MPRA
Munich Personal RePEc Archive

Buying citizenship: A boon to district-level house prices in Istanbul

Gunduz, Lokman and Genc, Ismail H. and Aysan, Ahmet Faruk

7 May 2021

Online at https://mpra.ub.uni-muenchen.de/110028/
MPRA Paper No. 110028, posted 10 Oct 2021 23:31 UTC

Buying citizenship: A boon to district-level house prices in Istanbul

Lokman Gunduz[a], Ismail H. Genc[b] and Ahmet Faruk Aysan[c,*]

Abstract

Citizenship by investment (CBI) programs have recently garnered significant academic and media attention. Turkey introduced such a program in 2017 that offers citizenship in exchange for investment in residential property. Eventually, thousands of foreigners, mainly from the Middle East and Asia have purchased houses, particularly in Istanbul. Foreigners' share in total houses sold in Istanbul almost sextupled and exceeded 10 percent of total sales. This study estimates the short-run impact of relatively wealthy foreigners on the residential property prices in Istanbul to buy a Turkish passport. It finds that the Turkish CBI program positively impacts house prices by two percent in the districts, which are likely to be favored most by immigrant investors.

Keywords: Citizenship by investment program; house prices; immigration; Istanbul

JEL codes: C21; J15; R38; R21.

[a] *Fatih Sultan Mehmet Vakif University, Department of Management, Istanbul, Turkey. E-mail:lgunduz68@gmail.com*

[b] *American University of Sharjah, School of Business Administration, Department of Economics, Sharjah, U.A.E. E-mail: igenc@aus.edu*

[c,*] *Corresponding author. Hamad Bin Khalifa University, Doha, Qatar. E-mail: aaysan@hbku.edu.qa*

Buying citizenship: A boon to district-level house prices in Istanbul

1. Introduction

There is a proliferation of investment-based migration programs in recent years (Gamlen et al., 2019; Surak, 2020; Dzankic, 2019). Several countries across the globe try to attract investment by granting investors either residence or citizenship rights. These are featured in advertorials as "golden visa" and "golden passport" options. The former is a more common practice adopted by countries worldwide such as the USA, the UK, Canada, Belgium, Australia, Portugal, and Singapore.[1]. The latter is relatively new and includes both discretionary acquisitions of citizenship on the grounds of national economic interest and detailed citizenship by investment (CBI) programs (Dzankic 2018, 2019). Economic difficulties after the European debt crisis have led several European countries to launch either economic residency programs as in Portugal, Spain, Greece, and Ireland or citizenship by investment (CBI) programs as in the case of Malta and Cyprus (See, among others, Parker, 2016; Ampudia de Haro and Gaspar, 2019; Xu et.al. 2015).

This year marks the 37th anniversary of CBI programs. In simple terms, they refer to a direct exchange between a financial disbursement in the form of capital investment or property purchase and citizenship status. Several islands in the Caribbean Sea, including St. Kitts and Nevis and the Commonwealth of Dominica, have long-running CBI programs. In Europe, for example, Austria has the practice of granting citizenship to investors since 1985, but its regulation is less detailed than in the Caribbean islands, and it is more reliant on the discretionary power of the state authority. More recently, several CBI schemes have been introduced in small Caribbean countries such as Antigua and Barbuda, Grenada, and St. Lucia and in relatively large emerging countries such as Turkey (see Table 1). According to the Citizenship by Investment index (https://cbiindex.com/reports/) published by The Financial Times' Professional Wealth Management (PWM) magazine, fourteen countries offer their passports for sale to the wealthy as of 2020. There is an increase in the number of countries offering CBI schemes together with a substantial increase in their applicants (Dzankic, 2019). The global market for CBI programs is estimated to be around USD 25bn a year (Treanor and Nunis, 2019).

[1] By 2017, nearly half of the European Union member states host golden visa programs (Surak, 2020).

[Table 1 near here]

The CBI programs have an economic rationale. Cross-border capital flows into host countries can be substantial for small countries. For example, St. Kitts and Nevis witnessed significant inflows to its public sector alone, reaching nearly 25 percent of GDP in 2013 (Xu et al., 2015). In addition to such direct effects, these programs can also lead to positive spillover effects in some sectors depending on the design and magnitude of the program. Lately, CBI schemes are very popular with real estate options where investment in residential houses is offered to acquire citizenship. Foreign investment in real estate is expected to increase real estate prices. It is reported that it led to a boom in the construction sector in St. Kitts and Nevis in 2015 and boosted the price of luxury real estate in Portugal in 2012 (Xu et al., 2015). Leaving aside the extant literature on the impact of migration on house prices, there is, however, a shortage of empirical studies directly examining the relationship between the CBI programs and real estate prices. As a latecomer to the CBI club, Turkey offers a unique environment to investigate the impact of CBI schemes on local house prices. Its program particularly encourages investment in the property market. It does not require any other contribution to the government in some form of a registration fee or any additional non-refundable contribution to any government fund.

Turkey launched its CBI program in January 2017. In due course, it has witnessed a dramatic increase in house sales to foreigners and received a lot of public attention through extensive media coverage. Therefore, we aim to investigate the impact of this program on the residential house prices in Istanbul, where more than half of total house sales to foreigners have materialized during that period. We compare local house price movements in the short window immediately preceding and following the implementation of the CBI program in January 2017. We compare the effect of this program on the house prices in the districts of Istanbul with high immigrant concentration to the low immigrant concentration over the same period.

We base our assumption of destination choice of new immigrants on the concept of social networks according to which immigrants tend to live in districts with a large share of immigrants with a similar background or a shared ethnicity[2]. Card (2001) applied this assumption in the migration literature. It implies that the destination choice of current immigrants within the country is highly correlated with the number of compatriots already established in that specific destination (i.e., city, province, or region). We demonstrate that the

[2] One may see some of the related works of the authors as follows in the references: Aysan 2021, Aysan & Disli & Ozturk 2014, Aysan & Disli & Nagayev & Rizkiah & Salim 2021, Aysan & Ertek & Ozturk 2008, Aysan & Güler & Orman 2013a and Aysan & Nabli & Véganzonéz-Varoudakis 2008.

destination choice of current immigrants in Istanbul due to the Turkish CBI program has eventually contributed to an upsurge in house prices in several districts where the share of foreign-born Istanbul residents (i.e., immigrants) is relatively high. That is, we show that local house prices rise disproportionally more in districts with a higher foreign population density (more than five percent) after the implementation of the CBI program. We find that it had a positive impact on the house prices by two percent in the districts which are likely to be favored most by immigrant investors.

Our paper contributes to the extensive literature on the economic effects of immigration in three specific ways. First, there is less work directed toward understanding the effects of relatively better-off immigrants on housing markets. It should be noted that Turkey is not one of the top destinations for high-net-worth individuals (HNWIs) from developing countries. Therefore, relatively better-off or wealthy immigrants mentioned in this paper do not correspond to HNWIs. They instead designate persons whose investible wealth exceeds 250K US dollars. How wealthy foreigners (immigrants) affect local housing markets is an empirical question. It can directly increase the demand for housing, leading to an increase in local house prices. However, the preferences of domestic residents can offset the direct effects of wealthy foreigners. If residents would like to avoid cultural diversity, then 'native outflows' can offset the upward price pressure. Empirical evidence concerning the overall relationship between immigration and property prices is so far mixed. Some studies predict that immigration increases house prices because of an increase in demand for accommodation (Gonzalez and Ortega, 2013; Saiz, 2003 and 2007), while some others argue the opposite due to a decline in perceived desirability of new neighbors (Sa, 2015) or differences in housing tenure and usage of housing space between natives and immigrants (Braakmann, 2016). In a comprehensive meta-regression analysis, Larkin et al. (2019) find that immigration leads to an increase in house prices on average, but that effect is more limited in countries where locals are less hospitable to immigrants.

Our study is partly related to this strand of the literature but focuses on the impact of the CBI program on residential property prices *per se*. To the best of our knowledge, this is the first empirical paper examining the short-run impact of the CBI programs on the housing market. Second, most of the existing literature understandably focuses on the advanced countries as cited above due to the massive influx of immigrants. In emerging countries, there are arguably only a few papers studying the role of immigration on housing markets despite the increase in human and capital mobility (Kim et al., 2015; Kim 2017). In the case of Turkey, studies are

investigating the impact of refugees, but not that of immigrants or foreigners. For example, Balkan et al. (2018) and Tumen (2016) show that Syrian refugee inflows have generated an increase in the rents of higher-quality housing units in the neighboring cities in the southeastern part of Turkey. They argue that these lend support to the residential segregation story in the Turkish case. Our paper is undoubtedly different from them regarding motivation, driving force, location, and unit of analysis. Finally, our work contributes to the burgeoning literature on the determinants of real estate prices in Turkey. Most of the previous studies such as Yener et.al. (2020) and Tunc (2020) employ house price data at the countrywide level or province-level at best and emphasize the role of macroeconomic indicators such as capital inflows, interest rates, and disposable income or some regional dynamics such as population density, unemployment, climate, and education. Our study utilizes the district-level data, points to the role of the Turkish CBI program and the inflow of relatively wealthy foreigners as another determinant of house prices, at least in some specific districts of Istanbul. Last but not least, from a political economy perspective, the current CBI program can be considered not merely as another example of the commodification of citizenship but more of an extension of the financialization of housing where the state itself effectively continues to expand the scale and scope of the housing-finance nexus.[3] The design of the Turkish CBI program lends support to the understanding that the Turkish government places the utmost importance on the development of the construction industry and takes an active role to back it in times of economic slowdown.

The paper is organized as follows. The next section gives the context of Istanbul and citizenship by investment program. Then, methodology and data are explained in the following two sections. In section 5, empirical results are presented and discussed with implications. Finally, the last section concludes.

2. The context of Istanbul and citizenship by investment program

For a long time, Turks have considered Istanbul a city where its land and stone are made of gold. Decades-long internal migration has played a role in establishing this convention among the inhabitants. Only in 2016, the number of out-migrants exceeded those of in-migrants in Istanbul, but the trend reversed in 2019 partly due to a rise in its foreign-born residents.[4]

[3] See Erguven (2020) and Yesilbag (2020) for an extensive analysis of the financialization of housing in Turkey and Serin et al. (2020) for the role of the state acting as a regulatory mechanism, a land developer, and a house builder in the commodification of urban space in Istanbul. Also, see Mavelli (2018) for a discussion of the relationship between citizenship by investment and neoliberal political economy.

[4] According to an address-based registration system published by the Turkish Statistical Institute, the number of abroad-born residents in Istanbul has quadrupled in 2019 up from 4,166 in 2017. Its share as a percent of the

Property investment in Istanbul has received increasing attention from foreign investors lately. The year 2019 was a record year in terms of total houses sold to foreigners in Turkey and Istanbul when house sale figures reached 45,483 and 20,857 respectively, up from 18,189 sales and 5,811 sales in 2016. More importantly, foreigners were responsible for almost 10 out of 100 house sales in Istanbul in 2019, which was 3 out of 100 houses in 2016 and 2017 (Figure 1) The strong growth in property sales to foreign buyers in recent years was not only due to robust tourism but more due to the introduction of the CBI program

[Figure 1 near here]

The Turkish property market has been open to foreign buyers since 2002 (Polat, 2019). However, only nationals of countries like Britain and Germany that allow Turkish citizens reciprocal rights were allowed to purchase properties in a few zones. These zones were abolished in 2005, and the reciprocity condition ended in 2012.[5] Since then, thousands of foreigners from Russia to GCC countries, which were previously banned, have successfully acquired properties in Turkey, most notably in Istanbul, in the Mediterranean resort city of Antalya, and the industrial city of Bursa. Foreigners could now buy up to 30 hectares of property (up from 2.5 hectares) without special permission. On the other hand, a significant policy change occurred when Turkey introduced its CBI scheme in January 2017 after July 15, 2016 coup attempt, which sent a shockwave throughout the economy. Among the several options in the scheme, purchasing property was particularly attractive to get a Turkish passport, which required a minimum amount of USD 1 million investment. This amount was reduced due to financial woes starting in August 2018. New regulations were introduced in September 2018 and granted citizenship to foreigners in exchange for

i) purchasing real estate worth at least US$ 250,000, down from US$ 1 million;

ii) or putting US$ 500,000 into a fixed capital investment;

iii) or keeping at least US$ 500,000 in a Turkish bank account for a minimum of three years, down from the earlier cap of US$ 3 million;

---

increase in in-migration was 15.2 percent, which implies a significant contribution. The number of abroad-born residents in Istanbul has reached 16, 653 people in 2019 up from 4,166 in 2017. It represents almost 14 percent of net migration and 3.4 percent of net migration and in-migration of Istanbul respectively in 2019. The share of abroad-born residents in Istanbul was less than 1 percent of total in-migration in 2017.

[5] Under article 35 of the Land Registry Law No. 2644, amended by Law No. 6302, Turkey allowed citizens of 183 states to purchase real estate property in Turkey without being subject to any reciprocity principles as of May 18, 2012.

iv) or generating 50 jobs, down from 100 jobs. [6]

This scheme was widely seen as a bid to stimulate the slumping real estate market. It arrived after the Turkish Lira had already plummeted more than forty percent against the US dollar in August 2018 and economic activity in the real estate and construction industry continued to decline.[7] Later in December 2018, the Turkish government put another amendment that allows foreigners to apply for Turkish citizenship by purchasing real estates from unfinished or off-plan projects.[8] These rules have led to a real estate route in Turkey as one of the low-cost CBI programs, of which the immediate impact on the housing market was widely covered and commented on by the press.[9] According to the Turkish Statistical Institute, the number of houses sold to foreigners more than doubled, reaching 4,200 homes per month after September 2018. It reached an all-time high with 6,327 monthly sales in October 2018. The number of houses sold was about 41,151 units between January 2017 and August 2018, while it reached 67,288 homes between September 2018 and December 2019. Most of the foreign buyers are Turkey's neighboring countries. Iraqis, Iranians, and Saudis were the biggest buyers of Turkish property. According to 2019 cumulative statistics, Arab countries, including Iraq, Saudi Arabia, Kuwait, Jordan, Yemen, Palestine, Libya, Egypt, Qatar, and Lebanon, constitute 42 percent of total foreign buyers. Iranians follow them with a 12 percent share. Nationals of advanced countries, including Germany, the UK, Sweden, and the US, have 10 percent. The rest of the countries are Russia (5 percent), Afghanistan (5 percent), and Azerbaijan (3 percent).

There is limited information regarding the overall number and breakdown of foreigners acquiring citizenship due to their investment in Turkey. Ministry of Internal Affairs stated that overall more than 9000 foreign investors have benefited from the Turkish CBI program and invested in around USD 2.8 billion within three years, and the overwhelming majority of the

[6] See the Presidential Decree No. 106 published in the Official Gazette dated September 19, 2018

[7] By the end of the last quarter of 2018, the Turkish economy went into recession. See also real estate sector reports in Turkey available at https://www.gyoder.org.tr/uploads/gyoder_gosterge/GOSTERGE-CEYREK1-2019-ING-_1_.pdf [Accessed 30 September 2020].

[8] See the Presidential Decree No. 418 in the Official Gazette dated December 7, 2018

[9] See, for example, "Turkish passport demand soars as rules relaxed", *The Financial Times,* Jan 27, 2019; Foreign Buyers Flood Turkey's Struggling Housing Market, *Mansion Global*, January 2019; Turkish property sales to foreigners keep up with strong performance, post all-time high in 5 months of 2019, *Daily Sabah*, Jun 17, 2019; "Property sales to foreigners hit record levels in Turkey", *TRTWorld,* Apr 18, 2019; Passport demand soars after Turkey slashes cost, *Ahval News*, Jan 28, 2019."Iranian home buyers dodge sanctions, make Turkey their plan B, *Reuters,* October 1, 2019, available at https://www.reuters.com/article/us-turkey-iranians-idUSKBN1WG3ON; "Saudis snap up homes in Turkey as top foreign buyers", *The Times,* 29 August 2019; "House Hunting in … Turkey" *The New York Times*, 9 Jan 2019.

investment has been realized in 2019.[10] Accordingly, Iranians occupy the top spot and have a share of 26 percent in the total number of citizenships granted. Nationals of Arab countries - those of Iraq, Yemen, Palestine, Jordan, Libya, and Egypt - represent 48 percent of the total citizenships granted. Other significant countries are Afghanistan, with a share of 15 percent, China, with a share of 8 percent, and Pakistan (3 percent).[11] Anecdotal evidence from the field, written press, and social media also suggest that Iranians, Arab nationals, and Afghan people are interested in investing in the Istanbul property market and receiving citizenship in due course.[12] Relatively wealthy nationals of Iraq, Iran, Yemen, Libya, and Afghanistan reasonably would prefer to invest in the property market to get a Turkish passport. These countries suffer a lot from recent political and economic uncertainties in their homelands. Correspondingly, Badarinza and Ramadorai (2018) emphasize the role of foreigners facing political risk in their home countries and foreign demand as an important determinant of London house prices. Indeed, several foreign investors designate Turkey as a haven, an open society, and a more Europeanized country. Besides, a Turkish passport allows them to travel more freely across the globe with more visa-free travel options than their home countries' passports (Wither and Erkoyun, 2019).

2.1.Migrant networks and segregation in Istanbul

Turkey has been experiencing an influx of foreigners for a long time as a country of transit to the European Union for irregular migrants and a country of refugees for asylum seekers. More recently, it has also become a country of immigration as a result of intense migratory movements over the last three decades (among others, see İçduygu and Kirişci, 2009; Kirişci, 2007). In particular, Istanbul has become a top destination for movers from the Middle East, Africa, and Asia through migrant networks. Migrant networks are sets of interpersonal ties connecting movers, former movers, and non-movers in countries of origin and Istanbul through social connections, which are primarily based on kinship and friendship.

---

[10] https://www.aa.com.tr/tr/ekonomi/yabanci-yatirimcidan-2-milyar-771-milyon-250-bin-dolarlik-katki/1748243 retrieved as of November 30, 2020. From a comparative perspective, Turkey's figures seem satisfactory, as well. For example, Portugal conceded 6,687 golden visas between 2012 and 2018 (Gaspar and de Haro, 2019). Malta has received 1742 applications since the inception of the individual investor program as of 30 June 2019. Available at https://oriip.gov.mt/en/Documents/Reports/Annual%20Report%202019.pdf. [Accessed 30 November 2020]. See also Surak (2020) to compare the number of applications with the EU member countries.

[11] (http://www.yourkeyturkey.gov.tr/citizen ship-statistics).

[12] One can also examine Google Trends to get an understanding of how the Turkish CBI program has become popular over time. It shows that there is a worldwide increase in the search interest for the terms "Citizenship by Investment Turkey" or "Turkey passport" after the policy change in September 2018. Investors from the Arab countries, Iran, and Pakistan have shown greater interest after the policy change which was probably materialized later in official house sale statistics (see Google Trends).

After continuous waves of immigration to Istanbul starting from the 1980s, it is very likely to observe a "cumulative causation" whereby multiple ties to communities or origin facilitate ongoing and at times increasing migration (Massey et al., 1993; Massey, 1994; Wilson, 1994). For instance, İçduygu and Karadağ (2018) and Kaya (2017) show how new migrants and refugees join the old settlers in particular locations and tend to live in Istanbul, primarily by coming through their networks of relatives and friends. As observed in several countries, foreigners, particularly those with the same community, ethnicity, and culture, prefer to live together in the same neighborhood or district. Indeed, some of the districts of Istanbul are associated with the spatial concentration of particular migrant networks. Some of the prominent ones are the Syrian community in Zeytinburnu, Küçükçekmece, Fatih, Bağcılar and Sultanbeyli districts, Iraqi community in Fatih and Esenyurt districts, Afghan community in Zeytinburnu and Beykoz districts, Chinese nationals from Xinjiang Uygur Autonomous Region of China in Zeytinburnu, Kucukcekmece and Silivri districts, and Syrian Turkmens in Esenler district.[13] Subsequently, an obvious outcome of such a spatial concentration is the segregation from the broader local population, which refers to the segregated geographies of neighborhoods or districts reflecting a history of immigration, internal migration, class, and intergroup ethnic and racial relations, and conflict (Newbold, 2021). Parallel to the findings of the related literature, Istanbul broadly seems to display two different patterns of residential segregation (Zelinsky and Lee, 1998; Allen and Turner, 1996; Price and Singer, 2008; İçduygu and Millet, 2016). On the one hand, most immigrants continue to settle in traditional and segregated enclaves in the inner city that offer less expensive housing, public transportation, and access to employment, such as Fatih and Zeytinburnu districts. On the other hand, new arrival groups bypass traditional inner-city enclaves to settle in more dispersed and new suburban areas such as Basaksehir and Esenyurt, reflecting different housing opportunities. In the latter case, more often, both poor and wealthier immigrants coexist in the same district, albeit in separate quarters reflecting their distinct level of economic characteristics. As most of them belong to the same ethnicity (i.e., Arab), it is easier to make friendship with co-ethnics. As known very well, immigrants are more likely to have strong ties to co-ethnics and family members in the host country (Fietz and Kaschowitz, 2019; Viruell-Fuentes et al., 2013). Moreover, immigrants can talk to each other in their mother tongue and maintain familiar habits in a different culture, which keep them well-grounded (Jasinskaja-Lahti et al., 2006). In fact, in Istanbul, a common language seems to be more relevant than the common country in determining the geographical boundary of immigrant

[13] The United Nations Migration Agency situation and migration reports. Available at https://migration.iom.int

enclaves. It is an essential factor that separates immigrants from Turkish citizens, as well (Kaya, 2017). [14]

3. Methodology

We employ the difference-in-differences (DiD) approach to identify house price variation in the districts of Istanbul before and after the implementation of the CBI program, which we treat as an exogenous shock. In a similar fashion to Badarinza and Ramadorai (2018), we conjecture that districts of Istanbul with relatively high pre-existing shares of foreign-born residents are preferred habitats for foreign property purchases. Moreover, Bailey et al. (2020) show that social connectedness is a strong predictor for migration. Theoretically, homophily is known to be an important explanatory factor for the configuration of personal networks (McPherson et al., 2001). For example, leaving aside numerous cases in developed countries, Kim et al. (2015) show that the location of foreign-owned houses is linked to the geography of ethnic clusters in Seoul, Korea. The assumption that new immigrants tend to locate in areas with a large share of immigrants of the same origin or ethnicity is well known in the literature and mentioned above. If this conjecture were right, we would expect to see relatively higher house prices in these specific districts of Istanbul than other districts after the implementation of the CBI program. Accordingly, we define our control group as the districts where the proportion of the foreign population (i.e., immigrants) is low, and our treatment group as the districts where the proportion of the foreign population is relatively higher. In other words, our empirical strategy relies on comparing house prices that are subject to larger compatriot inflows with those that are not, before and after January 2017. More specifically, the pre-treatment period includes the period between 2014m1 and 2016m12, while the post-treatment period spans from 2017m1 to 2019m11. We ignore the recent dates due to the impact of the Covid-19 pandemic. Tumen (2016) and Altindag et.al. (2020) have also adopted DiD approach in their analysis of the economic impact of Syrian refugees in Turkey.

To segregate the so-called immigrant and non-immigrant districts, in the relative sense, we sort the districts in terms of the share of the foreign population in the district population. Then, we assume that the first five districts with the highest foreign ratio make up a group. Afterward, we run a mean equality test between this group and the next district with the next share of the foreign population. If the mean does not statistically differ from this group, we add it to the

[14] There is certainly room for development and future research to better understand the nature of wealthy immigrants in Istanbul within the context of social/ethnic networks both at the conceptual and empirical level. Particularly an empirical study can contribute to a better understanding of motives for Turkish citizenship by investment program. We leave this issue for future work.

group and proceed to test the next group. We stop when we find a district with a statistically significantly different (smaller) share of the immigrant population. While the former constitutes our treatment, the latter becomes the control group of districts.

Given the short period, we also conjecture that the supply of housing is inelastic. The existing literature essentially confirms the expectation that the supply curve is inelastic in the short-run and elastic in the long-run (Harter-Dreiman, 2004). In other words, even in the case of an increase in demand for housing, the supply of housing will not immediately respond, as the construction of new houses will take time. More importantly, in an environment where the housing market is already struggling, entrepreneurs will not be eager to build more homes. As it takes time to build new houses, the housing supply is constant in the short run. Turkish Statistical Institute does not publish construction permits at the district level but Istanbul's aggregate data shows that average construction permits are even lower in the post-policy period, most likely due to worsening economic conditions.

Finally, we estimate the following difference-in-differences model

$$\ln(hp_{r,y,m}) = \beta_0 + \beta_1 DiD + f_r + f_y + f_m + X + \varepsilon_{r,y,m}$$

where hp represents real house prices in a certain district indexed by r. The year and month are indexed by y and m, respectively. The program's impact on house prices is given by variable DiD, which is defined as the multiplication of a dummy variable, which takes on a value of one for the post-treatment period, and another dummy for districts, which are classified as the treatment districts. f_j where $j = r, y, m$ are the fixed effects for the district, year, and month. In our models, we try both 'combined' time effects where year and month are assumed one period as well as 'decoupled' time effects. We estimate all models with clustering standard errors. X represents a set of other macroeconomic explanatory variables such as the real mortgage interest rates and real effective exchange rate of the Turkish Lira. These variables are common to all regions. Another variable that could potentially enter X is inflation. However, since all of our independent and dependent variables are real, i.e., already adjusted for inflation, we do not include it among the covariates. If X is not included among the explanatory variables, we have a simple DiD model. This is reported in the paper. Although not reported in the paper, we also estimate a random effect model when feasible for comparison purposes.

4. Data

Our dataset includes house prices at the district level in Istanbul and covers the period between 2014m1 and 2019m11, which we obtained from the Central Bank of the Republic of Turkey (CBRT). As the ownership details of the properties are mostly opaque and local registry data are not circulated, we are condemned to rely on time series data. Istanbul has 39 districts, out of which only 34 districts have house price data. The banks in Turkey extend individual housing loans based on the valuation reports prepared by real estate appraisal companies. The CBRT compiles the price data from these valuation reports at the time of approval of housing loans. The actual sale or utilization of the housing loan is not required, but all appraised residential properties are included in the scope of the data. These prices are then used as a proxy for each district's house prices after adjusted for quality changes related to housing characteristics. Our data are the monthly median price (in Turkish Lira) per square meter of these residential properties.[15]

We generate real mortgage interest rates by subtracting CPI inflation for Istanbul from the nominal mortgage interest rates. The CPI-based real effective exchange rates are directly obtained from the Central Bank (CBRT). All data are monthly for the period of 2014m1 and 2019m11.

There are two sources of information concerning the share of the foreign population in the districts to identify treatment and control groups. Turkish Statistical Institute publishes foreign-born population annually starting from 2014 at the district level based on the address-based census. It does not provide the nationality of those classified as foreign-born. Syrian refugees are normally not included in that registry because they are under temporary protection. We suspect that Syrian refugees make up for the majority of foreign-born residents who migrated to Istanbul after 2014.

The United Nations Migration Agency (International Organization for Migration - IOM) also publishes analysis reports based on the fieldwork in which the actual number of nationalities of the foreign population is provided at the district level in Istanbul. Therefore, there is a discrepancy in the number of the foreign population between the official and the fieldwork

[15] Please see for more detail: https://www.tcmb.gov.tr/wps/wcm/connect/EN/TCMB+EN/Main+Menu/Statistics/Real+Sector+Statistics/Residential+Property+Price+Index/

statistics because the fieldwork data include Syrian refugees and other unregistered foreigners.[16] The figures with the refugees and those without, however, correlate with each other closely. In other words, the foreigners (migrants and immigrants) and Syrian refugees seem to prefer living in the same districts, most likely due to sharing the same ethnicity, language, or other socio-cultural characteristics as mentioned above.[17] United Nations reports reveal that foreigners are primarily from Arab countries, Iran, Afghanistan, Turkmenistan, Uzbekistan, China, Pakistan, Azerbaijan, and Russian Federation. Consequently, we rely on the actual data from the fieldwork study in 2017 to utilize the share of the foreign population in each district. Irrespective of whether or not we include Syrian refugees in foreign population figures, members of the treatment and control groups do not change substantially.

[Figure 2 near here]

Figure 2 presents a visual display of our treatment and control groups based on the ratio of all foreigners to the local population in each district. Our treatment group consists of 17 districts, which are the districts with foreigners' concentration of more than 5 percent. These districts are Arnavutkoy, Avcılar, Bagcılar, Bahcelievler, Basaksehir, Bayrampasa, Beyoglu, Esenler, Esenyurt, Eyup, Fatih, Gaziosmanpasa, Gungoren, Kagithane, Kucukcekmece, Sultangazi, and Zeytinburnu. The control group of districts has a much lower ratio of foreigners to population, mostly less than two to three percent in many cases.

5. Results and Discussions

As outlined above, we treat the introduction of the CBI program in January 2017 as an exogenous shock and expect an increase in house prices due to a rise in the arrival of wealthy foreigners. As in Bertoli et al. (2019), we reason that the foreigners who would like to become Turkish citizens choose the destination with relatively a higher foreign population density of which most have similar origin or ethnicity. We present our results in Table 2. Model 1 in

[16] This is expected as there are too many unregistered foreigners. IOM's statistics depend on the information collected from local authorities in each neighborhood (namely from Mukhtars) and are expected to be accurate and timely.

[17] Syrian refugees in Turkey are not a party to the Turkish CBI program. The majority of the Syrian refugees are poor. However, they have an influential social network in the Arab world. Part of those residing in Istanbul is relatively well-educated and successful entrepreneurs. This is perhaps one of the reasons why the Turkish government has granted citizenship to over 90,000 Syrian refugees, most of whom live in Istanbul. Available at https://tr.euronews.com/2019/08/02/bakan-soylu-92-bin-suriyeliye-vatandaslik-verildi-suleyman-soylu and https://www.bbc.com/turkce/haberler-turkiye-49150143.

Column 1 in the table displays a simple DiD model without any covariates, whereas the two other models in Columns 2 and 3 present DiD models with covariates. In addition, all models employ clustered standard errors. As a precursor to the DiD estimation, we test the so-called parallel trend assumption and find the coefficient on an interaction term between a time trend and DiD coefficient insignificant.[18] The Adjusted R2 from the simple DiD model (Column 1) and the DiD model with covariates and decoupled time effects (Column 3) have about 98 percent explanatory power. However, the DiD model with covariates and combined time effects (Column 2) has a meager one percent explanatory power. Overall, our results from Table 2 show that the coefficient on DiD, which is the differences in house price across the treatment and control group, is statistically significant under different setups. In other words, the house prices in the treatment districts rise more than house prices in the control districts after the CBI program. The magnitude of this increase is about two percent, irrespective of the model specification.

Foreigners' share in total houses sold in Istanbul almost sextupled and exceeded 12 percent of total sales after introducing the CBI program. Assuming that most foreigners would have purchased homes in the treatment districts, its volume looks high. Besides, an increase in the number of Syrian refugees in the treatment districts would likely cause higher rent prices, hence house prices. Moreover, anecdotal evidence from the field shows that particular foreign investors avoid registering their ownership. Instead, they ask their naturalized Turkish relatives/friends to have ownership of the property. For instance, these people are said to be Chinese nationals from the Xinjiang Uygur Autonomous Region of China, and they keep their identity secret due to security reasons. These issues are hard to incorporate into the model, but they imply unregistered or unrecorded purchases by foreigners. Finally, a two percent difference in house prices seems a reasonable estimate and similar to those in some other countries. For instance, using a DiD approach, Pavlov and Sommerville (2020) recently found that unexpected suspension of the investor immigration program in Canada negatively impacted house prices of 1.7–2.6% in the neighborhoods and market segments favored by the investor immigrants.

Additionally, as obtained via Models 2 and 3, the real effective exchange rate coefficient is positive but only significant in Model 3. This suggests that an increase in the foreign exchange rate, which is the depreciation of the Turkish currency, would indirectly make a particular house

[18] See Cerulli and Ventura (2019) for testing the parallel-trend assumption.

cheaper, especially for foreigners. That would increase demand for houses, thus, increase house prices, ceteris paribus. However, the impact of the real effective exchange rate on real house prices is negligible. Numerically speaking, for every one-unit increase in the value of the foreign exchange, the house prices increase by about 0.31%. Although the negative coefficient on the real mortgage interest rates in Models 2 and 3 would be as expected, it is statistically insignificant in both models.

[Table 2. near here]

Our findings align with those of Gonzalez and Ortega (2013); Saiz (2003 and 2007); Degen and Fischer (2017); and Larkin et al. (2019), as opposed to Sa (2015) and Braakmann (2016) where the former group of authors also find a rise in house prices because of an increase in the immigration inflow. The likely counter impact of domestic residents' preferences to avoid living in the same districts, if they exist in the context of Istanbul, do not offset the aforementioned positive impact. It should be noted that average house prices in the control districts are higher than that of treatment districts in pre and after the CBI program. However, there is undoubtedly a need to investigate this issue further at the neighborhood level when microdata is available. The district-level data cannot easily reveal residents' preferences. For example, in a different context using micro-level data, Balkan et al. (2018) find that the massive influx of Syrian refugees in the southeastern part of Turkey has led to increased rents of higher quality housing units in the regions where residents live. Alternatively, wealthy foreigners appear to attenuate the adverse effects of immigrant volumes on house price levels. Their effects are similar to those resulting from foreign direct investment in residential real estate. Consequently, a sudden increase in foreigners' influx initiates a positive housing demand shock, especially in the districts of Istanbul with a higher density of foreign population. This is in line with the recent literature such as Kim et al. (2015) and Jun et al. (2013), which shows how the location of foreign-owned houses is linked to the geography of ethnic clusters in the case of Seoul, Korea.

Inevitably, one should need to take a degree of caution in interpreting overall results. First, what percentage of the foreign population constitutes a treatment district is an important issue. For this purpose, we also employed median as another cut-off level for foreign population concentration to determine the treatment districts. Additionally, we examined the sensitivity of results when we changed the reference year to 2014 and used the official data for the foreign-

born population, a year before the influx of Syrian refugees to Istanbul. To a large degree, the results are supportive of the significant impact of the CBI program on residential property prices. One can further argue that the policy change in the Turkish CBI program seems to contribute to some relaxation in the official treatment against foreigners. This is why Istanbul now hosts thousands of unregistered migrants, and their increasing numbers contribute to housing demand. Secondly, due to privacy and lack of micro-level data, it is challenging to identify the houses that foreign investors have purchased to acquire citizenship and compare their prices before and after the CBI program. It is, however, not unique to this study. In addition to the cautious and credible determination of treatment districts, wealthy foreigners mostly from Arab countries and Iran prefer to live in relatively high-quality apartments but with a shared culture and similar ethnicity in the same districts or neighborhoods lend support to our approach. Moreover, it should also be kept in mind that foreigners might not purchase real estate only for the sake of acquiring a Turkish passport. Foreigners from the Gulf countries and developed countries seem to belong to this group of investors.

Besides, Syrian refugees in Turkey are relatively poor. There seem to be two issues regarding Syrians in Istanbul. Most Syrian residents in Istanbul are from Aleppo, and Aleppo's entrepreneurs are known to have had strong social and commercial networks with their counterparts in Istanbul and Iraq dating back to the period of the Ottoman Empire. Put it simply, not all Syrians in Istanbul are poor, and at least a small part of them run their businesses successfully. In addition, those relatively wealthier and well-educated have already acquired Turkish citizenship. As a result, some Syrian refugees have easily settled in the districts where wealthy foreigners such as those from Iraq also live. Secondly, a common language seems to be more relevant than the same country or similar socio-economic background in determining the geographical boundaries of immigrant enclaves. That is one of the reasons why poor Syrians can settle in the same districts but in separate neighborhoods known to have bad housing conditions. As in other big metropolises, one can observe a good neighborhood near a worse one, both in the same district in Istanbul. The UN statistics from the field support our contention (please see, the United Nations Migration Agency situation and migration report. Available at https://migration.iom.int).

6. Conclusion

Citizenship by investment programs has recently garnered significant academic and media attention. Turkey introduced such a program in 2017 that offers citizenship in exchange for investment in residential property. Its program has become relatively cheap and encouraged

foreigners to apply for Turkish citizenship by purchasing real estate. Eventually, thousands of foreigners, particularly from the Middle East and Asia have bought houses in Istanbul. Foreigners' share in total houses sold in Istanbul almost sextupled and exceeded 10 percent of total sales.

In this paper, we show that the influx of foreigners after the introduction of the CBI program has eventually contributed to an upsurge in house prices of the districts of Istanbul in which the share of foreigners is relatively high. More specifically, local house prices rise disproportionally more in districts with a higher foreign population density (more than five percent) after the Turkish CBI program started. It has a positive impact on the house prices by two percent in the districts, which are likely to be favored most by investor immigrants. This finding is in contrast to previous results on immigration and real estate prices. It suggests that if immigrants are many and relatively better off, they can raise the house prices in the districts they choose to settle.

Our study has two broad policy implications. First, countries can attract more immigrants if they decrease the cost of immigrant investor programs -and vice versa. Second, if the CBI program mainly works through the real estate route, as in the case of Turkey, it can lead to changes in the house prices in particular locations. In that case, the economic benefits of the CBI may not accrue to the whole country or economy but some specific areas or sectors of the economy. One alternative would be to modify the design of the CBI programs so that it can help spread the inflows to other economic sectors and locations without generating excessive pressures in the construction and real estate sectors.

We acknowledge some limitations to this study. We were able to obtain data on house prices at the district level, but not at the individual house level or the foreign investor level. It is very challenging to get both monthly and local data, particularly in emerging markets. As such, our model essentially includes macro variables. There are undoubtedly several local demand/supply variables, including location-specific factors, that drive house prices. They vary from the local market conditions in a particular location to the quality of life and the amount of housing stock in that specific location. However, given the span of data, wild swings in the behavior of the market participants would be highly unlikely based on these variables. Furthermore, considering the worsening economic climate in Turkey at the time of the CBI program, we do not think that local demand/supply variables would respond quickly and differently to reduce the program's impact on house prices.

On the other hand, Turkey certainly needs a high level of transparency regarding its CBI program. Nonetheless, we hope to spark a much-needed research agenda around the CBI programs and their impact on real estate prices or investment. Additional empirical studies can enhance both the debates about these programs and our understanding of their consequences.

References

Allen, J. P., and E. Turner. 1996. "Spatial Patterns of Immigrant Assimilation." *Professional Geographer* 48(2), pp.140–155.

Altındag, O., O. Bakış, and S. V. Rozo. 2020. "Blessing or burden? Impacts of refugees on businesses and the informal economy." *Journal of Development Economics* 146, https://doi.org/10.1016/j.jdeveco.2020.102490.

Ampudia de Haro F., and S. Gaspar. 2019. "Buying citizenship? Chinese golden visa Migrants in Portugal." *International Migration* 58 (3), pp 58-72.

Aysan, A. F. (2021). Conceptualization of Uncertainty and Trust after the COVID-19 Outbreak, *Küresel Salgının Anatomisi: İnsan ve Toplumun Geleceği*, 517-535.

Aysan, A.F., Disli, M., Ozturk, H. (2014). Islamic banks, deposit insurance reform, and market discipline: evidence from a natural framework. *The Journal of Financial Services Research*, 51 (2), 257-282.

Aysan, A. F., Disli, M., Nagayev, R., Rizkiah, S. K. & Salim, K. (2021). In search of safe haven assets during COVID-19 pandemic: An empirical analysis of different investor types. Research in International Business and Finance, 58. https://doi.org/10.1016/j.ribaf.2021.101461

Aysan, A. F., Ertek, G., & Öztürk, S. (2008). How Does The Increasing Voluma of Interbank Funds Affect Bank Efficiency? *Physica A: Statictical Mechanics and its Applications*.

Aysan, A. F., Nabli, M. K., & Véganzonéz-Varoudakis, M. A. (2008), The role of Governance Institutions in Private Investment Decisions: The Case of Middle East and North Africa. Working Paper, *Economic Research Forum*, 1-34, [online] Available at: >https://www.researchgate.net/profile/Ahmet-Aysan-2/publication/241757202_The_Role_of_Governance_Institutions_in_Private_Investment_Decisions_The_Case_of_Middle_East_and_North_Africa/links/55162e590cf2b5d6a0ed36ca/The-Role-of-Governance-Institutions-in-Private-Investment-Decisions-The-Case-of-Middle-East-and-North-Africa.pdf> [Accessed 19 August 2021].

Badarinza C., and T. Ramadorai. 2018. "Home away from home? Foreign demand and London house prices." *Journal of Financial Economics*.130 No.3, pp. 532-555.

Bailey, M., P. Farrell, T. Kuchler, and J. Stroebel. 2020. "Social connectedness in urban areas." *Journal of Urban Economics*.119, https://doi.org/10.1016/j.jue.2020.103264

Balkan, B., E. Ö. Tok, H. Torun, and S. Tümen. 2018. "Immigration, housing rents, and residential segregation: Evidence from Syrian refugees in Turkey." *Discussion Paper Series*. 11611, IZA.

Bertoli, S., P. Paolo Cintia, F. Fosca Giannotti, E. Etienne Madinier, C. Ozden, M. Packard, D. Pedreschi, H. Rapoport, A. Sîrbu, and B. Speciale. 2019. "Integration of Syrian refugees: Insights from D4R, media events and housing market data", in Albert Ali Salah, Alex Pentland, Bruno Lepri, and Emmanuel Letouzé (Ed.), *Guide to Mobile Data Analytics in Refugee Scenarios*, Springer.

Braakmann, N. 2016. "Immigration and the property market: Evidence from England and Wales." *Real Estate Economics* 47(2), 509-533.

Card, D. 2001. “Immigrant inflows, native outflows, and the local market impacts of higher immigration.” *Journal of Labor Economics*. 19, No. 1. pp. 22-64.

Cerulli, G., M. and Ventura 2019. ”Estimation of pre-and posttreatment average treatment effects with binary time-varying treatment using Stata.” *The Stata Journal* 19(3), pp. 551-565.

Degen, K., and A. Fischer. 2017. “Immigration and Swiss house prices.” *Swiss Journal of Economics and Statistics*.153, pp.15-36.

Dzankic, J. 2018. "Immigrant investor programs in the European Union", *Journal of Contemporary European Studies*.26 No.1, pp. 64-80.

Dzankic, J. 2019. *The Global Market for Investor Citizenship*, Palgrave Macmillan.

Erguven, E. 2020. ”The Political Economy of Housing Financialization in Turkey: Links with and Contradictions to the Accumulation Model“, *Housing Policy Debate*. 30 No.4, pp.559-584

Fietz, J., and J. Kaschowitz. 2019. ”Counting on kin: The satisfaction of migrants with their social networks in Germany.” *International Journal of Intercultural Relations* 71, pp. 14-23.

Financial Times. 2019. Turkish passport demand soar as rules relaxed, available at: https://www.ft.com/content/0d247ad4-1d81-11e9-b126-46fc3ad87c65

Gamlen, A., C. Kutarna, and A. Monk. 2019. ”Citizenship as sovereign wealth: Re-thinking investor immigration.” *Global Policy* 10, No.4. 527-541.

Gonzalez, L., and F. Ortega. 2013. “Immigration and housing booms: evidence from Spain.” *Journal of Regional Science*.53, pp. 37-59.

Harter-Dreiman M. 2004. ”Drawing inferences about housing supply elasticity from house price responses to income shocks.” *Journal of Urban Economics*55 No.2, pp.316-337.

İçduygu, A. and S. Karadağ. 2018. “Afghan migration through Turkey to Europe: Seeking refuge, forming diaspora, and becoming citizens.” *Turkish Studies* 19:3, 482-502,

İçduygu A. and K. Kirişci. 2009. *Land of Diverse Migrations: Challenges of Emigration and Immigration in Turkey,* Istanbul Bilgi University Press: Istanbul.

İçduygu, A. and E. Millet. 2016. Syrian refugees in Turkey: Insecure lives in an environment of pseudo-integration, Istituto Affari Internazionali, *Working Paper* no.13.

Jasinskaja-Lahti, I., K. Liebkind, M. Jaakkola, and A. Reuter. 2006. ”Perceived discrimination, social support networks, and psychological well-being among three immigrant groups.” *Journal of Cross-Cultural Psychology* 37, 293-312.

Jun, M.-J., S.-K. Ha, and J.-E . Jeong. 2013. “Spatial concentrations of Korean-Chinese and determinants of their residential location choice in Seoul.” *Habitat International* 40, pp.42–50.

Kaya A. 2017. “Istanbul as a space of cultural affinity for Syrian refugees“, *Southern Europe* 41, pp.333-358.

Kim, H. M. 2017. “Ethnic connections, foreign housing investment and locality: a case study of Seoul.” *International Journal of Housing Policy*17, No.1, 120-144.

Kim, H. M., S. S. Han, and K. B. O'Connor. 2015. "Foreign housing investment in Seoul: Origin of investors and location of investment." *Cities* 42, pp.212-223.

Kirişci, K. 2007. "Turkey: A Country of transition from emigration to immigration." *Mediterranean Politics* 12:1, pp. 91-97.

Larkin, M. P., Z. Askarov, H. Doucouliagos, C. Dubelaar, M. Klona, J. Newton, T. D. Stanley, A. Vocino. 2019. "Do house prices ride the wave of immigration?" *Journal of Housing Economics* 46, 101630.

Massey, D. S., J. Arango, G. Hugo, A. Kovaouci, A. Pellegrino, and J. E. Taylor 1993. "Theories of international migration: A review and appraisal." *Population and Development Review* 19: 431–66.

Massey, D. S. 1994. "Immigrants and the American City." *American Journal of Sociology* 99: 1346–48.

Mavelli, L. 2018. "Citizenship for sale and the neoliberal political economy of belonging." *International Studies Quarterly* 62, No.3, pp.482–493

McPherson, M., L. Smith-Lovin, and J. M. Cook. 2001. "Birds of a feather: Homophily in social networks." *Annual Review of Sociology* 27, pp. 415–444.

Newbold, K. B. 2021. "The urban geography of segregation", In K. Kourtit, B. Newbold, P. Nijkamp, and M. Partridge (Eds), *Economic Geography of Cross-Border Migration*, Springer Nature.

Parker, O. 2016. "Commercializing citizenship in crisis EU: The case of immigrant investor programmes," *Journal of Common Market Studies* 55, No. 2, pp. 332–348

Pavlov, A. and Somerville, T. 2020. "Immigration, capital flows and housing prices", *Real Estate Economics*, 48(3), pp. 915–949

Polat, Z. A. 2019. "Legal, economic, geographical and demographic analysis of the acquisition of real estate by foreigners in Turkey." *Land Use Policy* 85, pp.207-217

Price, M., and Singer, A. 2008. "Edge gateways: immigrants, suburbs, and the politics of reception in metropolitan Washington." In A. Singer, W. Hardwick, and C. B. Brettell (Eds.), *Twenty-first century gateways: Immigrant Incorporation in Suburban America* (pp. 137–170). Washington, DC: Brookings Institution Press.

Sa, F. 2015 "Immigration and house prices in the UK." *The Economic Journal* 125 (September), pp.1393–1424.

Saiz, A. 2003. "Room in the kitchen for the melting pot: Immigration and rental prices." *Review of Economics and Statistics* 85, No.3, pp.502-521.

Saiz, A. 2007. "Immigration and housing rents in American cities." *Journal of Urban Economics* 61 No.2, pp.345-371.

Serin S., H. Smith, C. McWilliams. 2020. "The role of the state in the commodification of urban space: The case of branded housing projects, Istanbul." *European Urban and Regional Studies* 27 No.4, pp.342-358.

Surak, K. 2020. “Who wants to buy a visa? Comparing the uptake of residence by investment programs in the European Union.” *Journal of Contemporary European Studies,* DOI: 10.1080/14782804.2020.1839742.

Treanor, S., and N. Vivienne. 2019. “How selling citizenship is now big business.” *BBC* available at https://www.bbc.com/news/business-49958628 (October 1) (accessed 30 November 2020).

Tumen, S. 2016. ”The economic impact of Syrian refugees on host countries: Quasi-experimental evidence from Turkey.” *American Economic Review* 106 No.5, pp.456-460.

Tunc, C. 2020. “The Effect of credit supply on house prices: Evidence from Turkey.” *Housing Policy Debate* 30:2, pp.228-242.

Viruell-Fuentes, E. A., J. D. Morenoff, D. R. Williams, and J. S. House. 2013. “Contextualizing nativity status, Latino social ties, and ethnic enclaves: an examination of the ‘immigrant social ties hypothesis’“ *Ethnicity and Health* 18(6), pp.586-609.

Wither, E., and E. Erkoyun. 2019. “Iranian home buyers dodge sanctions, make Turkey their plan B,” (October 1st). Available at https://www.reuters.com/article/us-turkey-iranians-idUSKBN1WG3ON (Accessed on May 23, 2021).

Xu, X., A. El-Ashram, and J. Gold. 2015. “Too much of a good thing? Prudent management of inflows under economic citizenship programs”, *IMF Working Paper*, WP/15/93. International Monetary Fund https://www.imf.org/external/ pubs/cat/longres.aspx?sk=42884.0.

Yener, C., S. Unal, H. M. Ertugrul, and A. Alp. 2020. “Housing price dynamics and bubble risk: the case of Turkey.” *Housing Studies* 35 No.1, pp.50-86

Yesilbag, M. 2020. ”The State-Orchestrated Financialization of Housing in Turkey.” *Housing Policy Debate* 30 No.4, pp.533-558.

Zelinsky, W., and B. Lee. 1998. “Heterolocalism: an alternative model of the socio-spatial behaviour of immigrant ethnic communities.” *International Journal of Population Geography,* 4*,* 281–298.

Table 1. Selected Citizenship by Investment Programs: A comparison

Country (inception year)	Property	Investment	Donation
Saint Kitts and Nevis (1984)	A minimum investment of USD 200,000 in a pre-approved property to be held for at least 7 years (or USD 400,000 resalable after 5 years).	N/A	One-off, non-refundable donation of USD 150,000 to Sustainable Growth Fund (further fees for spouse and additional dependents)
Commonwealth of Dominica (1993)	Minimum USD 200,000 investment in CBI-approved hotels and resorts to be held for at least five years	N/A	A donation of USD 100,000 to the Economic Diversification Fund (further fees for spouse and additional dependents)
Bulgaria 2009	N/A	Investment of at least 1 million Bulgarian Lev in government Eurobonds for the ordinary track (BGN 2 million under fast-track option).	N/A
Cyprus (2011)	Applicant must possess a permanent privately-owned residence of which the purchase price must be at least EUR 500,000.	and a minimum investment of EUR 1.5 million in residential properties (or EUR 2 million in commercial properties)	A donation of EUR 100,000 to the Governments' Research and Development fund and EUR 100,000 to the Land Development Organization.
Antigua and Barbuda (2013)	Minimum USD 400,000 investment in a pre-approved project to be held for five years.	or a minimum investment of USD 1.5 million or in a joint investment totaling USD 5 million (each investor at least USD 400,000).	One-off, non-refundable donation of USD 100,000 to National Development Fund (further fees for additional dependents)
Grenada (2014)	Minimum USD 350,000 investment in a pre-approved property project to be held for at least 5 years	N/A	A donation of USD 150,000 to the National Transformation Fund (further fees for spouse and additional dependents)
Malta (2014)	Purchase a property for a minimum value of EUR 350,000 (or lease a property for a minimum annual rent of €16,000 to be held for at least 5 years	and an investment of EUR 150,000 worth of stocks, bonds, debentures, special purpose vehicles to be held for at least 5 years	A contribution of EUR 650,000 to the Maltese Government, which is deposited in the National Development and Social Fund.
St Lucia (2016)	Investment of at least USD 300,000 in an approved property project to be held for at least 5 years	or investment of USD 3.5million in an approved business project.	A donation of USD 100,000 to St Lucia National Economic Fund (further fees for spouse and additional dependents)
Turkey (2017)	Minimum USD250,000 investment in a property to be held for at least three years	or minimum capital investment of USD500,000; or USD 500,000 in a Turkish bank or government bonds (for at least three years)	N/A

Note: Compiled from government sources on the Internet (as of September 2010). Cyprus suspended its program as of November 1, 2020.

Table 2. Estimation results of difference-in-differences model of real house prices

Variables	Model 1	Model 2	Model 3
Constant	2.423 (2211.866)***	2.337 (15.272)***	2.010 (18.980)***
DiD	0.0202 (5.232)***	0.0207 (5.495)***	0.0202 (5.292)***
Real effective exchange rate		0.0015 (1.165)	0.0031 (3.061)***
Real mortgage interest rate		-0.3431 (-1.352)	-0.164 (-1.014)
Region fixed effects	yes	yes	yes
Combined time fixed effects	yes	yes	
Decoupled time fixed effects			yes
Adjusted R2	0.9821	0.0125	0.9746
Numbers of observations	2343	2343	2343

Note: *** and **refer to 1% and 5% significance levels respectively. The dependent variable is the natural log of real house prices. DiD is the multiplication of two dummy variables representing the treatment districts and the post-treatment period. Clustering standard errors are in the parentheses. The number of observations in the pre-treatment period is 680 while it is 544 in the post-treatment. All models are fixed effect estimations.

Figure 1. Foreigners' share in house sales in Istanbul and Turkey

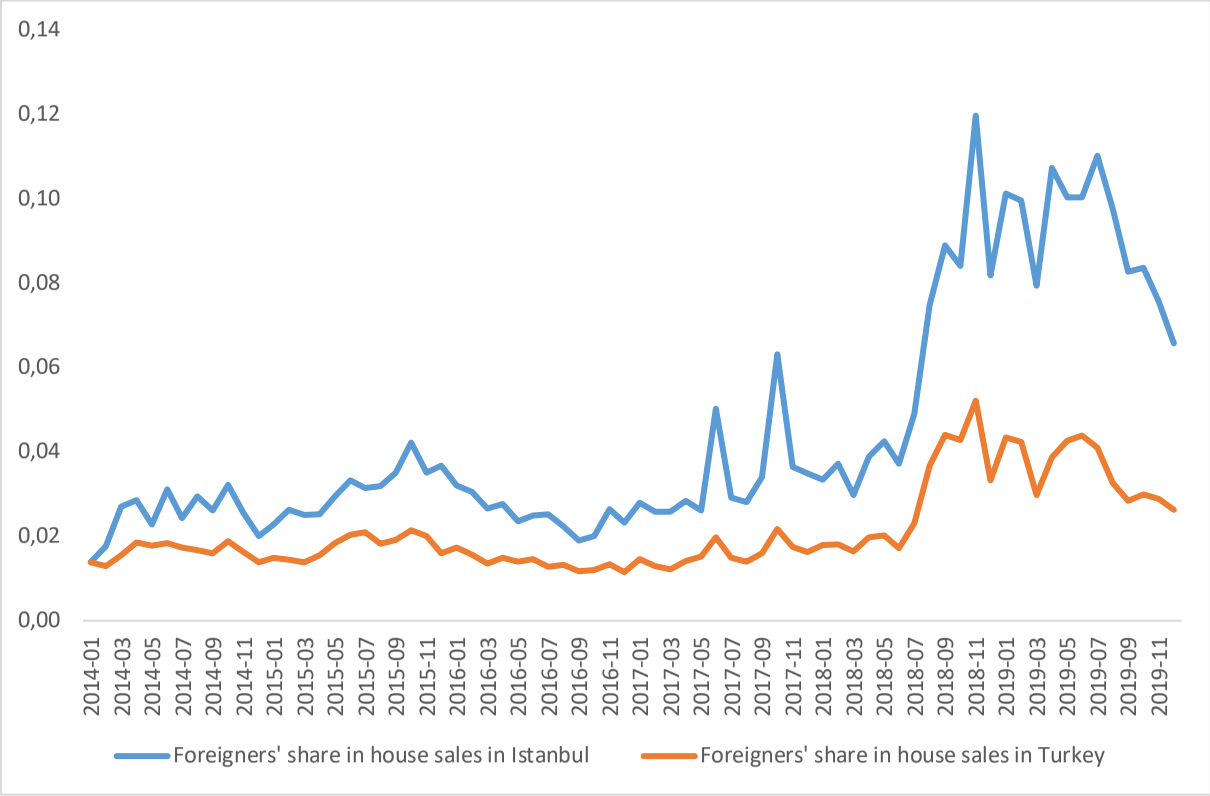

Figure 2. The map of Istanbul: Visual representation of treatment and control districts

Note: Green color refers to the treatment districts and blue color refers to the control districts. Treatment districts have a more than 5 percent ratio of foreign population to the total local population. Most of the control districts have less than 2 to 3 percent foreign percent population. The treatment and control groups are determined by the mean equality test based on data in 2018.