Do house prices ride the wave of immigration?[☆]

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ABSTRACT

The sharp rise in international migration is a pressing social and economic issue, as seen in the recent global trend towards nationalism. One major concern is the impact of immigration on housing. We assemble a comprehensive database of 474 estimates of immigration's impact on house prices in 14 destination countries and find that immigration increases house prices, in the aggregate. The effect of immigration is larger at the province (state) level as it is at the city level. However, using data from the World Values Survey, we also show that attitudes to immigrants moderate this effect. In countries less welcoming to immigrants, house price increases are more limited.

1. Introduction

The global stock of immigrants more than tripled between 1960 and 2015, from 72 million to 243 million, respectively (World Bank, 2018). Three percent of the world's population are now immigrants. This wave of immigration has attracted researchers from numerous disciplines, including medicine, economics, political science, and sociology (Clark et al., 2015; Abramitzky and Boustan, 2017; Hassan, 2017). Migration is one of the most pressing social, economic and political issues, generating heated debates in countries facing large influxes of immigrants (Saiz and Wachter, 2011; Accetturo et al., 2014; Abramitzky and Boustan, 2017).

One particular dimension of this debate is the impact of immigration on house prices. Some authors predict that house prices fall following waves of immigration, while others postulate price rises (Sá, 2015; Mussa et al., 2017). Immigration increases the demand for housing and rental accommodation, but it might also affect amenities and the perceived desirability of the neighborhoods most affected (Accetturo et al., 2014). The social interactions between native and foreign born is particularly important (Saiz and Wachter, 2011; Accetturo et al., 2014; Sá, 2015).

Geographical aggregation and area size may affect the relationship between immigration and house prices. In small local housing markets, immigration may increase house prices directly by increasing demand. Alternatively, house prices may fall through indirect local resident out-migration, and the income effect that ensues (Saiz and Wachter, 2011; Sá, 2015; Mussa et al., 2017). Or, house prices may grow at a slower pace because the areas most impacted are deemed to be less desirable. In larger areas, indirect effects are likely to be muted while direct demand effects may remain (Saiz, 2007).

The data suggest a positive correlation between the stock of immigrants and growth in house prices (Fig. 1). Nevertheless, other factors, such as: employment, incomes, and interest rates, can also impact house prices. Hence, empirical studies typically control for these and other potential covariates.

Our study makes two contributions to this literature. First, the article presents the findings from the first comprehensive meta-regression analysis to evaluate the conflicting claims regarding immigration and house prices. We use meta-regression to integrate the findings from diverse empirical results and to quantify the impact of immigration on house prices: Does immigration affect house prices? Our second contribution is to investigate the impact of deep-seated attitudes. Specifically, we investigate whether the attitude of local populations towards immigrants moderates the impact of immigration. While many
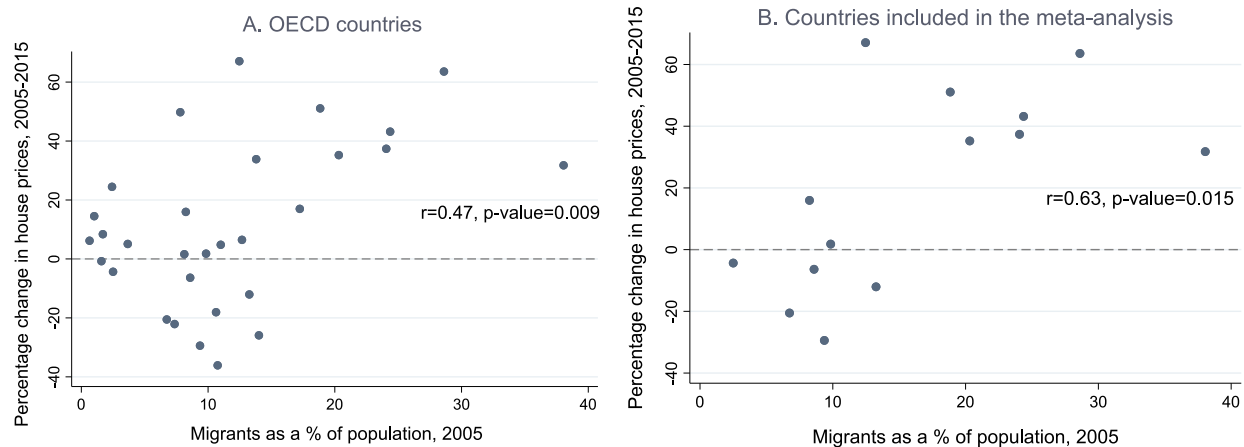

Fig. 1. Immigrants and house prices. The scatter diagrams show the correlation between immigrant share of population as of 2005 and the percentage change in house prices over the subsequent decade, 2005–2015. Immigration is lagged to circumvent potential reverse causality. Panel A covers most of the OECD countries. Panel B covers the same 14 countries covered in our meta-regression analysis.

individual studies investigate the impact of immigration on house prices, and several studies discuss the issue of amenities and racial preferences (*e.g.,* Accetturo et al., 2014), this article is the first to directly investigate the potential moderating impact of attitudes. Beliefs and attitudes play a critical role in virtually all market transactions, and attitudes can be central to willingness to pay (Bowles, 1998; Frey, 1999). Consequently, we hypothesize that when locals in destination countries are more accepting of immigrants, the increased demand for housing from immigrants will provide a net boost to house prices. Conversely, when locals are less welcoming of immigrants, we hypothesize that they will be less willing to pay for homes that are near immigrants and consequently house price increases will be modest or may fall.

Studies demonstrate that immigrants self-select into enclaves (e.g. Edin et al., 2003). If immigrants demonstrate preferences to live with like individuals, it may also hold that locals prefer living with other locals. More generally, for locals, immigration may detract from living in an area reducing their willingness to pay for housing, thereby reducing growth in local house prices. This process is not necessarily driven by out-migration. Indeed, there can still be a net population movement *into* a geographic area but people are not prepared to pay as much as other areas because of immigration lowering amenity values. This moderating role of local attitudes to immigrants has not been investigated by any of the primary studies; however, our meta-analysis shows that it matters.

Housing is a universal human right (United Nations, 1948; UN General Assembly, 1966). Thus, our analysis is especially timely against the backdrop of a worldwide spread of populist and nationalist politics and the rising need to provide adequate housing for dislocated populations and affordable housing for younger generations.

2. Research design

We survey a growing literature asking if, and how, immigration affects house prices. Applying meta-analysis and meta-regression methods to the existing research, we consolidate the literature in a quantifiable manner (Stanley and Doucouliagos, 2012, 2015, 2017; Havranek, 2015; Card et al., 2018). Meta-regression can investigate the simultaneous impact of several covariates (or moderator variables) relating to differences in local attitudes, economic conditions, and research methods (Stanley, 2001). Controls account for differing modelling techniques and variation in variables used in original models. We extend the literature by asking how do locals' attitudes to immigration impact on the relationship.

2.1. Data

A comprehensive search identified 45 econometric studies with 474 comparable estimates, spanning 14 developed countries: Australia, Belgium, Canada, Iceland, Israel, Italy, New Zealand, Singapore, Spain, South Africa, Sweden, Switzerland, the UK, and the USA. We use partial correlations as the effect size measure because many studies provide insufficient information from which to calculate other effect size measures such as elasticities. Partial correlations reflect the impact of immigration on house prices holding other factors constant.

2.1.1. Search and selection criteria

The reporting of the meta-regression analysis adheres carefully to the MAER-Net (meta-analysis of economics research network) reporting guidelines (Stanley et al., 2013).

The search for studies commenced with several search engines, including: EconLit, Google Scholar, Scopus, ScienceDirect, other databases in EBSCOhost, and ABI/INFORM. Search terms included various combinations of: 'immigration', 'migration', 'house price', 'housing price', 'dwelling price', 'property value', 'rents', 'housing market', 'urban housing', and 'gateway'. A manual search was then undertaken of several academic journals in which studies on immigration and house prices have been published, e.g. *Regional Science and Urban Economics, Journal of Urban Economics, Economic Journal, American Economic Journal,* and *Journal of Regional Science.* We also searched the reference sections of all identified empirical studies and prior reviews on this topic. Finally, as we include both published and unpublished studies, we also contacted authors who had published in this area for any unpublished studies and for updated versions of working papers. The search for studies ended in December 2017.

Studies were included in the meta-analysis if they met three criteria. First, a study had to report an estimate of the effect of immigration on house prices. Second, a study had to control for various other factors that impact on house prices. Third, a study had to report sample sizes and an outcome statistic, such as a *t*-statistic or a *p*-value that could be converted into a partial correlation. Partial correlations were calculated using the formula: $r = t/\sqrt{|(t^2 + df)|}$, where t is the t-statistic and df is degrees of freedom. The standard error of the partial correlation is calculated as: $SE = \sqrt{(1 - r^2)/df}$. The partial correlations were also transformed into Fisher z-values. Because the meta-analysis results are essentially identical regardless of whether partial correlations or Fisher z-values are used, we report only results using partial correlations.[1]

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[1] To reduce coding errors, all coding was independently checked by three of the authors.
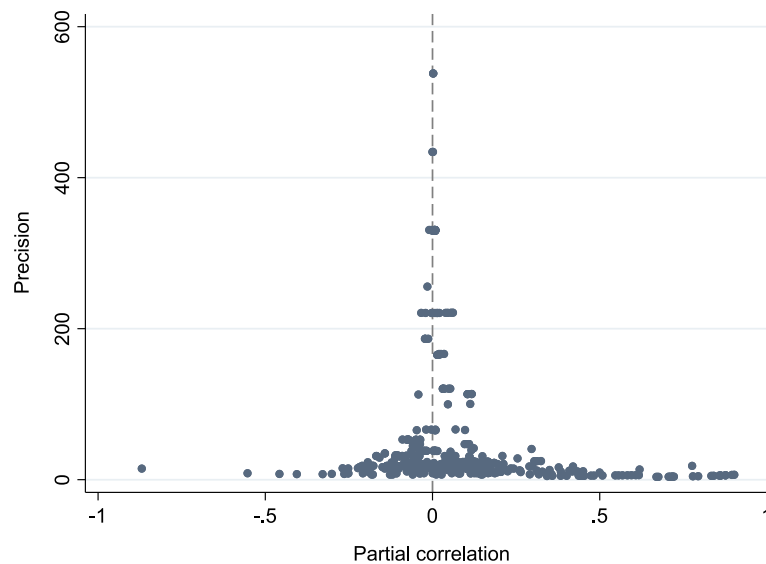
Fig. 2. Funnel plot of partial correlations, immigration and house prices. Figure 2 reflects wide heterogeneity among reported results, nearly symmetrically distributed around zero.

Table 1
Country distribution of estimates and weighted average effect.

Country	Immigrant stock % population 2015 (1)	House price % change decade to 2015 (2)	% of locals who would not like to live next to immigrants (3)	Number of studies [estimates] (4)	WLS weighted average (5)	95% confidence interval (6)
Full sample	19.21	17.71	14.25	45 [474]	0.008	0.002; 0.015
USA	14.49	−23.52	13.60	7 [34]	−0.001	−0.010; 0.008
Spain	12.69	−30.62	7.50	6 [71]	0.111	0.024; 0.198
Canada	21.80	43.66	4.10	6 [65]	0.006	0.004; 0.007
UK	13.20	0.51	14.20	5 [109]	−0.042	−0.091; 0.006
Australia	28.22	37.35	10.50	5 [16]	0.018	0.008; 0.029
Switzerland	29.39	38.29	6.90	4 [68]	0.029	−0.013; 0.072
New Zealand	22.96	29.41	5.90	3 [60]	−0.076	−0.256; 0.105
All other	18.03	21.31	23.53	9 [46]	0.030	0.014; 0.047

Sources: Column (1), World Bank (2018). Column (2), Bank of International Settlement (2018). Column (3), World Value Surveys, various issues.
Notes: Column (1) reports the stock of immigrants as a share of population as of 2015. Column (2) reports the total percentage change in real house prices over 10 years to 2015. Column (3) reports the percent of locals who would not like to live next to immigrants. Column (4) reports the number of studies and number of estimates in square brackets. Column (5) reports the unrestricted weighted least squares (WLS) weighted average, using inverse variance weights with standard errors adjusted for clustering of estimates within studies. Column (6) reports 95% confidence intervals. All other includes Belgium, Iceland, Israel, Italy, Singapore, South Africa, and Sweden.

The appendix presents a list of all studies along with a PRISMA diagram (Moher et al., 2009). Fig. 2 presents the data in the form of a 'funnel plot', illustrating the wide heterogeneity among reported results that largely collapses at high levels of precision (1/standard error). Nearly 38% of the estimates report a negative correlation, half of these are statistically significant. In contrast, 42% of all estimates report a positive and statistically significant correlation.

All 45 studies in our review estimate some version of the following general model that purport to investigate the causal effect of immigration (M) on house prices (P), conditional on a vector of control variables, **z**:

$$P_{it} = \alpha_0 + \alpha_1 M_{it} + \alpha_z z_{it} + \varepsilon_{it}, \tag{1}$$

where i and t index the ith locality in time period t.

Table 1 reports several descriptive statistics: the percent of immigrants in the population, the total percentage change in house prices, the number of studies and estimates, and the unrestricted weighted least squares (WLS) weighted averages for all countries combined and for each country in our sample, using inverse variance weights (Stanley and Doucouliagos, 2015, 2017). Data on attitudes to immigrants are collected from the World Values Surveys (WVS, various issues). We use the percent who respond "*Immigrants/foreign workers*" to the question:

"*On this list are various groups of people. Could you please mention any that you would not like to have as neighbors?*" The WVS is a nationally representative survey of values and attitudes.[2]

When all countries are combined, immigration has a positive but near zero correlation with house prices. However, this overall average obscures significant heterogeneity not reflected in Table 1.[3]

2.2. Economic, attitudinal, and national differences

To model heterogeneity, we estimate the following meta-regression model:

$$r_{ij} = \beta_0 + \beta_x \mathbf{x}_{ij} + v_{ij}, \tag{2}$$

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[2] Attitudes vary between countries and over time in the countries included in the meta-regressions.
[3] House price data are sourced from the Bank of International Settlement (BIS, 2018). Column (2) of Table 1 reports the BIS percentage change in real house prices over 10 years to 2015q4. BIS data for Spanish house prices dates back to 2005q4. To maintain a consistent comparison of prices, we use house price growth over the decade to 2015q4 for all countries. Prices are deflated by the CPI (BIS, 2018).

where r_{ij} denotes the partial correlation between immigration and house prices, i and j index the ith estimate from the jth study, **x** is a vector of 12 moderator variables, and v are random errors. The moderator variables are as follows.

Attitudes to immigrants is included to test whether attitudes moderate the impact of immigration on house prices. The *Standard error* of the partial correlation is included to accommodate potential publication and/ or small-sample bias (Stanley and Doucouliagos, 2012). If a literature is free of publication selection bias, then there should be no correlation between the estimated effect (the partial correlation in our case) and its estimated standard error. We include in the MRA three measures of the level of aggregation: *Within city* for estimates using data for areas within cities, *Province* for estimates using data at the state or provincial level and *Nation*, for estimates using national level data.[4] The base is estimates at the city and municipality level. The *Average year* of the data is included to capture variation in the immigration-house prices correlation over time. Five variables are included to reflect key specification differences relating to economic controls: *Income, Bank rate, Rents, Population*, and *Stock*. These variables refer to income (or unemployment), the interest rate, value of rents, population, and the stock of dwellings, respectively, all of which are important controls in a well-specified econometric model. Finally, the MRA controls for whether a study attempted to address reverse causality using instrumental variable estimation (IV). The latter is particularly important as house prices may influence, and be influenced by, immigration. Table A1 in the appendix reports variable definitions and descriptive statistics of the moderator variables used in the meta-regressions.

3. Results

The meta-regression results are presented in Table 2. Column (1) reports the baseline results. Four regional dummies are added in Column (2): Europe, Australasia, Africa, and Asia. The base is North America. These dummies capture any time invariant regional differences. Column (3) replaces the regional dummies with 12 country dummies; USA is the base in this specification.

Column (3) is consistent with publication selection bias or selective reporting because the *Standard error* coefficient is statistically significant. If a literature is free of publication bias, then there should be no correlation between the reported effect and its estimated standard error. The positive coefficient on *Standard error* suggests that some researchers are engaging in publication selection bias, with a preference to report positive correlations between immigration and house prices.

Attitudes to immigrants has consistently a negative coefficient. The size of the coefficient (e.g. in Column (3)) suggests that a one standard deviation (a 4.23 percentage point) drop in the favorable attitudes towards immigrants reduces the correlation between immigration and house prices by 0.10 which, in context, is a substantial effect.

In most regressions, the effect of immigration on house prices is more pronounced at the state or provincial level than at the city level.[5] The variable *Within city* is not statistically significant, suggesting no difference in the effect between city level house prices and smaller levels of aggregation of house prices. Nevertheless, the negative coefficient on *Within city* suggests that correlations increase with the level of aggregation; compared to the city level, correlations are smaller by −0.05 on average for within city areas compared to being 0.07 larger, on average, at the provincial level. This aggregation effect is consistent with the observation that immigrants self-select into enclaves (Edin et al., 2003), potentially lowering prices in those neighborhoods while prices rise across the broader region.

The specification of the empirical model is also important.

Controlling for income results in larger correlations between immigration and house prices. In contrast, controlling for the stock of dwelling results in smaller correlations. Some of the regressions suggest that the inclusion of rents in the econometric model are also important in explaining the heterogeneity in the reported results. Income, rents, and the stock of dwellings should be included in a well-specified econometric model of house prices. The MRA quantifies the misspecification that occurs if these critical variables are omitted: studies that do not control for the effects of income or rents find smaller correlations, while those that do not control for stock of dwellings find larger correlations. This suggests that some of the correlation between immigration and house prices relates to the available stock of dwellings i.e., some of the effect of immigration on house prices is not driven by immigration but by the stock of dwellings available. Controlling for interest rates and population does not appear to affect the reported effects of immigration.[6]

Our main results use inverse variance weights. However, because there is some correlation between the estimated standard error of the partial correlation and the estimated partial correlation, we test the robustness of the results to sample size weights. These results are presented in Column (6) of Table 2 and confirm most of the baseline results.

Table 3 presents several weighted averages derived from the meta-regression model. These averages are presented for seven countries, at the within city, city, and province (state) level. Evaluated at country sample means of *Attitudes to immigrants*, immigration leads to a small increase in house prices in the USA, Canada, and Switzerland (at the 5% level of statistical significance), at the province (state) level. We next carry out a counterfactual analysis, asking what would have happened if attitudes to immigrants softened to the sample minimum (the least negative view towards immigrants in the sample). These results are reported in Columns (4) to (6), showing that immigration would then increase house prices in most countries. This counterfactual analysis suggests that the non-significant effect of immigration on house prices observed in the UK may, *in part*, reflect negative attitudes towards immigrants.

3.1. Adjusting for attitudes influenced by house prices

One concern with the above meta-regressions is that attitudes towards immigrants may be influenced by immigration, i.e. attitudes may be endogenous. For example, if attitudes are influenced by the impact of immigration on house prices, this may bias the weighted least squares parameter estimates. In the absence of suitable instruments for attitudes to immigrants, we re-estimate the meta-regression model using lagged values of attitudes.[7] That is, instead of using the survey values that match the average year of data used in the primary samples, we use the survey values at the start of the study's sample period. For example, if a study uses data from 1999 to 2004, we use the survey value of attitudes in 1999 or earlier, depending upon the availability of data. This should reduce endogeneity bias as the initial survey value of attitudes is less likely to be influenced by the subsequent impact of immigration on house prices. Using initial values comes at a cost of losing 60 observations and 5 studies from the dataset. These results are presented in Columns (4) and (5) of Table 2 and confirm the importance of attitudes to immigrants. The key difference is that the coefficient on *Attitude to immigrants* is smaller, and is estimated with less precision (and is hence no longer statistically significant) when country fixed effects are included. The other difference is that the sign on *Average year* changes from positive to negative.

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[4] In an earlier version of this study, we did not include *Within city* in the MRA specification. A referee suggested including this variable in the MRA.

[5] The exception is Column (3). However, if *Within city* is removed from the specification, *Province* becomes statistically significant.

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[6] However, this does not mean that these variables are not important determinants of house prices. Rather, they do not, on average, affect the size of the correlation between immigration and house prices.

[7] For example, attitudes towards immigrants may be shaped by factors such as the stock of immigrants in a given location and the unemployment rate. These factors, however, are not suitable instruments for immigration as they are also likely to impact house prices.

Table 2
Meta-regression estimates of the impact of immigration on house prices.

	Baseline estimates (1)	With regional dummies (2)	With country dummies (3)	Attitudes at start of period (4)	Attitudes at start of period (5)	Sample size weights (6)
Constant	0.043***	0.042***	0.238**	0.160***	0.096	0.212**
	(5.96)	(3.60)	(2.67)	(3.71)	(1.42)	(2.44)
Standard error	−0.074	0.039	1.078**	1.171*	1.097*	0.756*
	(−0.16)	(0.08)	(2.43)	(1.96)	(1.70)	(1.92)
Attitude to immigrants	−0.004***	−0.004***	−0.023**	−0.017***	−0.011	−0.021**
	(−4.27)	(−3.33)	(−2.65)	(−3.80)	(−1.48)	(−2.42)
Average year	0.001*	0.001**	0.001***	−0.003**	−0.003**	0.001**
	(1.93)	(2.11)	(2.95)	(−2.30)	(−2.58)	(2.73)
IV	0.029**	0.028*	0.012	0.023**	0.021*	0.013
	(2.22)	(2.01)	(1.28)	(2.25)	(1.90)	(1.54)
Income	0.031**	0.029**	0.034*	0.076***	0.072***	0.034*
	(2.30)	(2.12)	(2.03)	(5.70)	(4.66)	(1.97)
Bank rate	0.042	0.083	0.055	0.120	0.088	0.050
	(0.32)	(0.64)	(0.46)	(0.90)	(0.61)	(0.55)
Rents	0.163***	0.155***	0.091	0.129**	0.143*	0.065
	(3.13)	(2.81)	(1.42)	(2.00)	(1.98)	(1.15)
Population	−0.046	−0.057	0.019	−0.118***	−0.090	0.030
	(−1.62)	(−1.64)	(0.37)	(−5.60)	(−1.69)	(0.63)
Stock	−0.050***	−0.049***	−0.048***	−0.102***	−0.096***	−0.046***
	(−2.86)	(−2.78)	(−3.00)	(−5.42)	(−4.14)	(−2.94)
Within city	−0.004	0.009	−0.047	0.055***	0.028	−0.059
	(−0.19)	(0.31)	(−0.88)	(2.84)	(0.51)	(−1.20)
Province	0.101***	0.100***	0.067	0.091***	0.076**	0.050
	(3.45)	(3.60)	(1.52)	(4.71)	(2.09)	(1.31)
Nation	0.235	0.117	0.061	−0.014	−0.029	0.155
	(1.59)	(0.56)	(0.26)	(−0.06)	(−0.12)	(0.89)
Regional dummies	NO	YES	NO	YES	NO	NO
Country dummies	NO	NO	YES	NO	YES	YES
Adjusted R²	0.27	0.29	0.39	0.46	0.48	0.39
n (k)	40 (444)	40 (444)	40 (444)	35 (374)	35 (374)	40 (444)

Notes: Column (1) is the baseline results. Regional dummies are added in Column (2) and country dummies in Column (3). Columns (4) and (5) use the first available survey results for *Attitudes to immigrants*, i.e. lagged values of attitudes. Column (6) uses sample size weights. All models estimated using unrestricted weighted least squares, using inverse variance weights. n and k denote number of studies and number of estimates, respectively. The base in Columns (2) and (5) is North America and the USA for all other columns. Brackets report *t*-statistics using standard errors adjusted for clustering of estimates within studies. 5 studies and 30 observations are lost due to missing observations for *Attitudes to immigrants*. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 3
Estimated impact of immigration on house prices.

	Within city, country sample mean (1)	City level, country sample mean (2)	Province, country sample mean (3)	Within city, full sample counterfactual (4)	City level, full sample counterfactual (5)	Province, full sample counterfactual (6)
USA	0.111	0.158	0.224**	0.275**	0.321**	0.388***
	(1.34)	(1.64)	(2.21)	(2.34)	(2.62)	(3.24)
UK	0.027	0.073	0.140	0.263	0.310**	0.377***
	(0.34)	(0.76)	(1.36)	(1.94)	(2.21)	(2.77)
Canada	0.119	0.166	0.232**	0.138	0.185	0.252**
	(1.43)	(1.68)	(2.23)	(1.62)	(1.85)	(2.41)
Australia	0.156	0.203	0.269	0.209**	0.256	0.323**
	(1.63)	(1.55)	(2.01)	(2.08)	(1.93)	(2.40)
New Zealand	−0.067	−0.021	0.046	0.003	0.049	0.116
	(−0.71)	(−0.25)	(0.46)	(0.02)	(0.53)	(1.11)
Spain	0.068	0.115	0.181	0.197	0.243	0.310**
	(0.66)	(1.03)	(1.86)	(1.53)	(1.86)	(2.71)
Switzerland	0.120	0.167	0.233**	0.200**	0.247**	0.313***
	(1.46)	(1.74)	(2.29)	(2.12)	(2.37)	(2.97)

Notes: Averages are calculated using the meta-regression coefficients from Table 2, Column (3). Brackets report *t*-statistics using standard errors adjusted for clustering of estimates within studies. **, and *** denote statistical significance at the 5% and 1% level, respectively.

4. Conclusion

Immigration increases demand for accommodation and, all else being equal, likely manifests into higher house prices. However, the predictable impact of demand and supply on prices may be moderated by the attitudes and beliefs of market participants. We investigate the extent to which immigration impacts house prices in destination countries. Using data from the World Values Surveys, we also analyze the moderating impact of attitudes to immigrants on house price movements. We find that, on average, immigration increases house prices but this effect varies by region and over time. In countries where locals dislike living next to immigrants, for instance, immigration has a smaller effect on house prices, although we find no evidence that house prices sink as a result of immigration. In many countries, house prices have been unaffected by immigration.

In sum, our findings show that negative attitudes towards immigrants can offset the demand effect on house prices from increased population. This is consistent with out-migration as a result of immigration

([Crowder et al., 2011](#)), or a reduction in the amenity value of a locale leading to reduced willingness to pay higher house prices. Our findings are also consistent with the literature that postulates people like living near their kin and this motive drives the selection process for housing destinations ([Edin et al., 2003; Saiz and Wachter, 2011](#)). The tendency of new immigrants to live in the same areas as previous generations of immigrants, combined with a disinclination for local residents with negative attitudes towards immigration to reside near immigrants, attenuates the relationship between immigration and house prices.

Nevertheless, we cannot rule out the possibility that another factor influences both attitudes to immigrants and the magnitude of the correlation between immigration and house prices. If this is the case, then the *Attitude to immigrants* is capturing correlation, rather than a causal relationship. Another limitation with our study is that due to data limitations, we were unable to explore differences in attitudes to different groups of immigrants. For example, if attitudes differ according to country of origin and skill level, then the average effects reported here may disguise important heterogeneity in the way attitudes moderate the effects of immigrations.[8]

The MRA identifies two sources of bias in this literature. First, we detect evidence of publication selection, with preferential reporting for positive effects of immigration on house prices. That is, it appears that some negative effects of immigration on house prices go unreported. Such selection has the effect of truncating the evidence available in the public domain and can, potentially, distort statistical inference and public policy. While MRA is able to detect and correct the evidence base for this selection, this correction is not perfect and it would be better for future research to report a broader range of estimates. A second source of bias relates to model specification. In particular, the MRA shows that failing to control for income and the stock of dwellings results in model mis-specification or omitted variable biases. Researchers should thus exercise caution with the specification of their econometric models, though data availability can be a major constraint to the inclusion of a full set of controls.

Disclosure statement

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None of the authors have any relevant or material financial or conflict of interests to declare.

Appendix:

Studies included in meta-analysis

Accetturo, A., Manaresi, F., Mocetti, S., Olivieri, E., 2014. Don't stand so close to me: the urban impact of immigration. *Reg. Sci. Urban Econ.* 45, 45–56.

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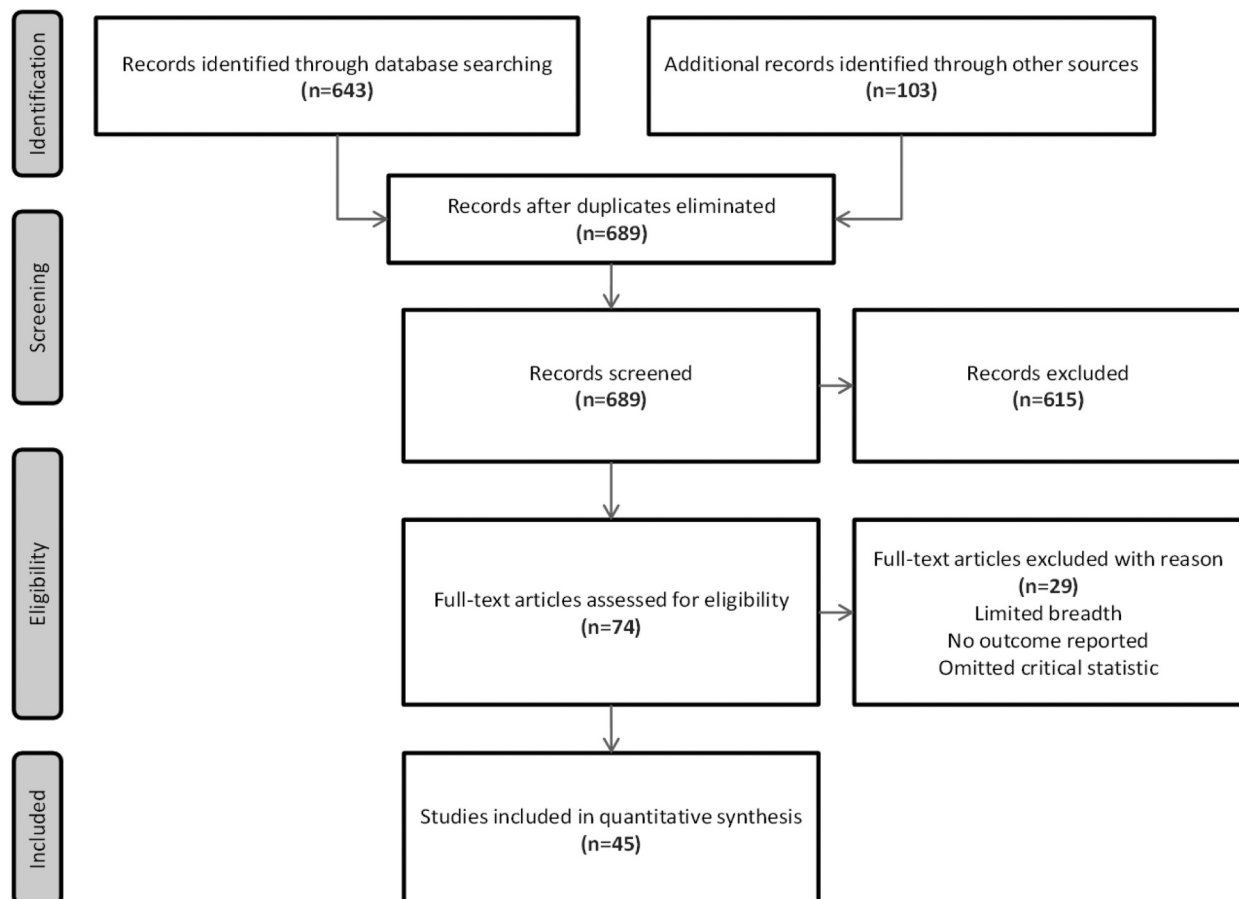**PRISMA diagram for the meta-analysis**

Table A1

Variable definitions and descriptive statistics.

Variable	Description	Mean (Standard deviation)
Partial correlation	Correlation between house price increases and immigration, controlling for other factors that influence house prices	0.076 (0.223)
Standard error	Estimated standard error of the partial correlation	0.063 (0.051)
Attitude to immigrants	Proportion of survey *World Values Survey* respondents answering yes to not wanting immigrants/foreign workers as neighbors	9.174 (4.254)
Average year	Average year of sample used in primary study	−0.234 (6.794)
IV	Binary variable taking value of 1 if study controls for reverse causality.	0.283 (0.451)
Income	Binary variable taking value of 1 if study controls for income, employment, unemployment, or output.	0.610 (0.488)
Bank rate	Binary variable taking value of 1 if study controls for bank rate.	0.114 (0.318)
Rents	Binary variable taking value of 1 if study controls for rents.	0.032 (0.175)
Population	Binary variable taking value of 1 if study controls for population.	0.323 (0.468)
Stock	Binary variable taking value of 1 if study controls for the stock of dwellings.	0.238 (0.427)
Within city	Binary variable taking value of 1 if study used within city data (e.g., city district or metropolitan level).	0.165 (0.371)
Province	Binary variable taking value of 1 if study used provincial or state level data.	0.133 (0.340)
Nation	Binary variable taking value of 1 if study used national level data.	0.080 (0.272)

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