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Article

Investigating the reasons for urban citizens' intention to return to their village

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Abstract: Rapid urbanization and rural migration, particularly in the last 20 years, have revealed several urban problems, including unemployment, housing, and transportation issues in Türkiye. Meanwhile, developments in transportation, communication, health services, and mechanization in agriculture have increased the attractiveness of clean and healthy rural areas. The main objective of this research was to determine the factors affecting the intentions of people whose families migrated to urban areas over the last 30 years to return to the countryside. Data collection method included questionnaires completed by citizens residing in three central districts of the Samsun Province, Türkiye. Results showed that Ajzen's theory of planned behavior (with two additional constructs) can explain the factors influencing individuals' intentions to migrate from urban areas to rural areas. 'Attitudes', 'subjective norms', 'perceived behavioral control', better rural services, and agricultural characteristics were the constructs that had a major impact on people's intentions. Policy-makers and other stakeholders should consider these factors to manage reverse migration effectively.

Keywords: urban-rural migration; rural migration; rural development; inverse migration; theory of planned behavior; village life

1. Introduction

In 1923, when Atatürk founded the new Republic of Türkiye, 80 % of the population lived in villages; this ratio fell to 7.2 % in 2020, indicating a continuous rural-urban migration [1]. The development of the industry and services sectors has been faster than that of the agricultural sector, leading to developmental disparities between rural and urban areas [2]. The inability to develop agriculture-based industries and off-farm employment opportunities puts pressure on rural people to survive on smaller agricultural lands, which have been divided due to rapid population growth [3]. On the other hand, industrialization created a significant demand for labor, which was met with workers recruited from rural areas. Since the 1950s, the excess labor supply in the countryside has been accompanied by other socioeconomic problems and has caused a push factor for migration from the countryside to big cities [4,5].

When examining the causes of urbanization in Türkiye, a grouping is made as economic, socio-psychological, technological, political, and legal reasons. Economic reasons are divided into two groups: Push factors and pull factors. The push factors have been the reasons arising from the deprivation of rural areas caused by a lack of agricultural infrastructure and insufficient income from farming. Although the adoption of modern agricultural technologies and the use of advanced farm machinery

and inputs increased productivity, the division of rural lands among heirs due to 'the equal inheritance law' (all properties are equally distributed among children regardless of gender and occupation) reduced farming lands to provide an adequate livelihood for the subsistence farmers. For this reason, rural people began to migrate to the cities [6–9]. Pull factors are opportunities the city offers rural populations, such as better employment, entrepreneurship, and a variety of services. Developing towns, cities, and metropolitan areas have provided diversity both for individual workers to have permanent jobs and for entrepreneurs to establish their own businesses. The development of physical, economic, and human resources in these places stimulated innovations and improvements in science, technology, business, and industry. Besides, socio-psychological changes have emerged; these rapid developments have brought significant differences in living standards and lifestyles between the city and the village. The migration of individuals from rural to urban areas is often perceived as an elevation in status, facilitating access to superior possibilities and alleviating feelings of inferiority [10,11]. For these reasons, socio-psychological factors such as the pursuit of better education, health care, and social and cultural activities attracted rural people to migrate to cities where they can access these services more easily than in villages.

Rapid urbanization led to the conversion of agricultural land surrounding cities for the construction of buildings, an increase in population, the emergence of new enterprises and job possibilities owing to industrialization, a decline in agricultural and related activities, and the evolution of urban culture. Therefore, the factors that have changed in the transition from rural to urban are land use, population, economic activities, and culture. Since the process of urbanization and migration from rural to urban areas in Türkiye has not been driven by well-planned and well-implemented programs, it has brought many unresolved problems in urban and suburban areas. Among these are unemployment, lack of infrastructure, sectoral development gaps, housing, and accommodation. At the same time, due to rapid urbanization, natural areas, agricultural lands, and historical sites around cities have been allocated for housing, transportation, and industrialization [12]. Furthermore, the inability to implement long-term urbanization strategies for cities has led to inadvertent actions, haphazard housing development, insufficient social and cultural infrastructure, traffic and parking issues, inadequate pedestrian pathways, commercial hubs, and recreational spaces [13–15].

Particularly over the last two decades, the agricultural sector and rural areas of Türkiye have faced unprecedented developments. Transportation, drinking water, health care, and housing problems have been solved to a great extent. Renewable energy resources have become effectively used in agriculture. The fragmentation of agricultural enterprises has decreased significantly through 'land consolidation' and 'cadastre' studies (A comprehensive recording system that ensures the ownership and borders of land parcels). Irrigable agricultural areas have increased with the building of new dams and irrigation systems. Communication facilities have developed so rapidly that almost no village is left without an internet connection. In addition to agricultural activities, stone processing, metalworking, woodworking, soil processing, glasswork, handicrafts, weaving, ornamentation, and floriculture, inland fisheries, mushrooming, beekeeping, and rural tourism activities have developed significantly

[16]. All of these favorable changes have increased the attractiveness of rural areas to urban citizens, particularly to those who originally migrated from villages to cities, who are tired of the boring environment and stressful life in the cities, and who continue ties with rural.

Research conducted on those who have migrated from the city to the village showed that these are mostly people who have worked for a long time in European countries such as Germany, France, and the Netherlands, as well as in major cities in Türkiye. When the reasons for reverse migration are examined, the most common responses are the individuals' longing for their hometowns and their retirement. In addition, the desire to distance themselves from the city's density, their interest in the village's natural life, the desire to achieve better living conditions, the desire to operate their own land in the village, and the desire to benefit from the government's agricultural subsidies affect their reverse migration [17].

According to the latest data from TÜİK, the number of citizens who have relocated within Türkiye is 2.6 million, which is 3.13 % of the total population. However, the vast majority of these migrations are not from large cities to rural areas but rather involve migration between cities. Despite the absence of national statistics on the number of migrants from rural areas to cities, in recent years, due to the problems experienced in cities and developments in rural areas, the visibility of reverse migration has increased. A new type of migration, particularly from metropolises to small towns and rural settlements, has emerged [18].

1.1. Literature review, theoretical background, and hypotheses

To explain psychological factors influencing individuals' intentions and behavior on different objectives, the 'Theory of Reasoned Action' was developed by Ajzen [19]. This theory served as the foundation for the "Theory of Planned Behavior", including the perception of 'behavioral control' as another determinant of individuals' decisions or behavior. Effectively used by many scholars, this theory states that individuals show intention or engage in specific behavior, taking into account their beliefs about this intention or behavior, and expect positive outcomes after engaging in the behavior [19–24]. This is achieved by including beliefs about having the necessary equipment and possibilities to perform a particular behavior. People should feel more in control of their actions if they believe they have more equipment, resources, and opportunities. As with 'behavioral beliefs' and 'normative beliefs', it is necessary to separate these 'control beliefs' and consider each of them as separate determinants influencing the intention or action [25].

To explain the role of psychological factors influencing urban citizens' intentions of migrating back to the village, two more constructs, namely, improved rural services and agricultural factors, were added to the TPB model. A total of nine constructs determined the intentions of urban citizens, whether to perform an activity of migrating back to their village.

1.1.1. Beliefs

According to the TPB model, individuals' intention or inhuman behavior is driven by three salient beliefs: (1) 'behavioral beliefs', (2) 'normative beliefs', and (3) 'control beliefs', which are assumed to be the predominant determinants of individuals'

intentions and behavior. While 'behavioral beliefs' develop positive or negative attitudes toward intention and action, 'normative beliefs' include the main indicators of the 'subjective norms' or the societal coercion perceived, and finally, 'control beliefs' influence individuals' perceptions of behavioral control, which can show how simple or difficult people perceive the behavior to be. When 'attitudes,' 'subjective norms,' and 'perceived behavioral control' combine, a behavioral intention is created that encourages people to participate in a specific activity.

To develop belief constructs for new contexts and populations, Ajzen et al. [19] suggested elicitation of new sets of beliefs and salient referents. Accordingly, belief constructs for this study were developed by a focus group study, using the elicitation method. Earlier research by Cheng et al. [26–28] also used this method to develop their own salient beliefs and referents. The focus group for this study consisted of 10 urban citizens who had planned to return to the village for different reasons, and was guided by the researchers and migration experts. Having discussed the issue extensively and reviewed a wide range of related literature, the focus group developed a questionnaire that covered the basic components of the nine constructs to search for individuals' intentions to migrate back to the village. The belief construct consisted of 12 items for beliefs (six items for behavioral beliefs (BB), four items for normative beliefs (NB), and two items for control beliefs (CB)); and 12 items for evaluation components (six items for outcome evaluation (OE), four items for 'motivation to comply' (MC), and two items for 'perceived power' (PP)). The six-item BBs were evaluated with a 5-point Likert scale, between 'strongly disagree' (1) and 'strongly agree' (5) range. OE of BBs was measured with corresponding questions regarding each BB item from 'not important at all' (1) to 'extremely important' (5) range. The four-item NBs were assessed with a 5-point Likert scale, from 'strongly disagree' (1) to 'strongly agree' (5) range. 'Motivation to comply' (MC) with NBs was measured with corresponding questions from the 'extremely unlikely' (1) to 'extremely likely' (5) range. Finally, the two-item CBs were evaluated with a '5-point Likert scale' between 'strongly disagree' (1) and 'strongly agree' (5) range. 'Perceived power' (PP) regarding CBs was measured with corresponding questions from the 'strongly disagree' (1) to 'strongly agree' (5) range. Three constructs were generated utilizing the belief items and their evaluative components. ΣBBiOEi (Behavioral beliefs multiplied by Outcome evaluation), ΣNBjMCj (Normative beliefs multiplied by Motivation to comply), and ΣCBkPPk (Control beliefs multiplied by Perceived power) (Figure 1).

1.1.2. Attitudes

According to the conceptual framework of the Theory of Planned Behavior, individuals' intentions and actions are formed through three separate components: 'attitudes toward behavior', 'subjective norms', and 'perceived behavioral control'. Attitudes are defined as "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" [29]. Since attitudes are not physical traits, they are not observable, but latent, hypothetical traits that can only be inferred from external, observable cues [30]. Attitudes toward an intention or behavior are determined by 'behavioral beliefs' (BB) and their 'outcome evaluations' (OE). 'Behavioral beliefs' reflect people's beliefs toward the perceived results of

involvement in a particular activity, while 'outcome evaluation' reflects people's appraisal of the consequences of acting. In our case, urban citizens could perceive clean air and a better environment, a healthier and easier life, food security, cheaper and trusted food items, and a quieter or more silent environment by migrating to the village and engaging in agricultural activities. Individuals' must assess the perceived benefits and drawbacks of returning to the village and engaging in agricultural activities before deciding to perform the behavior.

This construct was intended to measure respondents' attitudes on their migration intention to the village and engaging in agricultural activities. For this purpose, six '5-point Likert scale' endpoints were determined indicating to measure respondents' attitudes in six semantic different aspects (undesirable (1) - desirable (5), unenjoyable (1) – enjoyable (5), unsatisfactory (1) – satisfactory (5), foolish (1) – wise (5), unhealthy (1) – healthy (5), economically unviable (1) – economically viable (5)). Earlier work [26–28], as well as sociocultural and socioeconomic characteristics of respondents regarding their intention to migrate back to the village, were considered in the development process of these six endpoints.

1.1.3. Subjective norms

The second important factor predicting individuals' intentions to perform a behavior is 'subjective norms', which represents the pressure from society to take part or abstain from acting in a specific manner [29,30]. Since individuals have close relationships with their family members, relatives, social and work networks, they also consider the opinions of these referent people to some extent in the decision-making process of performing the perceived behavior. For this reason, 'subjective norms' are the consequences of 'normative beliefs' (NB) and 'motivation to comply' with these referent individuals and groups. Normative beliefs refer to the degree of approval or disapproval of individuals' perceived behavior by other referent individuals and groups they value. In the present study, subjective norms show the degree of willingness of family members, relatives, friends living in the village, and colleagues of the related individual to return to the village and engage in agricultural work. The degree of credit that an individual gives these referent people and groups after engaging in the perceived behavior is referred to as motivation to comply.

This construct was aimed to measure respondents' subjective norms toward their intention to migrate back to the village and engage in agriculture. It was measured with two '5-point Likert scale' items, including answer options from 'extremely unlikely' (1) to 'extremely likely' (5). These items were modified from [26–28] studies.

1.1.4. Perceived behavioral control

'Perceived behavioral control' is another predictor influencing individuals' engagement in particular intentions and behavior. It describes how easy or hard the behavior is thought to be. Individuals past experiences and present limitations or constraints to perform the perceived behavior influence the degree of behavioral control [29]. Accompanied by positive 'attitudes' and 'subjective norms', stronger 'perceived behavioral control' increases the likelihood of individuals to show intention or participate in the activity under consideration. 'Control beliefs' (CB) and 'perceived power' (PP) ascertain 'perceived behavioral control'. A person's prior experiences with the activity in question, the experiences of others in their immediate surroundings,

and their impression of the behavior's ease or difficulty impact on their control beliefs. The increase in resources and opportunities individuals have to perform a behavior, and the reduction of negative conditions and barriers, increase the perceived control over this behavior [30].

Four distinct five-point Likert-scale items were used to measure respondents perceived behavioral control. These items were developed considering respondents' control and determination to realize the perceived behavior, farming experience upon migration, access to agricultural resources, and self-confidence regarding the ability to live in the village and become a successful agriculturist. All of these four components were measured with a '5-point Likert scale' with answer categories of 'strongly disagree' (1) – 'strongly agree' (5).

1.1.5. Improved rural services

To determine the factors influencing urban residents' intentions to migrate back to the village, the first construct added to the TPB model was improved rural services. The 2019 statistics showed that the number of fixed telephone subscribers in the country with a population of 83 million was approximately 11.6 million, and there were 80.9 million mobile subscribers. The number of broadband internet subscribers has reached 74.7 million, including 13.6 million fixed subscribers and 61.1 million mobile subscribers [31]. Rural development programs over the last two decades focused on communication, health care, and better transportation facilities in rural areas. Accordingly, no village remained without telephone and internet access. Farmers and their families, particularly rural youth, can communicate with any person in remote areas. Türkiye's pre-hospital emergency medical services over the last 15 years have seen major improvements, and ambulance stations have been established across the country, including rural areas [32]. In the last three decades, metropolitan municipalities have included the borders of villages and districts, and activities have been carried out in terms of management, planning, and coordination in services such as transportation, real estate, and expropriation. An efficient transportation system reduces costs and prices, thereby increasing resource allocative efficiency in the economy [33,34].

Comparing the present lifestyle and conditions in rural areas with those of three decades ago, we can see many unprecedented changes. Since 2000, more emphasis has been put on sustainable livelihoods, good governance, decentralization, a broad sectoral approach, social protection, and poverty elimination [35]. In addition, the European Union (EU)'s IPARD program (International Program for Agricultural and Rural Development), a pre-accession aid tool for candidate and prospective candidate nations that manages rural development, has made significant contributions to rural development in Türkiye [36–40].

Since rural services such as communication, health care, and transportation have recently improved, providing rural residents with a more comfortable life, it was postulated that these services would attract urban citizens to migrate back to the village. Three items were developed accordingly, consisting of the improved rural services construct. These factors were measured with a '5-point Likert scale', between 'strongly disagree' (1) and 'strongly agree' (5) range.

1.1.6. Agricultural factors

Since the foundation of the Republic of Türkiye in 1923, the rural population has decreased due to migration from villages to cities. Especially in the last twenty years, rural areas have faced unprecedented changes, creating an attraction for reverse migration among urban residents. Among these changes are favorable developments in agriculture (increases in land size per family, pasture areas per livestock, productivity, and water resources), improvements in agricultural support policies, and input and output markets [41]. Villages with a favorable climate and fertile soils enable family farms to cultivate a wide variety of vegetables and fruits, which provide a healthy diet for family members. The high use of chemical fertilizers and pesticides in conventional agriculture in recent years has led people to consume more healthy food, particularly organic and good agricultural products [42,43]. For these reasons, if urban citizens own farming land in the village with favorable climate and soil conditions, and the government implements supportive policies to provide farmers with adequate farming equipment and infrastructure, urban citizens may perceive a better life by deciding to migrate back to the village.

The perceived agricultural factors construct (PAF) ranked third in significance and included items related to favorable climate [44,45], availability of fertile agricultural land, and the presence of agricultural infrastructure, adequate farming equipment, and mechanization [46].

For urban people to migrate back to the village and engage in agriculture, it is necessary to cultivate farm commodities such as vegetables, fruits, grains, and pulses; and to raise small or big livestock such as cows, sheep, or goats, as well as poultry, for which the first required condition is a favorable climate. Then, the availability of fertile land to practice these activities is an important factor for potential farmers. The presence of agricultural infrastructure, such as irrigation systems, mechanization, and the provision of proper inputs, is a key factor affecting people's migration decisions. All of these factors were represented by three items consisting of the perceived agricultural factors construct, and measured by a '5- point Likert scale' from 'strongly disagree' (1) to 'strongly agree' (5).

Migrating back to rurality and engaging in agricultural intentions (MRAI) was the last measured with three five-point Likert scale items from (extremely unlikely (1) to extremely likely (5)). These questions sought information on urban residents' intentions, willingness, and efforts to migrate back to their village. The wording of the questions was mostly adjusted from the earlier studies that utilized the TPB model [47–48].

1.2. Research hypotheses

The conceptual framework described above, which was developed using the TPB model, served as the foundation for the formulation of the following eight hypotheses:

H1. People's attitudes are positively impacted by behavioral beliefs and their outcome evaluations ($\Sigma BBiOEi \rightarrow ATT$).

H2. 'Normative beliefs', combining with motivation to comply, have a positive influence on subjective norms of individuals' intentions towards migration back to the village and engaging in agricultural activities ($\Sigma NBjMCj \rightarrow SN$).

H3. 'Control beliefs', combining with perceived power, have a positive influence on perceived behavior control of individuals' intentions towards migration back to the village and engaging in agricultural activities (ΣCBkPPk→PBC).

H4. 'Attitudes' have a positive effect on individuals' intentions towards migration back to the village and engaging in agricultural activities (ATT→MRAI).

H5. 'Subjective norms' positively affect individuals' intentions towards migration back to the village and engagement in agricultural activities (SN→MRAI).

H6. 'Perceived behavioral control' positively affects individuals' intentions to migrate back to the village and to engage in agricultural activities (PBC→MRAI).

H7. Perceived improvements in rural services positively influence individuals' intentions to return to the village and engage in agricultural activities (PIRS→MRAI).

H8. Perceived agricultural factors positively influence individuals' intentions to return to the village and engage in agricultural activities (PAF→MRAI). The relevant constructs for these hypotheses are shown in **Figure 1**.

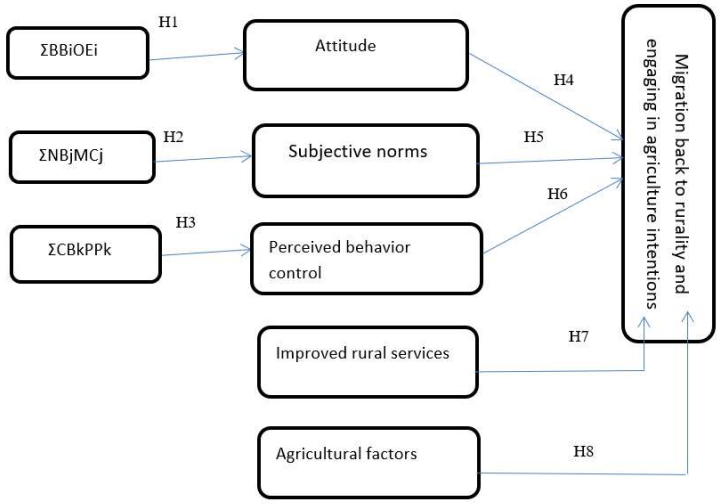

Figure 1. Conceptual framework for the present study. ΣBBiOEi = Behavioral beliefs, ΣNBjMCj = Normative beliefs, ΣCBkPPk = Control beliefs.

2. Materials and methods

This study's primary data was collected through surveys administered to residents of three central urban districts (Atakum, Canik, and İlkadım) of Samsun province, Türkiye. The precondition for selecting respondents in the sample was that they (or their parents) should have migrated from a village to these districts over the last three decades, and still have ties with rural areas. For this reason, neighborhoods and settlements established over the last three decades were selected to encounter families with this criterion.

Samsun is the city where Atatürk started the War of Independence on 19 May, 1919. It is the most developed city in the Black Sea Region in terms of education, health, industry, trade, transportation, and economy. In the early years of the Republic, the province's economy was based on agriculture and livestock. Although 47 % of its land is still used for agricultural purposes, economic activity today is largely based on trade and industry, with the importance of agriculture and livestock gradually

decreasing. Public and private sector investments in and around Samsun have encouraged population migration from other provinces over time, and the population has increased by 394 % from the first census of the republican period in 1927 to the present day. With a population of 1.39 million and an area of 9352 km², the province of Samsun has 149 people per square kilometer [49].

The study's target population was identified as urban citizens who migrated to the aforementioned neighborhoods and settlements of Atakum, Canik, and İlkadım districts of Samsun province. An optimal sample size was determined using Cochran's [50] sample size determination formula. The use of this formula for Likert scale items was explained by Barlett et al. [51], and their method was adopted to draw an accurate sample size of 384 urban citizens for this study. The small-population correction formula was not applied to reduce the computed sample size because the target population size was not available to the researchers. Therefore, data collection and analyses are based on this sample size, and data collected from August to December 2022.

2.1. Instrumentation

A data collection questionnaire was developed considering the constructs in the original TPB model and two additional constructs assumed to influence individuals' intentions to return to the village and engage in agricultural activities. Four sections were included in the questionnaire; The first part consisted of questions asking about the respondents' sociodemographic details. While the second part covered items regarding the 'belief constructs', the third section asked questions to seek information about the 'attitudes', 'subjective norms', and 'perceived behavioral control'; and finally, the fourth section covered items about the perceived improved rural services and perceived agricultural factors. Previous work on preparing research questions, particularly Likert-scale items, was utilized [52].

The data collection questionnaire was prepared by utilizing previous studies. Questions related to the theoretical framework and constructs were prepared considering Ajzen's TPB model, and other works that have developed and applied this model in various fields. Particularly, studies examining travelers' intentions to prefer eco-friendly hotels [27,48], consumers' intentions to purchase green products [28], and individuals' hunting intentions [47] have been used. In addition, studies that adapt the TPB model to migration movements were also utilized. The questionnaire consisted of four sections; the first section included questions about demographic characteristics of respondents; the second section covered items regarding the belief constructs; the third section included items related to attitudes, subjective norms, and perceived behavioral control; and the fourth section covered items about perceived improved rural services and perceived agricultural factors. To ensure the content validity of the survey, a panel of seven experts, including university professors and doctoral students, was formed. The panel evaluated the questions considering their theoretical framework, research hypotheses, consistency with previous studies, and the comprehension capacity of the potential respondents. The reliability of the Likert questions was measured using the Cronbach alpha internal consistency coefficient, which was 0.88 for all questions.

Since most questions were asked on a Likert scale, the researchers conducted one-on-one interviews with respondents to fill out the surveys in a question-and-answer format. Queries that were either incompletely understood or misunderstood were clarified by the researcher during the interview. The data collection process was finalized between August and December 2022.

2.2. Data analysis

The collected data were first checked for the assumptions of the general linear model (GLM), and no violations were diagnosed for further analyses. Thus, data were analyzed considering the predetermined sample size of 384 respondents. The sociodemographic features of respondents were identified using descriptive statistics, including means, frequencies, standard deviations, and percentages. In order to measure the perceived influence of selected items and the constructs on the intention of respondents toward migration back to the village and involve agriculture, the 'structural equation modeling' (SEM) was applied in two steps [53]. First, a 'measurement model' was constructed using 'confirmatory factor analysis' (CFA) to evaluate the constructs' reliability and validity as well as the components that make up each construct. The degree to which the underlying latent constructs produce the observed variables, and thus the strength of the regression lines from the constructs to the observed variables, is determined by the CFA [54]. The structural model was employed to identify the most suitable model, and the hypotheses that were formulated as influential factors regarding respondents' intention to return to the village and participate in agricultural activities were verified in the subsequent phase.

3. Results and discussion

3.1. Sociodemographic characteristics

For this study, sociodemographic characteristics included age, income, family size, spare time per week, education, gender, marital status, and membership in nongovernmental organizations. (**Table 1**). Results show that the average respondent was 39.49 years old, had a monthly income of 3950.45 Turkish Liras (TL), 3.97 family members, and 2.53 days of free time weekly. Regarding education, approximately 34 % of the respondents had 12–15 years of education, and 29.4 % had 9–12 years of education. These groups are assumed to have attended school beyond primary education, which covered a five-year education period in the previous national education system. Slightly more than half of the respondents were males (54.2 %), while 46.8 % were females. Over two-thirds of them (66.9 %) were married, and the participation level of civil society organizations was even lower than one-fifth (17.2 %).

The average household size found in this study (3.97) is slightly higher than the average of Samsun province (3.28) [55]. This result can be attributed to the fact that rural traditions that encourage extended family size still have an impact on urban settlements established in the last thirty years. Another difference between the current research and the state statistics was observed in the proportion of people with different education levels, especially university graduates (33.9 %), who were higher than the

Samsun average (14.8 %). According to the latest statistics, 38.7 % of the population of Samsun province graduated from primary school, 33.2 % from secondary or high schools, or equivalent vocational schools. The ratio of two-year high school or four-year faculty graduates is 14.8 %, while the rate of master's and doctoral graduates is 1.2 % [55]. A possible reason for this result is that during the study, some participants were unable to fully distinguish the questions about behavioral beliefs, subjective beliefs, and control beliefs in the questionnaire, so these respondents were replaced with more educated people who had no difficulty understanding the questions.

Table 1. Socio-demographic characteristics.

Characteristics	Mean	Standard deviation
Age (years)	39.49	13.48
Income (TL/month)	3950.45	1920.21
Family size (persons)	3.97	1.01
Excess/spare time (days/week)	2.53	2.06
	Frequency	Percent
Education (Years)		
0–5 (Elementary school)	110	31.7
6–12 years (Secondary or high school)	111	29.4
13–16 (College degree, 2 or 4 years)	128	33.9
Above 16 (Masters or Ph.D.)	19	5.0
Gender		
Male	205	54.2
Female	173	45.8
Marital status		
Married	253	66.9
Unmarried (Single, divorced, separated, widowed)	125	33.1
Organization membership		
Yes	65	17.2
No	313	82.8

3.2. The measurement model

The CFA findings show that the measurement model fits the collected data quite well ($\chi 2$ = 1628.121, $\chi 2/df$ = 2.862, 'Goodness of Fit Index' (GFI) = 0.870, 'Tucker–Lewis-index' (TLI) = 0.914, 'Comparative fit index' (CFI) = 0.905, 'Root mean square error of approximation' (RMSEA) = 0.056) (**Table 2**). The $\chi 2$ value was significant at the 0.05 alpha level. Examining the $\chi 2/df$ value is another method of evaluating the model's fit, which was measured as 2.862 in the present study. Research shows that a value between 0 and 2 indicates a perfect fit, and 2–3 indicates a good fit [56,57]. The GFI value (Changes from 0 (no fit) to 1 (perfect fit)) was measured as 0.870. A value over 0.95 is accepted as a perfect fit, while values over 0.90 are accepted as a good fit [56–58]. The TLI value was measured at 0.914, higher than the accepted threshold of TLI > 0.80 [59]. CFI score was 0.905 (A value of 0.95 and above is a good fit, a value

between 0.90 and 0.95 is an acceptable fit [60]. The RMSA was 0.056 (<0.06 for a good fit and <0.10 for an acceptable fit) [61].

'The standardized factor loadings' of construct items were between 0.65 and 0.94, indicating that all items made statistically significant contributions to the constructs being measured. Since 'the standardized factor loadings' of all items were below 0.6, it can be said that the measurement error is low and reliability is high [27,28,61]. 'The squared multiple correlations' (SMC) measure the amount of variance explained by an item or construct included in an underlying factor, and are measured by the square of its standardized factor loadings. According to Ford et al. [62], SMC values should exceed the threshold value of 0.30, and the present study meets this criterion. Chronbach's alpha internal consistency coefficients were used to assess reliability among the items covered by each construct, and these values varied from 0.78 to 0.9. The current study satisfies this requirement because scientists agree that a threshold value 0.70 for Cronbach's alpha is acceptable. They also suggest that the threshold value for composite reliability (CR) is 0.7 or above, while the 'average variance explained' (AVE) should be 0.5 or higher [63]. Since the CR values varied from 0.810 to 0.922, and the AVE values from 0.75 to 0.88, the present study meets the above criteria (**Table 2**).

Table 2. Socio-demographic characteristics.

Constructs and items	Standardized factor loadings	SMC	Cronbach's α	C.R	AVE
'Behavioral beliefs' = (BB*OE)					
BB_1*OE_1	0.65	0.41	0.87	0.891	0.75
BB_2*OE_2	0.77	0.52			
BB_3*OE_3	0.86	0.62			
BB_4*OE_4	0.76	0.55			
BB_5*OE_5	0.72	0.51			
BB_6*OE_6	0.79	0.59			
'Normative beliefs' = (NBs*MC)					
NB_1*MC_1	0.93	0.72	0.88	0.889	0.81
NB_2*MC_2	0.80	0.64			
NB_3*MC_3	0.78	0.57			
NB_4*MC_4	0.75	0.52			
'Control beliefs' = (CB*PP)					
CB_1*PP_1	0.86	0.45	0.82	0.81	0.82
CB_2*PP_2	0.79	0.39			
'Attitudes' (ATT)					
ATT_1	0.85	0.68	0.89	0.901	0.78
ATT_2	0.70	0.51			
ATT_3	0.88	0.72			
ATT_4	0.78	0.64			
ATT_5	0.84	0.71			
ATT_6	0.65	0.46			

Table 2. (*Continued*).

Constructs and items	Standardized factor loadings	SMC	Cronbach's α	C.R	AVE
'Subjective norms' (SNs)					
SN_1	0.88	0.64	0.93	0.875	0.88
SN_2	0.89	0.65			
'Perceived behaviour control' (PBC)					
PBC_1	0.83	0.75			
PBC_2	0.89	0.54	0.91	0.922	0.86
PBC_3	0.92	0.71			
PBC_4	0.81	0.53			
Pulling rural factors (PRFs)					
PRF_1	0.77	0.60			
PRF_2	0.94	0.72	0.78	0.846	0.80
PRF_3	0.69	0.59			
Agriculture factors (AFs)					
AF_1	0.90	0.59			
AF_2	0.84	0.48	0.90	0.920	0.88
AF_3	0.93	0.71			
Migration back to rurality and engaging in agricultural intention (MRAI)					
MRAI_1	0.75	0.73			
MRAI_2	0.68	0.50	0.80	0.819	0.77
MRAI_3	0.89	0.79			
$\chi 2$ = 1628.121, $\chi 2/df$ = 2.862, GFI = 0.870, TLI = 0.914, CFI = 0.905, RMSEA = 0.056					

The square roots of AVE (average variance explained) values for each construct and correlation coefficients were compared to evaluate discriminant validity. The correlation matrix of the constructs is presented in **Table 3**, where diagonal values represent the square roots of the AVE for each construct, and the non-diagonal values are correlation coefficients between the constructs. Discriminant validity is demonstrated if the AVE values' square roots (the diagonal values) are greater than the correlation coefficients (non-diagonal values) [64–67]. **Table 3** demonstrates the establishment of discriminant validity by showing that all nine constructs satisfy the previously indicated criteria.

Table 3. Discriminant validity and descriptive statistics.

Constructs		1	2	3	4	5	6	7	8	9
1	BB	**0.866**								
2	NB	0.265*	**0.900**							
3	CB	0.318**	0.306**	**0.905**						
4	ATT	0.322**	0.299**	0.255**	**0.883**					
5	SN	-0.08*	0.392**	0.296**	0.410**	**0.938**				
6	PBC	0.13**	0.231**	0.37**	0.443**	0.45**	**0.927**			
7	PRF	0.294**	0.31**	0.281**	0.470**	0.273**	0.329**	**0.894**		

Table 3. (*Continued*).

Constructs		1	2	3	4	5	6	7	8	9
8	PAF	0.173**	0.19**	0.339**	0.333**	0.401**	0.313**	0.40**	**0.942**	
9	MRAI	0.367**	0.283**	0.209**	0.315**	0.415**	0.432**	0.460**	0.513**	**0.877**
Mean		20.30	16.21	18.21	3.46	3.94	3.38	3.21	3.63	3.28
Std. dev.		5.47	6.1	6.32	1.22	1.15	1.3	1.36	1.24	1.29

The bold diagonal values give the AVE values' square roots for each construct.
*and ** are the significance levels at 1 % and 5 %, respectively.

3.3. Structural model

After evaluating the constructs' validity and reliability of the measurement model, the research hypotheses formulated between constructs were examined by estimating two structural models. The first model consisted of the constructs of the TPB framework, and the second was an extended theoretical framework with two extra constructs, namely, perceived improved rural services and perceived agricultural factors. The findings demonstrated that 'goodness of fit' measures of the TPB model ($\chi 2$ = 1237.54, Squared $\chi 2/df$ = 3.069, TLI = 0.911, CFI = 0.924, GFI = 0.899, RMSEA = 0.059, Adjusted R2 = 0.572) fitted well with data since the measurements of the model were within acceptable limits determined by previous research [56,57,67]. Only the GFI value was minimally lower (0.001) than the generally accepted value of (>0.9), which can be ignored (**Table 4**). Therefore, these results indicate that the TPB model can explain urban citizens' intentions to migrate back to the village and engage in agriculture. 'Goodness of fit' measures of the extended theoretical model ($\chi 2$ = 1419.11, Scaled $\chi 2/df$ = 2.652, TLI = 0.919, CFI = 0.934, GFI = 0.902, RMSEA = 0.055, Adjusted R2 = 0.64) also fitted well with data, and all measurements remained within acceptable limits compared with the aforementioned studies. Although the 'goodness of fit' measures of both models remained within the acceptable limits, adjusted R^2 in the extended theoretical framework (0.640) was higher than that of the TPB model (0.572). This result indicates that the additional two constructs increased the predictive power of the original TPB model by 0.068 and yielded a higher ratio of perceived factors influencing respondents' intentions to migrate to the village and engage in agriculture.

Table 4. Goodness of fit indices.

'Fit indices'	TPB framework	'Extended theoretical framework'	General accepted level
$\chi 2$	1237.54	1419.11	
Scaled $\chi 2$/df	3.069	2.652	>2 and <5
'Tucker-lewis index' (TLI)	0.911	0.919	>0.9
'Comparative fit index' (CFI)	0.924	0.934	>0.9
'The goodness of fit indices' (GFI)	0.899	0.902	>0.9
'Root Mean Square Approximation' Method (RMSEA)	0.059	0.055	<0.08
Adjusted R^2	0.572	0.640	

3.4. Hypothesis testing

Eight hypotheses were tested to determine whether any significant relationships existed between the constructs. The first six hypotheses were from the TPB model, and two additional hypotheses were included to form the extended theoretical framework. As shown in Figure a and **Table 5**, the first three hypotheses were that behavioral beliefs influence attitudes (H1), normative beliefs influence subjective norms (H2), and control beliefs influence the perceived behavior control (H3). Results showed that significant relationships existed between 'behavioral beliefs' and 'attitudes' ($\beta = 0.183$; $p < 0.01$), 'normative beliefs' and 'subjective norms' ($\beta = 0.215$; $p < 0.01$), and 'control beliefs' and 'perceived behavioral control' ($\beta = 0.170$; $p < 0.01$). These results imply that all three constructs related to beliefs positively influenced the constructs of 'attitudes', 'subjective norms', and 'perceived behavioral control', respectively, supporting the first three hypotheses of the study. The following three hypotheses were that each of the three constructs of attitudes, subjective norms, and perceived behavior control influences respondents' intention to migrate back to the village and engage in agriculture (H3, H4, H5). The links of the regression path significantly connected each of the constructs of 'attitudes' ($\beta = 0.331$; $p = 0.020$), 'subjective norms' ($\beta = 0.371$; $p < 0.01$), and 'perceived behavioral control' ($\beta = 0.194$; $p < 0.01$), to the migration back to the village and engaging in agriculture construct. Supporting H4, H5, and H6, these results imply that 'attitudes', 'subjective norms', and 'perceived behavioral control' positively influenced respondents' intention toward migration back to the village and engaging in agriculture. The last two hypotheses were that perceived rural factors (H7) and perceived agricultural factors (H8) influence respondents' intentions to return to the village and engage in agriculture. These were the additional constructs, and both were significant ($\beta = 0.105$; $p = 0.097$) and ($\beta = 0.155$; $p = 0.015$), respectively, indicating that perceived rural factors and perceived agricultural factors are associated with migration back to rural areas and engagement in the agriculture construct. Supporting H7 and H8, these results showed that the additional two constructs also positively influence this final construct.

Table 5. Relationships among the constructs based on the SM model.

The path	B value	Std. Error	P value	Relationships
ΣBBiOEi → ATTs	0.183***	0.006	0.001	Supported
ΣNBjMCj → SNs	0.215***	0.007	0.001	Supported
ΣCBkPPk → PBC	0.170***	0.006	0.001	Supported
ATT → MRAI	0.331**	0.142	0.020	Supported
SN → MRAI	0.371***	0.009	0.001	Supported
PBC → MRAI	0.194***	0.101	0.001	Supported
PRS → MRAI	0.105*	0.629	0.097	Supported
PAF → MRAI	0.155**	0.064	0.015	Supported

***Supported, $p < 0.01$. **Supported, $p < 0.05$. *Supported, $p < 0.10$

When the five constructs that directly affect the intention to migrate to rural areas and engage in agricultural activities (MRIA) are ranked in order of importance, subjective norms (SN) and perceived behavior controls (PBC) are ranked higher.

Despite modernization leading to significant changes in the family structure of Turkish families, it can be said that a strong family structure persists in the average Turkish family, which is still based on the unity and solidarity formed under the same roof of individuals who are connected with sincere feelings and common responsibilities [68,69]. In addition to the strong ties that bind family members to one another, the Turkish family structure has other social relations and strong ties, such as kinship and neighborhood. For example, friendship, fellowship, belonging to tribes, religious and political communities are other important ties in which the individual and family are in solidarity [70,71]. The strong relationships among individuals, their family members, and other relatives encourage them to consider the opinions of all these people while making decisions on certain issues. This situation increased the effect of 'subjective norms' on individuals' intentions of migration back to the village. In addition, the individuals' competence in the decision to migrate from the city to the village, their experience in agricultural matters, the availability of land and other resources in the village, and their confidence in engagement in farming activities increased the perceived behavioral control.

Perceived agricultural factors construct PAF) was in the third significance order and included items related to the favorable climate, availability of fertile agricultural land, and the presence of agricultural infrastructure, adequate farming equipment, and mechanization. All activities, such as determining what kinds of plants to grow and animals to raise, planting time, maintenance, fertilization, pest control, irrigation, harvesting, storage, distribution, and marketing, are affected by climate. Owning fertile agricultural land in a village and having adequate agricultural infrastructure and farming equipment, such as modern irrigation systems (sprinkler and drip irrigation) and farm machinery, would provide favorable conditions for individuals to engage in farming activities. Corroborating these factors, perceived agricultural factors have significantly affected individuals' intentions to migrate to the village and engage in agriculture (MRAI).

The Attitudes (ATT) construct was in the fourth significant order, which directly influenced respondents' intentions. This finding was corroborated by earlier studies, which also found that attitudes significantly affected individuals' intentions to perform a behavior related to various subjects. For example, the study conducted by Hussein et al. [72] showed that consumers' attitudes are positively and significantly correlated with their intention to use mobile health technology. Similarly, Budiman's study [73] showed that a more positive attitude of consumers towards pirated handbags will further strengthen the purchasing intention. Husseyin [74] found a positive influence of students' attitudes on their intention to use e-learning systems. Individual 'attitudes' and 'perceived behavioral control' were statistically significant factors in determining entrepreneurial intention. As shown in these studies, 'attitudes' positively influence individuals' intentions, which may lead to performing a specific behavior regarding consumption, e-learning, and entrepreneurship. The present study adds urban residents' intention to migrate to the village as another subject area, which is also affected by attitudes. Therefore, as individuals in the research area develop positive attitudes toward migration from city to rural areas, and these attitudes become more desirable, enjoyable, satisfactory, wise, healthy, and economically viable, individuals will tend

to develop an intention toward moving back to the village, which ultimately may lead to behavioral change.

Perceived rural services (PRS) were in the last significant order that affected individuals' intentions. This construct includes general services provided by the government that are closely related to the overall and rural development. For example, if rural areas provide services such as communication, health care, and transportation, people will enjoy these services, and life in rural areas will probably be more comfortable. These changes would be among the factors that would attract urban citizens to return to their villages to spend the rest of their lives there.

4. Conclusions and recommendations

This study examined the intentions of urban residents who migrated from the village to the city over the past 30 years to return to rural areas by incorporating the constructs of changing rural factors and agricultural opportunities into Ajzen's Theory of Planned Behavior. By verifying the hypotheses regarding the theoretical framework, it was observed that individuals' behavioral beliefs lead to attitudes, normative beliefs lead to subjective norms, and control beliefs lead to perceived behavioral control. Later, it was observed that attitudes, subjective norms, and 'perceived behavioral control', along with perceived rural developments and agricultural opportunities, influenced individuals' intentions to return from urban to rural areas.

The TPB and its extensions have proven successful in analyzing the influence of psychological factors on individuals' intentions and behaviors on rural-urban or international migration to various countries. This study distinguishes itself from previous research in the field by examining the intentions of individuals for reverse migration (urban-rural), which has been brought to the attention of numerous urban citizens as a result of the unprecedented changes that have occurred in the urban and rural areas of Türkiye, particularly in the past two decades. This study is also expected to make theoretical and practical contributions to the field, as it is the first study using the TPB model to analyze urban-rural migration in Türkiye. Since the two additional constructs (improved rural services and perceived agricultural factors) in the extended theoretical framework increased the model's explanatory power, it can be assumed that these constructs and the items selected for each were relevant to the subject and consistent with the original TPB model.

In the hierarchy of factors influencing migration from urban to rural locations, psychological and social issues are more significant than local infrastructure and economic considerations. The hierarchy of five categories that directly influence reverse migration from urban to rural areas (subjective norms, attitudes, perceived behavioural control, agricultural factors, rural development factors) substantiates this assertion. This ranking indicates that the intention to move to a village is mostly influenced by familial social relationships, favourable perceptions of rural life, and individuals' self-confidence in residing and working in rural areas. Subsequently, the push factors of urban places (environmental issues, overcrowding, health, stress, etc.) and the pull factors of rural areas (agricultural advancement, rural infrastructure, better settings, etc.) exert significant influence.

This study is expected to offer significant insights into the actions that the appropriate state institutions should implement to supervise migration from urban to rural areas. The study initially establishes a comprehensive socio-economic profile of individuals who plan to migrate for varied reasons and subsequently resume their lives in rural areas. Then it ranks the influential factors in the order of significance. Administrators or government authorities may use the results of this study to manage reverse migration.

A limitation of this study was that it used cross-sectional data to achieve its objectives. Conducting numerous interviews over extended periods may yield more definitive insights into the intentions of persons intending to migrate to the city. Another limitation is that the present study was conducted with urban residents who intend to migrate back to their villages. The respondents have not yet engaged in migration behavior. Future studies may add another construct to the theoretical model that focuses on those who performed the intended behavior and migrated to rural areas. In addition, constructs other than perceived rural services and agricultural factors can be added to the theoretical model. Future research should also examine the interrelationships of these characteristics among other population groups or among themselves.

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