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Study of the Factors Influencing Cultural Similarity in the Post-Migration Adaptation Process in the Province of Van Using the GWR Method

Van İlinde Göç Sonrası Uyum Sürecinde Kültürel Benzerliği Etkileyen Faktörlerin GWR Yöntemiyle İncelenmesi

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ABSTRACT
As the world becomes increasingly interconnected, migration has gained unprecedented significance, shaping societies, economies, and cultures on a global scale. This introductory exploration delves into the multifaceted dimensions of migration, unraveling its causes, effects, and the intricate web of interactions it weaves across nations and continents. In this study, the factors influencing cultural similarity in the post-migration adaptation process of individuals migrating from first- and second-degree border provinces to the province of Van were examined using Ordinary Least Squares and Geographically Weighted Regression methods. The aim of this study is to examine the factors that influence cultural similarity in the process of adaptation in migration to the province of Van and to determine which of the methods used gives stronger results. In the study, face-to-face interviews were conducted with 440 individuals, and it was observed that the Geographically Weighted Regression method gave stronger results in terms of AIC, AICc, BIC, RSS, R^2 and Adj. R^2. In addition, the effect and significance of the independent variables according to provinces and districts are among the other objectives of the study. In this direction, the effect and significance of the independent variables are given by visualising them on the maps according to the provinces and districts.
Keywords: Cultural similarity, Geographical weighted regression, Migration

ÖZ
Dünya giderek daha fazla birbirine bağlı hale geldikçe, göç daha önce görülmemiş bir önem kazanmış, toplumları, ekonomileri ve kültürleri küresel ölçekte şekillendirmiştir. Bu giriş niteliğindeki araştırma, göçün çok yönlü boyutlarını inceleyerek nedenlerini, etkilerini ve uluslar ve kıtalar arasında ördüğü karmaşık etkileşim ağını ortaya çıkarmaktadır. Göç, ekonomik sebeplerden kültürel arayışlara, çatışmalardan ve çevresel zorluklardan kaçmaya kadar çok sayıda faktörün yönlendirdiği, bireylerin, ailelerin ve tüm toplulukların bir yerden başka bir yere taşındığı dinamik bir süreçtir. Türkiye'de iç göç, insanların ülke içinde kırsal alanlardan kent merkezlerine hareketi ile karakterize edilen önemli bir demografik olgudur. Bu çalışmada, birinci ve ikinci derece sınır illerinden Van iline göç eden bireylerin göç sonrası uyum sürecinde kültürel benzerliği etkileyen faktörler En Küçük Kareler ve Coğrafi Ağırlıklı Regresyon yöntemleri kullanılarak incelenmiştir. Bu çalışmanın amacı, Van iline yapılan göçlerde uyum sürecinde kültürel benzerliğe etki eden faktörleri incelemek ve kullanılan yöntemlerden hangisinin daha güçlü sonuçlar verdiğini tespit etmektir. Ayrıca bağımsız değişkenlerin il ve ilçelere göre etkisi ve anlamlılığının da incelenmesi çalışmanın diğer amaçları arasındadır. Bağımsız değişkenlerin il ve ilçelere göre etki ve anlamlılıkları haritalar üzerinde görselleştirilmiştir. Çalışmada 440 kişi ile yüz yüze anketler yapılmış ve Coğrafi Ağırlıklı Regresyon yönteminin AIC, AICc, BIC, RSS, R^2 ve Düzeltilmiş R^2 değerlerine göre daha güçlü sonuçlar verdiği görülmüştür.
Anahtar kelimeler: Coğrafi ağırlıklı regresyon, Göç, Kültürel benzerlik

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1. INTRODUCTION

Migration is a phenomenon with deep roots in human history, as individuals and communities have moved across regions and continents in search of better opportunities and living conditions. It encompasses a range of factors, including economic, social, political and environmental motivations. Whether driven by the search for employment, the flight from conflict or persecution, the desire for education or the hope for a more favorable climate, migration has profound effects on both the migrants themselves and the societies they leave behind and settle in. Migration has been a catalyst for cultural exchange, contributing to the rich tapestry of human diversity that exists today. It has played a significant role in shaping societies, influencing language, cuisine, art and traditions. In addition, migration has often been associated with economic development, as migrants contribute their skills, labor and entrepreneurial spirit to their new communities. However, migration also poses challenges, including social integration, economic inequality, and strain on infrastructure and public services. As a result, governments and international organizations are constantly grappling with the complexities of migration, seeking to strike a balance between facilitating the positive aspects of migration while addressing the challenges and ensuring the protection of migrants' rights.

Internal migration in Türkiye is a significant demographic phenomenon, characterized by the movement of people from rural areas to urban centers within the country (Dokuyucu, 2023). In recent decades, rapid urbanization and industrialization have led to a significant shift in population distribution, with millions of individuals and families seeking better economic prospects and living conditions in urban areas (Çağlayan, 2006). Major cities such as Istanbul, Ankara and Izmir have experienced significant inflows of internal migrants, resulting in population growth, increased diversity and the emergence of vibrant urban cultures. Internal migration has played a key role in shaping Türkiye's socio-economic landscape, contributing to urban development, labor market dynamics and the overall transformation of communities. However, it has also created challenges, including urban overcrowding, strains on infrastructure and services, and socio-economic disparities between migrants and the established urban population (Çakılcı, 2014). Efforts are being made to address these challenges through urban planning, social integration initiatives and policies aimed at improving the well-being of both internal migrants and host urban centers. Internal migration in Turkey started after the Second World War, especially with the impact of industrialization activities and modernization in agriculture. While internal migration was initially from village to city, it later continued from small and medium-sized cities to big cities. In the 1990s, a new form of migration emerged from the city to the village. Internal migration has caused social changes in both migrant and migrant settlements. With these changes, a number of problems have emerged especially in cities (Bostan, 2017).

In Turkey, there has been an acceleration in the process of urbanization with the migrations that started in the 1950s. The increase in internal and external migration in Turkey has led to an increase in scientific studies on the phenomenon of internal migration, which is a social problem. With internal migration, the population has started to concentrate in the urban centers of certain regions. It is observed that internal migration in Turkey takes place from economically backward eastern regions to developed western regions (Çelik, 2007). In general; internal migration in Turkey can be explained as the introduction of new technologies in agriculture, intensive agricultural practices, insufficiency of land, fragmentation of land by inheritance, rapid population growth and limitation of lifestyle, the desire to benefit from social and cultural opportunities in cities, the fact that cities are more attractive in terms of work, developments in communication and transportation facilities, and decisions related to the administration made at various levels and policies put into practice (Ercilasun et al., 2011; Gökhan and Filiztekin, 2008; Gür and Emel, 2004; Gürbüz and Karabulut, 2008).

The province of Van in eastern Türkiye has experienced its own unique migration dynamics. Van province is a more developed province in terms of tourism due to its natural and historical differences compared to the neighboring provinces, and therefore it is a province with different migration dynamics. In addition, Van is an economically more developed province due to its border neighborhood with Iran. This situation causes economic opportunities to be more developed than the neighboring provinces. Therefore, Van is a province with different migration dynamics compared to the neighboring provinces. Known for its natural beauty, historical sites and rich cultural heritage, Van has been a destination for both internal and international migrants. The province has experienced significant internal migration from rural areas within its own region, as well as from other parts of the country. Economic factors, such as agricultural challenges and limited employment opportunities, have led individuals and families to seek livelihoods in Van's urban centers. The province has also been a focal point for international migration due to its proximity to neighboring countries. Political and social upheaval in the surrounding region has led to an influx of refugees and asylum seekers, particularly

from Afghanistan and Iran. This complex migration landscape has created both opportunities and challenges for Van as it grapples with the integration of diverse populations, the strain on resources and the need for sustainable development. Efforts are being made to provide support and services to migrants, promote cultural exchange and foster social cohesion in the province. In terms of internal migration, Van receives a significant amount of migration from its neighboring rural areas. Since Van is a border province, it is exposed to forced and transit migration. Most irregular migrants see Van as an intermediate stopover. It is known that especially individuals migrating from Afghanistan use Van as a transit city to go to Europe or metropolises. In addition, it is observed that individuals who do not have the opportunity to migrate to Europe or metropolises settle in Van. However, it is observed that this number is less than the provinces in the west. It is also observed that individuals migrating from Iran settle in Van province more than individuals migrating from Afghanistan. In this study, the factors influencing cultural similarity in the post-migration adaptation process of individuals who migrated to Van Province from neighboring provinces were examined using Ordinary Least Squares (OLS) and Geographically Weighted Regression (GWR) methods.

The impact of immigrants on the labor market of the host country has been of long-term interest to economists and an important topic of public debate in countries receiving large numbers of immigrants. In addition to the international research on migration, it can also be found in the literature at the regional or national level. As a result, there is literature focused on understanding and interpreting these effects. Some national and international studies in the field of migration, especially using the GWR method, are given below.

Internal migration refers to the movement of a population within a country, typically involving a change of residence between different geographical regions. This type of migration often occurs when individuals seek better living conditions, job opportunities, education, or other socio-economic advantages. Internal migration can take various forms, such as from rural areas to urban centers, from the north to the south, or vice versa. Therefore, studying the factors that cause internal migration is of significant importance. Kalogirou (2012) analyzed Sweden's internal migration data using the GWR method to examine the factors influencing migration. When the data was locally calibrated using the GWR method, it was concluded that both explanatory variables had significantly different effects. Bohra and Massey (2009) utilized Geographically Weighted Poisson Regression (GWPR) to analyze internal and international migration processes in Nepal. The study examined how geographical factors influence migration flows and interact with other socio-economic factors. Morrison and Clark (2011) used the GWR method to investigate the impact of internal migration on employment. The study analyzed how geographical and demographic factors affect internal migration and explored the relationship between labor markets and internal migration. Migrants often bring together diverse cultures, skill sets, and experiences, creating a foundation for entrepreneurship. Wahba and Zenou (2012) examined the impact of migration on entrepreneurship and social capital through spatial panel data analysis. Jivraj et al. (2013) employed GWR spatial modeling technique to analyze family migration in neighborhoods in the UK. The study identified the effects of factors such as renting, housing conditions, unemployment, and the ratio of non-residential building land on family migration at different levels across the country. In the context of policy and planning, understanding the complex dynamics underlying migration is crucial. Studies like these provide valuable perspectives for designing migration-related policies and planning at the neighborhood level. In the study of Ay (2013), the effects of internal migration on social structures. The study emphasized that migrants do not adequately adapt to urban environments in certain regions and drew attention to the potential negative consequences of internal migration, such as turning source regions into "ghost cities" and feeding problems such as informal settlement, unemployment, cultural gaps and ghettoization in destination regions. The negative impact of internal migration on migrants' mental health was also emphasized. Tekeli and Erder (1978) examined the field of agricultural modernization, proposing the hypothesis that this modernization process is a driving force behind internal migration. The research established a connection between the transformation of agricultural practices and the movement of people from rural to urban environments. Karpat (2015) emphasized the often overlooked importance of internal migration in Turkey, especially from rural to urban areas. In the study, it is stated that these internal migrations deeply affected Turkey and led to radical changes in politics, culture, values and lifestyles.

The relationship between migration and populations at risk constitutes a significant focal point for understanding social, economic, and environmental factors. Migration often emerges as a response to specific risks, such as natural disasters, political instability, economic crises, or individuals fleeing conflict zones, serving as examples of populations at risk. Additionally, migration can either increase or decrease risk factors during the adaptation process in new settlement areas. Migrants may be

exposed to risks such as unemployment, housing issues, or social integration difficulties in destination areas. Simultaneously, migration can lead to population loss and changes in social structure in the source regions. Therefore, comprehensively assessing the relationship between migration and populations at risk requires an examination of living conditions, security, and sustainability for both migrating individuals and local communities. Dobson and Bright (2000) conducted a study introducing the LandScan population database with the aim of predicting populations at risk using the GWR method. This study highlighted the potential of GWR in modeling population distributions and emphasized the critical importance of understanding population dynamics in migration studies. The research demonstrated that the use of spatial models to comprehend how geographic factors affect population distributions allows for more precise and localized results in areas such as risk analysis and population predictions. In this context, tools like the LandScan population database and GWR can contribute to strategic planning, particularly in risk-prone regions and migration-related studies. Individuals are in continuous contact with society due to the nature of their post-migration employment, believed to have a significant impact on the adaptation process. Yüzbaşı and Görür (2023) addressed the influence of post-migration employment on the adaptation process in their study on migrating individuals using the GWPR method.

From a social perspective, migration can lead to cultural diversity and changes in social structures. The integration of newcomers into local communities and their interactions with the existing population can bring about diversity and differences in the social fabric. Black et al. (2010) conducted a study examining labor migration from Central and Eastern European countries to the EU from both geographical and economic perspectives. This book compiles a series of studies on the causes, consequences, and geographical impacts of migration, providing detailed information on this crucial topic. Focusing on both the economic and geographical dimensions of migration, this research contributes to our understanding of the dynamics of labor migration from Central and Eastern Europe to the EU.

Economically, migration can impact labor markets. Migrant indi viduals can contribute to economic growth and innovation by participating in the workforce. However, at times, migration may create a surplus of labor and increase competition. Gwarda (2014) analyzed the spatial distribution of officially registered foreign migration in Poland using the GWR method. The results of this study indicate that unemployment varies across geographic areas and does not have a significant impact on unemployment rates in all spatial units. This analysis provides valuable insights into understanding the relationship between migration and unemployment. Uysal and Aktaş (2011) contribute to this discourse by emphasizing that even socioeconomically developed provinces continue to experience internal migration. This finding challenges the notion that significant population movements only occur in less developed regions and contributes to a better understanding of migration patterns in Turkey.

The fact exists that migrant individuals not only migrate due to general skills but also to better utilize the experiences of qualified individuals. This phenomenon is known as brain drain. Brain drain can be a loss for source countries because these countries have invested in education and a skilled workforce. However, for destination countries, it can be a gain as highly qualified workers can contribute to their economies. Beine et al. (2008) examined the impact of brain drain in developing countries. The study, using panel data analysis, explored the effects of brain drain on human capital formation in source countries and analyzed the differences between winners and losers. In this context, the education possessed by qualified individuals after migration can have a positive impact during the adaptation process. Görür et al. (2023) addressed the status of education of individuals in the post-migration adaptation process using the GWPR method.

Politically, migration can bring about changes in political systems and public services. Issues such as the rights of migrants, citizenship, and political participation have significant effects on political regulations and societal dynamics. Miller et al. (2013) addressed global migration from social, political, and spatial perspectives. This study provides a comprehensive analysis of the general causes, consequences, and impacts of migration. Complementing the geographically focused study by Black et al. (2010), it allows for the examination of global migration from a broader perspective. Barone et al. (2016) investigated the impact of migration on the voting behavior of native citizens in Italy. Using panel data analysis, this study extensively examined the effects of migration on the voting behavior of native voters. This enables us to assess the potential effects of migration on democratic processes in a broader framework.

Spatially, migration involves various dynamics. Camargo et al. (2020) investigated the spatial relationship between forced migration due to armed conflict and changing socio-economic factors in a context where 7 million internal migrants lived in Colombia, using the GWR method. Additionally, they conducted

spatial statistical analyses based on demographic data to measure anthropogenic changes during the period of armed conflicts in Colombia between 1984 and 2013, which is a socio-politically significant era The analysis conducted by Yüzbaşı and Görür (2021) on crime in Turkey and the study by Camargo et al. (2020) on forced migration and armed conflicts in Colombia make significant contributions to understanding spatial dynamics and guiding policymakers. Both studies utilize spatial analysis methods to assess the impacts of socio-economic factors on various events, providing in-depth insights into this subject.

The objectives of this study are to analyze the factors affecting the cultural similarity benefit in the post-migration adjustment process using OLS and GWR methods, determining which model gives stronger results because of the analysis, and examining the effects and significance of the variables regionally. At the same time, one of the important objectives of this study is to contribute to the literature, as these methods have not been used in previous migration studies in Van province and have only been used in the field of migration in Türkiye.

2. MATERIAL AND METHOD

OLS is a global regression technique that assumes that the relationship between the dependent variable and the independent variables is constant across space. It estimates a single set of coefficients for all data points, treating them equally if the relationships hold uniformly across the study area. GWR, on the other hand, is a local regression technique that allows for spatially varying relationships. It recognizes that relationships between variables may vary between locations in a geographical space. GWR estimates coefficients at each data point by assigning different weights to neighboring observations based on their spatial proximity. This localized approach allows GWR to capture spatial heterogeneity and identify spatially varying patterns and relationships, making it a valuable tool for spatial analysis and modelling. Analyses of migration flows and the factors influencing them are usually conducted at the aggregate country level, ignoring the existence of large regional disparities. Because regions are so diverse, the main drivers of migration are likely to vary spatially and in intensity, resulting in different regional patterns. In this study, the migration of the province of Van from neighboring provinces is analyzed using OLS and GWR models. The effects of the independent variables considered on the dependent variable were also analyzed using the OLS and GWR methods, and which model gave stronger results was examined according to the Akaike Criterion (AIC), Adjusted Akaike Criterion (AICc), Bayesian Information Criterion (BIC), Residual Sum of Squares (RSS), R^2 and *Adj.* R^2 values. These effects were visualized on the maps according to the selected provinces and districts.

2.1. Data Sources and Study Area

In this study, a face-to-face questionnaire was administered to 440 people who migrated to Van from first- and second-degree border provinces and who live in Van, and the snowball method was preferred as the survey method. The survey study was conducted by the Social and Human Sciences Scientific Research Ethics Committee of İnönü University with the decision dated 16/05/2022 and numbered E-177685. The study discusses the factors that influence cultural similarity adaptation among the post-migration adaptation processes. In the study, the questionnaires were collected within the boundaries of the province of Van. The survey was conducted among people who migrated from Ağrı, Batman, Bitlis, Erzurum, Iğdır, Hakkari, Kars, Mardin, Muş, Siirt and Şırnak provinces and settled in Van.

2.2. Dependent Variable

Cultural similarity can bring many benefits after migration, fostering a sense of belonging and facilitating integration into a new society (Ward and Rana-Deuba, 1999; Masgoret and Ward 2006). When people share a common cultural background, they often find comfort in familiar traditions, customs and language, making it easier to connect. Such shared experiences create a supportive environment where newcomers can find community and emotional support, reducing feelings of isolation and alienation. In this article, the utility of cultural similarity in the post-migration adjustment process is considered as a dependent variable.

2.3. Independent Variables

2.3.1. I quickly adapted to my new life after migration

For the migrant to be able to integrate and be accepted in the unfamiliar environment, he/she needs to have characteristics that distinguish him/her from the settled population. While the ability to hold on is related to the migrant, the acceptance part of this requirement is more related to the dynamics in the settlement that accepts the migrant (Achiume, 2019). Acculturation involves the process of adopting aspects of the new culture, learning its language, customs and social norms. Successful cultural similarity and adaptation enable migrants to make meaningful

connections, participate in social, economic and political life, and contribute to the overall diversity and richness of their adopted country. There is an important relationship between cultural similarity and adaptation to a new life. Therefore, the variable 'I adapted quickly to my new life after emigration' was included as an independent variable.

2.3.2. Insufficient educational opportunities

Better education, the desire for a more live able social environment and other reasons are among the factors influencing migration (Kniess, 2020). Migration due to lack of educational opportunities is a pervasive phenomenon affecting individuals and communities around the world. In regions where access to quality education is limited, people are often forced to seek better opportunities elsewhere. For this reason, the variable "Insufficient educational opportunities" has been included as an independent variable.

2.3.3. Insufficient health services

Migration due to lack of health facilities has become a widespread phenomenon with far-reaching consequences. In regions where access to adequate health care is limited, individuals and families often face immense challenges in maintaining their well-being. The scarcity of health resources, including hospitals, clinics and health workers, forces people to seek better opportunities elsewhere. As a result, communities experience a significant out-migration of people who undertake arduous journeys in search of regions with robust health systems. This migration not only disrupts the social fabric of the affected areas, but also places a burden on the receiving communities. As a result, addressing the issue of inadequate health care is critical to promoting stability, sustaining livelihoods and ensuring the overall well-being of both migrants and the communities they leave behind. For this reason, the variable 'inadequate health services' has been included as an independent variable.

2.3.4. Van is a city suitable for living in climatic and geographical conditions

Climate and geography play a significant role in shaping human migration patterns. The impact of climate on migration can be observed through a number of factors. Geographical conditions also influence migration, as certain areas may offer better resources, economic opportunities or living conditions. For example, fertile land and access to water sources often attract migrants seeking agricultural livelihoods. In addition, mountainous or inhospitable terrain can function as a barrier to migration, limiting movement and contributing to the formation of isolated communities. Overall, climate and geography are key drivers of both forced and voluntary migration, shaping population distribution and influencing the social, economic and cultural dynamics of regions around the world. Therefore, the variable "Van is a city with suitable climatic and geographical conditions for living" was taken as an independent variable.

2.4. Geographically Weighted Regression

The method used to explain the cause-effect relationships between two or more independent variables that affect a variable with a linear model, and to determine the level of effect of these independent variables, is called multiple linear regression analysis. Gwarda (2018) explains the OLS model as the following equation;

$$y_i = \beta_0 + \sum_{k=1}^{p} \beta_k x_{ik} + \varepsilon_i , \qquad i = 1, \dots, n, \tag{1}$$

where y_i is the dependent, β_0 constant term, β_k coefficients of independent variables, x_{ik} is the value of k^{th} independent variable of observation i , p is the number of independent variables, n is the number of observations and ε_i represents the independent random error.

According to Fotheringham et al. (2002), GWR treats behavior differently according to region or individual and produces results according to these differences. Unlike OLS analysis, GWR analysis looks for geographical differences and looks for spatial variations in the relationship between the dependent and independent variables.

GWR is based on the basic framework of the conventional regression model as shown in equation (1). However, the regression model outlined above is only applicable to numerical analysis. To extend its applicability to geographic coordinate regression, Brunsdon et al. (1996) propose a modification of equation (2) to match the structure of equation (1).

$$y_i = \beta_0(u_i, v_i) + \sum_{k=1}^{p} \beta_k(u_i, v_i) x_{ik} + \varepsilon_i \tag{2}$$

where y_i is the dependent variable at location i on a two-dimensional space; x_{ik} is the value of the k^{th} independent variable

at location i; p is the number of independent variables; $\beta_0(u_i,v_i)$ is the intercept parameter at location i; $\beta_k(u_i,v_i)$ is the local regression coefficient for the k^{th} independent variable at location i; (u_i,v_i) are the spatial coordinates of location i; and ε_i is the independent random error at location i (Lu et al., 2022).

The locally weighted parameters ($\beta_i(u_i,v_i)$) are computed using the weighted least squares technique. To derive the β parameters, it is essential to determine the corresponding weights.

The weights are obtained from the continuous function of the distance between the point and other points for each value of the coordinate $w_{ij},(u_i,v_i), j = 1,\ldots,n$.

$$\boldsymbol{\beta} = \begin{bmatrix} \beta_0(u_1,v_1) & \beta_1(u_1,v_1) \ldots & \beta_p(u_1,v_1) \\ \vdots & \vdots & \vdots \\ \beta_0(u_n,v_n) & \beta_1(u_n,v_n) \ldots & \beta_p(u_n,v_n) \end{bmatrix}$$

The estimator of the coefficients at location i has the following matrix expression:

$$\widehat{\boldsymbol{\beta}} = (\boldsymbol{X}^T\boldsymbol{W}(i)\boldsymbol{X})^{-1}\boldsymbol{X}^T\boldsymbol{W}(i)\boldsymbol{y},$$

where x is the matrix of the independent variables with a column of 1s for the intercept; y is the dependent variable vector and $w(i)$ is a n x n diagonal matrix denoting geographical weights of each observation for calibrating the local regression at location i, and is defined as:

$$\boldsymbol{W}(i) = diag[w_{i1}, w_{i2}, \ldots, w_{in}],$$

where w_{ij} (j=1,…,n) is calculated via a kernel function decaying with respect to Euclidean distance, or some other distance metric (Lu et al. 2014), between locations i and j and n represents the number of observations. Technically incorporating spatial dependence into the model is an important issue in spatial econometrics. The spatial weight matrix is the formal expression of spatial dependence between observations (Demir, 2021). Different weight functions steps can be defined. It can mostly use Gaussian or bi-square weight functions. The modified bi-square function with respect to the nearest neighbor is as follows.

$$w_{ij} = \begin{cases} \left[1 - \left(d_{ij}/b^2\right)\right]^2 & \text{,if } j \text{ is one of the points closest to } i \\ 0 & \text{,if not} \end{cases}$$

where d_{ij} is the distance between observation point j and regression point i, for which the

Euclidean distance is employed with planar coordinates, and b is the kernel bandwidth. The appropriate bandwidth can be obtained by models like Cross-validation Criterion (CV), Generalized cross-Validation Criterion (GCV), AIC and AICc. In this paper we used AICc value to appropriate bandwidth. The following model is used for AICc Thus for a GWR model with a bandwidth b, its AICc can be found from (Lu, 2014);

$$AICc(b) = 2n\,ln(\hat{\sigma}) + n\ln(2\pi) + n\left\{\frac{n + tr(\boldsymbol{S})}{n - 2 - tr(\boldsymbol{S})}\right\} \quad (3)$$

where n is the sample size; $\hat{\sigma}$ is the estimated standard deviation of the error term; and $tr(S)$ denotes the trace of the hat matrix S.

2.5. Spatial autocorrelation analysis (Moran's I)

Various approaches based on these measures have been developed to identify spatial autocorrelation in a regression model. The most widely used of these approaches is the Moran's I test statistic (Demir, 2021). Moran's I range between -1 and 1. A positive value indicates positive spatial autocorrelation, while a negative value indicates negative spatial autocorrelation. If the values of the variables are randomly distributed and spatially independent, Moran's I tend to approach zero for large sample sizes. Zhua et al. (2020) explain Moran's I equation as follows:

$$Moran's\ I = \left(\frac{x_i - \bar{x}}{m}\right)\sum_{i=1}^{n}\boldsymbol{W}(i)(x_j,\bar{x}),$$

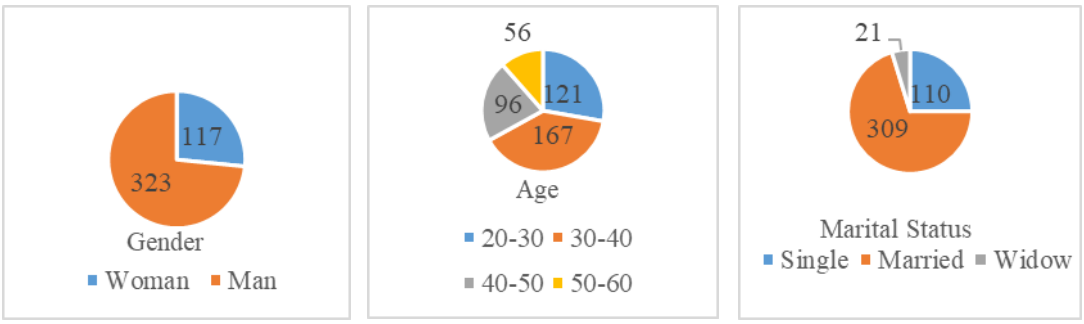
where

$$m = \frac{\sum_{j=1,j\neq 1}^{n} x_j^2}{n-1} - \bar{x}^2, \quad (4)$$

x_i and x_j are the habitat quality values of units i and j, respectively; n is the total number of spatial units; $\bar{x}$ is the average value of the entire region.

3. ANALAYSIS AND FINDINGS

In this study, 440 residents of Van who had immigrated there from provinces neighboring Van in the first and second degrees participated in a face-to-face survey. The investigated variables were specified as follows, and the analyses were performed using the R software. The findings of OLS and GWR analyses were compared after the analysis's global regression assumption had been evaluated. Then, using maps based on provinces and



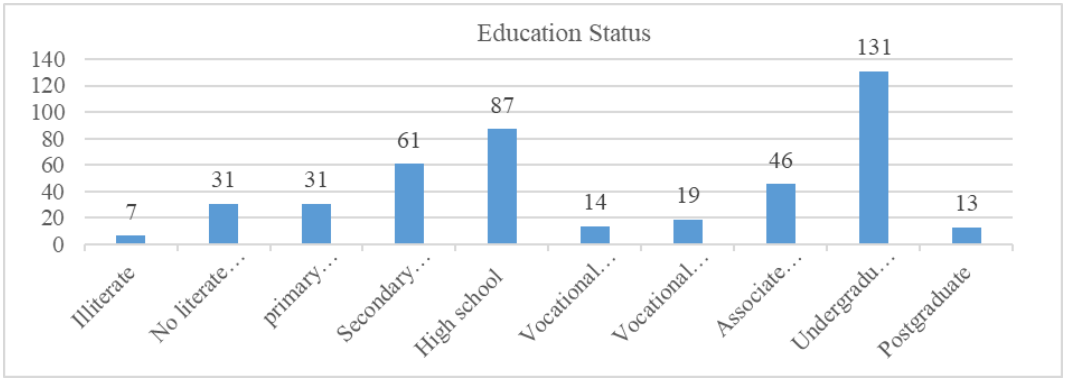
Graph 1. Demographic Information of Individuals Participating in the Surveys

districts, the impact of the independent variables on the dependent variable was shown. Van province is shown in grey in the image on the left that shows the coefficient of variation of the variables while it is shown in turquoise in the figure on the right that shows the significance of the relationship between the independent variables.

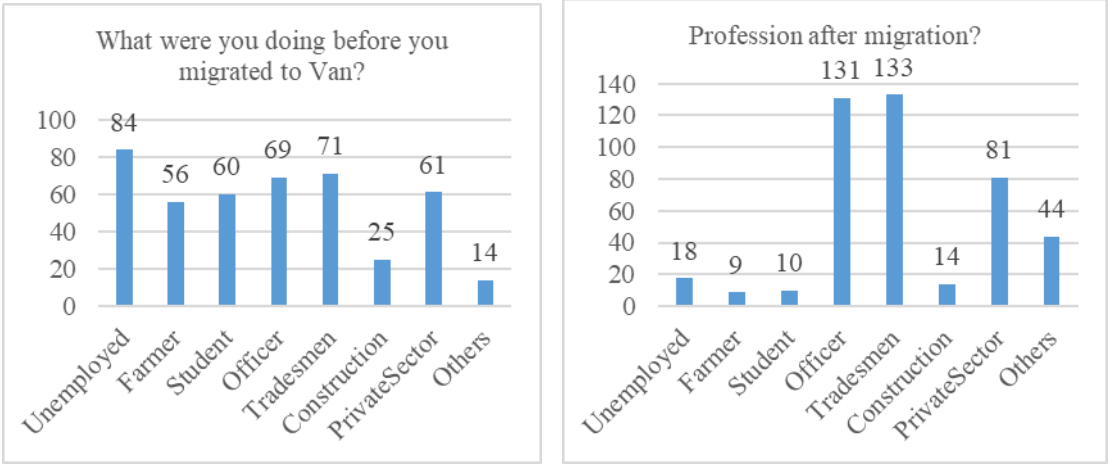
The graphs containing the demographic information obtained from the questionnaires are discussed in detail below.

Graph 1 shows the gender, age and marital status of the individuals who participated in the domestic surveys. When the graph is analyzed; 117 women and 323 men took part in the survey in which a total of 440 people participated. When the age range of the individuals who participated is analyzed; 56 people are in the 50-60 age range, 96 people are in the 40-50 age range, 121 people are in the 20-30 age range and 167 people are in the 30-40 age range. When the marital status of the individuals who participated is analyzed; 21 people are widowed, 100 people are single and 309 people are married.

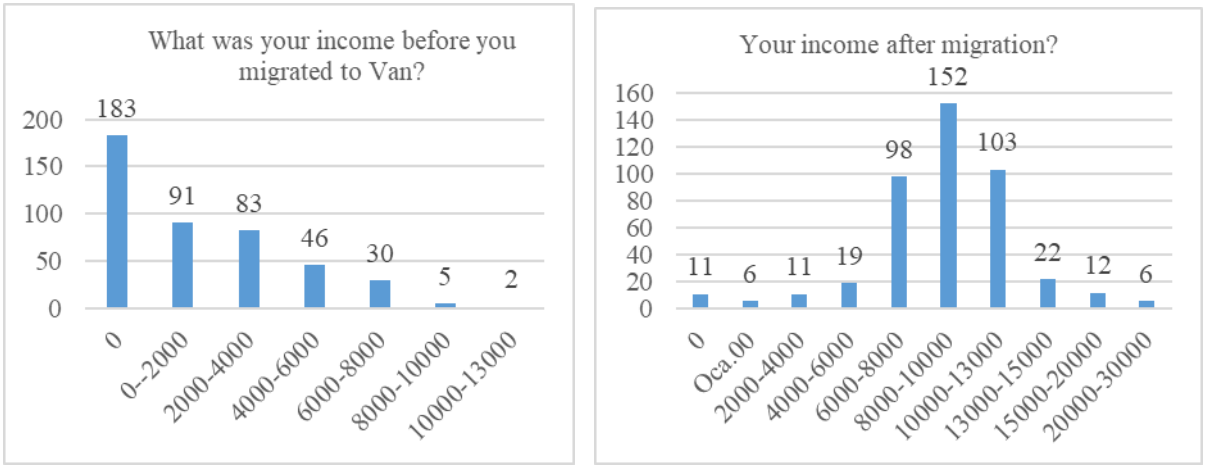
Graph 2 shows the educational information of the individuals who participated in the domestic surveys. When the graph is analyzed; 7 illiterate, 31 literate, 31 primary school graduates, 61



Graph 2. Education Information of Individuals Participating in the Surveys



Graph 3. Occupational Information of Individuals Participating in the Surveys



Graph 4. Income Information of Individuals Participating in the Surveys

secondary school graduates, 87 high school graduates, 14 vocational high school graduates, 19 vocational college graduates, 46 associate degree graduates, 131 university graduates and 13 postgraduate graduates took part in the survey in which 440 people participated.

Graph 3 shows the pre-migration and post-migration occupational information of the individuals who participated in the domestic surveys. When the graph is analyzed according to the pre-migration occupational group; 84 unemployed, 56 farmers, 60 students, 69 civil servants, 71 tradesmen, 25 construction, 61 private sector, and 14 other occupational groups are included in the survey in which 440 people participated. When the graph is analyzed according to the occupational group after migration; 18 unemployed, 9 farmers, 10 students, 131 civil servants, 133 tradesmen, 14 construction, 81 private sector, and 44 other occupational groups are included in the survey in which 440 people participated. When a comparison is made according to the occupational groups before and after migration; especially after migration, there has been a significant decrease in the number of unemployed people, farmers and construction group. There has been an increase in the number of civil servants, tradesmen, private sector and other occupational groups.

Graph 4 shows the pre-migration and post-migration income information of the individuals who participated in the domestic surveys. When the graph is analyzed according to the pre-migration income group; 183 people are in the income group of 0, 91 people between 0-2000 TL, 83 people between 2000-4000 TL, 46 people between 4000-6000 TL, 30 people between 6000-8000 TL, 5 people between 8000-10000 TL and 2 people between 10000-13000 TL. When the graph is analyzed according to the income group after migration; in the survey in which a total of 440 people participated; 11 people are in the income group of 0, 6 people are between 0-2000 TL, 11 people are between 2000-4000 TL, 19 people are between 4000-6000 TL, 98 people are between 6000-8000 TL, 152 people are between 8000-10000 TL, 103 people are between 10000-13000 TL, 22 people are between 13000-15000 TL and 6 people are between 20000-30000 TL. When a comparison is made according to the income groups before and after migration; it is observed that there is a general increase in the income of the individuals who migrated. It is observed that there is a significant decrease especially in individuals with 0 income.

Table 1. Mean and standard deviation values of variables

Variables	Mean	Std. Deviation
BCAP	8,036	1,677
QAM	7,752	1,619
IEO	6,188	3,191
IHS	6,115	2,961
CGC	5,640	2,161

Table 1 gives the mean and standard deviation values of the variables used. When the table is analyzed; the mean of the answers given to the BCAP variable is 8,036. This mean indicates that there is a high level of agreement with the view that cultural similarity is useful in the process of adaptation after migration. The mean of the answers given to the QAM variable is 7,752. This average means that the participation rate of individuals who migrated from neighboring provinces did not feel foreignness and adapted to the new life in a short time after migration is high. The mean of the answers given to the IEO variable is 6,188. This average means that the migration caused by inadequate educational opportunities is not low. The mean of the answers given to the IHS variable is 6,115. This average means that there is migration due to inadequate health facilities and it is not a low rate. The average of the answers given to the last variable, CGC, is 5,640. Considering the options of 1 strongly disagree and 10

strongly agree in the questionnaires, it is observed that the rate of agreement with the option that Van province is good in terms of climate and geography is not low.

Table 2. Information on the variables used in the analysis

Variables	Explanation
BCAP	I saw the benefit of cultural similarity in the post-migration adaptation process. (Dependent Variable)
QAM	I quickly adapted to my post-migration life.
IEO	Insufficient educational opportunities.
IHS	Insufficient health services.
CGC	Van is a city suitable for living in climatic and geographical conditions.

The acronyms for the variables used in the analysis are displayed in Table 2. Table 3 below provides the variables' descriptive statistics.

For the variables used in this investigation, complete descriptive data are provided in Table 3. The table shows the descriptive statistics for all variables (min, 1stQu, median, mean, 3rd Qu, and max). 10 options in the survey were rated as entirely agreeable, while only 1, was rated as severely disagreeable. When Table 3 is analyzed, the Van is a city suitable for living in climatic and geographical conditions variable has the lowest average value (5.360), while the I saw the benefit of cultural similarity in the post-migration adaptation process average value (7.637). In the maximum values, the I saw the benefit of cultural similarity in the post-migration adaptation process and Insufficient educational opportunities variables have the highest value (10.000), while the Van is a city suitable for living in climatic and geographical conditions has the lowest values (8.500).

The results of the OLS model are summarized in Table 4. The existence of a multicollinearity problem was assessed using (variance inflation factor) VIF values. When there is no multicollinearity problem among the independent variables, parameter estimations in multiple linear regression analysis are performed according to the OLS method. The OLS method is based on coefficient estimates that minimize the sum of error squares. In case of multicollinearity among the independent variables, the estimations made by the OLS method are unbiased. However, the increase in variances causes the coefficients to be statistically insignificant. For this reason, penalized estimation methods, which are biased estimation methods, are proposed instead of the OLS method. In these models, by adding a small penalty constant to the OLS estimator model, parameter variances are minimized and thus, more significant results can be obtained by minimizing the sum of error squares (Demir, 2020; Yüzbaşı and Pala, 2022; Ahmed et al, 2023). The fact that the VIF values are less than 10 means that there is no multicollinearity problem (Rybarczyk, 2018). When Table 4 was

Table 3. Descriptive statistic of variables

Variables	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
BCAP	3.000	7.068	8.000	7.637	8.644	10.000
QAM	3.000	6.828	7.667	7.418	8.333	9.167
IEO	1.000	3.667	5.556	5.691	8.050	10.000
IHS	1.000	3.823	5.750	5.612	7.850	9.750
CGC	1.000	4.000	5.000	5.360	7.000	8.500

Table 4. Summary of OLS model coefficients.

Variables	Estimate	Std.Error	t-statistic	p-value	VIF value
Intercept	2.629	0.821	3.201	0.002**	-
QAM	0.550	0.119	4.607	0.000***	1.249
IEO	-0.420	0.143	-2.920	0.004**	7.468
IHS	0.565	0.153	3.685	0.000***	8.014
CGC	0.027	0.093	0.290	0.772	1.554

Signif. codes: 0.01 '***,' 0.05 '**,'0.1*

Table 5. Global Moran's I for response and explanatory variables.

Variables	Moran's	Z score	Pattern	p-value
BCAP	0.542	6.259	Clustered	0.000***
QAM	0.126	1.591	Clustered	0.048**
IEO	0.527	5.964	Clustered	0.000***
IHS	0.631	7.112	Clustered	0.000***
CGC	0.389	4.461	Clustered	0.000***

Signif. codes: 0.01 '***,' 0.05 '**,'0.1*

examined, it was concluded that the VIF values of all variables were less than 10 and therefore there was no multicollinearity problem. According to the results of OLS analysis, a significant relationship is observed between the dependent variable BCAP and fixed, QAM, IEO and IHS ($p \leq 0.05$). While there is a positive relationship between BCAP and QAM and IHS, there is a negative relationship between BCAP and IEO. According to this situation, while the change in the variables QAM and IHS causes an increase in the variable BCAP, the change in the variable IEO causes a decrease in the variable BCAP.

Table 5 shows the spatial autocorrelation values of the variables. When Table 5 is examined, it was found that all the variables showed positive spatial autocorrelation according to Moran's I values, and at the same time, the spatial autocorrelation in the variables was significant ($p \leq 0.05$). This situation means that the spatial relationships affecting these variables differ between provinces and districts. The reasons for this difference can be listed as follows:

- Ethnic groups or cultural characteristics in a region affect local values, traditions and lifestyles.
- The level of education affects the quality of labor force and economic potential in a region.
- Levels of industrialization affect the economic structure of a region. Differences can be observed between developed industrial regions and regions with economies based on agriculture or the service sector.
- Job opportunities affect population movement, income distribution and living standards in a region.
- Factors such as local government policies, economic incentives, tax policies and development strategies between provinces or districts may lead to differences in spatial relations.
- Geographical factors such as climate, altitude and vegetation can cause regional differences. For example, the differences between a mountainous region and a plain can have an impact on agriculture, settlement patterns and economic activities.
- Different climatic conditions may lead to differences in areas such as agricultural products, energy use and tourism.

Table 6. Estimated diagnostics of OLS and GWR models (n=440).

Variables	OLS	GWR
R^2	0.445	0.885
Adj.R^2	0.410	0.833
AIC	215.053	144.770
AICc	216.430	112.464
BIC	185.687	98.438
Residual sum of squares	78.863	16.264

Table 6 shows the values used to compare the OLS and GWR models. R^2 is a statistical measure that shows the degree of variation in the dependent variable as a function of the independent variables. It takes a value between 0 and 1. A high R^2 value means that the explanatory power of the model is high. AIC, AICc and BIC are selection criteria used to compare different models and determine which is the best fit to the data. Low AIC, AICc and BIC values are preferred when selecting the appropriate model (Akaike, 1974; Hurvich and Tsai, 1989; Raftery, 1995; Sheather, 2009). RSS is a measure of the discrepancy between the data and a prediction model such as linear regression. A small RSS indicates that the model fits the data better. When Table 6 was examined, it was observed that the R^2 (0.445) and *Adj.* R^2 (0.410) values of OLS were lower than the R^2 (0.885) and *Adj.* R^2 (0.833) values of GWR. It was also observed that the AIC (215.053) of OLS was higher than the AIC (144.770) of GWR. The same is true for AICc and BIC. It was observed that these values of OLS (216.430, 185.687) were higher than those of GWR (112.464, 98.438). Finally, it was concluded that the RSS value of OLS (78.863) was higher than the RSS value of GWR (16.264). According to these results, all the values in the study show that the GWR has a significantly better agreement with the empirical data. Therefore, it has been observed that GWR gives stronger results than OLS.

Table 7. Global Moran's I statistics for OLS and GWR residuals.

Model	Moran's I	Variance	z-score	p -value
OLS	0.586	0.008	6.664	0.000***
GWR	-0.112	0.007	-1.128	0.870

Signif. codes: 0.01 '***,' 0.05 '**,'0.1*

Table 7 presents the global Moran's I statistics for the residuals of both the OLS and GWR methods. As can be seen from the data in Table 7, the value of Moran's I is closer to the expected value in the GWR model than in the OLS model. At the same time, it should be noted that significant spatial autocorrelation was found in the OLS model ($p \leq 0.05$), whereas no such autocorrelation was found in the GWR model ($p \geq 0.05$).

Table 8 presents the outcomes of Leung's F-test, which focuses on evaluating the improvement factor of OLS (Leung et al., 2000). Leung's F-test is computed using three distinct techniques, denoted as F(1), F(2), and F(3) (Kamata et al., 2010). The first test, F(1), examines the ratio of residual sum of squares between OLS and GWR across various degrees of freedom. A significantly low value of F(1) implies that the GWR model provides a better fit than OLS. At a significance level of ($p \leq 0.05$), the calculated F-statistic value (0.209) for the sum of squares of

Table 9. GWR parameter summary results.

Variables	Min.	1st Qu.	Median	3rd Qu.	Max.
Intercept	-0.592	0.831	3.834	5.501	5.979
QAM	0.117	0.238	0.441	0.818	0.903
IEO	-0.741	-0.603	-0.261	-0.191	-0.014
IHS	0.074	0.170	0.276	0.783	1.139
CGC	-0.316	-0.096	0.069	0.178	0.336

residuals from the OLS model (78.863) and the GWR model (5.724) holds statistical significance. This indicates that the GWR model outperforms the OLS model. The second test, F(2), adjusts the degrees of freedom to assess the connection between the residual sum of squares in OLS and the improvement factors resulting from transitioning from OLS to GWR.

A statistically significant distinction between the OLS and GWR models is evident ($p \leq 0.05$), indicated by a notably low F(2) value and an F-statistic (1.419) derived from the comparison of the sum of squares of OLS residuals (78.863) and the improvement factor (73.138). The F(3) test additionally encompasses an analysis of the distribution for each coefficient. Regional disparities related to the specific coefficient attain statistical significance when the F(3) value is elevated. As depicted in Table 8, regional variations are observed for all variables ($p \leq 0.05$).

The regression coefficient values acquired through both local and global models are exhibited in Table 9. In the context of the global model, a parameter was computed for each independent variable. Consequently, the table comprises the minimum, maximum, and median values. On the other hand, in the GWR model, the count of parameters (pertaining to each variable) aligned with the quantity of geographical units. The data reveals that the parameter values within the global model gravitated around the median of the GWR model coefficients. Nevertheless, the minimum and maximum values highlight that these parameters exhibit diversity across distinct counties. It is evident that the global model falls short of precisely capturing the intricacies of the phenomenon being studied. Unlike the GWR model, the global approach merely presents averaged data and fails to elucidate the nuances of local labor markets. The outcomes of the GWR analysis illustrate the impacts of the independent variables on the dependent variable across provinces and districts, visualized in the subsequent graphs. In the graphs portraying the coefficient of variation for the variables (left graph), the province of Van is represented in grey, while in the graph displaying the significance of the relationships between the variables (right graph), it is depicted in turquoise.

Rapid adaptation to a new life after migration requires individuals to adapt quickly to the cultural changes they experience. The benefits of cultural similarities play an important role in the post-migration adaptation process. While adapting to a new environment, people can bond more quickly with similarities from their own culture. Cultural similarities such as common language, traditions, values and norms can increase social integration by facilitating communication between individuals. These similarities may enable individuals to find emotional support, integrate into their communities more quickly and approach their new life with a more positive perspective. Therefore, the presence of cultural similarities in the post-migration adaptation process may contribute to individuals' more effective adaptation to their new lives. Figure 1 shows the relationship and significance levels between the independent variable QAM and the dependent variable BCAP by province and district. Analyzing the coefficient distributions of the QAM variable (left figure), there is a positive relationship between QAM and BCAP in all provinces and districts. In this case, the change in the QAM variable causes an increase in the BCAP variable in all provinces and districts. The effect is particularly

Table 8. Comparison between OLS and GWR models

Leung et al. (2000) F(1) test				
F-value	SS OLS residuals	SS GWR residuals	df	p-value
0.209	78.863	5.724	32.847	0.000***
Leung et al. (2000) F(2) test				
F-value	SS OLS residuals	SS GWR improvement	df	p-value
1.419	78.863	73.138	50.083	0.047**
Leung et al. (2000) F(3) test				
	F statistic	Numerator d.f.	Denominator d.f.	p-value
Intercept	5.141	11.135	32.847	0.000***
QAM	5.463	14.926	32.847	0.000***
IEO	1.988	9.407	32.847	0.044**
IHS	2.749	11.322	32.847	0.011**
CGC	2.131	12.562	32.847	0.040**

Signif. codes: 0.01 '***,' 0.05 '**,'0.1*

strong in the northern region of Van province (green areas). When the significance of the relationship between the QAM and BCAP variables is analyzed locally (figure on the right), there is a significant relationship between the variables in provinces and districts except for Mardin and its districts, Şırnak and its districts and some districts of Hakkâri province (green areas).

Rapid adaptation to a new life after migration and the benefits of cultural similarities in the adaptation process may vary according to provinces. Large metropolitan areas bring together individuals from different cultures in a more diverse environment. This environment provides a wider range of cultural similarities and there may be more commonalities between individuals. In large cities, people from different cultures can often interact with each other and find common ground, which can support a rapid adaptation process. In smaller settlements, it may be important to adapt to local culture and traditions. In this case, migrants' similarities with the local culture may help them integrate into their communities faster and adapt to their new life more easily. Therefore, the usefulness of cultural similarities in the post-

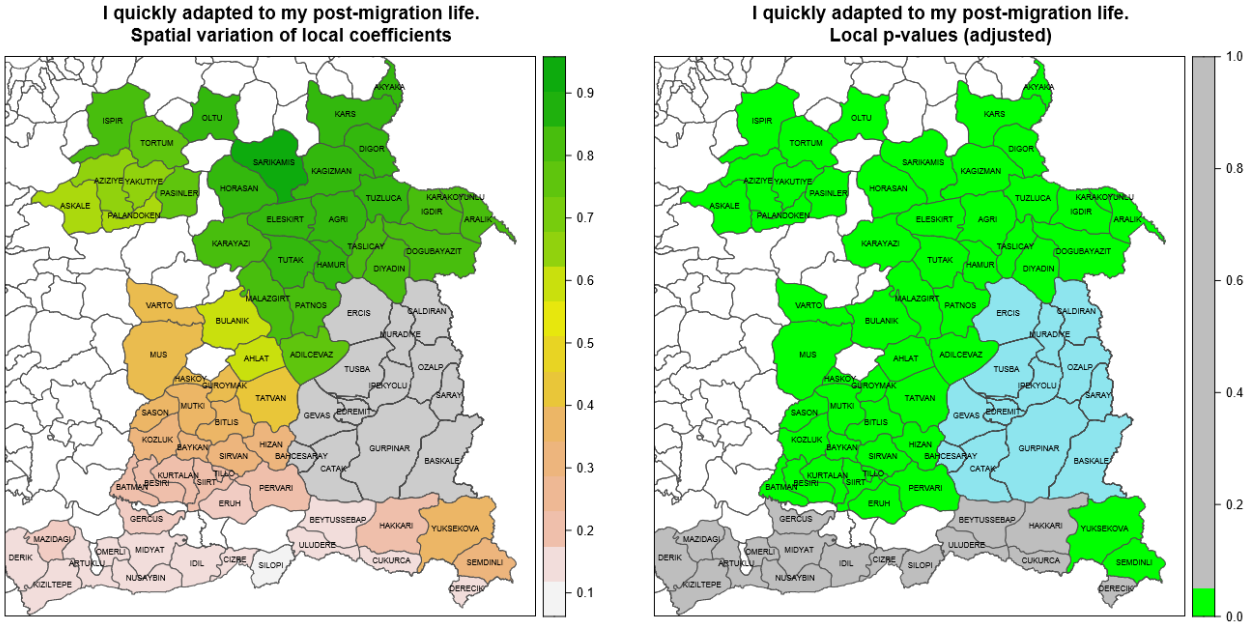


Figure 1. Distribution and significance of the relationship between QAM and BCAP by province and district.

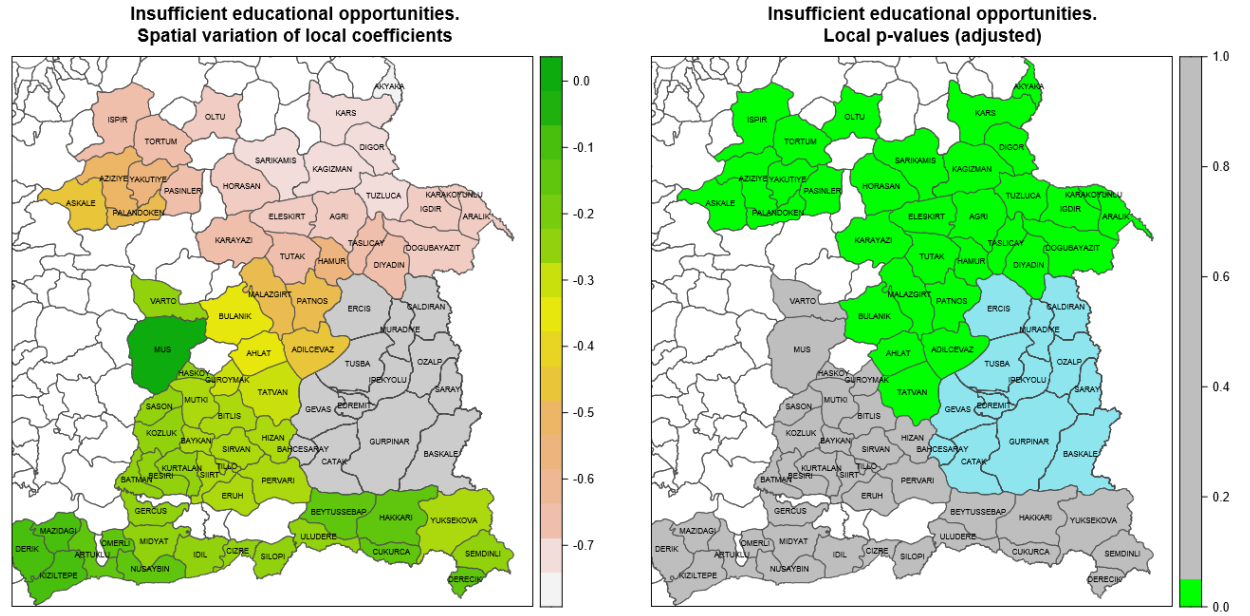


Figure 2. Distribution and significance of the relationship between IEO and BCAP by province and district.

migration adaptation process may vary across provinces depending on factors such as the size, diversity and cultural structure of the settlement area.

In migration from regions where educational opportunities are inadequate, individuals may often have difficulties in coping with the education system in their new settlement. The advantages provided by cultural similarities play an important role in the post-migration adaptation process. Migrants can adapt to the education system more quickly based on similarities from their own culture. Cultural similarities such as common language, traditions and values can facilitate the integration of migrants into the education system by bringing more effective communication and understanding in the educational process. These similarities can also strengthen social integration by enabling them to adapt more quickly to their communities. Therefore, in situations where educational opportunities are inadequate, cultural similarities can contribute to migrants' more effective adaptation to new educational environments and successfully complete the adaptation process. Figure 2 shows the relationship and significance levels between the independent variable IEO and the dependent variable BCAP according to provinces and districts. When the coefficient distributions of the IEO variable are examined (left figure), it is observed that there is a negative relationship between IEO and BCAP in all provinces and districts except the center of Muş. It is observed that there is no effect in Muş center. In this case, the change in the IEO variable causes a decrease in the BCAP variable in all provinces and districts except Muş center. When the significance of the relationship between the IEO and BCAP variables is analyzed locally (figure on the right), there is a significant relationship between the variables in the northern and northwestern regions of Van province (green areas). In migration from places with inadequate educational opportunities, the effect of cultural similarities on the adaptation process may differ by province depending on factors such as the size, diversity and cultural structure of the settlement.

In migration from regions where health facilities are inadequate, difficulties may arise in individuals' access to health services. In the post-migration adaptation process, the advantages provided by cultural similarities may alleviate this situation. Migrants can adapt to the health system more quickly based on similarities from their own culture. Cultural similarities such as common language, traditions and perception of health allow them to utilize health services more effectively. In addition, migrants' approaches to health problems can be more understanding and effective thanks to similarities from their own culture. These similarities can improve treatment processes by increasing effective communication with health professionals and facilitate the integration of migrants into the health system. In conclusion, in migration from regions with inadequate health facilities, cultural similarities may play a role in meeting the health needs of migrants and positively affect the adaptation process. Figure 3 shows the relationship and significance levels between the independent variable IHS and the dependent variable BCAP by province and district. Analyzing the coefficient distributions of the IHS variable (left figure), there is a positive relationship between IHS and BCAP in all provinces and districts. In this case, the change in the IHS variable causes an increase in the BCAP variable in all provinces and districts. The effect is particularly strong in the northern and north-western regions of Van (green areas). When the significance of the relationship between the IHS and BCAP variables is analyzed locally (right-hand figure), there is a significant relationship between the variables in Yüksekova and Şemdinli districts and in the northern and north-western regions of Van province (green areas). In migration from places with inadequate health facilities, the effect of cultural similarities on the adaptation process may differ by province depending on factors such as the size and diversity of the settlement and the state of health infrastructure.

Climate and geography are decisive factors in the choice of settlement location and therefore Van may offer a favorable environment for its inhabitants. However, the unfamiliarity of these conditions for migrants may make adaptation difficult. Cultural similarities can help migrants to adapt more quickly to the local community. Common traditions, language and values allow migrants to establish a bond in their new life and interact with the local community. These similarities can positively influence the adaptation process by strengthening social integration. Therefore, in climatically and geographically favorable cities like Van, the role of cultural similarities in the adaptation process of migrants can provide an important support by facilitating their faster integration into their new communities. Figure 4 shows the relationship and significance levels between the independent variable CGC and the dependent variable BCAP by province and district. When analyzing the coefficient distributions of the CGC variable (left figure), it is observed that there is a negative relationship between CGC and BCAP in provinces and districts other than the southern, south-western and western regions of Van province. In this case, in the northern and northwestern regions of Van province, the change in the CGC variable causes a decrease in the BCAP variable (light areas), while in the southern, southwestern and western regions of Van province, the change in the CGC variable causes an

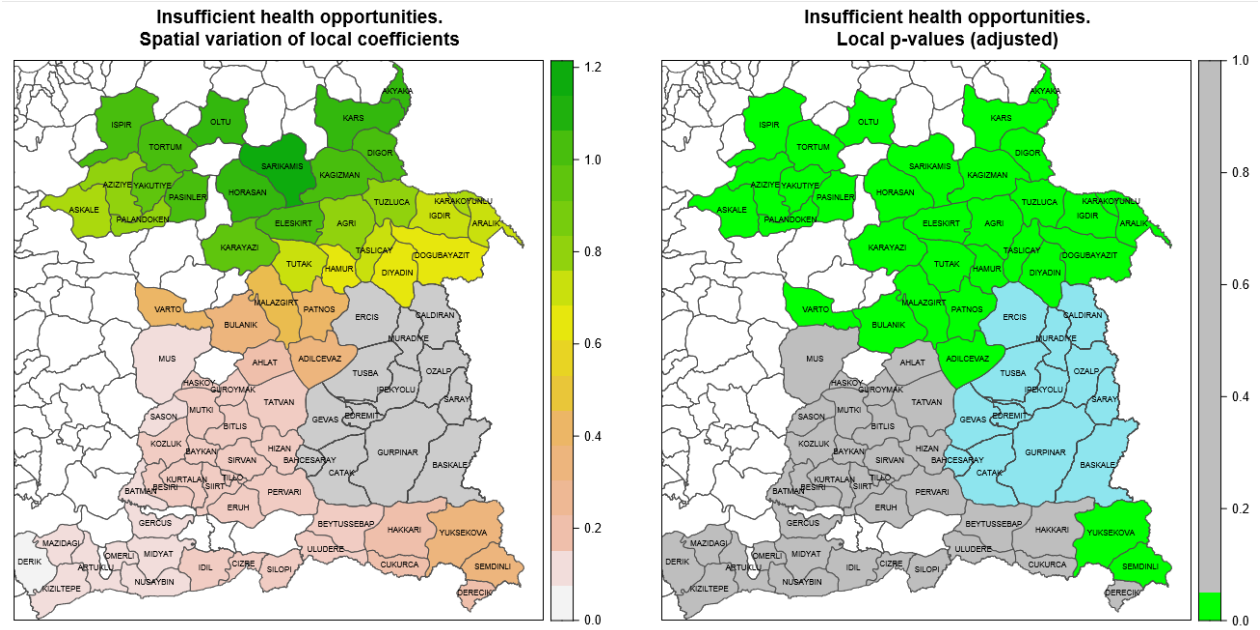


Figure 3. Distribution and significance of the relationship between IHS and BCAP by province and district.

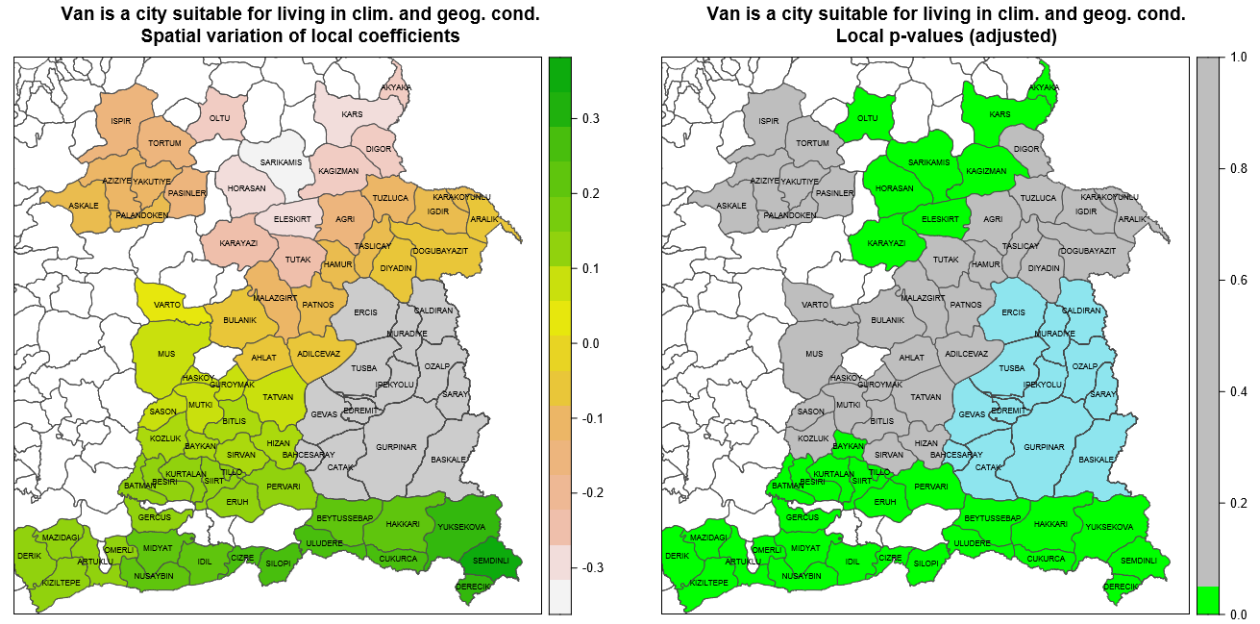


Figure 4. Distribution and significance of the relationship between CGC and BCAP by province and district.

increase in the BCAP variable (green areas). When the significance of the relationship between the CGC and BCAP variables is analyzed locally (figure on the right), there is a significant relationship between the variables in part of the northern region of Van, in the southern and south-western regions (green areas). In cities with favorable geographical and climatic conditions, such as Van, the benefits of cultural similarities in the adaptation process of migrants may vary by province depending on the size, diversity and cultural structure of the settlement.

Figure 5 presents the *Local* R^2 distribution showing the model fit by province and district. The *Local* R^2 takes values between 0 and 1 and indicates how well the local regression model fits the observed values of the dependent variable. Extremely low values indicate that the local model performs poorly. When analysing Figure 3.5, it can be seen that the *Local* R^2values are between 0 and 1 and that the *Local* R^2 values are high in all provinces and districts except the south-western region of Van province (green areas). Therefore, it can be said that the model fit is high in these

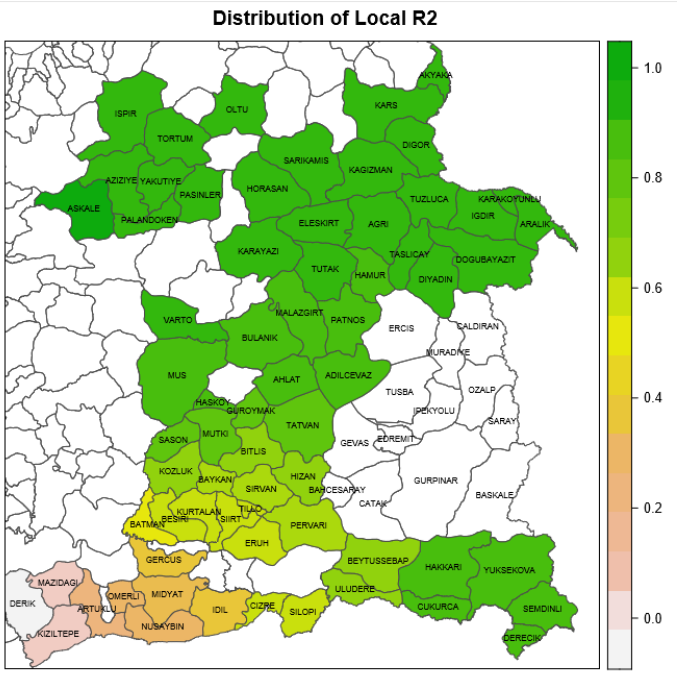


Figure 5. Distribution of Local R^2

regions. It can be mentioned that there is a good model fit in all provinces and districts when the model is considered. According to the global R^2 value in Table 5 (0.445), it is observed that the *Local* R^2 values are much higher than the global R^2 value in all provinces and districts (0, 1). Therefore, it can be concluded that GWR gives stronger results and allows us to see the change in each region.

3. CONCLUSION AND DISCUSSION

Migration stands as a dynamic and intricate phenomenon that continues to shape our global landscape in profound ways. As human societies evolve and adapt to changing circumstances, individuals and communities seek new opportunities, refuge, and connections in different corners of the world. While migration brings about challenges and complexities, it also embodies the resilience, innovation, and cultural enrichment that emerge when diverse perspectives converge. Recognizing the multifaceted nature of migration underscores the importance of fostering inclusive policies, promoting understanding, and embracing the richness that arises from the movement of people. In a world marked by interconnectedness and interdependence, a balanced and compassionate approach to migration can pave the way for a more harmonious and cooperative global future. Türkiye's experience with migration encapsulates a profound intersection of historical, cultural, economic, and geopolitical factors. As a bridge between East and West, the nation has both welcomed and grappled with the complexities of hosting diverse migrant populations. The Turkish government's efforts to manage migration, provide humanitarian aid, and foster integration demonstrate a commitment to addressing the challenges that arise from this ongoing phenomenon. As Türkiye navigates the intricate landscape of migration, it stands at a crucial juncture where inclusive policies, international cooperation, and a compassionate approach can contribute to the country's continued growth and stability, while exemplifying the potential for harmonious coexistence in a diverse world. The province of Van stands as a microcosm of the intricate tapestry that migration weaves within a local context. With its historical significance, cultural diversity, and strategic location, Van has witnessed the ebb and flow of human movement over time. The challenges and opportunities presented by migration in this region underscore the need for nuanced policies that balance preservation of cultural heritage with the promotion of social cohesion and economic development. As Van continues to embrace its role as a convergence point for various cultures and communities, it has the potential to serve as a model for the successful coexistence and integration of diverse populations, highlighting the enduring importance of understanding, empathy, and cooperation in the face of a constantly evolving migratory landscape.

In this study, the factors influencing cultural similarity in the post-migration adaptation process of individuals migrating from first- and second-degree border provinces to Van Province are analyzed using OLS and GWR methods. The results of the analysis are visualized by provinces and districts and presented on maps. According to the results obtained, it is shown in detail in Table 6 that the GWR model gives better results. According to the results, a positive relationship is observed between QAM and IHS and BCAP, while a negative relationship is observed between IEO and BCAP. Therefore, it can be said that the change in the variables QAM and IHS causes an increase in the variable BCAP. It was found that the change in the IEO variable caused a decrease in the BCAP variable. In addition, while a positive relationship was observed between CGC and BCAP in some provinces and districts, a negative relationship was found in other provinces and districts. While this relationship is positive in the South and South-East regions, there is a negative relationship in other regions. The power of the independent variables to explain the variance change in the dependent variable in the model was obtained by using Local R^2 according to the districts and this ratio was obtained as 0 to 1. It was concluded that the rate was higher in the northern regions, and therefore the independent variables better explained the dependent variable in this region. A high Local R^2 value was

observed in general, except in the south-west region (green areas).

This study is important in terms of the fact that migration, which is one of the important problems of today, was made in the province of Van and the model used. When migration studies conducted throughout Türkiye are examined, it has been observed that models such as OLS and Spatial analysis methods are used statistically (Öz and Çelebioglu, 2015; Özgür and Aydın, 2012, Aral and Oğuzlar,2021). In the case of the GWR model, it was concluded that migration is used less (Yakar, 2013). In the province of Van, migration is not studied with the GWR model, while migration studies are sociological and compilation style. Therefore, we believe that this aspect of the study will contribute to the literature. Although there are studies in the field of migration in international literature, we think that the absence of any study specific to the province of Van makes this study important internationally.

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