KSÜ Tarım ve Doğa Derg 27 (6), 1475-1483, 2024
KSU J. Agric Nat 27 (6), 1475-1483, 2024
https://doi.org/10.18016/ksutarimdoga.vi.1442430

Assessment of Key Factors Affecting Farmers' Migration Intentions Due to the Syrian Conflict

Kuteybe GANNUM[1], Cuma AKBAY[2]✉, Cevahir KAYNAKÇI BAYDAR[3]
[1,2,3]Kahramanmaras Sutcu Imam University, Agricultural Faculty, Department of Agricultural Economics, Kahramanmaraş, Türkiye
[1]https://orcid.org/0000-0002-2366-362X . [2]https://orcid.org/0000-0001-7673-7584, , [3]https://orcid.org/0000-0003-3785-5283
✉: cakbay@ksu.edu.tr

ABSTRACT
This study aims to identify the migration patterns of Syrian farmers in northern Aleppo and to investigate the main factors affecting their migration patterns. In this context, the study data were obtained through face-to-face surveys with a total of 210 farmers from 17 villages in three administrative districts of Aleppo Governorate using a proportional sampling method. The data were analyzed using descriptive statistics and a logistic regression model. According to the results of the study, education level, land size, and household income were found to decrease the tendency to migrate. On the other hand, the factors that increase the tendency of farmers to migrate include being temporarily settled in the region and having family members abroad as refugees. As the war-induced environment has reduced participation in non-agricultural work, more farmers consider agriculture as their main source of livelihood.

Agricultural Economics

Research Article

Article History
Received : 26.02.2024
Accepted : 30.05.2024

Keywords
Syria,
Conflict,
Migration,
Migration intentions,
Agriculture

Suriye Çatışması Sebebiyle Çiftçilerin Göç Niyetlerini Etkileyen Temel Faktörlerin Değerlendirilmesi

ÖZET
Bu çalışma, Halep'in kuzeyindeki Suriyeli çiftçilerin göç şekillerini belirlemeyi ve göç etme niyetlerini etkileyen temel faktörleri araştırmayı amaçlamaktadır. Bu bağlamda çalışma verileri Halep Valiliği'nin üç ilçesindeki 17 köyde toplam 210 çiftçi ile oransal örnekleme yöntemi kullanılarak yüz yüze anket yoluyla elde edilmiştir. Veriler tanımlayıcı istatistikler ve lojistik regresyon modeli kullanılarak analiz edilmiştir. Araştırma sonuçlarına göre eğitim düzeyi, arazi büyüklüğü ve hane gelirinin göç eğilimini azalttığı tespit edilmiştir. Diğer taraftan, çiftçilerin göç eğilimini artıran faktörler arasında bölgeye geçici olarak yerleşmek ve aile bireylerinin yurt dışında mülteci olarak bulunması yer almaktadır. Savaşın neden olduğu ortam tarım dışı işlere katılımı azalttığından, giderek daha fazla çiftçi tarımı ana geçim kaynağı olarak görmektedir.

Tarım Ekonomisi

Araştırma Makalesi

Makale Tarihçesi
Geliş Tarihi : 26.02.2024
Kabul Tarihi : 30.05.2024

Anahtar Kelimeler
Suriye,
Çatışma,
Göç,
Göç niyeti,
Tarım

Atıf Şekli: Gannum, K., Akbay, C. & Kaynakçı Baydar, C. (2024). Suriye Çatışması Sebebiyle Çiftçilerin Göç Niyetlerini Etkileyen Temel Faktörlerin Değerlendirilmesi. *KSÜ Tarım ve Doğa Derg 27* (6), 1475-1483. https://doi.org/10.18016/ksutarimdoga.vi.1442430

To Cite : Gannum, K., Akbay, C. & Kaynakçı Baydar, C. (2024). Assessment of Key Factors Affecting Farmers' Migration Intentions Due to the Syrian Conflict. *KSU J. Agric Nat 27*(6), 1475-1483. https://doi.org/10.18016/ksutarimdoga.vi.1442430

INTRODUCTION

The Syrian conflict, which started in 2011, is considered very complex because of the diversity of ethical and social factors that have affected the entire situation in Syria, in addition to the multiplicity of parties to the conflict at the local, regional, and international levels. This complexity has made this crisis very difficult (Hove & Mutanda, 2015; Haran, 2016; Phillips & Valbjørn, 2018). Thus, the agriculture sector has also been influenced by the circumstances of war, leading to a decrease in the cultivated area and a subsequent reduction in the total amount of agricultural production (Mohammed et al., 2020).

Before the war, Syria was considered one of the few nations that had achieved self-sufficiency in a wide range of agricultural products, particularly major crops such as wheat, barley, and cotton (Carnegie Middle East Center, 2015). Significant improvements were also made in the quality of crops and land management through five-year plans, which formed the basis of the directed agricultural economy. In 2010, Syria had amassed a strategic reserve of wheat amounting to 3.5 million tons, distributed across 140 silos. Moreover, agriculture served as the primary

source of income for over 20% of the population before the war, and it employed more than 17% of the workforce (Harmoon Center, 2017). The irrigated lands had been expanded to 1.4 million hectares by 2010 as a result of an increase in the number of dams and irrigation canals, in addition to efforts to control the excessive use of groundwater, especially during drought periods, as witnessed in 2008 (SASG, 2011). In this context, some studies illustrated that the negative impact of climate change can be a reason for the Syrian crisis, where many farmers from the eastern parts of Syria have moved to other cities because of the drought (Mohammed et al., 2020); besides the Syrian government's tendency toward what is called a social market economy following price liberalization policy (Kelley et al., 2015).

Before the outbreak of the war, the government supported an ambitious project aimed at modernizing irrigation. This was achieved by providing farmers with easy loans and encouraging their participation through extension programs sponsored by government institutions. However, as the conflict continued for a decade, affecting the entire Syrian territory, particularly rural areas, the agricultural sector suffered gradual and catastrophic destruction on multiple fronts. This destruction included critical infrastructure, such as irrigation canals, roads, silos, agricultural research centers, agricultural extension services, and seed stores. Furthermore, the systems of marketing and geographical communication, which facilitated the movement of agricultural products between production areas and major markets, were severely damaged. Additionally, there was a gradual and significant shortage of essential agricultural inputs and production requirements, including machinery, irrigation tools, seeds, and fertilizers. The extent of damage inflicted on the agricultural sector was estimated to be approximately 60 percent by the end of 2016 (FAO, 2018). However, 16 billion dollars was estimated as a loss of the Syrian agriculture sector between 2011 and 2016, with 7.2 billion resulting from crop production losses (FAO, 2017). Therefore, a significant loss of Syrian GDP happened due to the damage witnessed in the agricultural sector, especially in the Syrian strategic crops (Mohammed et al., 2020). Similarly, Jaubert et al. (2014) illustrated that 70% of the agricultural production value was lost in the Qusair region, because of the military operations that took place there.

The mass forced displacement of citizens from conflict zones to safer areas poses one of the most significant challenges facing the agricultural sector, leading to a reduction in labour in productive areas. This migration can be classified into two distinct categories: international migration, which involves movement beyond the borders of the country and leads to the permanent loss of labour from the nation, and internal migration characterized by a transition from a temporary to a semi-permanent status as a consequence of the ongoing war (David et al., 2019; Ahmadzai & Akbay).

Conflicts lead to direct losses in the labour force due to death, disability, displacement from places of conflict, or engagement in hostilities and away from agricultural work (Azam et al., 2022). Therefore, it is essential to identify these losses and specify the current source of labour and its associated costs.

Wars lead to decreased crop yields. For example, wheat production in Syria decreased by as much as 40% in the first two years of the conflict, while Iraq saw a reduction of over 10% in processed food production. During Sierra Leone's civil war in the 1990s, livestock losses reached 70%, while palm oil and rice production declined by over 25% (FAO, 2018). Comparing crop productivity before the war with the time of this study will provide insight into the war's impact on the productivity of essential crops in the study area.

Climate change and drought have exacerbated the conflict's impact on the local population, with water resources often becoming a focal point of the conflict (OCHA, 2021). Conflicts lead to increased production costs due to input scarcity and difficulty in procurement. Additionally, inadequate funding and low returns result in reduced agricultural investment (Arias et al., 2014).

Migration from the Middle East is divided into three types; regular labour migration, forced migration, and mixed migration (IOM, 2015). In the case of Syria, migration can be considered to follow the second and third modes. At the beginning of the war years, it was characterized by the second pattern – forced migration resulting from the violence of military operations. This is supported by an equal distribution of Syrian migrants across gender and age groups. However, even with a relative decrease in conflict intensity, emigration continued due to the devastating economic impact of the war and the absence of hope for economic recovery. Consequently, it shifted to the third type of mixed migration (IOM, 2019). Understanding the determinants of forced migration is a fundamental prerequisite for formulating appropriate policies for prevention, assistance, and resettlement (Engel & Ibanez, 2007). As long as the war continues, it can be predicted that people of Syrian origin will continue to migrate to other countries.

Statistical data obtained from the 2020 Report of the United Nations High Commissioner for Refugees (UNHCR) reveal that roughly 6.7 million individuals undertook internal migration within the country, with approximately 20% of this demographic located in the Euphrates Shield (UNHCR, 2021). Moreover, Syria has been the main country of origin for refugees since 2014. At the end of 2019, there were 6.6 million Syrian

refugees hosted by 126 countries worldwide. The majority of those who migrated (83%) stayed in neighboring countries or the region. In this context, Türkiye continues to host the largest number of Syrian refugees (3.6 million), followed by Lebanon, Jordan, Iraq and Egypt (UNHCR, 2024). Many studies have been conducted internationally on the willingness to migrate (Ibánez & Velez, 2008; Bohra-Mishra & Massey, 2011; Verwimp & Maystadt, 2015; Bertoli & Ruyssen, 2018; Sav & Sayın, 2018; Balcilar & Nugent, 2019; Aslany et al., 2021; Alrababah et al., 2023; Ruhe et al., 2023; Walk et al., 2023). However, there are limited studies on the willingness to migrate of farmers living in rural areas and negatively affected by the war (Czaika & Kis-Katos, 2009). Therefore, this research aims to investigate the key determinants shaping the migration intentions of farmers in northern Aleppo, who are contemplating emigration from Syria. The study offers precise insights into the impact of the Syrian conflict on agricultural practices in northern Aleppo while elucidating the factors that drive farmers' decisions to migrate. Doing so aims to contribute to a deeper understanding of the complex interplay between conflict, agriculture, and migration dynamics in the region.

MATERIAL and METHOD

The Study Areas

The northern Aleppo region was selected due to its current security stability and ease of movement for data collection. This part of the Aleppo Governorate includes three regions: Jarabulus, Azaz, and Al-Bab (Table 1). It is considered one of the crucial agricultural areas in Syria, as a portion of it lies along the banks of the Euphrates River, boasting several major irrigation projects. Before the war, it was considered one of the most important areas for the production of Syria's two strategic crops: wheat and cotton (SASG, 2011). A significant portion of the population was engaged in rural occupations. Currently, this area continues agricultural production, albeit with changes in the types of crops, sources of agricultural inputs, production quantities, and working conditions.

This region is connected to Türkiye through efficient commercial border crossings, with Türkiye serving as a vital lifeline for this area. The study area shares similarities with most Syrian agricultural regions regarding its exposure to the direct and indirect effects of the conflict. Therefore, the research results can be considered relatively representative of the situation in other regions. The geographical location of the region, serving as a gateway for goods, commodities, and production elements coming from Türkiye to Syria, also acts as a route for Syrian travelers to access international destinations via Turkish airports.

Study Design and Data

The study data were collected through the proportional sampling method. In this method, the studied community was divided according to the administrative regions in the province, and the data was gathered from three specific administrative regions within the province of Aleppo: Al-Bab, Azaz, and Jarablus. These areas currently enjoy security stability and have experienced a gradual improvement in services, reminiscent of their pre-war conditions. They still serve as significant agricultural production areas profoundly affected by the war. Additionally, several international organizations and independent entities operate within these regions (Maharramov, 2022). By using the proportional sampling method (with a 5.5% margin of error and 90% confidence interval), a total of 210 questionnaire forms were collected from 13 villages across the three administrative regions of Aleppo province, as detailed in Table 1. Data collection via the questionnaire took place between February 1, 2021, and March 3, 2021.

Simultaneously, they attract refugees and serve as corridors for refugees crossing into Türkiye to settle there or continue to other destinations. These administrative regions differ from one another in terms of cultivated areas and available water sources. The data were collected through personal interviews with farmers using a questionnaire prepared according to the research objectives. The questionnaire was divided into several sections, each containing questions relevant to the respective section's focus.

Data analysis

The descriptive analysis approach was followed in the study. Regardless of the level of education, closed-ended or multiple-choice questions were asked to the subjects for ease of data collection and to shorten the time to complete the data required for the research without grumbling. To analyze whether surveyed individuals would like to immigrate to another country, we used the following question: '1' represents the desire to migrate outside the country, and zero otherwise. In data analysis, the binary logistic regression model was employed due to the nature of the data and the binary type of the dependent factor. This research is grounded in the following hypothesis: being a temporarily settled person significantly impacts one's desire to emigrate from the country. The logistic regression equation takes the following form (Draper & Smith, 1981; Ağır and Akbay, 2018):

$$Prob(y = 1) = \frac{e^{x\beta}}{1+e^{x\beta}} = f(x\boldsymbol{\beta})$$

$$odds\ (\mathrm{Exp}\ B) = \frac{P}{1-P}$$

$$\mathrm{Log\ e}\left(\frac{\mathrm{p}}{\mathrm{q}}\right) = \beta_0 + \sum_{\mathrm{i}}^{\mathrm{k}} \beta_i\, \mathrm{X}_i$$

$$i = 1, 2, \ldots\ldots\ldots k$$

In the equation, *p is a desire to emigrate, q=(1-p) is an unwillingness to emigrate,* f $(x\beta)$ is the standard logistics distribution function, Log $e(\frac{p}{q})$ or Ln$(\frac{p}{q})$ is the Logit transformation, X_i is the explanatory variables such as age, gender, education, income, farm size, conflict, labour status, and β_i are coefficients of corresponding variables as explained in Table 4. The odds ratio (Exp β) shows how many times (relatively) a unit increase in this variable increases the probability of migration of a business for a single explanatory variable if all other variables are kept constant. According to migration research, there are a variety of socioeconomic and demographic individual and farm-level variables that influence migration such as age, gender, education, income, farm size, conflict, labour status, etc (Migali & Scipioni, 2019; Aslany et al., 2021; Ruhe et al., 2023).

Table 1. Distribution of the sample according to regions
Çizelge 1. İşletmelerin bölgelere göre dağılımı

District	Village	Frequency	Per cent
Jarablus	Gandora	16	7.6
	Jamel	16	7.6
	Al jamel	15	7.1
	Jarablus markez	15	7.1
Al-Bab	Al-Bab	17	8.1
	Bzaha	15	7.1
	Al rahi	15	7.1
	Kabaseen	17	8.1
	Tadef	15	7.1
Azaz	Azaz	18	8.6
	Ahtareen	17	8.1
	Mareh	17	8.1
	Dabek	17	8.1
	Total	210	100.0

RESULTS and DISCUSSION

According to the survey results, all farmers in the region were male and married, with an average age of 46.8 years. Among these farmers, 44.8% had completed primary or middle school, 36.7% had finished high school, and 19.1% held university degrees. The average household size was 6.5. All analyzed respondents were individuals engaged in farming. They were asked about their birthplaces and whether they originated from the regions where they currently reside. The results indicated that 83.8% of farmers were originally from the region (natives).

Before the war, this area was among the regions where the government implemented an agricultural plan, specifically targeting wheat and cotton crops. The plan aimed to support farmers by providing improved seeds, affordable fertilizers, guidance from agricultural extension services, and, importantly, purchasing these crops from farmers at an annually fixed price.

During the study period, there was a significant diversification in the cultivated crops. Apart from continuing to cultivate the crops they had grown before the war, farmers' reasons for selecting cultivated crops had changed from their previous motivations. Their responses were ranked in order of importance, as shown in Table 2.

Table 2. Reasons for choosing cultivated crops due to their importance
Çizelge 2. Seçilen ürünlerin önem düzeylerine göre seçilme nedenleri

Reasons for choosing the type of crop	Frequency	Percentage
According to market requirements and expected return	103	49,05
Because of my accumulated experience in these crops	44	20,95
Because of the scarcity of water, its low requirements for water	32	15,24
Because of the comparatively low cost of seeds and service	23	10,95
I grow the same crops according to the previous government's plan	8	3,81
Total	210	100,00

The reasons for farmers' choosing crop types include market demand and expected financial returns, capitalizing on accumulated expertise in growing particular crops, prioritizing crops with low water requirements due to water scarcity, preference for crops with relatively cheap seeds and services, and adhering to the crop selection outlined in the agricultural plan that guided the previous government agricultural policies.

Table 3 presents results indicating a significant

reduction in the number of individuals engaged in alternative employment outside of farming. Before the war, the non-agricultural labour force participation rate stood at a robust 62%. However, in the aftermath of the war, this figure took a substantial hit, plummeting to 38%. Consequently, there is a rise in the number of individuals relying on agriculture as their sole source of income compared to the pre-war period. This suggests that the war has likely disrupted other economic activities, leading more people to rely on agriculture for their livelihoods. The interruption of irrigation canals and the control of dams by hostile forces have resulted in a significant decline in farmers' ability to access irrigation water. This limitation has severely impacted crop yields and agricultural productivity, exacerbating food insecurity in affected regions. Additionally, the results reveal that there has been a serious decrease in the number of people satisfied with the sales prices of agricultural products compared to the pre-war period. This illustrates the economic strain and market disruptions faced by farmers, possibly due to decreased demand or other market dynamics affected by the war. Table 4 provides summary statistics and a complete description of the variables used in the logistic regression model. The means are presented with standard deviations. According to the table, 61.4% of farmers desire to migrate outside the country.

Table 5 displays the results of binary logistic regression. The Chi-square value of 72.989 indicates that the model is a significant fit for the data at a p-value of 0.00. Finally, the results suggest that there are no issues of multicollinearity among the predictor variables in the model. Therefore, the absence of multicollinearity ensures the reliability of the model. The logistic regression model's accuracy of 0.781 indicates that the model correctly predicts the outcome for approximately 78.1% of the observations in the dataset. Notably, the regression coefficients for ten variables were found to be statistically significant, as presented in Table 5.

The results show that individuals originally from the region are less likely to migrate out of the country than farmers localized to the study area from other regions for different reasons and at different times. Natives have approximately 83 percent lower odds of wishing to migrate than later settlers to the region. Consequently, they believe that migrating abroad might offer a more economically viable and expeditious path to rebuilding their lives. This observation aligns with the findings of the IOM (2015), which identified a higher percentage of individuals wishing to emigrate abroad among Palestinians residing in refugee camps compared to those living outside the camps.

An intriguing observation is the inverse relationship between educational level and the intensity of the desire to emigrate. This result appears to be at odds with the findings of David et al. (2019), who reported that in Egypt, the inclination to emigrate increased as educational levels rose. This increase was primarily attributed to the high unemployment rate among university and institute graduates in Egypt. However, the Syrian context presents a different scenario, where mass displacements from various regions have led to an increase in unemployment rates among individuals with low levels of education, especially those working in the agricultural sector.

Table 3. Comparison of some inputs with the pre-war period
Çizelge 3. Bazı girdilerin savaş öncesi dönemle karşılaştırılması

	Before the war		At the time of the study		P-value
	No	Yes	No	Yes	
Having a job (other than farming)*	76	134	130	80	0,042
Obtaining agricultural loans	56	154	90	120	0,371
Modern irrigation finance	44	166	207	3	0,492
Easy access to irrigation water*	82	128	144	66	0,038
Difficulty in getting inputs	182	28	77	133	0,298
the cost of the inputs (expensive)	127	83	35	175	0,547
Satisfaction with the sale price*	144	66	188	22	0,028
Availability of labor	167	43	155	55	0,351

*: statistically important at α=0.05 level.

The research results reveal a noteworthy trend: the greater the number of first-degree immigrant relatives a person has, the stronger their desire to immigrate. This observation can be attributed to immigrants' expectations of receiving support and guidance from their relatives when embarking on their new lives in a foreign society. Additionally, these individuals may develop a more informed and positive perception of the new society through their immigrant relatives. This finding corroborates the observations made by Khater (2001), who noticed a higher percentage of individuals aspiring to travel in societies with a substantial number of overseas immigrants, as evidenced in Lebanon.

The size of the farm emerged as a statistically significant factor, albeit in a negative manner. It was observed that an increase in the size of the farm correlated with a decrease in the desire to emigrate outside the country. This trend could be attributed to

an increase in income associated with larger farms and the subsequent increase in agricultural activities. This result is similar to the study of Aslany et al. (2021) showing that farms with large land areas have a low willingness to migrate. The income factor further substantiates this relationship, which also demonstrated statistical significance in a negative direction. Specifically, as income levels rise, the desire to emigrate diminishes. This observation suggests that individuals with higher incomes may be less inclined to seek opportunities abroad.

Table 4. Description of the variables included in the model
Çizelge 4. Modeldeki değişkenlerle ilgili tanımlayıcı istatistikler

Variables	Variable description	Mean	Standard deviation
Desire to migrate outside the country	Wants to immigrate =1; otherwise = 0	0.614	0.487
Later settlers	Originally from the region (Natives) =1; Being originally displaced from another area (Later settlers to the region = 0	0.823	0.381
Age1	Younger than 40 years = 1; Otherwise = 0	0.323	0.469
Age2	Between 40 and 55 years = 1; Otherwise = 0	0.481	0.500
Age3	Older than 55 years = 1; Otherwise = 0	0.195	0.397
Edu1	Elementary or Middle School graduate =1; Otherwise = 0	0.447	0.498
Edu2	Secondary or high school graduate =1; Otherwise = 0	0.357	0.480
Edu3	University and above=1; Otherwise = 0	0.195	0.397
Ware injury	Injury to self or family member in war =1; Otherwise = 0	0.176	0.381
Difficulty working	Difficulty continuing the same work or economic activity he was practising before the war =1; Otherwise = 0	0.571	0.496
Immigrants	The presence of one or some family members outside the country and the desire to be reunited with them =1; Otherwise = 0	0.557	0.497
Obtaining assistance	Obtaining regular assistance from organizations operating in the area =1; Otherwise = 0	0.390	0.489
Farm size 1	Small farms (<26 decare) = 1; 0 otherwise	0.304	0.461
Farm size 2	Middle farms (26 -50 decare) = 1; 0 otherwise	0.371	0.483
Farm size 3	Big farms (51-100 decare) = 1; 0 otherwise	0.252	0.435
Farm size 4	Very big farms (>100 decare) = 1; 0 otherwise	0.071	0.258
Income 1	Low income (≤$100) = 1; 0 otherwise	0.681	0.467
Income 2	Medium income ($101-$200) = 1; 0 otherwise	0.238	0.426
Income 3	High income (>$200) = 1; 0 otherwise	0.081	0.273

Table 5. Coefficient estimates of the logit model for analysis of the Factors affecting farmers' desire to migrate outside the country
Çizelge 5. Çiftçilerin ülke dışına göç etme istekliliğini etkileyen faktörlerin analizi için logit modeli katsayı tahminleri

Variables	Coefficient	Std. Error	P-value	Exp(B)
Constant***	1,911	0,560	0,001	6,759
Later settlers***	-1,746	0,625	0,005	0,175
Age2	0,182	0,402	0,650	1,200
Age3	-0,215	0,543	0,693	0,807
Edu2**	-0,799	0,403	0,047	0,450
Edu3***	-1,526	0,511	0,003	0,217
War injury*	0,982	0,549	0,074	2,670
Difficulty working	0,145	0,355	0,683	1,156
The presence of immigrants in the family***	1,047	0,370	0,005	2,850
Obtaining assistance	-0,432	0,374	0,249	0,649
FarmSize2*	-0,774	0,469	0,099	0,461
FarmSize3***	-1,379	0,512	0,007	0,252
FarmSize4***	-2,556	0,736	0,001	0,078
Income2***	-1,835	0,417	0,000	0,160
Income3**	-1,572	0,617	0,011	0,208
Overall Percentage: 0,781; Nagelkerker R^2 : 0,399; The Chi-square value: 72,989; P-value: 0,000				

*, **, *** indicate that the coefficient is statistically significant at the 10%, 5% and 1% level.

Higher-income levels often provide individuals with greater financial stability, access to better education, healthcare, and overall quality of life. Additionally, by providing advancement opportunities within their home country, it reduces the perceived need to relocate and potentially strengthens one's ties to their place of residence. This finding aligns with the outcomes of numerous studies, such as those by Justino (2011), Bertoli & Ruyssen (2018), Migali & Scipionii (2019), Aslany et al. (2021), and OCHA (2021), which consistently linked a heightened willingness to immigrate with lower income levels.

Conflicts in the region can often directly or indirectly affect the entire population living in the conflict-affected region. Therefore, wars and conflicts often threaten all age groups. However, model results show that age does not affect willingness to migrate.

RESULTS and RECOMMENDATIONS

Studying the effects of war, such as the protracted Syrian conflict, which endured for many years and continues to this day with relative calm in most regions, demands an extensive body of research and numerous studies to comprehensively monitor these effects. The paramount importance of this study lies in its specific focus on a particular geographic area, the results of which can be extrapolated to other regions due to their analogous circumstances. With the current stability in northern Aleppo, the agricultural sector has initiated its recovery. However, it is of utmost importance to delve into the repercussions of the prolonged years of warfare on specific agricultural activities and practices. This study will enable the development of sound policies that can actively support the revival of this sector.

Furthermore, this study has investigated the root causes that push farmers to migrate from their home countries. Additionally, it examines the long-term consequences on the nation itself and its neighboring countries, particularly those striving to create secure conditions for the safe return of Syrian refugees to their homeland. The research findings unveil a substantial increase in the prices of agricultural inputs, coupled with the difficulties in sourcing them. As a result, local authorities must prioritize the task of securing these essential supplies at reasonable prices and maintaining the desired quality standards. This is particularly significant in light of the possibility of importing supplies through the open Turkish borders.

The study identifies a discernible decline in the market prices of agricultural products, which do not align with the elevated production costs. This discordance is a result of deficiencies in the marketing process and the exploitation of certain traders. Therefore, it becomes imperative for the responsible authorities to regulate local markets and procure essential crops, such as wheat and cotton, from farmers at prices that are on par with those in the neighboring Turkish market.

The study also underscores the decrease in farmers' access to irrigation water, a challenge that extends beyond mere drought-related issues. Consequently, authorities must actively seek and implement solutions to address the problems associated with suspended irrigation canals. They should also facilitate the establishment of new wells and secure affordable fuel prices, given the increased reliance on pump-based irrigation systems. Moreover, it is crucial to support farmers by guiding them towards adopting state-of-the-art irrigation technologies. This can be achieved by ensuring that the necessary components are readily available at competitive prices, offering accessible loans, and fostering their adoption through comprehensive agricultural extension campaigns.

Regarding the desire to migrate from the country once the security situation stabilizes, the study discerns that improving income levels, enhancing the work environment, providing consistent support for farmers, raising the educational levels of both farmers and their families, and assisting originally displaced individuals in the region all contribute significantly to reducing their inclination to seek migration opportunities abroad.

Researchers' Contribution Rate Statement

The authors declare that they have contributed equally to the article.

Conflict of Interest Statement

The authors of the article declare that there is no conflict of interest between them.

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