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THE ECONOMIC EFFECTS OF SYRIAN REFUGEES ON TURKEY: A SYNTHETIC MODELLING



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مركز الشرق الأوسط للدراسات الاستراتيجية



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Contents

Preface.....	5
INTRODUCTION	7
I. THE SYNTHETIC MODEL: ESTIMATION AND FINDINGS	8
1.1. The Model	8
1.2. The Findings	8
1.2.1. Gaziantep	8
1.2.2. Hatay	9
1.2.3. Şanlıurfa	9
1.2.4. Kilis	9
1.2.5. Adana	10
1.2.6. Mersin	10
1.2.7. Kahramanmaraş	10
1.2.8. Osmaniye	11
1.2.9. Mardin	11
1.3. General Assessment	12
II. DESCRIPTIVE ANALYSIS	16
2.1. Data on the Locals	16
2.2. General Assessment of the Findings Pertaining to Locals	26
2.3. Data on the Syrians	27
2.4. General Assessment of the Findings Pertaining to the Syrians	31
CONCLUSION AND ASSESSMENT	33
ANNEXES	36

Charts and Tables

Table 1. Comparison of the Model Results across Provinces	12
Figure 1. Net Migration Rate	12
Figure 2. Imports	13
Figure 3. Exports	13
Figure 4. Number of Students per Teacher	14
Figure 5. Total House Sales	14
Figure 6. Inflation	15
Graph 1A. Job Loss Rate	17
Graph 1B. Job Loss-Refugees Link	17
Graph 2A. Decline in Wage Rate	18
Graph 2B. Wage decline - Refugees Link	18
Graph 3. Risk of Losing Job - Refugees Link	19
Graph 4A. Increase in Food Prices	19
Graph 4B. Food Price Increase - Refugees Link	20
Graph 5A. Increase in Rents	21
Graph 5B. Rent Increase - Refugees Link	21
Graph 6A. Decline the Quality of Health Services - Refugees Link	22
Graph 6B. Increase in the Date of Appointment in Hospitals - Refugees Link	22
Graph 6C. Increase in the Private Doctor Fees - Refugees Link	23
Graph 7A. Decline the Quality of Education Services - Refugees Link	24
Graph 7B. Increase in the Education Spending - Refugees Link	24
Graph 8A. Emigration - Refugees Link	25
Graph 8B. Causes of Emigration	25
Graph 9. Education Level	28
Graph 10. Do you currently work?	29
Graph 11. Monthly Wage	29
Graph 12. Food Expenditure/Income for 850-950 Income Group	30
Graph 13. Rent/Income for 850-950 Income Group	30
Graph 14. Do you have children getting education	31
Table 2. Synthetic Control Estimators: Gaziantep	36
Table 3. Province weights in the synthetic Gaziantep	37
Table 4. Synthetic Control Estimators: Hatay	37
Table 5. Province weights in the synthetic Hatay	38
Table 6. Synthetic Control Estimators: Şanlıurfa	38
Table 7. Province weights in the synthetic Şanlıurfa.....	38
Table 8. Synthetic Control Estimators: Kilis	39
Table 9. Province weights in the synthetic Kilis	39
Table 10. Synthetic Control Estimators: Adana	40
Table 11. Province weights in the synthetic Adana	40
Table 12. Synthetic Control Estimators: Mersin	41
Table 13. Province weights in the synthetic Mersin	41
Table 14. Synthetic Control Estimators: Kahramanmaraş	42
Table 15. Province weights in the synthetic Kahramanmaraş	42
Table 16. Synthetic Control Estimators: Osmaniye	43
Table 17. Province weights in the synthetic Osmaniye.....	43
Table 18. Synthetic Control Estimators: Mardin	44
Table 19. Province weights in the synthetic Mardin.....	44

PREFACE

Syrian civil war has resulted in one of the largest forced emigration witnessed in the human history. Turkey has received a very large portion of Syrian refugees. According to the official figures, the number of Syrian refugees in Turkey has exceeded 1.6 million. Considering that Turkey's population is 76.7 million in 2013, it implies that in about 3 years Turkey's population increased 2.1%. It is certain that such an increase in the population in a very short period of time will have vital economic and social consequences. Furthermore, not all the provinces in Turkey received equal share of refugee influx, and, as a result, it implies that the economic and social effects are significantly profounder in those provinces receiving larger number of refugees. Consequently, an inquiry into the effects of refugees' influx in these provinces will provide crucial information for the planning for the economic and social integration of refugees, most of whom are now assumed to live in Turkey for many years to come.

In this framework, this report analyzes the economic effects of Syrian refugees in two dimensions. First of all, on the basis of the synthetic modelling method, it estimates the time paths of economic variables such as net migration rate, foreign trade, employment, education services, health services, and housing in immensely refugee receiving provinces, namely Gaziantep, Hatay, Kilis, Şanlıurfa, Mersin, Adana, Kahramanmaraş, Osmaniye, and then compares it with the actual values of these variables. The difference reflects the effects of Syrian refugees on these variables. The second dimension of the study is based on the face to face interviews with locals in Gaziantep, Hatay, Kilis, and Şanlıurfa. Through these interviews, the study attempts to measure and assess the locals' perceptions regarding the effects of refugees on these variables. Whether or not the integration of refugees will be a smooth process will depend not only on legal and institutional frameworks and provisions but also refugees' economic, social and demographic characteristics. Therefore, the study conducted face to face interviews with Syrian refugees living outside the camps in Gaziantep, Hatay, Kilis, and Şanlıurfa in order to gather information about their education levels, employment status, income levels, food and rent expenditures, and if their children receive education. The main finding of the study is that the economic effects of refugees vary significantly across provinces. This variation is due to the differences in both economic development levels of the provinces and the economic and demographic characteristics of refugees living those provinces. Therefore, these differences must be taken into account in policy makers' economic, social, security, and politic plans regarding the refugee issue. Another important finding of the study is that a static analysis of refugees' economic effects may result in misleading conclusions. Thus, a dynamic analysis with a wide perspective is needed in order to provide useful information for the decision process at the government level. We hope that this study will raise awareness to the hardships of the Syrian refugees and contribute to the efforts aimed at solving their colossal problems. In addition, as mentioned above, the economic effects of Syrian refugees are more profound in the provinces close to Syria. Therefore, we hope that the findings of the study will provide beneficial information for the decision makers in these provinces. We extend our gratitude and thankfulness to those who contributed to the study and local and Syrian interviewees.

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THE ECONOMIC EFFECTS OF SYRIAN REFUGEES ON TURKEY: A SYNTHETIC MODELLING

INTRODUCTION

This project aims to analyze the effects of Syrian refugees on economic and social variables such as unemployment, wages, inflation (specifically food prices and rent), health, and education services in Gaziantep, Hatay, Kilis, Şanlıurfa, Mersin, Adana, Kahramanmaraş, Osmaniye and Mardin. In section one, the project estimates the time paths of the variables in all of the nine cities if Syrian refugees had

not come to Turkey and compares it with the actual time paths on the basis of a synthetic model. The difference between estimated and actual time paths reflects the effects of the Syrian refugees. In section two, the project analyzes the economic and social effects of the Syrian refugees descriptively on the basis of questionnaires conducted with locals and refugees in Gaziantep, Hatay, Kilis and Şanlıurfa.

I. THE SYNTHETIC MODEL: ESTIMATION AND FINDINGS

The synthetic control method provides a systematic way to estimate the “counterfactual.” In this section, we investigate the application of the synthetic control method to estimate the economic effects of Syrian refugees in Gaziantep, Hatay, Kilis, Şanlıurfa, Adana, Mersin, Kahramanmaraş, Osmaniye and Mardin.

1.1. The Model

Following Abadie and Gardeazabal (2003),¹ we utilize the synthetic control method to estimate selected economic variables in nine Turkish provinces if there were no Syrian refugees. In other words, we try to answer the following counterfactual question: What would have happened to the economy in these nine provinces if there had been no Syrian refugees in Turkey and if there had been no civil war in Syria?

*Some Intuition about the Methodology:*²

In this methodology, we first construct a “synthetic model” for the province we wish to focus on (for example, Gaziantep). We construct a synthetic Gaziantep as the convex combination (weighted average) of control provinces that most closely resemble Gaziantep using the data for the period before the Syrian refugees entered there. We exclude the nine provinces under investigation and this leaves 72 Turkish provinces as control provinces to construct the synthetic Gaziantep. Then, we solve a minimization problem to calculate the weights of each control province in order to construct the synthetic Gaziantep.

In the second step, we compare the actual and synthetic Gaziantep data in order to calculate the economic effects of Syrian refugees.

We replicate the same analysis for Hatay, Kilis, Şanlıurfa, Adana, Mersin, Kahramanmaraş, Osmaniye and Mardin.

1.2. The Findings

1.2.1. Gaziantep³

The empirical findings of the model for Gaziantep can be summarized as follows:

- Net migration rate would, on average, be 0,4 percentage points higher (per year) if there were no Syrian refugees. This finding implies that Gaziantep has attracted less people than it would have if there were no Syrian refugees. It also implies that there might have been a significant level of emigration from Gaziantep.
- Imports would, on average, be 10 % lower (per year) if there were no Syrian refugees.
- Exports would, on average, be 18 % lower (per year) if there were no Syrian refugees.
- These findings about imports and exports indicate that Gaziantep has been positively affected from Syrian refugees in terms of both exports and trade balance (export minus import).
- Number of students per teacher would, on average, be 19 % lower (per year) if there were no Syrian refugees. This result implies that class sizes have increased (on average from 3-5 students) after Syrian refugee entry.
- Total house sales would, on average, be 12 % lower (per year) if there were no Syrian refugees. This result implies that house sales have increased after Syrian refugee influx.

- Inflation would, on average, be 2,1 percentage points lower (per year) if there were no Syrian refugees. This finding implies that prices (on average) have increased significantly in Gaziantep.

1.2.2. Hatay

The empirical findings of the model for Hatay can be summarized as follows:

- Net migration rate would, on average, be 0,25 percentage points higher (per year) if there were no Syrian refugees. This finding implies that Hatay has also attracted less people than it would have if there were no Syrian refugees. It also implies that there might have been a substantial level of emigration from Hatay.
- Imports would, on average, be same if there were no Syrian refugees.
- Exports would, on average, be 24 % higher (per year) if there were no Syrian refugees.
- Hatay has been adversely affected from Syrian refugees in terms of both exports and trade balance.
- Number of students per teacher would, on average, be 5 % lower (per year) if there were no Syrian refugees. This result implies that class sizes have increased (on average 1 students per class) after Syrian refugee entry.
- No significant change has occurred in total house sales in Hatay.
- Inflation would, on average, be 1,8 percentage points lower (per year) if there were no Syrian refugees. This finding implies that prices (on average) have increased significantly in Hatay similar to Gaziantep.

1.2.3. Şanlıurfa

The empirical findings of the model for Şanlıurfa can be summarized as follows:

- Net migration rate would, on average, be 0,52 percentage points higher (per year) if there were no Syrian refugees. Similar to Hatay and Gaziantep, Şanlıurfa has also attracted less people than it would have if there were no Syrian refugees. Also, it implies the existence of emigration from Şanlıurfa.
- Imports would, on average, be 39 % higher (per year) if there were no Syrian refugees.
- Exports would, on average, be 45 % higher (per year) if there were no Syrian refugees.
- Similar to Hatay, Şanlıurfa has been adversely affected from Syrian refugees in terms of both exports and trade balance. The negative effect on exports is highly significant in percentage terms (45 %).
- Number of students per teacher would, on average, be 14 % lower (per year) if there were no Syrian refugees. This result implies that class sizes have increased (on average 2-3 students per class) after Syrian refugee entry.
- Total house sales would, on average, be 11 % lower (per year) if there were no Syrian refugees. This result implies that house sales have increased after Syrian refugees' influx.
- Inflation would, on average, be 1,4 percentage points lower (per year) if there were no Syrian refugees. This finding implies that, similar to Gaziantep and Hatay prices (on average) have increased significantly in Şanlıurfa.

1.2.4. Kilis

The empirical findings of the model for Kilis can be summarized as follows:

- Net migration rate would, on average, be 0,51 percentage points higher (per year) if there were no Syrian refugees. Kilis has also attracted less people than it would have if there were no Syrian refugees, and there might have been a

considerable level of emigration from Kilis.

- Imports would, on average, be 55 % higher (per year) if there were no Syrian refugees.
- Exports would, on average, be 68 % higher (per year) if there were no Syrian refugees.
- Similar to Şanlıurfa, Kilis has adversely been affected from Syrian refugees in terms of both exports and trade balance. The negative effect on exports is very high in percentage terms (68 %).
- Number of students per teacher would, on average, be 13 % lower (per year) if there were no Syrian refugees. This result implies that class sizes have increased (on average 2 to 3 students per class) due to Syrian refugees.
- Total house sales would, on average, be 6 % lower (per year) if there were no Syrian refugees. That is, total house sales have increased after Syrian refugee entry.
- Inflation would, on average, be 1 percentage points lower (per year) if there were no Syrian refugees. This finding implies that prices (on average) have increased significantly in Kilis.

1.2.5. Adana

The empirical findings of the model for Adana can be summarized as follows:

- Net migration rate would, on average, be 0,43 percentage points higher (per year) if there were no Syrian refugees. Similar to the other provinces Adana has also attracted less people than it would have if there were no Syrian refugees, and there might have been a significant level of emigration from Adana.
- Imports would not change significantly if there were no Syrian refugees.
- Exports would, on average, be 13 % lower (per year) if there were no Syrian refugees.

- Similar to Gaziantep, Adana has been positively affected from Syrian refugees in terms of both exports and trade balance.
- Number of students per teacher would, on average, be 6 % lower (per year) if there were no Syrian refugees. Similar to the other provinces class sizes have increased (on average 1 to 2 students per class) after Syrian refugee entry in Adana.
- Total house sales would be the same if there were no Syrian refugees.
- Inflation would, on average, be 0,6 percentage points lower (per year) if there were no Syrian refugees. That is, prices (on average) have increased significantly in Adana.

1.2.6. Mersin

The empirical findings of the model for Mersin can be summarized as follows:

- Net migration rate would almost be the same if there were no Syrian refugees.
- Imports would almost be the same the absence of Syrian refugees.
- Exports would almost be the same if there were no Syrian refugees.
- Number of students per teacher would almost be the same if there were no Syrian refugees.
- Total house sales would almost be the same if there were no Syrian refugees.
- Inflation would almost be the same if there were no Syrian refugees.

According to the model none of the above variables would significantly change in Mersin if there were no Syrian refugees.

1.2.7. Kahramanmaraş

The empirical findings of the model for Kahramanmaraş can be summarized as follows:

- Net migration rate would, on average, be 0,07 percentage points higher (per year) if there were no Syrian refugees. Kahramanmaraş has also attracted less people than it would have if there were no Syrian refugees. Furthermore, there might have been emigration from Kahramanmaraş.
- Imports would, on average, be 6 % lower if there were no Syrian refugees.
- Exports would, on average, be 4 % lower (per year) if there were no Syrian refugees.
- Similar to Gaziantep and Adana, Kahramanmaraş has also been positively affected by Syrian refugees in terms of exports.
- Number of students per teacher would be the same if there were no Syrian refugees.
- Total house sales would, on average, be 7 % lower (per year) if there were no Syrian refugees.
- Inflation would, on average, be 0,4 percentage points lower (per year) if there were no Syrian refugees. This finding implies that prices (on average) have increased significantly in Kahramanmaraş.
- Exports would almost be the same if there were no Syrian refugees,
- That is, there has been no significant effect on imports and exports.
- Number of students per teacher would, on average, be 16 % lower (per year) if there were no Syrian refugees. Similar to the other provinces, class sizes in Osmaniye have increased (on average 2 to 3 students per class) after Syrian refugee entry.
- Total house sales would almost be the same if there were no Syrian refugees.
- Inflation would, on average, be 0,35 percentage points lower (per year) if there were no Syrian refugees. This finding implies that prices (on average) have increased significantly in Osmaniye.

1.2.8. Osmaniye

The empirical findings of the model for Kahramanmaraş can be summarized as follows:

- Net migration rate would, on average, be 0,52 percentage points higher (per year) if there were no Syrian refugees. Similar to the other provinces, Osmaniye has also attracted less people than it would have if there were no Syrian refugees, and there might be an important level of emigration from Osmaniye.
- Imports would almost be the same in the absence of Syrian refugees.
- Exports would almost be the same if there were no Syrian refugees.
- That is, there has been no significant effect on imports and exports.
- Number of students per teacher would, on average, be 16 % lower (per year) if there were no Syrian refugees. Similar to the other provinces, class sizes in Osmaniye have increased (on average 2 to 3 students per class) after Syrian refugee entry.
- Total house sales would almost be the same if there were no Syrian refugees.
- Inflation would, on average, be 0,35 percentage points lower (per year) if there were no Syrian refugees. This finding implies that prices (on average) have increased significantly in Osmaniye.

1.2.9. Mardin

The empirical findings of the model for Kahramanmaraş can be summarized as follows:

- Net migration rate would, on average, be 0,05 percentage points higher (per year) if there were no Syrian refugees. Similar to the other provinces, Mardin has also attracted less people than it would have if there were no Syrian refugees, and there might have been emigration from Mardin.
- Imports would, on average, be 9 % lower (per year) if there were no Syrian refugees.
- Exports would, on average, be 10 % lower (per year) if there were no Syrian refugees.
- Mardin has also been positively affected by Syrian refugees in terms of exports.
- Number of students per teacher would be the same if there were no Syrian refugees.
- Total house sales would be the same if there were no Syrian refugees.

- Inflation would, on average, be 0,45 percentage points lower (per year) if there were no Syrian refugees. This finding

implies that prices (on average) have increased significantly in Osmaniye.

1.3. General Assessment

Table 1 provides the results of the synthetic control method for 9 provinces.

Table 1. Comparison of the Model Results across Provinces

	Net Migration Rate	Imports	Exports	Number of Students per Teacher	Total House Sales	Inflation
Gaziantep	+0.40%	-10%	-18%	-19%	-12%	-2.1%
Hatay	+0.25%	0%	+24%	-5%	0%	-1.8%
Şanlıurfa	+0.52%	+39%	+45%	-14%	-11%	-1.4%
Kilis	+0.51%	+55%	+68%	-13%	-6%	-1.0%
Adana	+0.43%	0%	-13%	-6%	0%	-0.6%
Mersin	0%	0%	0%	0%	0%	0%
Kahramanmaraş	+0.07%	-6%	-4%	0%	-7%	-0.4%
Osmaniye	+0.52%	0%	0%	-16%	0%	-0.35%
Mardin	+0.05%	-9%	-10%	0%	0%	-0.45%

Note: “+” sign implies that related variable would be higher if there were no Syrian refugee entry to Turkey. Similarly, “-” sign implies that related variable would be lower if there were no Syrian refugee entry to Turkey. “0%” implies that there would be no significant change if there were no Syrian refugee entry to Turkey.

Figures 1 to 6 also depict the effects of Syrian refugees on the net migration rate, imports, exports, number of students per teacher, total house sales, and inflation, respectively. Similar to the Table 1, posi-

tive (negative) values in the figures imply that related variable would be higher (lower) if there were no Syrian refugee entry to Turkey. Zero value implies that there would be no change.

Figure 1. Net Migration Rate (%)

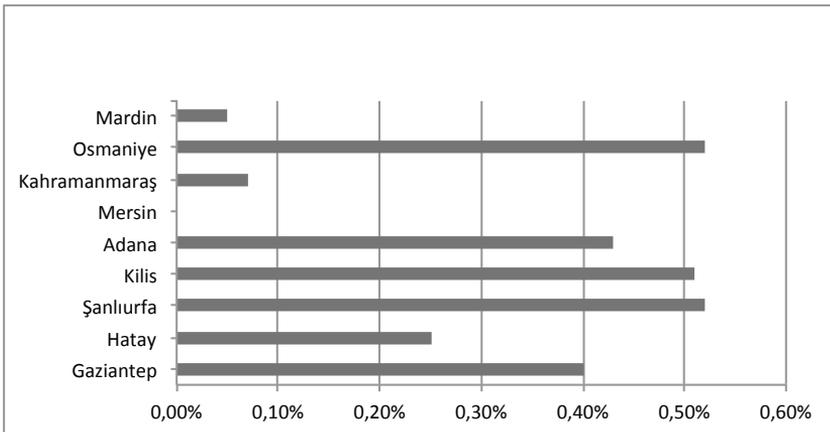


Figure 1 shows that all the provinces -except for Mersin- are attracting less immigration than it would be if there were no Syrian refugees. For example, in Gaziantep net migration rate would, on average, be 0,4 percentage points higher (per year) if there were no Syrian refugees. This find-

ing is highly intuitive since this region of Turkey includes potential risk in terms of security. There is no effect on Mersin in terms of net migration rate. This result is plausible since Mersin is rather distant from Syria, compared to other cities covered in this report.

Figure 2. Imports (%)

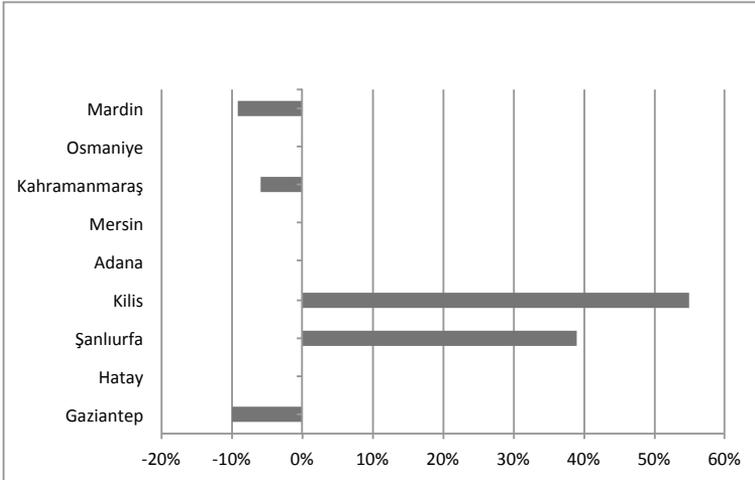


Figure 3. Exports (%)

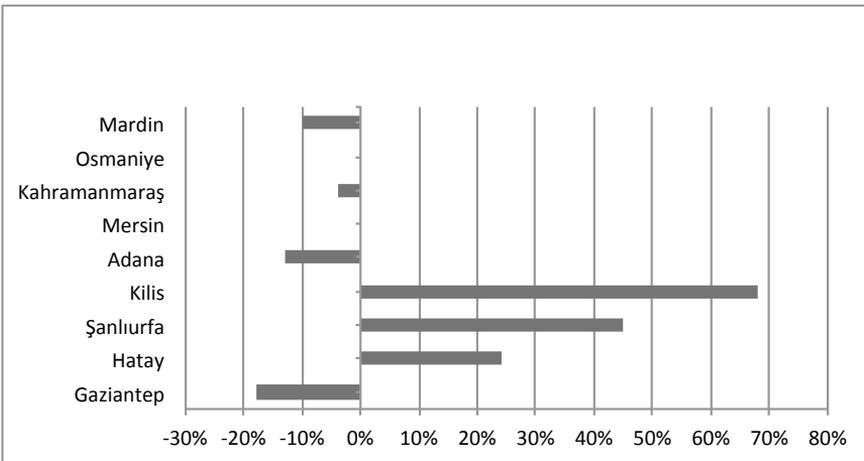


Figure 2 and Figure 3 show that the effects of refugees on exports and imports are hardly uniform across provinces. For example, Gaziantep, Adana, Kahramanmaraş and Mardin have been positively affected from Syrian refugees in

terms of exports and trade balance (export minus imports). However, Hatay, Şanlıurfa and Kilis have been negatively affected from refugees. On the other hand, Mersin and Osmaniye have not been affected significantly.

Figure 4. Number of Students per Teacher (%)

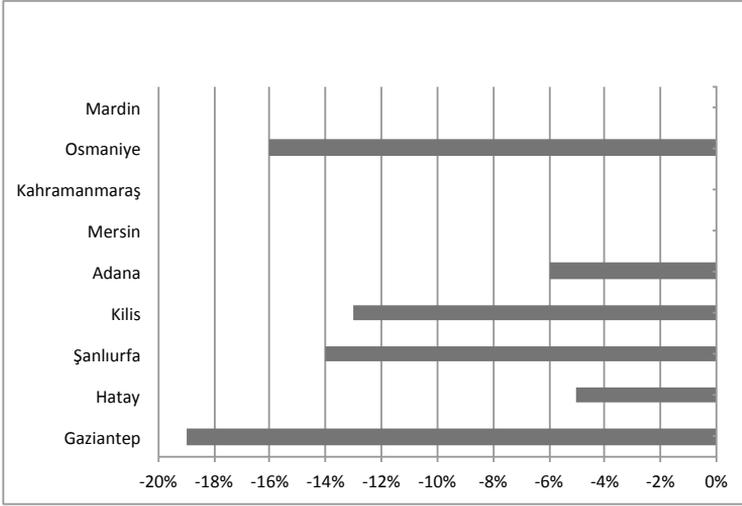


Figure 4 presents that class sizes have increased (on average 1-5 students per class) after Syrian refugee entry. For example, in

Gaziantep number of students per teacher would, on average, be 19 % lower (per year) if there were no Syrian refugees.

Figure 5. Total House Sales (%)

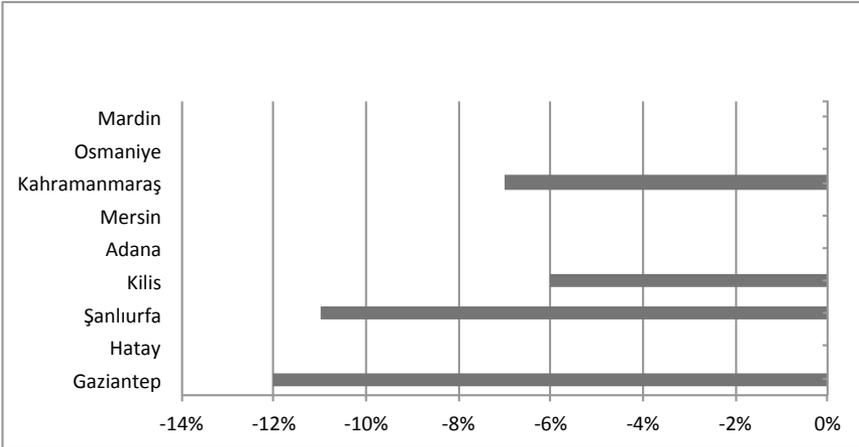


Figure 5 depicts that in Kahramanmaraş, Kilis, Şanlıurfa, and Gaziantep house sales

have increased after Syrian refugee influx.

Figure 6. Inflation (%)

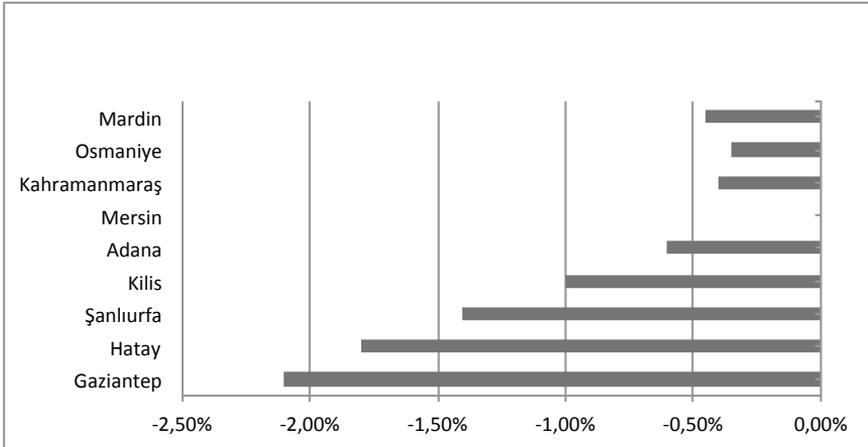


Figure 6 implies that in all provinces -except for Mersin- inflation would be lower if there were no Syrian refugees.

II. DESCRIPTIVE ANALYSIS

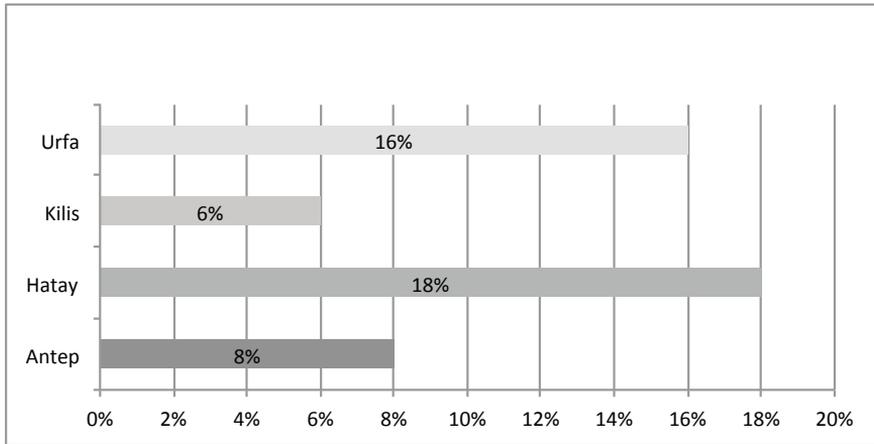
In order to understand better the dynamics and findings of the synthetic model, the study also looked at the economic impact of the refugees in selected provinces. The first step in this part of the study was to conduct face to face interviews with locals in order to evaluate the economic, security, social, and cultural effects of Syrian refugees in Gaziantep, Hatay, Kilis, and Şanlıurfa. Questionnaires included 24 questions on economic, security, social, and cultural factors. Sample sizes were 63 interviewees in Gaziantep, 94 in Hatay, 35 in Kilis, and 101 in Şanlıurfa. In this section of the report we analyze sixteen questions assembled to assess the effects of refugees on labor market, food prices, rents, health services, education services, and emigration in each of the four cities considered. We also conducted face to face interviews with Syrians outside the camps (camps in?) order to collect information about their education level, work status, wage rate, expenditures on food and rent, and if their children get education. In case of Syrians, our sample includes 46 interviewees in Gaziantep, 68 in Hatay, 31 in Kilis, and 49 in Şanlıurfa. The questionnaire we conducted with Syrians includes 18 questions.

It must be emphasized that although the descriptive statistics are very important to present the data in a more meaningful way, descriptive statistics do not allow us to make conclusions beyond the data we have gathered, or reach definite conclusions. Descriptive analysis basically summarizes data and enables us to visualize patterns that might emerge from the data. It also helps us to present distribution or spread of the variables under investigation. It must also be mentioned that our sampling processes in cases of both locals and refugees are likely to be biased, considering the usual problems inherent in this kind of statistical research that is based on a small sample size. In what follows we present our findings for locals and Syrians, respectively.

2.1. Data on the Locals

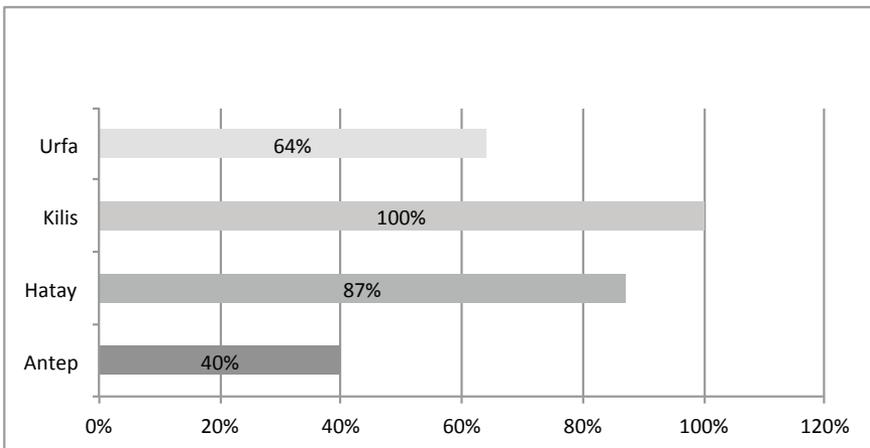
One of the most important effects of refugees occurs in the labor market in terms of job loss. Graph 1A and Graph 1B show the percentage of job loss and if those who lost their jobs blame refugees for their job loss.

Graph 1A. Job Loss Rate (%)



Number of respondents: Gaziantep: 63, Hatay: 91, Kilis: 35, and Urfa: 101

Graph 1B. Job Loss-Refugees Link (%)



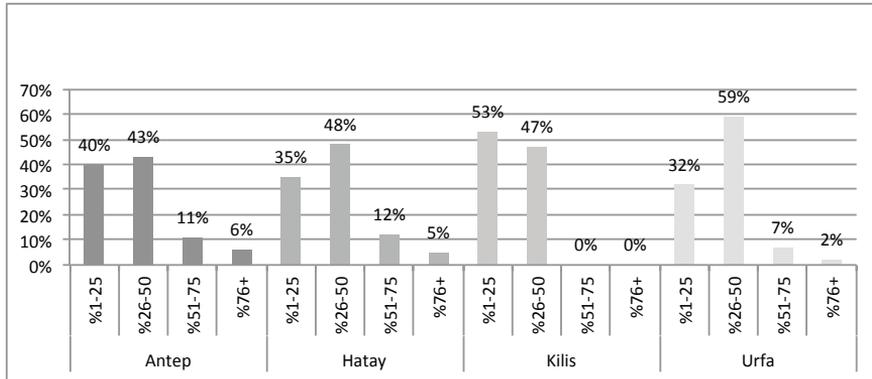
Number of respondents: Gaziantep: 5, Hatay: 15, Kilis: 2, and Urfa: 14

As it can be seen from the graphs, job loss rate is lowest in Kilis, however, both of the respondents who lost their jobs blame refugees for losing their jobs. In cases of the other three cities, as the rate of losing jobs increases, the blame on refugees also intensifies. Because the latest data on provincial unemployment rate announced by TSI is for 2011, it is not possible to sub-

stantiate the perceptions of the interviewees with the data.

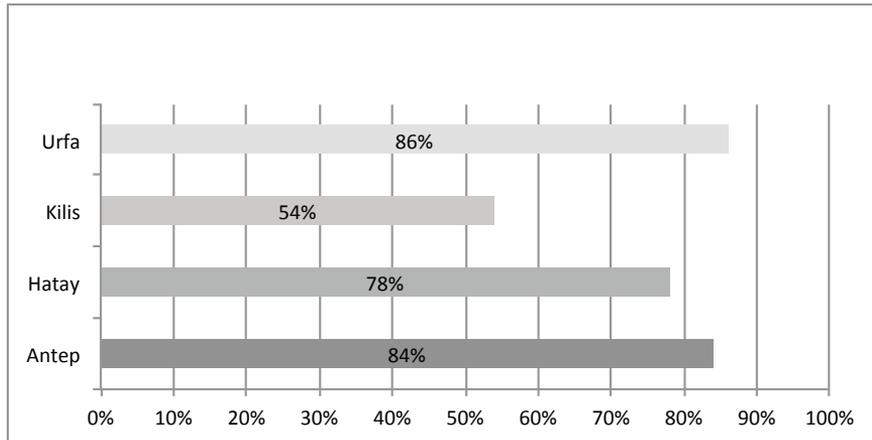
A second effect of refugees on labor market is the decline in wage rate. Graph 2A and Graph 2B represent the perceptions of the rate of decline in wages and the link between decline in wage rate and existence of refugees in the labor market, respectively.

Graph 2A. Decline in Wage Rate (%)



Number of respondents: Gaziantep: 47, Hatay: 65, Kilis: 19, and Urfa: 83

Graph 2B. Wage decline - Refugees Link (%)



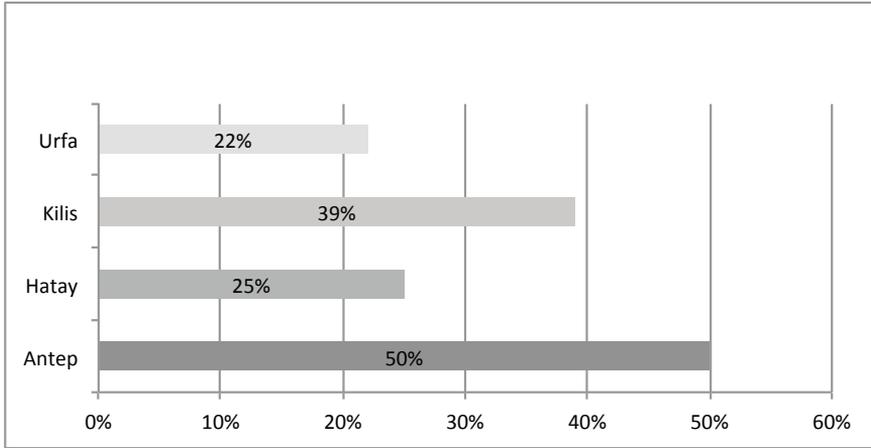
Number of respondents: Gaziantep: 63, Hatay: 93, Kilis: 35, and Urfa: 101

As it can be seen from the Graphs 2A and 2B, approximately half of the interviewees in all four cities believe that the decline in wage rate is between 26-50%. In addition, nearly one-third in Urfa and Hatay, 40% in Gaziantep, and over 50% of interviewees in Kilis perceive the rate of decline as 1 to 25%. On the other hand, while approximately four-fifths of interviewees in Urfa, Hatay, and Gaziantep link the decline to refugees, only half of them in Kilis blame refugees for the decline. Because we do not have data on provincial wage rates by

TSI, it is not possible to substantiate the perceptions of the interviewees with the data. On the other hand, since refugees have increased the labor supply, and they work informally, we can argue that there might have been a significant wage rate decline, especially in informal sectors.

A third consequence of refugees on labor market is the rising risk of losing jobs for locals. Graph 3 reflects to what extent locals link the rise in risk of losing jobs to refugees.

Graph 3. Risk of Losing Job - Refugees Link (%)



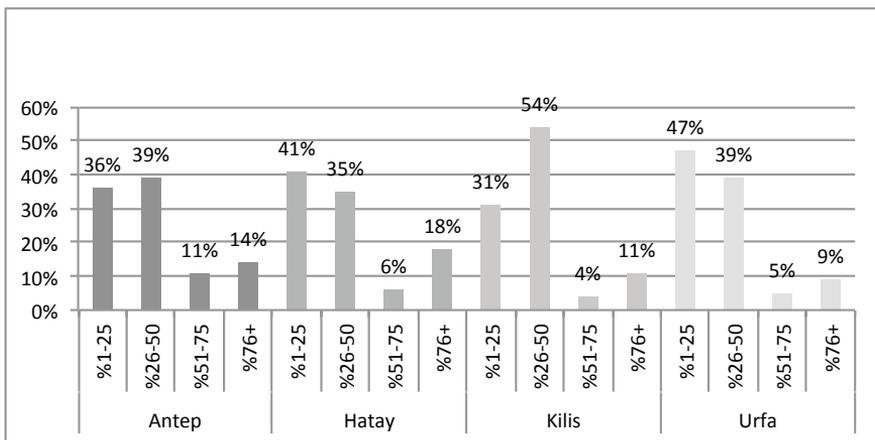
Number of respondents: Gaziantep: 44, Hatay: 72, Kilis: 33, and Urfa: 82

Although the job loss rate in Gaziantep is not as high as it is in Hatay and Urfa, half of interviewees who have not lost their jobs since the refugees' influx started to think that risk of losing their job increased. In Hatay and Urfa where the job loss rate is the highest, only about one-fourth of interviewees believe that there is a rise in the risk of losing their jobs. While the job loss rate is the lowest in Kilis, about 40% of those who have not lost their jobs believe that the risk of losing their jobs has risen. The risk of losing job increases as the unemployment rate increases. Therefore, to be able to substantiate the per-

ceived increase in the risk of losing job by the locals, we need unemployment data. Since we claim that unemployment rate in informal sectors might have increased, we can also argue that the risk of losing jobs might have increased in those sectors where it is possible for the Syrians to get informal jobs.

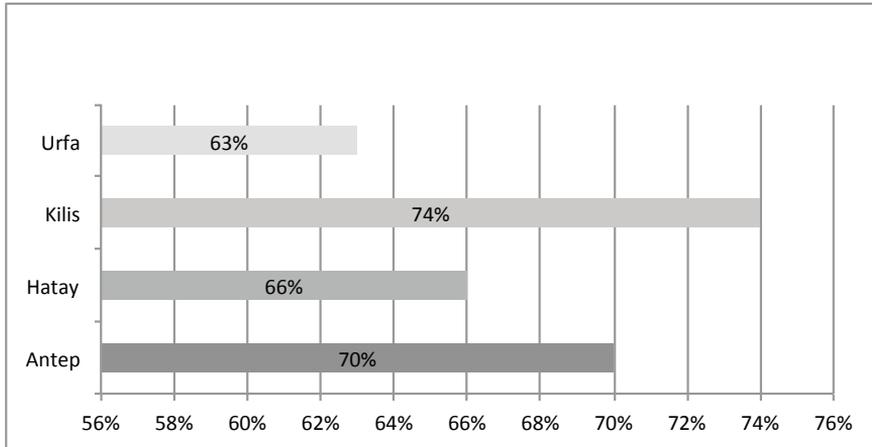
Increase in food prices is taken as another important effect of refugees on the locals. Graph 4A and Graph 4B reflect the perception of the rate of increase in food prices and the link between rise in food prices and the existence of refugees.

Graph 4A. Increase in Food Prices (%)



Number of respondents: Gaziantep: 44, Hatay: 63, Kilis: 26, and Urfa: 62

Graph 4B. Food Price Increase - Refugees Link (%)



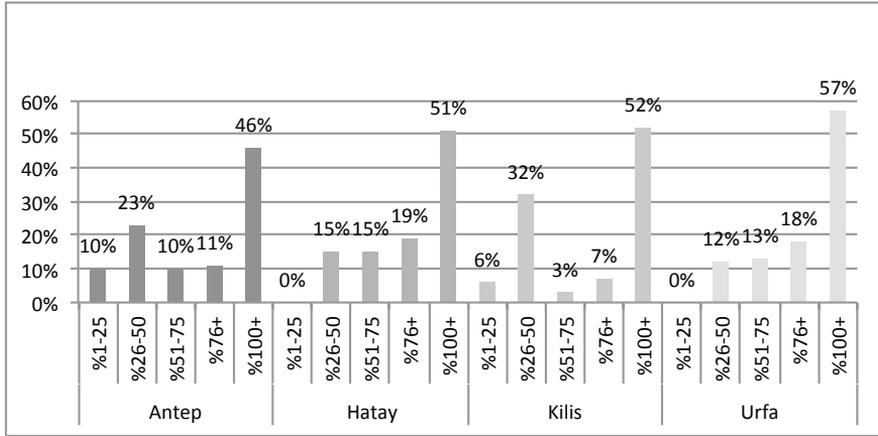
Number of respondents: Gaziantep: 63, Hatay: 93, Kilis: 35, and Urfa: 101

In Gaziantep, about one-third of interviewees think that the rate of increase in food prices is less than 25%, approximately 40% believe it is between 26 and 50%, and one-fourth consider the rise as over 50%. Perception on food price increase in Hatay is similar to Gaziantep. In Urfa, nearly half of interviewees think that the rise is less than 25%. About 40% of interviewees take the rise as between 26 and 50%, while 14% consider the rise as over 50%. On the other hand, in Kilis more than half of interviewees think that the rise in food prices is between 26 and 50%. One-third believe it is less than 25%, while 15% think that it is over 50%. In all four cities, over 60% of interviewees blame refugees for the perceived rise in food prices. Although we do not have actual provincial data for food price rise, according to TSI data, annual

inflation rate in Gaziantep rose from 6.8% in 2010 to 8.8% in 2013. Average annual inflation rate for Turkey in 2013 was 7.4%, denoting that inflation rate in Gaziantep was 1.4 percentage point over Turkey's average inflation rate in 2013. Furthermore, Gaziantep's ranking in Turkey in terms of the rate of inflation rose from 18th in 2010 to 1st in 2013. These figures imply that the perceived increase in food prices by locals appears to be based on real observation, at least in Gaziantep.

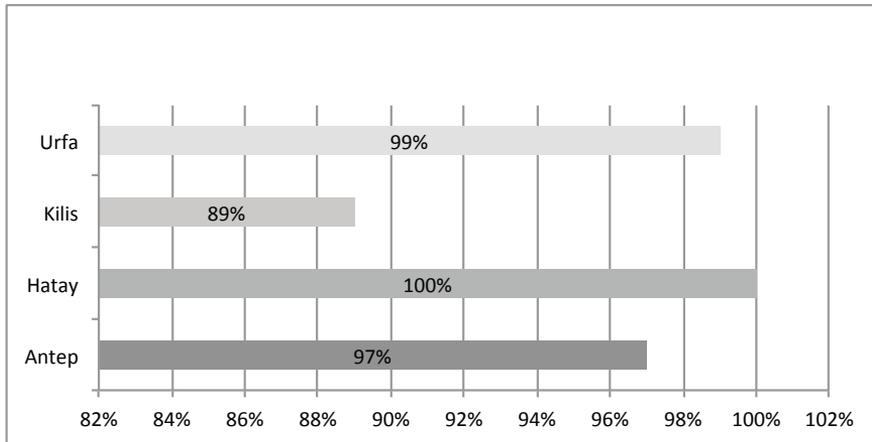
Another important consequence of refugees' influx for locals is their effect on rents. Graph 5A and Graph 5B reflect the perception of the rate of increase in rents and to what extent the locals link the rise to the existence of refugees.

Graph 5A. Increase in Rents (%)



Number of respondents: Gaziantep: 61, Hatay: 93, Kilis: 31, Urfa: 99

Graph 5B. Rent Increase - Refugees Link (%)



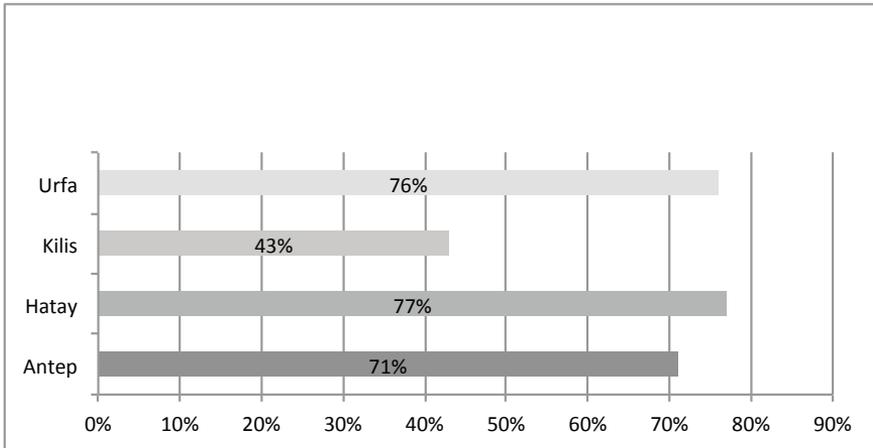
Number of respondents: Gaziantep: 63, Hatay: 93, Kilis: 35, Urfa: 101

As it can be seen from Graph 5A, the most remarkable effect of refugees seems to be on the rents. More than half of the interviewees perceive rent increase as being over 100%. Most strikingly, as it can be seen from Graph 5B, almost all of the interviewees believe that the reason behind the rise in rents is the refugees' influx. We do not have data for the rent increases in the other three provinces; however, according to TSI data, while average rent in-

crease in Gaziantep for the last three years was 5.5%, it increased to 14% in 2013. The average rent inflation in Turkey was 6% in 2013, implying that the rise in Gaziantep was 2.3 times more than Turkey's average rate.

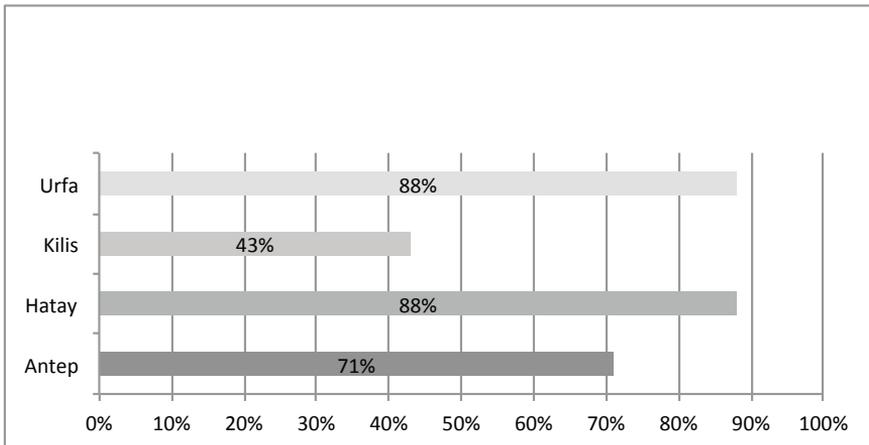
One other consequence of refugee influx occurs in the health sector. Graph 6A, Graph 6B, and Graph 6C display the impact of refugees' influx on health sector.

Graph 6A. Decline the Quality of Health Services - Refugees Link (%)



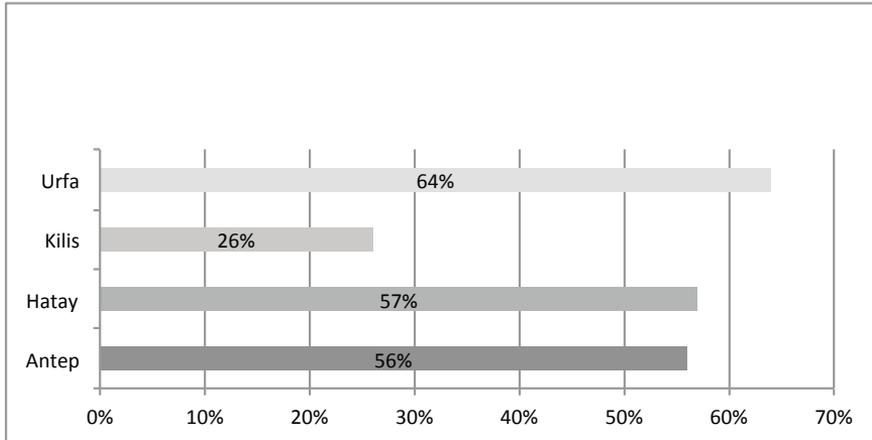
Number of respondents: Gaziantep: 63, Hatay: 93, Kilis: 35, Urfa: 99

Graph 6B. Increase in the Date of Appointment in Hospitals - Refugees Link (%)



Number of respondents: Gaziantep: 63, Hatay: 93, Kilis: 35, and Urfa: 99

Graph 6C. Increase in the Private Doctor Fees - Refugees Link (%)



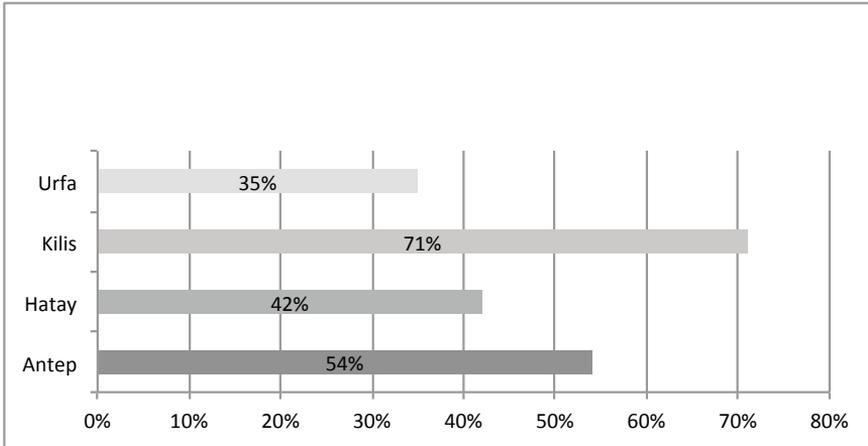
Number of respondents: Gaziantep: 62, Hatay: 92, Kilis: 35, Urfa: 98

As it can be seen from Graph 6A, in Gaziantep, Hatay, and Urfa, over two-third of the interviewees think that the existence of refugees lowers the quality of health services. On the other hand, less than half of the interviewees believe that the existence of refugees decrease the quality of health services. We observe similar perceptions regarding the effect of refugees on the length of appointment date. As it can be seen from Graph 6B, in Gaziantep, Hatay, and Urfa, over two-third of interviewees claim that the existence of refugees increased the date of appointments in hospitals. Once again, the perception regarding the effect of refugees of appointment date

in Kilis differs from the other three cities; less than half of the interviewees believe that the existence of refugees lengthen date of appointments in hospitals. Finally, over half of the interviewees in Gaziantep, Hatay, and Urfa assert that the existence of refugees increased the private doctor fees, while about one-fourth of interviews hold the same opinion.

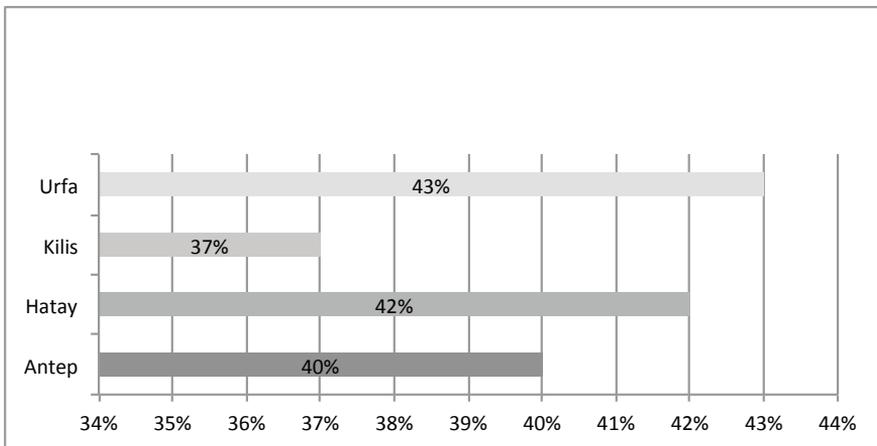
Education is another sector where the effects of refugees are likely to be observed. Graph 7A and Graph 7B reflect the effects of refugees' influx on the quality of education and the spending on education.

Graph 7A. Decline the Quality of Education Services - Refugees Link (%)



Number of respondents: Gaziantep: 63, Hatay: 92, Kilis: 35, and Urfa: 101

Graph 7B. Increase in the Education Spending - Refugees Link (%)



Number of respondents: Gaziantep: 63, Hatay: 92, Kilis: 35, and Urfa: 99

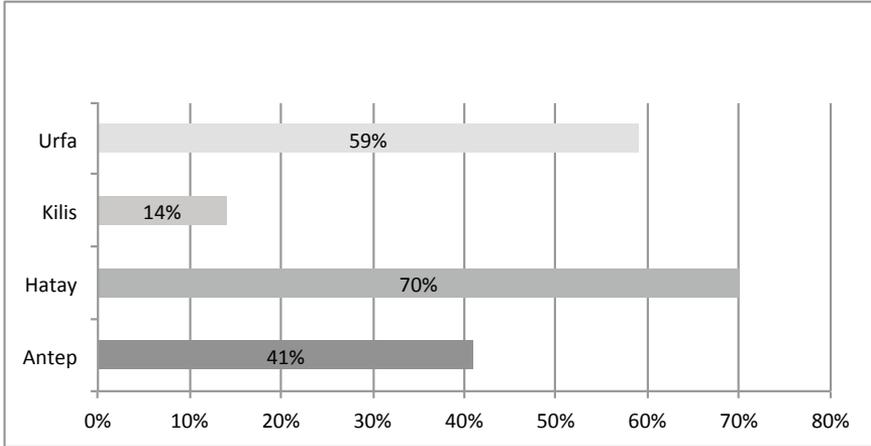
As it can be observed from Graph 7A, in Kilis over two-third of interviewees think that the quality of education services declined due to the existence of Syrian refugees. Approximately half of the interviewees in Gaziantep think that the quality of education declined. The segments of interviewees who think that education quality has declined in Urfa and Hatay are 35 and 42 percent, respectively. This finding reflects the fact that the rise in the intensity of refugees puts a pressure on education services. On the other hand, as can be seen

from Graph 7B, significantly less than half of the interviewees think that education spending has not increased. This finding is believed to be due to the fact that most of the education in Turkey is free.

Another consequence of refugees' influx we consider is if it led to significant emigration from the affected cities. Graph 8A shows if the interviewees link emigration from their city to the refugees. On the other hand, we asked those who think that there was emigration due to the existence

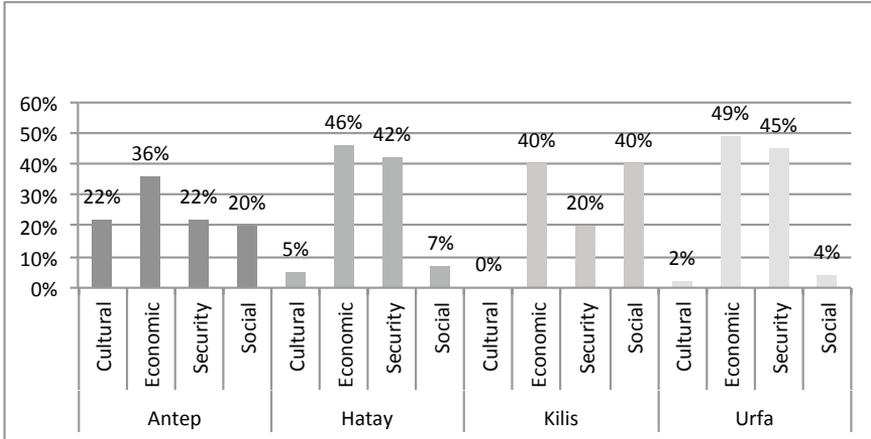
of refugees what they believe is the most important reason behind emigration. Graph 8B reflects the beliefs of interviewees about the reasons for emigration.

Graph 8A. Emigration - Refugees Link (%)



Number of respondents: Gaziantep: 63, Hatay: 92, Kilis: 35, and Urfa: 101

Graph 8B. Causes of Emigration (%)



Number of respondents: Gaziantep: 60, Hatay: 86, Kilis: 5, and Urfa: 83

As it can be seen from Graph 8A, the findings regarding the link between emigration and refugees differ significantly among the four cities studied. While over two-third of interviewees in Hatay link emigration to refugees, merely 14% in Kilis where the emigration intensity is the highest, think the same way. Again, while over

half of the interviewees link emigration to refugees in Urfa, that ratio is less than half in Gaziantep. On the other hand, as reflected in Graph 8B, the interviews see economic and security conditions as the most important two reasons behind the emigration. These findings are supported by actual data on provincial immigration

in Turkey. According to TSI data, net immigration rate in Gaziantep decreased from 0.42% in 2010-2011 to 0.13% in 2011-2012. In Hatay, emigration rate increased from 0.52% in 2010-2011 to 0.53% in 2011-2012. In Şanlıurfa, emigration rate increased from 0.331% in 2010-2011 to 0.734% in 2011-2012. Finally, in Kilis emigration rate increased from 0.137% in 2010-2011 to 0.140% in 2011-2012.

2.2. General Assessment of the Findings Pertaining to Locals

According to our survey results, the greatest labor market effect of refugees seems to occur in Hatay and Şanlıurfa with 18% and 16% job loss rates, respectively. Although the job loss rate is the lowest in Kilis, all of those who lost their jobs see refugees as the cause of their job loss. In Hatay, 87% of those who lost their jobs blame refugees for losing their jobs. Because the latest data on provincial unemployment rate announced by TSI is for 2011, it is not possible to substantiate the perceptions of the interviewees with the data.

Approximately two-thirds of interviewees in all four cities think that wage rate decline was less than 50%. On the other hand, except for Kilis, more than three-thirds of interviewees blame refugees for wage rate decline. Only half of interviewees in Kilis blame refugees for wage rate decline. Because we do not have data on provincial wage rates by TSI, it is not possible to substantiate the perceptions of the interviewees with the data. On the other hand, since refugees have increased the labor supply, and they work informally, we can argue that there might have been a significant wage rate decline, especially in informal sectors.

Although Gaziantep has the second lowest job loss rate, 50% of those who have

not lost their job believe that existence of refugees increased the risk of losing their jobs. On the other hand, even though Hatay and Şanlıurfa have the highest job loss rates, only one-fourth of those who have not lost their jobs in these two cities think that the risk of losing their jobs has increased. Kilis has the lowest job loss, nevertheless approximately 40% of those who have not lost their jobs think that the risk of losing their jobs increased. The risk of losing job increases as the unemployment rate increases. Therefore, to be able to substantiate the perceived increase in the risk of losing job by the locals, we need unemployment data. Since we claim that unemployment rate in informal sectors might have increased, we can also argue that the risk of losing jobs might have increased in those sectors where it is possible for the Syrians to get informal jobs.

Although the perception of the rate of increase varies in four cities, approximately two-thirds of interviewees blame refugees for the rise in food prices. In Gaziantep, Hatay, and Şanlıurfa approximately one-third of interviewees think the rise is between 26% and 50%, while half of interviewees in Kilis believe it is between 26% and 50%. In Gaziantep and Hatay, one-fourth of interviewees believes that the rise is over 50%, while in Kilis and Şanlıurfa only 15% think that the rise is over 50%. Although we do not have actual provincial data for food price rise, according to TSI data, annual inflation rate in Gaziantep rose from 6.8% in 2010 to 8.8% in 2013. Average annual inflation rate for Turkey in 2013 was 7.4%, denoting that inflation rate in Gaziantep was 1.4 percentage point over Turkey's average inflation rate in 2013. Furthermore, Gaziantep's ranking in Turkey in terms of the rate of inflation rose from 18th in 2010 to 1st in 2013. These figures imply that the perceived increase in food prices by locals

appears to be based on real observation at least in Gaziantep.

Another important effect for especially low income segments of the population is the rise in rents. In all of the four cities, approximately half of the interviewees believe that the rise in rents is over 100%. What is more, in all cities almost all of the interviewees blame refugee influx for the rise in rents. We do not have data for the rent increases in the other three provinces; however, according to TSI data, while average rent increase in Gaziantep for the last three years was 5.5%, it increased to 14% in 2013. The average rent inflation in Turkey was 6% in 2013, implying that the rise in Gaziantep was 2.3 times more than the Turkey's average rate.

While in Kilis less than half of the interviewees think the quality of health services worsened, in all other three cities more than 70% argue that health service quality deteriorated. Furthermore, while less than half of interviewees in Kilis think that it has become harder to get appointment in the hospitals, over two-thirds of interviewees believe that the existence of refugees increased the length of appointments in hospitals. Again, although just one quarter of interviewees in Kilis think that private doctor fees have risen, that rate is more than half in other three cities.

The perceptions about the rise in spending on education seem to be similar in all four cities; more than half of the interviewees argue that education spending has not risen. On the other hand, more than half of the interviewees in Gaziantep think that the quality of education has de-

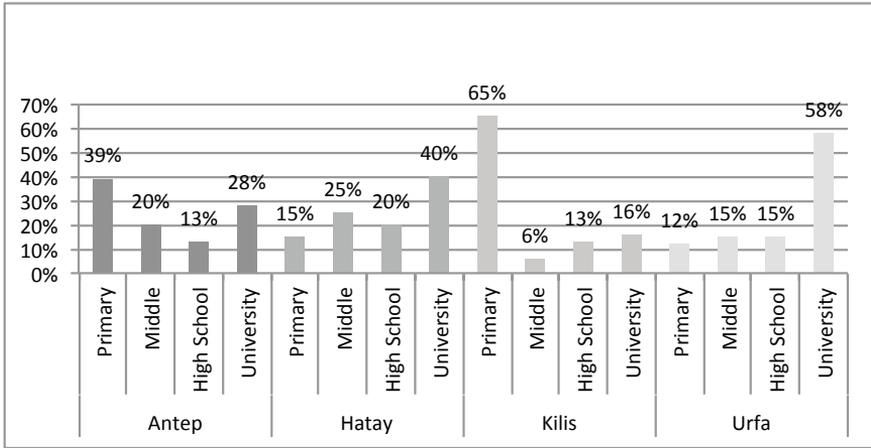
clined. That rate is 71% in Kilis. However, less than half of the interviewees in Hatay and Şanlıurfa argue that education quality has deteriorated.

Emigration, if it is taking place, is not only an important economic but also social consequence of the refugee influx into Turkey. The findings regarding the link between emigration and refugees differ significantly among the four cities. In Hatay and Şanlıurfa more than half of the interviewees think that the existence of refugees leads to emigration. That rate is 41% in Gaziantep. However, only 14% of the interviewees think that the existence of refugees leads to emigration. Furthermore, a significant portion of the interviewees in all cities sees economic and security conditions as the most important two reasons behind the emigration. These findings are supported by actual data on provincial immigration in Turkey. According to TSI data, net immigration rate in Gaziantep decreased from 0.42% in 2010-2011 to 0.13% in 2011-2012. In Hatay, emigration rate increased from 0.52% in 2010-2011 to 0.53% in 2011-2012. In Şanlıurfa, emigration rate increased from 0.331% in 2010-2011 to 0.734% in 2011-2012. Finally, in Kilis emigration rate increased from 0.137% in 2010-2011 to 0.140% in 2011-2012.

2.3. Data on the Syrians

Education level of refugees is crucially important for the prospect of their economic, social, and cultural integration into the societies they live. Graph 9 reflects refugees' education levels in the sample.

Graph 9. Education Level (%)



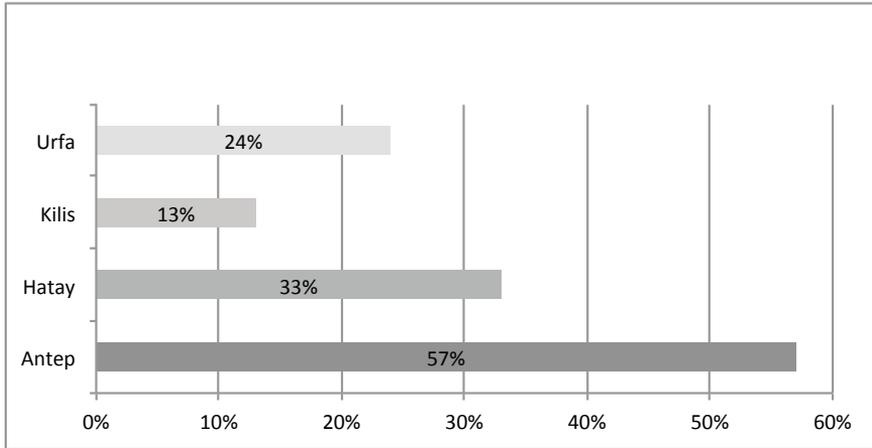
Number of respondents: Gaziantep: 46, Hatay: 60, Kilis: 31, and Urfa: 48

As it can be seen from Graph 9, in Gaziantep approximately 40% of Syrian refugees are primary school and 20% are middle school graduates, while 13% are high school and less than one-third are university graduates. This implies that about 60% of Syrian refugees in Gaziantep have an education level at the lowest spectrum of the schooling system. In Hatay, 15% of Syrian refugees are primary school and 25% are middle school graduates, while 20% are high school and 40% are university graduates. This implies that about 40% of Syrian refugees in Hatay have an education level at the lowest spectrum of the schooling system. On the other hand, a significant portion (40%) has a university degree. Education level of Syrians in Kilis is outstandingly lower than it is in the other three cities. In Kilis 65% of Syrian

refugees are primary school and 6% are middle school graduates, while 13% are high school and 16% are university graduates. This implies that about two-thirds of Syrian refugees in Kilis have an education level at the lowest spectrum of the schooling system. In addition, the share of university graduates in Kilis is considerably lower than it is in the other three cities. In Şanlıurfa, 12% of Syrian refugees are primary school, 15% are middle school graduates, and 15% are high school graduates. On the other hand, a strikingly high proportion of refugees (58%) in Şanlıurfa claim to have a university degree.

Lack of productive habits results in persistent poverty. Graph 10 reflects the shares of refugees who have jobs in the four cities under investigation.

Graph 10. Do you currently work? (%)



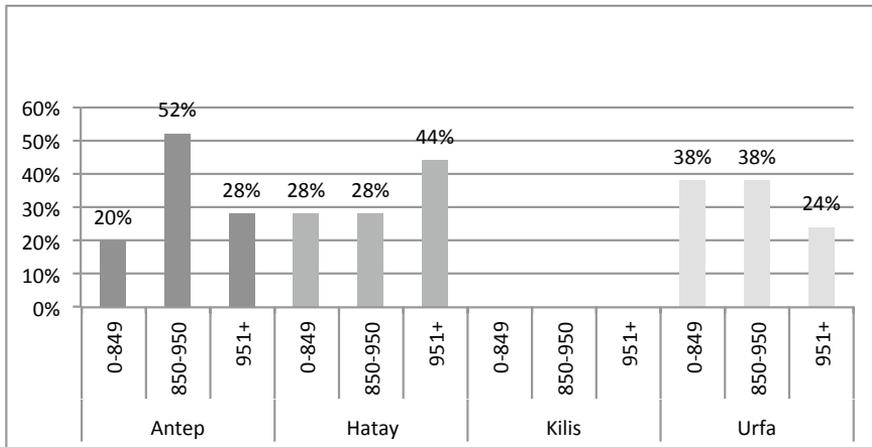
Number of respondents: Gaziantep: 46, Hatay: 66, Kilis: 31, and Urfa: 50

As Graph 10 shows, the employment rate is the highest in Gaziantep where over 50% of working age refugees interviewed has a job. Considering the industrial development level of Gaziantep, this finding is understandable. On the other hand, only one-third in Hatay, one-fourth in Şanlıurfa, and 13% in Kilis have a job.

Long term unemployment and living on aid has major economic and social con-

sequences. Therefore, it is important that refugees can earn minimum wage. The minimum wage in Turkey is 891TL. We take the refugees' earning between 850 and 950TL as the minimum wage group. Graph 11 represents Syrians who declare to have a job in wage groups. Since none of the interviewees answered the wage question, we do not have wage data for Syrians in Kilis.

Graph 11. Monthly Wage (TL, %)



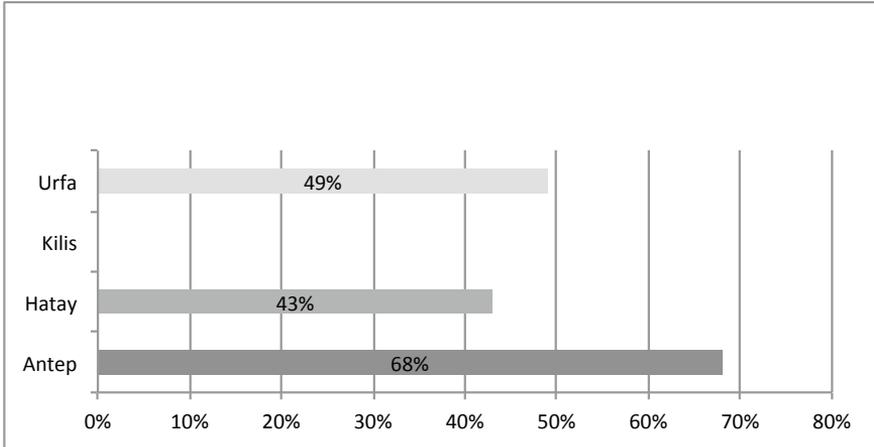
Number of respondents: Gaziantep: 25, Hatay: 18, Kilis: 0, and Urfa: 8

As it can be seen from the Graph 11, while approximately half of working Syrians in Gaziantep earn a wage close to the minimum wage, one-third earn more than minimum wage group and one-fifth earn less than minimum wage group. In Hatay, 28% of working Syrians earn less than the minimum wage group, while another 28% earn close to minimum wage. Strikingly, 44% claim to earn over minimum wage.

In Şanlıurfa, about one-fourth earn over minimum wage group, while 38% earn less than minimum wage group. Approximately one-third earn close to minimum wage.

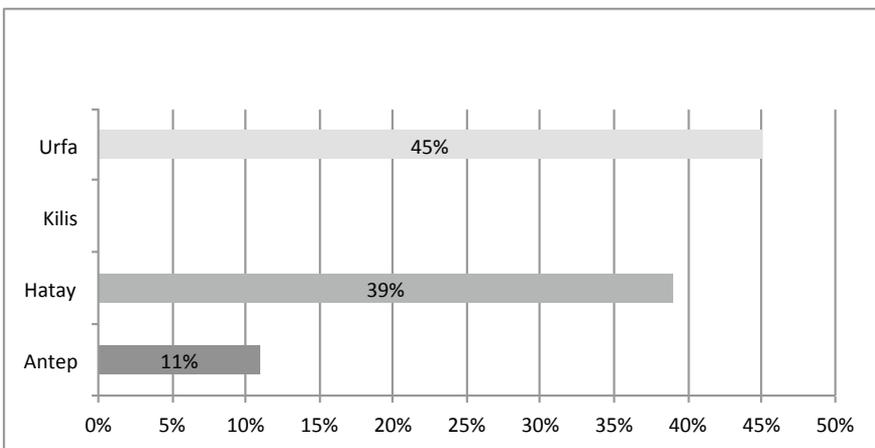
Graph 12 and Graph 13 show shares of expenditures of the minimum wage groups in Şanlıurfa, Hatay, and Gaziantep on food and rent.

Graph 12. Food Expenditure/Income for 850-950 Income Group (%)



Number of respondents: Gaziantep: 13, Hatay: 5, Kilis: 0, and Urfa: 3

Graph 13. Rent/Income for 850-950 Income Group (%)



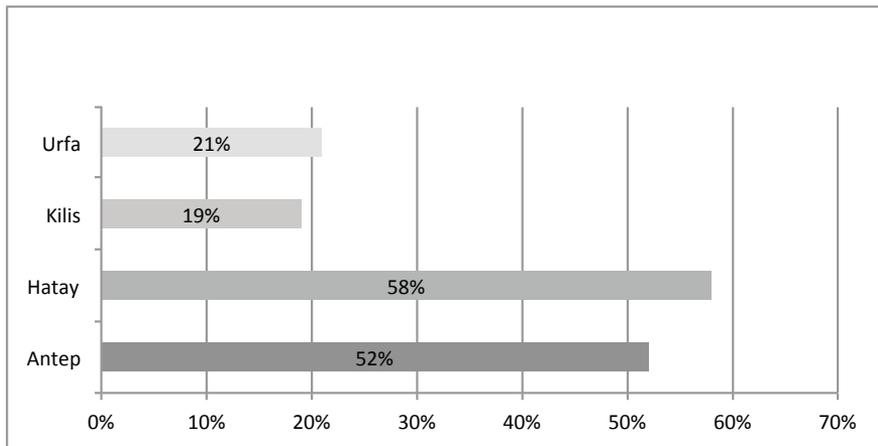
Number of respondents: Gaziantep: 5, Hatay: 5, Kilis: 0, Urfa: 3

As it can be seen from Graph 12 and Graph 13, there are significant differences between cities in terms of the shares on food and rent in expenditures. In Gaziantep, the share of food is the highest, while the share of rent is the lowest. This finding suggests that refugee influx's pressure on housing is the lowest in Gaziantep, though, it is the most expensive city in terms of food cost. In Şanlıurfa, wage earners appear to spend half of their earnings to food and the other half to rent. On

the other hand, on average, the shares of food and rent are the lowest in Hatay. This finding may point to the fact that Syrians have more relatives in Hatay than they do in other cities, and therefore, receive more help in terms of food and housing.

Probably the most important issue for refugees is if their children are able to get education. Graph 14 represents the shares of refugees who declare that their children receive education.

Graph 14. Do you have children getting education (%)



Number of respondents: Gaziantep: 44, Hatay: 66, Kilis: 31, and Urfa: 47

As it can be seen from Graph 14, slightly over half of Syrians states that their children receive education. On the other hand, only one-fifth of the Syrians in Şanlıurfa and Kilis confirms that their children receive education. The low level of education service for Syrian children in Kilis can be explained by the intensity of refugees. In Şanlıurfa, it may point to the lack of organization.

2.4. General Assessment of the Findings Pertaining to the Syrians

The data reveal that over half of Syrians in Gaziantep and Kilis have an education level at the lowest spectrum of the school-

ing system. On the other hand, significant portions of Syrians in Hatay and Kilis have high school or university degrees.

The employment rates of Syrians differ significantly from one city to the other. While over 50% of working age refugees interviewed in Gaziantep has a job, the employment rate is only one-third in Hatay, one-fourth in Şanlıurfa, and 13% in Kilis.

While approximately half of working Syrians in Gaziantep and one-third in Hatay earn a wage close to the minimum wage, over 40% in Şanlıurfa claim to earn over minimum wage. There are significant differences between cities in terms of the

shares on food and rent in expenditures. In Gaziantep, the share of food is the highest, while the share of rent is the lowest. This finding suggests that refugee influx's pressure on housing is the lowest in Gaziantep, though, it is the most expensive city in terms of food cost. In Şanlıurfa, wage earners appear to spend half of their earnings on food and the other half on rent. On the other hand, on average the shares of food and rent is the lowest in Hatay. This finding may point to the fact that Syrians have more relatives in Hatay than they do

in other cities, and therefore, receive more help in terms of food and housing.

Slightly over half of Syrians in Gaziantep and Hatay state that their children receive education. On the other hand, only one-fifth of Syrians in Şanlıurfa and Kilis confirm that their children receive education. The low level of education service for Syrian children in Kilis can be explained by the intensity of refugees. In Şanlıurfa, it may point to the lack of organization.

CONCLUSION AND ASSESSMENT

The purpose of this study was to assess the effects of Syrian refugees on economic variables such as migration and its causes, international trade, unemployment rate, wage rate, inflation (food prices and rent inflation), house sales, education services and cost of education, and health services and its costs in Gaziantep, Hatay, Kilis, Şanlıurfa, Mersin, Adana, Kahramanmaraş, Osmaniye, and Mardin. The effects of Syrian refugees on those economic variables will naturally have social-political consequences. In the first section, thus, the project constructed a synthetic model to estimate what the time paths of these variables would be if there were no Syrian refugees and compare them with actual time paths. In the second section, the project analyzed the economic effects of Syrian refugees descriptively on the basis of face to face interviews with locals in Gaziantep, Hatay, Kilis, and Şanlıurfa. In the second section, we also analyzed data gathered through face to face interviews with the Syrian refugees outside the camps in order to understand their economic and social characteristics. The knowledge of the economic and social characteristics of refugees is crucial in assessing the integration of the refugees into the societies they live in. The basic findings of the study can be summarized as follows:

i) Except for Mersin, all other cities attract less immigration than they would if there were no Syrian refugees. Bearing in mind the perception in Turkey that unemployment has risen, cost of living has increased, and security condition has worsened in the provinces where there have been intense refugee's influxes, this finding is intuitive. It is also reasonable that we have not

reached the same finding for Mersin considering Mersin is not close to Syria, compared to the other cities.

ii) The effects of refugees on international trade differs across provinces depending on the province's industrial development and the level of international trade before the refugee influx started. For instance, in Gaziantep, Adana, Kahramanmaraş, and Mardin, we observe an improvement in both export and trade balance (export minus import). Middle East and North Africa (MENA) has become a focus point in Turkey's foreign economic policy. Economic relations have accompanied good political relations, and MENA has started having an ever-rising share in Turkey's international trade. In this framework it is safe to assume that, specifically through the intermediary of the Syrians of merchant origin, those provinces with an industrial base to produce the goods needed in MENA countries can have a deepening economic integration with the region in the long run

iii) Turkey has achieved a noteworthy improvement in education in the last decade. An important dimension of that improvement was the drop in the number of students per teacher (that is, the decrease in the class size). However, the class sizes have risen (on average, 1-5 students) in the provinces under investigation. On the other hand, since the education services are mostly free in Turkey, especially because education materials at primary, middle, and high school levels are provided by the government free of charge, the existence of Syrian refu-

gees does not seem to increase in the education expenditures for the locals.

iv) According to our findings, one of the most important economic effects of Syrians has occurred in the labor market. In the provinces with intense refugee influxes, and specifically in the informal sectors, there have been job losses for the locals.

v) Another economic effect has occurred through a reduction in the wage rates. Since the refugees have increased labor supply and they mostly work informally, a significant wage rate decline is likely especially in the informal sectors. The completion of legal framework may lessen the negative wage effect, even if it does not reduce job losses.

vi) On the other hand, it must also remind the possible dynamic expansionary effects due to additional demand of Syrian refugees, and investment and aid into the region, which has the potential to create new jobs. Moreover, because Syrians generally work in low skill and low wage sectors, locals can switch to high skill and high wage sectors. Therefore, in order to evaluate the effects of Syrians on labor market, we need a wider perspective that includes these dynamic effects.

vii) Perhaps the most important economic effect of Syrian refugees is the observed increase in food prices and rent inflation. For example, while Gaziantep ranked 18th in Turkey in 2010 in terms of inflation, its rank was 1st in 2013. Especially for the low income segment of the population, the rise in rents imply also a substantial increase in the cost of living. Our findings point to significant increases in the rents especially in the outskirts of provinces experiencing intense refugee influx. For instance, according to TSI data, rent increase in Gaziantep

was 2.3 times more than the Turkey's average.

viii) Another effect of refugees on locals' daily lives occurs in the quality and availability of health services. According to the findings of our study, locals complain about deterioration of the health services. Furthermore, they argue that it has become harder for them to receive health services in a timely manner.

As mentioned above, we conducted face to face interviews with the Syrian refugees outside the camps in order to gather information about their economic and social characteristics. We can summarize our findings as follows:

i) According to our findings, Syrian refugees mostly have a low level of education. This information must be taken into account in the planning process to integrate Syrians into the labor market.

ii) Employment status of refugees varies significantly across the provinces. The level of industrial development and the characteristics of labor market in the province determines the possibility for the refugees to find a job. For instance, while about half of Syrians interviewed in Gaziantep have jobs, this ratio is very low in Kilis.

iii) An important finding of the study is that a significant segment of those refugees who have a job earn a wage rate close to minimum wage.

iv) The shares of Syrians' food and rent expenditure in their incomes vary significantly across provinces. For example, in Gaziantep, while the share of food expenditure is the highest, the share of rent is the lowest. This finding suggests that although Gaziantep is the most expensive province in terms of food costs, the pressure of refugees

on the housing sector is the lowest. On the other hand, the shares of food expenditure and rent are the lowest in Hatay. This finding may be due to the fact that Hatay is the province where refugees have more relatives and therefore receive more aid in terms of food and rent.

v) About half of refugees is children, and for them education is as crucial

as nutrition and shelter. The education status of children varies across provinces. One of the reasons for this variation is the lack of legal framework and a coordinated organization, which has to be addressed in the coming months.

ENDNOTES

1 Abadie, A. and J. Gardeazabal. (2003) "The Economic Costs of Conflict: A Case Study of the Basque Country" *The American Economic Review*, Vol. 93, No. 1, pp. 113-132. See this paper for the details of "synthetic control model" and the advantages of this methodology compared to the previous literature.

2 See "Annex A" for some technical details of the model.

3 Please see "Annex B" for the comparison of the characteristics of the actual Gaziantep with that of the synthetic Gaziantep before Syrian refugee entry. "Annex B" also provides province weights in the synthetic Gaziantep. Same information for other 8 provinces is also provided in Annex B.

ANNEXES

Annex A.

Some Technical Details About the Synthetic Control Method: Minimization Problem

Let's call Gaziantep as province 1. We need J control provinces (J=72) to create synthetic Gaziantep. Minimization problem is as follows:

$$\text{minimize}_{(w \in \omega)} (X_{-1} - X_{-0} - W)' V (X_{-1} - X_{-0} - W)$$

where X_{-1} and X_{-0} denotes economic indicator vectors for Gaziantep and control provinces, respectively. W vector denotes the weights of each control province. The set can be defined as ω . Moreover, V denotes the relative importance of each economic indicator. By solving this problem, we obtain optimal weights in order to create synthetic Gaziantep.

Numerical solution of this problem is computed by MATLAB code which is written by authors.

Annex B.

Table 2 compares the characteristics of the actual Gaziantep with that of the synthetic Gaziantep before Syrian refugee entry.

Table 2. Synthetic Control Estimators: Gaziantep

Variables	Real Gaziantep	Synthetic Gaziantep
Imports (thousand \$, 2011)	4723312,23	4900954,43
Exports (thousand \$, 2011)	4759951,85	4759951,83
Number of health personnel : Physicians Total (2010)	2124,00	2124,00
Number of health personnel:		
Nurses (2010)	2138,00	2128,31
Labour force participation rate		
(%, 2010)	45,39	46,30
Employment rate (%, 2010)	39,33	40,56
Number of health personnel : Physicians Total (2011)	2281,00	2281,00
Number of health personnel:		
Nurses (2011)	2334,00	2420,29
Labour force participation rate		
(%, 2011)	43,90	44,43
Employment rate (%, 2011)	40,50	40,50

We construct the “synthetic Gaziantep” as the convex combination of 72 provinces which most closely resembled Gaziantep. Table 3 presents the weights of provinces to construct the synthetic Gaziantep. A province is not reported, if the weight of that province is zero.

Table 3. Province weights in the synthetic Gaziantep

Provinces	Weights
Kocaeli	0,35
Konya	0,12
Antalya	0,08
Kayseri	0,11
Karabük	0,15
Diyarbakır	0,19
Total	1,00

Table 4 compares the characteristics of the actual Hatay with that of the synthetic Hatay before Syrian refugee entry.

Table 4. Synthetic Control Estimators: Hatay

Variables	Real Hatay	Synthetic Hatay
Imports (thousand \$, 2011)	4594570,19	4335252,75
Exports (thousand \$, 2011)	2050554,65	2138794,69
Number of health personnel : Physicians Total (2010)	1578,00	1611,00
Number of health personnel: Nurses (2010)	1449,00	1501,60
Labour force participation rate (2010)	49,96	49,79
Employment rate (% , 2010)	43,02	43,26
Number of health personnel : Physicians Total (2011)	1707,00	1638,30
Number of health personnel: Nurses (2011)	1622,00	1611,71

We construct the “synthetic Hatay” as the convex combination of 72 provinces which most closely resembled Hatay. Table 5 presents the weights of provinces to construct the synthetic Hatay. A province is not reported, if the weight of that province is zero.

Table 5. Province weights in the synthetic Hatay

Provinces	Weights
İstanbul	0,03
Muğla	0,30
Zonguldak	0,20
Ardahan	0,01
Van	0,08
Bitlis	0,38
Total	1,00

Table 6 compares the characteristics of the actual Şanlıurfa with that of the synthetic Şanlıurfa before Syrian refugee entry.

Table 6. Synthetic Control Estimators: Şanlıurfa

	Real Şanlıurfa	Synthetic Şanlıurfa
Imports (thousand \$, 2011)	288954,01	288954,01
Exports (thousand \$, 2011)	148311,88	208625,89
Number of health personnel : Physicians Total (2010)	1671,00	1671,00
Unemployment Rate (2010)	12,4	13,76
Electricity consumptions by users : Total electricity consumption per capita (KWh; 2011)	1496,46	1496,47
Number of health personnel: Physicians Total (2011)	1774,00	1774,00
Number of health personnel: Nurses Total (2011)	1676,00	1869,69
Home Ownership (% , 2011)	77,12	77,12

Table 7. Province weights in the synthetic Şanlıurfa

We construct the “synthetic Şanlıurfa” as the convex combination of 72 provinces which most closely resembled Şanlıurfa. Table 7 presents the weights of provinces to construct the synthetic Şanlıurfa. A province is not reported, if the weight of that province is zero.

Province	Weights
Tekirdağ	0,10
Konya	0,01
Samsun	0,17
Van	0,46
Diyarbakır	0,26
Total	1,00

Table 8 compares the characteristics of the actual Kilis with that of the synthetic Kilis before Syrian refugee entry.

Table 8. Synthetic Control Estimators: Kilis

Variables	Real Kilis	Synthetic Kilis
Net migration rate	-13,79	-13,71
Imports (thousand \$, 2011)	42423,15	42422,65
Exports (thousand \$, 2011)	30545,76	30545,77
Labour force participation rate (2010)	49,23	49,23
Employment rate (% , 2010)	44,24	44,24
Labour force participation rate 2011	50,70	50,70
Employment rate (%) 2011	47,90	47,89

Table 9. Province weights in the synthetic Kilis

We construct the “synthetic Kilis” as the convex combination of 72 provinces which most closely resembled Kilis. Table 9 presents the weights of provinces to construct the synthetic Kilis. A province is not reported, if the weight of that province is zero.

Provinces	Weights
Nevşehir	0,01
Yozgat	0,07
Zonguldak	0,01
Kastamonu	0,26
Çankırı	0,36
Muş	0,24
Siirt	0,05
Total	1,00

Table 10 compares the characteristics of the actual Adana with that of the synthetic Adana before Syrian refugee entry.

Table 10. Synthetic Control Estimators: Adana

Variables	Real Adana	Synthetic Adana
Imports (thousand \$, 2011)	2974778,71	2974679,01
Exports (thousand \$, 2011)	1756356,293	1864713,17
Number of health personnel : Physicians Total (2010)	3356	3361,37
Number of health personnel:		
Nurses (2010)	2983	2982,72
Labour force participation rate		
(%, 2010)	50,91193324	45,75
Employment rate (%, 2010)	41,18059625	41,18
Number of health personnel : Physicians Total (2011)	3481	3480,98
Number of health personnel:		
Nurses (2011)	3207	3407,87
Labour force participation rate		
(%, 2011)	43,70	43,70
Employment rate (%, 2011)	38,70	40,40

We construct the “synthetic Adana” as the convex combination of 72 provinces which most closely resembled Adana. Table 11 presents the weights of provinces to construct the synthetic Adana. A province is not reported, if the weight of that province is zero.

Table 11. Province weights in the synthetic Adana

Province	Weights
İstanbul	0,01
Ankara	0,05
Konya	0,53
Kayseri	0,02
Karabük	0,14
Erzurum	0,01
Diyarbakır	0,25
Total	1,00

Table 12 compares the characteristics of the actual Mersin with that of the synthetic Mersin before Syrian refugee entry.

Table 12. Synthetic Control Estimators: Mersin

Variables	Real Mersin	Synthetic Mersin
Imports (thousand \$, 2011)	1236879,35	1386021,44
Exports (thousand \$, 2011)	1339367,52	13250023,90
Number of health personnel : Physicians Total (2010)	2236	2305,90
Number of health personnel:		
Nurses (2010)	2286	2155,76
Labour force participation rate		
(%, 2010)	55,33070937	55,27
Employment rate (%, 2010)	47,54944755	48,49
Number of health personnel : Physicians Total (2011)	2305	2551,12
Number of health personnel:		
Nurses (2011)	2326	2256,16

We construct the “synthetic Mersin” as the convex combination of 72 provinces which most closely resembled Mersin. Table 13 presents the weights of provinces to construct the synthetic Mersin. A province is not reported, if the weight of that province is zero.

Table 13. Province weights in the synthetic Mersin

Province	Weights
Aydın	0,31
Bursa	0,03
Düzce	0,21
Antalya	0,44
Artvin	0,01
Total	1,00

Table 14 compares the characteristics of the actual Kahramanmaraş with that of the synthetic Kahramanmaraş before Syrian refugee entry.

Table 14. Synthetic Control Estimators: Kahramanmaraş

Variables	Real K.maraş	Synthetic K.maraş
Imports (thousand \$, 2011)	1188471,80	1031931,97
Exports (thousand \$, 2011)	711945,45	766985,71
Number of health personnel : Physicians Total (2010)	1204	1188,41
Number of health personnel:		
Nurses (2010)	1206	1204,57
Labour force participation rate		
(%, 2010)	49,16	49,17
Employment rate (%, 2010)	42,89	42,90
Number of health personnel : Physicians Total (2011)	1227	1225,25
Number of health personnel:		
Nurses (2011)	1379	1207,26
Labour force participation rate		
(%, 2011)	46,10	46,39
Employment rate (%, 2011)	42,20	42,20

We construct the “synthetic Kahramanmaraş” as the convex combination of 72 provinces which most closely resembled Kahramanmaraş. Table 15 presents the weights of provinces to construct the synthetic Kahramanmaraş. A province is not reported, if the weight of that province is zero.

Table 15. Province weights in the synthetic Kahramanmaraş

Province	Weights
Aydın	0,13
Sakarya	0,14
Ankara	0,01
Antalya	0,05
Zonguldak	0,39
Hakkari	0,28
Total	1,00

Table 16 compares the characteristics of the actual Osmaniye with that of the synthetic Osmaniye before Syrian refugee entry.

Table 16. Synthetic Control Estimators: Osmaniye

Variables	Real Osmaniye	Synthetic Osmaniye
Net Migration Rate (2010-2011)	-5,64	-5,64
Imports (thousand \$, 2011)	836774,17	836774,17
Exports (thousand \$, 2011)	131537,38	9122632,44
Number of health personnel : Physicians Total (2010)	547	547,00
Number of health personnel:		
Nurses (2010)	611	611,00
Labour force participation rate		
(%, 2010)	46,51	51,16
Employment rate (%, 2010)	39,82	46,73
Number of health personnel : Physicians Total (2011)	602	602,00
Number of health personnel:		
Nurses (2011)	750	750,00

We construct the “synthetic Osmaniye” as the convex combination of 72 provinces which most closely resembled Osmaniye. Table 17 presents the weights of provinces to construct the synthetic Osmaniye. A province is not reported, if the weight of that province is zero.

Table 17. Province weights in the synthetic Osmaniye

Province	Weights
Tekirdağ	0,03
Bursa	0,03
Bilecik	0,21
Sakarya	0,19
Çankırı	0,24
Amasya	0,29
Siirt	0,01
Total	1,00

Table 18 compares the characteristics of the actual Mardin with that of the synthetic Mardin before Syrian refugee entry.

Table 18. Synthetic Control Estimators: Mardin

Variables	Real Mardin	Synthetic Mardin
Exports (thousand \$, 2011)	804232,87	800345,75
Number of health personnel : Physicians Total (2010)	699	686,28
Number of health personnel: Nurses (2010)	618	618,46
Labour force participation rate (%, 2010)	36,47	37,38
Employment rate (%, 2010)	33,15	33,09
Number of health personnel : Physicians Total (2011)	691	729,63
Number of health personnel: Nurses (2011)	769	754,01
Labour force participation rate (%, 2011)	41,90	42,70
Employment rate (%, 2011)	37,60	37,60
Number of Exporter firms (2010)	207,00	216,38

We construct the “synthetic Mardin” as the convex combination of 72 provinces which most closely resembled Mardin. Table 19 presents the weights of provinces to construct the synthetic Mardin. A province is not reported, if the weight of that province is zero.

Table 19. Province weights in the synthetic Mardin

Province	Weights
Manisa	0,03
Bursa	0,01
Konya	0,04
Diyarbakır	0,05
Batman	0,04
Şırnak	0,50
Siirt	0,33
Total	1,00