the virus could lead tourists to prefer second homes over certain traditional accommodation types where physical distancing is more difficult (Domènech et al., 2019; Zoğal et al., 2022).

Rural second-home tourism is mainly connected to residents' and tourists' creativity (Sak & Oz, 2010; Kao, 2023), which can be analyzed by Janusian thinking, especially in pandemics such as COVID-19. Applying such thinking in a business environment is referred to as ambidextrous management or organizational ambidexterity, which is, in essence, the involvement of two opposites, namely, exploitation versus exploration (Vo Thanh et al., 2020; Seraphin & Dosquet, 2020). Initially, governments imposed quarantines and travel restrictions to control settlement movement; however, the outbreak of COVID-19 prompted people to migrate from big cities to the countryside and to move to second homes (Seraphin & Dosquet, 2020; Adie, 2020). The tourism industry, in general, and second homes, in particular, during the COVID-19 outbreak represented the tourism industry's Janusian characteristic<sup>1</sup> due to their ambidextrous nature

1. Albert Rothenberg has extensively studied the use of opposites in the creative process. He identified a process he terms "Janusian thinking" a process named after Janus, a

(Jamal & Budke, 2020). Hence, second homes remain both a challenge (the outbreak of COVID-19 in rural areas and the population vulnerability due to the type of communication and failure of health services) and an opportunity for rural areas (livelihood diversification through job opportunities and making money, social and private investment, etc.) (Seraphin, 2021; Séraphin & Jarraud, 2022).

During COVID-19 in Iran, enforcing restrictions, such as quarantine and movement restrictions, social distancing, and the need to practice preventative measures, has led to a significant drop in travel and population movement between rural areas and towns. Nevertheless, in this period, tourism villages grabbed the attention of rural-urban migrants. Consequently, many of those migrants became temporary residents of rural areas by renovating their old houses, constructing new homes for tourists, and family movements. Hence, the present research aims to investigate the role of the COVID-19 outbreak on the development of rural second-home tourism by rural migrants in tourism target villages of Zanjan province during that period and seeks to answer the following question:

What are the major impacts of the COVID-19 outbreak on the tourism economy of the tourism target villages of Zanjan province?

What are the impacts of the construction and development of second homes tourism in the sample villages on the rural economy?

## 2. Literature Review

Tourism, a form of growing economic activity, depends on the quantitative and qualitative linkage of urban and rural settlements on different spatial scales (Tambovceva et al., 2020; Mikhaylova et al., 2022). In such links, while the urban is presented as the archetypical space of mobility with resources, ideas, and knowledge, the rural has been associated with stability, old virtues, and idyllic myths (Nugin, 2018; Pikner et al., 2023) that are to strengthen the rural-urban linkage in the tourism development context (Novaković, 2019; Tambovceva et al., 2020). The tourism industry is extremely vulnerable to numerous factors, such as natural disasters, daises pandemics, terrorism, uprising, and so on (Zhong et al., 2021; Yeh, 2021). The social crises of the COVID-19

Roman god with two faces, each looking in the opposite direction. Janusian thinking is the ability to imagine opposite or contradictory ideas, concepts, or images existing simultaneously in our minds (Vo Thanh et al., 2020).

outbreak (Jones & Comfort, 2020) led to massive and temporary urban-rural migration, which shaped general tension in economic and social debates in rural areas (Gallent, 2020; Pitkänen et al., 2020). On the one hand, the rural areas had to deal with increased population. On the other hand, these regions also faced labor deficiency due to border closures and mobility restrictions (Pikner et al., 2023).

Tourism second homes are represented as a symbol of rural-urban linkage (Czarnecki et al., 2023), in general in the form of recreational homes, holiday homes, summer homes, cottages, or weekend homes as a unique element of tourism and contemporary mobility (Häkkinen et al., 2022a; Häkkinen et al., 2022b). They are normally used for a limited period and for recreational purposes (Czarnecki et al., 2023; Alonsopérez et al., 2022). The origins of second homes date back to ancient societies, and their meaning has evolved depending on time, region, and culture (Zoğal et al., 2022). So, today's rural tourism second homes represent the authentic lifestyle of urban classes' entertainment development in rural areas (Einali & Romyani, 2015; Cocola-Gant, 2018). The driving factors that push people to buy a second home are diverse, such as People's desire to be in nature and to reach geographical and cultural attractions that are not available in their primary residential areas (Zoğal et al., 2022; Terzi et al., 2020). It also refers to escaping the urban density and pollution (Åberg & Tondelli, 2021; Smith et al., 2021), searching for an ideal life in rural areas (Yin et al., 2022; Streifeneder et al., 2022), investing to make a profit (Katsinas, 2021; Sulak & Türk, 2022; Clancy, 2022).

Rural second-home tourism, similar to other types of tourism, strengthens the urban-rural economic linkage, enhances the capital flow, such as job creation and diversification, income-generating for small businesses, namely grocery stores, restaurants, service and entertainment companies, and so on (Pitkänen et al., 2020; Slätmo & Kristensen, 2021). Second homes are sometimes, and increasingly, seen as an investment tool that is offered to tourists for short-term rental (STR) platforms rather than used by its owners in rural areas (Katsinas, 2021; Clancy, 2022; Jover & Cocola-Gant, 2023). In fact, in the context of ever-growing tourism mobility, the investment in second homes has lower risk than hotels because of their lower depreciation values and management and maintenance costs (Zoğal et al., 2022). Therefore, the emergence of the so-called "sharing accommodation platforms" has allowed second homeowners to benefit from their homes and extract profits from the tourist market (Domènech et al., 2019;

Pikner et al., 2023). However, the number of homes offered on these platforms is growing rapidly, indicating a professionalization of these platforms (Gutiérrez & Domènech, 2020). In other words, large investors purchase housing packages to offer them as short-term rentals, which demonstrates housing is becoming increasingly commodified (Pitkänen et al., 2020; Cors-Iglesias et al., 2020). The COVID-19 pandemic is the most recent social issue affecting the meaning of the "second home" concept (Zoğal et al., 2022). Therefore, a mix of second home investment, expanded demand for holiday letting, migration to exploit flexible-working opportunities, and home buying for early retirement significantly impact tourism villages worldwide due to the COVID-19 pandemic (Gallent et al., 2022). In the early stages of the COVID-19 pandemic, owners of second homes saw them as an escape from urban areas where the spread of the virus was advancing faster (Pitkänen et al., 2020). As suggested by tourism literature, many countries have tried to control COVID-19 through prevention strategies, such as travel restrictions, quarantine, and social distancing (Hussain et al., 2022; Lin et al., 2021); such strict policies adopted by governments deeply affected the mobility of second home in rural areas (Adey et al., 2021). Hence, second home use has been expanded from recreational and tourism purposes to "shelter from pandemics" (Adey et al., 2021; Zoğal et al., 2022; Mackenzie & Goodnow, 2021) and "place for privileged teleworking" (Zoğal et al., 2022; Pitkänen et al., 2020).

According to the literature review, during the COVID-19 outbreak, second-home tourism in rural areas has grabbed the attention of researchers. For example, the findings of (Zoğal et al., 2022) showed that in the early stages of the pandemic, second-home owners migrated from crowded cities to low-density areas, which intensified the existing processes of commodification of housing, empowering accommodation platforms and situating the potential for profiteering around the tourist rental market. Moreover, the findings of Pikner et al. (2023) indicated that the mobility restrictions and disturbances triggered by the Covid19 pandemic attributed certain demands and hopes to rural areas and led to the shift in rural-urban interactions. Further, the high demand for second homes in rural areas has increased house prices, putting huge pressure on pastoral resources, infrastructure, and social differences. The findings of Gallent (2020) & Pitkänen et al. (2020) in East Europe demonstrate that the social crises of the COVID-19 outbreak have led to massive and temporary urban-rural migration, which shaped general tension between the host community and tourists as well as intensifying eco-

conomic challenges in rural areas. The studies of Nugin and Kasemets (2021) in Finland and Plüschke-Altöf et al. (2020) in Estonia showed that temporary migration and second home ownership in rural areas is considered a new job diversification strategy (such as remote work, working based on a specific work cycle) and increasing residents' revenue. So that before the COVID-19 outbreak in both countries, foreign laborers represented a large share of the rural labor force, especially in hot seasons with the imposed restrictions it faced problems and was compensated with a higher level of wages paid to the local labor force. The results of (Czamecki et al., 2023) indicated that for many second-home owners, its usage pattern became more common as they stayed longer, working remotely or commuting.

Åberg and Tondelli (2021) in Sweden concluded that increased usage of part-time housing had enhanced the supply of services and infrastructure, and improving rural-urban linkage can be seen as a path to achieve a rural renaissance beyond temporary tourism. Smith et al. (2021) have acknowledged offering accommodation services and tourism homes in rural areas through low-cost tourism, a driver for escaping the urban density and pollution, besides providing economic benefits for rural areas, offers unique individual experiences. Katsinas (2021) introduced tourism second homes in rural areas of Thessaloniki as a cooperative investment by non-locals with the aim of short-term rentals to European tourists leading to the gentrification of housing and rural tourism services by the involvement of investors in post-COVID-19. Investigating the Irland experiences, Clancy (2022) concluded that second-home tourism in rural areas of Dublin plays a crucial role in reducing the impacts of short-term urban rentals that contribute to a reduction

in hotel demand and urban homes. The results of (Galient et al., 2022) show that in Wales, an amenity area with good connectivity to several major urban centers and, therefore, sources of extra-local housing demand focusing on second home buying is considered a leading element of extra-local pressure with socio-economic impact in amenity areas.

Streifeneder et al. (2022) in Italy acknowledged tourism development in rural second homes as a leading factor in the commercialization of agriculture and commodification of rural culture so that most farms are encouraged to provide accommodation services and earn money through allocating a part of their area. Yin et al. (2022) correlate second-home tourism in rural areas of China with offering facilities such as immersion in nature, connection with history, a sense of ease in interpersonal relationships, and engagement with the true self and inner freedom that provided rural tourists with home experiences and introduce rural second home experiences, mainly inner feelings that manifest as identity awakenings and senses of belonging and are also a manner of dwelling in the world. The results of Seraphin & Dosquet (2020) in France showed that the pandemic outbreak directed attention to second-home tourism and mountain tourism. In Romania, Popescu & Plesoianu (2021) demonstrated that during the COVID-19 pandemic, tourist arrivals in accommodations and agritourist guesthouses registered a higher growth rate than at the national level. During the COVID-19 outbreak, Poland witnessed significant growth in recreational activities on the farm and in outdoor, rural cottages, and second homes (Wojcieszak-Zbierska et al., 2020; Roman & Grudzień, 2021).

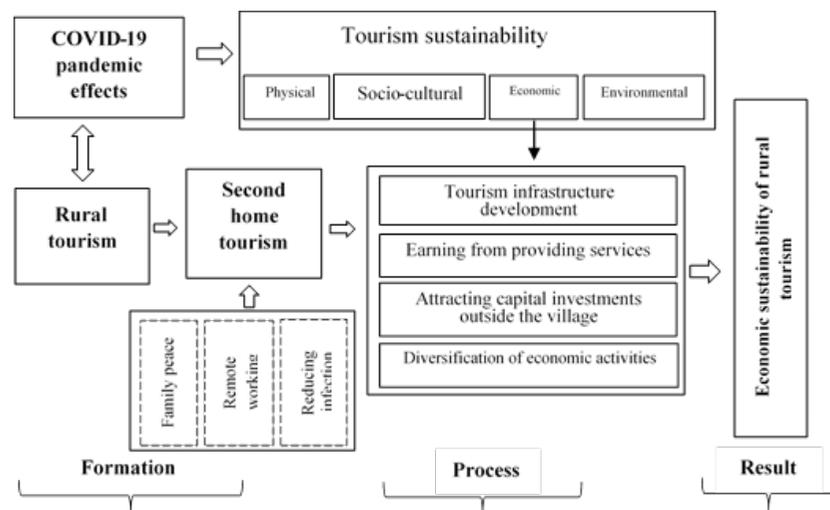


Figure 1. Conceptual model of research

### 3. Methodology

According to Table 1, the current research is applied, adopting a descriptive-analytical method based on data collection, using a closed questionnaire by a 5-point Likert scale (1= very low, 2= low, 3= moderate, 4= high, 5= very high). The validity of the research was assessed based on the opinion of experts and using a pre-test as well as completing 40 questionnaires. The reliability of the items was obtained at 0.862 using Cronbach’s alpha coefficient. One-sample t-test (analyzing the desirability of indicators), retrospective analysis based on the Wilcoxon test (investigating the changes in a pre-and post-COVID-19 pandemic), Regression test, and path analysis (examining the intensity and direction of the impacts of the COVID-19 outbreak on rural tourism economy) were used to analyze questionnaires data.

The statistical population includes the tourism target villages of Zanjan province, selecting only one sample from each town for a comprehensive study due to the limitation of time and cost, the spread of Coronavirus, etc. Thus, the sample villages are as follows: Papai (Zanjan Township), Shit (Tarom Township, Darsajin (Abhar Township), Sonbol Abad (Soltaniyeh Township), Su Kahriz (Khoramdareh Township), Golabar-e Sofla (Ijrud Township), Zarand (Khodabandeh Township), and Behestan (Mahnesan Township) (Figure 2).

According to the population and housing census in 2016, the population of the selected villages was 8812 and 2690 households. According to the Cochran formula (assuming p and q equal 0.5), 327 household heads of the permanent residents of these villages were selected as the sample size, by which 270 questionnaires were completed as the basis of statistical analysis (Table 2).

Table 1. Research indicators and items

Indicators	Items	
Job opportunities	Motivation to improve work conditions and activities in tourism, the desire to continue working in tourism and related services, development of handicrafts and home jobs for rural women, tourism-related activities (selling products, food catering, etc.), impact on part-time jobs (especially for women and youth), quitting jobs for fear of infection, etc.	
Income and its diversity in village	Direct selling of local products to tourists and travelers, access to consumer market outside the village, the farm, and Agritourism development, impact on activities productivity and creating added value, producing and selling handicrafts and local heritage, processing of local products’ development (drying fruits, making jams, etc.), impact on wages due to a reduction of activities, spoilage of local products, especially in the agriculture sector, etc.	
Investment	Second homes	Rehabilitation of current and old houses by non-residents, constructing second homes in villages by non-residents, renting home or room for tourism, expanding villages’ villas, allocating part of farmlands to accommodation services, and developing the village’s tourist accommodations.
	Tourism infrastructure	Investment in tourism infrastructure by local institutions, preparing a site for camping and parking, providing toilets, providing night-lightening, preparing a place for local festivals.
	Businesses	Fostering job creation among families, government institutions’ financial support for local businesses, providing advice to locals, supply chain and local products’ marketing.
Sustainability of economic activities	Supply network of primary materials to offer services to tourists, ability to repay rules, debts, and financial obligations, the impacts of social distancing on increasing costs of production, the effects of quarantine and social distancing on low rate of reception and accommodations, leaving a gap in the development of transformational tourism-related industries, temporary and permanent closure of tourism businesses, and promoting innovation in providing online services.	
Influence on the sustainability of tourism activities	Impact on tourists’ transportation services, closure or delay in the local and agricultural festivals, decreased demand for local products due to market dysfunction, reduction of production units in the tourism sector, and labor shortage for fear of disease transmission	
Non-monetary effects on household welfare	Fear of losing jobs, increase in economic and social services inequalities in villages, impact on consumers goods and household substances, increased cost of household items, increasing gender inequality in economic activities, failure to pay the insurance and social support, suspension of tourism training, drop in purchasing power due to rising costs and low income	

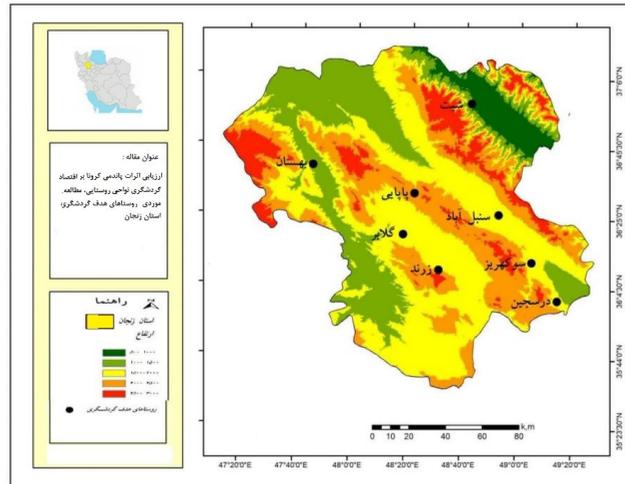


Figure 2. Understudied tourism villages of Zanjan province



Table 2. Research’s sample villages

Township	Village	Household	Sample	Township	Village	Household	Sample
Zanjan	Papai	159	20	Khoramdareh	Su Kahriz	786	80
Tarom	Shit	284	36	Ijrud	Golabar	725	80
Abhar	Darsajin	125	16	Khodabandeh	Zarand	261	40
Soltaniyeh	Sonbol Abad	218	35	Mahnesan	Behestan	132	20
total						2690	327



#### 4. Findings

According to the respondents’ characteristics (household heads of rural residents of understudied villages) of the research questions, from the 270 samples, 37% were in the age group of 20-30 years old, 23% in the age group of 31-40, and 35% in the 41-50 years. 6% were also above 50 years. Further, the highest number of respondents that is 35%, had secondary education, and 80% were male. Regarding the occupation of the sample community, 73% of them were active in agriculture, and 68% were married. The status of respondents’ residential history in villages indicates that 13% had less than ten

years of residence, and 87% had ten years of it or more in the village. Moreover, 35% of respondents had rented a house or room to tourists, 4% made earnings through catering services, and in addition, 68% through selling products to tourists (Table 3).

According to the findings of the study, the research indicators based on the influence of second-home tourism are classified into five forms 1- job opportunities, 2- income and its diversity in the village, 3- investment and capital attraction, 4- sustainability of economic activities, and 5- non-monetary effects on household welfare.

Table 3. Research respondents’ characteristics

characteristic	Highest number	Percentage	characteristic	Highest number	Percentage
residential history	10 years or more	87	Age group	20-30 years	37
	Renting of house/room	35	Education	Secondary	35
Activities in tourism	Catering services	40	Primary job	Agriculture	73
	Product sales	68	Sex	Male	80



One-sample t-test was used to analyze the desirability of indicators of the COVID-19 pandemic's impacts on the rural economy, emphasizing rural tourism using a theoretical foundation and examining the studies of research indicators based on the abovementioned categories. The results of Table 4 show that regarding the range of COVID-19 pandemic impact on rural tourism activities in target villages of Zanjan which varies from 1 to 5 based on the Likert scale, from the respondents' point of view, the calculated mean of the indicator of "influence on the sustainability of tourism activities" regarding using items such as supply network of primary materials to offer services to tourists, ability to repay rules, payment of financial and debt obligations, the impacts of social distancing on increasing costs of production, the effects of quarantine and social distancing on low rate of reception and accommodations, leaving a gap in the development of transformational tourism-related industries, temporary and permanent closure of tourism businesses, and promoting innovation in providing online services, Influence on tourists' transportation services, closure or delay in the local and agricultural festivals, decreased demand for local products due to market dysfunction, reduction of production units in the tourism sector, and labor shortage for fear of disease transmission with a mean of 2.11; the indicator of "influence on income and its diversity in rural tourism sector" regarding using items such as direct selling of local products to tourists and travelers, access to consumer market outside the village, farm and agri-tourism development, impact on ac-

tivities productivity and creating added value, producing and selling handicrafts and local heritage, processing of local products' development (drying fruits, making jams, etc.), impact on wages due to a reduction of activities, spoilage of local products, especially in the agriculture sector with a mean of 2.88; the indicator of "non-monetary effects on household welfare" concerning the items including fear of losing jobs, increase in economic and social services inequalities in villages, impact on consumers goods and household substances, increased cost of household items, increasing gender inequality in economic activities, failure to pay insurance and social support, suspension of tourism training, drop in purchasing power due to increasing costs and low income with a mean of 2.66, and the indicator of "enhancing job opportunities in tourism" regarding using items such as motivation to improve work conditions and activities in tourism, the desire to continue working in tourism and related services, development of handicrafts and home jobs for rural women, tourism-related activities (selling products, food catering, etc.), impact on part-time jobs (especially for women and youth), quitting jobs for fear of infection with a mean of 2.85 ,respectively, had the most negative impact on target villages since COVID-19 pandemic outbreak. In other words, looking at the t-value, the difference at the optimal level, in addition to upper and lower limits, it can be said that it had a negative direction of influence, and indicators show a significant difference at a 99% level.

**Table 4.** Significance of difference at an optimal level of the COVID-19 outbreak influence on rural second homes tourism

Components	Test value= 3						95% Confidence Interval of the Difference	
	Mean	T	df	Sig. (2-tailed)	MeanDif-ference	Lower	Upper	
	Job opportunities in tourism	2.8525	-4.712	269	0.000	-0.1475	-0.2092	-0.0859
Income and its diversity in the tourism sector	2.2824	-22.693	269	0.000	-0.71759	-0.7798	-0.6553	
Investment and capital attraction	3.5395	15.753	269	0.000	0.53951	0.4721	0.6069	
Sustainability of tourism activities	2.1124	-76.227	269	0.000	-0.88757	-0.9105	-0.8846	
Non-monetary Indicators of household welfare	2.6626	14.866	269	0.000	-0.33741	-0.3821	-0.2927	



According to the indicators utility analysis results, the salient point concerning the indicator of “investment and capital attraction in the village” using items such as investment in tourism infrastructure by local institutions, attracting new capital in the village through developing tourism accommodations, development of second home construction by non-local people and rehabilitation of current houses, etc., fostering job creation among families, government institutions’ financial support for local businesses, supply chain failure and local products’ marketing, etc. with a mean of 3.54 is that this is the only indicator with a positive influence from the COVID-19 outbreak. With the conversation that took place with rural officials in the tourism target villages, the reason for this turned out to be as a result of renovation and rehabilitation of old rural houses, development of family gardens to spend their leisure time, allocation of some area of lands to offer services to tourists and travelers, development of second home construction, improving public infrastructure, and so on. So that the interprovincial travel ban, decline in foreign trips, general public quarantine, etc., attracted the investment of urban families in the understudied tourism villages.

**Retrospective analysis of the indicators of second home tourism development in target villages**

Table 5 shows the results of the retrospective analysis based on the Wilcoxon test to compare the differences in economic indicators in the pre-and post-Covid-19 pandemic that was a result of adopting policies to reduce travels to rural areas such as general public quarantine and the importance of observing social distancing. The results demonstrated that according to the z-score for the five mentioned indicators, the indicators of “influence on non-monetary indicators of household welfare” with

a z-score of (-14.230), “job opportunities in tourism in sample villages” (-14.202), “income and its diversity in the rural tourism sector” (14.143), “influence on the sustainability of tourism activities” with (-5.754) indicate a significant difference during the two periods in the viewpoint of respondents.

Furthermore, the investigation of the indicators’ range of rank average indicates that indicators of job opportunities, income, and its diversity, and non-monetary aspects of the household welfare are mainly inclined to the pre-COVID-19 pandemic while the two indicators of the sustainability of tourism activities and investment and capital attraction in villages, the rank average is inclined with a slight difference to the post-pandemic period. Further, as explained by the cardinal utility analysis, the indicator of “investment and capital attraction in the village” show no significant difference between the two mentioned periods.

**Structural Equation of the Impacts of the COVID-19 Outbreak on the Second home-based tourism Economy**

The model with the variables of the second home-based tourism economy and a long with the dimension of COVID outbreak impacts is presented in the Diagram of Figure 3.

The data model explains the 1 degree of freedom. Indeed, the degree of freedom is the sample size minus the number of sample moments. Moreover, according to the goodness of fit criteria presented in Table 6, the normalized Chi-square is near 1, indicating that the model is a good fit.

**Table 5.** Significance test of the difference between pre-and post-COVID-19 outbreak in rural economy in sample villages

Impacts of second home tourism in rural areas	Component	Period	Mean	Standard deviation	z-score	Significance level
	Job opportunities in tourism		Pre	4.0969	0.32513	-14.202
		Post	2.8525	0.51405		
Income and its diversity in the tourism sector		Pre	3.9464	0.47364	-14.143	0.000
		Post	2.2824	0.51959		
Investment and capital attraction		Pre	3.5457	0.53596	-1.492	0.136
		Post	3.5395	0.56275		
Influence on the sustainability of tourism activities		Pre	3.5457	0.53596	-5.754	0.000
		Post	3.7059	0.74187		
Influence on non-monetary indicators of household welfare		Pre	3.6201	0.51755	-14.230	0.000
		Post	2.6626	0.37293		



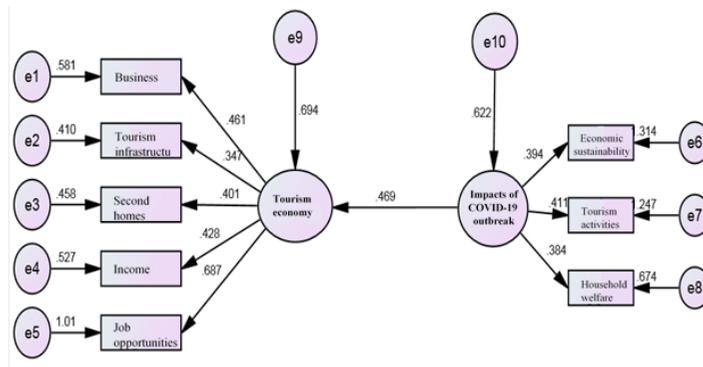


Figure 3. Structure model of the impacts of the research indicators on the tourism economy



Table 6. Model fitting based on the structural equation of test scores

Goodness-of-fit measure	Recommended value	Structural model (result)
$\chi^2$ test statistic/df	3.000 $\geq$	1.74
GFI	0.900 $\leq$	0/971
AGFI	0.900 $\leq$	0/962
CFI	0.900 $\leq$	0/976
NFI	0.900 $\leq$	0/980
RMSEA	0.080 $\geq$	0/000
SRMR	0.050 $>$	0/000
TLI	0.900 $\leq$	0/992

Source: Research findings, 2022



Levels of estimation, impact coefficient of total effects, and direct and indirect effects (components) are presented in the following Figure. A positive coefficient indicates the direct relationship between the dependent and independent variables. In other words, a one-unit increase in the independent variable causes a change in the dependent variable. Thus, analysis of the regression model indicates that the dimensions of sustainability of the tourism economy and sustainability of tourism activities had total effects of 0.428 and 0.417 on the second home-based tourism economy, respectively (Table 7).

According to all the measurements and estimations in the SEM approach, it reverts to the variance-covariance matrix of the observed variables and their decomposi-

tion. Thus, by using the parameters observed variance-covariance matrix can be reproduced. Variance and covariance show the path model in research. All regression weights are greater than zero with a 90% confidence interval or more. This indicates a significant relationship between observed variables. First, eleven one-factor confirmatory factor analysis models were drawn in Amos graphics software to produce and measure the validity of the second home-based tourism economy subscales. Path diagrams of the tourism economy are based on the indicators with observed variables and the standardized regression estimates, chi-square index, and significance level. Table 8 shows the standardized estimates of path coefficients along with critical ratio, standard error, and significance level.

Table 7. Impacts of the Coronavirus Outbreak on second home-based tourism economy

Total effects	Indicator indirect effects	Indicator direct effects	Indicators
417/0	221/0	196/0	Sustainability of tourism activities
378/0	167/0	211/0	Household welfare
428/0	174/0	254/0	Economic sustainability



**Table 8.** Estimating the values of standardized estimates and significance level of factor loadings

Component	Dimension	Estimate	S.E.	C.R.	P
Sustainability of tourism activities	Business	.159	.120	2.060	***
	Tourism infrastructure	.118	.114	3.831	***
	Second homes	.185	.025	1.465	***
	Income	.272	.035	3.827	***
	Job opportunities	.274	.027	1.574	***
Household welfare	Business	.140	.028	1.240	***
	Tourism infrastructure	.213	.041	2.584	***
	Second homes	.158	.031	5.060	***
	Income	.118	.035	3.072	***
	Job opportunities	.347	.037	2.624	***
Economic sustainability	Business	.314	.045	1.422	***
	Tourism infrastructure	.285	.033	1.823	***
	Second homes	.211	.037	2.181	***
	Income	.255	.022	2.405	***
	Job opportunities	.261	.042	4.258	***

Source: Research findings, 2022



## 5. Discussion

The rapid spread of COVID-19, regarded as a biological disaster, negatively impacted the rural tourism economy since tourism relies on the movement of people in geographic areas. Given that, adapting preventative policies while taking extensive steps such as travel restrictions, quarantine, and social distancing to prevent and confront the spread of COVID-19 led to the closure of non-essential economic sectors; as a consequence, the tourism and hospitality sectors were deeply affected by these policies. During the pandemic, second homes have been used as a privileged escape from the big cities where the virus has spread stronger in many host tourist areas.

The results suggest that the outbreak of the COVID-19 pandemic in tourism villages of Zanjan province hurt job opportunities, tourism income, non-monetary indicators of household welfare, and sustainability of tourism activities that are in line with the findings of [Pikner et al. \(2023\)](#), [Gallnet \(2020\)](#), and [Pitkänen et al. \(2020\)](#). Furthermore, the regression model indicates the influence of the second home-based tourism economy in the sustainability dimension of tourism activities and the economy in rural areas that are significantly affected by foreign private investment. The COVID-19 outbreak has increased investment in tourism infrastructure by the government and local institutions, namely, landscaping, improving access and communication, and creating

parking and rest areas near attractions. Moreover, an increase in the urban groups and individuals' tendency to protect themselves and their families from the adverse effects of COVID-19 in urban areas made them buy or construct second homes in tourism villages of Zanjan province. These people with rural roots transferred part of their property into old house renovation, bought real estate, and constructed tourism houses to move to the village with their families temporarily. Therefore, the increase in infrastructure investment as well as second-home tourism ownership above the approach of rural housing commodification and investment in villages is mainly in line with the finding of [Zogal et al. \(2022\)](#), [Gallent \(2020\)](#) and [Pitkänen et al. \(2020\)](#), [Åberg & Tondelli \(2021\)](#), and [Streifeneder et al. \(2022\)](#). Notably, developing second-home tourism construction and ownership has offered local job opportunities to make the local economy prosper and flourish in tourism villages.

According to the findings, practical recommendations are as follows:

Regulating the expansion of second homes tourism in target villages through local planning

Attempting to diversify the local economy by providing technical and professional training in tourism to rural households

Marketing and product promotion to attract tourists via social media advertising

Preventing unprincipled changes in land use through local institution empowerment

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## Conflict of Interest

The authors declared no conflicts of interest.

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