THE IMPACT OF SYRIAN REFUGEES ON THE TURKISH HOUSING MARKET

SÜREYYA GÜDER KÖŞGEROĞLU

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Süreyya Güder Köşgeroğlu

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The thesis of Süreyya Güder Köşgeroğlu

has been approved by:

Prof. Murat Güray Kırdar _____

(Thesis Advisor)

Assist. Prof. Selcen Çakır _____

Assist. Prof. Murat Demirci _____

(External Member)

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I, Süreyya Güder Köşgeroğlu, certify that

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ABSTRACT

The Impact of Syrian Refugees on the Turkish Housing Market

This paper analyzes the impact of Syrian refugees on housing and rental prices in Turkey, utilizing a dataset comprised of a price index from online listings provided by the data analytics company REIDIN. Employing a difference-in-differences instrumental variable model at the province and year level, it is found that the refugee influx leads to a decrease in average asked prices for both rental and housing. The decrease is explained through two main channels: housing supply and negative perception towards refugees among natives. It is shown that the housing supply increases after the refugee influx, along with an existing vacant housing supply, driving housing prices down. The decrease in asked prices in refugee-dominant neighborhoods might also indicate a negative perception towards refugees among natives, which could also be a driver for decreasing housing prices, which is also in line with the findings in the literature. The findings suggest a significant impact of refugees on housing price dynamics in Turkey, offering insights into the impact of refugees in local economies.

ÖZET

Suriyeli Göçmenlerin Türk Konut Piyasasına Etkileri

Bu çalışma Suriyeli göçmenlerin Türkiye'deki ev ve kira fiyatlarına etkisini incelemektedir. Çalışmada veri analizi şirketi REIDIN'den elde edilen ve çevrimiçi ilan sitelerinde listelenen ev ve kira fiyatlarından oluşan fiyat endeksleri kullanılmıştır. İl ve yıl düzeyinde farkların farkı ve araçsal değişken yöntemleri kullanılarak göçmen akınının konutların hem satış hem de kiralama için istenen fiyatlarında düşüşe sebep olduğu gözlenmiştir. İstenen fiyatlarda gözlenen bu düşüş konut arzı ve yerel halkın göçmenlere yönelik olumsuz algısı olmak üzere iki ana sebep üzerinden açıklanmıştır. Bu doğrultuda, göçmen akınlarını takiben hem konut arzının arttığı hem de mevcut boş konut arzının Türkiye'de konut fiyatlarını düşürmeye yardımcı olduğu gösterilmektedir. Ayrıca göçmenlerin yoğun olduğu bölgelerde istenen fiyatların düşmesinin yerel halk arasında göçmenlere karşı olumsuz bir algının göstergesi olabileceği ve bu durumun konut fiyatlarının düşmesine neden olabileceği öne sürülmektedir. Bu çalışma, göçmenlerin Türkiye'deki konutların fiyat dinamikleri üzerinde önemli bir etkisi olduğunu öne sürmekte ve mültecilerin ülke ekonomilerindeki etkilerine ışık tutmaktadır.

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CHAPTER 1

INTRODUCTION

At the end of 2023, there were 110 million forcibly displaced people around the world, 36.4 million being refugees[1]. Turkey has one of the largest refugee populations in the world, hosting 3.6 million Syrian refugees after the eruption of the Syrian war in 2011. Although most refugees lived in camps near the border to Syria until 2013, as the number of refugees increased over time, refugees were encouraged to disperse around the country. By 2014, more than 98% of refugees lived outside of camps in Turkey. In such a short time, the surprisingly high increase in the refugee population raised some concerns, including housing.

There is evidence that high refugee-hosting provinces have experienced increases in prices. Moreover, according to surveys, natives tend to believe that the refugee influx leads to significant increases in housing prices (Öztürkler, Harun & Göksel, Türkmen, 2015). Whether the impact of refugees drives the rising prices is an empirical question that needs to be answered. In this paper, I analyze the impact of refugees on the housing market by using data on housing and rental prices in Turkey.

Standard economic theory would suggest that if there is a positive demand shock in the housing market, demand would increase prices if the housing supply is constant. However, refugees impact the housing demand and contribute to the supply of new housing units, which also impacts the prices. Moreover, it is impossible to differentiate between the refugee-induced demand and the native demand as a

[1]See: https://www.unhcr.org/refugee-statistics/

response to the refugee influx, which could (potentially) decrease or increase prices depending on the native perception towards refugees (Saiz, 2007).

Refugees earn relatively lower wages than natives; they are relatively younger and have lower levels of education. There are barriers for refugees to buying new housing units in Turkey[2], which makes it unlikely for them to purchase new houses, especially in the short run. Therefore, the direct impact of refugees on housing sale prices is expected to be driven by native demand or supply-side dynamics rather than refugee-induced demand. The refugee impact is expected mostly in affordable, relatively lower-cost rental units (Akgündüz et al., 2022).

There are studies that examine immigrants' impact on the housing market in the host countries. The literature mainly consists of the impact of immigrants and refugees, which tend to differ. Many studies also examine the impact of immigrants in the context of South-West immigration rather than South-South immigration, which could also have different effects on the host countries (Forero-Vargas & Iturra, 2022). Immigrants tend to be more heterogeneous regarding socioeconomic status and nationality, while refugees are more homogeneous. Refugees usually come from low socioeconomic backgrounds and tend to have lower levels of education, while immigrants may have different backgrounds. Therefore, it is essential to keep this distinction in mind while interpreting the results of the studies (Kürschner & Kvasnicka, 2018). Most immigration studies use an "*ethnic networks*" instrument following Saiz (2007, pg. 356). This instrument is used to account for possible endogeneity in settlement choices. This IV uses the fact that immigrants tend to settle in areas where other immigrants of the same nationality reside. However, the immigration decision of forcibly displaced refugees is usually driven by the

[2] See Chapter 2.

proximity of a safer country[3]. To that end, studies looking at the impact of refugees use a "distance-based" instrument. In this study, I also use the instrument suggested by Aksu et al. (2018), widely used in the literature.

The seminal study looking at the impact of immigrants on the housing market was Saiz (2007). This paper looks at the effects of the Mariel Boatlift in metropolitan areas in the US. The author uses the "ethnic networks" IV and finds that the immigration inflow raised housing rents by 1% (Saiz, 2007, pg. 356). However, he emphasizes that it is impossible to differentiate between the (potential) increase in refugee-induced demand and the (potential) decrease in native demand. Natives could decide to relocate in response to an immigration inflow, due to natives' replacement in the labor market, or simply due to the negative perceptions towards refugees. Accordingly, Saiz & Wachter (2011) looked at the impact of immigration on the housing market at the neighborhood level. They found that house prices grow slower in immigrant-dense neighborhoods and that natives tend to move out of such neighborhoods. They conclude that if natives have negative preferences toward refugees, they may be willing to pay a price premium to live in native-predominant neighborhoods. Like Saiz and Wachter (2011), Accetturo et al. (2014) look at the impact of immigrants on housing prices at the district level in Italy. While city-level housing prices have increased, they also find that prices have decreased at the district level. They argue that this discrepancy between city and neighborhood-level housing prices is driven by the native outmigration from immigrant-dense neighborhoods, leading to residential segregation. The impact of immigration on the housing market may differ considerably, as each country has a unique demand-supply dynamic. Gonzales and Ortega (2013) look at the impact of immigration in Spain between

[3] You can see AFAD (2013) and AFAD (2017) for surveys with refugees, where the vast majority stated that they chose Turkey because of locational proximity.

2000-2010 and find that immigration leads to an increase of 2% in housing prices. The housing supply that was relatively unresponsive to immigration also contributed to this price increase.

Similarly, Sanchis-Guarner (2023) looks at the impact of immigration in Spain between 2001 and 2012. She finds that immigration led to an increase of 3.3% in housing prices and a 1% increase in rental prices. The main contribution of this paper to the literature is that it claims that three factors mainly determine housing market dynamics after an immigration period. One is immigrant-induced (positive) demand, the second is native-induced demand based on native response, and the third is housing supply dynamics in the particular country. The author states that the price increases could be decomposed into the refugee impact and the native response once supply is taken into account in regressions. She concludes that of the 3.3% increase in housing prices, 2.5% stems from immigrants' demand, and 0.78% is driven by native relocation to immigrant hosting areas, which is the opposite of residential segregation. The finding that natives relocate to immigrant-dense areas is explained by natives and refugees being complements in the labor market. Sá (2015a) looks at the impact of immigration in the UK between 2003-2010. She finds that immigration leads to a 1.6-1.7% price decrease. The author suggests that immigrants with lower levels of education drive the price decrease at the local authority level. The author finds that natives move out of refugee-dense areas and states that a negative perception towards refugees leads to decreased housing prices. She finds that this result is especially true if immigrants have lower levels of education. Lastrapes and Lebesmuehlbacher (2020) look at the impact of asylum seekers on the housing market in the UK. They find that house prices decline due to native outmigration. They state that their results are stronger for low-priced and lower-

quality housing, which refugees tend to prefer. Although refugees increased the demand for lower-quality housing, the impact of native relocation must have surpassed the refugee demand so that prices declined on average. Kürschner and Kvasnicka (2018) look at the impact of asylum seeker centers on rental prices in Germany and find that rental prices decrease in response to refugee inflows because of negative perceptions of natives towards refugees. They conclude that if natives perceive refugees as a disamenity, property prices may be harmed. Depetris-Chauvin and Santos (2018) look at the impact of Internally Displaced People (IDP) inflows in Colombia between 1999-2014. They find that the impact of IDPs on average rents is not statistically significant. However, they find that IDPs increase low-cost housing rents while decreasing high-cost housing rents. They explain this discrepancy by refugees' tendency to work in the construction sector, which usually contributes to the supply of high-cost housing units, leading to decreasing rents in high-cost rental units. Forero-Vargas and Iturra (2022) also look at the impact of IDP inflows on Colombia's rent in 2013-2019. They find that the IDP inflows led to a price increase in rents by 1.25%. They claim that this increase is attenuated by decreasing wages in IDP-dense regions, which leads to a negative income effect that leads to price decreases. Another effect that might be attenuating the impact on rents might be the house-sharing tendency among refugees to share and lower fixed accommodation costs. Rozo and Sviatschi (2021) look at the impact of Syrian refugees in Jordan until 2015. They find an increase in rents, especially in close-border regions. They also emphasize that a housing shortage in Jordan was persistent until 2015, which may also have contributed to the price increases. Alhawarin et al. (2021) also look at the impact of Syrian refugees on rents. They find that while rents increase among lower-income households, housing quality declines. In the case of Jordan, the authors

emphasize that the Syrian refugees and Jordanians speak the same language and share a similar culture; therefore, the negative perception of locals towards refugees is not the case in Jordan. Similar to this paper, Balkan et al. (2018) and Akgündüz et al. (2022) look at the impact of Syrian refugees in Turkey. Balkan et al. (2018) use data from the Survey of Living and Income Conditions from TURKSTAT for rental data at the NUTS1 (12 regions) level. They do a difference-in-differences analysis to look at the short-term impact of refugees on housing rents between 2010-2013. They find an overall increase in monthly rental prices. However, when they decompose housing units into lower and higher quality, they find no statistically significant effect on lower-quality housing units (with negative coefficients), but the rental prices increase for higher-quality housing units. They state that the increase in rents for higher-quality housing units may be driven by native demand after the refugee influx, which in turn could imply that natives may prefer to live in relatively better neighborhoods with better amenities, which a preference for native predominant neighborhoods may drive. They find evidence for residential segregation in Turkey. Akgündüz et al. (2022) use a difference-in-difference IV methodology to estimate the impact of refugees on the housing prices for houses sold through mortgages. They use incremental changes in the Syrian population to the native population as the explanatory variable and use regional trends to relax the pre-trends assumption. They found that the prices of houses sold through mortgages increased until 2014 but tended to diminish after that year. This overall price increase is mainly driven by lower-cost housing units sold through a mortgage. They also find that the age of houses sold through mortgages tends to decrease. These two effects may indicate (potentially low and middle-income) natives' demand for newer and affordable housing in response to the refugee influx. They postulate that the increase in demand

could stem from a preference towards native predominant and newer neighborhoods or simply from the increase in newly supplied housing units. They conclude that since the effects they find diminish after 2014, the latter is a more likely explanation.

In this paper, I analyze refugees' long- and short-run impact on the housing market using rental and house price data from a data analytics company called REIDIN. My primary estimations are between the 2008-2019 period. The analysis in my paper follows the methodology of Aksu et al. (2018), and I use a difference-in-differences model with a distance-based instrument to account for possible endogeneity in the settlement decisions of refugees.

I find that refugees lead to a decrease in both housing and rental prices in Turkey in the short and long run. I explain these results through two main channels. The first channel is housing supply, which may impact housing prices in several ways. Housing supply may increase due to the refugee influx; there might already be an oversupply of houses, and refugees providing low-cost labor in the construction sector may drive housing prices down in the long run by reducing construction costs. Indeed, I provide evidence that there might be a potential oversupply of new housing units in Turkey. Over the years, we have observed a discrepancy between the construction permits for new housing units and first-time house sales, which may indicate a potential housing oversupply in many provinces. I show that while this is the case for Turkey in general, it is also the case for the top refugee-hosting provinces, which could be a driver for decreasing housing prices. I also present evidence that Turkey's housing supply increases both in the short and long run. Finally, the declining effect in the long run might be due to the high employment levels of refugees in the construction sector, which might decrease housing prices in the long run. The second main channel that may drive declining housing prices is the

potential negative perception of natives toward refugees. In the literature, the negative impacts on rents are usually driven by a negative native response. I provide anecdotal evidence that there might be negative attitudes towards refugees in Turkey using data from the World Values Survey in 2007 and 2018. Natives state their preferences against immigrant neighbors in almost all social classes and regions. Also, although there is no evidence that refugees lead to an increase in crime rates, there seems to be a fear among natives that refugees increase crime rates. Therefore, the negative perception towards refugees might have a depressive effect on rental and housing prices in Turkey.

This paper's main contribution is using a novel dataset to look at the impact of refugees on the housing market in Turkey. Although other studies in Turkey look at the impact of refugees on the housing market, no other research uses data from price listings, representing the flow in the housing market. Having a different sample from the existing studies in the literature provides a new perspective and new insights into the impact of refugees on the housing market in Turkey.

CHAPTER 2

BACKGROUND INFORMATION

2.1 Syrian refugees

In March 2011, Syria was faced with an internal conflict, leading Syrian people to seek refuge in neighboring countries. After the beginning of the war, Syrian people began to flee to neighboring countries as refugees, namely Turkey, Lebanon, Jordan, and Iraq. The first Syrian refugee group who sought refuge in Turkey came to Hatay/Yayladağı, which is a province of Turkey on the border of Syria, consisting of 260 people on April 29th, 2011 (AFAD, 2017). The number of refugees quickly increased as Turkish authorities followed an open-door policy after the Syrian war. The refugees were called “temporary guests,” assuming that the refugees’ stay would be short-lived. In 2012, there were 14237 registered Syrian refugees; in 2013, 224655; in 2014, more than 1.5 million; and more than 3.5 million in 2019, as seen in Figure 1 (DGMM, 2016). According to UNHCR (2023), by 2019, there were 245.810 refugees in Iraq, 654.692 refugees in Jordan, and 910.586 in Lebanon. Turkey is one of the top countries hosting the most refugees globally. Syrian refugees in Turkey are under a “temporary protection status," allowing registered refugees to benefit from public services such as healthcare and education. Syrian refugees did not have legal work permits until 2016, mostly leading them to work in the informal labor market. There is no public housing available for Syrian refugees besides refugee camps. However, most refugees prefer to live outside camps so as not to restrict their freedom, especially after 2013. Finding affordable housing was a challenge for families with low incomes, which led them to cluster in poor

neighborhoods or slums, or families needed to share houses to share fixed costs of accommodations (İçduygu & Şimşek, 2016).

Most refugees in Turkey came from Syrian cities that have borders to Turkey. In an AFAD report, more than 80% of out-of-camp refugees stated that they chose Turkey because it was the closest country they could have sought refuge in (AFAD, 2013). By 2013, 36% of refugees stayed in 20 camps located in 10 different cities in Turkey. Those ten provinces are in Turkey's South and Southeastern regions and are close to the Syrian border. 64% of the refugees lived outside camps in different cities, including those ten provinces. Although refugees had the chance to disperse around the country, most of them preferred to stay in close border regions to be able to visit their countries or in the hopes of returning one day. Approximately 75% of the refugees outside camps lived in apartments or houses. In 2013, 62% of those living outside camps lived with more than seven people in the same housing unit (AFAD, 2013). This data is gathered from a survey conducted by AFAD (2013) with Syrian refugees in camps and outside camps in the ten cities that host the most refugees[4]. The share of refugees living in camps was 12% in 2014, 8.2% in 2017, and 1.7% in 2020.

The drastic fall in the share of refugees living in camps was due to the limited capacity of camps. Since there were not enough temporary housing centers, most Syrian refugees, after this date, needed to resolve their housing issues. Since peace in the Syrian Arab Republic has not been restored for years, the Turkish Directorate General of Migration Management (TDGMM) supported refugees to live outside of camps. According to the TDGMM, by 2024, only 1.9% of refugees live in camps,

[4] Adana, Adıyaman, Hatay, Gaziantep, Kahramanmaraş, Kilis, Malatya, Mardin, Osmaniye and Şanlıurfa.

leaving 98.1% responsible for their accommodations. According to an AFAD report in 2017, of the Syrians living outside of camps, approximately 63% of refugees live in a house or apartment with an average household size of 6.2 (INGEV & Ipsos, 2017). Of the refugees living outside of camps, approximately 31% live in ruins (old/deserted buildings), 1.3% live in temporary shelters made of plastic, and 2.3-4.3% live in public buildings. According to the Syrian Barometer Survey conducted in 2019 with the support of UNHCR, 80.3% of Syrians were living in apartments (Erdoğan, 2019). The increase from 63% of out-of-camp refugees living in flats to 80.3% indicates that the housing problem of refugees took a long time to resolve, and this may have attenuated the demand of refugees in the housing market in Turkey.

When we look at the demographic comparison between Syrian refugees and the Turkish population in Table1, we can see that the Syrian refugees are relatively younger and less educated than the Turkish population. Also, the average household size of refugees is larger than that of Turkish households. Although Turkey and Syria share a border, Turkish society tends to deny cultural closeness with Syrians from the beginning. According to the Syrian Barometer Surveys, the rate of natives who stated that "Turkish society is not culturally similar to Syrians" was 70,6% in 2014, 80,2% in 2017, and 81,9% in 2019. Interestingly, Syrians seem to believe they are culturally similar to Turkish society. The share of Syrians who support this opinion was 56,8% in 2017 and 57,1% in 2019, respectively (Erdoğan, 2019).

2.2 Turkish housing market

To comprehend the effects of Syrian refugees on housing and rental prices, it is crucial to understand the dynamics of the relevant features of the Turkish housing market first. In an economic sense, a large refugee inflow is expected to resemble a

positive demand shock, which may lead to an inelastic housing supply curve in the short run and a more elastic housing supply curve in the long run. To better capture the impact of refugees in the housing market, it is crucial to understand the relevant features of the Turkish housing market first.

At the beginning of the 2000s, Turkey started a restructuring process in the housing market. Turkey's EU candidacy processes, two devastating earthquakes in 1999, and the 2001 economic crisis triggered a restructuring process focusing on solving the squatter housing problem[5] for low-income households. In 2003, when AKP (Justice and Development Party) came to power, they announced an Urgent Action Plan (AKP & DPT, 2003). This plan included initiating a countrywide housing program to increase owner-occupied houses for low-income households (Özdemir Sarı, 2022). Although owner-occupation is the dominant tenure type in Turkey, the aim was to make it accessible to low-income households in urban areas. To that end, the Housing Development Administration (TOKİ) was restructured. TOKİ was established in 1984 and primarily funded construction projects for cooperatives rather than playing an active role in the construction industry. After the restructuring of TOKİ, the state became a direct actor in the construction sector. Between 2003 and 2019, TOKİ produced nearly 845,000 housing units, 86% of which were social housing projects aimed at low-income households (Özdemir Sarı, 2022). The increase in social housing units for lower-income households may have helped to absorb some of the impacts of the refugee-induced (positive) demand for low-cost housing units by alleviating some of the native demand.

In the last twenty years, there has been sustained government support for the construction sector and direct state involvement in housing production. In Turkey,

[5] Illegal settlements of lower-income households to solve their accommodation problems in urban areas due to high costs of living. For more information, see Özdemir Sarı (2022).

the dominant form of housing construction is blocks of flats (apartments or multi-unit structures in urban sites). In 2002, the share of households living in flats was 42%; as of 2019, this share increased to 66% (Özdemir Sarı, 2022). Therefore, when looking at the impact of refugees on the housing market, it may be more sensible to use construction permits for apartments rather than residential buildings.

In the early years of 2000, with the fall of inflation and the increasing involvement of commercial banks in mortgage credit provision, housing production in the country increased. Minor declines in housing production were observed in 2008-9, after the Global Financial Crisis in 2007; the production levels in Turkey quickly recovered due to government support and the enactment of the so-called Mortgage Law regulating the mortgage market in 2007. Between 2010 and 2018, the annual housing starts stayed above 600,000, and production levels for the first time in history were above 1 million in 2014, 2016, and 2017, as seen in Figure 2. According to the Household Budget Survey (HBS) done by the Turkish Statistical Institute (TURKSTAT) in 2018, the housing stock in Turkey is relatively new; where nearly 55% of the (occupied) housing stock was built in the last three decades, and only 5% of the housing stock is older than 60 years (Özdemir Sarı, 2022). Therefore, even before the refugee influx in Turkey, there was an upsurge in the housing production levels. This increase in supply led to a newer-house domination in the existing housing stock. The increasing rate of newer houses in the occupied housing stock may result from the growing housing supply in Turkey.

The private sector engaged in construction is significantly larger[6] in Turkey than its European counterparts. The Turkish construction industry is highly

[6] As of 2019, 11.4% of the total firms and 6% of the total employees were engaged in building construction. However, the 2018 economic crisis led to over half of the medium-sized and large enterprises shutting down. Building construction companies constitute 72% of the construction sector enterprises and 60% of the employees (Özdemir Sarı, 2022).

competitive and one of the largest in Europe. Since construction is also a high-risk business[7] in Turkey, construction firms mainly focus on high profits during the rising period of the market (Coskun & Pitros, 2022; Özdemir Sarı, 2022). This may have resulted in using refugees as cheap labor. It is also important to note that informal employment is widespread in the construction sector. Since Syrian refugees did not have work permits until 2016 and needed to compensate for their lives, especially in urban areas, they joined the informal workforce by providing low-cost labor (Demirci & Kırdar, 2023). Aksu et al. (2018) indeed show that native workers in the labor-intensive and informal-dominated construction sector are adversely affected by the Syrian refugee influx. They find that a ten percentage point increase in the migrant-to-native ratio eliminates about half of the jobs for native men in the construction sector informally (Aksu et al., 2018). Also, Demirci and Kırdar (2023) show that the construction sector employs one of the highest share of refugees, employing approximately 30% of refugee men. Therefore, refugees largely contributed to the housing supply in Turkey, which may, in turn, increase the housing supply and put downward pressure on housing prices and rents in Turkey.

Another result of Turkey's significantly large construction sector could be an oversupply of housing units (Özdemir Sarı, 2022). In late 2017 and early 2018, the Turkish housing market showed signs of excessive housing supply. Although we do not have data on the excess supply, we can make an inference from the difference between first-time house/apartment sales and apartment permits to construct new housing units, as shown in Figure 3 (Coskun & Pitros, 2022; Özdemir Sarı, 2019). In Figure 3, I use a two-year lag for the construction permits, assuming that it takes

[7] "The ratio of failed/newly established construction entities is 32% during the 2000–2019 period, we may conclude that construction is a highly risky business in Turkey. Living in such a survival of the fittest environment, developers have mainly focused on high profit during the rising period of the market." (Coskun and Pitros, 2022, p. 2028)

approximately two years for apartments to be built and become ready to sell. However, Figure 4 shows the same graph with one-year lags, which gives similar results. As can be seen from Figure 3, first-time house sales always fall behind newly constructed housing units, implying that Turkey might have an excessive housing supply. When I divide the sample into treatment[8] and control provinces, we can see that first-time house sales also fall behind apartment permits in the provinces with the highest refugee ratios for most of the years (see Figure 5) which could indicate an oversupply of new houses in those provinces as well. There is also evidence that suggests that the excessive housing supply led to significant price discounts, especially in cash transactions by construction firms and governmental campaigns[9]. In November 2018, the news reported that the amount of excess housing stock in the country was unknown and that the excess supply was estimated to be around 1 million houses (Kıvrak & Burcu Özdemir Sarı, 2022). Therefore, it seems that Turkey's housing supply surge did not begin with the refugee influx. I will test this hypothesis by using the main methodology on new apartment permits to see whether the housing supply increased with the refugee influx in Chapter 6. In 2010, apartment permits for new housing units were 1.8 million in Turkey (see Figure 2). Since Syrian refugees are not allowed to buy property in Turkey[10], it is not expected to see the refugee-induced demand on housing prices in the short run; on the

[8] Treatment is defined as having the highest Syrian to native population ratio in 2019. I cut the threshold when the high share of refugee ratio was in provinces that are further away from the border. Only 9 provinces that are also close to the border are in the treatment group.

[9] "In May 2018, the 18% value-added tax (VAT) rate was reduced to 8% on house purchases until the end of October 2018 via a cabinet decree. This tax incentive was extended by Presidential decisions until the end of 2019. Furthermore, in May 2018, the title deed fee was reduced from 20‰ to 15‰ and mortgage interest rates were reduced from 1.25–1.35% to 0.98%". (Kıvrak & Burcu Özdemir Sarı, 2022).

[10] Although migrants can buy property in Turkey, Syrian refugees can't buy property as a special legislation. Therefore, they can either buy property through their relatives or through firms. (Akgündüz et al., 2022)

contrary, it is likely that the impact on house prices is more likely to be native-induced, while the direct refugee impact is more likely to be on rental prices and the housing supply.

To conclude the chapter, the refugee influx might have complex implications for the demand-supply dynamics of the Turkish housing market. On the demand side, there is a refugee-induced demand for lower-cost housing in Turkey. In contrast, the native demand could differ depending on native perceptions, which will be discussed in detail in Chapter 6. On the supply side, Turkey's growing construction sector and direct state involvement in housing led to a potentially excessive housing supply. Since refugees take a role both in the demand and supply side, which impacts the native response through many different channels, the impact of refugees on housing prices is expected to be multifaceted with competing dynamics. In the main analysis, we will focus on average housing prices and rents at the province level. The results will give us an idea of which mechanism might have counteracted the effect of the others, shaping the overall market response.

CHAPTER 3

LITERATURE REVIEW

The impact of immigrants on local housing markets is a growing literature. Although the labor market impact of immigrants/refugees is extensively studied, the impact of migrants on local housing markets is a surging topic. Understanding the impact of refugee inflows on the Turkish housing market is a complex issue. There are many factors influencing the housing market in Turkey, such as the increasing supply of newly constructed houses as more refugees enter the labor force in the construction sector (Demirci & Kırdar, 2023), the native response to the refugee inflows (Akgündüz et al., 2022; Balkan et al., 2018; Öztürkler, Harun & Göksel, Türkmen, 2015) as well as changing demographics in Turkey, changing policies around construction, economic crises, constant government support for the construction sector among many others (Özdemir Sarı, 2022).

The literature on the impact of immigration on the housing market tends to have different results depending on the type of immigration (refugees or immigrants), education levels of the immigrants, native preferences towards refugees, the housing supply dynamics in the host country, and whether the immigrants and natives are substitutes or complements in the labor market which tends to have differential results on the housing market. Since the analysis in this thesis is empirical, I will emphasize empirical studies in the literature.

The seminal study that inspired the literature on the impact of immigration on housing prices to this day is Saiz (2007). The study looks at the effects of the Mariel Boatlift in Miami on housing prices in US metropolitan areas. This study is critical because it utilizes the "*local immigrant networks*" or the "*Ethnic networks*"

instrument following the methodology of Altonji & Card (1989). The instrument is used to solve the potential endogeneity problem in refugees' self-selection for their housing decisions. This instrument uses the fact that immigrants tend to move to areas where other immigrants of the same nationality have settled before. Saiz (2007) finds that a 1% increase in immigration inflow raises average housing rents and values by 1%. In his study, he emphasizes that it is not possible to isolate the effect of refugees without considering the native response in the relative host country. Part of the natives' response may occur through native out-migration, which may be driven by labor market outcomes. If the marginal natives' wages go down with immigration, it is expected to see some "native flight" out of the city, reducing demand for housing in the market. If this is the case, one should be careful about interpreting the coefficient of immigration on rents, as it may not only correspond to the immigration impact. He argues that it is impossible to separate the increased demand from refugees and the (potential) decreased demand from natives. He expresses that if the native outflow were "one-to-one" compared to the migrant inflow, we would not see any significant increase in the local demand for housing. Since the author finds a positive increase in housing prices, he postulates that there is not enough evidence to claim a "complete displacement" of natives in the labor market.

Nonetheless, if natives are not extremely sensitive to changes in housing costs and if they are not entirely displaced by immigrants in the labor market, then one should expect a positive effect of immigration on rents, as the housing supply may not be able to address the increased demand by the immigrants at least in the short-run. He also argues that in the long run, when equilibrium is reestablished, the impact of immigrants on housing prices will depend on whether immigrants are seen

as a negative amenity by the natives. On a side note, it is also important to notice that Saiz (2007) focuses on the effect of economic migrants who tend to be different in terms of socioeconomic status, which is different from refugees who are usually more homogeneous and tend to be poor, arriving from rural areas (Depetris-Chauvin & Santos, 2018).

Saiz and Wachter (2011) take a different approach, and they look at the impact of refugees on housing prices at the neighborhood level. This analysis helps them understand the native response at a finer spatial level. They look at the impact of immigration on neighborhood dynamics in metropolitan areas to see if any residential segregation occurs in response to migrant inflows. This study aimed to take a closer look at the native response to immigration within cities. The authors are interested in the native attitude towards migrants and migrants' attitudes in the hosting cities. Negative preferences towards migrants can be captured through the residential choices and housing market dynamics. They find that housing values grow relatively slower in neighborhoods with more immigrants. They find slower housing price appreciation in immigrant-dense neighborhoods, and they attribute this result to the negative preferences of natives towards migrants, which might be based on ethnicity and education level in their neighborhoods. They conclude that the slower housing appreciation in immigrant-dense neighborhoods occurs because of native outmigration, which might lead to residential segregation. They argue that if natives have preferences for ethnic and socioeconomic segregation, then immigration may negatively impact the neighborhood values, and natives may be willing to pay a price premium to live in native-predominant neighborhoods.

After looking at the seminal studies on the impact of refugees on the housing market, we will take a closer look at studies done in the context of Turkey, then

proceed with relevant studies. The first paper to examine the impact of refugees on the Turkish housing market is Balkan et al. (2018). This paper analyzes the short-term impact of Syrian refugees on rents in Turkey. They use cross-sectional microdata from the Survey of Income and Living Conditions (SILC) by TURKSTAT, which is at the NUTS1 level (dividing Turkey into 12 regions). Their rental data comes from the survey respondents' statements. They employ a difference-in-differences model comparing the refugee-receiving regions (mainly the Southeastern region) with the control regions between 2010 and 2013. They define pre and post-treatment years. They cluster standard errors at the region-year level, and they control for year and region fixed effects, urban-rural, and house characteristics. Since forced migration resembles a positive demand shock, assuming that housing supply may not be responsive in the short term, rental prices are expected to increase. They argue that the relocation choice of immigrants in the host country does not pose a threat to identification because refugees were forced to settle in the Southeastern cities by the Turkish government during those years. They find an overall increase in monthly housing rents. When they divide their data into lower and higher-quality housing units, they do not find a statistically significant effect on lower-quality housing units. However, they find a positive and statistically significant effect on higher-quality housing rents, likely driving up the average monthly rental prices. They anticipate the reason for such a finding is natives' increased demand to live in native-dominant neighborhoods with better amenities[11]. This result aligns with Saiz and Wachter (2011), who claim that natives may be willing to pay a price premium to live in native-dominant neighborhoods with better

[11] It is important to note that during and before 2013, refugees were primarily located in camps near the border or houses near bordering cities. The share of refugees living in camps was 93.5% in 2013 (AFAD, 2013). Therefore, cutting the analysis in 2013 may be problematic since most refugees still resided in camps, and the refugee-induced demand may not be very apparent in the housing market.

amenities (increased social and economic opportunities). This points out a residential segregation story. They argue that there might be many different factors driving this result. There might be decreased labor market opportunities, congested public services (e.g., healthcare, education, transportation), or psychological distress due to the native perception of increased crime rates. They argue that since the existing literature does not differentiate between refugees and immigrants, the results may not be comparable to other studies. The literature on the housing market suggests that ethnic segregation tends to drive housing prices down in refugee-dominant neighborhoods. They include a table on the effect of refugees on the perceived rents by homeowners:[12]. They find that the increase in rental prices is not reflected in the perceived rents of homeowners. This discrepancy may be because of the incorrect valuation of homeowners of refugee-dominated neighborhoods.

Depetris-Chauvin and Santos (2018) mainly criticize this study because it lacks explanations about the possible channels through which the reduced form effects may have occurred. Other criticisms of this study could be that they do not account for the incremental change in the Syrian population, which significantly differs across regions and years, see Table 2.

Another paper looking at the refugee impact on the Turkish housing market is Akgündüz et al. (2022). They use a micro-level dataset (yearly-province level) of the population of mortgaged houses in Turkey between 2010-2017 to look at both the refugees' short- and long-term effects on housing prices. Their dataset is produced by the Central Bank of the Republic of Turkey (CBRT) and is called the Residential

[12] The survey also asks the perceived (i.e., estimated) rents to the home owners residing in non-rental units.

Property Price Index[13] (RPPI). The dataset covers the prices of all houses sold with mortgage financing in Turkey. They employ a DID model with incremental changes in the Syrian population relative to the native population. To account for possible selection problems, they also use a distance-based instrumental variable (IV), which follows Aksu et al. (2018). They use the instrumental variable approach as it is needed to account for the possible self-selection of refugees into low-cost (high-cost) regions for more affordable housing, which can bias estimates downward (upward). They cluster their standard errors at the province level. Upon the arrival of refugees, they found an increase in house prices, especially for low-priced houses, and the results faded after 2014. They also find evidence for increasing housing supply. Although refugees may cause excess demand in the short run, they may also increase housing supply in the long run by reducing labor costs. Indeed, Aksu et al. (2018) find that refugees displace some natives in the informal sector, and construction is one of the sectors in which refugees tend to work the most.

Therefore, isolating the effect of refugees on the housing market is more complex. They find that, on average, house prices increase by 0.8%-2.5% per pp increase in the refugee-to-native ratio. While the effect persisted until 2014, its statistical significance and magnitude of the coefficients decreased after 2014. They postulate that the increase in house prices may be due to refugees substituting natives in informal labor while complementing the formal employment of natives and shifting the supply curve to the right. Then, the demand effect from the refugees may be tempered by a reduction in demand from the natives who prefer to out-migrate from local labor markets. Although there is not enough evidence to suggest that refugees led to the out-migration of natives (Aksu et al., 2018), natives may be

[13] The dwelling prices are from the valuation reports of real estate appraisal companies which is needed for housing loans are used as a proxy for price.

moving to “better” neighborhoods inside the city.

Since Syrian refugees are likely to have limited access to the mortgage market (due to restrictions in purchasing houses, see Chapter 2), the increase in sales should stem from the native demand. They argue that considerable spikes due to refugee-induced demand in the housing sale market are not expected in the short run. Rental units are a more economically viable option for refugee accommodation. They also show evidence that Syrian refugees tend to share houses to lower fixed costs of accommodation, and they tend to have large families. Therefore, they opt for large houses (3 or more bedrooms) with relatively low prices. They argue that a surge in house prices could stem from natives’ perceiving houses as an investment, and higher expectations of rents would lead natives to buy property; another explanation could be that natives prefer to live in newer houses in new neighborhoods, leaving old houses to refugees. If this is the case, this would indirectly increase the supply of older houses for refugees. Indeed, they find evidence for higher numbers of new construction permits and a decline in the average age of houses in the mortgage market. They test for heterogeneity in the demand effect for low and high-price housing. They find that the increase comes from low-price houses where the effect size is 1.8-3.5%. They find weak, even adverse effects from high-price housing. The surge in prices may be an indicator of lower-income groups opting for new and affordable housing, which may be in line with the residential segregation story.

Moreover, they also found that houses with multiple rooms increased in price. They interpret this result as evidence for house sharing among refugees. They find a decline in the average age of houses in the mortgage market, which they argue can be due to 2 mechanisms: 1) an increase in the supply of newly constructed houses leads

natives to buy new homes, and 2) natives move to newer houses and neighborhoods due to the refugee influx. Given the fading-out effect of house prices, they argue that the first explanation is more likely.

Rozo and Sviatschi (2021) looks at the impact of Syrian refugees on the housing market in Jordan. Rozo and Sviatschi (2021) use a DID method with two different IVs, and they find an increase in housing rents for regions close to the refugee camps relative to regions further away. They use the Housing and Population Census of 2004 (before treatment) and 2015 (after treatment). The data is at the governorate level, and they estimate the percentage of change in rental prices before and after the civil war. Jordan hosted 1.3 million Syrian refugees after the Syrian war. In 2015, approximately 80% of refugees lived in urban centers, implying a significant demand shock on the local housing market. They note that Syrian and Jordanian cultures are considered similar, and unlike Turkey, there is no language barrier in Jordan for Syrian refugees as both nations speak the same language. Also, the border regions of Jordan to Syria are more prosperous than other regions in Jordan. They also note that even before the arrival of refugees, there was a housing shortage in Jordan, and they show that formal construction did not begin until 2016. Due to the higher demand stemming from refugees and the unresponsive housing supply in the refugee-hosting areas, individuals living closer to refugee camps (near the border) faced higher housing expenditures after the beginning of the Syrian conflict. To compensate for higher housing expenditures, natives with low education significantly reduced their consumption expenditures for necessities such as food, education, and healthcare. They found that the adversely affected Jordanians are younger and less educated and work in the informal sector. The refugees are relatively less educated and are more likely to work in the informal sector.

Alhawarin et al. (2021) look at the effect of Syrians on rentals and housing quality in Jordan. They use two household-level data: the 2006 and 2013 rounds of the Jordan Household Expenditure and Income Survey (HEIS) and the 2010 and 2016 waves of the Jordan Labor Market Panel Survey (JLMPS). They estimate the short-term impact of refugees on rents in 2013, which is a very short time after they arrive. Their estimations for housing quality extend until 2016. They use individual-level rent data and use a DID-IV methodology. They use household-level surveys to gather information on where Syrians are concentrated. They find an increase in rental prices, which is more pronounced among poorer and lower-educated households. The effect is also significant, although to a lesser extent, among lower-income households as they may be in direct competition with refugees who primarily work at informal jobs and are less educated. They also constructed a Housing Quality Index (HQI) and found that HQI decreased, especially for lower-educated people. The increase in rents and a decrease in housing quality may indicate the increase in demand for lower-cost housing coupled with a supply shortage. They also find that residential mobility has increased (from deficient initial levels) after the refugee influx. Increasing residential mobility could have acted as a channel to decreasing housing quality, which attenuated the impact on rents. One of their main results is that poorer households are the ones who are the most adversely affected. The segregation story does not fit in the Jordan case as they find a limited mobility response of natives from refugee-dense neighborhoods. Syrians and Jordanians speak the same language and share the same tribal and family roots, which makes it easier for Syrians to integrate into the country. This cultural similarity may indicate that there is no negative perception towards refugees. They also argue that the housing supply follows a relatively stable trend and keeps up with the refugee

inflows only after 2015, which aligns with the increasing housing rents due to a supply shortage in the short run.

Depetris-Chauvin and Santos (2018) looks at the effect of Internally Displaced People (IDP) inflows in Colombia. The estimation period is between 1999-2014 for the 13 largest Colombian cities. They follow a DID-IV methodology by using household-level microdata. Their IV approach suggests that the effect of IDP inflows on average rental prices is statistically indistinguishable from zero, i.e., they do not find an effect of the IDP inflows on average rental prices. They find, however, that a 10% increase in IDP inflows led to an increase in rental prices for low-income housing units by 0.15%, while high-income housing rental prices decreased by 0.39%. They explain this heterogeneous effect through 2 channels. First, while the increased demand for low-income housing units puts upward pressure on rental prices, there is no increase in the supply of low-income housing units while there is an increase in the supply of high-income units. Since the arrival of the IDPs reduced real wages in the construction sector, they argue that the IDPs fueled the construction sector in wealthier areas and, therefore, reduced the prices for high-income rental units. Another possible channel, they say, is that IDPs increase homicide rates, putting downward pressure on rental prices. They also argue that the increase in crime rates, or native perception of crime through IDPs, and because of congestion in the provision of public goods, large IDP inflows may be associated with deteriorating living conditions, which translate into lower housing prices. However, in poorer areas, the demand for housing outweighed the impact of the channels mentioned above and led to an increase in rents in low-income housing units. It is worth noting that Colombia already had large housing deficits in urban areas even before the peak of the inflow of IDPs in the 2000s (Tumen et al., 2022).

Since IDPs provide cheap labor, their impact on the housing market is partially absorbed by the construction sector, which is decreasing rental prices through an increase in supply. Also, competition in the labor market may depress wages for both IDP and non-IDP, generating income effects in the housing market. Therefore, it is safe to say that IDPs affect both demand and supply. The heterogeneous effects from the demand and supply shocks are likely to emerge due to the housing market segmentation along income levels.

Forero-Vargas and Iturra (2022) also look at the impact of Venezuelan IDPs on Colombia's housing market. They also follow an instrumental variable strategy with three different IVs, one distance based. They use household-level microdata to examine the impact of immigrants on rents and find that average rents increase significantly at different specifications. They find that a 1% increase in the Colombian population of Venezuelan immigrants increases rents, on average, by 1.25%. Their investigation period is 2013-2019, one year later than Depetris-Chauvin and Santos (2018). Since their paper focuses on immigration that occurs for extended periods rather than an external shock of refugee inflows in a given year, they use the most commonly used IV in the literature, the *"ethnic networks"* IV, following the methodology of Saiz (2007). This IV works as a predictor of actual immigrant inflows into a given city. They note that the literature extensively documents a positive impact of migration on local rental values; most of the studies focus on the South-West migration, which can have different impacts than South-South migration, a less studied field. Forero-Vargas and Iturra (2022) state that in Colombia, housing rents do not appear to be as affected by Venezuelan immigrants as did wages. One study shows that a 1% increase in Venezuelan immigration would cause a 10% decline in wages in the informal labor market, while this effect is only

1.2% for average rental prices. This discrepancy may be partially explained by house sharing among Venezuelan immigrants, which could attenuate the impact of immigrants on rental prices. They say that it is common for émigré communities to host new migrants in their homes to help them save money, which alleviates the demand pressure in the housing market, at least in the short term.

Accetturo et al. (2014) look at the impact of immigration on the inter-city housing market dynamics in Italy. Specifically, they look at the effect of immigration on the residential market within the urban areas (districts) to account for heterogeneity within cities. This paper analyzes Italy's intercity dynamics rather than the provincial differences. This paper uses a novel dataset that matches housing prices and demographic information at the district level for 20 large Italian cities between 2003–2010. The dataset is obtained from The Italian Land Registry Office. They use the "*ethnic networks*" instrument, which uses historical enclaves of immigrants to predict their current settlements. They find that immigration raises housing prices at the city level but decreases prices at the district level. They find that a 10% increase in the immigration inflow leads to a reduction in housing prices by two percentage points vis-à-vis the city average. Average prices at the city and district levels show different results in their estimations. They argue that this pattern is driven by the flight of natives from immigrant-dense districts to other areas of the cities, leading to residential segregation. They find that ten additional immigrants who arrive in a district cause six natives to resettle in other city areas. Their results show that natives prefer to live in native-predominant areas within the city, possibly due to the crowding-out effect of natives due to increased demand for housing. These findings align with the negative effect of immigrants on natives' perceived local amenities, i.e., natives perceive a deterioration in the local amenities that lead to

migration within the city. This study is critical as most studies look at the average prices at the city level. At the same time, the spatial distribution of the population is just as crucial in understanding the impact of immigration. They argue that since immigrant–native interactions occur on a very local spatial scale, housing prices are likely to be very sensitive to the natives' attitudes towards immigration. Natives may have racial or religious preferences that could lead to negative attitudes or may be concerned by a deterioration of local living standards due to the crowding out effect on local indivisible goods. They also find that immigrant shock to a district increases the average housing price at the city level. However, the district hit by immigration will have higher price growth than the city average only if migrants positively affect the native's perception of local amenities (e.g., if the immigrants have high levels of education). They find that if immigrants are concentrated in a district with a more rigid housing supply (e.g., historic city centers), there are no additional effects on prices, but a more substantial native outflow is observed. They find that areas with a relatively low elasticity of housing supply experience a more substantial residential outflow than areas with higher elasticities of housing supply. They conclude that the house price dynamics show that natives decide to move to native-dominant districts and are willing to pay a price premium to "escape" from foreigners they perceive as deteriorating the local amenities.

Gonzalez and Ortega (2013) look at the impact of immigration on housing prices in Spain at the city level. Spain is also a country that faced high immigration rates beginning in the 2000s. They find that immigration is responsible for an increase of 2% in annual housing prices. They look at the effect of immigration on both housing prices and construction activity in Spain between 2000-2010. They find that immigration was responsible for an annual increase of 2% in housing prices and

a 1.2-1.5% increase in housing units through an increase in the working-age population. They use total population growth (including both the immigrant and native population) as their primary explanatory variable, so their estimates are unaffected by the degree of native displacement triggered by immigration. They use the "*Ethnic networks*" IV. They find that the average increase in housing prices across provinces and years was seven log points per year. Since their estimation assumes that immigrants represented a demand show without directly affecting the housing supply, they also look at the effects of immigration on residential construction. Since there was evidence that a significant fraction of immigrants in Spain were employed in the construction sector, it is expected that this will impact the housing supply. They find an elasticity of housing supply of about one. They argue that in the absence of immigration, the housing supply might have been more inelastic, limiting construction activity and exacerbating the price increase.

Sanchis-Guarner (2023) also looks at the impact of an immigration inflow to Spain. The contribution of this paper to the literature is that it claims to decompose the total (net) impact of immigration on the housing market as the net sum of two effects: the impact of the direct increase of the local population from the increasing number of immigrants (which she refers to as "partial") and the additional changes from the relocated population (which she refers to as "induced") effect, both affecting the housing demand. She states that while the first effect ("partial" effect) is almost always positive (conditional on a steady or low housing supply), the second effect can be negative or positive depending on locals' perceptions of immigrants and native mobility. Since immigrants provide low-cost labor in the construction sector, they also cause changes in the housing market, which, in the long run, lead to reduced housing prices (Monras, 2020); therefore, it is crucial to account for the

supply side in the regressions. The author argues that the sum of those effects gives the demand changes as long as supply is accounted for in the estimation. The author follows the estimation of Saiz (2007) and uses the "*Ethnic Networks*" IV to estimate her regressions using data from Spain between 2001 and 2012. The author finds that a 1pp increase in the immigration ratio leads to an overall increase in house prices of approximately 3.3%, while the rent increase is 1%. The differences in housing prices and rents are due to the institutional framework in Spain. While housing price data is based on transactions (flow), rent data is based on the average price on rented properties (stock); hence, most of the variation in the second measure stems from new tenancy contracts, which is a limited fraction of the stock. She finds that for every ten immigrants that settle in a province, around three natives relocate there due to the immigration inflow. The study finds that natives and immigrants are simultaneously co-locating in the same provinces. One potential explanation for this result is that immigrants might complement natives in the labor market due to different tastes or skill levels (instead of being substitutes), positively affecting their location decisions. The total demand impact of an increase in immigration in one percentage point is 3.3%, of which 2.5% is due to direct immigrant demand (partial) and 0.78% to additional (induced) demand for relocated natives.

Sá (2015b) estimates the impact of immigration on housing prices in the UK by using the "ethnic networks" IV. They use data at the (170) local authority level in England and Wales. They use the "*Ethnic Networks*" IV as their identification strategy. The author looks at immigration between 2003 and 2010 and finds that for 1% of immigration inflow, average house prices decreased by 1.6% -1.7 % at the local authority level. Their results give imprecise coefficients at the more aggregated (regional) level. The negative impact is observable at local authorities, where the

share of immigrants with lower education levels is high.

In contrast, there is no significant impact of immigration on house prices where immigrants have higher levels of education. The author explains that one of the possible channels to explain this result is native outmigration: 1% of immigration leads to an outmigration of natives by 0.132. The study finds that the negative effect is mainly driven by local authorities, where immigrants have lower levels of education. This result is consistent with immigration having a positive income effect on housing demand in regions where immigrants have higher education (and higher wages), which counteracts the negative income effect of native out-mobility. They also observe that the native outflow is observed for people at the top of the wage distribution, suggesting that the reason for the native outflow is a negative preference towards immigration. They explain the negative results mainly through the channel of outmigration. Even if immigration were to offset the effects of the out-migration of natives completely, house prices could still decline if the wages of out-migrating natives were higher than those of arriving immigrants. Another reason immigration may reduce house prices is if natives and immigrants were substitutes in production. Then, an immigration inflow would lead to a reduction in native wages and local wealth, generating a reduction in house prices. Outmigration generates a negative income effect on housing demand and pushes down house prices. The results are mainly driven by regions where immigrants have lower levels of education.

Lastrapes and Lebesmuehlbacher (2020) look at the effect of refugees (asylum seekers) on house prices in the UK between the years 2004 and 2015 using house price (transaction) data from the UK Land Registry Office for England and Wales. Unlike Sa, who looks at the number of total immigrants, they only look at the effect of asylum seekers. Asylum seekers differ from immigrants as they are usually

less educated and at a lower income level. They find that refugees harm house prices due to native outmigration. They also note that the adverse effects are stronger for low-priced and low-quality houses. Refugees who had been given housing affected the housing prices in England and Wales negatively. They find that prices declined more in neighborhoods with lower-priced, lower-quality housing. While this finding is surprising since refugees usually increase demand for this type of housing, the significant decline indicates that the native outmigration occurred from these locations. Therefore, asylum seekers lowered the price of more affordable housing. They conclude that the negative attitude toward refugees might play a significant role in the decrease in housing prices.

Kürschner and Kvasnicka (2018) look at the impact of refugees on residential housing rents in Germany in 2015. Their period of analysis ends in early 2016. They look at the short-term effects of refugees so that the results are not confounded with the effects of housing supply and the out-migration of natives or potential relocation of refugees. In 2015, there were approximately 200,000 refugee applications in Germany. They use DID methodology at the county level with refugee population data and monthly housing rental data from online listings. As housing rents account for a sizeable share of private spending, and 56% of privately occupied properties are rentals and not owner-occupied, the impact of refugees on housing rental prices is of vital interest. Their DID estimation shows that rental prices decrease in response to refugee inflows. The authors suggest that prime potential causal pathways to decreasing prices despite the increasing demand are that if natives perceive local settlements of refugees as a disamenity, then property prices may take harm. In such a case, rental prices of properties closer to refugee camps should be harmed more relative to rental units located in different regions. Then, they proceed to look at

within-county dynamics. The authors find that housing rents decrease, possibly because natives perceive immigrants as a disamenity. The authors argue that the results would not be visible (attenuated) if the refugees did not settle in places in a centralized way. We may not have seen significant effects if refugee housing had been decentralized. There are also factors that natives perceive refugees and immigrants differently. The authors also argue that natives' perceptions of migrants and refugees tend to differ. They state that natives may perceive refugees as a disamenity that harms rental prices, leading to deteriorating rental prices.

Similarly, Hennig (2021) looks at the impact of temporary refugee shelters on rental prices at the neighborhood level in Berlin, Germany, after the refugee immigration period in 2015. During 2014-2016, refugees comprised approximately 2% of Berlin's population. Coupled with its dense development and tighter housing market, it becomes interesting to study the effect of asylum seekers on local housing prices. He uses real estate listing price data from a popular website in Germany. He follows an event-study framework that includes linear trends. He finds that rental prices decrease by 3-4% within 100m of the shelter relative to other locations without refugee shelters. He also finds an increase in the number of rental units listed, suggesting that previous residents may leave those areas after a refugee shelter is open. Another interesting finding is that the online ratings of the neighborhoods also decreased after the opening of nearby refugee shelters. He argues that these results indicate natives' negative perceptions of the emergency housing needs of refugees, which is also backed by survey results.

Trojanek and Gluszak (2022) look at the short-run impact of the Ukranian refugee crisis (after February 2022) on the rental and housing market in Warsaw and Krakow, two major cities in Poland. Poland hosts the majority of Ukranian refugees,

and the population growth of Warsaw and Krakow was 15% and 23%, respectively, as of April 2022. The authors use listing prices (asked price) from a website in Poland and find that rents increased significantly after the Russian invasion in Warsaw and Krakow by 16.5% and 14%, respectively, in March and April 2022. Housing prices increased by 4% for Krakow and 1% for Warsaw. The results for rental prices were more substantial than the increase in house prices. This is an obvious case of a demand shock in the short run, followed by a limited housing supply, which increases rental prices.

Monras (2020) investigates how low-skilled migration is absorbed in the US labor market after the Mexican Peso Crisis, which also affects the housing market. His study provides insights on how the housing markets absorb immigrant shocks. Since many low-skilled refugees disproportionately enter the construction sector, they tend to decrease labor costs, which usually are the bulk of construction costs, leading to decreases in housing prices in the long run. This study is essential as it shows that as low-cost labor is absorbed into the labor market, housing prices decrease in the long run due to decreased costs in the construction sector. This is also relevant for the Turkish Housing market as Demirci and Kırdar (2023) provide evidence that more than 30% of refugees in the labor market work in the construction sector. Considering that Turkey is host to more than 3.8 million refugees, which is one of the largest in the world, the amount of refugees working in the construction sector is not minor. Therefore, this is expected to be absorbed in the housing market, which leads to declining housing prices. In his study, Monras (2020) finds that as the low-skilled labor force increases, native low-skilled wages decrease, and relative prices of rental units increase. In the long run, immigrants who enter the construction sector disproportionately lower construction costs, leading to lower housing prices in

high-immigrant cities. He finds that housing markets react differently in the short and long run to Mexican immigration in the US. In the short run, the author finds that the rental and house price gap increase in high relative to low-immigrant locations. This effect is a consequence of the increase in the relative demand for rentals. Most low-skill Mexican workers enter the rental market, thus likely affecting the rental price more than housing prices. In the short run, rental markets are much more likely to be affected by immigration than housing prices. However, the impact quickly dissipates in the short run due to worker relocation across locations. In the longer run, the rental gap did not increase more in high- relative to low-income Mexican immigrant locations. He finds that high Mexican immigrant locations experienced relative decreases in both housing prices and rents. A 1 percent Mexican immigration-induced increase in low-skilled workers led to a relative decline in housing and rental prices of around 1 percent. This, in turn, is explained by the fact that a substantial fraction of Mexican workers entered the construction sector over the 1990s, displacing many natives and putting downward pressure on native wages. Since the majority of the construction costs are labor costs (Gyourko & Saiz, 2006), this likely explains the smaller increase in housing prices and rents in high-immigrant locations like California. This evidence adds to previous literature a new reason why immigration may lead to house price declines over the long run.

CHAPTER 4

DATA AND DESCRIPTIVE STATISTICS

The data I use for the analysis in this study, which are rental and sale price indices in Turkey, comes from a private company, REIDIN Data Analytics. REIDIN is a data analytics company that provides data for real estate properties in emerging markets. They create indices for rental and house prices from the median unit prices of price listings (e.g., imputed rent) for rental units and houses on sale in a particular province and year. They collect data from price listings from various sources on the internet which are not disclosed. I use both REIDIN's house price index and rental price index. Both indices are available from 2003-2019. However, data beginning from 2003 is only available for seven large cities,[14] in Turkey. Beginning from 2012, there is data for 62 cities in Turkey and 81 provinces after 2015. You can see in Figure 7 and Figure 8 change in rental and housing sale prices over the years in top refugee-hosting provinces versus the average in Turkey. The regression analysis is at the year and province level. In my estimations, I first look at the long-run impact of refugees until 2019. Then, I look at the effects of refugees until 2017, right before the economic crisis in Turkey in 2018[15]. Then, I look at the impact of refugees in 2015 to see the short-run impact of immigration on the housing market. Lastly, I look at the impact of refugees in 2013, the immediate short-run.

I use the same dataset as (Aksu et al., 2018) for the Syrian ratios[16]. The Syrian population for each province and year is collected from various sources such as

[14] Adana, Ankara, Antalya, İstanbul, Bursa, İzmir and Kocaeli which are the most densely populated cities in Turkey.
[15] Turkish Economy entered a recession in the last quarter of 2018. See: https://www.csis.org/analysis/turkish-economic-slowdown-2018
[16] Ratio is computed as Syrian population divided by the native population in the specific province and year.

AFAD (2013) for 2013, Survey data (Erdogan, 2014) for 2014, Turkish Ministry of Interior Directorate General of Migration Management (TDGMM) reports for 2015-2019. Turkish native population data is mainly obtained from a public online website called MEDAS from the Turkish Statistical Institute website after 2007 (TURKSTAT, n.d.); for 2003-2007, various sources from the internet were used. You can see the Syrian ratios in border provinces in Table 2.

I also use demographic controls for each province and year in my analysis. I use the share of education levels[17] for each province and year starting from 2008. The share of females and males in a given city beginning in 2007. The share of age groups[18] in a given city and year starting from 2007. Mean household sizes also begin in 2008. Total population data covers all years used in the estimation, starting from 2003. I also use data for specific figures and robustness checks, including construction permit data, CPI data, first-time house sales, net migration rates, and house stocks in provinces for each year. All provincial demographic data and others are obtained from MEDAS (TURKSTAT, n.d.). I also provided figures from the World Values Survey (WVS)[19] to gain insight into the native response towards immigrants. I used surveys done in 2007 by Inglehart et al. (2007) and 2018 by Haerpfer et al. (2018). You can see summary statistics for variables used in the regressions in Table 3.

Data for Syrian demographics are obtained from AFAD reports in 2013 and 2017 (AFAD, 2013, 2017) which are then merged with Turkish demographic information to make a comparison. You can see the demographic comparison

[17] Share of college graduates, high school graduates, primary school graduates, secondary school graduates, literate people with no diploma, illiterate people with no diploma and unknown education status.
[18] Age groups are divided as 0-14, 15-24, 25-39, 40 years or older.
[19] WVS is an international research program devoted to tracking changes in values over time and in countries. For further information, see: https://www.worldvaluessurvey.org/WVSContents.jsp

between Turkish natives and Syrian refugees in Table 1. As can be seen, Syrian refugees are generally less educated and younger than Turkish natives.

CHAPTER 5

EMPIRICAL SPECIFICATION

This chapter explains the identification strategy and the econometric model that I use to see refugees' impact on rental and house prices in Turkey. The baseline specification is as follows:

$$y_{i,t} = \alpha + \beta R_{i,t} + \gamma X_{i,t} + \theta_{j,t} + \delta_i + \delta_t + \epsilon_{i,t}$$

Where $y_{i,t}$ is the housing market outcome (the rental index or house price index) for province i, year t and region j[20]. The main variable of interest is $R_{i,t}$, which is the share of Syrian Refugees to the native population residing in province i and year t and is 0 before 2012. Therefore, the main parameter of interest is β. β measures the change in the housing market outcome (e.g., rental price index) due to the Syrian refugee influx in province i and year t. To put it more clearly, β estimates the differential impact of a one percentage point increase in the province level refugee influx on the housing market outcomes in the given province. γ captures province-level demographic characteristics, $X_{i,t}$, which are shares of education levels, shares of different age groups, shares of different marital statuses, and average household size. $\theta_{j,t}$ stands for region-specific time trends. I use (i) 5 region[21]-year fixed effects, (ii) 12 NUTS1[22] region-year fixed effects, and (iii) 5 region time trends in my

[20] Region is NUTS1 regions and 5 regions of Turkey.
[21] There are 5 regions in Turkey: the Aegean Region, Black Sea Region, Central Anatolia Region, Eastern Anatolia Region, Marmara Region, Mediterranean Region, and Southeastern Anatolia Region.
[22] There are 12 NUTS1 regions in Turkey: Istanbul Region, Aegean Region, East Marmara Region, West Anatolia Region, Mediterranean Region, Central Anatolia Region, West Black Sea Region, East Black Sea Region, Northeast Anatolia Region, Central East Anatolia Region, Southeast Anatolia Region

analyses. Since I only have data for the 7 largest cities in Turkey for the time period before 2012, the preferred specification will be 5-year-region fixed effects. Lastly, δ_i stands for province-level fixed effects, and δ_t stands for year-fixed effects.

I use a difference-in-differences model to estimate the impact of refugees by comparing the housing market outcomes of each province with different levels of density of refugees before and after the arrival of refugees in 2011. One of the identification assumptions is that there were no refugees in Turkey before the treatment year 2011 which could be justified from Figure 1.

One of the most important assumptions of DID estimation is the *common trends* or *parallel trends assumption*. The parallel trends assumption assumes that in the absence of the treatment, the dependent variable would have the same trends in all comparison units. Meaning that if there were no refugee inflows in Turkey, the provinces would have similar housing market outcomes. However, there are significant regional development differences in Turkey, which threatens the common trends assumption in the context of Turkey (Aksu et al., 2018). Therefore, following Aksu et al. (2018), I relax the common trend assumption by including region-level time trends and region-year fixed effects. In doing so, I account for potential variations between high refugee-hosting provinces and low refugee-hosting provinces. Another reason that threatens this assumption is the fact that I only have data for seven cities before 2012, preventing me from seeing the pre-trends in most provinces before the refugee inflows. For this reason, although I also look at the effects of regional time trends, the preferred specification will be region-year fixed effects.

Another assumption of this empirical methodology is that it assumes the treatment (refugee inflows) to be an exogeneous shock, a random natural experiment.

Therefore, one of the assumptions of the DID model is that the time and region in which the treatment occurred is random. Thus, if Syrian refugees choose the timing of their arrival to Turkey or in which provinces they will reside, driven by motivations of cheaper housing, better work opportunities to afford better housing options, etc., this will cause an endogeneity problem biasing the model's results. The timing of the arrival of refugees is due to political conflicts in Syria, which is not much of a concern in terms of endogeneity. However, their regional choice may cause concerns in terms of endogeneity. Syrian refugees faced no obstacles in choosing a province to settle in. This threat to identification may not be prominent in the short run since refugees left their countries due to security reasons and sought refuge in neighboring countries (Turkey, Iraq, Lebanon, Jordan); their arrival was not driven by choice. Instead, it was driven by proximity to their province of residence in Syria. As years went by and peace was not established in Syria, refugees started to disperse around the country in search of jobs and accommodation as refugee camps capacities were not able to host more than 3.5 million refugees. Since refugees choose where to settle, we must address this self-selection problem, which causes endogeneity in our analysis.

To address this threat to identification, I will follow Aksu et al. (2022) and use the following distance-based instrumental variable approach:

$$IV_{i,t} = \sum \frac{\pi_s \left(\frac{1}{d_{s,T}}\right)}{\frac{1}{d_{s,T}} + \frac{1}{d_{s,L}} + \frac{1}{d_{s,J}} + \frac{1}{d_{s,I}}} \frac{T_t}{d_{i,s}}$$

Where the summation is over s={1,2,…,13}, and s denotes the 13 provinces of Syria. i denotes the provinces in Turkey. $d_{s,X}$ where X=T,L,J,I stands for the minimum distance between Syrian provinces s to Turkey, Lebanon, Jordan, and Iraq, respectively. $d_{i,s}$ stands for the minimum distance between Syrian province s and province i in Turkey. π_s stands for pre-war population shares of Syrian provinces, $T_t$stands for the total number of refugees in the neighboring countries, Syrian refugees in Turkey. In all regressions, standard errors are clustered at the province level. This instrument relies on the fact that the choice of location for Syrians depends on the travel distance from Syria to Turkey.

CHAPTER 6

RESULTS

6.1 Main results

This chapter provides the results for the estimated impact of the refugee inflows on the housing market in Turkey and discusses the potential mechanisms driving those results. I carry out the analysis for both rental and housing prices in Turkey. All of my regressions are clustered at the province level and are population-weighted. The study is conducted for rental and sale price indices created from online price listings. Therefore, the dependent variables are asked prices rather than actual transactions. Both dependent variables are the log of real rental and sale price indices normalized to prices in 2015. The rental and sale price data began in 2003, but my demographic control variables from TURKSTAT have been available since 2008. To provide results for a broader time horizon, in the first panel, I present the regressions without demographic controls, and right below is the second panel, where I show the regression results, including demographic controls for both the OLS and IV regressions. I follow the methodology of Aksu et al. (2018), who show that including regional time trends is essential in the case of Turkey, and including region-specific time trends relaxes the pre-trends assumption of the DID model, which may significantly impact the results. The first four columns of the regression tables provide the OLS results, while the last four columns show the IV results. The first and fifth regressions are the baseline regressions, which include province and year-fixed effects. The second and sixth columns include NUTS1 level time trends to allow for different trends in different years and regions. The third and seventh columns include five region time trends to account for regional differences at a more

aggregated level. The fourth and eighth columns include region-year-fixed effects. Since my data is unbalanced[23], computing time trends may not give reliable standard errors, so finer level regional controls (such as NUTS2 level (26 regions) time trends) are avoided. This is why the preferred specification in my study is the region-year fixed effects specification, which corresponds to column (8) in panel B in my regression tables. The primary analysis will look at the long-run impact of refugees until 2019. However, to capture the long and short-run impact of refugees, I will also run regressions until 2017, 2015, and 2013. The demographic control variables include each province's population share by age, marital status, education level, and average household size, which are explained in detail in Chapter 4.

Since the refugee influx resembles a positive demand shock on the housing market, it is expected that the refugee-induced demand will lead to increasing prices (Akgündüz et al., 2022). However, since It is not possible to differentiate the impact of refugees and the (potential) response of natives, the results will largely depend on whether refugees are perceived as a negative amenity by the local community (Kürschner & Kvasnicka, 2018; Saiz, 2007). It is also expected to see the impact of refugees on housing supply in the long run, especially since housing supply is expected to be impacted by refugees both by demand and labor supply channels.

In Table 4, we can see the impact of the refugee to native population ratio on rental prices in Turkey. The dependent variable is the logarithm of real rental prices in Turkey. The long-term results for rental prices have all negative coefficients, suggesting a price decrease in the long run. The results in Panel B, column (8), the region and year fixed effects model, indicate that a one percentage point increase in the refugee-to-native ratio leads to a decrease of 0.57% in the rental prices. The

[23] The regressions include 7 cities until 2012, 62 cities until 2015 and all cities after 2015.

regressions' results, including NUTS1 time trends and regional time trends, are similar, suggesting a 0.67-0.68% decrease in prices. These results are very similar to the baseline IV model, with a coefficient of 0.67%. The OLS results for the same regressions yield negative and imprecise coefficients that are weaker in size, ranging from 0.14-0.29%. The IV results being stronger in size (more negative) than the OLS results suggest a positive bias (upward bias) in the OLS results. This can occur if the refugees tend to be located in more affluent regions where house prices tend to be higher (Sá, 2015b).

The regressions in Table 5 show the impact of refugees on rental prices until 2017. The coefficient of the region-year fixed effects model shows a decrease of 0.628, indicating that a 1 pp increase in the refugee-to-native ratio leads to a decrease of 0.628% in rental prices. Table 6 shows the impact of refugees on rental prices until 2015. Column 8 in Panel B shows a 1.059% reduction in rental prices. The magnitude of the coefficient increases as the time span narrows. Since it is already established that the impact of refugees is not independent from the response of natives to refugees, it may be possible to suggest that the short-term native response may be more robust in the short term and attenuated over time. Table 7 shows the impact of refugees on rental prices until 2013. The coefficients give negative and imprecise results.

Table 8 shows the impact of refugees on housing prices in Turkey until 2019. The coefficients are negative and significant for IV estimations. Column 8 in Panel B shows that with a 1 pp increase in the refugee-to-native ratio, housing prices decrease by 0.776%. Similarly, Table 9 shows the impact of refugees on housing prices until 2017. The preferred specification (Column 8 in Panel B) shows that with a 1 pp increase in the refugee-to-native ratio, housing prices decrease by 0.799%. Table 10

shows the impact of refugees until 2015. The coefficient is 0.891, indicating that refugees lead to a price decrease of approximately 0.9%. Table 11 shows the effect of refugees until 2013, and all specifications give imprecise results.

Since we only have pre-treatment period data for only seven cities in Turkey, we use these observations to present our results in an event study framework. I follow Gulek (2022) estimate province-specific linear trends (fit a linear line for each province) in the pre-treatment period, and detrend the data by extending the trend to the post-treatment period. Then, I use the detrended outcomes in the event study design[24]. The event study plots for rental and house sale prices can be seen Figure 10 and Figure 11, respectively. The figures only provide estimates for the seven largest cities in Turkey as data before 2012 (pre-treatment period) is only available for those cities. It is still visible from the event study plots that the refugee influx had a negative impact on housing and rental prices.

In the rental and house sale prices regressions, we observe negative coefficients for different specifications throughout the years (except until 2013). The magnitude of the coefficients is more pronounced in the earlier years, especially in 2015, and the impact slowly decreases in magnitude over the years while the coefficients remain negative. The results suggest that refugees lead to decreases in prices for rental and housing sale units in the long and short term. These results are unexpected in that since the influx of refugees is very large in size, the demand from refugees would have been expected to be more pronounced, leading to price increases. This expectation is also based on the assumption that the supply side of the housing market and the native response to the inflows are relatively stable, which may not be the case in Turkey. The fact that the results are negative even in the short

[24] For a more detailed analysis, please see page 14-15 of (Gulek, 2022).

run suggests that the refugee-induced demand for low-cost housing and the native response, along with housing supply dynamics, create competing forces that may have a depressive effect on housing prices, which will be discussed in the next section.

In similar studies, Balkan et al. (2018) and Akgündüz et al. (2022) found positive results in their analyses, unlike the results found in this study. Balkan et al. (2018) use data from the Survey of Living and Income Conditions from TURKSTAT for rental data at the NUTS1 (12 regions) level. The data for rental prices comes from the tenant-occupied housing stock, while the data used in this paper are asked prices. They do a difference-in-differences analysis to look at the short-term impact of refugees on housing rents between 2010-2013. They find an overall increase in monthly rental prices. However, when they decompose housing units into lower and higher quality, they find no statistically significant effect on lower-quality housing units (with negative coefficients) but find that rental prices increase for higher-quality housing units. They state that the increase in rents for higher-quality housing units may be driven by a native demand after the refugee influx, which could imply that natives may prefer to live in relatively better neighborhoods with better amenities. This result may be driven by a preference for native predominant neighborhoods, which are likely to be higher priced. Their results indicate that there might be evidence for a negative native response towards refugees in the short run, leading to residential segregation. In the literature, most studies that found a negative impact of immigration on the housing market also reported evidence for a negative preference towards refugees. Therefore, one channel that might drive (the flow of) housing and rental prices down may be residential segregation, which will be discussed in Chapter 6.2. In another study, Akgündüz et al. (2022) found an increase

in overall housing prices until 2014 for houses sold through a mortgage. Their results are mainly driven by low-price housing units, and the effects diminished after 2014. This study uses the Residential Property Price Index (RPPI) by the CBRT. The RPPI dataset is created by expert reports for houses that are applied for a mortgage credit. In Turkey, mortgages are usually given for houses built after 2000, constructed under strict rules after the devastating 1999 earthquakes. Considering that most of the housing stock is relatively new in Turkey, it is expected that mortgages will be given for relatively newer houses. From House Sales Statistics by TURKSTAT, we can see that of all housing sales, only around 30% of the payment transactions are made using mortgages (see Figure 9).

Therefore, housing prices from mortgage data may not be a good representative of the housing stock in Turkey. This dataset will likely represent mostly newer, relatively higher in-price houses than the existing housing stock (Coskun & Pitros, 2022; Gunduz et al., 2022; Özdemir Sarı, 2022). The authors also find a decline in house ages after the refugee influx, and they explain the declining house ages after the refugee influx by two channels. The first channel is explained through a supply mechanism, where they state that natives may buy newly supplied houses in the market due to higher levels of production. The second channel may be that natives prefer to settle in newer neighborhoods due to a negative preference toward refugees. Although these two channels are presented as a dichotomy in the paper, it might be the case that they affect the housing purchase decisions of natives simultaneously. Considering that the authors find an increase in low-cost housing units, this may indicate a native tendency to buy new and affordable housing after the refugee influx. The potential increased demand for affordable and new housing units may suggest that lower or middle-income households may prefer to live in

those houses in response to a refugee influx. The authors also provide evidence for an increase in the supply of housing units in response to the refugee influx using housing permit data from TURKSTAT, which is expected to drive housing prices down, especially in the long term.

Similar to Turkey, Syrian refugees living in closer proximity to Jordan sought refuge there. Alhawarin et al. (2021) and Rozo & Sviatschi (2021) look at the impact of Syrian refugees on the housing market in Jordan and find positive impacts on rents and housing prices. Rozo and Sviatschi (2021) find an increase in rents due to the Syrian refugee influx in Jordan in close-border regions. One of the main drivers of this result is Jordan's housing supply shortage, which persisted until 2015. Similarly, Alhawarin et al. (2021) also find an increase in rents, especially among low-income and low-educated households. However, the Syrian impact on Jordan is expected to differ from that of Turkey for several important reasons. One, Syrian refugees arriving in Jordan speak the same language as the native population, and they have a very similar culture that makes it easily adaptable for refugees to integrate into Jordan. This may eliminate the negative preference toward refugees, which the authors emphasize is not the case.

In contrast, Syrians and Turkish people in Turkey do not speak the same language, and the cultural proximity is not as close as described in the Jordanian case. Indeed, according to the Syrian Barometer Surveys (supported by the UNHCR) in 2019, 81.9% of natives stated that Syrians are not similar to Turks, while only 7% stated they are culturally similar to Turks (in 2017, this rate was 80.2%, while only 7.8 stated that refugees were similar to Turks). On a relevant note, 60.4% of Turkish people state that they would be disturbed living in the same apartment with Syrians, 70.5% of natives stated that they would be disturbed to live in Syrian predominant

neighborhoods, 59.4% stated that they would be disturbed if Syrians were to move to their neighborhoods (Erdoğan, 2019). In Jordan, close border regions are relatively wealthy compared to the rest of the regions, which is not the case in Turkey. Although Gaziantep and Adana are more similar to the more developed regions in Turkey, which are mainly in the west, the development level is still not as high as the western regions in the close-border regions. The other critical distinguishing feature between Jordan and Turkey is that the housing supply in Turkey may not be as inelastic as it was in Jordan which will be discussed in detail in the following chapter. Therefore, the results in Turkey are expected to differ from Jordan as country-specific characteristics plays a large role in determining the direction of housing prices and rents after a refugee influx.

Saiz (2007) stated that it is not possible to differentiate the impact of immigration on the housing market without taking the native response to immigration into account. While the refugees increase demand for housing units in Turkey, the direction of the native demand is unknown. If there is a negative perception towards refugees, it is likely that prices decrease in refugee-dominant regions. As discussed by Balkan et al. (2018) and Akgündüz et al. (2022), this is likely to be the case in Turkey. The refugees in Turkey not only impact the demand on housing units but also are likely to impact the supply of new housing units. The two effects (refugee and native-induced demand) can work in opposite directions and lead to conflicting impacts on the direction of prices. Considering that most refugees earn low wages and are less educated, it is expected that they would choose to live in relatively cheaper neighborhoods, increasing demand for lower-priced housing units. If the supply of lower-priced houses is not increasing and the demand from natives is relatively stable for such houses, then it might be expected to see a price increase in

lower-priced houses. However, if the native demand for lower priced houses decreases for reasons such as negative preference towards refugees or increased supply of affordable and higher-priced housing units, then this would put downward pressure on housing prices, leading to decreasing prices. It is also important to take into account that housing supply may also increase in response to a refugee influx (both by increasing demand and supply of low-cost labor in the construction industry), leading to lower house prices in the long run (Monras, 2020; Sanchis-Guarner, 2023). It is also important to keep in mind that there might be a potential housing oversupply in Turkey, as discussed in Chapter 2, which may lead to housing prices down. Also, considering Turkey's increasing new housing stock and the decrease in the number of newly bought houses, Turkish people may prefer to settle in relatively newer neighborhoods. Most studies that find negative effects on the housing market in the literature explain this effect through a negative approach toward refugees, which might be a driving force for decreasing housing prices in Turkey, as will be discussed in the next section.

6.2 Potential channels

There might be many channels leading to declining housing and rental prices in Turkey. I will discuss the price declines on the scope of two major channels: housing supply and native response in the following subsections.

6.2.1 Housing supply

One mechanism that may lead to decreasing housing prices is increased housing supply due to the refugee influx. Akgündüz et al. (2022) find an increase in the

construction permits for residential buildings after the refugee influx. Using the same methodology in my regressions, I look at the impact of refugees on the number of apartment permits in Table 12. Similar to Akgündüz et al. (2022), I find a significant increase in new apartment permits after the refugee influx. A one percentage point increase in the ratio leads to an increase in new apartment permits by 1.1-1.4%. The effect is stronger in the prior years of the refugee influx than in the former years, as seen in Table 13. When we cut the estimation in 2013, we find that a one percentage point increase in the ratio leads to an 8-10% increase in new apartment permits. Therefore, it seems that new constructions increased due to the refugee influx, which may have decreased prices, especially in the long run.

Refugees also impact the housing supply through low-cost labor in the construction sector. Since refugees are used as low-cost labor in the informal labor market, and since the bulk of the costs of construction is labor cost, this increase in housing supply that is relatively lower in cost leads to a decrease in housing prices in the long run (Monras, 2020; Sanchis-Guarner, 2023). Indeed, Demirci and Kırdar (2023) shows that almost 30% of refugee men work in the construction sector, one of the highest shares considering the labor market shares of refugees. Since refugees highly contribute to the housing supply in Turkey decreasing construction costs, it may be expected that housing prices decrease in the long run.

Also, on a related note, one other mechanism that may lead to decreasing housing prices is if refugees replace natives in the labor market as they provide lower-cost labor, which in turn leads to lower wages and this may create a negative income effect on the housing market, leading to decreasing housing prices (Altonji & Card, 1989; Mussa et al., 2017). Aksu et al. (2022) show that refugees provide low-cost labor in the informal labor market, replacing native men in the informal sector

almost one by one. The decreasing wages in the informal labor market may have decreased housing prices through a negative income effect as well.

Lastly, as discussed in Chapter 2, it is possible that there exists a housing oversupply in Turkey, which might lead to decreased housing prices. Although there is no formal analysis to show that there exists an oversupply of houses in Turkey, I follow (Coskun & Pitros, 2022; Özdemir Sarı, 2022) who use the first-time house sales and the new apartment permits by year to gain an insight on whether there is a discrepancy between newly constructed houses and first-time house sales. The idea is that if the newly built housing stock do not follow first-time housing sales, this difference may indicate a potential housing oversupply. Since apartment permits are obtained from municipalities for new constructions, the permits themselves do not represent the existing newly built housing stock in Turkey but rather they represent the future housing stock. In order to observe a potential discrepancy between first-time house sales and newly built apartments, we need to assume an approximate time span for construction to take place so that they can be an indicator of newly built and ready-to-sale houses in Turkey. To that end, I assume that constructions take place in approximately two years and use a two year lag for apartment permits. In Figure 3, I compare the two year lagged apartment permits and first time housing sales in Turkey over the years. As can be seen, there is a consistent discrepancy between housing sales and newly built houses across Turkey. To make sure the graph is valid if constructions take a shorter time-span in general, Figure 4 shows the difference between one-year lagged apartment permits and first-time housing sales. Again, there is a consistent discrepancy indicating a potential housing oversupply in Turkey. To see whether this difference is also valid for the top refugee-hosting provinces near the border, I define a treatment set of provinces, which are the top 9 provinces

hosting the highest share of refugees to native population ratio. I cut the treatment variable at the 9th province since the 10th top refugee hosting province is Bursa, which is in the western region of Turkey, while the first 9 are provinces close to the Syrian border. Figure 5 and Figure 6 show the discrepancy between first-time housing sales and apartment permits persists for the two and one-year-lagged apartment permits, respectively. The potential housing oversupply seems to be relevant for the highest-refugee hosting provinces as well, indicating a potential housing oversupply in Turkey. Since we do not control for apartment permits in Turkey as they are related to the main explanatory variable, the Syrian-to-native population ratio, the decreasing housing prices may also be capturing the potential oversupply of the housing stock in Turkey.

6.2.2 Native response

Another common feature of the studies that find negative impacts of immigration on housing markets is the negative native response to immigration. According to Saiz (2003) and Saiz (2007), it is impossible to differentiate between the positive demand for housing coming from immigrants and the (possible) decreased demand from the natives. If, for example, natives have negative preferences towards refugees, natives may prefer to relocate in native-dominant neighborhoods which may also affect the housing prices. Or, for example, if natives are susceptible to local housing prices such as rents, then we may be observing the native relocation effect (either at the inter or intra-provincial level) in addition to the refugee influx, which may not be visible from the data at hand since the data on rental and housing prices are at the province-level instead of neighborhood-level. Aksu et al. (2018) looked at the impact of migration on the net migration rates at the NUTS2 level in Turkey, and they did

not find significant results. Gulek (2024) also does not find significant results when looking at the in-out migration of natives due to the refugee inflows at the NUTS2 level. We currently do not have enough evidence to claim whether there exists any internal migration driven by the refugee influx at the province level. However, there may also be an intra-provincial mobility occurring among the native population in response to the refugee influx. It would be informative to know the relocation patterns of natives at the intra-provincial level such as neighborhoods, since an outmigration of natives could drive housing prices down. The literature mostly suggest that declining housing and rental prices in refugee dominant neighborhoods suggest a residential segregation among natives and refugees, especially if refugees are perceived as a disamenity by the native population (Balkan et al., 2018; Kürschner & Kvasnicka, 2018; Lastrapes & Lebesmuehlbacher, 2020; Sá, 2015a; Saiz & Wachter, 2011). In the Turkish context, Balkan et al. (2018) find evidence for residential segregation in Turkey. They find that rental prices increase at high-cost housing units while they do not find a significant effects on the rental prices for low-cost housing units. They interpret this result as suggestive for residential segregation where natives may prefer to live in higher cost housing units which tend to be more native predominant considering that most refugees earn lower rates of incomes. I do not have data to observe the within-city distribution of natives and refugees to make a causal inference on whether residential segregation exists or not. However, I provide anecdotal evidence from a dataset containing natives' preferences for immigrant neighbors using the World Values Survey (WVS). WVS is an international research program devoted to tracking changes in values over time and in countries. One of the questions asked to respondents was, "Who would you not like to have as a neighbor?" and they coded the answer sheet as 1 if the respondent

mentioned “Immigrants”, and 0 if the respondent did not mention immigrants. Using two waves from the WVS dataset for 2007 and 2018, I visually compare the change in natives’ average response before and after the refugee influx. I compare the average responses over subjective social classes in Figure 12 and the average responses over regions in Figure 13. The subjective social classes are respondents’ own perception on which social class they belong to. The choices are upper class, upper middle class, lower middle class, working class, and lower class. I omit respondents who do not answer. The regional variations are at the NUTS1 level, which divides Turkey into 12 regions. Figure 12 shows the average of respondents who answered “Immigrant” to “Who would you not like to have as a neighbor?” over subjective social classes and years. The share of natives who do not prefer immigrants as neighbors increased drastically in all social classes in Turkey except the upper class which is expected. It seems that people whose lives are more likely to be affected by the refugee influx show negative preferences towards refugees. Looking at the regional differences in Figure 13 we observe that the share of people who responded “Immigrants” increased in almost all regions. The figure is population weighted as the number of respondents are not uniform across regions. One exception to the increase in the average response is Central Anatolia and Southeastern Anatolia. Central Anatolia had already a very high rate, showing a negative preference towards refugees even before the refugee influx. The other region is Southeastern Anatolia, which is a region that is culturally more similar to Syrians with respect to other regions of Turkey and may display more acceptance towards Syrians. This is also in line with the findings of Erdoğan (2019). In the Syrian Barometer done in 2019, 81.9% of respondents find Syrians dissimilar to Turks, while 7% claim they are culturally similar. When the author looks at the

demographics of people find Syrians to be culturally similar to Turks, he finds that the respondents primarily reside in Southeastern Anatolia. Also, Erdoğan (2019) reports that 60.4% of natives report that they would be disturbed living in the same building as a Syrian refugee, 52% would be disturbed if their children went to school with Syrians children, and 70.5% would be disturbed living in a Syrian-predominant neighborhood. All of these statistics suggest negative preferences towards Syrian refugees, which may affect the housing decisions and settlement patterns of natives. Therefore, there might be a negative preference towards refugees in Turkey, affecting the housing market in many ways—affecting the settlement patterns of natives within cities leading to residential segregation or between cities leading to internal migration. In such a case, it is expected to see declining prices in Syrian predominant regions or neighborhoods.

The declining housing prices may also be due to the increased crime rates, actual or perceived, in cities facing immigration (Accetturo et al., 2014; Depetris-Chauvin & Santos, 2018). In Turkey, there is no evidence that Syrian refugees lead to an increase in (actual) crime rates, which is surprising considering the number of refugees in Turkey (Erdoğan, 2019; Kırdar et al., 2022). However, not only the actual crime rates but also the perception of natives that the refugees increase crime rates may also impact the housing decision of households (Depetris-Chauvin & Santos, 2018). Considering the fact that the dataset used in this paper is an index created from online price listings, which is likely to be more sensitive to native perception, this argument could also be relevant.

Erdoğan (2019), in his survey for the Syrian Barometer, asks natives to rank their concerns in society due to the refugee influx from 0 to 5. The natives' average response to Syrian refugees' potential crimes and the disturbances was 3.7. This

result means natives, on average, are 74% concerned that Syrian refugees will increase crime rates. This is also in line with the WVS done in 2018, where they asked natives if they believe immigration increases crime rates. It can be seen from Figure 14 that in almost all regions, more people believe that immigrants increase crime rates than those who do not. Similarly, in the Syrian Barometer, natives are on average 74% concerned that Syrian refugees will lead to a deterioration in public services provided by the government (due to overcrowding). In the literature there is evidence that when natives believe that refugees lead to a deterioration of public goods, natives prefer to settle in native predominant neighborhoods leading to residential segregation. These evidences, although are not causal evidences, align with natives' negative perception towards refugees, which may be a driving force for declining average housing prices at the province level after the refugee influx.

Lastly, it is important to remember that the rental and housing sale price dataset used in the analysis of this paper consists of asked prices rather than actual transactions. This is an important feature to remember, especially when considering the native response to the refugee influx. Since the prices are asked prices, they represent homeowners' valuation of their own houses as well as the market prices in the respective neighborhood. Therefore, if there is a negative preference towards refugees among locals, it would be expected that homeowners' valuation of their own houses would decline. For example, studies looking at the impact of asylum seeker centers' impact on housing prices in nearby neighborhoods find that prices decline not always only because natives move out of those neighborhoods but also because homeowners perceive a deterioration in the value of their properties, leading to declining housing prices (Daams et al., 2019; Kürschner & Kvasnicka, 2018; Lastrapes & Lebesmuehlbacher, 2020). Therefore, if homeowners perceive that their

rental units in refugee-dense neighborhoods have depreciated in price, then this also could act as a driver for declining housing and rental prices.

6.3 Robustness checks

To provide evidence that my results are valid among different specifications, I will also provide regression results without using population weights. Not using population weights may lead to an overestimation of the impacts of provinces with small populations hosting relatively higher shares of refugees. Those provinces would act as outliers in terms of the variable “ratio”. Table 2 provides top refugee hosting provinces that are also close to the border. In the table, we can observe that Kilis (a close border province hosting many refugees) has the Syrian to native ratio up to more than 90% over the years. In 2015, the ratio variable was 94% for Kilis, where no other province has such unproportionately high shares of refugees relative to their populations. Since Kilis is a close border region that acts as an outlier due to its small population, I will also provide regression results by dropping Kilis when I do not use population weights in my regressions. You can see Table 14 for the impact of refugees on rental prices and Table 15 for the impact of refugees on house sale prices. The IV results for rental and sale prices are consistently and significantly negative in both estimations. A 1 percentage point increase in the refugee-to-native ratio leads to a 1.005-1.3% decrease in rents and a 1.3-1.45% decrease in housing sale prices in the long run. The demographic control variables include education levels, marital status, age groups, average household size, and the log of the total population. In my analysis, the errors are clustered at the province level.

CHAPTER 7

CONCLUSION

The massive influx of refugees after the Syrian war in 2011 has led to millions of refugees seeking refuge in Turkey. Although until 2013, most refugees lived inside camps, after 2013, they started to disperse around the country. By 2020, more than 98% of the refugees lived outside of camps. Most refugees worked in the informal labor market to earn their livelihoods, which also made them responsible for their accommodations as there was no formal aid from the government in Turkey. The refugee influx was massive in size, possibly leading to a positive demand shock in the housing market in Turkey. Using a difference-in-differences IV methodology to account for possible endogeneity in the location choice of refugees, I estimate the impact of refugees on the Turkish housing market. I found that in the long run (until 2019), a one percentage point increase in the share of refugees to the native population (ratio) leads to a decrease in average rental asked prices by 0.57% and a decrease in average housing asked prices by 0.78%.

Although this study's results differ from the existing studies on the impact of refugees on housing prices in Turkey, the implications of these studies are in line with the results of this study. Balkan et al. (2018) find evidence for residential segregation, which acts as a negative driving force for housing prices in the literature, and Akgündüz et al. (2022) found an increase in housing prices for houses sold through a mortgage credit where the overall increase is driven by affordable and new housing units which could also have implications on residential segregation. The finding that there is a decrease in the age of houses sold through mortgage credit implies that natives (potentially lower and middle-income households) tend to buy

new and affordable housing, which may be driven by new housing supply or a negative perception towards refugees. If the preference towards living in newer neighborhoods is driven by refugees, this would indicate a negative preference toward refugees. In the literature, negative preference towards refugees usually has suppressive effects on housing prices, especially in refugee-dominant neighborhoods indicating that the values of houses and rentals decrease in refugee dominant areas. Since the results in this paper are for the asked prices of housing rents and prices, it is expected that the data is more sensitive to the perceptions of homeowners.

Although the results found in this study seem counterintuitive, there are a few channels that could have led to such results. In the literature, it is widely discussed that it is not possible to differentiate between refugee-induced demand and the potential change (increase or decrease) in demand from natives (Saiz, 2007). Therefore, it is impossible to study the refugees' impact on the housing market without considering the native response. It is postulated that this decreasing effect stems from mainly two channels. The first channel is housing supply, which may impact housing prices in several ways. Housing supply may increase due to the refugee influx, the potential oversupply of houses may drive prices down, or refugees providing low-cost labor in the construction sector may drive housing prices down. Indeed, I present evidence that the housing supply increases in the short and long run. There is also evidence that there might be a potential oversupply of new housing units. Over the years, there was a discrepancy between the construction permits and first-time house sales, which may indicate the existence of a housing oversupply in many provinces. I show that while this is the case for Turkey in general, it is also the case for the top refugee-hosting provinces, which could drive housing prices down. Finally, the declining effect in the long run might be due to the high employment

levels of refugees in the construction sector. More than 30% of refugees work in the construction sector, providing low-cost labor and alleviating the bulk of the construction costs for housing units. Therefore, refugees may lead to decreased housing construction costs, which leads to decreases in housing prices in the long run. The second channel is the potential negative perception towards refugees, which may drive housing and rental prices down in response to the influx of refugees in many ways. I provide anecdotal evidence that there might be negative attitudes towards refugees using data from the World Values Survey in 2007 and 2018. Natives state their preferences against immigrant neighbors in almost all social classes and regions. Also, although there is no evidence that refugees lead to an increase in crime, there seems to be a fear among natives that refugees increase crime rates. Therefore, the negative perception towards refugees may lead to many channels that might have a depressive effect on rental and housing prices.

The main contribution of this paper to the literature is that it uses a novel dataset to look at the impact of refugees on the housing market in Turkey. Although there are other studies looking at the impact on the housing market, no other study uses data from price listings, representing the valuation of homeowners in the housing market. Having a different sample from the existing studies in the literature, provides a new perspective and new insights on the refugee impact on the housing market in Turkey.

APPENDIX A

FIGURES

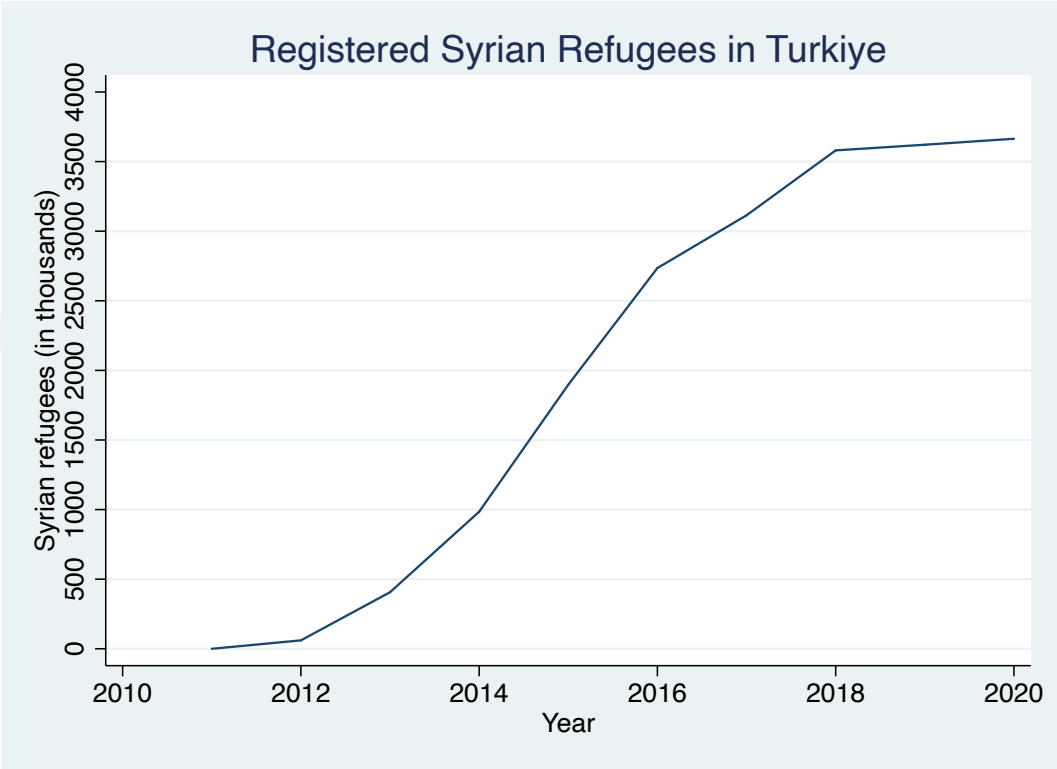

Figure 1. The number of registered Syrian refugees over the years. Sources: AFAD (2013), AFAD (2017), UNHCR (2023).

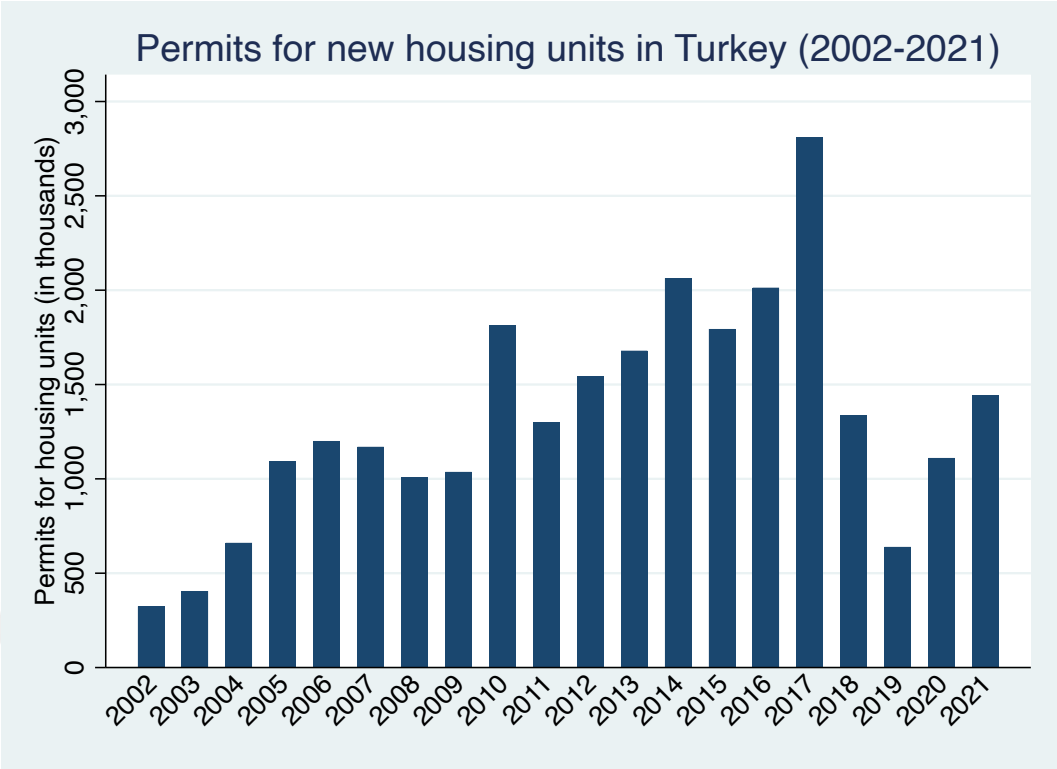

Figure 2. Number of apartment permits in Turkey between 2002-2021 (TURKSTAT, n.d.).

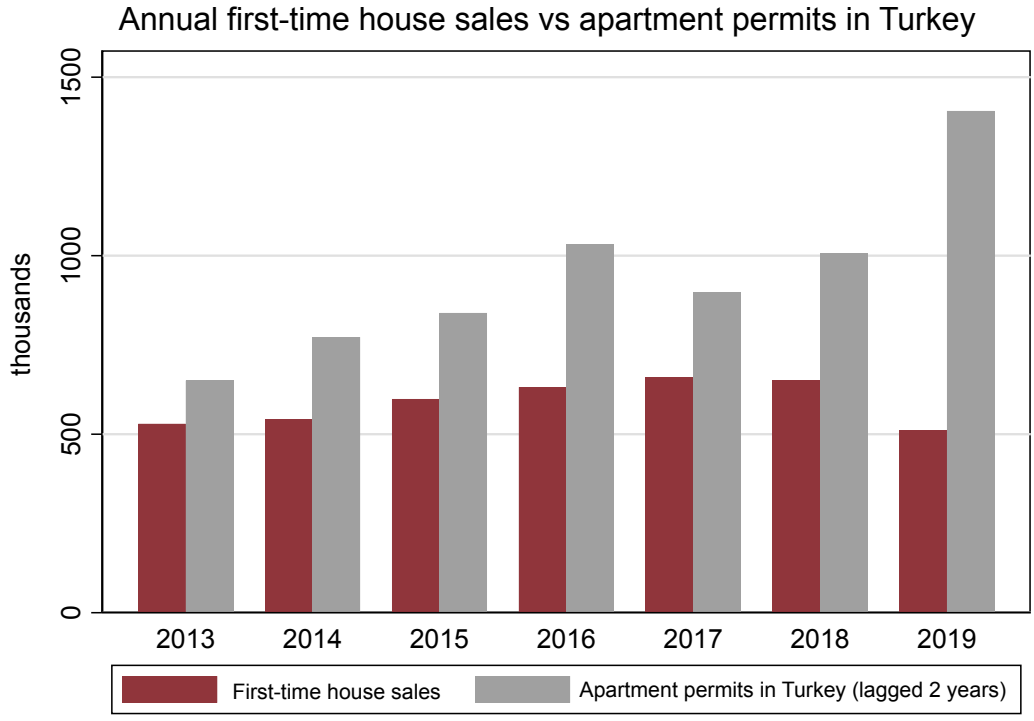

Figure 3. First-time house sales and apartment permits with two year lags (TURKSTAT, n.d.).

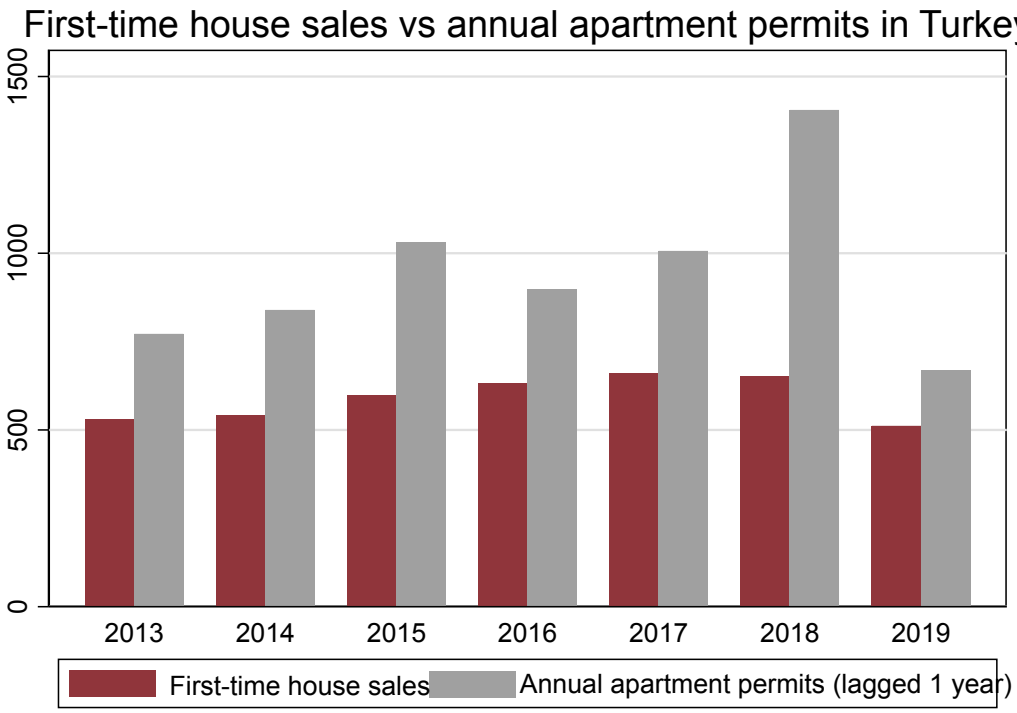

Figure 4. First-time house sales and apartment permits with one year lags (TURKSTAT, n.d.).

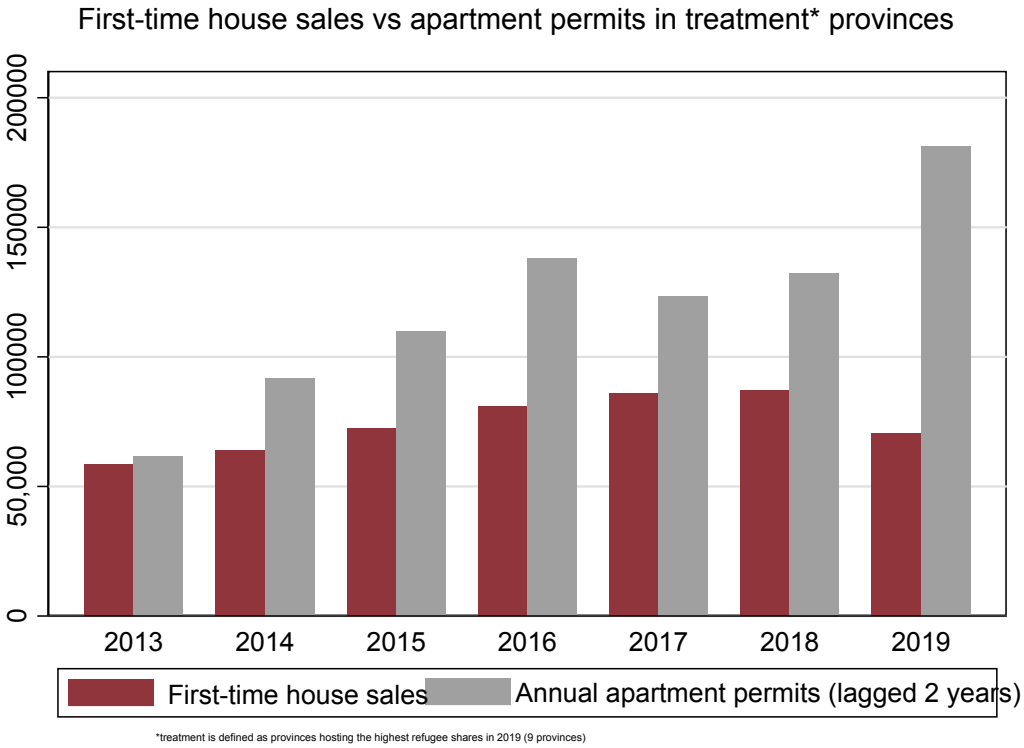

Figure 5. First-time house sales and apartment permits with 2 year lags in treatment provinces. Note: The total number of first-time house sales and apartment permits given over the years. The dataset is acquired from TURKSTAT's housing sale and construction permits dataset (TURKSTAT, n.d.). Treatment provinces are defined as close-border provinces hosting the highest share of refugees.

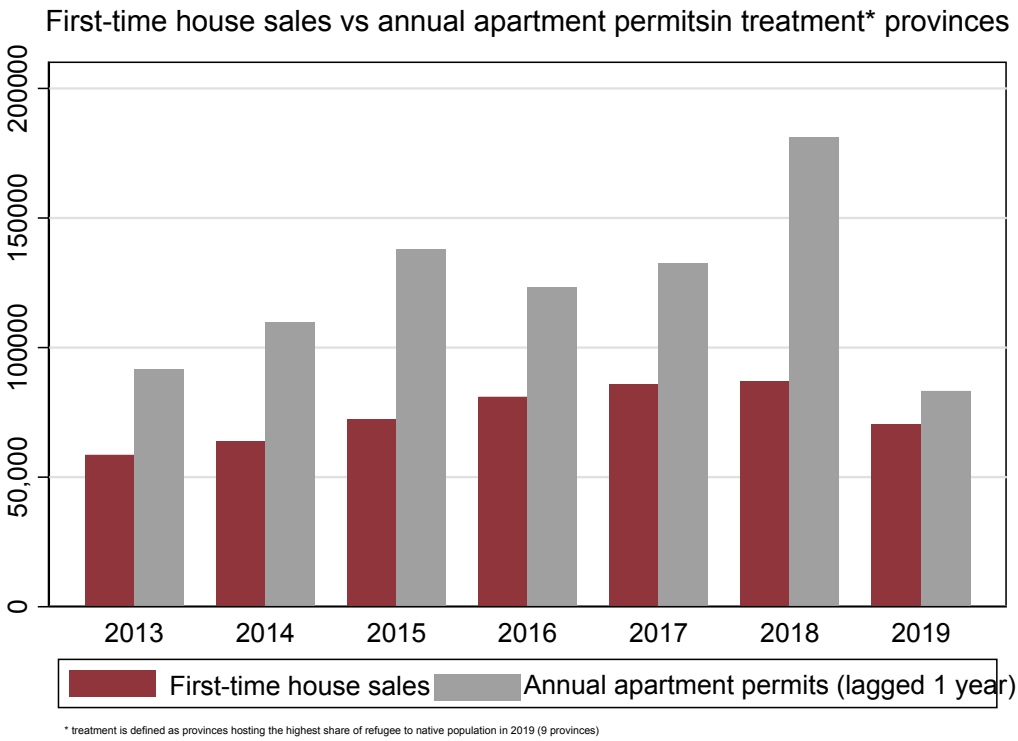

Figure 6. First-time house sales and apartment permits with 1 year lags in treatment provinces. Note: The total number of first-time house sales and apartment permits given over the years. The dataset is acquired from TURKSTAT's housing sale and construction permits dataset (TURKSTAT, n.d.). Treatment provinces are defined as close-border provinces hosting the highest share of refugees

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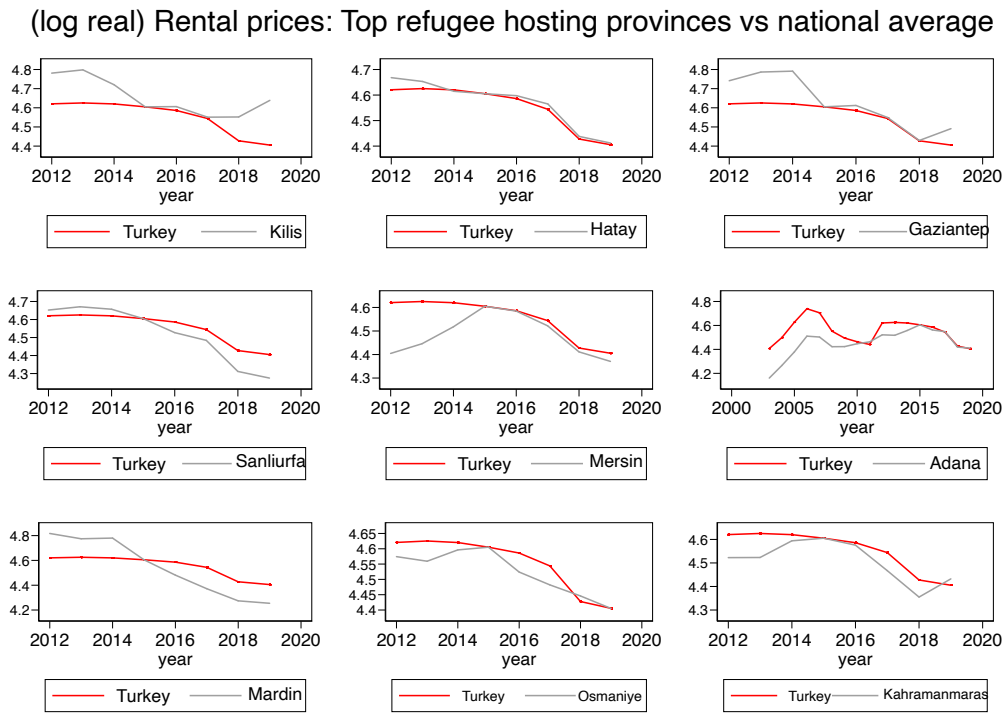

Figure 7. Rental prices in close border provinces versus the national average. Note: The rental price index is from REIDIN. The average of 7 cities is used for years 2003-2012, 62 cities for years 2012-2015 and 81 cities for years 2015-2019.,

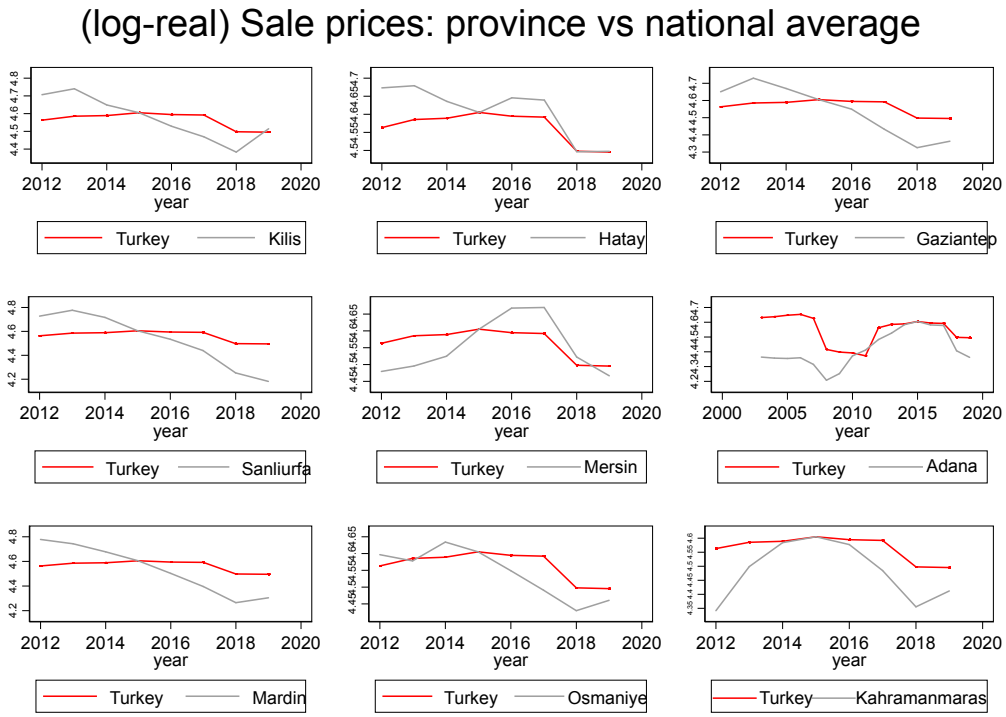

Figure 8. Sale prices in close border provinces versus the national average. Note: The sale price index is from REIDIN. The average of 7 cities is used for years 2003-2012, 62 cities for years 2012-2015 and 81 cities for years 2015-2019.,

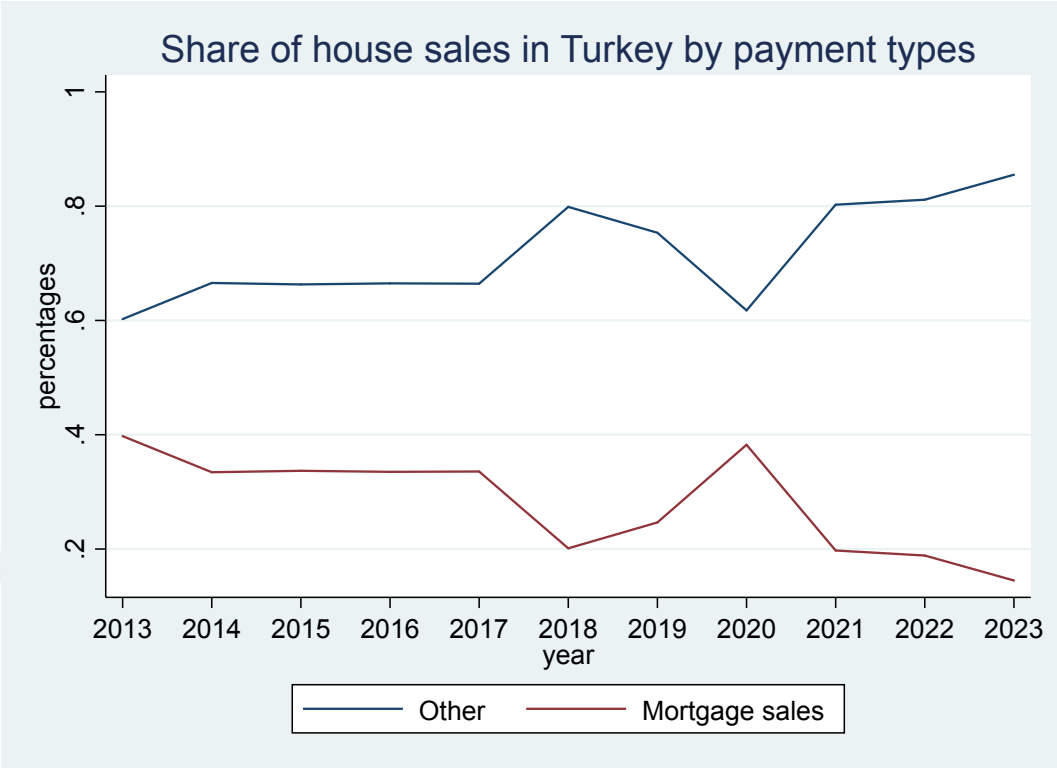

Figure 9. The share of house sales in Turkey by payment types

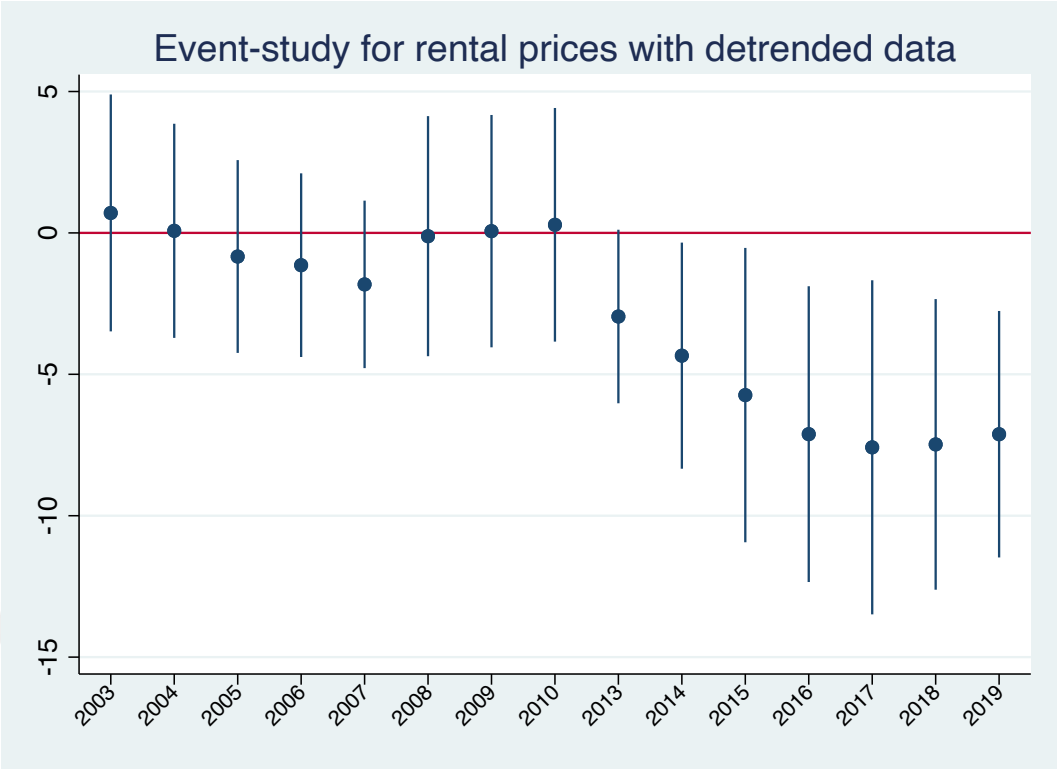

Figure 10. Event study figure for rental prices using detrended data

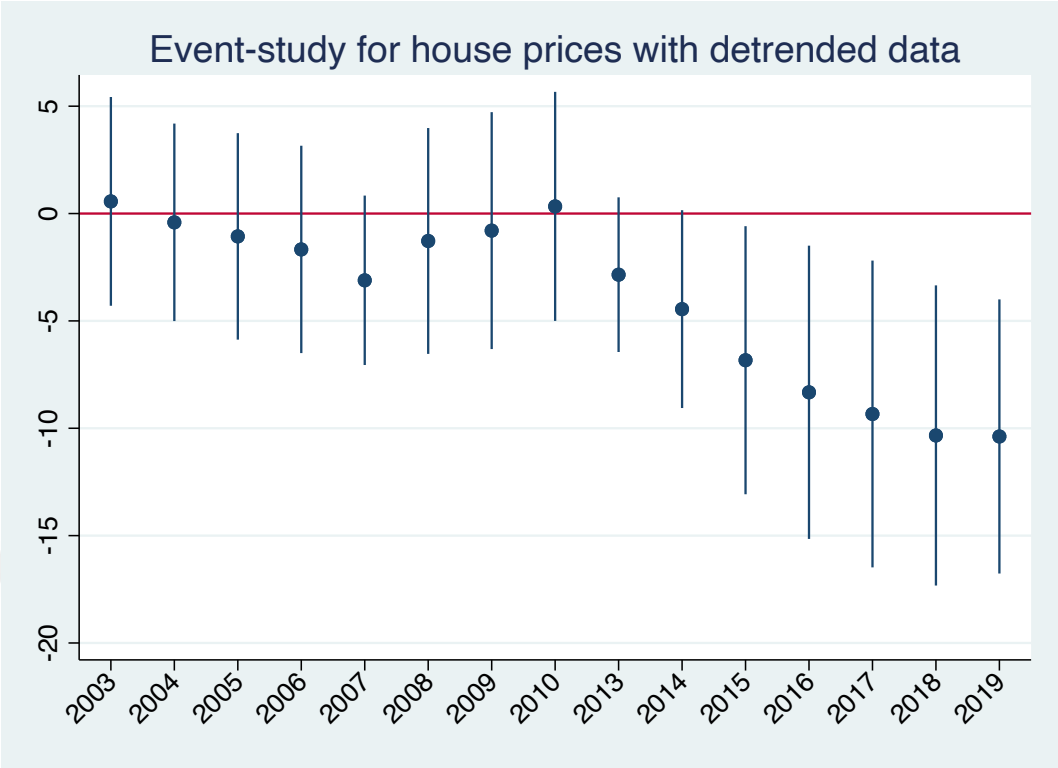

Figure 11. Event study figure for house sale prices using detrended data

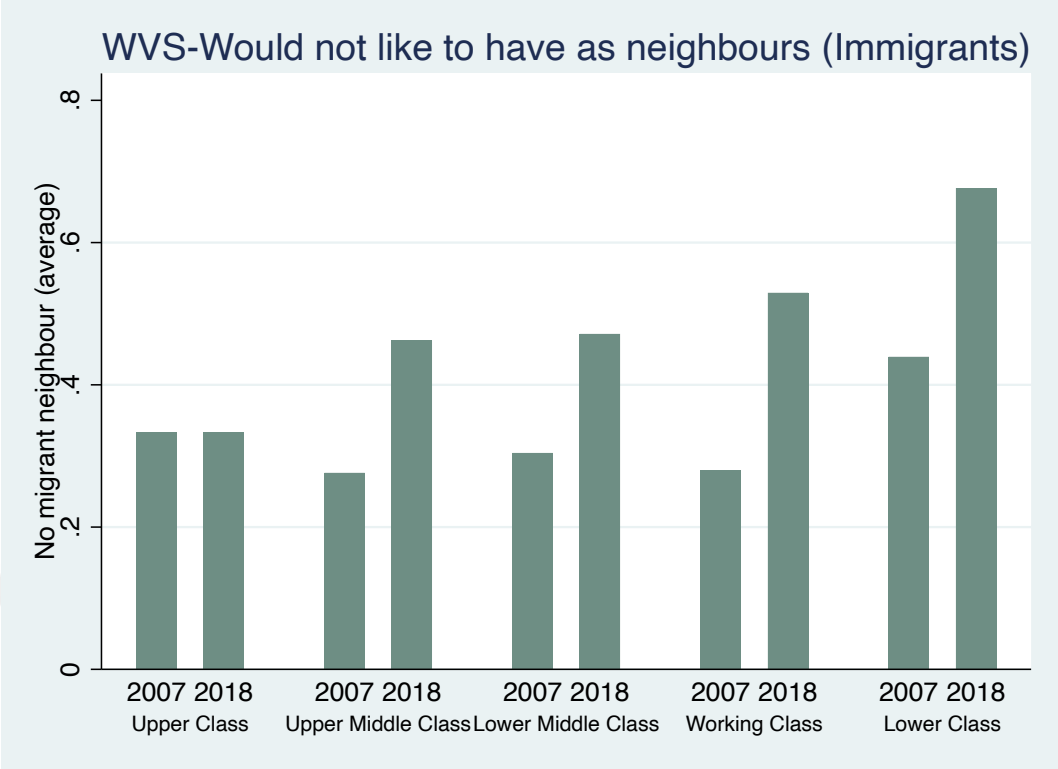

Figure 12. Share of people who do not want immigrant neighbors by subjective social classes. Note: respondents are asked the question, "Who would you not like to have as neighbors?" and the answer is coded 1 if the respondent says "immigrants" and 0 if they do not mention immigrants. Subjective social classes are respondents' subjective evaluations.

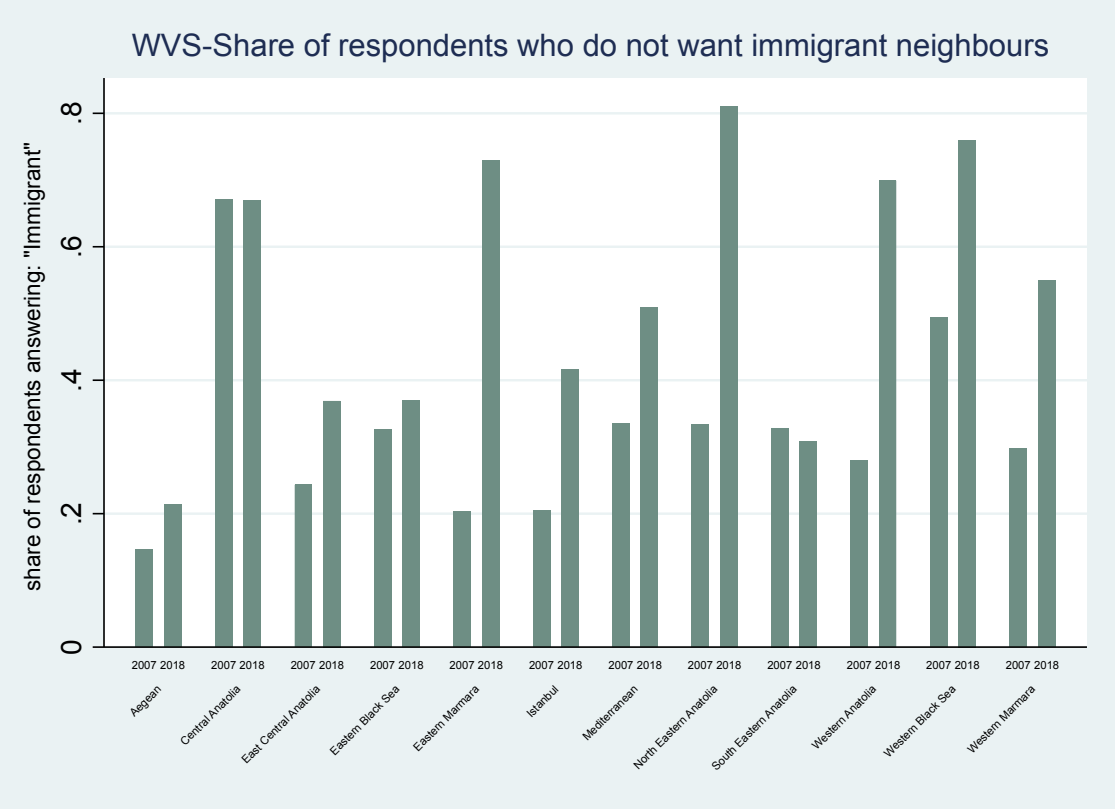

Figure 13. Share of people who do not want immigrant neighbors by NUTS1 regions. Note: respondents are asked the question, “Who would you not like to have as neighbors?” and the answer is coded 1 if the respondent says “immigrants” and 0 if they do not mention immigrants. Regions are 12 NUTS1 regions in Turkey.

APPENDIX B

TABLES

Table 1. Demographic Comparison Between Syrian and Turkish Population

Demographic Comparison Between Syrian and Turkish Population				
	2017		2013	
	Syrians	Turkish	Syrians	Turkish
Female	49,2	49,9	48,6	49,9
Male	50,8	50,1	51,4	50,1
0-12 years	30,10%	24,3	34	26,7
13-18 years old	13,1	8	14,9	8,9
19-54 years old	51,2	55,4	45	53,4
55-64	3,2	4,1	3,7	3,7
65+	1,3	7,9	2,4	7,3
Illiterate	23	2,5	18,8	3,1
Literate	14,5	11,1	9,5	21,2
Primary school	26	12,76	33	20,1
Secondary school	15,8	40,8	19,4	27,4
Highschool	12,4	18,9	9,6	17,53
College+	8,4	13,7	9,7	10,5
Single	53,5	26,5	30	26,6
Divorced	0,5	3,9	0,5	3,4
Widowed	2,4	5,1	3	5,1
Married	47,7	64,3	66,5	64,9

Notes: This graph is created using AFAD reports from 2013 and 2017 for Syrian refugees and TURKSTAT MEDAS for Turkish demographics.

Table 2. The Syrian to Native Population Ratios in Top-Refugee Hosting Provinces

Provinces	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Adana	0,0010079	0,006654	0,015197	0,046298	0,0670217	0,0722157	0,0962559	0,10679788	0,11117974	0,11323632	0,11306814
Adiyaman	0,0019151	0,012642	0,011116	0,028718	0,0393968	0,043119	0,0463566	0,03950061	0,03504471	0,03571957	0,03654939
Gaziantep	0,0074475	0,049164	0,072013	0,127983	0,1610873	0,1657349	0,1948621	0,21289645	0,21993098	0,2179656	0,21773389
Hatay	0,005622	0,037113	0,072335	0,177236	0,241611	0,2570897	0,2762323	0,26868968	0,26922448	0,26374654	0,23285357
Kahramanmaras	0,0025982	0,017152	0,03018	0,054027	0,0755748	0,0823363	0,0789687	0,07855393	0,08053097	0,08114763	0,08249278
Kayseri	0,000112	0,000739	0,003866	0,02205	0,0375768	0,0457537	0,0540795	0,0551112	0,05522521	0,05764066	0,05859124
Kilis	0,0324442	0,214176	0,361033	0,71455	0,9417579	0,9295185	0,8943419	0,80878834	0,7727908	0,74926203	0,66364794
Malatya	0,0009743	0,006432	0,0058	0,016216	0,0238829	0,0297103	0,0353431	0,03640874	0,03684971	0,03891419	0,03983609
Mardin	0,0053644	0,035413	0,053647	0,08805	0,1171736	0,113016	0,1111206	0,10504389	0,09815846	0,10565547	0,10534136
Mersin	0,0004144	0,002735	0,014016	0,054482	0,0772449	0,0901338	0,1138097	0,11111156	0,11733819	0,12569356	0,12816905
Osmaniye	0,0040989	0,027058	0,022877	0,053269	0,076614	0,0867358	0,0943868	0,0920908	0,09072806	0,08506933	0,07619839
Sanliurfa	0,0073467	0,048498	0,135864	0,149805	0,2047735	0,2179791	0,2309248	0,21038993	0,20515776	0,20145285	0,18527446

Table 3. Summary Statistics of the Variables in Regressions

	2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
Variables	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Rental index	57,060	9,155	57,380	9,169	59,084	8,421	63,624	7,408	81,078	10,560	87,300	10,025	93,594	7,332	100,000	0,000	106,697	6,776	114,870	11,876	123,494	17,145	135,540	22,278
Sale index	50,192	10,350	52,443	10,331	55,211	9,256	59,476	7,220	76,476	9,575	83,738	8,372	90,571	4,887	100,000	0,000	107,547	5,561	120,500	12,179	132,192	16,105	147,730	19,922
Rental index (log real)	4,552	0,160	4,494	0,159	4,464	0,144	4,441	0,118	4,621	0,139	4,625	0,121	4,620	0,079	4,605	0,000	4,586	0,063	4,544	0,101	4,428	0,135	4,405	0,158
Sale index (log real)	4,416	0,209	4,398	0,201	4,392	0,171	4,373	0,128	4,563	0,131	4,586	0,103	4,589	0,054	4,605	0,000	4,595	0,051	4,592	0,099	4,498	0,119	4,495	0,132
Ratio	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,001	0,004	0,007	0,029	0,014	0,050	0,022	0,084	0,031	0,111	0,033	0,110	0,036	0,108	0,035	0,099
Married	0,651	0,022	0,650	0,022	0,649	0,022	0,647	0,020	0,651	0,030	0,649	0,028	0,648	0,027	0,632	0,041	0,630	0,039	0,629	0,038	0,628	0,036	0,626	0,033
Never married	0,267	0,023	0,266	0,022	0,265	0,021	0,264	0,021	0,259	0,043	0,260	0,041	0,259	0,041	0,281	0,060	0,282	0,058	0,282	0,057	0,281	0,056	0,281	0,054
Divorced	0,033	0,008	0,034	0,009	0,036	0,009	0,038	0,009	0,027	0,010	0,028	0,011	0,029	0,011	0,027	0,013	0,027	0,014	0,028	0,014	0,030	0,014	0,031	0,015
Widowed	0,049	0,006	0,050	0,006	0,050	0,006	0,050	0,006	0,063	0,014	0,063	0,014	0,063	0,014	0,061	0,016	0,061	0,016	0,061	0,016	0,061	0,016	0,061	0,016
Female	0,498	0,004	0,498	0,004	0,498	0,003	0,498	0,004	0,499	0,006	0,499	0,005	0,499	0,005	0,496	0,010	0,496	0,009	0,496	0,010	0,495	0,011	0,496	0,009
Male	0,502	0,004	0,502	0,004	0,502	0,003	0,502	0,004	0,501	0,006	0,501	0,005	0,501	0,005	0,504	0,010	0,504	0,009	0,504	0,010	0,505	0,011	0,504	0,009
Primary school	0,107	0,005	0,114	0,006	0,166	0,013	0,179	0,016	0,191	0,021	0,193	0,022	0,156	0,020	0,137	0,019	0,121	0,017	0,123	0,018	0,125	0,018	0,080	0,013
Secondary school	0,364	0,033	0,358	0,032	0,303	0,026	0,282	0,026	0,293	0,053	0,287	0,052	0,391	0,033	0,395	0,036	0,407	0,030	0,405	0,030	0,395	0,028	0,430	0,030
Illiterate	0,054	0,017	0,050	0,016	0,039	0,014	0,032	0,013	0,046	0,021	0,043	0,020	0,043	0,020	0,048	0,023	0,045	0,022	0,042	0,020	0,039	0,019	0,035	0,017
Literate	0,199	0,021	0,188	0,021	0,184	0,021	0,182	0,020	0,206	0,058	0,203	0,057	0,126	0,039	0,131	0,045	0,121	0,040	0,117	0,039	0,111	0,034	0,110	0,032
Highschool	0,194	0,022	0,195	0,019	0,208	0,018	0,210	0,016	0,178	0,034	0,175	0,033	0,178	0,032	0,178	0,037	0,188	0,038	0,190	0,038	0,200	0,038	0,208	0,034
College	0,082	0,024	0,095	0,026	0,100	0,026	0,114	0,028	0,085	0,022	0,098	0,024	0,106	0,025	0,111	0,028	0,118	0,028	0,124	0,029	0,130	0,029	0,137	0,030
Age 0-14	0,240	0,022	0,238	0,022	0,235	0,023	0,232	0,022	0,236	0,054	0,232	0,054	0,228	0,053	0,237	0,064	0,234	0,063	0,232	0,062	0,229	0,060	0,226	0,060
Age 15-24	0,166	0,008	0,163	0,008	0,160	0,007	0,158	0,007	0,165	0,017	0,165	0,017	0,164	0,018	0,173	0,028	0,173	0,027	0,171	0,027	0,168	0,026	0,165	0,025
Age 25-39	0,267	0,014	0,267	0,014	0,267	0,014	0,266	0,014	0,230	0,019	0,228	0,019	0,225	0,019	0,222	0,017	0,222	0,017	0,221	0,016	0,220	0,017	0,219	0,017
Age 40+	0,327	0,028	0,332	0,028	0,338	0,028	0,344	0,029	0,369	0,068	0,376	0,069	0,384	0,070	0,367	0,086	0,371	0,086	0,376	0,086	0,383	0,087	0,390	0,087
Average household size	3,743	0,257	3,729	0,269	3,603	0,293	3,540	0,294	3,667	0,792	3,592	0,741	3,517	0,703	3,687	0,947	3,623	0,875	3,557	0,827	3,525	0,794	3,446	0,753

Table 4. The Impact of Refugees on Rental Prices in Turkey Until 2019

	2003-2019							
Panel A	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Rental Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	-0.344**	-0.152	-0.403*	-0.261	-1.075***	-0.717***	-0.935***	-0.712***
	[0.143]	[0.235]	[0.219]	[0.233]	[0.217]	[0.268]	[0.280]	[0.228]
Observations	654	654	654	654	654	654	654	654
R-squared	0.729	0.817	0.783	0.800	0.719	0.813	0.778	0.797
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls								
	2008-2019							
Panel B	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Rental Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	-0.146	-0.162	-0.251	-0.295	-0.670***	-0.677***	-0.672***	-0.567**
	[0.123]	[0.205]	[0.173]	[0.256]	[0.207]	[0.242]	[0.244]	[0.245]
Observations	619	619	619	619	619	619	619	619
R-squared	0.791	0.812	0.801	0.824	0.787	0.809	0.798	0.823
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls	+	+	+	+	+	+	+	+

Note: ***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. The dependent variable is the natural logarithm of the real rental price index in Turkey. Controls include the share of the population with different categories of education levels, marital status, age groups, and the mean household sizes in Turkey. The regressions are population-weighted. The first row in each column corresponds to the main variable of interest, which is the ratio of the Syrian population to the Native population in each province. Standard errors are robust standard errors and clustered at the province level.

Table 5. The Impact of Refugees on Rental Prices in Turkey Until 2017

	2003-2017							
Panel A	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Rental Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	-0.361**	-0.169	-0.246	-0.148	-1.263***	-0.837**	-0.916***	-0.697***
	[0.148]	[0.295]	[0.243]	[0.220]	[0.294]	[0.358]	[0.319]	[0.220]
Observations	492	492	492	492	492	492	492	492
R-squared	0.742	0.852	0.805	0.821	0.727	0.846	0.798	0.816
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls								
	2008-2017							
Panel B	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Rental Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	-0.147	-0.220	-0.197	-0.279	-0.659***	-0.608**	-0.571***	-0.628**
	[0.110]	[0.233]	[0.161]	[0.211]	[0.201]	[0.268]	[0.196]	[0.252]
Observations	457	457	457	457	457	457	457	457
R-squared	0.814	0.856	0.833	0.846	0.809	0.854	0.831	0.844
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls	+	+	+	+	+	+	+	+

Note: ***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. The dependent variable is the natural logarithm of the real rental price index in Turkey. Controls include the share of the population with different categories of education levels, marital status, age groups, and the mean household sizes in Turkey. The regressions are population-weighted. The first row in each column corresponds to the main variable of interest, which is the ratio of the Syrian population to the Native population in each province. Standard errors are robust standard errors and clustered at the province level.

Table 6. The Impact of Refugees on Rental Prices in Turkey Until 2015

	2003-2015							
Panel A	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Rental Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	-0.215	-0.156	0.035	0.048	-1.254*	-1.201*	-0.993*	-0.743*
	[0.290]	[0.478]	[0.431]	[0.410]	[0.641]	[0.662]	[0.549]	[0.380]
Observations	330	330	330	330	330	330	330	330
R-squared	0.826	0.908	0.863	0.875	0.819	0.903	0.857	0.871
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls								
	2008-2015							
Panel B	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Rental Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	-0.052	-0.457	-0.070	-0.280	-0.838**	-1.526***	-0.872***	-1.059***
	[0.214]	[0.386]	[0.304]	[0.273]	[0.364]	[0.428]	[0.333]	[0.402]
Observations	295	295	295	295	295	295	295	295
R-squared	0.903	0.946	0.920	0.931	0.898	0.939	0.916	0.928
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls	+	+	+	+	+	+	+	+

Note: ***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. The dependent variable is the natural logarithm of the real rental price index in Turkey. Controls include the share of the population with different categories of education levels, marital status, age groups, and the mean household sizes in Turkey. The regressions are population-weighted. The first row in each column corresponds to the main variable of interest, which is the ratio of the Syrian population to the Native population in each province. Standard errors are robust standard errors and clustered at the province level.

Table 7. The Impact of Refugees on Rental Prices in Turkey Until 2013

	2003-2013							
Panel A	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Rental Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	0.551	0.305	0.492	0.757	0.300	-0.611	-0.471	0.857
	[0.543]	[0.724]	[0.631]	[0.649]	[1.381]	[1.635]	[1.313]	[0.902]
Observations	187	187	187	187	187	187	187	187
R-squared	0.937	0.955	0.947	0.952	0.937	0.955	0.947	0.952
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls								
	2008-2013							
Panel B	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Rental Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	0.537	-0.242	0.128	0.194	-0.034	-1.622**	-0.693	-0.418
	[0.495]	[0.870]	[0.885]	[1.013]	[0.497]	[0.810]	[0.626]	[0.700]
Observations	152	152	152	152	152	152	152	152
R-squared	0.982	0.992	0.985	0.986	0.981	0.991	0.985	0.986
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls	+	+	+	+	+	+	+	+

Note: ***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. The dependent variable is the natural logarithm of the real
housing sale price index in Turkey. Controls include the share of the population with different categories of education levels, marital status,
age groups, and the mean household sizes in Turkey. The regressions are population-weighted. The first row in each column corresponds
to the main variable of interest: the ratio of the Syrian population to the Native population in each province. Standard errors are robust standard errors and clustered at the province level.

Table 8. The Impact of Refugees on House Sale Prices in Turkey Until 2019

	2003-2019							
Panel A	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Sale Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	-0.801***	-0.338	-0.633**	-0.454	-1.743***	-0.789**	-1.083***	-0.728***
	[0.207]	[0.293]	[0.306]	[0.277]	[0.301]	[0.384]	[0.379]	[0.272]
Observations	654	654	654	654	654	654	654	654
R-squared	0.734	0.855	0.794	0.817	0.720	0.853	0.791	0.817
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls								
	2008-2019							
Panel B	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Sale Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	-0.360***	-0.359	-0.496**	-0.510*	-0.862***	-0.826***	-0.874***	-0.776***
	[0.136]	[0.231]	[0.218]	[0.280]	[0.249]	[0.253]	[0.293]	[0.255]
Observations	619	619	619	619	619	619	619	619
R-squared	0.837	0.873	0.850	0.867	0.834	0.870	0.849	0.867
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls	+	+	+	+	+	+	+	+

Note: ***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. The dependent variable is the natural logarithm of the real housing sale price index in Turkey. Controls include the share of the population with different categories of education levels, marital status, age groups, and the mean household sizes in Turkey. The regressions are population-weighted. The first row in each column corresponds to the main variable of interest: the ratio of the Syrian population to the Native population in each province. Standard errors are robust standard errors and clustered at the province level.

Table 9. The Impact of Refugees on House Sale Prices in Turkey Until 2017

	2003-2017							
Panel A	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Sale Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	-0.643***	-0.283	-0.308	-0.189	-1.757***	-0.823	-0.923**	-0.576*
	[0.224]	[0.376]	[0.309]	[0.266]	[0.421]	[0.516]	[0.428]	[0.313]
Observations	492	492	492	492	492	492	492	492
R-squared	0.760	0.893	0.821	0.834	0.745	0.890	0.817	0.833
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls								
	2008-2017							
Panel B	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Sale Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	-0.269*	-0.426	-0.365*	-0.407*	-0.772***	-0.803**	-0.756***	-0.799***
	[0.137]	[0.304]	[0.214]	[0.234]	[0.262]	[0.328]	[0.242]	[0.239]
Observations	457	457	457	457	457	457	457	457
R-squared	0.883	0.930	0.907	0.914	0.881	0.929	0.906	0.913
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls	+	+	+	+	+	+	+	+

Note: ***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. The dependent variable is the natural logarithm of the real housing sale price index in Turkey. Controls include the share of the population with different categories of education levels, marital status, age groups, and the mean household sizes in Turkey. The regressions are population-weighted. The first row in each column corresponds to the main variable of interest: the ratio of the Syrian population to the Native population in each province. Standard errors are robust standard errors and clustered at the province level.

Table 10. The Impact of Refugees on House Sale Prices in Turkey Until 2015

	2003-2015							
Panel A	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Sale Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	-0.383	-0.241	0.020	0.159	-1.529*	-1.099	-0.903	-0.326
	[0.339]	[0.633]	[0.560]	[0.510]	[0.785]	[0.964]	[0.808]	[0.649]
Observations	330	330	330	330	330	330	330	330
R-squared	0.830	0.915	0.857	0.866	0.824	0.912	0.854	0.865
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls								
	2008-2015							
Panel B	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Sale Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	-0.055	-0.609	-0.119	-0.272	-0.711**	-1.508***	-0.798*	-0.891**
	[0.222]	[0.506]	[0.364]	[0.328]	[0.323]	[0.571]	[0.424]	[0.405]
Observations	295	295	295	295	295	295	295	295
R-squared	0.929	0.971	0.948	0.956	0.927	0.968	0.946	0.955
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls	+	+	+	+	+	+	+	+

Note: ***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. The dependent variable is the natural logarithm of the real housing sale price index in Turkey. Controls include the share of the population with different categories of education levels, marital status, age groups, and the mean household sizes in Turkey. The regressions are population-weighted. The first row in each column corresponds to the main variable of interest: the ratio of the Syrian population to the Native population in each province. Standard errors are robust standard errors and clustered at the province level.

Table 11. The Impact of Refugees on House Sale Prices in Turkey Until 2013

	2003-2013							
Panel A	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Sale Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	0.934	0.988	1.353	1.611	0.929	0.736	0.918	2.344
	[0.764]	[1.213]	[1.069]	[1.180]	[1.978]	[2.364]	[1.894]	[1.689]
Observations	187	187	187	187	187	187	187	187
R-squared	0.930	0.950	0.936	0.939	0.930	0.950	0.936	0.939
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls								
	2008-2013							
Panel B	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Real Sale Index	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	0.718	0.151	0.800	1.066	0.417	-0.972	0.170	0.561
	[0.583]	[1.306]	[1.357]	[1.548]	[0.611]	[1.453]	[1.238]	[1.236]
Observations	152	152	152	152	152	152	152	152
R-squared	0.980	0.992	0.983	0.984	0.980	0.992	0.983	0.984
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls	+	+	+	+	+	+	+	+

Note: ***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. The dependent variable is the natural logarithm of the real housing sale price index in Turkey. Controls include the share of the population with different categories of education levels, marital status, age groups, and the mean household sizes in Turkey. The regressions are population-weighted. The first row in each column corresponds to the main variable of interest: the ratio of the Syrian population to the Native population in each province. Standard errors are robust standard errors and clustered at the province level.

Table 12. The Impact of Refugees on Construction Permits Until 2019

	2007-2019							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Apartment Permits	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	1.2625	0.7002	0.5076	0.8045	1.9368**	1.0486*	1.0696***	1.4528***
	[0.7996]	[0.7063]	[0.5554]	[0.6373]	[0.8211]	[0.6078]	[0.3661]	[0.3776]
Observations	1,052	1,052	1,052	1,052	1,052	1,052	1,052	1,052
R-squared	0.9556	0.9610	0.9584	0.9662	0.9554	0.9610	0.9583	0.9661
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Population control	+	+	+	+	+	+	+	+

Note: ***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. Ratio is the Syrian to native population for each 81 provinces in Turkey. Standard errors are clustered at the province level. The regressions are estimated at the province-year level.The dependent variable is the natural logarithm of the number of apartment permits in Turkey. The regressions are population-weighted.

Table 13 The Impact of Refugees on Construction Permits Until 2013

	2007-2013							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Log) Apartment Permits	OLS	OLS	OLS	OLS	IV	IV	IV	IV
Ratio	10.5270***	7.5696***	7.1070***	9.2785***	11.6120***	8.7583***	8.1038***	10.8574***
	[2.3940]	[2.5575]	[2.0751]	[2.8121]	[2.3595]	[2.0608]	[1.7817]	[2.2935]
Observations	566	566	566	566	566	566	566	566
R-squared	0.9613	0.9637	0.9629	0.9719	0.9613	0.9637	0.9629	0.9719
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Populations controls	+	+	+	+	+	+	+	+

Note: ***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. Ratio is the Syrian to native population for each 81 provinces in Turkey. Standard errors are clustered at the province level. The regressions are estimated at the province-year level.The dependent variable is the natural logarithm of the number of apartment permits in Turkey. The regressions are population-weighted.

Table 14. The Impact of Refugees on Rental Prices in Turkey (Kilis dropped)

	2003-2019							
Panel A *(Log) Real Rental Index*	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) IV	(6) IV	(7) IV	(8) IV
Ratio	-0.189	0.008	-0.395	-0.266	-0.630***	-0.383	-0.771***	-0.718***
	[0.200]	[0.310]	[0.259]	[0.300]	[0.223]	[0.264]	[0.259]	[0.266]
Observations	646	646	646	646	646	646	646	646
R-squared	0.667	0.741	0.699	0.709	0.664	0.739	0.697	0.707
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls								
	2008-2019							
Panel A *(Log) Real Rental Index*	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) IV	(6) IV	(7) IV	(8) IV
Ratio	-0.504**	-0.380	-0.639**	-0.781**	-1.101***	-1.005***	-1.209***	-1.299***
	[0.234]	[0.285]	[0.295]	[0.348]	[0.276]	[0.312]	[0.384]	[0.394]
Observations	611	611	611	611	611	611	611	611
R-squared	0.727	0.764	0.737	0.762	0.724	0.761	0.735	0.760
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls	+	+	+	+	+	+	+	+

Note: ***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. The dependent variable is the natural logarithm of the real rental price index in Turkey. Controls include the share of the population with different categories of education levels, marital status, age groups, and the mean household sizes in Turkey. Kilis is dropped from the regressions. The first row in each column corresponds to the main variable of interest: the ratio of the Syrian population to the Native population in each province. Standard errors are robust standard errors and clustered at the province level.

Table 15. The Impact of Refugees on Sale Prices in Turkey (Kilis dropped)

	2003-2019							
Panel A *(Log) Real Sale Index*	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) IV	(6) IV	(7) IV	(8) IV
Ratio	-0.911***	-0.441	-0.900***	-0.773***	-1.296***	-0.721**	-1.160***	-1.054***
	[0.187]	[0.293]	[0.339]	[0.290]	[0.208]	[0.316]	[0.357]	[0.277]
Observations	646	646	646	646	646	646	646	646
R-squared	0.597	0.710	0.648	0.678	0.593	0.709	0.646	0.677
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls								
	2008-2019							
Panel B *(Log) Real Sale Index*	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) IV	(6) IV	(7) IV	(8) IV
Ratio	-0.825***	-0.719***	-0.981***	-1.032***	-1.297***	-1.217***	-1.470***	-1.475***
	[0.216]	[0.254]	[0.298]	[0.280]	[0.255]	[0.385]	[0.461]	[0.397]
Observations	611	611	611	611	611	611	611	611
R-squared	0.656	0.712	0.669	0.709	0.653	0.709	0.666	0.707
Year FE	+	+	+	+	+	+	+	+
Province FE	+	+	+	+	+	+	+	+
12 region trends		+				+		
5 region trends			+				+	
5 region year FE				+				+
Demographic controls	+	+	+	+	+	+	+	+

Note: ***, **, and * refer to 1%, 5%, and 10% significance levels, respectively. The dependent variable is the natural logarithm of the real housing sale price index in Turkey. Controls include the share of the population with different categories of education levels, marital status, age groups, and the mean household sizes in Turkey. Kilis is dropped from the regressions. The first row in each column corresponds to the main variable of interest: the ratio of the Syrian population to the Native population in each province. Standard errors are robust standard errors and clustered at the province level.

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