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All that glitters?
Golden visas and
real estate

March 2024

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All that glitters? Golden visas and real estate*

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March 15, 2024

Abstract

Residency by Investment programs have become integral to contemporary migration policies, providing a distinct pathway for individuals to acquire a new legal status through financial investments. In this paper, we study the extent to which “golden visas” impact real estate housing markets. Using the population of transactions records from 2007 to 2019, we analyse the introduction of the Golden Visa Program in Portugal in 2012. We first present descriptive bunching evidence around the €500,000 threshold, revealing potential price distortions. Merging the transaction data to property tax records, we then conduct a difference-in-differences analysis assessing the golden visa impact on the discrepancy between transaction prices and fiscal values. This analysis uncovers a “Golden Visa Premium,” where transaction prices exceed fiscal values by an average of around €38,000 at the investment threshold, indicating a more than 10% price increase in high-end housing prices. Finally, survey data from the Portuguese population indicates widespread support for ending the program, particularly among the elderly, educated residents in Lisbon.

Keynotes: Residency by Investment, Housing, Portugal

JEL codes: R21, R38

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1 Introduction

Citizenship and Residency by Investment (CBI/RBI) programs play a pivotal role in shaping modern migration dynamics, offering a unique avenue for wealthy individuals to obtain a new legal status in a country beyond their birthplaces through financial investments (Surak, 2023).¹ Several countries offer these programs, which typically require significant investments in the host economy. These include real estate purchases, job creation, or contributions to economic development funds. The primary aim is to attract foreign capital, foster economic growth, and create opportunities for both the host nation and the investors. CBI/RBI programs expedite the traditional immigration process, providing a faster route to citizenship or residency, often appealing to high-net-worth individuals seeking global mobility, business expansion, or enhanced quality of life. While these programs hold the potential to attract foreign talent and spur economic development, the challenge lies in striking a delicate balance between reaping economic benefits and safeguarding against potential risks such as money laundering, security threats, and gentrification.

The Portuguese government implemented a RBI program, known as the “golden visa,” in October 2012. Beyond residency, beneficiaries enjoy the perks of free movement within the Schengen Area, family reunification, and the possibility of obtaining permanent residency and Portuguese nationality after six years.² To qualify for a golden visa, the prevailing investment method entails acquiring real estate with a minimum value of €500,000. With more than 12,000 golden visa applicants within a 10-year period, Portugal’s golden visa program is one of the most popular RBI programs in Europe. Only Greece (in terms of applicants) and the U.K. (in terms of investment) have attracted more foreign investors in recent years (Surak and Tsuzuki, 2021). With raising over €7 billion in total investment, the program was able to attract foreign investment as intended by the Portuguese government.

In November 2023, Foreign Policy magazine posed the question “Is Portugal’s Golden Visa Scheme Worth It?” (Greenwald, 2023), considering that among the other nine countries in Europe that also offer golden visas “[...] Portugal’s is the most popular” and claiming that it “[...] sent house prices skyrocketing”. Since the launch of the golden visa program, this is not the first time that concerns about inflated property prices have been raised. Already in 2018, the European Parliamentary Research Service pointed out that “because of the Portuguese RBI – although not exclusively – real estate prices are pushed above the financial capacity of most local households” (Scherrer and Thirion, 2018). Aggregate descriptive figures from Eurostat indeed show that house prices in Portugal increased by 42%, which is more than double the increase for the EU-27 member

¹The difference between CBI and RBI programs is that CBI programs provide immediate rights as a citizen and access to a passport. RBI programs, in contrast, do not provide immediate access to a new passport, and thus are not as closely associated with the provision of a new passport.

²These channels stand apart from business or entrepreneurial programs, which require more than a passive investment involvement.

states (with 20%).³ Nevertheless, it is unclear whether this drastic evolution is causally related to the introduction of the golden visa program.

In this paper, we study the economic effects of golden visas on the market for real estate. Our empirical analysis based on the Portuguese case unfolds in three steps. The first two exercises exploit the existence of a salient price threshold to overcome contemporaneous confounding factors such as a touristic boom and the emergence of short-term rental platforms (Rodrigues, 2022; Gonçalves et al., 2022). First, using administrative micro data from all real estate transaction tax records, we estimate bunching effects of this policy around the €500,000 threshold by comparing the distribution before and after the implementation of the golden visa program in November 2012. This provides first descriptive evidence of potential distortive price effects of the golden visa program. Second, we merge the transaction records with the universe of property tax data. This data includes a fiscal price of the object used for tax calculations which is based on observable and objective characteristics of the housing property like age, size, and location. Using a difference-in-differences (DiD) approach, we estimate the impact of the golden visa program on the difference between the transaction price and the fiscal value of the property. If a permanent residency in form of a golden visa capitalizes into housing prices, we would expect to see an increase in the premium between transaction prices and fiscal valuations. Finally, in a third step, we provide results from a large-scale representative survey of the Portuguese population about the public perception of the golden visa program.

Our findings suggest that the introduction of Portugal’s golden Visa program has significantly influenced the real estate market, particularly in the realm of residential property transactions. The bunching analysis reveals a marked increase in transactions exactly at the €500,000 threshold, providing prima facie empirical evidence of the policy’s impact on housing market dynamics. Quantitatively, we observe a significant increase in the bunching mass of about 60% compared to the pre-reform period, underscoring the policy’s tangible impact. These effects seem to be driven by outside-EU buyers and from Portuguese buyers, while buyers from the EU do not seem to bunch. This suggests that the high visibility of the program influenced Portuguese buyers (that do not benefit from the golden visa program) and sellers to overestimate and overreact to the introduction of this RBI scheme and increase equilibrium transaction prices.

Our DiD analysis uses the universe of property tax records and compares transactions right above the 500k threshold with purchases around the 450k threshold, i.e. an equally salient price value (also with respect to round number bunching). This approach unveils a “Golden Visa Premium,” with transaction housing prices exceeding fiscal values by an average of around €38,000 at the threshold, reflecting the capitalization of golden visas. Thus, the golden visa program increased high-end housing prices close to the threshold by, on average, 15%. We also show that these buyers

³Source: https://ec.europa.eu/eurostat/databrowser/view/PRC_HPI_A__custom_3617733/bookmark/table?lang=en&bookmarkId=7bd4d288-a67f-45b6-9e4b-d062388871e9

opted for older but bigger houses, located in less central areas, when compared with the transactions in the period before the reform. A placebo exercise provided by the temporary suspension of the program in 2015 due to a corruption scandal is coincident with a zero “Golden Visa Premium” for that year.

Finally, we use data from a large-scale survey to study the popularity of these schemes in the public opinion (Azevedo and Pereira dos Santos, 2023). Our last set of results using survey data suggests that a significant portion of the Portuguese population favors ending the program, despite its potential economic advantages. This sentiment is especially strong among the elderly, educated residents in Lisbon, reflecting concerns over housing affordability and societal impacts. Overall, our findings contribute to the understanding of how RBI schemes can materially affect real estate markets and public perceptions.

By analysing the economic impact of golden visa programs, we contribute to three strands of the literature. First, we speak to the nascent literature on the effects of CBI/RBI programs. Langenmayr and Zyska (2023) use data on cross-border bank deposits to show that investors seek to lower the probability of tax evasion detection through information exchange by increasing transactions when a country implements a CBI scheme. There is also evidence that these programs have contributed to attract entrepreneurs. Lee and Glennon (2023), for example, show that the introduction of a Start-up Visa Program in 2013 increased the likelihood that U.S.-based immigrants open a firm in Canada by 69%. To the best of our knowledge, there is no literature on the impacts of these schemes on the real estate market and we help filling this gap.

We further contribute to the literature on the impacts of foreign inflows of capital on real estate prices and welfare (Favilukis and Van Nieuwerburgh, 2021). There are several explanations in the literature to rationalize why foreign investors buy, on average, at higher prices than local consumers. Foreigners may have asymmetric information about the market, and buy precisely when better-informed locals plan to sell (Kurlat and Stroebe, 2015)⁴ However, heterogeneity in prices can persist even with the same ex-ante investment timing decisions due to differences in search costs and in bargaining power (Chinco and Mayer, 2016). Cvijanović and Spaenjers (2021), for example, show that non-local buyers in Paris purchase real estate at higher prices than local investors, and suggest that out-of-country demand shocks on property prices have a positive, but small effect. Ownership of real estate through corporations in offshore tax havens, facilitating tax evasion and money laundering, can further appreciate housing markets—and there is evidence of these effects for Norway (Alstadsæter and Økland, 2022), the U.K. (Bomare and Herry, 2022; Johannesen et al., 2022), and Dubai (Alstadsæter et al., 2022). If overseas real estate investors are wealthier and have higher opportunity costs of time, they may be willing to buy houses with worse

⁴Sá (2016) shows that foreign investment increased housing price growth in England and Wales, an effect that spillovers to lower percentiles of the distribution of house prices and is stronger in local areas with less elastic housing supply. Badarınza and Ramadorai (2018) shows that economic and political risk in home countries strongly affects London house prices in areas with a high concentration of source-country-origin residents.

hedonic characteristics than residents. Our data allows us to explicitly test for this possibility. The Portuguese golden visa scheme provides an additional advantage to the purchase of foreign real estate.

Lastly, we contribute to a broad literature on the effects of immigration on house prices. Theoretically, an increase in the number of immigrants can be translated in an increase in demand that appreciates housing prices. There is evidence in favor of this effect for the U.S. (Saiz, 2007) and Spain (Gonzalez and Ortega, 2013). However, immigration may also lead to a decline in prices if it induces natives to relocate to other areas and if those who depart belong to the top of the wage distribution. These effects were documented for Italy (Accetturo et al., 2014), the U.K. (Sá, 2015), and Spain (Sanchis-Guarner, 2023). In the case of the Portuguese golden visa program, there is qualitative evidence suggesting that most golden visa investors do not live permanently in the country (Montezuma and McGarrigle, 2019).

The paper is structured as follows. In Section 2, we provide more institutional details about the Golden Visa scheme and in Section 3, we present the data sets. In Section 4, we discuss and present the bunching effects of the golden visa program while in Section 5 we quantify the golden visa premium. In Section 6, we present the results of the survey. Section 7 concludes.

2 Institutional Background

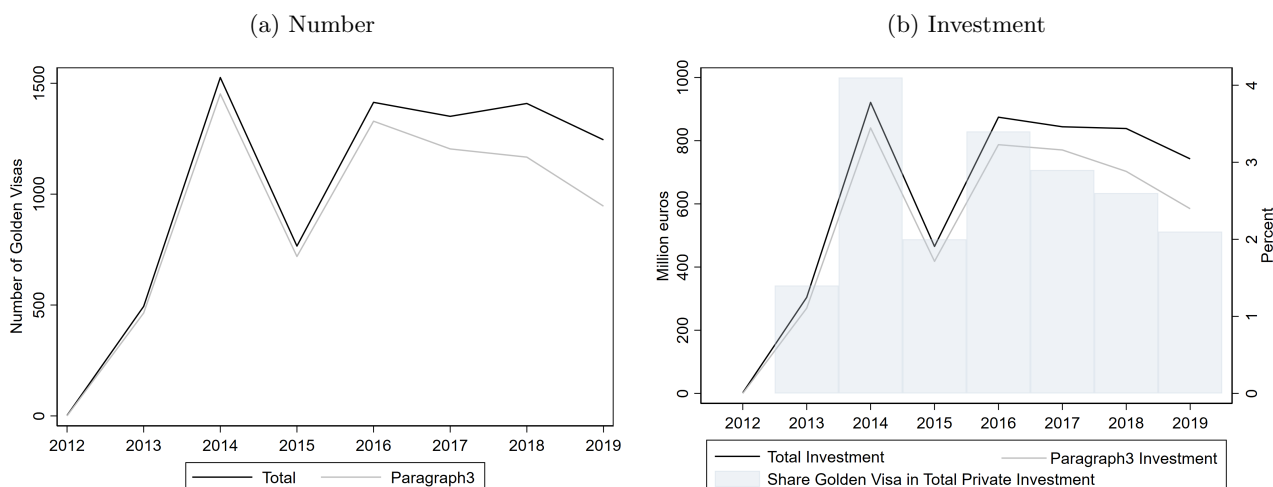
Portugal has launched its golden visa program in November 2012, granting residence permits in return for investment. Based on the Ministerial Order 305-A/2012 of October 4th, applicants are required to spend a minimum mandatory period of 7 days in Portugal during the first year and a minimum of 14 days in all subsequent years. Beneficiaries can not only live and work in Portugal, but can move freely within the Schengen Area. They also benefit from family reunification, and can request permanent residency and Portuguese nationality after six years.

Initially, the required investment took one of the following types: (1) a capital transfer of €1 million or more; (2) the creation of a business that generates at least 10 jobs; or, (3) the acquisition of real estate property to the value of at least €500,000. The latter condition, known as paragraph 3, has pulled in most of the applications and investments since the start of the program.

In fact, between November 2012 and December 2019, the Portuguese state conceded 8,207 golden visas (corresponding to the same number of main applicants and 14,007 additional permits for their families), 7,272 of which were given to the conditions expressed in paragraph 3. In panel (a) of Figure 1, we present the annual number of granted golden visas (in black) and the number of golden visas belonging to paragraph 3 (in grey). In panel (b), we show that these golden visas relate to a massive capital influx for the Portuguese economy. According to the Immigration and Border Service, the total foreign investment amounted to €4,376 million, with the majority granted for houses sold by at least €500,000. To put these numbers into perspective, golden visas account

for about 1% to 4% of the total private investment in this time period (see light bars in panel (b)). The most represented nationalities of golden visa grantees in Portugal during this period are the Chinese (4,467 main applicants), Brazilian (863), Turkish (380), South African (323), and Russian (296).⁵

Figure 1: Golden Visas: Stylized Facts



Note: Panel (a) show the number of granted golden visas from 2012 to 2019 (in black) and the number of golden visas related to paragraph 3 (in grey). Panel (b) shows analogous descriptives for investment. The light bars in panel (b) depict the share of golden visa investment in relation to total private investment.

Source: Immigration and Border Service

As apparent from both graphs in [Figure 1](#), the Portuguese Golden Visa scheme quickly gained momentum. In 2014, *The Economist* wrote that “among the growing number of hard-up European governments offering residence permits to wealthy non-Europeans who invest in their countries, Portugal has been the most successful” ([Economist, 2014](#)). In November 2014, however, a corruption scandal erupted, leading to the temporary suspension of the program. Eleven individuals, including high-ranking public servants, were arrested on suspicion of corruption, influence peddling, and money laundering in the process of granting golden visas. Consequently, the Minister of Internal Affairs resigned. In February 2015, the Portuguese government pledged to reform the system by enhancing checks and balances. These changes received approval from the main parties in the subsequent months, resulting in the reactivation of the program. These changes also included new investment possibilities: a capital transfer of at least €350,000 for investment in research activities by public or private research institutions, and a capital transfer equal of at least €250,000 for investment in artistic endeavors, supporting the arts, or contributing to the reconstruction of national heritage ([Público, 2015](#)). In any case, some requests were still suspended by July 2015. These developments can be clearly observed in both panels (a) and (b) of [Figure 1](#) in 2015.

⁵[Gaspar and Ampudia de Haro \(2020\)](#) characterise the profile of Chinese citizens who benefited from this initiative.

Despite these changes, the Golden Visa scheme continued to attract significant public scrutiny and criticism. In September 2017, The Guardian revealed that business executives implicated in Brazil’s Car Wash corruption scandal had obtained access to Europe through Portugal’s golden visa program (Guardian, 2017). In the following year, Transparency International highlighted that the Portuguese governments “do not seem to take into account an applicant’s source of funds or wealth when analysing applications” (Brillaud and Martin, 2018).

New modalities of investment were also introduced in 2017, but their full implementation took several months due to delays in the legal approval. The most significant addition was the inclusion of the purchase of real estate properties older than 30 years, situated in urban rehabilitation areas, for a minimum of €350,000. This explains the majority of the gap observed after 2017 between the two lines in both panels of Figure 1.

3 Data

Our main dataset is the real estate transaction tax records (*Imposto Municipal sobre as Transições Onerosas de Imóveis – IMT*), accessible within the secure environment provided by Statistics Portugal. This dataset contains comprehensive information dating back to 2007, encompassing market prices for all transactions across Portugal. It includes details such as the transaction dates (month and year), property types (housing, commercial, etc.), and the respective municipalities where the properties are located. In 2019, due to a new protocol with the tax authority, we also have data on the nationality of the buyer (Portuguese, EU, or non-EU). We do not include data after 2019 to mitigate potential confounding effects stemming from the Covid-19 pandemic on the Portuguese economy (Carvalho et al., 2022; Batalha et al., 2022; Nunes et al., 2023).

In Section 5, we merge the transaction tax with the property tax records (*Imposto Municipal sobre Imóveis –IMI*), a dataset available since 2010. The fiscal price, determined by the tax authority based on observable property characteristics such as age, size, amenities, and location, approximates a hedonic price component that remains unaffected by the influence of Golden Visas (see Appendix for more details).

We also use publicly available data on the Golden Visa scheme, sourced from the Immigration and Border Service’s (*Serviço de Estrangeiros e Fronteiras – SEF*) official website.⁶ This dataset, available since 2012, encompasses the count of granted golden visas (including both main applicants and their family members), the invested amount categorized by the type of Golden Visa (housing, capital transfers, employment creation, and other classifications). Additionally, the SEF provides insights into the number of granted golden visas for the top 5 nationalities each year.

⁶ Available in <https://www.sef.pt/pt/pages/conteudo-detalhe.aspx?nID=93>. We only have information regarding the geographic distribution of golden visas for the years after our period of analysis. In 2020, more than 63% of paragraph 3 golden visas were granted in the municipality of Lisbon, as detailed in Table A1 in the Appendix.

Lastly, in [Section 6](#), we use data from a recent nationally representative survey focusing on the housing crisis ([Azevedo and Pereira dos Santos, 2023](#)). The aim of this section is to present the opinion of the Portuguese public and their beliefs about measures and success of the program. The survey clusters respondents by gender, three age groups (18–34, 35–54, and 55 years old or above), and 5 Nuts 2 regions in mainland Portugal (North, Centre, Lisbon, Alentejo, and Algarve). It was conducted in September 2023 by the private company DOMP, S. A. for *Fundação Francisco Manuel dos Santos*. The survey includes socioeconomic details of participants, encompassing age, gender, educational attainment, nationality, labour market status, housing ownership, and residence at the NUTS 2 level.⁷ The descriptive statistics for this data source are provided in [Table A2](#) in the Appendix.

4 Bunching

In this section, we conduct a simple bunching exercise around the transaction threshold of €500,000 to get first descriptive insights about the behavioral response to the golden visa program. In his seminal work, [Saez \(2010\)](#) developed the bunching method in the context of the personal income tax to assess the welfare losses of taxation by estimating the elasticity of taxable income.⁸ Given the simplicity of the approach and its non-parametric nature, the approach has now widely been applied in many other fields, such as social security, insurance, education, and sports economics. Broadly spoken, the bunching method uses the clustering behaviour of economic subjects (individuals, firms, transactions) at discontinuities of an incentive scheme (e.g., jumps in the marginal tax rate or the golden visa threshold in our case) to estimate behavioral responses of the policy.

In the context of the Portuguese golden visa program, we would expect that after October 2012, the number of houses and apartments sold at or slightly above €500,000 sharply increases. Even if the “true” market price for the object was well below €500,000, sellers now have an incentive to up-price their object to the given threshold to attract foreign investors who are interested in gaining the benefits of a golden visa.

The established bunching approach, initially outlined by [Chetty et al. \(2011\)](#), forms the basis of the following bunching analysis. To estimate the counterfactual density at the $x = 500,000$ threshold, we fit a 7th order polynomial to the observed real estate transaction data (binned in €5,000)⁹, excluding data bins within a specified range around the threshold (bunching window):

⁷The survey and the report summarizing the results are available in <https://ffms.pt/pt-pt/barometro/barometro-da-habitacao>.

⁸See [Kleven \(2016\)](#) for details and critique. Other papers using bunching techniques to study the effect of taxes on the real estate market include [Kopczuk and Munroe \(2015\)](#) and [Best and Kleven \(2018\)](#).

⁹We also present estimates using a linear counterfactual model in the Appendix.

$$N_j = \sum_{i=0}^7 \beta_i \cdot (x_j)^i + \sum_{s=b-}^{b+} \gamma_i \cdot 1_{x_j=s} + \epsilon_j.$$

Here, N_j represents the number of real estate transactions per month in bin j , x_j is the transaction price in bin j and $[b-, b+]$ is the bunching window. Our estimation window covers the range between €400,000 and €600,000. The estimation of excess bunching mass involves calculating the difference between observed and counterfactual bin counts in the specified range. Standard errors are computed following [Chetty et al. \(2011\)](#) using a bootstrap procedure involving random resampling of the residuals in the regression equation.

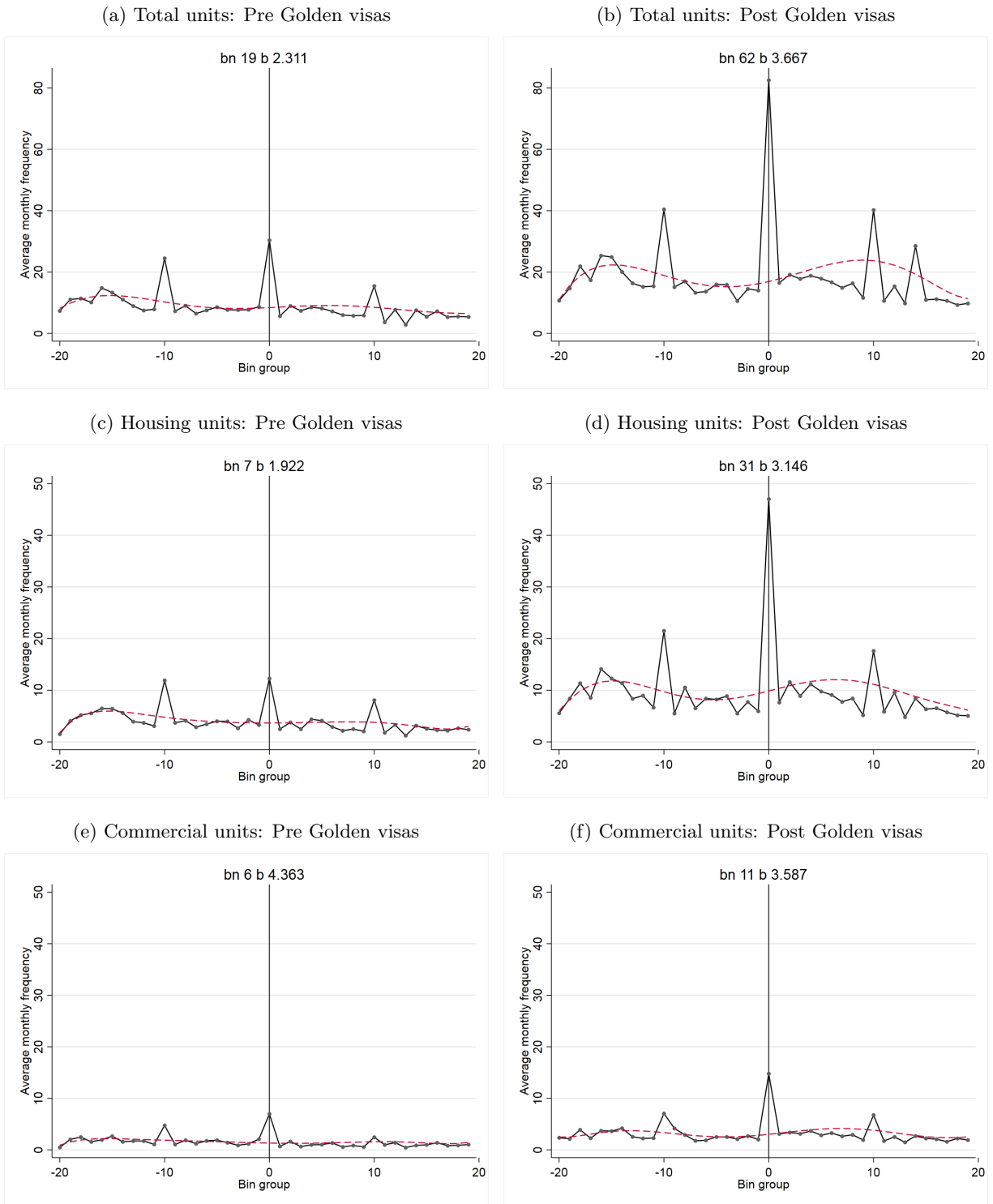
[Figure 2](#) presents the main results of the bunching analysis for the total number of transactions (pre-reform in (a) and post-reform in (b)), the number of housing properties (in (c) and (d)), and the number of commercial buildings (in (e)) and (f)). The results pertaining to commercial units function as a placebo outcome, given that individuals acquiring commercial assets did not receive golden visa privileges. For each category, we present the bunching estimates for the pre-treatment period (January 2007 – October 2012) and compare them with the distribution after the implementation of golden visas (November 2012 – December 2019).

Two interesting patterns emerge from the graphs. Firstly, even during the pre-treatment period, we observe bunching at the €500,000 threshold (bin 0). This, however, is akin to bunching observed at other round number values, specifically at bin=-10 and bin=10 (equivalent to €450,000 and €550,000). Secondly, after the introduction of the golden visa program, the spike in the density distribution increases by factor 1.5, suggesting that the reform had a significant impact on the number of units sold at €500,000. Zooming in on the effects for housing units in panel (d), we can see that the effect is only driven by housing property: while the bunching mass in the pre-reform period for housing units was 1.9, this increases to 3.1 after October 2012 implying that after the reform, there were around 60% $((3.1-1.9)/1.9)$ more houses sold at this threshold of half a million compared to the pre-reform scenario. This is prima facie evidence that the reform had an influence on the real estate market.¹⁰ However, from the perspective of an hedonic price regression, the golden visa can be interpreted as a price component from which one could infer the price of getting of a legal residency (with all its benefits). The option to get a golden visa thus seems to capitalize into transaction prices. The next section takes a closer look into the golden visa premium using additional, objective data on housing quality.

We also analyse bunching effects depending on the nationality of the buyer using data for 2019. The results are shown in [Figure A2](#) in the Appendix. While we find clear bunching for houses bought by Portuguese buyers and for houses bought by buyers from non-EU countries, we do not see any clear effects on units bought by European countries. These patterns suggest that the

¹⁰Compared to the standard labour supply framework, it is not possible to calculate an elasticity from these bunching estimates as there is no marginal tax incentive to put the excess mass in relation to.

Figure 2: Bunching



Note: These graphs show the bunching results as outlined in [Section 4](#). Panels (a) and (b) show the total number of transactions, panels (c) and (d) plot the number of housing properties (in (c) and (d)), panels (e) and (f) show the number of commercial buildings.

Source: IMT dataset.

salience of the golden visa program could have affected the price equilibrium not only for purchases that could grant a golden visa. This result also implies negative spillover effects to (potentially less mobile) Portuguese buyers.

5 On the Capitalization of Golden Visas into Housing Prices

The aim of this section is to empirically test for the capitalization of golden visas into property prices. For this purpose, we draw on property tax records from 2010 onwards that can be merged to the transaction data used in the bunching exercise. A main benefit of the property tax data is that it includes the fiscal value of the housing object which is based on observable and objective characteristics like property age, size, location, and amenities. Importantly, the value of permanent residency gained from a golden visa is not reflected in the determination of the fiscal value. While the fiscal value is the basis for the calculation of the property tax, it can vary from the transaction price. However, in the absence of the golden visa program at the €500,000 threshold, we would expect the (percentage) difference between the transaction price and the fiscal value to be smooth. If golden visas capitalize into house prices, this would induce an increase in the difference between the transaction price and the fiscal value. The magnitude of this effect may then be interpreted as the price for getting a permanent residency in Portugal.

To estimate this golden visa “premium,” we run the following dynamic DiD specification:¹¹

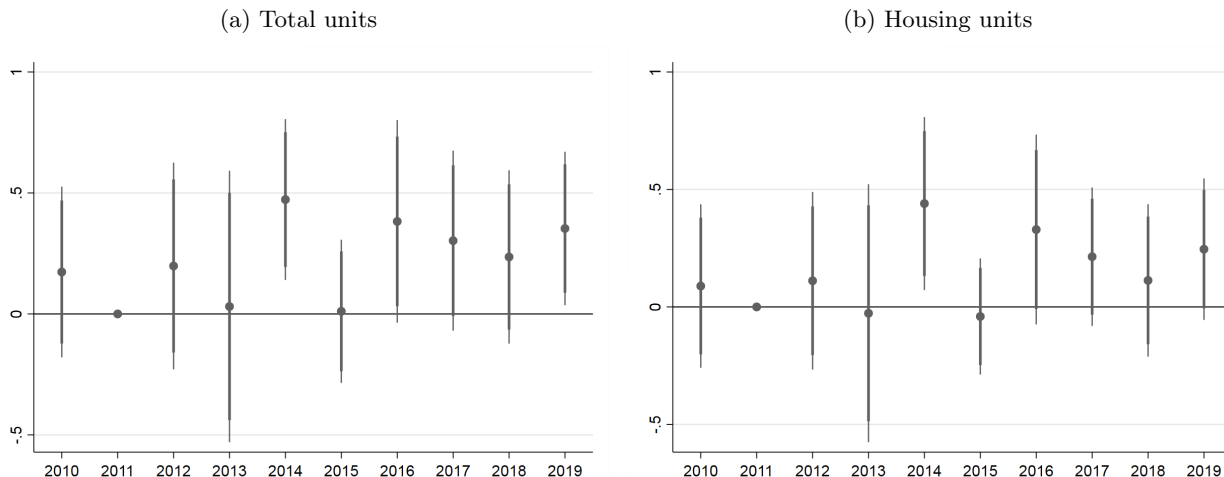
$$\ln(GVP_{imt}) = \alpha + \beta_{2010} \times T_i \times Year_{2010} + \sum_{t=2012}^{2019} \beta_t \times T_i \times Year_t + \delta_{mt} + \epsilon_{imt}, \quad (1)$$

where GVP_{imt} denotes the difference between the transaction price and the fiscal value (“golden visa premium”) for dwelling i , in municipality m , and in year t . T_i is a binary indicator that takes a value of one if the transaction price is [500k; 505k[euros, i.e. within the bunching region. Our baseline comparison group is formed by dwellings that were sold in the market for [445k; 455k[euros. As shown in [Section 4](#), in the pre-treatment period, bunching was very similar for these two groups. λ_{mt} are municipality-year fixed effects that capture confounding factors from local economy such as the emergence of short-term rental platforms ([Garcia-López et al., 2020](#); [Franco and Santos, 2021](#); [Barron et al., 2021](#); [Nobre et al., 2023](#)) or policy measures to try to ban or mitigate them ([Koster et al., 2021](#); [Gonçalves et al., 2022](#)). Standard errors are clustered at the municipality level to account for possible correlated shocks at the local level. Please note that the omitted year is 2011, the year before announcement, to avoid possible anticipation effects [Roth et al. \(2023\)](#). Therefore, given that our merged dataset only starts in 2010, we can only present comforting evidence that the parallel trends is met for one pre-treatment period.

¹¹We restrict the analysis to units below 30 years old to avoid confounding effects from the inclusion of the €350,000 golden visa threshold for older houses after 2017.

We present the results from estimating Equation (1) in Figure 3: panel (a) includes all units while panel (b) restricts the analysis to housing units.

Figure 3: Event study Golden Visa Premium



Note: The graphs present event study estimates for the golden visa premium (GVP). The GVP is the difference between the market and the fiscal value assessed by the Tax Authority. Graphs were computed with municipality-year fixed effects. The 90% and 95% confidence levels are calculated using clustered standard errors at the municipal level.

Source: IMT and IMI datasets.

We highlight the following results. First, we do not observe a golden visa premium in the years before the announcement of the program, neither in 2012, the year when it was announced, but with no golden visas being attributed due to purchases of real estate. Second, we estimate a sharp positive golden visa premium in 2014, the year with the highest number of attributed golden visas, an effect that did not persist in 2015. In that year, as outlined in Section 2, there was a massive scandal that led to the temporary suspension of the golden visa program. For this reason, as expected, we find point estimates close to zero and no statistically significant results for that year. After that, the effect is positive and stable, although measured with noise, and suggests that buyers are willing to pay a premium to get a residence permits (which might be equivalent to the willingness to buy a European passport).

Our results should be interpreted with caution for two reasons. First, construction was very limited in Portugal during the study period (Azevedo and Pereira dos Santos, 2023). This means that buyers had to rely on the existing stock of houses and potentially look for lower-quality dwellings to obtain the golden visa. Second, note that we are not claiming that these effects are only driven by golden visa applicants buying houses. In fact, it could also be that the high visibility of the program influenced Portuguese buyers and sellers to overestimate and overreact to the introduction of the program and increase equilibrium transaction prices.

We confirm these findings in a static DiD setting and extend this to other outcomes that are used to compute the fiscal value by the tax authority. The results are presented in [Table 1](#). In panel (a), we report the results for total units, while in panel (b) we show the effects for housing units.

Table 1: Regression Results DiD (static)

	(1)	(2)	(3)	(4)	(5)	(6)
	ln(GVP)	GVP	Age	ln(Area)	ln(Location)	ln(Quality)
(a) Total Units						
$T_i \times Post$	0.188*	49,047**	-6.708**	0.898***	-0.019	0.017
	(0.104)	(24,122)	(2.646)	(0.240)	(0.041)	(0.039)
Obs	4,766	4,770	4,770	4,770	4,770	4,770
(b) Housing Units						
$T_i \times Post$	0.150*	38,008*	-6.808**	1.295***	-0.064*	-0.007
	(0.083)	(19,282)	(2.748)	(0.392)	(0.036)	(0.032)
Obs	3,839	3,841	3,841	3,841	3,841	3,841

Note: This table present static DiD estimates for the golden visa premium (GVP). The GVP is the difference between the market and the fiscal value assessed by the Tax Authority. Graphs were computed with municipality-year fixed effects. The 90% and 95% confidence levels are calculated using clustered standard errors at the municipal level.

We find that the introduction of the golden visa scheme caused an appreciation in high-end housing prices between around 15% *vis-à-vis* the comparison group. This golden visa premium corresponds to an average increase of around €49,000 when considering all units and €38,000 when we only consider housing units.

In Columns (3) to (6) we report results for outcomes related to the quality characteristics of the housing object. We find that after the reform, golden-visa buyers purchase older houses (around seven years, on average). Older units tend to be much larger and located in slightly less central locations, as measured by the negative location coefficient. We do not find any significant effects on housing quality, measured by the coefficient of quality and comfort.

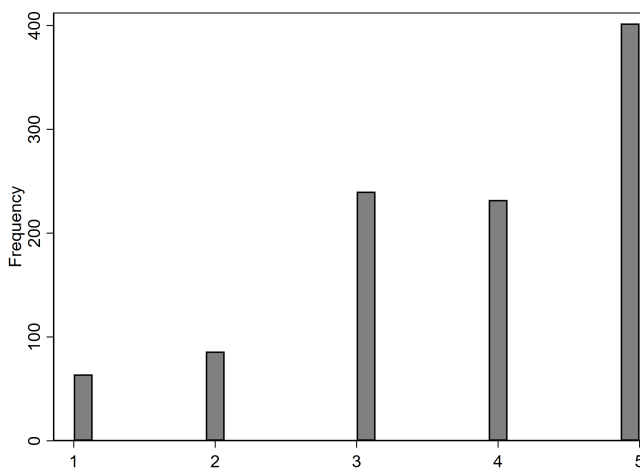
6 How Popular is the Golden Visa Program?

The golden visa program has attracted considerable investment, but also loud criticism ([Brillaud and Martin, 2018](#)). To shed light on the opinion of the Portuguese population about this program, we rely on the data collected by [Azevedo and Pereira dos Santos \(2023\)](#), who asked a random sample of more than 1,000 residents in Portugal to elicit their beliefs and their preferred policy prescriptions on how to mitigate the effects of the housing affordability crisis. In this survey, respondents were asked to respond, on a scale from 1 (completely disagree) to 5 (completely agree), if “the government should put an end to the golden visa scheme, even if it harms the Portuguese

economy”¹² Note that this sentence includes a salient trade-off that is easy to understand so that respondents are primed to consider a cost-benefit analysis when stating their preference.

The distribution of responses is shown in [Figure 4](#). Despite being reminded that the termination of the golden visa scheme can have economic effects, the large majority of respondents are in favour of terminating the program: almost 40% completely agree with the sentence while only slightly more than 5% completely disagree.

Figure 4: Survey results



Note: This graph shows the distribution of responses related to the survey question if “the government should put an end to the Golden Visa scheme, even if it harms the Portuguese economy”. The scale goes from 1 (completely disagree) to 5 (completely agree).

The survey also included several socioeconomic characteristics of the respondents. This allows us to examine the determinants of these reported intentions. We consider demographic characteristics such as age and age squared (to capture possible non-linearities), and binary indicators for female and foreign origin. Moreover, we add proxies for the economic condition in the form of three binary indicators. These indicators are set to one if the respondent is retired, has a maximum of a secondary education degree or has completed higher education, and if they are unemployed. The condition of housing ownership is also considered, using two binary indicators: one indicating whether the respondent is renting, and the other indicating whether the respondent owns their home but is still making mortgage payments to the bank.

We present the results in [Table A3](#) in the Appendix. We examine two different linear probability models: in the first two columns, our dependent variable is a binary indicator takes value one if the respondent’s answer was 4 or 5. In the last two columns, our dependent variable is a binary indicator being one if the respondent’s answer was 5. In odd columns, we include regional Nuts 2

¹²We exclude the 62 respondents who said don’t know/ don’t answer.

fixed effects (omitted category: North).

Across specifications, some results remain robust. First, older people are more in favour of terminating the program, even though these results are non-linear. In addition, this policy prescription also increases with more education, especially for survey respondents with a university degree. These effects survive the inclusion of Nuts 2 region dummies in columns (2) and (4). Lastly, respondents who live in Lisbon Nuts 2 area, the region that accounts for around 2/3 of the golden visas, are more in favour of putting an end to the program.

7 Conclusion

Real estate transaction prices are the outcome of a complex search-and-bargaining process. In this paper, we investigate, for the first time, the economic effects of a EU's golden visa program on the real estate market. Instituted in October 2012, the Portuguese golden visa program offers residency permits and access to the Schengen area in exchange for investment, primarily in real estate with a minimum value of €500,000. As one of Europe's most popular residency-by-investment schemes, it has drawn over 12,000 applicants and garnered over €7 billion in investment, raising questions about its impact on property prices and housing affordability for locals.

In our study, we conducted a detailed analysis of the economic impact of Portugal's golden visa program on the real estate market. Utilizing real estate transaction data, we are able to identify a significant increase in the number of property transactions precisely sold at the €500,000 threshold. The excess mass at the threshold increased by about 60% suggesting that sellers strategically price properties in the course of the golden visa program leading to a distortion in the real estate market. In a second step, by merging transaction data with property tax records, we employed a DiD approach to assess whether the the benefits associated with a golden visa capitalize into housing prices. Our results revealed a notable "Golden Visa Premium," where the transaction prices exceeded the fiscal values of properties by an average of €50,000. This premium indicates the extent to which the prospect of residency benefits through the Golden Visa program is capitalized into property prices. In a last step, we use survey data by [Azevedo and Pereira dos Santos \(2023\)](#) to get an idea about the programs acceptance among the Portuguese population. The responses highlighted a significant inclination towards terminating the golden visa program. This sentiment was particularly strong among older, educated residents of Lisbon, driven by concerns over housing affordability and the broader societal impacts of the program.

These findings offer important insights into the complex interplay between investment-driven residency programs and their broader economic and social impacts. Our study demonstrates that while the golden visa scheme has been successful in attracting foreign investment, it has also led to unintended consequences in the real estate market, including price distortions and public disapproval, particularly in urban areas like Lisbon. The significant increase in property prices

suggests the need for regulatory measures. Policymakers should consider introducing controls to mitigate the inflationary impact on property prices, ensuring housing remains affordable for local residents. This could involve setting caps on eligible properties for golden visa investments or diversifying the types of investments that qualify for the program.

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A Appendix

A.1 Golden visas: more descriptive statistics

Table A1: Golden visas per municipality in 2020

Municipality	Number Paragraph 3
Alcobaça, Aljezur, Aveiro, Beja, Benavente, Cartaxo, Coimbra, Esposende, Faro, Leiria, Montijo, Ponta Delgada (Açores), Castelo Branco, Ponta do Sol (Madeira), Povoação (Açores), Reguengos de Monsaraz, Serpa, Tomar, Verdizela, Vila do Bispo, Vila Nova da Barquinha, Vila Real de Santo António	1
Évora, Funchal, Matosinhos, Ourém, Palmela, Setúbal, Silves	2
Amadora, Caldas da Rainha, Loures, óbidos, Sesimbra, Tavira	3
Lagoa, Lourinhã Portimão , Vila Nova de Gaia	4
Mafra	5
Almada	7
Odivelas	9
Albufeira	11
Grândola, Lagos	14
Oeiras	15
Sintra	19
Loulé	20
Porto	26
Cascais	83
Lisboa	516
Total	813

A.2 Fiscal value: more details

Fiscal is computed by the Tax Authority according to the following formula (Article 38 *Código do Imposto Municipal sobre Imóveis*):

$$\text{Fiscal value} = BV \times A \times Ac \times Lc \times Qc \times Oc \quad (2)$$

where:

BV: Base value of the built-up buildings. Vc is determined taking into account direct and indirect costs incurred in the construction of the building. These costs encompass expenses related to materials, labour, equipment, administration, energy, communications, and other consumables. The overall construction value reflects the total investment and expenditures involved in the construction process, providing a comprehensive assessment of the financial resources allocated to the building.

A: Gross construction area plus the area exceeding the implantation area

Ac: Affectation coefficient (e.g., services coefficient is 1.1, housing coefficient is 1)

Lc: Location coefficient. Varies between 0.4 and 3.5 and considers accessibility (quality and variety of roadways, railways, waterways, and maritime routes), proximity to social amenities (schools and public services), and public transportation.

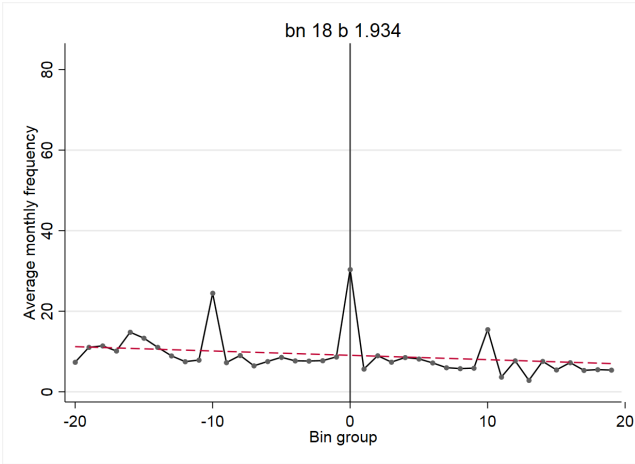
Qc: Quality and comfort coefficient. Varies between 0.5 and 1.7 and considers the existence of a swimming pool, garage, elevators, etc.

Oc: Obsolescence coefficient. Varies between 1 (for houses younger than 2 years old) and 0.4 (for houses older than 60 years old)

A.3 Bunching: robustness

Figure A1: Bunching: robustness with degree 1

(a) Total units: Pre Golden Visas



(b) Total units: Post Golden Visas

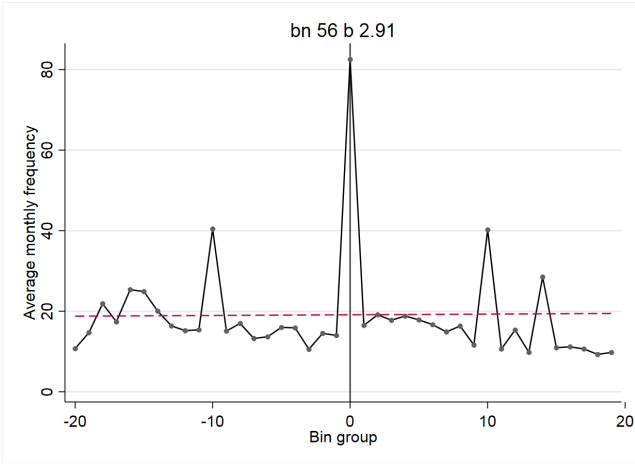
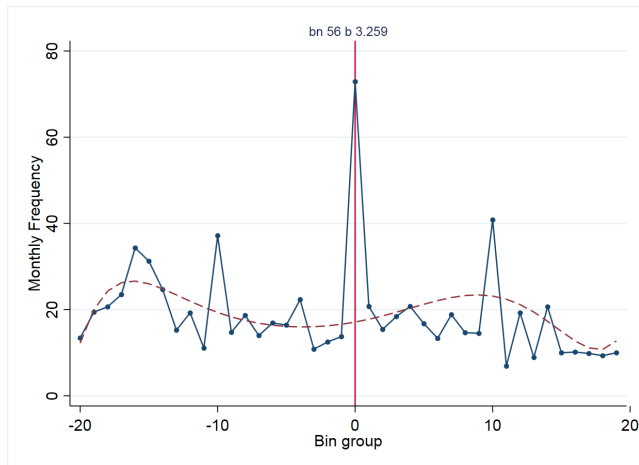
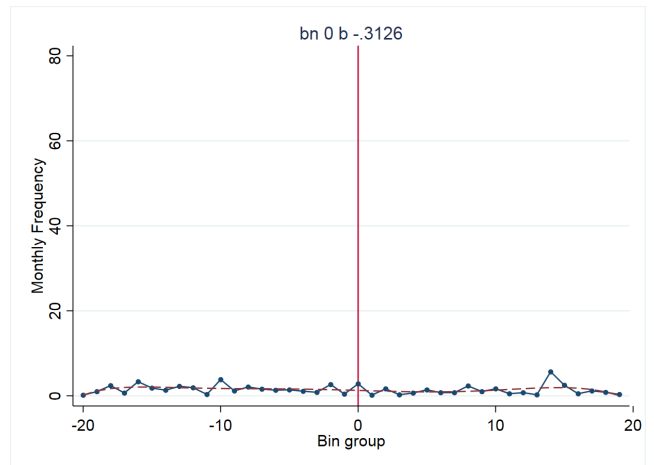


Figure A2: Bunching per nationality (in 2019)

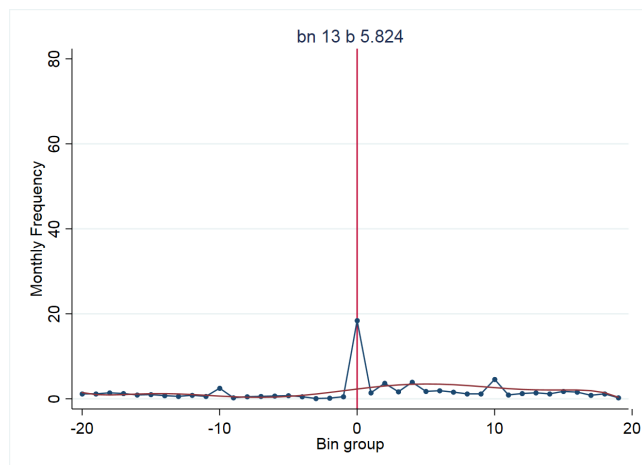
(a) Portuguese buyers



(b) EU buyers



(c) Non-EU buyers



Survey: further details

Table A2: Survey: descriptive statistics

	N	mean	sd	min	max
Outcome variables					
P(≥ 4)	1,024	0.619	0.486	0	1
P(= 5)	1,024	0.393	0.489	0	1
Socioeconomic characteristics					
Female	1,024	0.484	0.500	0	1
Foreigner	1,024	0.102	0.302	0	1
Age	1,024	49.967	16.380	18	96
Retired	1,024	0.190	0.393	0	1
Graduate Education	1,024	0.396	0.489	0	1
Secondary Education	1,024	0.374	0.484	0	1
Unemployed	1,024	0.051	0.220	0	1
Renter	1,024	0.198	0.399	0	1
Owner with Debt	1,024	0.321	0.467	0	1
North Nuts 2 region (omitted)	1,024	0.356	0.479	0	1
Center Nuts 2 region	1,024	0.227	0.419	0	1
Lisbon Nuts 2 region	1,024	0.291	0.454	0	1
Alentejo Nuts 2 region	1,024	0.077	0.267	0	1
Algarve Nuts 2 region	1,024	0.049	0.216	0	1

Table A3: Survey: socioeconomic determinants

	P(≥ 4)	P(≥ 4)	P(= 5)	P(= 5)
Female	0.050*	0.051*	0.011	0.014
	(0.030)	(0.030)	(0.031)	(0.031)
Foreigner	-0.119**	-0.120**	-0.065	-0.070
	(0.052)	(0.052)	(0.052)	(0.052)
Age/10	0.227***	0.226***	0.172***	0.165***
	(0.055)	(0.055)	(0.049)	(0.049)
Age_sq/10	-0.002***	-0.002***	-0.001***	-0.001***
	(0.001)	(0.001)	(0.000)	(0.000)
Retired	-0.053	-0.054	-0.054	-0.065
	(0.053)	(0.053)	(0.050)	(0.050)
Graduate Education	0.114**	0.113**	0.133***	0.127***
	(0.046)	(0.046)	(0.046)	(0.046)
Secondary Education	0.084*	0.082*	0.107**	0.100**
	(0.046)	(0.046)	(0.046)	(0.046)
Unemployed	0.026	0.025	0.104	0.103
	(0.066)	(0.066)	(0.069)	(0.070)
Renter	-0.037	-0.036	0.029	0.029
	(0.041)	(0.042)	(0.042)	(0.041)
Owner with Debt	-0.023	-0.024	0.030	0.026
	(0.036)	(0.036)	(0.037)	(0.037)
Lives Alone	-0.023	-0.023	0.030	0.025
	(0.046)	(0.046)	(0.046)	(0.045)
Center region		0.021		0.067*
		(0.040)		(0.041)
Lisbon region		0.011		0.107***
		(0.038)		(0.038)
Alentejo region		-0.015		0.031
		(0.061)		(0.059)
Algarve region		-0.005		-0.104*
		(0.072)		(0.062)
Constant	-0.029	-0.033	-0.160	-0.188
	(0.134)	(0.136)	(0.126)	(0.128)
Observations	1,024	1,024	1,024	1,024

Robust standard errors in parenthesis. Asterisks indicate significance levels of 10% (*), 5% (**), and 1%(***), respectively.