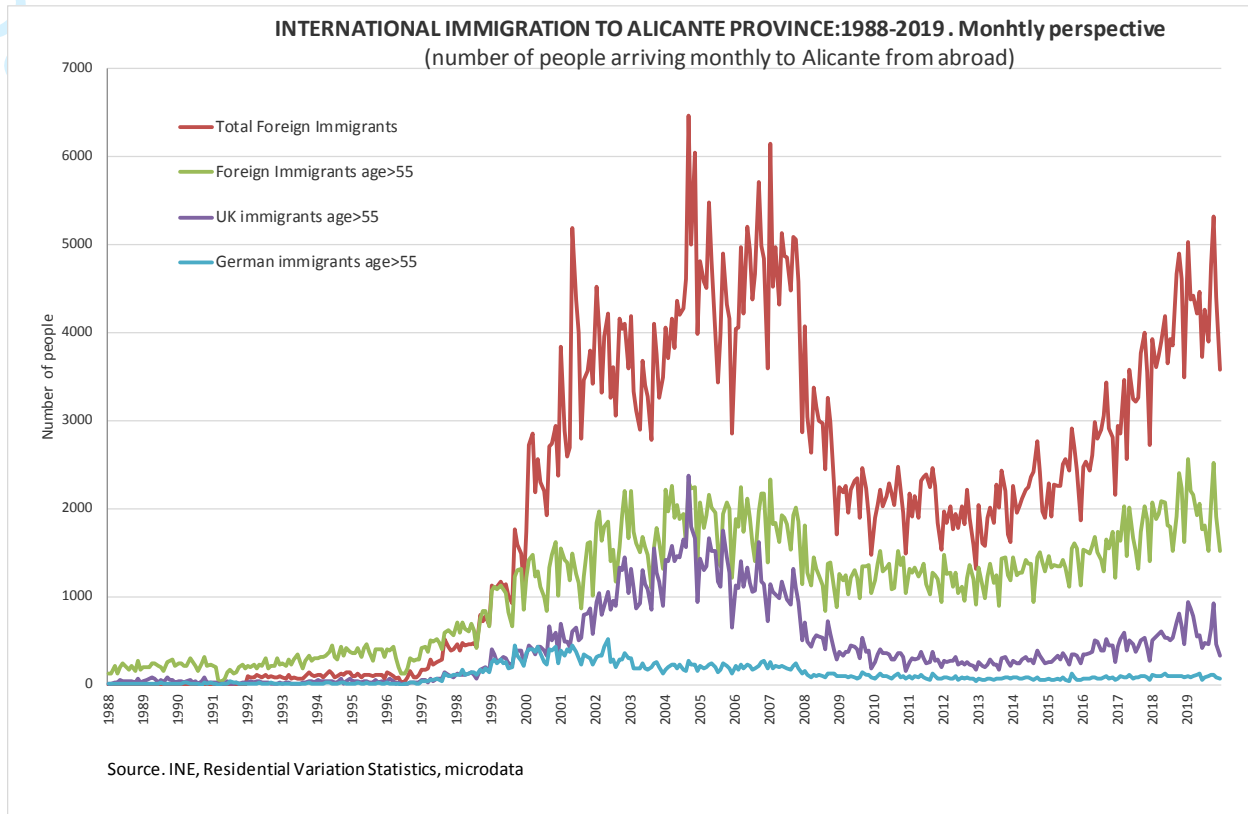




International retiree migration and housing markets. An evidence from Spain

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Keywords:	retiree migration, Housing market equilibrium, panel cointegration, housing investment

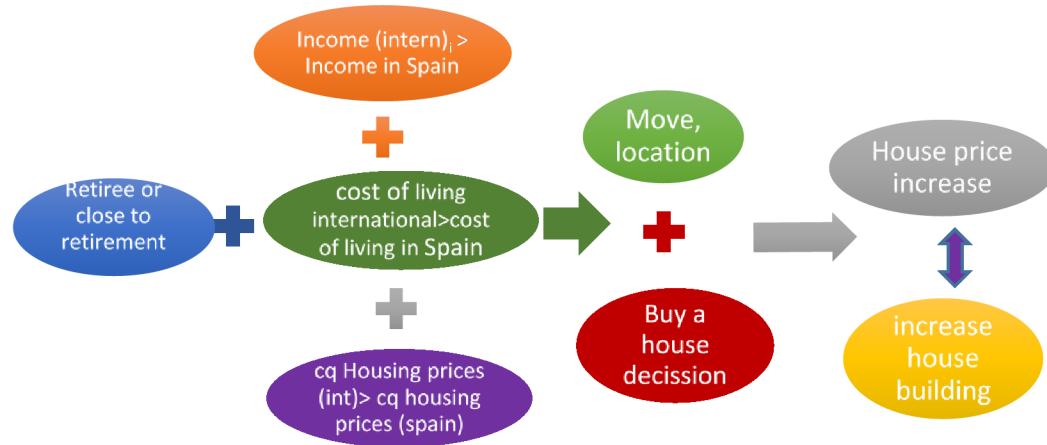
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Fig. 1. International Immigration to Alicante Province Spain

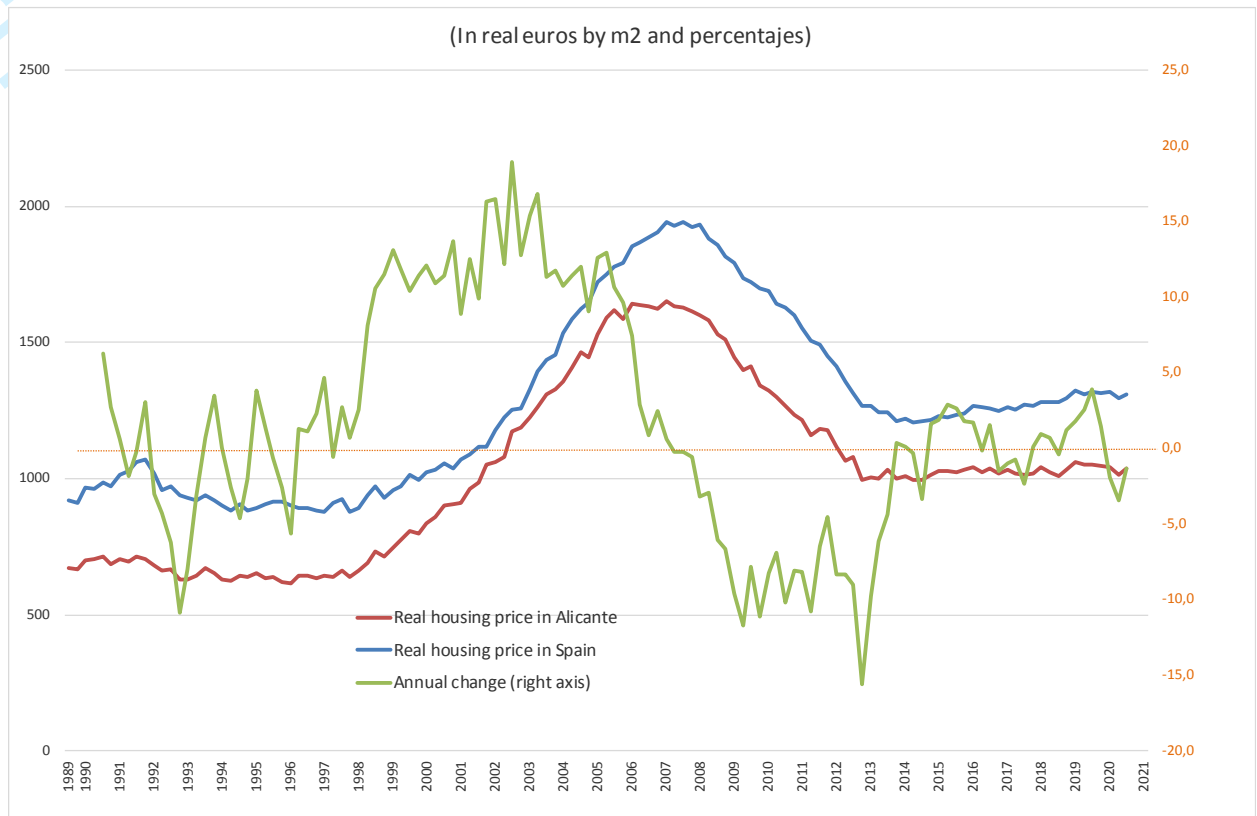
Note: This figure shows the number of people moving to Alicante cities from foreign countries every month from January 1988 through December 2019. It counts the number of new people registering as residents. The total number of immigrants is shown along with the total number of immigrants older than age 55, those older than 55 coming from the UK and those older than 55 coming from Germany.

Source: Spanish Statistical Institute (INE), *Residential Variations Statistics (Estadística de Variaciones Residenciales)*, microdata 1988-2019.

Figure 2. Retiree migrants decision process to buy a house



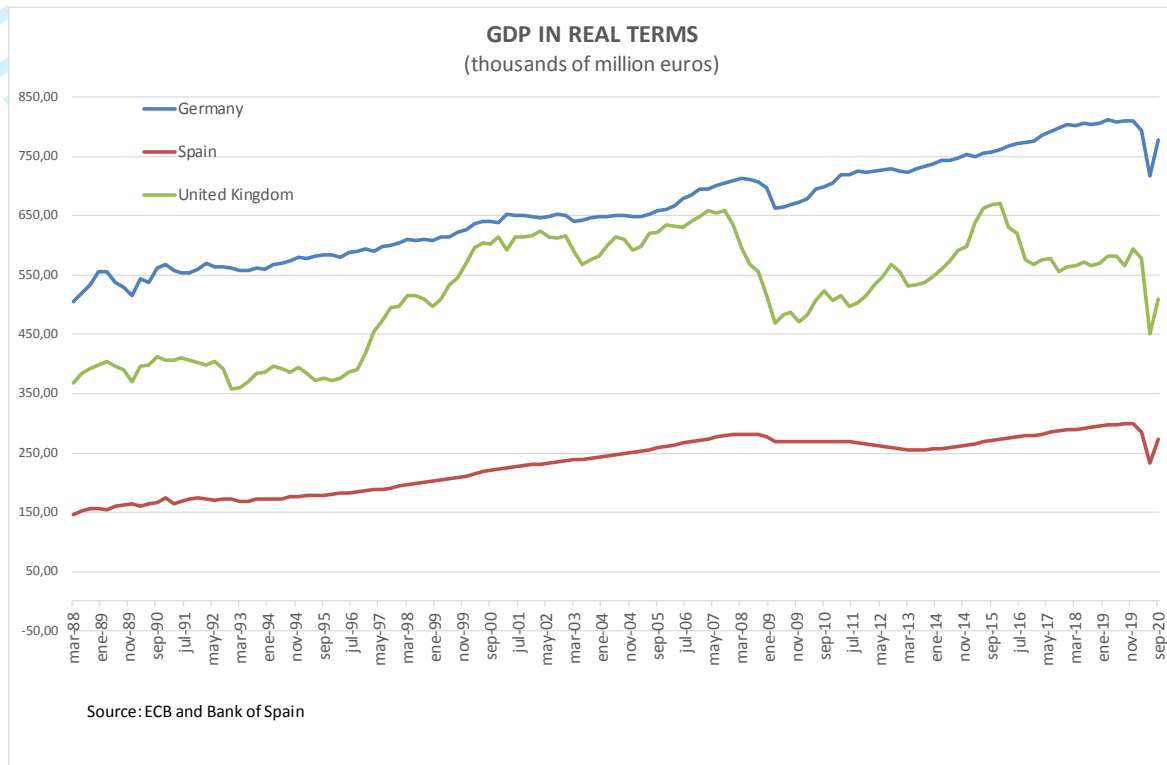
Source: authors

Fig. 3. House Prices in Alicante Province, Spain

Note: This figure shows the average quarterly price per square meter for houses in Alicante Province, the Spanish house price mean and the annual percentage change from Q3 1989 to Q3 2020 for Alicante. Prices are adjusted by deflating the price per square meter to 2005 using the construction cost index.

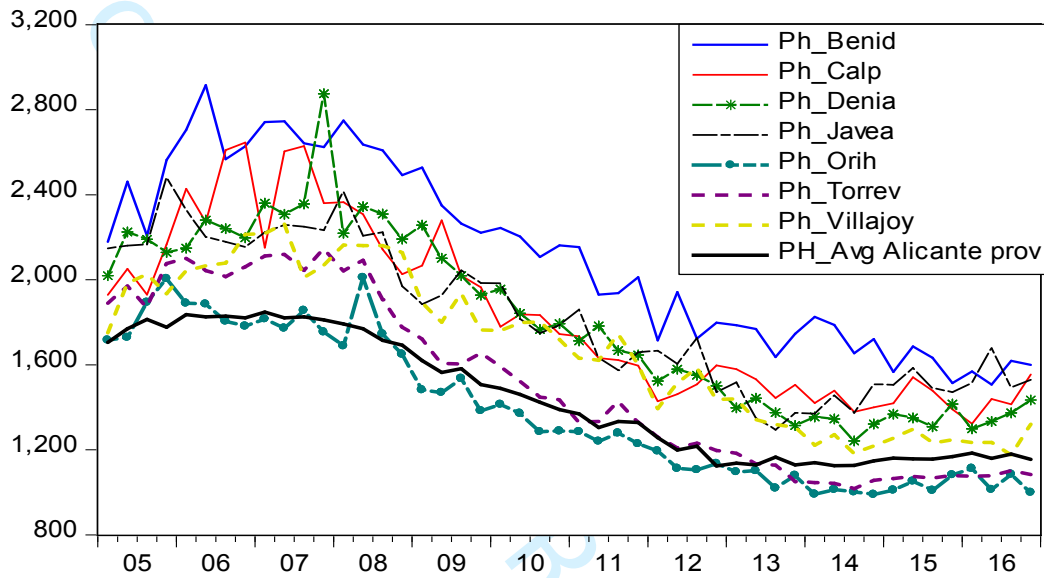
Source: Spanish Ministry of Fomento (MFOM).

Fig. 4. GDP in real terms 1995-2019 by country



This figure represents the evolution of GDP in real euros during the period 1988-2019. The UK figure is transformed into euros by dividing the GDP in British Pound by the exchange rate of the pounds/euro.

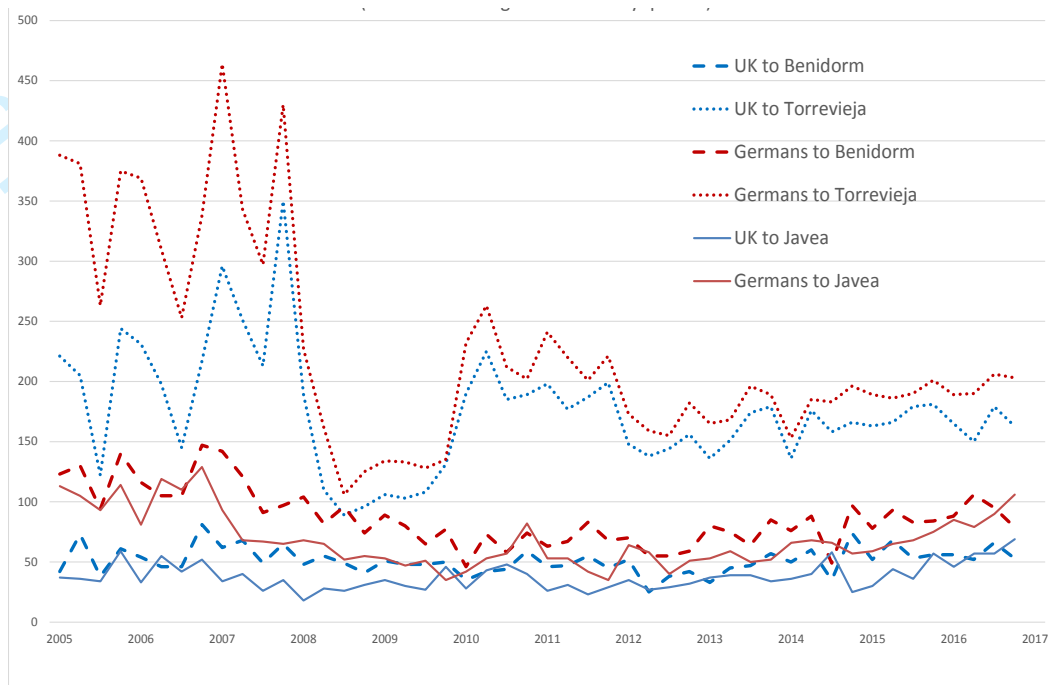
Fig. 5. House Prices in Eight Selected Cities in Alicante Province



Note: This figure shows the average quarterly price per square metre for houses in eight major cities in Alicante Province as well as the Province average from Q1 2005 to Q4 2016. Prices are adjusted by deflating the price per square metre to 1988 using the construction cost index. Each line is labelled with the city's abbreviated name.

Source: Ministry of Fomento (MFOM)

Fig. 6. Immigrants Older than 55 Arriving in Three Selected Cities in Alicante Province



Note: This figure shows the number of people older than 55 moving to three Alicante cities every month from January 2005 through December 2016. It counts the number of new people registering as residents.

Source: INE, *Residential Variations Statistics (Estadística de Variaciones Residenciales)*, microdata.

Table 1. Variable Definitions

Variable	Measure and units	Source
P_{ht}	Quarterly house price in euros per square meter in Alicante (real terms deflated with construction costs based on 2005)	Spanish Ministry of Fomento (MFOM). <i>Valor Tasado de las Viviendas</i> , various years. www.mfom.es
$I_{ruk,t}$	Number of foreign immigrants older than 55 arriving in Alicante each quarter from the UK	Encuesta de Variaciones Residenciales. EVR, Spanish Statistical Institute (Instituto Nacional de Estadística-INE)
$I_{rger,t}$	Number of foreign immigrants older than 55 arriving in Alicante during the quarter from Germany	EVR-INE
$I_{ro,t}$	Number of foreign immigrants older than 55 arriving in Alicante each quarter from any European origin except the UK and Germany	EVR-INE
$I_{w,t}$	Number of other immigrants arriving in Alicante each quarter from any origin except the three above	EVR-INE
$Ye_{uk,t}$	Ratio of quarterly GDP in pounds in Spain to quarterly GDP in UK (GDP_{sp}/GDP_{uk}) (real terms deflated to 2005)	Bank of Spain. <i>Boletín of Statistics</i> , various years
$Ye_{ger,t}$	Ratio of quarterly GDP in euros in Spain relative to quarterly GDP in Germany (GDP_{sp}/GDP_{ger}) (real terms deflated to 2005)	Bank of Spain. <i>Boletín of Statistics</i> , various years
$Ye_{ger,t}$	Ratio of quarterly GDP per capita in Spain relative to quarterly GDP per capita in EU (GDP_{sp}/GDP_{eu}) (real terms deflated to 2005)	Bank of Spain. <i>Boletín of Statistics</i> , various years
$EXR_{uk,t}$	Quarterly exchange rate of British pounds to 1 peseta before 1999 and then to 1 euro from 1999 to 2019	Bank of Spain. <i>Boletín of Statistics</i> , various years
$EXR_{ger,t}$	Quarterly exchange rate of German Marks to 1 peseta before 1999. Constant from 1999 to 2019	Bank of Spain. <i>Boletín of Statistics</i> , various years
$PURC_{uk,t}$	Ratio of CPI in UK to CPI in Alicante (CPI_{uk}/CPI_t)	Spanish Statistical Institute (Instituto Nacional de Estadística-CPI - INE)
$PURC_{ger,t}$	Ratio of CPI in Germany to CPI in Alicante (CPI_{ger}/CPI_t)	CPI - INE
$Rir_{uk,t}$	Interest rate of 10-year bonds in UK) (real terms deflated using inflation rate)	Bank of Spain. <i>Boletín of Statistics</i> , various years
$Rir_{ger,t}$	Interest rate of 10-year bonds in Germany) (real terms deflated using inflation rate)	Bank of Spain. <i>Boletín of Statistics</i> , various years
Δh_t	Quarterly number of housing starts in Alicante	MFOM
Hcg_t	Annual percentage increase in Alicante housing prices based on quarterly data (real terms deflated using construction costs) $Hcg_t = [(\Delta p_{ht}/p_{h(t-1)})-1]$	MFOM

Table 2. Pooled Unit Root Tests

Tests	Ph-r		imm>55		ye		purc		CAPG_R		rir_d		viv		inm_others-55		
	1st dif		1st dif		1st dif		1st dif		1st dif		1st dif		1st dif		1st dif		
Unit root test for Cross-Sectionally independent Panels																	
Levin, Lin & Chu t-stat	null:common unit root		0,1121	15,43	-1,93**		-4,17***	--			--	--		--		--	
Im, Pesaran and Shin W-stat	null:individual unit root		-1,07	-0,774***	0,349	-4,543***	-1,21	-4,96***	-2,63***	-0,897	-9,56***	1,074	-10,92***	0,066	-6,60***	0,193	-4,52***
ADF - Fisher Chi-square	7,86	6,523***	3,343	33,53***	9,42	38,48***	20,16***	7,051	94,03***	1,59	112,87***	3,587	55,90***	3,25	33,20***		
PP - Fisher Chi-square	3,85	217,57***	6,398	258,06***	4,93	229,0***	45,17***	24,61***	254,64***	2,88	165,51***	6,182	267,95***	2,144	243,0***		
Unit root test for Cross-Sectionally Dependent Panels																	
PANIC- Bai and Ng	null:unit root		636,494		153,7		150										
Pooled stat	null: no cointegration among cross-sections		-1,0118		-1,084		0,2937										

***p<0.01, **p<0.05, p<0.1 means rejecting the null

the lack on significance of PANIC idiosincratic tests support the existence of crosssection dependency among the panel variables.

Table 3. Panel Cointegration Tests

Pedroni Residual Cointegration Test		
Null Hypothesis: No cointegration		
Trend assumption: Deterministic intercept and trend ⁺		
Alternative hypothesis: common AR coefficients (within-dimension)		
	Statistic	Weighted statistic
Panel v-stat	2,973***	2,979**
Panel rho-stat	-8,270***	-8,034***
Panel PP-stat	-7,392***	-7,234***
Panel ADF-stat	-0,130	-0,088
Alternative hypothesis: individual autoregression coefficients (between-dimension)		
Group rho-Statistic	-7,260***	
Group PP-Statistic	-6,610***	
Group ADF-Statistic	0,323	

Cross section specific results

Phillips-Peron results (non-parametric)

Cross ID	AR(1)	Variance	HAC
GER	0,692	3510,481	3642,089
UK	0,61	4076,765	5334,177
EU	0,319	7538,481	14152,9

Augmented Dickey-Fuller results (parametric)

Cross ID	AR(1)	Variance
GER	0,777	3243,106
UK	0,703	3835,024
EU	0,588	6378,835

Note: *p<.10; **p<.05;***p<.01

⁺ Results are very close if No deterministic trend is assumed

Table 4. Panel Dynamic Least Squares DOLS Estimation of Long-term Relationships

Panel dynamic least squares (DOLS) estimation model for retiree migrants in the Housing Market													
Dependent variable: log (Ph_r)	(1)			(2)			(3)			(4)			
Variables	β	Std. Error	VIF	β	Std. Error	VIF	β	Std. Error	VIF	β	Std. Error	VIF	
LOG(INM55)	-0,094	0,021 ***	1,348	-0,115	0,022 ***	1,965	-0,073	0,018 ***	2,416	-0,104	0,018 ***	1,274	
LOG(YE)	2,440	0,304 ***	1,779	1,940	0,267 ***	2,510	1,296	0,216 ***	3,044	2,355	0,285 ***	1,858	
LOG(PURC)	-2,952	0,421 ***	2,723	-4,368	0,369 ***	3,977	-5,209	0,265 ***	5,620	-2,775	0,404 ***	2,642	
CAPG_R	0,008	0,003 ***	2,609	0,020	0,003 ***	2,072	0,026	0,002 ***	2,202	0,005	0,003 *	2,474	
RIR_D	-0,021	0,011 *	1,323	-0,032	0,014 **	2,109	-0,057	0,012 ***	3,630	-0,019	0,010 *	1,194	
LOG(VIV)	0,051	0,023 **	1,686	0,057	0,023 **	2,077	0,099	0,021 ***	2,431	0,046	0,021 **	1,648	
D96_2	-0,637	0,209 ***	1,281	-1,763	0,311 ***	2,293	-2,033	0,274 ***	3,068	-0,462	0,192 **	1,222	
D11_1	-0,151	0,185	1,122	-0,301	0,260	1,348	0,115	0,296	1,684	-0,171	0,166	1,094	
R-squared	0,966			0,991			0,999			0,964			
Adj R-squared	0,955			0,980			0,996			0,954			
Long-run variance	0,010			0,0022			0,00009			0,012			
Sum squared resid	0,845			0,221			0,017			0,922			
Sample:	1988,4-2019,4			1989,4 2019,4			1990Q4 2019Q4			1988Q3 2019Q4			
Panel Balanced Obs	250			242			234			251			
DOLS (lag,lead)													
Specification	(-3,0)			(-6,0)			(-10,0)			(-1,1), Akaike			
Method: Weighted estimation													
Cointegrating equation deterministics: C @TREND LOG(IMM_TOT-55) Exr (Exchange Rate)													
Long-run variance weights (Bartlett kernel, Newey-West fixed bandwidth)													

Notes: * p<0.10; ** p<0.05; *** p<0.01. This table contains the Cointegration expression estimated taken, arbitrarily, 3, 6 and 10 lags and imposing the model the constrain that leads=0, in models 81) to (3). Model (4) is let to estimate lead and lags following Akaike

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3 criteria, automatically selecting a DOLS (-1,1).. VIF (Variance Inflation Factors) statistic is shown that parameters are not biased due to
4 excess of multicollineality.
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Table 5. DOLS model for retiree migrants in the Housing Market.

INDIVIDUAL SHORT RUN COEFFICIENTS

Panel DOLS model for retiree migrants in the Housing Market. INDIVIDUAL SHORT RUN COEFFICIENTS								
Sample:	1988,4-2019,4	1989,4 2019,4	1990Q4 2019Q4	1988Q3 2019Q4				
Panel Balanced Obs	250	242	234	251				
(lag,lead)				(-1,1),				
Specification	(-3,0)	(-6,0)	(-10,0)	Akaike				
Equation	(1)	(2)	(3)	(4)				
Individual deterministic coefficients								
Cross-section	GER	UK	GER	UK	GER	UK	GER	UK
C	9,84	10,92	9,60	10,65	9,30	9,94	9,66	10,52
@TREND	-0,006	0,002	-0,007	0,003	-0,007	0,004	-0,006	0,001
LOG(IMM_TOT-55)	0,043	0,078	0,016	-0,001	-0,064	-1,553	0,069	0,119
EXR	-0,047	-3,107	0,001	-2,308	-0,068	-0,119	-0,068	-2,914
Short run coefficients								
Contemporary short term effects								
Cross-section	GER	UK	GER	UK	GER	UK	GER	UK
D(LOG(INM55))	0,039	-0,017	0,079	0,007	0,052	0,072	-0,002	-0,004
D(LOG(YE))	-2,214	-0,513	-2,446	-0,351	-0,852	-0,530	-0,069	-0,039
D(LOG(PURC))	1,461	1,959	4,009	2,363	5,196	3,606	0,160	0,143
D(CAPG_R)	-0,003	-0,007	-0,015	-0,016	-0,021	-0,024	-0,003	-0,001
D(LOG(VIV))	-0,081	-0,027	-0,069	-0,001	-0,081	-0,075	1,028	1,929
(selected) lagged short term effects on the equilibrium								
D(LOG(INM55)(-1))	-0,002	-0,005	-0,010	-0,012	-0,018	-0,025	0,016	0,021
D(LOG(INM55)(-2))	0,014	0,021	0,000	0,023	0,044	0,025		
D(LOG(INM55)(-3))			0,899	0,482	1,468	1,346		
D(LOG(INM55)(-4))			0,040	-0,068	0,070	0,050		
D(LOG(INM55)(-5))			0,000	-0,001	-0,008	-0,010		
D(LOG(INM55)(-6))					0,010	-0,009		
D(LOG(INM55)(-7))					0,277	0,053		
D(LOG(INM55)(-8))					0,006	-0,036		
Cointegrating equation deterministics: C @TREND LOG(IMM_TOT-55)								
Long-run variance weights (Bartlett kernel, Newey-West fixed bandwidth)								

Table 6. Pooled EGLS Estimators for Key Variables in a City-based Panel. 2005-2016

Dependent variable: $\ln(P_{ijt})$			City 'h' parameters															
	Common parameters		Benidorm		Calpe		Denia		Javea		Orihuela		Santa Pola		Torrevieja		Villajoyosa	
	ϕ_τ	<i>Std. Error</i>	ω_{jh}	<i>Std. Error</i>	ω_{jh}	<i>Std. Error</i>	ω_{jh}	<i>Std. Error</i>	ω_{jh}	<i>Std. Error</i>	ω_{jh}	<i>Std. Error</i>	ω_{jh}	<i>Std. Error</i>	ω_{jh}	<i>Std. Error</i>	ω_{jh}	<i>Std. Error</i>
C	7.19***	0.09																
$I_{w,t}$	0.16**	0.07																
Δh_t	0.03***	0.01																
$Rir_{e,t}$	-0.01*	0.01																
$I_{ruk,t}$			0.09	0.12	-0.25	0.16	-0.08	0.1	-0.08	0.13	-0.02	0.08	0.19**	0.08	0.09	0.08	0.20**	0.10
$I_{rger,t}$			-0.04	0.22	0.78***	0.27	0.49**	0.20	0.28	0.26	0.08	0.16	-0.24	0.16	-0.12	0.14	-0.07	0.21
$I_{ruk} \times INC_{uk,t}$			0.07	0.20	-0.38	0.29	0.01	0.22	-0.00	0.22	0.21	0.18	0.54***	0.16	0.20*	0.11	0.58***	0.22
$I_{rger} \times INC_{ger,t}$			0.15	0.21	0.90**	0.29	0.67***	0.22	0.51**	0.25	0.19	0.16	-0.13	0.17	0.06	0.12	0.13	0.23
$I_{rger} \times PURCH_{uk,t}$			-0.92***	0.23	-0.36	0.27	-0.52**	0.21	-0.21	0.28	-0.57***	0.21	-0.94***	0.19	-0.90***	0.12	-0.62***	0.24
$I_{rger} \times PURCH_{ger,t}$			0.10	0.40	-0.79	0.48	-0.30	0.37	0.30	0.44	0.06	0.27	0.25	0.27	0.48**	0.20	-0.48	0.40
$I_{ruk} \times EXR_{uk,t}$			0.02	0.04	-0.11*	0.06	-0.07*	0.04	-0.11**	0.05	-0.06	0.04	-0.02	0.04	-0.03	0.02	-0.13***	0.05
$I_{ruk} \times Hcg_{uk,t}$			0.02	0.04	-0.11*	0.06	-0.07*	0.04	-0.11**	0.05	-0.06	0.04	-0.02	0.04	-0.03	0.02	-0.13***	0.05
$I_{rger} \times Hcg_{ger,t}$			-0.01**	0.01	-0.01	0.01	-0.02**	0.01	-0.01	0.01	-0.00	0.00	-0.00	0.00	-0.01	0.01	0.01	0.01
Effects																		
Specification	Fixed Effects																	
Benidorm	0.10																	
Calpe	-0.21																	
Denia	0.09																	
Javea	0.31																	
Orihuela	-0.17																	
Santa Pola	-0.07																	
Torrevieja	-0.17																	
Villajoyosa	0.12																	
Weighted Statistics			Unweighted Statistics															
Adj R ²	0.97		R ²		0.97													
F-statistic	139.26***		Σe^2		0.72													
Σe^2	0.72		DW-stat		1.81													
DW-stat	1.81																	

Notes: All variables are in logs except *Rir*. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

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International retiree migration and housing markets. An evidence from Spain*

Abstract

Large numbers of Northern European retirees have migrated to Southern European countries. A relevant part of this migration is from North to Southern Europe and is not driven by work purposes but rather the desire to establish residence in a warmer country. These migrants come from different countries and exhibit diverse socioeconomic characteristics and preferences, including varying income levels, housing tastes, and cultural habits, which could potentially influence the housing market in their host countries. This paper examines the permanent impact of retiree migrant flows on house prices in Alicante, Spain, from 1988 to 2019, explicitly considering the impact related to the country of origin using panel cointegration - DOLS models. The results indicate that the long-term relationship captures the entire effect on house price changes, and house prices respond immediately to the presence of retirees with permanent effects. Furthermore, the study suggests that the strong flow of retiree migration has created a shock in the housing market, with different effects on house prices based on the immigrants' country of origin. The model also identifies retiree income as a significant factor impacting housing prices, particularly when income growth in the origin country is slower than in Spain. Additionally, larger purchasing capacity in Alicante compared to the origin country results in a stronger effect on housing prices. In conclusion, retiree migration flow has a lasting impact on housing market prices in Alicante.

Key words: retiree migration; housing economics; housing investment; retiree migration

*We want to thank two anonymous referees and the Editor for the useful comments made to our article, which have substantially improved the latter version.

Introduction

International migration is a critical issue in Europe, especially since the formation of the European Union, which resulted in easier flows between member countries, with foreign citizens enjoying the same rights of legal treatment and access to services (like health systems) as locals. Most studies of this phenomenon have focused on workforce migration and its impact on the labor force and society, but little attention has been paid to retirees moving from northern Europe to the South, including from countries like Germany and the UK to Spain. This group of immigrants is especially relevant in regions where they concentrate, such as Alicante Province. Initially, this phenomenon was thought to be the result of European integration, but the evidence shows that this flow of senior migrants is still occurring, indicating a long-term population movement that should be analyzed.

International migration is an important issue in Europe, especially since the formation of the European Union, which resulted in easier flows between member countries with foreign citizens enjoying the same rights of legal treatment to use services (like health systems) as locals. Most studies of this phenomenon have focused on workforce migration and its labour force and societal impacts, but little attention has been paid to retirees moving from the northern Europe to the South, including from Germany and the UK, to Spain. This group of immigrants is especially relevant in regions in which they concentrate, such as Alicante Province.¹ Initially, this phenomenon was thought to be the result of European integration, but the evidence shows that this flow of senior migrants is still occurring, seeming to be a long-term population movement that should be analysed.

European retiree immigrants exhibit very different socioeconomic characteristics than other major flows of immigrants to Spain, such as laborers from Latin America and Africa. The retirees are also distinct from the local Spanish residents in terms of their income and housing

¹ Throughout this paper, we refer to Alicante Province (which includes the city of Alicante) as Alicante for brevity.

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3 preferences because they come from countries with different economic structures, wage
4 levels, pension systems, wealth composition, and social programs. Additionally, they differ
5 culturally in terms of living arrangements, traditional housing types, and homeownership
6 experience. Such differences are supported by the literature and were evidenced by a survey
7 conducted in Alicante, Spain, during 2005-2006 (Gibler et al., 2009), in which the issues
8 related to retiree immigrants' housing choices were examined. The principles of urban theory
9 support the idea that merging multiple sources of demand with strong differences in
10 economic and social attributes would dramatically affect the housing market mechanism and
11 characteristics if the migrant flow is large enough. Thus, the sheer number of Northern
12 European retirees arriving over the last 20 years may have created a spike in housing demand
13 in destination communities that fluctuates with the immigrant flow and influences the
14 housing market equilibrium, as addressed here.

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Additional reasons suggest that such a flow of people can affect the housing market in the destination area. If the newcomers exhibit a higher income level than the residents in the host country, they could find those houses with similar features that were previously fully unaffordable in their original country to be affordable in the destination community. This situation allows them to buy a house and move to live there. The reasons behind retiree immigrants buying houses and moving to live in the destination area have not been thoroughly analyzed in the literature despite being a relevant phenomenon for decades over the last 20 years.

In addition, because UK migrants are one of the main relevant flows to Alicante, this study acquires additional relevance because of the uncertainties surrounding Brexit's impact on freedom of movement between the UK and EU countries as well as British citizens' social rights when living in Spain, including health and social coverage. Thanks to the agreements between Spain and the UK and Germany in the European Union contexts that cover public

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3 healthcare and social services, pensioners permanently residing in Spain can obtain free
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5 healthcare and access to social services, while early retirees may have to purchase private
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7 insurance (*Legido-Quigley et al.*, 2012). Such advantages may end with Brexit and could
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9 potentially affect retiree migration. After Brexit, the UK retirees still arrive in Alicante,
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11 creating uncertainty about the future evolution of retiree flows and the (unknown) potential
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13 impact on the housing market.
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17 The aim of this paper is to determine how foreign retiree immigrants permanently influence
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19 the housing market in Alicante. This province is selected for the analysis due to the relatively
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21 high level of international retiree migration. Because British and German immigrants
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23 comprise the majority of people older than 55 migrating to Alicante, the analysis focuses on
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25 these two groups. Alicante is the main destination within Spain for retirees from the UK and
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27 the third most popular for Germans. The paper also benefits from a rich official Spanish
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29 dataset (EVR) that accounts for every person arriving in any municipality. The dataset
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31 provides microdata of individuals by origin and destination, and after a deep cross-selection,
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33 the 'history' of senior immigrants can be built and analyzed.
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38 To the best of our knowledge, this is the first paper that attempts to discriminate
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40 between the effects on house prices by immigrant country of origin. The research approach
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42 taken in this study is applicable to any market experiencing simultaneous flows of retiree
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44 immigrants from multiple countries and can be used to examine scenarios in which changing
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46 conditions in the origin country directly and indirectly influence housing market conditions in
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48 the destination country.
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52 This is organized as follows. Section one provides the motivation for the study and
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54 summarizes the existing literature to identify the economic reasons why retiree migration to
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56 Alicante could produce an economic shock in the housing market. Section two defines the
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58 theoretical basis to construct the model. Section three explains the data used in the analysis.
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3 The fourth section describes the empirical analysis. A discussion of the results and
4
5 conclusions is included in the last two parts of the paper.
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10 **Motivation and literature review**

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12 European mobility and the international migration rate to Spain started growing dramatically
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14 in the late 1990s after Spain joined the EU and low-cost airlines made international travel
15
16 more affordable. According to the Estadística de Variaciones Residenciales (INE), 96.3 per
17
18 cent of the 11.89 million foreigners moving to Spain between 1988 and 2019 arrived after the
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20 turn of the century. While the size of the immigrant flow dropped during the recession, the
21
22 pace of migration to Alicante has been increasing again over the last five years, as illustrated
23
24 in Fig. 1, with the flow of retiree immigrants now back at pre-recession levels. On average,
25
26 17.4 per cent of international immigrants older than 55 arriving in Spain chose to live in
27
28 Alicante between 1988 and 2019 according to Estadística de Variaciones Residenciales
29
30 (EVR-INE). British immigrants account for the largest group of retirees arriving in Alicante
31
32 each year, peaking at 77.9 per cent of the total in 2004. Based on INE data, Alicante is the
33
34 primary destination within Spain for retirees from the UK and the third most popular for
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36 Germans.
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42 [Fig. 1 here]

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45 The movement of aging Northern Europeans to Alicante can be explained partially by
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47 the weather and slower pace of life (Casado-Diaz, 2006). In addition, recreational facilities
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49 such as 15 golf courses, many with housing communities constructed around them, have been
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51 a draw (del Campo Gomis *et al.*, 2006). Many Northern Europeans started their move first
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53 through beach and/or golf vacations that familiarized them with destinations promoted in
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55 their home countries. With local Spanish governments allowing and even encouraging large
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57 housing developments, including golf communities, for foreign tourists and residents, the
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3 migration flow resulted in the growth of concentrated communities of retired foreigners in
4 areas of the Spanish Mediterranean coast that act as magnets for attracting even more
5 reinforcing flows of retirees from Northern European countries who benefit from the
6 infrastructure, services, and social support system (King *et al.*, 2000; O'Reilly, 2000). In fact,
7 foreign residents aged 65 and older comprised more than three-fourths of the elderly
8 population in seven communities in 2006 (INE).
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19 Most studies about the motivation for long-term or permanent international migration
20 at retirement focus on sociological factors, whereas few explore economic reasons². The
21 majority of the existing literature focuses on sociological features and supports the idea that
22 retiree immigrants from different countries may differ in motivations and preferences.
23 Casado-Diaz (2006) finds German residents age 50 and older in Torrevieja, Alicante, are
24 more likely to cite health and purchasing a second home as reasons for moving to Spain than
25 British residents, while the British are more likely to place importance on the lower cost of
26 living and access from the UK. Thus, German residents may have more physical limitations
27 that would affect housing design choice and be looking for a house that will serve as a
28 temporary or seasonal residence, while British buyers may be more interested in a year-round
29 house in a location convenient to an airport as well as be more price conscious. More British
30 retirees had also lived in a third country, so they have experienced a wider variety of housing
31 types than the Germans. An earlier survey by Rodríguez *et al.* (1998) of Costa del Sol
32 residents finds that British residents were more likely to have owned a home previously in
33 Spain, indicating internal mobility. Meanwhile, German residents are more likely to be
34 attracted by leisure and recreational facilities so they may place greater value on communities
35 offering these amenities.
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² A summary of this literature can be found in Gibling *et al.*, 2009

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3 Taltavull de La Paz *et al.* (2008) conducted a survey to identify the economic
4
5 motivations for international retirement migration to Spain associated with their housing
6
7 preferences. They found three reasons driving the decision to establish residence in an area:
8
9 (1) Retirees may be making a protective move in anticipation of the reduction in real income
10
11 they will experience when they retire; (2) Older homeowners' income constraint is not tied to
12
13 wages and salaries, but to pensions and wealth, which are mobile; and (3) International
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15 migrants often choose to live in an area where housing costs are more affordable than where
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17 their income and pension were earned. Because international retirees' consumption depends
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19 on their pensions and wealth that are derived from earlier earned income, and these are set
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21 exogenously to the host economy, their arrival to the host municipality creates additional
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23 housing demand beyond domestic demand, but with buyers exhibiting higher income levels,
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25 tastes and purchasing capacity, which may influence the type and size of houses they require
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27 in the market; however, this relationship is a hypothesis that yet has not been empirically
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29 tested.
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38 Classical housing models demonstrate that demand concentration encourages
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40 dynamism in property markets by increasing prices (Arcelus & Meltzer, 1973; Clark &
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42 Withers, 1999; Coulson, 1999; Eaton & Eckstein, 1997; Hanushek & Quigley, 1979; Meen,
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44 2001; Muth, 1988; Smith et al., 1988). One source of increased demand is immigration.
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46 Researchers exploring the influence of immigration on house prices typically use aggregate
47
48 figures or else focus on the labour force, where immigrants tend to be less educated and
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50 lower paid than native populations. They do not distinguish among immigrants based on their
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52 country of origin. Overall results indicate that working-age immigrants significantly
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54 influence housing prices in the short run may be ameliorated in local areas in the long run due
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56 to locals leaving the affected area or supply being increased. For example, Eliasson (2017)
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3 finds that incorporating net migration into a price equation consisting of the ratio of real
4 housing wealth to income, the ratio of household debt to income and the real rate of interest
5 eliminated an unexplained trend in house prices during "bubble" years 2004-2007 in
6 Reykjavik, Iceland. One percent annual net immigration during this period boosted house
7 prices by at least 4 percent in the subsequent year. In addition, Gonzalez & Ortega (2013)
8 employ an instrumental variable approach with ordinary least squares to determine that a 1.5
9 percent increase in regional working-age population led to a 1 to 1.6 percent increase in
10 house prices in the following year, accounting for one-fourth of the increase in prices in
11 Spain between 2000 and 2010.
12
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14 The fact that workers in the local market, as the primary source of demand, affect housing
15 prices is a mechanism entirely accepted by the housing economics literature. However,
16 elderly purchasers have not been considered a sufficiently strong source of demand to affect
17 housing prices, possibly for two reasons. First, their impact is difficult to identify if the flow
18 is small relative to total migration. Second, such movements may not be considered migration
19 if, as in many cases, the retiree migrants live only part of the year in the destination house,
20 making frequent visits to their origin country.
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23 Retiree migration is a unique phenomenon. A survey³ conducted in Alicante
24 (Taltavull de La Paz et al., 2008) supports the idea that a large proportion of British seniors
25 (25% of all UK respondents) were real migrants that do not visit the UK annually, but only
26 10% of German retirees move permanently; the rest stay for long periods within each year,
27 but go back to Germany frequently. The study also provided evidence that retiree migrant
28 households buy a home abroad near retirement, similar to research that indicates that almost
29 one-third of U.S. retiree migrants buy houses close to the time of arrival in their new
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59 ³ The survey was developed under the RevicVal project granted by the Generalitat Valenciana, the Regional
60 Government of Valencia Community.

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3 community (Bennett, 1996; Serow & Haas, 1992). Most U.S. regional migrant retirees also
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5 bring income and wealth flows with them that provide them with higher levels of wealth than
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7 local retirees (Orzechowski & Sepielli, 2003) rather than the lower levels of wages associated
8
9 with international labour force immigrants.
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14 In addition, Gibler *et al.* (2009) found that retiree migrant movement decisions are based on
15
16 different motivations than the traditional 'sun and beach' motive (tourism objective).
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19 Economic conditions and the quality of the environment motivated British and Germans
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21 retirees to move and buy a house. Several specific economic factors arise from that research
22
23 that can assist in understanding the strong retiree movement from the colder to the sunnier
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25 countries and its consequences. Lower housing prices, cheaper cost of living and lower
26
27 housing maintenance costs were among the five most important factors in choosing their
28
29 home. The motivations expressed by the retirees are consistent with the housing demand
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31 literature. As shown in Fig. 1, retiree migrants are still arriving in Alicante. The reasons why
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33 they are still moving to this province should focus on the motivations reported in this study.
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40 The arrival of large numbers of immigrants concentrated in a few small and medium-sized
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42 towns could act as a shock and alter the housing market equilibrium and the overall economy
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44 in those areas. Such a shock on a housing market has not been tested. The critical issue is
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46 whether the shock has temporary or permanent effects. It is important to understand the
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48 variation in influence that may be exerted by flows of immigrants, especially when the
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50 immigrants cluster in small areas where their arrival may create a shock in the local market,
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52 and that shock has a permanent effect. The influence of British retirees on housing markets in
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54 the EU countries is of particular interest, considering Brexit and its potential to dramatically
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56 alter economic relationships and population movements. The question is fascinating as the
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3 UK leaves the EU and the UK citizens lose their privileges in EU areas, yet UK seniors are
4 still arriving in the traditional destinations.
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8 All these components can be included in a standard housing demand model to test the
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10 hypothesis as to whether retiree migrants' effect on housing market equilibrium is significant
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12 enough to be reflected in prices at their destination and whether, in the context of market
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14 equilibrium, those migrants decide to move to selected municipalities because of economic
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16 reasons, once they have decided to move. If workers close to retirement know that their
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18 pensions will lose purchasing capacity, they will face increasing expenses. As a result, they
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20 may decide to move to a house in a desirable area within a country with sufficient housing
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22 supply where they can buy a house using their savings or selling their current house at a
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24 relative premium) and enjoy a cheaper cost of living. Fig. 2 represents the causal relationship
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26 to be tested in this paper, which is when retirees decide to migrate after retirement, the
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28 decision depends on three conditions: their income is larger than the average in the
29
30 destination (which allows them a higher standard of living than in origin), the cost of living is
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32 lower in the destination (allowing income for discretionary spending), and the price of a unit
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34 of comparable housing is lower in the destination market. If the three conditions are fulfilled,
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36 the decision to move and buy a house is made. The accumulation of those new homeowners
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38 stresses the market, affecting prices and also new construction of units appealing to the
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40 migrant demand.
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46 [Fig. 2 here]
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50 51 **The Model**

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53 Economic principles suggest that retiree migration from developed countries would increase
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55 demand for housing as well as for other goods and services in destination markets, thereby
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57 creating positive effects in the destination economy. Due to their stable flow of income
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3 (pensions), retirees should create a stable effective demand in the destination housing market
4 with varying impacts depending on the housing features they prefer and the specific towns
5 where they choose to live.
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10 The immigrants' higher level of income and capital than local residents suggest that
11 their presence will tend to increase the level of house prices until some point between the
12 previous equilibrium price in the destination market and the equilibrium price in the
13 immigrants' origin market. Whether the immigrants pay for houses using equity from selling
14 their previous houses or tapping into savings, they will alter the local housing market via their
15 capital availability.
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26 The presence of new purchasers with relatively higher purchasing capacity stresses
27 the mechanism in the higher quality segment of the housing market, which may increase the
28 price level in this segment first before being transmitted to the rest of the market. Isolating
29 the effect of retiree immigrants in local markets empirically is a complex task due to the
30 existence of other forces acting at the same time, such as labor migration, local movements,
31 economic growth, and the credit expansion seen in most developed countries before the
32 economic crisis.
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42 To examine the effect of retiree immigrant flows on a destination housing market and
43 test the hypothesis defined in Fig. 2, this paper uses a traditional demand function definition
44 in a context of time-variant migration. The demand equation considers that international
45 retiree immigrants form a part of the permanent demand because they buy a house in a town,
46 register as residents and live in the destination community.⁴ Some retirees may only reside in
47 that destination for six to nine months each year (*Gibler et al.*, 2009), yet they remain fully
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59 ⁴ Note that other source of migration is the one coming from migrants looking for jobs. Those migrants cannot
60 buy houses immediately and normally rent dwellings affecting rental levels but not directly housing prices.

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3 linked with the town through their year-round house expenses and maintenance, as well as
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5 their demand for services.
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8 In this paper, we use the conventional expression where housing prices react to
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10 changes in fundamental variables like population, income and the amount of resources to
11
12 invest in housing, user costs and vacancies at a moment of time (Meen *et al.*, 2001)⁵:
13

$$14 \quad P_h^d = f(X, Z)_t = \alpha_1 + \alpha_2(Pop)_t + \alpha_3(y)_t + \alpha_4(K)_t + \alpha_5(\Delta h)_t + \alpha_6(Cu)_t + \mu_t \quad (1)$$

15
16 where:

17
18 P_h^d represents price per unit of housing, adjusting to any shock in demand.

19
20 Pop : population

21
22 y : real income or other measure of income

23
24 K : capital expenditure on housing for homeownership and the extra amount of finance
25
26 capital available for housing purchases
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29 p_h : house prices

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31 Δh : vacancies⁶

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33 Cu : user costs of housing
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40 We are interested in separating the effect of the retiree migrants and testing whether this flow
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42 of demanders and their characteristics exert permanent or temporal effects on housing prices.
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45 To do so, we disaggregate the demographic component (Pop) in the local population
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47 (pop) and immigration, which is composed of international retirees (I_r) from each country, e ,
48
49 and all other immigrants (I_w). Testing the migrants' preferences revealed in the survey
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51 (Taltavull de La Paz *et al.*, 2008) and expressed in Fig. 2. Income and other retiree migrant
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57 ⁵ Meen *et al.*, 2001:30 define housing prices as a function of housing demand and housing supply equilibrium
58 where housing demand can be broken down in two components, local population and migration. The expression
59 (1) is the reduce form of the full model of demand and supply.

60 ⁶ The role of vacancies in the equilibrium expression of the housing market model is to measure the level of
disequilibrium existing at a moment of time (Maisel, 1962; Fair, 1972).

features are defined in a relative form in order to capture the premium or discount associated with those features that affect the housing market equilibrium and prices. The income component is measured as the relative income between the destination (Spain) and origin countries ($INC_{e,t} = ye_{sp,t}/ye_{e,t}$); The relative cost of living is a component of the user costs of housing (Cu_t), well known in the literature (Dougherty and Van Order, 1982; Meen, 2001; Poterba, 1984). It is comprised of four components that have been included in this study and that also were part of the Gibler *et al.* (2009) survey questions: capital gains (Hcg_t) attractiveness (which most retiree migrants said wasn't relevant to their decision). The marginal cost of capital (approached by the 10-year bond rate in each origin country in real terms $Rir_{e,t}$), which captures the opportunity cost of capital of investing in a house overseas as a component to explain the purchase decision and the relative purchasing capacity, which approaches the premium in the cost of living in the host municipality, defined as $PURCH_{e,t} = (CPI_{e,t}/CPI_{l,t})$.⁷ Exchange rate ($EXR_{e,t}$) is also included as a component because it acts as exogenous variable modifying Cu_t components if the purchase is made with different currencies and the relative value perceived (in the foreign currency) of the house. Exchange rates affect house maintenance costs and the cost of living in Alicante in the case of currency devaluation.

The evidence that retiree immigrants mostly pay for their houses in Alicante in cash (Taltavull de La Paz *et al.*, 2008) indicates that financing is not used, so K goes to zero in the price model when estimating for these groups.

In summary, house prices in an area with retiree immigrant flows should react according to the abovementioned components. When retiree immigrant numbers are

⁷ Taltavull de La Paz *et al.* (2008) show that one key reason retiree immigrants purchase houses in Alicante is the premium on purchasing capacity between their origin countries and Spain due to the difference in cost of living.

sufficiently large, they become a relevant force affecting the market and differentials in the determinants of demand will affect housing price equilibrium, as expressed in (2).

$$P_{ht} = \alpha_1 + \gamma_1[Imm_{55}]_t + \gamma_2[Ye_e]_t + \gamma_3[EXR_e]_t + \gamma_4[PURC_e]_t + \gamma_5Hcg_t + \gamma_6Rir_{e,t} + \gamma_7\Delta h_t + \Phi X_t + \mu_t \quad (2)$$

where P_{ht} is house price in Alicante; $Imm_{55,t}$ is the number of immigrants in the retiree immigrant population segment whose influence is being estimated; $Ye_{e,t}$ is the relative income level between Spain and the immigrant's origin country where GDP represents income (y); $EXR_{e,t}$ is the exchange rate between the two countries' currencies; $PURC_{e,t}$ is the ratio of purchasing capacity in the origin country relative to Alicante as measured by relative CPI; Hcg_t is house price growth (capital gain) in Alicante; $Rir_{e,t}$ is the cost of capital measured in real terms as an alternative capital investment rate measured using the 10-year bond rate in each country of origin; Δh_t represents housing vacancy in the province and X is a matrix containing the variables controlling for the rest of migrations flows ($Imm_{w,t}$ and $Imm_{55,t}$) and local economic variables.

Data

A database is constructed by pooling dynamic data (1988-2019) to test the model (2). Because the data extends through 2019, it is possible to analyse price movements across the entire economic cycle. Quarterly house prices for Alicante (P_{ht}) from 1988 through 2019 are obtained from the Spanish Ministry of Fomento (MFOM) database. Real house prices have been computed by deflating the Alicante price per square meter using the construction cost index. These prices, which averaged 1005.59 euros/m² in real terms over the study period, are illustrated in Fig. 3. Variable definitions and measurements are presented in Table 1 and summary statistics are provided in Appendix 1.

[Fig. 3 and Table 1 here]

The Spanish Statistical Institute (INE) publishes the Residential Variations Survey (Encuesta de Variaciones Residenciales-EVR), which contains the registers of all people when they arrive in any municipality to live permanently or when they buy a house⁸. It allows us to identify new residents by country of origin, so we extract British and Germans older than 55 by quarter of registration between 1988 and 2019 (last year available) ($Imm_{55uk,t}$, $Imm_{55ger,t}$). The two groups are extracted from the total because they were identified as the most important in this market from INE data, as shown in Fig. 1.

The income variables are approached using GDP in real terms of each country. We use the official macro-aggregate directly estimated in euros and pounds from the source published in the European Central Bank- Bank of Spain database to build the measure of relative income among the origin countries and Spanish income ($Ye_{uk,t}$, $Ye_{ger,t}$) with the UK component transformed using the exchange rate across the entire study period, and the German component transformed prior to 1999 when both Spain and Germany moved to the euro. Relative income is defined as the ratio between the GDP in Spain ($GDP_{sp,t}$) and the GDP in the origin country ($GDP_{uk,t}$, $GDP_{ger,t}$), and it captures differences in the wealth creation in each country. Spain's GDP per capita relative to both countries rose steadily from the early 1990s through 2009 albeit at different rates, and then declined.⁹ German and British households have higher GDP (as shown in Fig. 4), which can explain the higher level of salaries and income received by the workers driving to greater savings/wealth for retirement.

⁸ EVR is a database with the municipalities' registers of all population when move permanently. For information security reasons, details are only available for those municipalities with more than 10 000 inhabitants. The database permits reconstruction of the time series of permanent migration. Registration in the municipalities is compulsory to receive water and electricity services and public services like health. Immigration statistics do not give details about the age, origin and final destination so this source is the only Spanish database available to reconstruct the flow of migrants associated with housing.

⁹ We tested including the GDP of each of the three countries separately as well as combined. The explanatory capacity of the models suggests that the ratio among the GDPs is the best measures to capture the income incentive for immigrant retirees to buy a house in Alicante.

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3 The relative measure of income in the model captures the effect of larger relative income in
4 origin countries.
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7 [Fig. 4 here]
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10 Quarterly exchange rates ($EXR_{uk,t}$, $EXR_{ger,t}$) are computed as an average of monthly
11 reported rates using the direct exchange rate from the Bank of Spain between the British
12 pound and the German Mark with the peseta until 1999 when the euro was introduced. From
13 that time, the exchange rate is only between the British pound and the euro.¹⁰
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18 Differences in purchasing capacity ($PURC_{uk,t}$, $PURC_{ger,t}$) are constructed using the
19 monthly CPI series in the two origin countries and the destination province in Spain from
20 INE to derive a quarterly average. We compute this variable with the same yearly base as a
21 ratio between the origin country CPI and the Alicante CPI to capture changes in the cost of
22 living due to different variations in consumption goods prices.¹¹
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30 Capital gain (Hcg_t) is computed as the annual percentage increase in Alicante housing
31 prices based on quarterly data (real terms deflated using construction costs). The average
32 annual increase in real house prices in Alicante over the study period is 1.9 per cent¹²;
33 however, the volatility of the market during this time is evidenced by the range from a loss of
34 almost 15.56 per cent to a gain of almost 27.2 per cent in individual years, in real terms.
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Many immigrant retirees declared in the REVICVAL survey (Gibler *et al.*, 2009) that
potential capital gain was not their reason for buying a house in Alicante; therefore, the effect
potential capital gain has on the decision to buy a house in Alicante is uncertain.

Interest rates as a measure of alternative investment opportunity cost are represented
by the real 10-year bond rates in each country of origin ($Rir_{uk,t}$, $Rir_{ger,t}$) as reported by the

¹⁰ Which is the bilateral exchange rate fixed by the euro between the German and Spanish currency.

¹¹ The CPIs used are not identical due to differences in the internal structure of the consumption model in each country (see Garrido-Yserte *et al.*, (2012) for a discussion of the housing component, for example); however, there is not another source of prices available for the entire period.

¹² Yearly cumulative growth rate $[[(x_t/x_0)^{(1/n \cdot \text{years})}] - 1] * 100$

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2
3 Bank of Spain. Finally, housing starts in Alicante are used as a measure of vacancy (Δh_t) as it
4 represents the speed of supplying new units in the market. Vacancy is a non-observed
5
6 represents the speed of supplying new units in the market. Vacancy is a non-observed
7
8 variable in Spain and should be approached through a proxy. Maisel (1962), in his Inventory
9
10 theorem, proposed that vacancies evolve around an equilibrium rate and that '*vacancies above*
11
12 *the equilibrium are both a cause and effect of the variations in starts*' (Maisel, 1962:370). He
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14 defines the components of vacancies and concludes that vacancy variability primarily comes
15
16 from housing starts. Because vacancies are stable in the long term and the main source of
17
18 variability is the starts, then the latter can be considered a proxy for vacancies variability. The
19
20 number of housing starts is obtained from MFOM.
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26 **Empirical exercise**

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28 The econometric strategy to test the hypothesis is led by the statistical features of the data and
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30 the research interest, which is to test the differences among the groups of migrant retirees
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32 buying houses in Alicante in the explanation of housing price changes. The quarterly data is
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34 pooled by the retirees' countries of origin, creating three cross-section components of the
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36 retiree's panel: British, German and other Europeans, which accounts for 98% of total
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38 immigrants arriving in Alicante during the analysis period. After testing for stationarity and
39
40 cointegration, the non-stationary estimation Panel Dynamic Ordinary Least Squared (DOLS)
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42 method is used. The period covered by the panel is 1988.1-2019.4. The variables pooled are
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44 described in Table 1.
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50 Unit roots are tested using the Pool conventional tests. All series but PURC are non -
51
52 stationary at the individual level, and retiree migration cannot reject the null of the existence
53
54 of a common unit root in the cross-section components. The Cross-sectionally dependent unit
55
56 root tests confirm that no one variable with cross-section dimension can reject the null of unit
57
58 roots and that all reject the existence of cointegration among the cross-section data (see Table
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3 2). The PANIC tests confirm the existence of cross-section dependency, which will determine
4 the method to estimate the model.
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8 [Table 2 here]
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10 The existence of cointegrated relationship among the fundamental variables is then tested in
11 the panel. Pedroni Residual test results reject the null of no cointegration in six out of eight
12 tests within dimensions and two out of three in between dimensions, confirming the existence
13 of cointegration among the model components. Phillips-Perron and ADF tests for cross-
14 section results also confirm the existence of roots at the three cross-dimension level in the
15 panel (Table 3).
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24 [Table 3 here]
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28 As a result, this paper uses panel-cointegrating regression methods to test the hypothesis.
29 Because the interest is to see the differences in dynamic behaviour between British and
30 Germans retirees when buying a house in Alicante, the DOLS method is applied to explore
31 how the cross-section components' effects on housing prices differ. The method controls for
32 the potentially existing endogeneity among the variables in the model as it includes cross-
33 sectional effects when applied to panel data. Note that if the hypothesis represented in Fig. 2
34 is correct, income and purchasing capacity determine retiree migration, resulting in two
35 sources of endogeneity, which are controlled using this method. To avoid omitted variable
36 bias problem, the total flow of immigrants is accounted for in the model.
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48 In addition, we hypothesize that migrants have created a structural change in the Alicante
49 housing market, and that change has affected housing prices. To test the structural change
50 hypothesis, the first step is to identify when the structural change took place. To discover
51 that, we run the housing price model using the Least Squares with Breaks method, allowing
52 for breaks to the immigration variable. The Bai-Perron tests sequentially determined breaks
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(table A-1 in the supplementary material), and the method identifies a statistically significant break associated with UK and German retiree migrants, but not for the rest of European immigrants in 1996.2 and 2011.1, in both cases with different signs.

Cointegration vector estimation by panel DOLS is a method based on the works of Saikkonen (1992) and Stock and Watson (1993), developed by Kao and Chiang (2001) and Pedroni (2001) and is framed under the non-stationary panels field. The basic idea of DOLS is to lead with endogenous non-stationary regressors in the panel by adding the leads and lags of the first-differences of I(1) variables as regressors to the cointegrated relationship (Kejriwal and Perron, 2008; Saikkonen, 1991 and Stock and Watson, 1993). So, this method calculates an augmented panel cointegrating regression equation, including the cross-section-specific lags and leads to eliminating the asymptotic endogeneity and serial correlation among cross-section variables.

The model allows for varying slopes and intercepts and defines a triangulation functional form as the following (Baltagi et al., 2000:15):

:

$$y_{it} = \alpha_i + x'_{it}\beta_i + e_{it} , \quad (3)$$

$$x_{it} = x_{it-1} + \varepsilon_{it} , \quad (4)$$

$$e_{it} = \alpha\gamma_{it} + u_{it} , \quad (5)$$

And
$$\gamma_{it} = \gamma_{it-1} + \theta u_{it} \quad (6)$$

Where u_{it} is i.i.d with zero mean and constant variance and where θ tests for cointegration when testing the constraint that $\theta=0$. DOLS estimators are asymptotically normal and superior over Full-Modified OLS (Kao and Chiang, 2001); it is recommended for panels with large T and short N (Phillips and Moon, 1999). Then, DOLS method allows obtaining consistent and efficient estimates of the long-run parameters in the presence of a panel with cross-section dependence, like the one in this paper.

Adapted to the retiree migration model, what DOLS estimate is the following cointegrating regression equation:

$$ph_{it} = X'_{it}\beta + \sum_{j=-q}^q \Delta X_{i,t+j}' \delta_i + \sum_{j=-q}^q \Delta Z_{i,t+j}' \lambda_i + \gamma_1 T_i - v_{it} \quad (7)$$

Where X is a matrix with the long-term components of retiree migrants explaining housing prices in Equation 2; Z is a matrix of deterministic regressors used as controls; T is a deterministic trend in data; δ , λ are the short-run dynamics cross-section specific coefficients; q represents the number of lags (we assume leads=0) of the differenced variables; and v is the idiosyncratic error term. Note that ΔX_{it} elements are included in the cointegrating regressions to provide asymptotically unbiased estimators and that their coefficients, δ 's, capture the individual cross-section reactions, in this case, the individual British and German short-term reaction of each variable affecting housing prices, s which are appropriate to test the hypothesis in this paper. Long-run variance weights are calculated using the Newey-West fixed method, and structural breaks are from those associated with the retiree migration variable¹³.

Results and discussion

Table 4 contains the results of DOLS models estimations letting the lags vary from 0 to 10. Models 1 to 3 have the constraint that leads=0, so they only account for lags in the long-term expression. Model (4) is allowed to include lags and leads. The final specification has been calculated using Akaike Information Criteria to choose the best in equilibrium (DOLS,-1,1).¹⁴ All four models perform well with large explanatory power and low long-run variance. Results are very robust across the lags estimated with the same sign and nonsignificant differences in the values. The more short-term lags added to the model, the larger the explanatory power and

¹³ Failing to control for structural break results in modified parameters as Pedroni (2001) demonstrated.

¹⁴ Results of models (1) to (3) are superior to model (4). Several lags are tested to check the parameters' stability in the long term.

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3 the lower the long-run variance. However, further than 10 lags (2.5 years), the VIF indicators
4
5 become large. Table 4 shows, for illustration, only models with -3 to -10 lags).¹⁵
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8 [Table 4 here]
9

10 The panel dynamic cointegration model includes two variables measuring the structural
11 changes associated with retiree migrants to test their long-run effect on explaining housing
12 prices in Alicante.¹⁶ The structural change accounting for UK and German retiree migration as
13 one associated with other European migrants older than 55 was not significant and,
14 consequently, not accounted for by the structural change. Consistent results suggest that the
15 structural change¹⁷ identified in 1996.2 has had a long-term effect on housing prices through
16 the flow of retiree immigrants, while the shock in 2011.1 had temporary effects.
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28 Retirees immigrant flow shows a very low and negative systematic parameter, suggesting that
29 an increase in the migration flow is associated with a smaller price increase in the long run.
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32 The small parameter value (approximately 0.09%) suggests that retiree migrants tend to buy
33 houses at lower than market prices, indicating that they have price negotiation power, which
34 is supported if they pay cash and do not depend on delays related to obtaining a mortgage for
35 the purchase. The elasticity accounts for a savings of approximately 10%. Therefore, the first
36 finding is that there is an association between the flow of retiree migrants and lower prices.
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44 Two variables consistently show a robustly large elasticity, indicating a significant
45 price reaction with permanent effects. The first variable is relative income (*ye*), which is
46 related positively to prices, suggesting that any increase in the ratio (the origin country's
47 income growth is less than the Spanish income growth rate) strongly affects housing price
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55 ¹⁵ Other results are available upon request. Estimated parameters do not present significant differences.

56 ¹⁶ The same models have been calculated without the structural change variables. The estimated parameters
57 change very little, although the major impact is in the short- term distribution. Results are available upon
58 request.

59 ¹⁷ The definition of the structural change is a shock in retiree migration identified on the exact date and with no
60 persistent effect.

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3 growth. (An increase of 1% in the ratio results in a 2.4% increase in housing prices.) The
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5 reaction is very large and suggests that relatively lower economic growth in the origin
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7 country is a push factor in migrants making the decision to move to Alicante and, through it,
8
9 affecting (increasing) housing prices.
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12 The second component is the relative purchasing capacity (PURC) which shows a
13
14 negative and highly significant parameter of approximately 2.9%, which can be interpreted as
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16 any increase in the consumer price index in the origin country relative to the Spanish CPI of
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18 1% is associated with a rapid and permanent house price reduction of 2.9%. Because a larger
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20 increase in the cost of living in the origin country contributes to an increase in house prices in
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22 Alicante, a lower cost of living appears to be a strong driver of house buying by British and
23
24 German retiree immigrants.
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28 The coefficient of capital gain variable is small, with a parameter value between 0.008
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30 and 0.02, but highly significant in the absence of leads, suggesting that capital gain is a driver
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32 of the decision to buy a house in Alicante (despite responses to the contrary in an earlier
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34 survey) and that an increase in housing capital gains of one unit is associated with higher
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36 (0.008-0.02 per cent more) housing prices, possibly as a result of retirees' attraction to the
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38 city and the resulting increase in demand. Interest rates carry a negative sign and are weakly
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40 significant in the long run, suggesting that the influence of alternative investments in the
41
42 decision to buy a house in Alicante is small.
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46 Finally, the housing starts variable shows a weak long-term effect on prices associated
47
48 with retiree migration. The parameter is positive with a low elasticity of 0.05%, meaning that
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50 a 10% increase in units associated with the presence of retiree migrants increases prices by
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52 0.5%, which is a small effect compared to that of income or purchasing capacity.
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56 Those results suggest that retiree immigrants move to Alicante partly because the
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58 difference in the cost of living contributes to the decision to buy a house in the region. In this
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3 sense, both British and German retiree migrants behave consistently in their reaction to a
4 lower cost of living. The cointegration relationship shows how foreign retiree immigration
5 has permanently impacted house prices in Alicante during the study period and is directly
6 related to the number of migrants arriving in the market. The significance of purchasing
7 capacity suggests that the relative cost of living influences prices in Alicante. The price
8 impact is mainly driven by differences in income with an 'expulsion' of retiree migrants when
9 income growth is lower in the origin country relative to Spain. Larger capital gain in the
10 Alicante housing market also is attractive to retiree migrants.
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24 The long-term relationships do not detail how each nationality reacts because all three
25 immigrant groups' influences merge in the long run. The DOLS model allows us to extract
26 and examine the short-run effect by cross-section category and then show the influences of
27 each group of retirees on the more precise housing price equilibrium in the long run. Table 5
28 contains the estimated short-term parameters of the four models. The first two models
29 corresponding to DOLS(-3,0) and (-6,0) are considered to fit long-term housing prices better;
30 however, all results are included for illustration purposes.
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40 [Table 5 here]

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42 The first part of the table contains the estimated elasticities for the individual deterministic
43 regressors included in the models as the trend, the total immigration minus the EU migrants
44 older than 55 (the other migrants) as the control variable and the exchange rate. The latter is
45 included in this group because it is exogenously determined. The model consistently captures
46 different trends affecting the influence of the two retiree sources on Alicante housing prices
47 (Germans show a negative trend with a slope of approximately -0.007 and the British a
48 positive slope of approximately 0.002), determining that their long-term effect on housing
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3 prices will differ due to idiosyncratic features affecting the flow.¹⁸ The exchange rates are
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5 also a source of differences between the migrant groups, indicating a rather significant impact
6
7 on the British influences on Alicante housing prices (an increase in the exchange rate of 1% -
8
9 deflation- reduces housing prices around 2%-3%) in the long term¹⁹ while the effect of the
10
11 German exchange rate is rather small, but also negative, possibly because the pound did not
12
13 enter in the euro process, which suggests that the euro integration could eliminate the relative
14
15 effect from the Germans flow of migration on house prices in Alicante due to the difference
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17 on currency value.
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22 Contemporary effects (elasticities of variable changes on housing prices affecting the
23
24 long-run equilibrium) are presented in the second block of Table 5 and contain the parameters
25
26 showing the effect of variables depending on nationality. The first variable of interest in this
27
28 paper is the effect of changes in retiree migration flow. The model captures a systematically
29
30 different effect on prices from changes in retiree migrant flow, with a larger influence from
31
32 the Germans group. For instance, the DOLS (-3,0) model shows a short-run cross-section
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34 parameter of 0.039 for German retiree migrants and -0.017 for British, suggesting that
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36 changes in the flow of retiree from Germany accelerate prices more than similar changes in
37
38 the flow of British. These results are supported as more lags are accounted for to explain the
39
40 long-term equilibrium (models (2) and (3) in the table), with larger positive parameters and
41
42 lower negative parameters for the German cross-section group. The fact that almost all lags
43
44 present positive parameters²⁰ suggests that the effect of this group of retiree migrants is
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46 systematically positive on the speed of house price changes in the long-term. In contrast, the
47
48 effect of British retiree migrants is less clear with a potential influence on the equilibrium
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57 ¹⁸ Results for the third group of retiree migrants coming from the EU outside Germany, are not reported here.
58 Results are available upon request.

59 ¹⁹ Previous analysis confirmed that exchange rates are unrelated to house prices in the long-term, but do
60 indirectly affect relative income.

²⁰ Two out of eight German groups present negative parameters in model (3) and one in model (1) and (2).

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3 short-term effect (alternative positive and negative effect in the short-term parameters in
4
5 eq(2) and eq(3)).
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8 The income short-term component supports the interpretation above about impacts on
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10 housing prices, showing an immediate and significant correction (contemporary effect of a
11
12 jump in relative income) but a relative equilibrium after the first lag with parameters affecting
13
14 housing prices negatively and positively while maintaining a systematic lower effect by
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16 British relative to German retiree migrants.
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19
20 Change in purchasing capacity ($\log(\text{PURC})$) shows a similar reaction: an elastic effect
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22 from both nationalities in the contemporaneous impact with an increase in housing price
23
24 acceleration when the ratio rises fast (a 1% increase in German ratio produces a housing price
25
26 acceleration of 1.4% and a 1% British increase results in a 1.9% change). This result should
27
28 be interpreted as the immediate reaction of a change in PURC, which is larger when the
29
30 model accounts for more lags in the long-term equilibrium model. Lagged parameters
31
32 account for the equilibrium, which is consistent with the long-term concept, as well as the
33
34 other components.²¹
35
36

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38 Capital gains follow a similar pattern: a negative contemporary shock but a positive
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40 lagged effect on prices, with a similar reaction to both nationalities, although a bit larger
41
42 effect from the German retiree group who seem to react to capital gains by purchasing homes
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44 in Alicante, raising prices.
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48 Finally, changes in the supply of new housing seem to have the effect expected, with
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50 an increase in the speed at which new houses are started negatively affecting house price
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52 growth. This model systematically shows how the market supply mechanism seems to have
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54 an effect in the short rather than the long term. The effect is minimal in the contemporary
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56 reaction but elastic in the past, with larger elasticities associated with German rather than
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²¹ These parameters are not shown in Table 5 but are available upon request.

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3 British retiree migrants. The model in eq(4) almost supports the results seen in the lags
4 models, although it fails to calculate the lead(1) parameters for the British group.
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10 **Robustness check**

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12 To provide a robustness check for the results, model (2) estimation has been replicated using
13 a panel comprised of eight cities in Alicante. The cities have been selected for three reasons:
14
15 (1) They are places where large numbers of UK and Germans retiree immigrants buy houses;
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17 (2) To avoid capitals that may be atypical; and (3) Where data are available. Data are difficult
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19 to obtain on a disaggregated basis in Spain due to privacy protections. MFOM provides house
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21 prices only for selected cities with more than 25000 inhabitants. On the other hand, the
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23 residential registration statistics (the source of the immigration data used in this analysis) are
24
25 provided as microdata, making it possible to obtain the flow of immigrants into cities with
26
27 more than 5000 inhabitants. Merging both databases allows us to use pool techniques to
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29 estimate model (2) on a city basis. Because not all cities receiving retiree immigrants are
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31 included in this exercise, it does not serve as a full model but can serve as a robustness check
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33 of the results of the entire model.
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40 The eight cities chosen are the coastal cities of Benidorm, Calpe, Denia, Javea,
41 Orihuela, Santa Pola, Torrevieja and Villajoyosa. The city panel covers 2005-2016 quarterly
42 house prices with eight cross-section dimensions (the cities) and the rest of the variables as
43 common variables, testing the price and retiree immigrant implication using interactions
44 among variables. The evolution of house prices in each city can be seen in Fig. 5, and the
45 flow of British and Germans over age 55 into a subset of the cities in Fig. 6.
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53 [Fig. 5 and Fig. 6 here]
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The model (2) is re-defined into (8) as a non-linear form, including interactions between retiree immigration flows and the model variables, allowing their parameters to vary by city. It also includes the exogenous set of variables and fixed effects by city.

$$P_{hjt} = \alpha_1 + \Omega_{hjt} [I_{re,i,t} (1 + INC_{eh,i,t} + PURCH_{eh,i,t} + EXR_{eh,i,t} + Hcg_{h,i,t})] + \Phi_t [I_{w,t} + \Delta h_t + Rir_{e,t}] + \varphi FE_h + \varepsilon_t \quad (8)$$

where subscript h refers to the city's cross-section components in the panel, and e defines the immigrants' country of origin. Ω is a matrix of estimated parameters for endogenous model components, while Φ is the parameter matrix of the common coefficient in the model. FE_h are fixed effects estimated to control for the unobserved heterogeneity associated with each city i .

Because the variables in (8) other than house prices and number of immigrants do not exist at the city level, we include interactions by city, number of retiree immigrants, relative income and relative purchasing capacity to test whether these variables as related to each city have explanatory power for changes in house prices. Table 6 summarizes the results.

[Table 6 here]

The results are consistent with the previous models' estimations, with interest rates insignificant, but the supply of new housing and the number of immigrants 55 and younger are statistically significant. The number of foreign immigrants older than 55 is significant in some cities. For instance, the flow of German retiree immigrants directly influences house prices in Calpe and Denia, while the flow from the UK is relevant in Santa Pola and Villajoyosa. The interaction of retiree immigration flow with relative income gives the same results with relative German and British income related directly with house prices in the same cities listed above. The impact of Germans in Javea appears through income differential rather than directly through the number of immigrants. German retiree immigrant relative

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3 purchasing capacity is significant in relation to changes in house prices only in Torrevieja.

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5 Relative purchasing capacity is significant for the British in Benidorm, Denia, Orihuela,
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7 Santa Pola, Torrevieja and Villajoyosa.

8
9
10 The British pound exchange rate is significant in Javea and Villajoyosa. In these two cities,
11
12 an increase of 1 per cent in exchange rates (devaluation of the pound by 1 per cent) results in
13
14 a reduction in house prices of 0.10 per cent and 0.13 per cent, respectively.

15
16 Finally, housing capital gain is relevant for the German retiree immigrants located in
17
18 Benidorm and Denia, and for the British in Javea and Villajoyosa, suggesting that price
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20 increases in those cities may drive immigrants to choose other nearby locations where prices
21
22 have not grown so quickly, making them relatively more affordable.
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28 **Conclusions**

29
30 Large numbers of Northern European retiree migrants settling in Spain in recent decades
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32 created a spike in housing demand in the communities in which they concentrated, producing
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34 a shock in local Spanish housing markets. However, it is difficult to isolate this effect
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36 because the retiree migration flows are embedded in the total migration flow, and their
37
38 influence may vary depending on their country of origin. This paper explores this
39
40 phenomenon by estimating the panel dynamic long-term relationship using a long quarterly
41
42 time series for 1988-2019 in a DOLS model and defining three cross-sections based on retiree
43
44 migrants' origin as UK, Germany and the rest of Europe. The method allows us to identify the
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46 differences in reactions in the short run depending on origin, allowing us to examine
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48 differences in the intensity of their effects in the long run.
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54 Results provide empirical evidence of the economic determinants of retiree migrants
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56 buying houses in Alicante province and show the (long-term) causal influences operating,
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58 thus, providing evidence of retiree migration exerting a permanent impact on Alicante house
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3 prices. The findings suggest that a combination of retiree immigrants' relatively large
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5 pensions, the fall in the relative economic growth that would affect their pensions, and the
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7 lower cost of housing in Spain may lead them to demand houses, thereby influencing the
8
9 market equilibrium. An attractive relative cost of living (as well as the weather, beaches and
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11 other features) rather than house prices convinces the retirees to move to this Spanish region
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13 and purchase a house, which subsequently contributes to an increase in market prices. The
14
15 major contribution to local Alicante prices comes from relative economic conditions and
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17 purchasing capacity rather than the number of migrants. Results suggest that retiree migrants
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19 have negotiation power associated with a house price discount of around 10% in the long
20
21 term. This discount is partially explained by their ability and willingness to pay with cash,
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23 giving them the advantage of price negotiation in the housing market. **The latter shows a real**
24
25 **example of the 'value of money' in transactions: Retiree migrants' ability to pay with cash**
26
27 **gives them an advantage in negotiating better prices in the housing market, highlighting the**
28
29 **significance of having available funds in influencing transaction outcomes.**
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36 Relative income and relative purchasing capacity are the leading demand
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38 determinants for British and German retiree immigrants. The flow of British retiree
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40 immigrants appears to affect house prices directly and indirectly through relative income.
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42 Meanwhile, relative purchasing capacity is also strongly related to the effect on house prices
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44 exhibited by both immigrant groups, partially due to currency evolution and relative cost of
45
46 living. The British are more sensitive to relative purchasing capacity; when the ratio rises
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48 (consumption goods become more expensive in the UK), their pressure on Alicante house
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50 prices is reduced, suggesting their dependence on marginal income to buy property in Spain.
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52 On the other hand, the Germans exhibit large impacts on most of the components of price
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54 acceleration. This could be a result of both differences in pension programs as well as
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56 different approaches toward saving for retirement in each society. **Thus, the results seem to**
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3 capture the impacts of different pension programs in the long run over retirees, providing a
4 way to analyze those programs more appropriately. The findings highlight the importance of
5 considering pension structures and approaches to saving for retirement in understanding their
6 influence on housing markets and retiree migration patterns.
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12 The varied impacts related to retirees' nationalities are also highlighted in the analysis of
13 house prices in selected cities in the province with immigrant population concentrations.
14
15 Results are consistent with the main model but also show how certain cities are affected by a
16 retiree immigrant flow from a single country and how the influential determinants vary by
17 city. Relative income, cost of living and exchange rates will affect not only the decision to
18 migrate but also the size and type of housing immigrants demand in the local market. In this
19 way, homebuyers from different countries may create a range of effects on the destination
20 housing market. As the results indicate that retiree migrants' impact on the housing market
21 differs depending on their country of origin, it also highlights the importance of considering
22 their impact on particular housing market dynamics when defining local housing policies,
23 with a focus on the relative economic conditions among European regions. In particular,
24 Spanish government officials forecasting housing demand will need to look beyond just a
25 projection of the historical immigrant flow to consider changes in currency valuation,
26 inflation, economic growth/decline, and economic relationship changes such as Brexit and its
27 posterior implications. These factors will influence which countries will generate migrants,
28 what their personal economic resources will be, and their varied housing tastes and
29 preferences. A comprehensive analysis of these economic and geopolitical factors is essential
30 to accurately predict and plan for housing demand. Otherwise, communities may experience
31 unexpected vacancies that can lead to price declines and neighbourhood deterioration.
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56 Replication of this study using data on retiree immigrants from other Northern
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58 European countries who primarily relocate to other countries or other regions of Spain would
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3 contribute to further understanding the role of origin and destination economic conditions on
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5 the impact retiree immigrants have on housing markets. In addition, the study can be
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7 expanded to determine whether the house price influence of retiree immigrants is limited to
8
9 the markets where the largest concentrations settle or whether their influence expands into
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11 surrounding markets either through spatial diffusion through relocation, similar to younger
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13 immigrants in other markets (Meen, 2011), or through local residents being crowded out,
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15 being forced to leave the area, driving up demand and prices in surrounding markets. In these
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17 ways, the arrival of retiree immigrants could create affordability problems for the local
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19 population in both the cities in which they settle as well as in surrounding communities. Such
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21 an analysis would provide valuable insights into the broader impact of retiree migration on
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23 regional housing markets and can inform policymakers in developing strategies to address
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25 potential affordability issues.
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30 Those immigrants depending on foreign income may experience purchasing capacity
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32 problems if their home country's currency is devalued relative to the destination country's
33
34 currency. This could create problems for the large group of UK retiree residents in Alicante
35
36 (and other EU areas) that will spill over beyond the housing market. Losing pension's
37
38 purchase capacity and health coverage may have occurred during the recent Covid-19 period
39
40 and after Brexit, making UK migrants fall under host region solidarity if their origin countries
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42 do not take action for support. Testing this falls under future analysis.
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3 Reviewer(s)' and Associate Editor Comments to Author:
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5 Reviewer: 1
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7 Recommendation: Accept
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9 Comments:
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11 Very interesting paper on retiree migration using Panel Dynamic Ordinary Least Squares.
12

13 Additional Questions:
14

15 1. Originality: Does the paper contain new and significant information adequate to justify
16 publication?: Yes, the paper contains new and significant information.
17

18 2. Relationship to Literature: Does the paper demonstrate an adequate understanding of
19 the relevant literature in the field and cite an appropriate range of literature sources? Is any
20 significant work ignored?: Yes
21

22 3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts,
23 or other ideas? Has the research or equivalent intellectual work on which the paper is
24 based been well designed? Are the methods employed appropriate?: Panel Dynamic
25 Ordinary Least Squared is appropriate and well formulated with robustness checks.
26

27 4. Results: Are results presented clearly and analysed appropriately? Do the conclusions
28 adequately tie together the other elements of the paper?: Yes.
29

30 5. Implications for research, practice and/or society: Does the paper identify clearly any
31 implications for research, practice and/or society? Does the paper bridge the gap between
32 theory and practice? How can the research be used in practice (economic and commercial
33 impact), in teaching, to influence public policy, in research (contributing to the body of
34 knowledge)? What is the impact upon society (influencing public attitudes, affecting quality
35 of life)? Are these implications consistent with the findings and conclusions of the paper?:
36 Policy for the housing market dynamics is relevant.
37

38 6. Quality of Communication: Does the paper clearly express its case, measured against
39 the technical language of the field and the expected knowledge of the journal's
40 readership? Has attention been paid to the clarity of expression and readability, such as
41 sentence structure, jargon use, acronyms, etc.: yes
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45 Reviewer: 2
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47 Recommendation: Minor Revision
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49 Comments:
50

51 The paper is very interesting with some strong and insightful empirical analysis. The
52 introduction and literature provide good context, they just need edited and proofed further
53 (see some instances below).
54

55 **Thanks for this comment. We have edited again the text and revised in dept the writing.**
56

57 The data and model development is good and firmly grounded in the housing economics
58 literature and the data sources and indicators robust, with the empirical analysis
59 comprehensive and quite interesting, particularly when investigating the effect of retirees at
60 the sub-regional level in Alicante.

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3 Thanks again

4
5 Is there scope to think slightly more about policy and practice in relation to the findings.
6 Some have been eluded to. Thanks for this idea. We have added some policy implications
7 in the discussion of results.

8
9 With Brexit being mentioned is there scope to analyse or isolate this political economic
10 event (although this is probably the basis of further research).

11
12 As the referee says, the implication of Brexit are large and affecting the migrant and the
13 policies applied. We are working on it in order to identify the Brexit effects and the new
14 rules for migrants.

15
16 There are a few things I think the author(s) can do to strengthen the paper, the majority
17 minor issues:

18 1. The opening context of the abstract could provide more – a simple extract from the
19 introduction.

20
21 Thanks for this comment. The abstract has been re-written following the reviewer comment.

22
23 2. There are a few instances where the paper needs proofed for mistakes, i.e. the last line
24 in the abstract reads "Retiree migration flow has permanent effect on housing market
25 prices". This should perhaps read "Retiree migration flow has a permanent effect on
26 housing market prices". And Page 2, lines, 17/18 "If the newcomers exhibit larger have a
27 higher level of" – this does not read correctly. Also Page 2 lines 24-29, does not read
28 correctly "Such situation allows them to buy the house. The reasons for the senior behind
29 retiree immigrants to buying a houses and move to live have not been fully analysed
30 analyse", And Page 17, lines 31-36 "The method controls for the potentially existing
31 endogeneity among the variables in the model as includes cross-sections effects" – is the
32 word "this" required before the word includes.

33
34 We apologize for these errors. We have proof-read the whole text to avoid such a mistakes

35
36
37 3. Page 2, lines 12/13 is the "is addressed here" at the end of the sentence needed?

38
39 4. The points made surrounding the effect of Brexit, whilst valid, need updated. For
40 example lines 48/49 "Such advantages may end with Brexit and could affect retiree
41 migration". These ramifications should be now known.

42
43 5. There are a few instances where a reference is needed. For example, Page 5, lines 29-
44 33 "More of the British retirees had also lived in a third country, so they have experienced a
45 wider variety of housing types than the Germans."

46
47 6. There are a few instances of long sentences which can be broken up. For example,
48 Page 6, lines 6-20: "Because international retirees` consumption depends on their pensions
49 and wealth that are derived from earlier earned income and these are set exogenously to
50 the host economy, their arrival to the host municipality creates additional housing demand
51 beyond domestic demand, but with buyers exhibiting higher income levels, tastes and
52 purchasing capacity, which may influence the type and size of houses they require in the
53 market; however, this relationship is a hypothesis that yet has not been empirically tested"

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56 Thanks for these comments. The whole article has been checked in order to avoid
57 inconsistencies and grammatical errors. Thanks for your carefully read and comments.
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8 Additional Questions:

9 1. Originality: Does the paper contain new and significant information adequate to justify
10 publication?: Yes

11 2. Relationship to Literature: Does the paper demonstrate an adequate understanding of
12 the relevant literature in the field and cite an appropriate range of literature sources? Is any
13 significant work ignored?: Yes

14 3. Methodology: Is the paper's argument built on an appropriate base of theory, concepts,
15 or other ideas? Has the research or equivalent intellectual work on which the paper is
16 based been well designed? Are the methods employed appropriate?: Yes - comprehensive

17 4. Results: Are results presented clearly and analysed appropriately? Do the conclusions
18 adequately tie together the other elements of the paper?: Yes

19 5. Implications for research, practice and/or society: Does the paper identify clearly any
20 implications for research, practice and/or society? Does the paper bridge the gap between
21 theory and practice? How can the research be used in practice (economic and commercial
22 impact), in teaching, to influence public policy, in research (contributing to the body of
23 knowledge)? What is the impact upon society (influencing public attitudes, affecting quality
24 of life)? Are these implications consistent with the findings and conclusions of the paper?:
25 Yes - perhaps a bit more on the policy implications

26 6. Quality of Communication: Does the paper clearly express its case, measured against
27 the technical language of the field and the expected knowledge of the journal's
28 readership? Has attention been paid to the clarity of expression and readability, such as
29 sentence structure, jargon use, acronyms, etc.: Yes - some parts require minor attention

30 Associate Editor

31 Comments to the Author:

32 Dear Paloma and Karen
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