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## The Impact of the Syrian Refugee Crisis on the Health Access in Türkiye: A Synthetic Control Analysis

Araştırma Makalesi /Research Article

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**ABSTRACT:** One of the most critical determinants of a healthy life is the level of accessibility to health services when needed. The literature defines the unmet need for healthcare services as whether the individual (in the last twelve months) cannot apply to a doctor despite the need for medical examination or treatment. One of the main reasons to cause an unmet health care need is the expensive healthcare cost due to increased demand. There are increases in demand due to population growth and migration movements. Türkiye experienced a large-scale migration because of the Syrian civil war. This paper aims analyze the direct effect of this massive migration on the health access in Türkiye by exploiting the synthetic control method and OECD's and EUROSTAT's country-level data set related to health care. Even though we control for the 2009 crisis, we observe that the synthetic values of the UHCN for Türkiye do not coincide well, especially for the period 2009-2010. The results suggest that the impact of the mass influx of refugees on Türkiye's UHCN ceases to exist, wiped away by the government's increase in health investment. Although this makes the synthetic series slightly different from Türkiye's series, the results provide intuitive information.

**Keywords:** Heath access, synthetic control, the Syrian crisis, unmet healthcare needs

**JEL Codes:** C23, I11, I18, J15, O52

## Suriyeli Mülteci Krizinin Türkiye'de Sağlığa Erişim Üzerindeki Etkisi: Sentetik Kontrol Analizi

**ÖZ:** Sağlıklı bir yaşamın en kritik belirleyicilerinden biri, ihtiyaç duyulduğunda sağlık hizmetlerine erişilebilirlik düzeyidir. Literatürde karşılanmayan sağlık hizmeti ihtiyacı, kişinin (son on iki ay içinde) tıbbi muayene veya tedavi ihtiyacı olmasına rağmen doktora başvuramaması şeklinde tanımlanmaktadır. Karşılanamayan bir sağlık hizmeti ihtiyacının temel nedenlerinden biri, artan talep nedeniyle pahalı sağlık hizmetleri maliyetidir. Ağırlıklı olarak nüfus artışı ve göç hareketleri gibi nedenlerle talep artışları yaşanmaktadır. Türkiye, Suriye iç savaşının bir sonucu olarak geniş çaplı bir göç yaşamıştır. Bu makalede, gerçekleşen kitlesel göçün Türkiye'deki sağlığa erişim üzerindeki doğrudan etkisini sentetik kontrol yöntemini ve OECD/EUROSTAT'ın sağlık hizmetlerine ilişkin ülke düzeyindeki veri setini kullanarak incelemeyi amaçlamaktadır. 2009 krizi kontrol edilmesine rağmen, özellikle 2009-2010 dönemi için karşılanmamış sağlık hizmeti ihtiyacı Türkiye için sentetik değerlerinin pek örtüşmediği görülmektedir. Sonuçlar, kitlesel mülteci akınının Türkiye'nin karşılanmamış sağlık hizmeti ihtiyacı üzerindeki etkisinin sona erdiğini ve çoğunlukla hükümetin sağlık yatırımlarındaki artışıyla ortadan kalktığını göstermektedir. Sonuçlar sentetik seriyi Türkiye serisinden biraz farklı kılarsa da sonuçlar sezgisel bilgiler vermektedir.

**Anahtar Kelimeler:** Sağlık erişimi, sentetik kontrol, Suriye krizi, karşılanmamış sağlık hizmeti ihtiyacı

**JEL Kodları:** C23, I11, I18, J15, O52

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## 1. Introduction

One of the most critical determinants of a healthy life is the level of accessibility to health services when needed. However, some groups of individuals may encounter barriers to health care. The "unmet healthcare needs" (UHCN) is considered a good proxy that reflects healthcare access. UHCN is defined as an individual's inability to refer to a doctor if s/he needs healthcare during the last twelve months (Levesque et al., 2008).

Health access has become an essential issue for the countries that especially faced a mass refugee influx due to Syria's civil war, which began in spring 2011. Millions of people became forcibly displaced during the war, many to neighboring countries like Türkiye, Iraq, Lebanon, Jordan, and Egypt. By the end of 2019, 6.6 million Syrians had become refugees outside of Syria (UNHCR) (2016). Approximately 3.4 million Syrian refugees lived in non-campaign settlements in various cities in 2018, with nearly 95 percent of the total Syrian refugees living in Türkiye.

A growing literature analyzes unmet health care needs (Sibley & Glazier, 2009; Connolly & Wren, 2017; Lindström et al., 2020; Chongthawonsatid, 2021). There also exist studies that identify the determinants of the unmet health care needs, specifically of older people (Joo et al., 2020; Ahn et al., 2013), migrants (Chowdhury et al., 2020), and women (Vuillermoz et al., 2017; Chae & Kim, 2020).

We can reach the health access issue through two different approaches: The demand and supply sides of the health care system. The demand for healthcare services increases due to the burden of disease shifting to more chronic diseases because of the aging population. In Türkiye, the percentage of individuals who are 15 years old and over receiving inpatient health services is 10.8 percent in 2019. This ratio was 9.2 percent in 2008. Seventy-five years old and over placed the first rank with 23.7 percent and 65-74 age group followed by 18.3 percent in 2019. Awareness of health leads individuals to preventive services. Nearly half of the individuals benefited from the measurement of blood pressure. It is striking that only a quarter of the individuals controlled for blood cholesterol and blood sugar in 2008, but this ratio became about 40 percent in 2019. The number of patients' hospital visits per physician also confirms the increase in the demand for healthcare services. Between 2009 and 2018, patients' hospital visits per physician increased by 14.9 percent. We also observe that the total health expenditure per capita rises rapidly, especially after 2010.

Refugees need support, including healthcare, education, infrastructure and resettlement resources, and funding. Because of their current situation, refugees may have poor health status. Unfortunately, the problem is not different for the Syrian refugees in Türkiye.

WHO STEPS survey, conducted in December 2015 for Syrian refugees living in Türkiye, is a cross-sectional study focused on the refugee population in the ten provinces. The STEPS questionnaire for Syrian refugees has examined five crucial risk factors classified as follows: In the current situation, daily smoking, consuming less than five servings of fruits and/or vegetables per day, not meeting physical activity recommendations, the presence of overweight or obesity, high blood pressure have been questioned.

According to the survey, only 0.3 percent of Syrian refugees in the working-age population are in the low-risk group for non-communicable diseases. While 41.1 percent of the refugees have 1-2 risk factors, the high-risk group constitutes the remaining 58.7 percent. 3-5 risk factors are more common among men (61.3 percent) than women (56.1 percent). Focusing on only the 18-44 age group, we observe that about half of the population, irrespective of gender, are in the high-risk group. More importantly, more than 80 percent of the 45-69 age group population are exposed to more than three risk factors. If the conditions that Syrian refugees must live in are taken into consideration, the consequences of this in the long term will undoubtedly be highly damaging in terms of health.

The excessive concentration of refugees increases infectious disease risks, overcrowding hospitals, and generally damaging financial and health resources. In addition to these crowding problems in hospitals, natives complain about Syrians consuming health resources and preventing the natives from getting access to services when needed (Ekmekçi, 2017).

On the supply side of the issue, the population's healthcare needs and the increasing demand for healthcare services increase the number of healthcare professionals. Before the Health Transformation Program (HTP), the supply of healthcare professionals was inefficient in Türkiye. Türkiye ranks at the bottom of the WHO European Region regarding the number of physicians per hundred thousand. The situation is the same for other healthcare professionals. Although there is an improvement in these indicators with the HTP, Türkiye still has an exceptionally low ranking.

Ekmekçi (2017) points out that there appear to be cases where natives cannot access healthcare when needed. However, little is known about how refugees' mass influx impacts the local population's unmet health needs. We assume the unexpected mass inflow of refugees resembles a natural experiment, as Balkan and Tümen (2016) suggested. Our central hypothesis is that an unanticipated increase in population may escalate UHCN through a possible increase in health demand. The closest study to our paper is that of the study by İközler et al. (2020). They find that mass refugee influx increases the ratio of the UHCN arising mainly from systemic reasons, especially at the beginning of the migration crisis. İközler et al. (2020) exploit regional differences to analyze the large-scale migration impact using a differences-in-difference strategy. Unlike İközler et al. (2020), we

use the synthetic control method and OECD's and EUROSTAT's country-level data set related to health care.

Note that Türkiye is an outlier country regarding unmet healthcare needs mostly because of the financial reasons, especially in the 2009-2010 period. Although this makes the synthetic series slightly different from Türkiye's series, the results may provide intuitive knowledge. Using a synthetic control method, we could not find any statistically significant impact of refugees' mass influx on the UHCN of the native-born population. The result suggests that this refugee impact did not spread to the country level. The significant refugee impact on UHCN that İközler et al. (2020) find can be considered regional.

The paper's outline is as follows: We begin with our data sets. In Section 3, we introduce our estimation approach. We present our results in Section 4, and then we conclude.

## 2. Data

To setup synthetic control for Türkiye's unmet healthcare need figures, we need to collect data for other countries. To do so, we use the European Union Statistics on Income and Living Conditions (EU-SILC) as the primary data set. This database provides timely and comparable statistics on income, poverty, social exclusion, and living conditions. We use data for health conditions, problems, limitations, and housing conditions for 2008-2019. Additionally, from EUROSTAT, we obtain macroeconomic measures.

Our model's variables are based on Andersen Healthcare Utilization Model (1968). The followings are the main reasons for the unmet healthcare need:

- Financial difficulty/Could not afford to (too expensive or not covered by insurance fund),
- Could not take time because of work, care for children or others,
- Too far to travel to healthcare organizations/no means of transportation,
- Fear of doctor/hospitals/examination/treatment,
- Given too late time for an appointment,
- Wanted to wait and see if the problem got better on its own,
- Did not know any good doctors or specialists and
- Other reasons.

The literature divides these reasons into three categories: availability of healthcare, accessibility, and acceptability of available health care. Availability of health care refers to long waiting times; service is not available when needed or is not available in the area. Unmet needs due to accessibility are related to cost or transport issues. The remaining are related to the individuals' preferences (Sibley

& Glazier, 2009). This study considers only unmet healthcare needs due to systematic reasons because governments cannot regulate the UHCN due to personal reasons.

### 3. Methodology

The study evaluates the change between the perceived unmet healthcare needs (UHCN) in Türkiye after 2012 compared to the rate without the Syrian refugees' influx. To determine the impact of the mass influx of refugees on the UHCN of the native population, we use the Synthetic Control Method (SCM) (Abadie, & Gardeazabal, 2003; Abadie et al., 2010; Abadie et al., 2015). Synthetic control is a data-driven way of finding the counterfactual in generalized Difference-in-Differences (DID) estimation (Dolu, & Göksel, 2017; Adhikari et al., 2018; Nowrasteh et al., 2020).

We estimate a counterfactual UHCN for countries with no 2012 refugee influx shock as a weighted average of similar countries to construct a synthetic control. SCM determines these weights by matching countries that share identical figures with Türkiye. For a given set of weights, the method estimates the refugee surge's impact as the difference, or gap, between Real Türkiye's UHCN and Synthetic Türkiye's UHCN.

Using the notation of Abadie et al. (2010), we first describe the SCM for settings when the intervention group consists of only a single unit. To describe the process, let  $Y_i$  be the sample mean of an outcome of for country  $i$ . The intervention effect  $\alpha$  for Türkiye ( $i = 1$ ) is estimated as a weighted average of  $I + 1$  control countries of the form:

$$\alpha = Y_1 - \sum_{i=2}^{I+1} w_i * Y_i$$

This procedure considers a vector of weights  $W = (w_2, \dots, w_{i+1})$  such that each weight is non-negativity for all control countries ( $1 \geq w_i \geq 0$ ) and  $w_2 + \dots + w_{i+1} = 1$ . Each choice of  $W$  provides a set of weights and describes a synthetic control.

When constructing a Synthetic Türkiye, we need to use countries with similar observable characteristics to avoid interpolation bias from comparing different countries. SCM hence produces a figure with two-time series, one for the treated country (Türkiye) and one for the synthetic control. The empirical results section shows these two lines; for UHCN, we visually examine the post-2012 differences to assess whether they are large relative to the pre-event differences (2008-2019).

### 4. Empirical Results

After the Syrian civil war that broke out in 2011, Türkiye is one of the most affected countries by refugees' migration. Our estimation methodology uses these

countries individually to constitute the treatment group. The rest of the thirty-three countries establish the synthetic control unit.

Figure 1 presents the actual "unmet health care needs" of Türkiye. To be able to say more precise results in the synthetic model, we expect the synthetic series and real values to overlap as much as possible before the policy change. In other words, the explanatory power increases as the synthetic series approach the real values. Türkiye is an outlier country in terms of unmet healthcare needs, especially in the 2009-2010 period, so the synthetic series is slightly different from the real Türkiye series. This model provides us with intuitive knowledge about the impact of the mass influx of refugees on Türkiye's UHCN. According to this result, the mass influx of refugees does not significantly affect the UHCN of the native-born population.

Even though we control for the 2009 crisis, we observe that the synthetic values of the UHCN for Türkiye do not coincide well, especially for the period 2009-2010. The results suggest that the impact of the mass influx of refugees on Türkiye's UHCN ceases to exist, wiped away mainly by the government's increase in health investment.

**Figure 1:** Treated and Synthetic Values of the UHCN for Türkiye

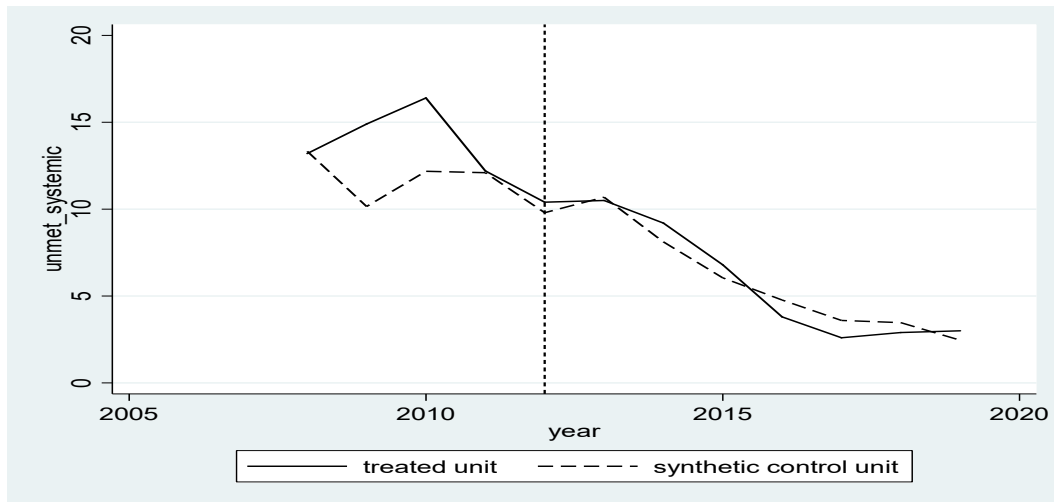


Table 1 demonstrates the synthetic and treated values of the variables applied in the synthetic control model. These values must be close to each other in terms of the success of the recognized model. While the synthetic model is formed, the values of unmet healthcare needs for some years are also included in the control group.

Sweden and Finland are at the top of the European countries that suffer the most mass influx of refugees compared to their populations (UNHCR, 2016). We also present the impact of the mass influx of Syrian refugees on the unmet healthcare needs of Sweden and Finland in the following figures. We notice that the

downward trend before 2012 does not remain afterward for those countries. In line with our expectations, the Syrian refugees' mass influx increases the UHCN in these countries, especially after 2015. We should note that since the level of the UHCN in these countries are so low compared to the Turkiye's figure, we observe the impact more evidently in the countries.

**Table 1:** Treated and Synthetic Values for Turkiye

	<b>Treated</b>	<b>Synthetic</b>
Unmet healthcare needs (2008)	13.2	13.4
Unmet healthcare needs (2009)	14.9	10.2
Unmet health-care needs (2011)	12.2	12.0
Education Level	71.7	18.3
GDP per capita	51.8	48.5
Health condition-bad	11.5	11.4
Health condition-fair	20.9	27.1
Health condition-good	54.6	45.7
Health condition-very good	11.2	12.8
Health Problem	30.2	25.7
Household Type	48.5	49.5
Housing Problems	30.7	22.7
The labor intensity of household	12.0	8.8
Health Limitation-severe	7.8	5.3
Health Limitation-some	19.5	16.6

**Figure 2:** Treated and Synthetic Values of the UHCN for Sweden

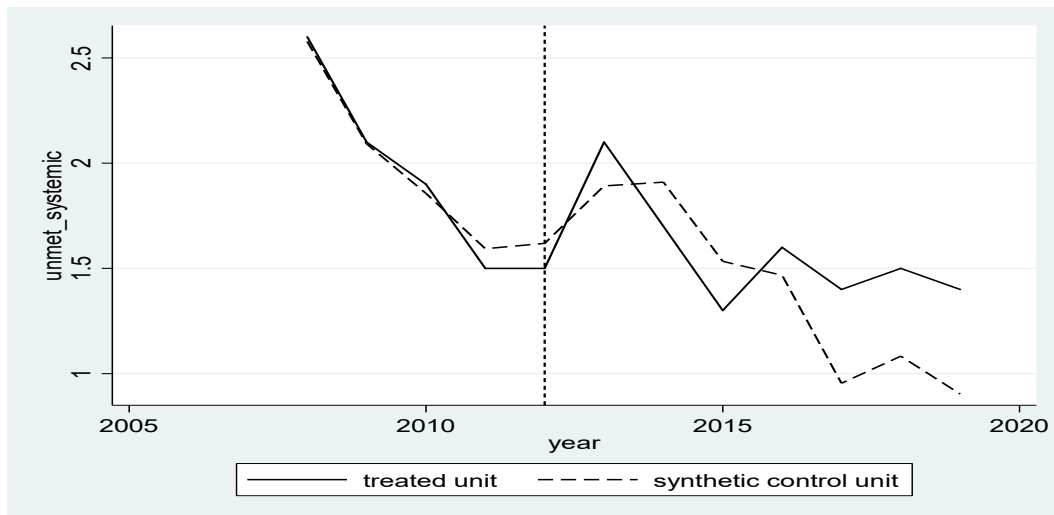


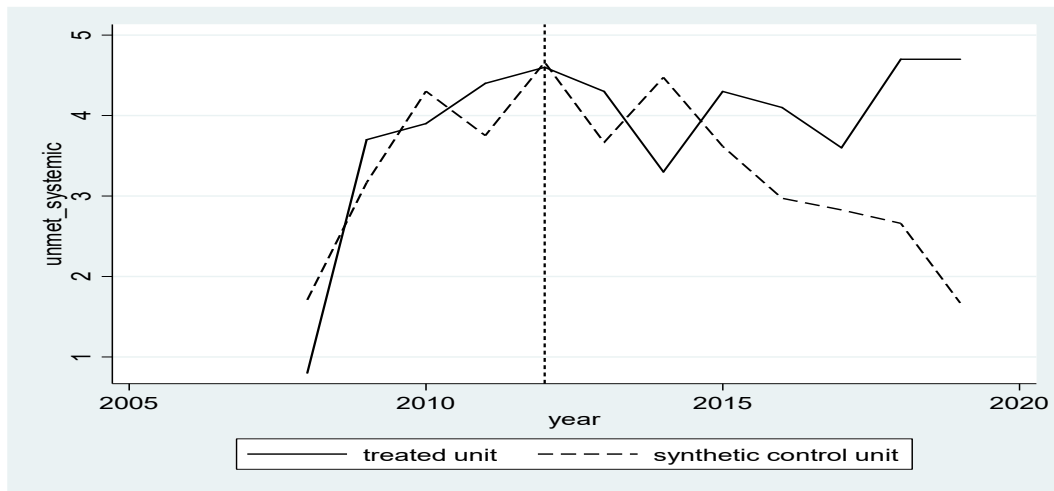
Figure 2 examines how unmet health expenditures for Sweden are affected by the influx of Syrian refugees. According to this figure, the synthetic series and the real values are very close to each other before the refugee migration influx. This is very close to the real values of the synthetic series we created. This situation increases the accuracy of interpreting the refugee migration influx effect. According to the figure, the change in UHCN after 2012 is not related to the



influx of Syrians. Because real and synthetic UHCN values act similarly from 2012 to 2015, in other words, it can be interpreted that the change in UHCN will be similar until 2015, even if there is no migration flow. The effect of the influx of Syrian refugees was seen after 2015 and increased the UHCN.

Similarly, Figure 3 shows the effects of the Syrian refugee influx on Finland's UHCN. According to the graph, it is possible to say the same evaluations were expressed for Sweden for Finland. Here, too, the main effect on UHCN was seen after 2015 and was increasing.

**Figure 3:** Treated and Synthetic Values of the UHCN for Finland



## 5. Concluding Remarks

This paper has examined the impact of the mass refugee influx on Türkiye's UHCN by exploiting the synthetic control method. We have tested the hypothesis that the mass refugee influx increases the ratio of the UHCN arising mainly from systemic reasons.

Low-income communities, such as refugees, struggle for food and shelter and prioritize their dental healthcare needs at the bottom of the list. So, we expect that the inflow of mass refugees will not significantly affect the dental healthcare needs of natives. This reasoning indicates no prioritized action needs to be implemented in the dental healthcare area.

As we have noticed, the mass refugee inflow was about 4 percent of the population in Türkiye. We consider this a robustness check for the health system in Türkiye. Even though the population shock is massive, the impact on the unmet healthcare needs remains at a reasonable interval. Moreover, the mass refugee inflow increased the supply of health services. This increase in health supply provides an achievement in combatting Covid-19 in Türkiye, other countries where health supply is lower than Türkiye's health supply. These show the success of HTP during the massive migration inflow. Under no second wave of

refugee inflow, we expect that preserving the current development in the health system will decrease the UHCN.

Note that the synthetic values of the UHCN for Türkiye do not coincide well, especially for the period 2009-2010. However, the model provides us with intuitive knowledge about the impact of the mass influx of refugees on Türkiye's UHCN. The results suggest that the effect of refugees' mass influx on Türkiye's UHCN ceases to exist. This result confirms that the Health Transformation Program's health investments are appropriate to wipe away the possible impact of refugees' mass influx. Therefore, the Health Transformation Program has made it possible to be prepared for unexpected situations such as the mass influx of refugees in the field of health.

### References

Abadie, A., and Gardeazabal, J. (2003). The economic costs of conflict: A case study of the Basque Country. *American economic review*, 93(1), 113-132.

Abadie, A., Diamond, A., and Hainmueller, J. (2010). Synthetic control methods for comparative case studies: Estimating the effect of California's tobacco control program. *Journal of the American Statistical Association*, 105(490), 493-505.

Abadie, A., Diamond, A., and Hainmueller, J. (2015). Comparative politics and the synthetic control method. *American Journal of Political Science*, 59(2), 495-510.

Adhikari, B., Duval, R., Hu, B., and Loungani, P. (2018). Can reform waves turn the tide? Some case studies using the synthetic Control Method. *Open Economies Review*, 29(4), 879-910.

Ahn, Y. H., Kim, N. H., Kim, C. B., and Ham, O. K. (2013). Factors affecting unmet healthcare needs of older people in Korea. *International nursing review*, 60(4), 510-519.

Balkan, B., and Tümen, S. (2016). Immigration and prices: Quasi-experimental evidence from Syrian refugees in Turkey. *Journal of Population Economics*, 29(3), 657-686.

Chae, H. J., and Kim, M. (2020). Unmet healthcare needs and related factors according to gender differences in single-person households. *Korean Journal of Women Health Nursing*, 26(1), 93-103.

Chongthawonsatid, S. (2021). Identification of Unmet Healthcare Needs: A National Survey in Thailand. *Journal of Preventive Medicine and Public Health*.

Chowdhury, N., Naeem, I., Ferdous, M., Chowdhury, M., Goopy, S., Rumana, N., and Turin, T. C. (2020). Unmet Healthcare Needs among Migrant Populations in Canada: Exploring the Research Landscape Through a Systematic Integrative Review. *Journal of Immigrant and Minority Health*, 1-20.

Connolly, S., and Wren, M. A. (2017). Unmet healthcare needs in Ireland: analysis using the EU-SILC survey. *Health policy*, 121(4), 434-441.

Dolu, A., and Göksel, T. (2017). Nafta'nın Meksika Ekonomisi Üzerindeki Etkileri: Sentetik Kontrol Metot Yaklaşımı. *Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 22(3), 915-926.

Ekmekci, P. E. (2017). Syrian refugees, health, and migration legislation in Turkey. *Journal of immigrant and minority health*, 19(6), 1434-1441.

İkizler, H., Yüksel, E., and İkizler, H. B. (2020, December). The Impact of the Large-Scale Migration on the Unmet Healthcare Needs of the Native-born Population in a Host Country: Evidence from Turkey. In *Economic Research Forum Working Papers* (No. 1436).

Joo, J. H., Kim, H. J., Jang, J., Park, E. C., and Jang, S. I. (2020). Unmet Healthcare Needs Status and Trend of Korea in 2018. *Health Policy and Management*, 30(1), 120-125.

Levesque, J. F., Pineault, R., Robert, L., Hamel, D., Roberge, D., Kapetanakis, C., ... and Laugraud, A. (2008). Unmet health care needs: a reflection of the accessibility of primary care services. Montreal, QU: Gouvernement du Quebec.

Lindström, C., Rosvall, M., & Lindström, M. (2020). Unmet healthcare needs and mortality: A prospective cohort study from southern Sweden. *Scandinavian journal of public health*, 48(3), 267-274.

Nowrasteh, A., Forrester, A. C., and Blondin, C. (2020). How mass immigration affects countries with weak economic institutions: A natural experiment in Jordan. *The World Bank Economic Review*, 34(2), 533-549.

Sibley, L. M., and Glazier, R. H. (2009). Reasons for self-reported unmet healthcare needs in Canada: a population-based provincial comparison. *Healthcare Policy*, 5(1), 87.

United Nations High Commission for Refugees (UNHCR) (2016). Global trends forced displacement in 2015. <https://www.unhcr.org/5943e8a34.pdf>. Accessed: March 12, 2021.

Vuillermoz, C., Vandentorren, S., Brondeel, R., and Chauvin, P. (2017). Unmet healthcare needs in homeless women with children in the Greater Paris area in France. *PloS one*, 12(9), e0184138.