

INTERNATIONAL MIGRATION AND AGRICULTURAL SUSTAINABILITY IN THE ÇUKUROVA REGION: DETAILED ANALYSIS OF SOCIO-ECONOMIC STRUCTURE AND MIGRATION INTERACTIONS

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Abstract

This research aims to examine international migration movements and their effects on agricultural sustainability and the socio-economic structure in Turkey's Çukurova Region. The primary goal of the study is to provide strategic recommendations for the development of agricultural policies in the region by conducting a detailed analysis of the impacts of migration movements on agricultural sustainability. The first phase of the research was to investigate the general structure of international migration movements to the Çukurova Region and their socio-economic effects. In the second phase, data collected through surveys conducted with 14 family heads selected from the three most migration-receiving districts that represent the region in January and March 2024 was used. These surveys covered topics such as the migrants' countries of origin, family structures, capital transfers, sectors they work in, socio-economic statuses, and education levels. The collected data was evaluated using statistical and thematic analysis techniques, and these analyses provided a deep understanding of the dynamics of migration and their impacts on the agricultural sector. Findings reveal significant demographic shifts, with economic motivations driving migration decisions. The study points out the importance of understanding migrants' economic circumstances and cultural dynamics in shaping integration policies. Recommendations are proposed to facilitate economic integration and foster cultural harmony, contributing to a deeper understanding of migration's impact on agricultural sustainability.

Key words: Çukurova Region, international migration, agricultural sustainability, socio-economic analysis, survey study, impacts of migration

INTRODUCTION

Migration involves the movement of people from one place to another, with a change in residence. It can be voluntary or forced, taking two primary forms: internal, within a country's borders, and external, from one country to another [31]. Migration signifies a change in location, driven by diverse motivations. Individuals may move permanently or temporarily, engaging in seasonal migration with periodic shifts between locations. The duration of migration sparks debates on categorizing short-term relocations for education or work as migration [18]. Distinctions also arise in terms of space, distance, and cultural factors, transcending physical proximity. For example, a permanent move from an impoverished urban area to a higher socio-economic neighborhood is considered migration, emphasizing the

cultural dimension. Ultimately, migration is a population movement influenced by social, economic, political, environmental, and personal factors [26].

International migration significantly shapes agricultural sustainability worldwide, impacting labor dynamics, remittances, knowledge transfer, climate adaptation, food production, and rural development. This migration leads to the movement of skilled and unskilled labor, profoundly affecting the agricultural workforce [25]. Migrant workers contribute diverse skills, knowledge, and work ethics to agricultural operations, enhancing productivity and efficiency. Migration often involves the movement of labor from rural to urban areas or across borders, with migrant workers playing a substantial role in the agricultural sector of host countries, such as the United States relying on Mexican labor for seasonal tasks

[26]. Furthermore, migrants bring unique cultural perspectives and traditional agricultural practices, fostering innovation in farming techniques and introducing diverse crops, contributing to agricultural biodiversity [17]. The exchange of agricultural knowledge and technologies across borders is facilitated by migration. For example, Indian migrants returning from Gulf countries bring back skills and technologies that enhance agricultural practices in their home villages, contributing to increased productivity and sustainability [29]. Similarly, the transfer of organic farming expertise from European countries to emerging economies in Africa is facilitated by migration [21]. Moreover, remittances from international migrants play a crucial role in supporting agricultural sustainability in their home countries. Migrant families invest in agricultural projects, such as improved irrigation systems or sustainable farming practices, thereby enhancing local food security [19]. In countries like Mexico and the Philippines, remittances from migrants working abroad often fund agricultural investments [11]. Additionally, climate change influences migration patterns, disproportionately affecting agricultural communities. In countries like Bangladesh, where climate change exacerbates agricultural challenges, migration becomes a strategy for adaptation. Migrants may seek livelihoods in urban areas or move to more resilient agricultural regions [24, 27].

In the context of Turkey, situated at the crossroads of Europe and Asia, Turkey grapples with the dual challenge of effectively managing migration while ensuring the sustainability of its agricultural sector. The country has emerged as a significant destination for international migrants, predominantly from neighboring countries, who actively contribute to various agricultural activities, such as seasonal harvesting and cultivation [22]. Notably, regions like Hatay, near the Syrian border, and İzmir, a major agricultural hub, have experienced substantial migrant labor influx, with Syrian migrants crucial for sustaining agricultural activities in Hatay, while İzmir attracts international labor for diverse agricultural endeavors, including

olive cultivation and viticulture [24]. The relationship between migration and shifts in agricultural practices in Turkey is evident, with rural-to-urban migration driven by factors like limited employment opportunities and aspirations for an improved quality of life leading to a diminishing agricultural workforce. This demographic shift poses challenges to cultivation practices, thereby threatening the sustainability of small-scale farming [27, 15]. Migration also presents hurdles for agricultural sustainability in sending countries, where the loss of skilled labor hampers local development. Internal and international migration often results in shifts in the agricultural labor force, leading to potential labor shortages that impact farming communities and the agricultural sector at large [1, 20, 12]. The reliance on migrant laborers, especially in seasonal agricultural activities, introduces arguments related to labor rights, living conditions, and social integration. Ensuring the well-being of migrant agricultural workers is vital for the sector's sustainability [35]. Rural-to-urban migration in regions like Mersin has contributed to an aging agricultural workforce, posing challenges for maintaining productivity and sustainable farming practices. Additionally, migration can lead to the abandonment of agricultural land as young individuals seek non-agricultural employment opportunities in urban areas, presenting challenges like those faced by Konya, where the agricultural workforce is aging due to the migration of younger individuals to urban areas for non-agricultural employment [9, 4, 13].

Concerning the case of the Çukurova Region in Turkey, it has experienced a significant influx of international migrants, challenging the delicate equilibrium between sustainable agriculture and demographic moves, leading to noteworthy alterations in the region's demographic landscape and influencing the labor force composition in agriculture [2]. The heightened demand for migrant labor has implications for the sustainable management of agricultural resources, introducing complexities in workforce dynamics related to wages, working conditions, and social

integration. Achieving a balance that ensures the well-being of migrants while sustaining agricultural productivity is a notable challenge [5, 16]. Moreover, changes in land use patterns and agricultural practices resulting from international migration may have environmental repercussions. The adoption of different farming techniques and the expansion of agricultural areas to accommodate the growing population can impact the region's ecological balance [3].

Continuing as a significant global phenomenon, migration involves individuals relocating to new settlements, bringing diverse life experiences across social, economic, and cultural realms. Of particular importance is the economic status of immigrants, which holds significance for both the migrants themselves and the host countries. The integration of immigrants stands as a pivotal concern, impacting not only individuals but also the cohesion and prosperity of destination countries and societies. Immigrants' income levels play a crucial role in fostering social inclusion, driving economic growth, and maintaining social stability. Hence, prioritizing the understanding and facilitation of immigrants' economic integration is imperative for enhancing overall social welfare.

This study aims to explore the determinants influencing immigrants' annual income levels, thereby enhancing our comprehension of their economic assimilation. By grasping the implications of immigrants' economic status, policymakers can effectively devise immigration strategies, thereby promoting immigrants' economic well-being. This research was conducted to understand the factors affecting the income levels of immigrants and to contribute to the development of immigration policies. Additionally, help us better understand the impacts on the economic integration of immigrants and the policy interventions that can be made in this area.

MATERIALS AND METHODS

The primary data for this research were gathered through 14 face-to-face interviews with individuals who had immigrated to

Adana. These interviews, focusing on aspects such as the migration process, motivations, and adaptation in settlements, constitute the core of our investigation. Despite efforts, some participants were reticent, and logistical constraints limited the number of surveys conducted. To supplement our primary data, we conducted in-depth interviews with local migration experts, administrators, and immigrants. Furthermore, we incorporated secondary data from sources like the Turkish Statistical Institute (TUIK) [34]. and existing migration research. Detailed analyses of survey data from January and February 2024 were conducted using techniques such as cross-tabulation, statistical analysis, and regression analysis. These methods allowed us to delve into the challenges faced by migrants, their integration into local society, and the broader economic, social, and cultural impacts of migration.

RESULTS AND DISCUSSIONS

The results shows that the age distribution of the survey participants, the number of people between the ages of 19-29 is 6 and constitutes 42.86% of the participants. The number of people aged 30-39 is 8 and constitutes 57.14% of the participants. There are no participants in the 40-49 age range. This finding is similar to [31]. Most of the survey participants are in the 30-39 age range.92.86% of the respondents are male and 7.14% are female. The education level distribution, we see that 50% of the survey participants are primary school graduates and 50% are secondary school graduates. This indicates that the participants mostly had a basic level of education. It may have an impact on factors such as education level, employment opportunities after migration, economic situation, and integration process. The research findings or literature discussing the impact of education levels on migration outcomes, is collaborated [14]. They showed that the relationship between education and migration outcomes, including labor market integration and economic assimilation. Addionnally, results by [25]. This overview provides insights into how education affects

various outcomes, including labor market outcomes and social integration. Also, collaborated the findings of [10, 7] it was pointed out the role of education in migration decisions and outcomes, as well as the impact of migration on educational attainment and social integration. Most participants (71.43%) were not employed at the time of participating in the survey. This may indicate that unemployment and lack of certain job skills may be common among immigrants. However, a small percentage (21.43%) work as laborers and fewer (7.14%) work in unskilled jobs. These data can help us understand the challenges of immigrants' integration into the labor market. The reasons for migration are examined, it is seen that many of the participants (42.86%) migrated for economic reasons. In addition, in addition to economic reasons, family or personal reasons (21.43%) also appear to be effective in migration decisions. This diversity of reasons for migration allows us to understand migrants' motivations and post-migration experiences. The places of migration are examined, it is seen that most of the participants (57.14%) migrated to Adana. Yüreğir is another important region of migration and 28.57% of the participants migrated to this region. These data help us understand which regions migration is concentrated in and evaluate the regional impacts of migration.

Most participants (71.43%) state that they worked as workers in the agricultural sector before migration. Those working in the agricultural sector are often those who migrate from villages or rural areas, and this is an important component of agricultural migration.

In addition, some of the participants (21.43%) were working in unskilled jobs and a small part (7.14%) were tradesmen. This finding is similar to [28] who highlighted the prevalence of unskilled labor migration and the presence of skilled workers such as tradesmen in migration streams. All participants (100.00%) state that they worked as workers in the agricultural sector after migration. This shows that employment and professional change are limited after migration, and the agricultural

sector is the main source of employment for immigrants. These data provide important information about immigrants' professional background, work experience, and post-migration employment status. It can also deepen our understanding of immigrants' economic integration and their position in the labor market. All respondents (100.00%) indicate that they do not currently receive any support from the old region. This shows that immigrants are trying to stand on their own feet in new settlements and do not tend to use their networks in the old region. Most of the respondents (85.71%) state that they do not provide aid to the places they immigrated to. This may indicate that migrants often focus on their home settlement for economic or social reasons and allocate limited resources for their return to their former settlement. The result is similarly to finding found by [32]. Most respondents (64.29%) state that their current job is related to their pre-migration profession. This shows that immigrants often continue to work in the same sector and that occupational continuity is important in post-migration employment.

Most respondents (64.29%) state that they are considering starting their own business in their new settlement. This indicates that immigrants seek economic independence and stability by starting their own businesses. While 42.86% of the survey participants stated that they worked with insurance, 57.14% stated that they worked without insurance. The low rate of insured employment among immigrants may indicate issues such as lack of economic stability and social security.

Additionally, most respondents (85.71%) state that their children are receiving education. This shows that immigrant families value and care about their children's education.

More than half (50.00%) of the participants with children receiving education stated that they encountered various difficulties such as language barriers, cultural differences, economic difficulties, and social adaptation problems. These highlight the various barriers that immigrant families face in their children's education.

Table 1. Socio-economic characteristics of respondent

Variables		Number	Percentage
Age	19-29	6	43
	30-39	8	57
	40-49	0	0,0
Gender	Male	13	93
	Female	1	7,0
Education Level	Primary school	7	50
	Middle school	7	50
Occupation	Worker	3	21
	Not professional	10	71
	Unskilled	1	7,0
Reason for Migration	Family/Personal	1	7,0
	Economic	6	43
	Economic, Family/Personal	3	21
	Economic, Education	1	7,1
	Economic, Education, Family/Person	1	7,1
	Economic, Education, Security	1	7,1
	Economical, Security	1	7,1
Place of Migration	Adana	8	57
	Adana Seyhan	1	7,1
	Türkiye Cukurova Adan	1	7,1
	Yuregir	4	29
Job Description	Small business	1	7,1
	Labor (agricultural sector)	10	71
	Unskilled	3	21
Support Status	Nope	14	100
Help Status	Yes	2	14
	Nope	12	86
Insured Employment Status	Yes	6	43
	Nope	8	57
Educational Status	Yes	12	86
	Nope	2	14

Source: Result of survey, 2024.

All respondents (100.00%) state that they work between 9 and 12 hours daily. This shows that migrant workers are often subjected to long and intense working hours. Most participants (64.28%) adopted the culture of the local people moderately or completely. This may reflect immigrants' efforts to adapt to the local culture in their new settlement. Many of the respondents (57.14%) stated that they sometimes experienced misunderstandings with the local people due to cultural differences. This situation shows that immigrants may face some difficulties in adapting to new cultural environments. Most participants (57.14%) stated that they experienced cultural differences regarding family structure in their

new settlement. These results show that immigrants may face some difficulties in adapting to traditional family structures. All respondents (100.00%) stated that the cultural differences they experienced did not have legal consequences. This may indicate that immigrants generally do not have problems adjusting to their new settlement in a legal sense. Similarly, the result found by [33]. Most respondents (92.86%) state that their current situation has improved compared to before migration. This may indicate that immigrants find better opportunities in their new settlements and living conditions generally become better. Most respondents (50.00%) state that two people in their family work regularly. This may reflect the need for

more than one family member to work to supplement families' income and provide economic stability. This result is collaborating with finding found by [6]. Most of the respondents (35.71%) stated that they were working in a low-skilled job before migration or that they had no profession or education and were working in a low-skilled job. Many participants (57.14%) stated that their average annual income was between 170,000 TL and 250,000 TL. Income distribution is generally moderate and diverse.

Most respondents (35.71%) describe their pre-migration occupational situation as "I had no profession or education; I was working in a low-skilled job." This shows that immigrants often work in low-skilled jobs and do not have pre-migration job training or experience. This finding is collaborated to result found by [8]. Many of the participants (64.29%) define their post-migration occupational status as "I work in a low-skilled job" or "I have a profession or education; I work in a low-skilled job." This shows that immigrants often continue to work in low-skilled jobs during the post-migration job search process.

Most respondents (64.29%) state that two people in their family work regularly. This may reflect the need for more than one family member to work to supplement families' income and provide economic stability. Similarly, the result found by [23]. All respondents (100.00%) stated that their children do not work. This may indicate that they are focused on children's education and school life. Most participants (57.14%) state that their children have both reading and writing skills in their native language. However, 42.86% of the respondents stated that their children could neither read nor write. This is an important indicator for understanding the educational status of children of immigrant families. More than half of the participants (50.00%) state that they occasionally visit the places they migrated to. This shows that immigrants tend to visit their old places from time to time to maintain ties and not forget their roots. Most of the participants (42.86%) state that they sometimes return to their hometowns for religious holidays, special occasions, or

family events. This shows that immigrants care about preserving their roots and cultural ties. The same result found with [23]. Most participants (21.43%) state that factors such as being separated from family and friends and adapting to a new culture are influential during the migration process. This reflects the difficulties immigrants experience in their social and cultural adaptation processes. Many respondents (57.14%) state that they occasionally participate in social activities in their new settlements. However, a small group (7.14%) stated that they did not agree at all. This may reflect immigrants' differing approaches to the process of adapting to their new communities and expanding their social networks. Many respondents (92.86%) indicate that they feel some solidarity with people from the same region. This may indicate that immigrants are trying to find support by establishing relationships with people who have had similar experiences. Similarly, with results found by [30] that most participants (42.86%) state that they carry out social activities with their own communities and with local people. This may reflect immigrants' need to both maintain their own cultural identity and interact with their new communities. Considering these results, it is important to focus on the economic, social, and cultural dimensions of migration to understand the lives of immigrants and support their integration processes. Considering this information, information and understanding can be provided to design and implement migration and integration policies more effectively. Supporting the economic and social integration of immigrants is an important step in managing the diversity of societies and creating an inclusive society. Table 3 indicates that there is no statistically significant difference in average annual income among visit frequency groups to the place of migration (p -value = 0.889). The data analysis reveals a significant difference in salaries between the reasons for migration and pre-migration occupational status (p -value < 0.05). However, no significant difference exists in terms of annual average income among other response groups.

Table 2. Challenges, Adaptation, and Socioeconomic Dynamics Among Migrant Workers

	Variables	Number	Percentage
Challenges	Language Barrier, Cultural Differences, Economic Difficulties, Social Adaptation Problems	7	50
	Economic Challenges	3	21.43
	Economic Difficulties, Social Cohesion Problems	2	14.29
	Cultural Differences, Economic Difficulties	2	14.29
Working Hours	9-12 Hours	14	100.00
Adoption Degree	Less Adopted	4	28.57
	I adopted it very much	5	35.71
	Moderately Accepted	4	28.57
	I Completely Adopted	1	7.14
Frequency of Misunderstanding	Sometimes	8	57.14
	Rarely	5	35.71
	Often	1	7.14
Cultural Differences	Family structure	8	57.14
	Family Structure, Marriage Traditions	3	21.43
	Family Structure, Marriage Traditions, Religious Practices	1	7.14
	Religious Practices	1	7.14
	Since everything is money-oriented, it becomes difficult to adapt to society.	1	7.14
Status	Unchanged	1	7.14
	get better	13	92.86
Number of Employees	1.00	2	14.29
	2.00	7	50.00
	3.00	4	28.57
	7.00	1	7.14
Professional Status	I was working in a low-skilled job	2	14.29
	I had no profession or education	3	21.43
	I had no profession or education; I was working in a low-skilled job	5	35.71
	I had no profession or education, I was working in a low-skilled job, I was in a mid-level job.	2	14.29
	I was working in a mid-level profession	2	14.29
Income Range	170,000 - 250,000	8	57.14
	270,000 - 425,000	5	35.71
	450,000 - 600,000	1	7.14
Number of Employees	1	1	7.14
	2	9	64.29
	3	3	21.43
	7	1	7.14
Children working	Nope	14	100.00
Status	Yes, You Know Both	8	57.14
	Neither Reading nor Writing	6	42.86
Current situation compared to your pre-migration	Search Secret	7	50.00
	None	3	21.43
	Rarely	3	21.43
	Often	1	7.14
Religious holidays	Sometimes	6	42.86
	None	2	14.29
	Rarely	6	42.86
The things that affect or move you the most during the migration process	Being Separated from Family and Friends	2	14.29
	Being Separated from Family and Friends, Language Barriers, Meeting New People	1	7.14
	Being Separated from Family and Friends, Adapting to a New Culture	2	14.29

Separation from Family and Friends, Adapting to a New Culture, Language Barriers	3	21.43
Being Separated from Family and Friends, adapting to a New Culture, Language Barriers, Meeting New People	4	28.57
Adapting to a New Culture, Meeting New People	2	14.29

Source: Result of survey, 2024.

Table 3. Socio-Cultural Dynamics of Immigration

	Variable	Average	N	Std. Deviation	p value
Regularly visit the place you immigrate	Search Secret	295714.3	7	135105.8	0.888731
	None	350000	3	100000	
	Rarely	281666.7	3	130416	
	Frequent	350000	1		
	Total	308214.3	14	115602.2	
Reason for migration	Economic	266428.6	7	65237.66	0.039795
	Economical, Security	431250	4	143432.6	
	Family/Personal	250000	2	0	
	Total	314615.4	13	117711.9	
Profession before immigration	1	294500	10	120056.7	0.425621
	2	381666.7	3	97510.68	
	3	225000	1		
	Total	308214.3	14	115602.2	
Adopted the culture of the local people in your new settlement	1	400000	4	156790.7	0.125203
	2	305000	4	121518.2	
	3	249166.7	6	14288.69	
	Total	308214.3	14	115602.2	
Gender	Male	305000	13	119669.7	0.723387
	Woman	350000	1		
	Total	308214.3	14	115602.2	
Profession	I am not a professional	296500	10	119397.8	0.48045
	Unskilled	450000	1		
	Employee	300000	3	108972.5	
	Total	308214.3	14	115602.2	
Country/region	Adana	325000	8	130247	0.572754
	Adana Seyhan	225000	1		
	Türkiye Cukurova Adan	170000	1		
	Yuregir	330000	4	90921.21	
	Total	308214.3	14	115602.2	
Experience misunderstandings with local people due to cultural differences	Sometimes	400000	4	156790.7	0.125203
	Rarely	305000	4	121518.2	
	Often	249166.7	6	14288.69	
	Total	308214.3	14	115602.2	
Current situation compared to your pre-migration situation	Changing	170000	1		0.228297
	get better	318846.2	13	112974.1	
	Total	308214.3	14	115602.2	

Source: Result of survey, 2024.

These results suggest that reasons for migration and occupational status may influence participants' salary levels, whereas factors like education level or gender do not appear to impact income. Based on the

findings from tables and cross-tabulations, the following conclusions can be drawn: Significant differences in salaries have been identified based on reasons for migration and professional status, indicating that these

factors may impact earnings levels among migrants.

Effect of Gender and Education Level on Income: Gender and education level do not appear to significantly influence participants' income levels, as observed from the data analysis.

Economic reasons emerge prominently among migration motives, with individuals migrating for economic reasons exhibiting lower average income levels compared to other motives.

Similarly, income levels vary across different regions or countries of migration. Also, the extent to which migrants embrace local culture or encounter cultural misunderstandings does not significantly affect their income levels.

These findings underscore the importance of understanding immigrants' economic circumstances when formulating immigration policies.

However, further data and detailed research are necessary for a more comprehensive analysis.

The socio-economic structures of individuals migrating to Adana and their reasons for migration were examined.

Surveys and in-depth interviews revealed that economic, security, and family/personal reasons drive migration decisions, with economic factors playing a predominant role. This research sheds light on the challenges faced by migrants and the cultural dynamics they encounter.

It explores immigrants' adaptation to local culture in new settlements and the impact of cultural differences.

Additionally, it investigates the relationship between immigrants' occupational status, income levels, and reasons for migration. Our findings highlight the influence of economic conditions and employment opportunities on migration decisions.

Furthermore, the study delves into immigrants' coping mechanisms with cultural differences and their impact on lifestyle adjustments in new environments. These insights are vital for understanding immigrants' experiences and enhancing migration policies.

Policy recommendations can be devised to facilitate immigrants' economic integration and foster cultural harmony.

This study contributes to the body of research on migration, providing valuable insights into the challenges faced by migrating individuals.

CONCLUSIONS

The research provides a detailed analysis of the socio-economic structure and migration interactions in Turkey's Çukurova Region, focusing on the impact of international migration on agricultural sustainability. The study reveals that international migration significantly influences various aspects of agricultural sustainability, including labor dynamics, remittances, knowledge transfer, and climate adaptation. It highlights the complex relationship between migration and shifts in agricultural practices, emphasizing the challenges and opportunities that migration brings to both sending and receiving regions.

The research findings underline the importance of understanding the motivations behind migration, with economic reasons being predominant. It also reveals the socio-economic characteristics of migrants, such as their age distribution, education levels, and employment status, shedding light on the challenges they face in integrating into the labor market and society. Additionally, the study explores migrants' adaptation to local culture and the impact of cultural differences on their lives.

Furthermore, it provides visions into the economic integration of migrants, revealing that factors such as pre-migration occupational status and reasons for migration significantly influence income levels. The findings emphasize the need for tailored policy interventions to support migrants' economic integration and foster cultural harmony in host communities.

Overall, the research contributes valuable insights into the dynamics of international migration and its implications for agricultural sustainability and socio-economic development in the Çukurova Region. It calls for comprehensive policy approaches that

address the diverse needs and challenges of migrants while harnessing the potential benefits of migration for agricultural development and community well-being.

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