Cosmopolitan immigration attitudes in large European cities: Contextual or compositional effects?

Supplementary Appendix

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A Survey design and measures

Table A1: European Social Survey (ESS) sample

Country	Rounds	Largest city
Austria	1-3, 7-8	Vienna
Belgium	1-8	Brussels
Switzerland	1-8	Zurich
Germany	1-8	Berlin
Denmark	1-7	Copenhagen
Spain	1-8	Madrid
Finland	1-8	Helsinki
France	1-8	Paris
Great Britain	1-8	London
Ireland	1-8	Dublin
Netherlands	1-8	Amsterdam
Norway	1-8	Oslo
Sweden	1-8	Stockholm

A.1 Question wording for dependent variable measures in the ESS

1. To what extent do you think [country] should allow people of the same race or ethnic group as most [country] people to come and live here?

2. How about people of a different race or ethnic group from most [country] people?

3. How about people from the poorer countries outside Europe?

Allow many to come and live here, Allow some, Allow a few, Allow none

4. Would you say it is generally bad or good for [country]'s economy that people come to live here from other countries? 0 - Bad for the economy ... 10 - Good for the economy

5. Would you say that [country]'s cultural life is generally undermined or enriched by people coming to live here from other countries? 0 - Cultural life undermined ... 10 - Cultural life enriched

6. Is [country] made a worse or a better place to live by people coming to live here from other countries? 0 - Worse place to live ... 10 - Better place to live

A.2 Survey design

The European Social Survey (ESS) is administered via face-to-face interviews using random probability sampling to generate samples that are nationally representative of all persons aged 15 or older residing in private households. Different sampling practices are allowed across the respective countries as long as the end result conforms to the above criteria (no quota sampling is allowed). This necessitates the use of design weights to account for different sampling procedures across countries. In addition, all analyses use post-stratification weights (using information about age, gender, education, and region) to adjust for slight sampling errors and non-response errors.

The final sample in this article uses 13 West European countries. Greece, Italy and Portugal are West European countries that are each included in at least 4 waves of the ESS, but they are excluded from my analysis because of small sample sizes (fewer than 300 respondents) in either the largest city or rural areas. Luxembourg is excluded from my analysis because it was only included in two of the eight ESS waves. I also exclude Cyprus because of the unique factor of being a divided Greek and Turkish island, a dynamic which includes the capital (and only large urban city) Nicosia. This division makes it unclear who would be referenced by the term 'immigrant', how the term 'immigrant' is understood more generally, and limits comparability with other West European countries in the sample.

The Swiss Household Panel (SHP) is a longitudinal study of Swiss residents with a random sample of households, stratified at the regional level. All individuals in the household are subject to be surveyed, although in some cases certain individuals will not fill out their own survey (if they suffer from health issues, or have language-comprehension problems, or if they are under the age of 15 years old). Interviews are conducted face-to-face (or by mail if the respondent cannot be contacted in person). The SHP began in 1999 with the intention of surveying each household annually. New respondents were added in 2004 and 2013 to address attrition. All analyses are weighted to account for stratification, clustering and unequal selection probabilities.

The German Socioeconomic Panel (SOEP) is a longitudinal study of German residents with households randomly selected within each parliamentary election district. SOEP started in 1984 and new respondents from the former German Democratic Republic (East Germany) were added in 1990. New respondents in 1994 and 1995 were an oversample of immigrant households. New respondents have been added in 1998, 2000, 2002, 2006, 2009, 2011, and 2012 to maintain the sample size in response to attrition. All analyses are weighted to account for unequal selection probabilities. Ethnic German repatriates are considered immigrants in the SOEP and are not included in the analyses.

In the SOEP, I analyze MICROM neighborhood units (with approximately 450 households per neighborhood). There are several other options for geographic analysis at the sub-city level, each with significant drawbacks. One option is postcode. The drawback to using postcodes is that there are very limited contextual data available, making it impossible to classify the different postcodes according to how likely they are to be favorable to immigrants. Other more fine-grained options are city blocks and buildings. These units are so small that they include one SOEP household, which makes it impossible to distinguish between individual/household effects and neighborhood effects. There is also no contextual data available for such small units of analysis.

A challenge with any longitudinal dataset is how to handle non-random attrition. Existing research suggests that respondents are at greater risk of attrition if they are young, male, foreign-born, or socially and economically marginalized (Rothenbühler and Voorpostel 2016; Voorpostel and Lipps 2011). These known demographic predictors of attrition are used to calculate the longitudinal weights employed in my analysis of the SHP and the SOEP, which should correct for some of the potential bias.[1] There is always the possibility that additional

[1]In addition, note that these demographic predictors of attrition may cancel each other out. People who are younger and foreign born are more likely to be pro-immigration while people who are socially and economically marginalized are more likely to be anti-immigration.

non-demographic characteristics (e.g. anti-social attitudes) contribute to attrition in ways that are uncorrelated with observable demographic characteristics. To the extent that this is true, the sample might be biased towards fewer anti-immigration respondents. Yet, it is not clear how this would bias the contextual-compositional analysis, as the direction of any bias would depend on whether attrition among anti-social respondents varies across geography and moving status and there is no clear reason to expect such variation.

Another subpopulation with a higher risk of attrition is people who move (Rothenbühler and Voorpostel 2016; Voorpostel and Lipps 2011), which could reduce the sample size of post-move observations. A bigger challenge for my analysis is if attrition is distributed unevenly across movers. It is plausible that socially and economic marginalized movers are more likely than socially and economically successful movers to drop out of the panel. If true, this would bias the sample of movers towards more pro-immigration respondents. Yet, this distributional imbalance is also a natural feature of the moving population. Highly-educated professionals (who are generally pro-immigration) are over-represented among movers (to urban and rural areas) because of the greater resources required for long-distance moves. Therefore, it is unclear how higher rates of attrition among anti-immigration movers would bias the analysis.

In a sample biased towards more pro-immigration movers it might be harder to detect pro-immigration effects of moving to large urban areas (because people who are pro-immigration prior to moving have less space to change their attitudes). At the same time, it might be easier to detect pro-immigration effects of moving to large urban areas if the most alienated anti-immigration respondents are not present in the data. A more straightforward implication is that the observed cultural sorting (in which people who move to large urban areas are already more pro-immigration prior to their move) is likely exaggerated in the SHP data. This should be taken into account when interpreting results from the main text.

A.3 Survey measures

In the SHP, great urban centers are Basel, Bern, Geneva, Lausanne and Zurich (average population size 192,392). Medium centers are Aarau, Baden, Bellinzona, Biel, Chur, Fribourg, La Chaux-de-Fonds, Locarno, Lugano, Lucerne, Montreux, Neuchatel, Olten, Schaffhausen, Sion, Solothurn, St. Gallen, Thun, Vevey, Wil, Winterthur, and Zug (average population size 34,518).

German cities with more than 500,000 residents are Berlin, Hamburg, Munich, Cologne, Frankfurt am Main, Stuttgart, Düsseldorf, Dortmund, Essen, Leipzig, Bremen, Dresden, Hannover, and Nürnberg.

SOEP neighborhood data on the percent of ethnically-German residents is only available for 2006-2016. For the main analyses I recode the neighborhood percent German variable into quartiles for statistical analysis. The lowest quartile is 34.7-91.6 percent German, the second quartile is 91.7-95.4 percent German, the third quartile is 95.4-97.3 percent German and the fourth quartile is 97.3-100 percent German. As a robustness check, I also conduct analyses where the percent of German residents is divided into thirds and fifths. For the former, the lowest third is 34.7-93.4 percent German, the middle third is 93.4-96.8 percent German and the highest quartile is 96.8-100 percent German. For fifths, the lowest band is 34.7 to 90.3 percent German, followed by 90.3-94.3 percent German, 94.3-96.3 percent German, 96.3-97.6 percent German and finally 97.6-100 percent German.

The ESS includes data on sub-national regions, which I use for hierarchical linear models in table 1. Sub-national coding is based on the Nomenclature of Territorial Units for Statistics (NUTS) codes which are developed and regulated by the European Union. NUTS coding in the ESS is available at different levels of granularity across countries and across survey waves. For each country, I use the most fine-grained NUTS coding possible for which I can use consistent coding across all available waves. Austria, Switzerland, Denmark, Spain, Finland, Netherlands, Norway and Sweden are coded with NUTS 2 regions. Belgium, Germany, France, Ireland and the United Kingdom are coded with NUTS 1 regions.

Table A2: Commune codes for Rural and 'Other' in the Swiss Household Panel

Rural	Other
Rural commuter communes	Small centres
Mixed agricultural communes	Suburban communes
Peripheral agricultural communes	Wealthy communes
	Peripheral urban communes
	Tourist communes
	Industrial and tertiary sector communes

B Descriptive statistics

Table B1: Demographic summary statistics across geographic categories (ESS) (weighted, born in country of residence)

	Largest city				Big city			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Age	44.63	18.75	15	101	45.72	19.32	15	102
Female	0.50	0.50	0	1	0.52	0.50	0	1
Second-generation	0.18	0.39	0	1	0.12	0.33	0	1
Post-secondary degree	0.45	0.50	0	1	0.35	0.48	0	1
No secondary degree	0.11	0.31	0	1	0.14	0.34	0	1
Professional	0.25	0.43	0	1	0.19	0.39	0	1
Manual occupations	0.19	0.39	0	1	0.26	0.44	0	1

	Suburb				Town			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Age	47.69	18.77	15	100	46.96	19.32	14	104
Female	0.50	0.50	0	1	0.52	0.50	0	1
Second-generation	0.11	0.32	0	1	0.10	0.30	0	1
Post-secondary degree	0.32	0.47	0	1	0.28	0.45	0	1
No secondary degree	0.15	0.35	0	1	0.16	0.36	0	1
Professional	0.15	0.36	0	1	0.13	0.34	0	1
Manual occupations	0.27	0.44	0	1	0.32	0.47	0	1

	Village				Countryside			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Age	48.04	18.78	14	123	50.01	18.47	14	102
Female	0.52	0.50	0	1	0.49	0.50	0	1
Second-generation	0.07	0.26	0	1	0.05	0.22	0	1
Post-secondary degree	0.25	0.43	0	1	0.25	0.43	0	1
No secondary degree	0.19	0.39	0	1	0.20	0.40	0	1
Professional	0.11	0.32	0	1	0.11	0.31	0	1
Manual occupations	0.37	0.48	0	1	0.45	0.50	0	1

'Second-generation' is respondents born in country of residence with at least one parent not born in country of residence.

Table B2: SHP demographic summary statistics
(weighted, respondents born in Switzerland)

	Overall SHP			
	Mean	SD	Min	Max
Age	49.64	17.14	13	99
Female	0.52	0.50	0	1
Swiss citizen	0.97	0.18	0	1
Post-secondary education	0.30	0.46	0	1
No secondary education	0.10	0.30	0	1
Professional	0.21	0.40	0	1
Manual occupation	0.21	0.41	0	1

	Great urban center				Medium urban center			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Age	49.83	18.17	14	95	49.70	18.18	14	94
Female	0.56	0.50	0	1	0.54	0.50	0	1
Swiss citizen	0.97	0.17	0	1	0.95	0.21	0	1
Post-secondary education	0.43	0.49	0	1	0.32	0.47	0	1
No secondary education	0.06	0.24	0	1	0.09	0.28	0	1
Professional	0.33	0.47	0	1	0.27	0.44	0	1
Manual occupation	0.09	0.29	0	1	0.16	0.36	0	1

	Other				Rural			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Age	49.96	17.08	13	99	48.32	16.06	14	94
Female	0.51	0.50	0	1	0.53	0.50	0	1
Swiss citizen	0.97	0.18	0	1	0.99	0.12	0	1
Post-secondary education	0.30	0.46	0	1	0.24	0.42	0	1
No secondary education	0.10	0.30	0	1	0.12	0.32	0	1
Professional	0.20	0.40	0	1	0.13	0.33	0	1
Manual occupation	0.21	0.40	0	1	0.34	0.47	0	1

Table B3: Demographic summary statistics across geographic categories (SOEP)
(weighted, respondents born in Germany)

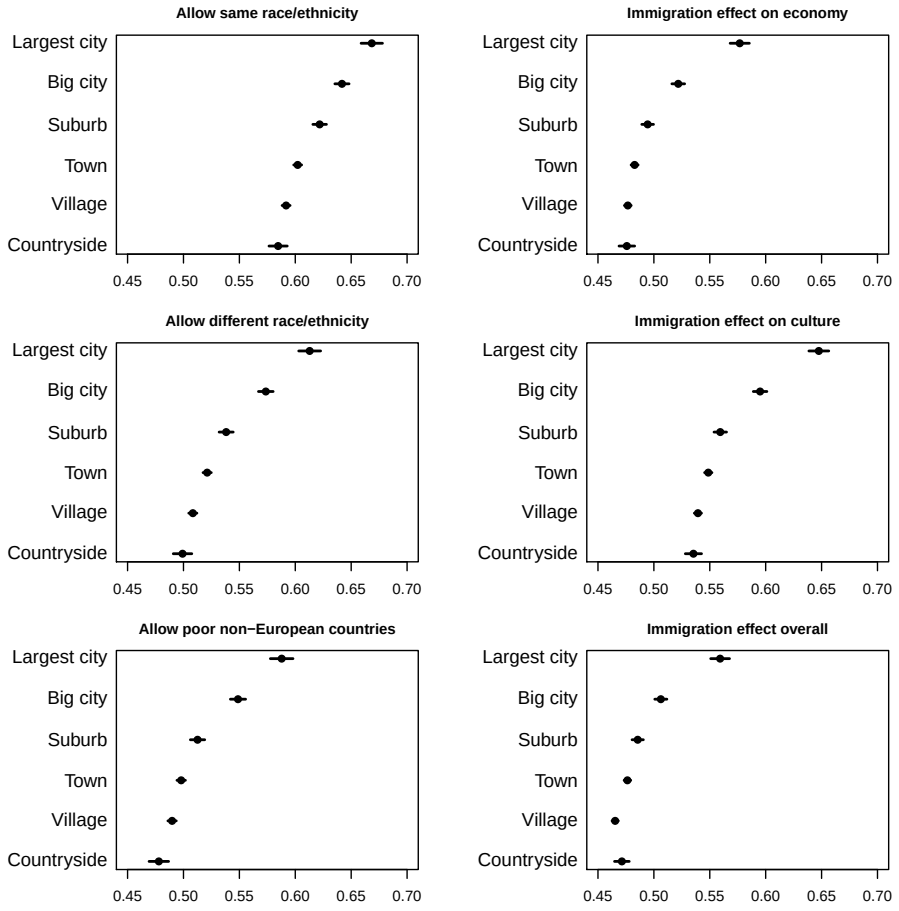
	Overall SOEP				Overall big city			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Age	51.09	18.01	16	105	52.34	18.79	16	99
Female	0.53	0.50	0	1	0.53	0.50	0	1
Second-generation	0.05	0.23	0	1	0.06	0.25	0	1
Post-secondary degree	0.21	0.41	0	1	0.32	0.47	0	1
No secondary degree	0.11	0.32	0	1	0.09	0.28	0	1
Professional	0.11	0.31	0	1	0.17	0.38	0	1
Manual occupations	0.13	0.34	0	1	0.08	0.27	0	1

	Big city, lowest German quartile				Big city, highest German quartile			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Age	49.17	18.72	16	97	56.29	17.42	17	99
Female	0.51	0.50	0	1	0.52	0.50	0	1
Second-generation	0.10	0.30	0	1	0.03	0.17	0	1
Post-secondary degree	0.29	0.46	0	1	0.39	0.49	0	1
No secondary degree	0.11	0.31	0	1	0.04	0.19	0	1
Professional	0.19	0.39	0	1	0.15	0.35	0	1
Manual occupations	0.08	0.27	0	1	0.11	0.31	0	1

	Other				Rural			
	Mean	SD	Min	Max	Mean	SD	Min	Max
Age	51.65	17.93	17	105	52.15	17.76	17	102
Female	0.53	0.50	0	1	0.52	0.50	0	1
Second-generation	0.06	0.24	0	1	0.04	0.19	0	1
Post-secondary degree	0.21	0.41	0	1	0.15	0.36	0	1
No secondary degree	0.11	0.32	0	1	0.12	0.33	0	1
Professional	0.11	0.31	0	1	0.08	0.27	0	1
Manual occupations	0.13	0.34	0	1	0.17	0.38	0	1

'Second-generation' is respondents born in Germany with at least one parent born abroad.

Figure B1: Immigration attitudes across survey items and geography



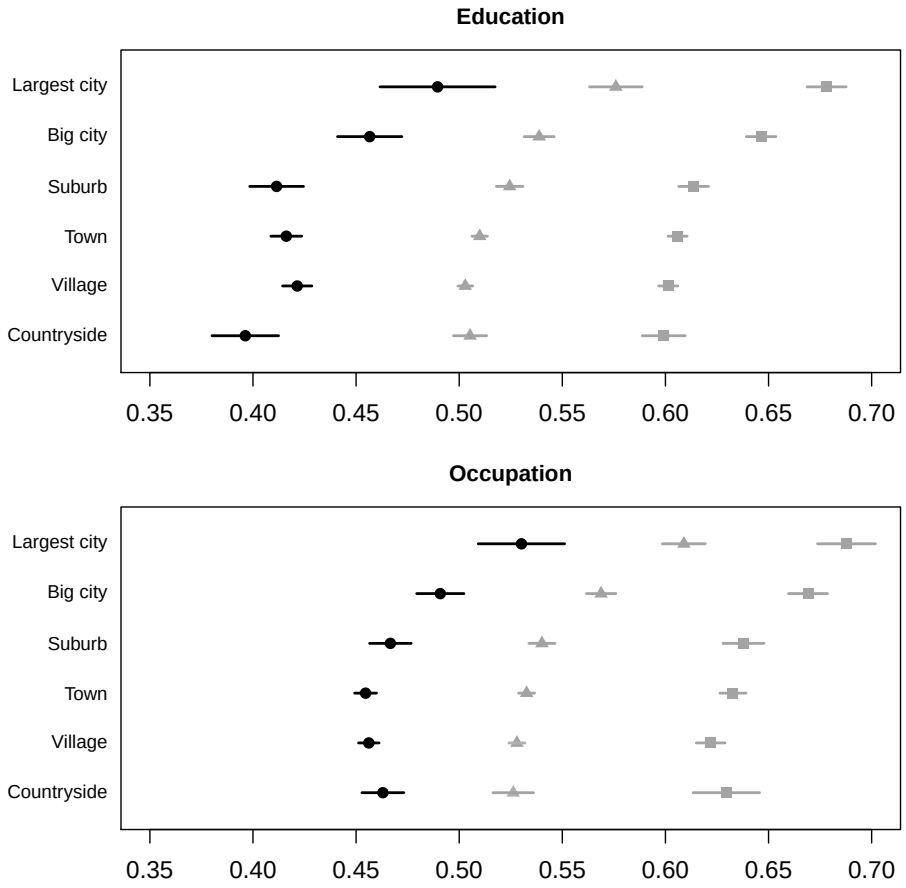
Pooled and weighted ESS sample. X-axis coded 0 (negative) to 1 (positive)
'Allow same' N=160,990, 'Allow different' N=160,894, 'Allow poor' N=160,644, 'Effect economy' N=160,165, 'Effect culture' N=160,644, 'Effect overall' N=160,935

C Immigration attitudes across geography and demography: additional analyses

Figures C4, C5 and C6 plot immigration attitudes across demography and geography in each country. In each country I match respondents with the same demographic characteristics across each geographic category and then compare mean immigration attitudes. Sample sizes are too small to analyze subsets of respondents with extreme educational and occupational outcomes in each geographic category. Therefore I analyze results for education and occupation separately. There is almost always more variation in immigration attitudes between the largest city and the countryside than between post-secondary and no secondary education or between professionals and manual workers within each geographic category.

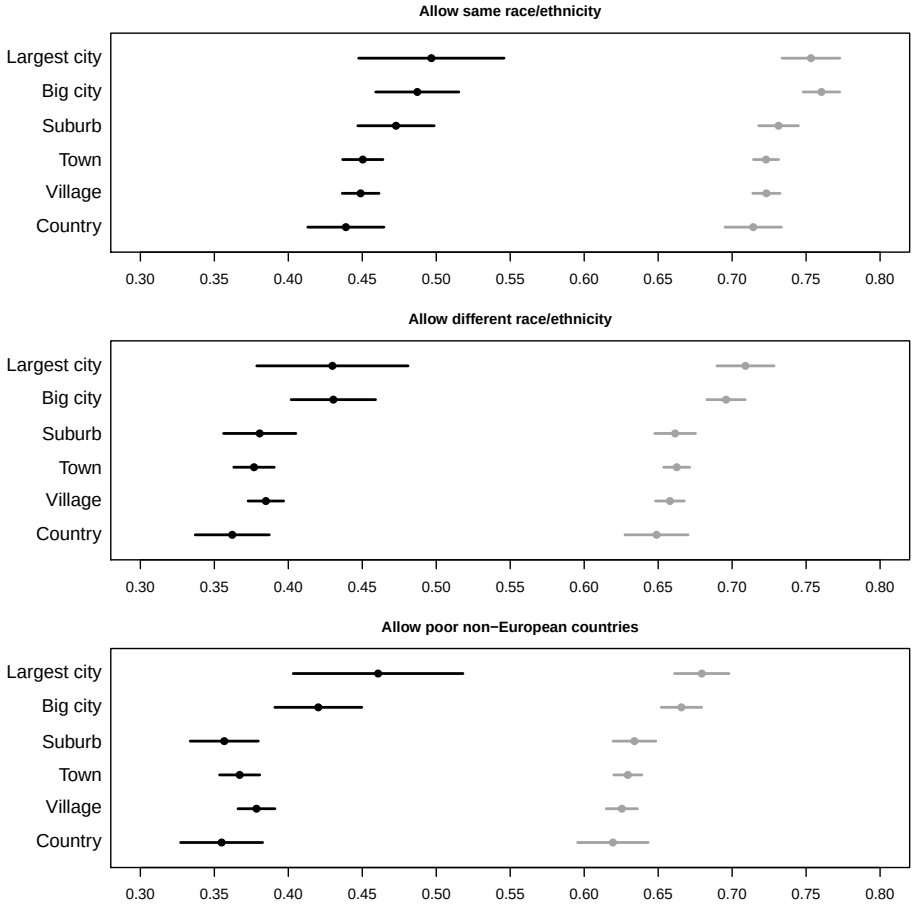
The two exceptions are the UK and Ireland. In the UK, there is more urban-rural variation in immigration attitudes among manual workers than there is between professionals and manual workers in either urban or rural areas. In Ireland, there is more urban-rural variation among both manual workers and people without secondary education than there is between professionals and manual workers or between post and no secondary education in either urban or rural areas. In both countries, these results are driven by exceptionally positive immigration attitudes among lower socio-economic status respondents (manual workers and no secondary education) in the largest city. Given the small sample sizes for these demographic and geographic subgroups (often below 100 respondents), one should not over-interpret these findings. Nonetheless, future research could explore more closely cross-national variation in the relative size of demographic and geographic attitudinal gaps.

Figure C1: Immigration attitudes across geography and detailed demography



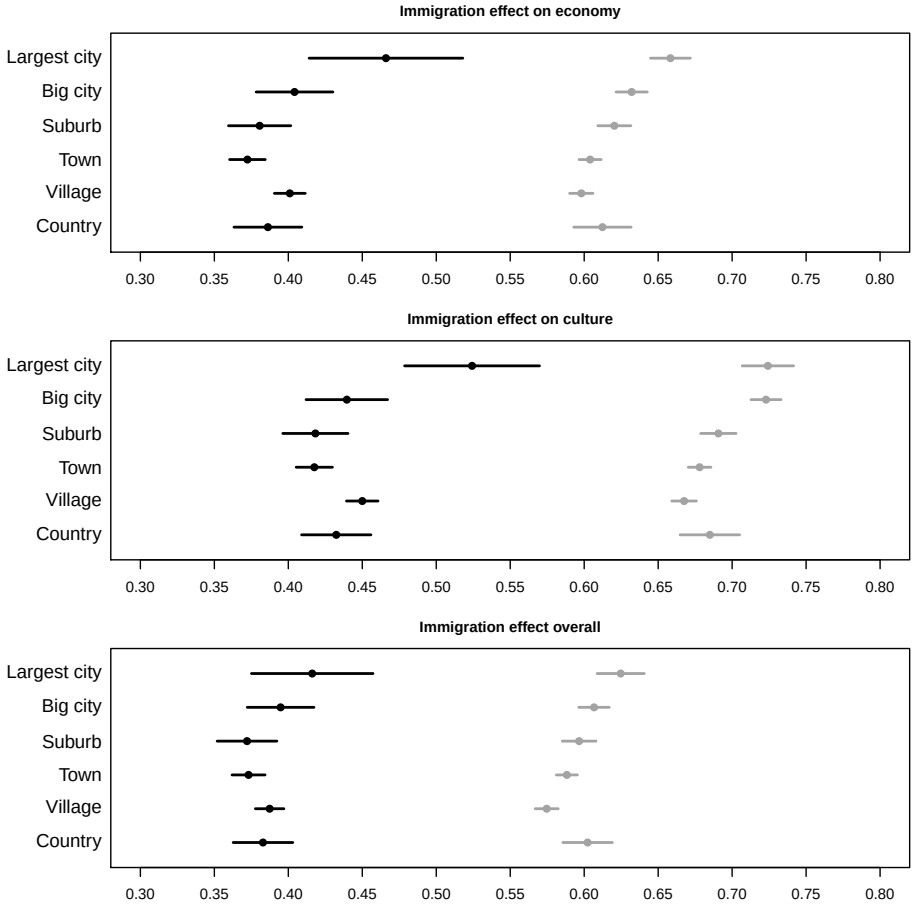
Weighted means from pooled ESS sample. X-axis coded 0 (negative) to 1 (positive). For Education, black circles are respondents with no secondary education (N=18,860), grey triangles are secondary education (N=82,665) and grey squares are post-secondary education (N=50,371). For Occupation, black circles are manual occupations (N=42,361), grey triangles are intermediate occupations (military, managers, associate professionals, clerical and sales) (N=75,427), and grey squares are professionals (N=22,937).

Figure C2: Immigration policy attitudes across geography and demography



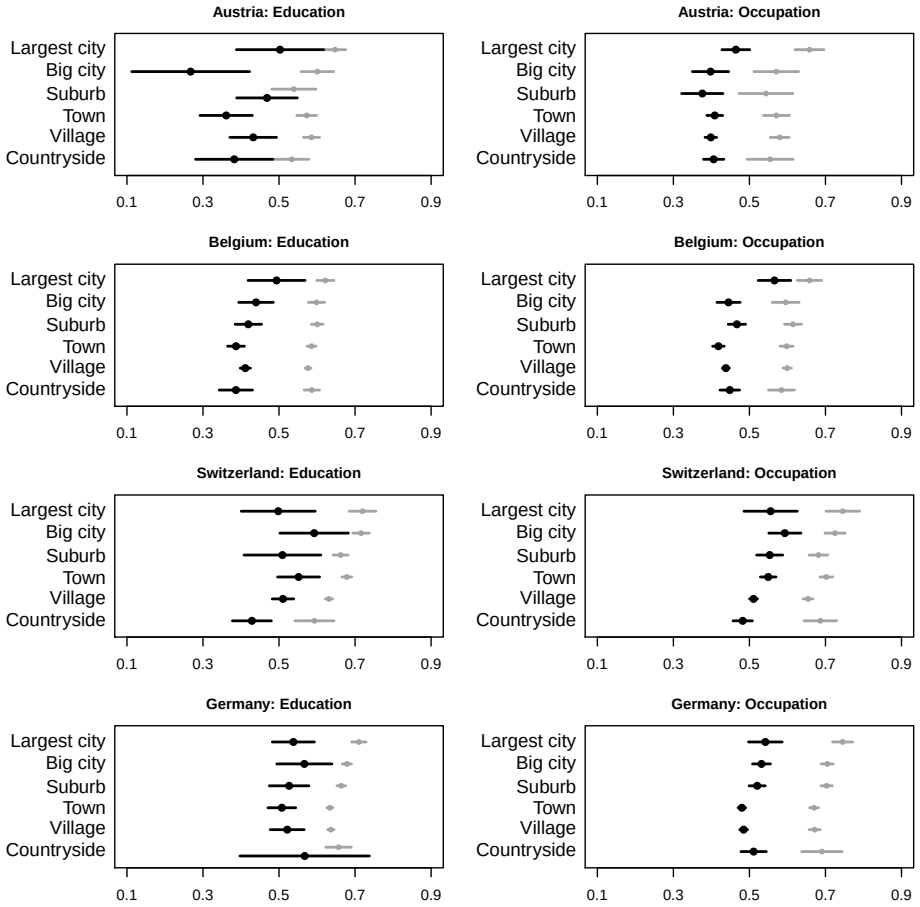
Weighted means from pooled ESS sample. X-axis coded 0 (negative) to 1 (positive). Black circles are respondents with no secondary education and manual occupations (N=11,033). Grey circles are respondents with post-secondary education and professional occupations (N=19,757).

Figure C3: Immigration effects attitudes across geography and demography



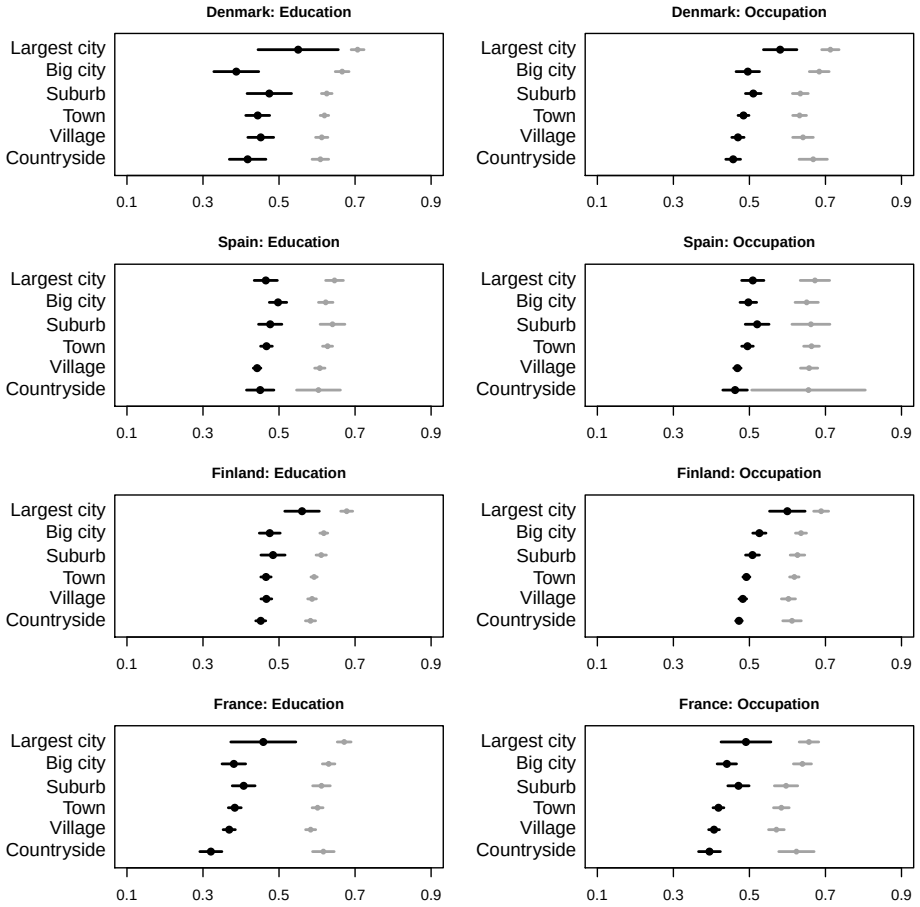
Weighted means from pooled ESS sample. X-axis coded 0 (negative) to 1 (positive). Black circles are respondents with no secondary education and manual occupations (N=10,619). Grey circles are respondents with post-secondary education and professional occupations (N=20,005).

Figure C4: Immigration attitudes across geography, demography (Austria, Belgium, Switzerland and Germany)



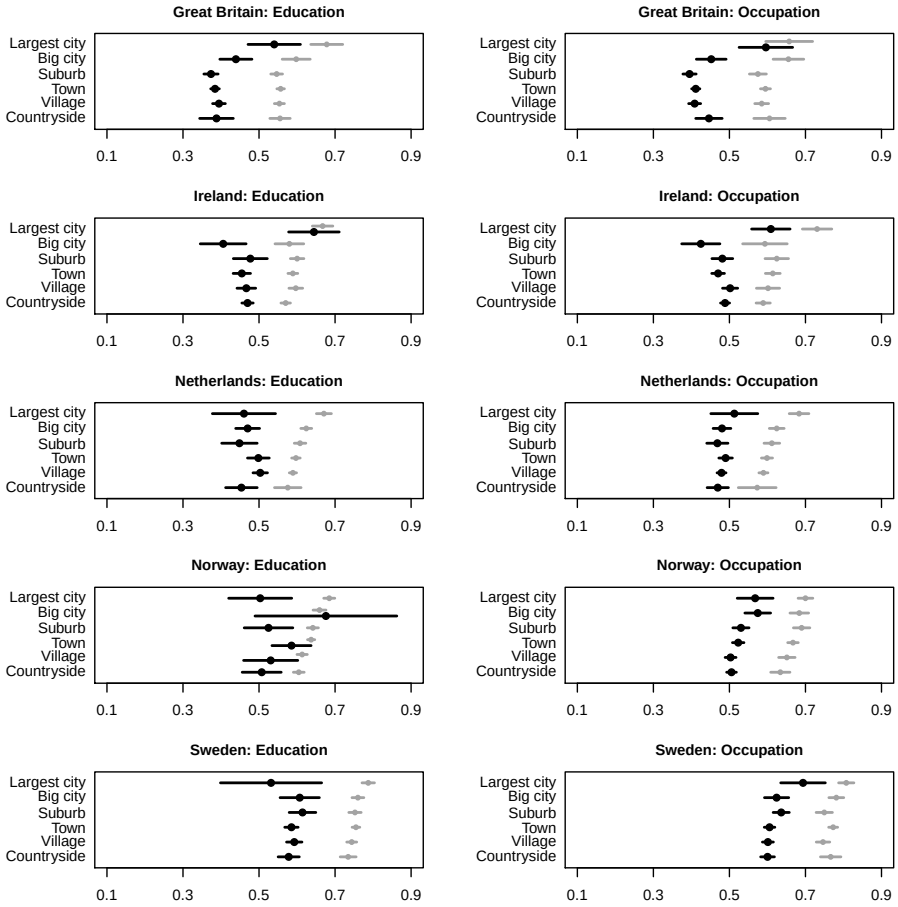
Weighted means from pooled ESS sample. X-axis coded 0 (negative) to 1 (positive). For Education, black circles are respondents with no secondary education (Austria N=135, Belgium N=1,344, Switzerland N=270, Germany N=464), and grey circles are post-secondary education (Austria N=1,364, Belgium N=4,276, Switzerland N=2,595, Germany N=7,134). For Occupation, black circles are manual occupations (Austria N=2,054, Belgium N=3,175, Switzerland N=2,079, Germany N=5,323), and grey circles are professionals (Austria N=840, Belgium N=1,909, Switzerland N=1,370, Germany N=2,949).

Figure C5: Immigration attitudes across geography, demography (Denmark, Spain, Finland and France)



Weighted means from pooled ESS sample. X-axis coded 0 (negative) to 1 (positive). For Education, black circles are respondents with no secondary education (Denmark N=368, Spain N=3,537, Finland N=2,302, France N=2,221), and grey circles are post-secondary education (Denmark N=3,277, Spain N=3,124, Finland N=4,884, France N=2,302). For Occupation, black circles are manual occupations (Denmark N=2,408, Spain N=3,913, Finland N=4,821, France N=3,246), and grey circles are professionals (Denmark N=1,450, Spain N=1,040, Finland N=2,241, France N=1,669).

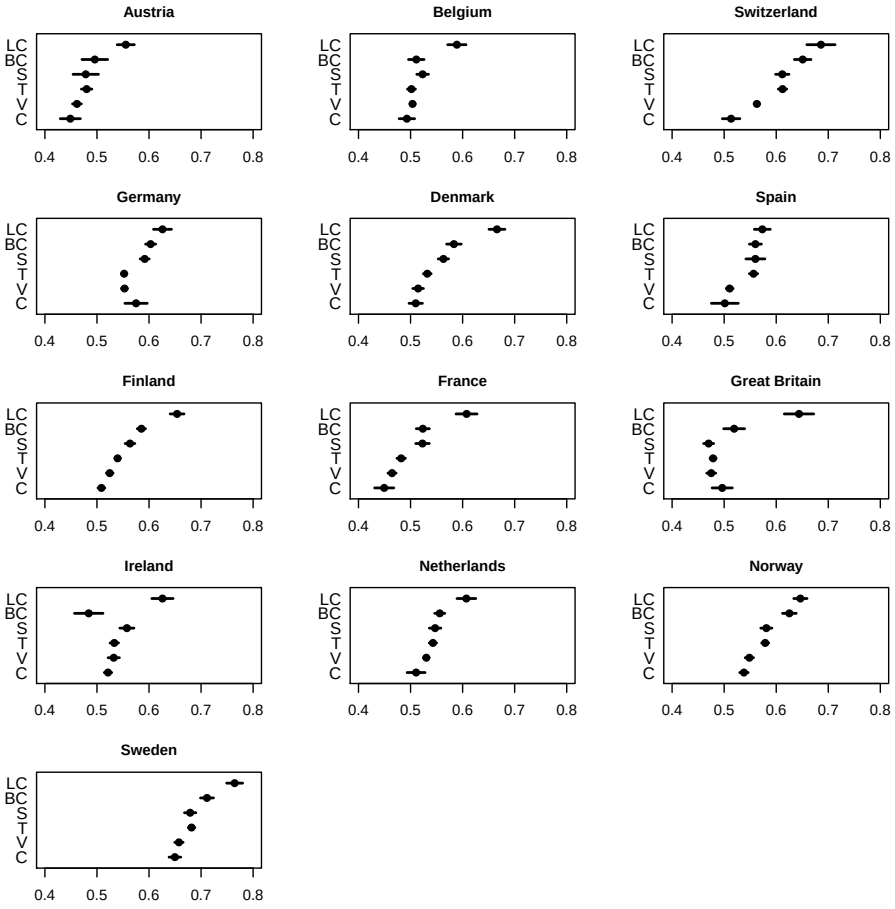
Figure C6: Immigration attitudes across geography, demography (Great Britain, Ireland, Netherlands, Norway and Sweden)



Weighted means from pooled ESS sample. X-axis coded 0 (negative) to 1 (positive). For Education, black circles are respondents with no secondary education (Great Britain N=3,550, Ireland N=2,194, Netherlands N=1,104, Norway N=132, Sweden N=1,239), and grey circles are post-secondary education (Great Britain N=4,894, Ireland N=4,111, Netherlands N=3,894, Norway N=4,176, Sweden N=1,239). For Occupation, black circles are manual occupations (Great Britain N=4,002, Ireland N=3,642, Netherlands N=2,461, Norway N=2,579, Sweden N=2,658), and grey circles are professionals (Great Britain N=1,988, Ireland N=1,622, Netherlands N=2,235, Norway N=1,690, Sweden N=1,934).

D Variation across countries in the ESS

Figure D1: Immigration attitudes across countries and geography



Pooled and weighted ESS sample. X-axis coded 0 (negative) to 1 (positive).
'LC' - Largest city, 'BC' - Big city, 'S' - suburb, 'T' - town, 'V' - village, 'C' - countryside (N=152,559).

E Variation over time in the ESS

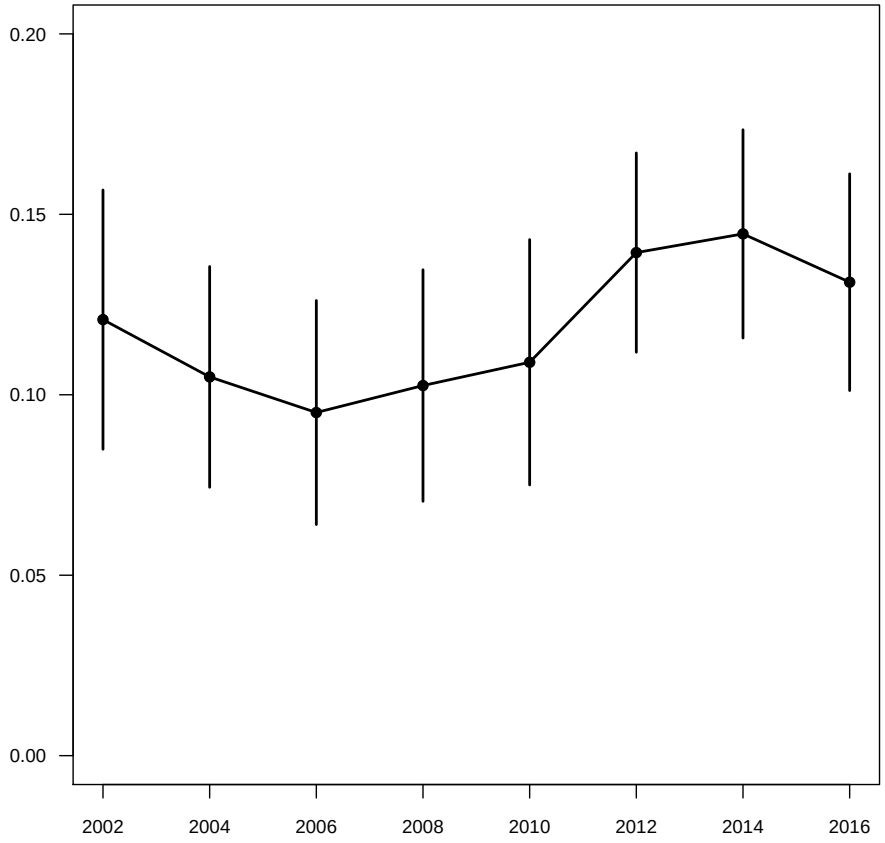
Rounds 1 through 8 of the ESS cover fifteen years (2002-2016) so it is plausible that the size of the urban-rural divide varied during that time period. Figure E1 presents the urban-rural immigration attitude gap across ESS rounds, and suggests a slight increase in the divide over time. The smallest gap is 0.095 points in 2006 compared to 0.13 to 0.14 points between 2012 and 2016. The increase is primarily due to attitudes becoming slightly more positive over time in the largest cities, while remaining unchanged in the countryside.

One potential explanation for attitudes becoming more positive in the largest cities is the macro-economic changes that have occurred in large European cities during that time period. The growth in financial services, informational technology, and the knowledge economy led to more professionals, fewer manual workers, and more residents with post-secondary degrees living in large European cities. If these changing demographics could account for the growing urban-rural gap, it would be consistent with the logic of compositional effects (H_2). However, contextual effects (H_1) could also explain this change over time if the pro-immigration culture in large European cities exerted more influence on urban residents over time.

The cross-sectional nature of the ESS data do not allow a comprehensive test of whether contextual or compositional effects can account for the trend of more positive attitudes in large cities. Nonetheless, comparing immigration attitudes across ESS rounds for respondents with the same demographic characteristics in the same geographic category can provide suggestive evidence. Figures E2 and E3 present these results and in each round there is more variation in immigration attitudes across demography than geography. In addition, figures E2 and E3 indicate that the 95 percent confidence intervals overlap among respondents with the same demographic characteristics across each geographic category.

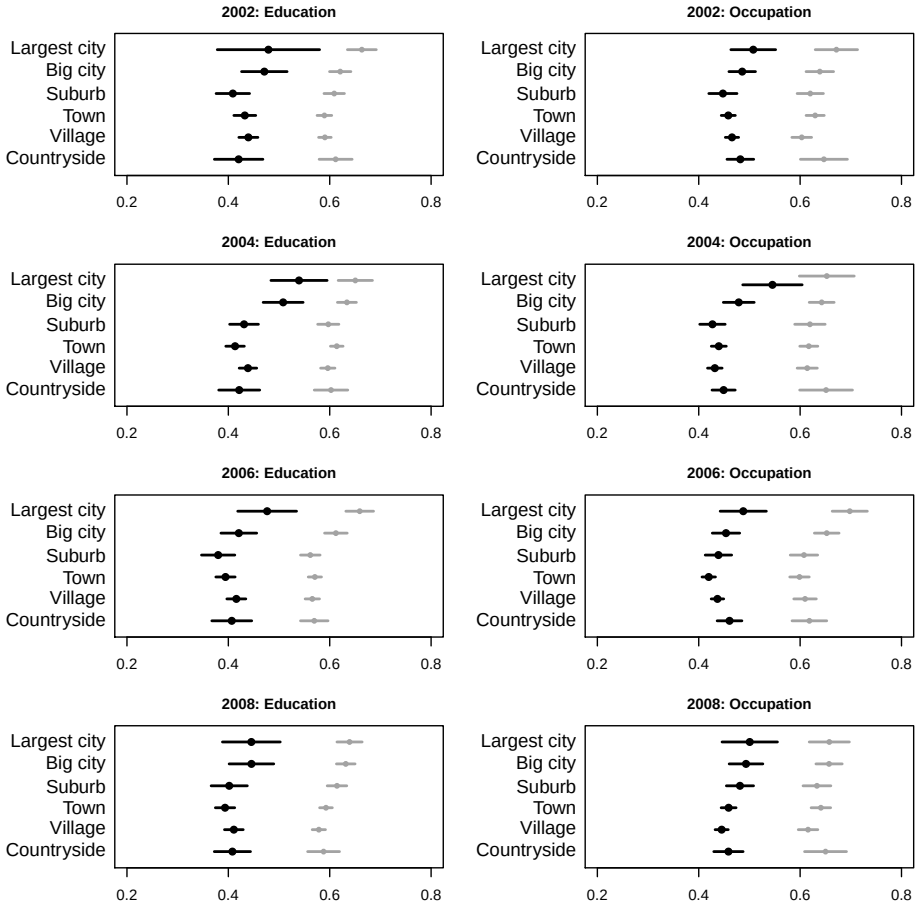
Overall, there is suggestive evidence that the urban-rural divide on immigration may be growing due to compositional dynamics. However, note that the change over time in figure E1 is relatively modest and should not be over-interpreted. Future research should explore these dynamics in more detail.

Figure E1: Urban-rural immigration attitude gap over time



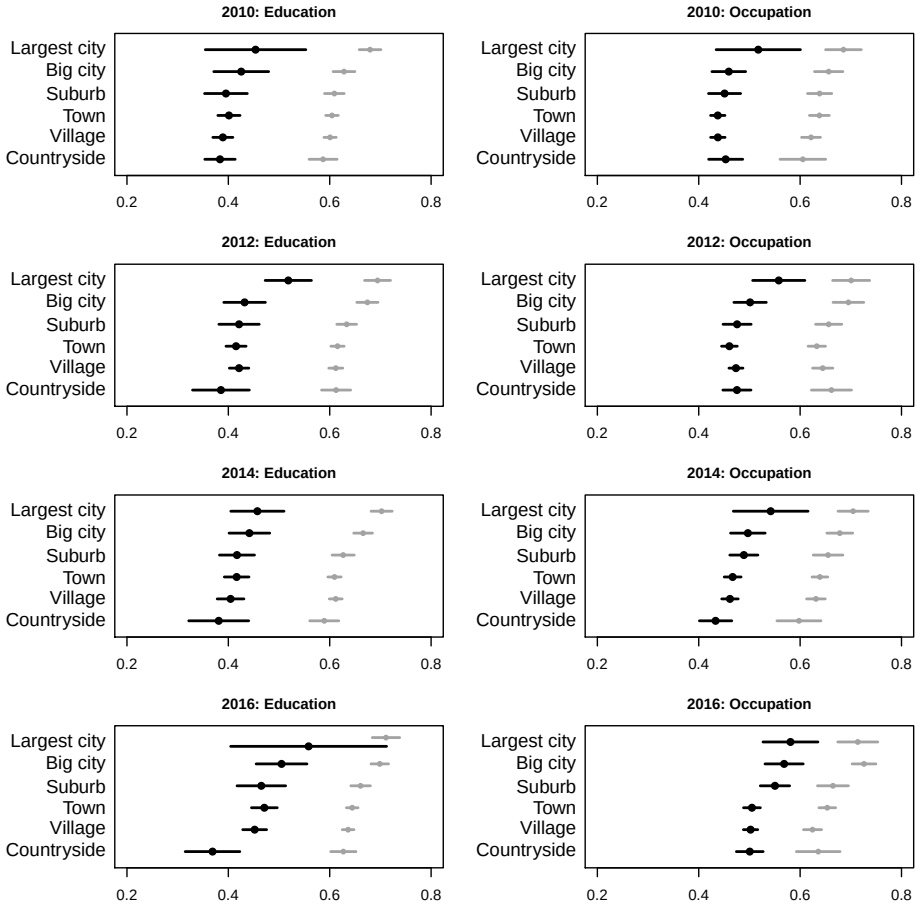
Weighted ESS sample. 'Immigration attitudes' is coded 0 (negative) - 1 (positive). Points are coefficients from linear regression models (with country fixed effects) that regress immigration attitudes on whether respondents live in the largest city or the countryside. Positive scores indicate more positive attitudes in the largest city. 2002 N=3,041, 2004 N=3,341, 2006 N=2,936, 2008 N=2,789, 2010 N=2,831, 2012 N=3,128, 2014 N=3,156, 2016 N=3,086.

Figure E2: Immigration attitudes across geography, demography and ESS waves (2002-2008)



Weighted means from pooled ESS sample. X-axis coded 0 (negative) to 1 (positive). For Education, black circles are respondents with no secondary education (2002 N=2,446, 2004 N=2,792, 2006 N=2,531, 2008 N=2,576), and grey circles are post-secondary education (2002 N=5,257, 2004 N=5,536, 2006 N=6,210, 2008 N=6,396). For Occupation, black circles are manual occupations (2002 N=5,768, 2004 N=5,852, 2006 N=5,756, 2008 N=5,447), and grey circles are professionals (2002 N=2,622, 2004 N= 2,636, 2006 N=2,684, 2008 N=2,629).

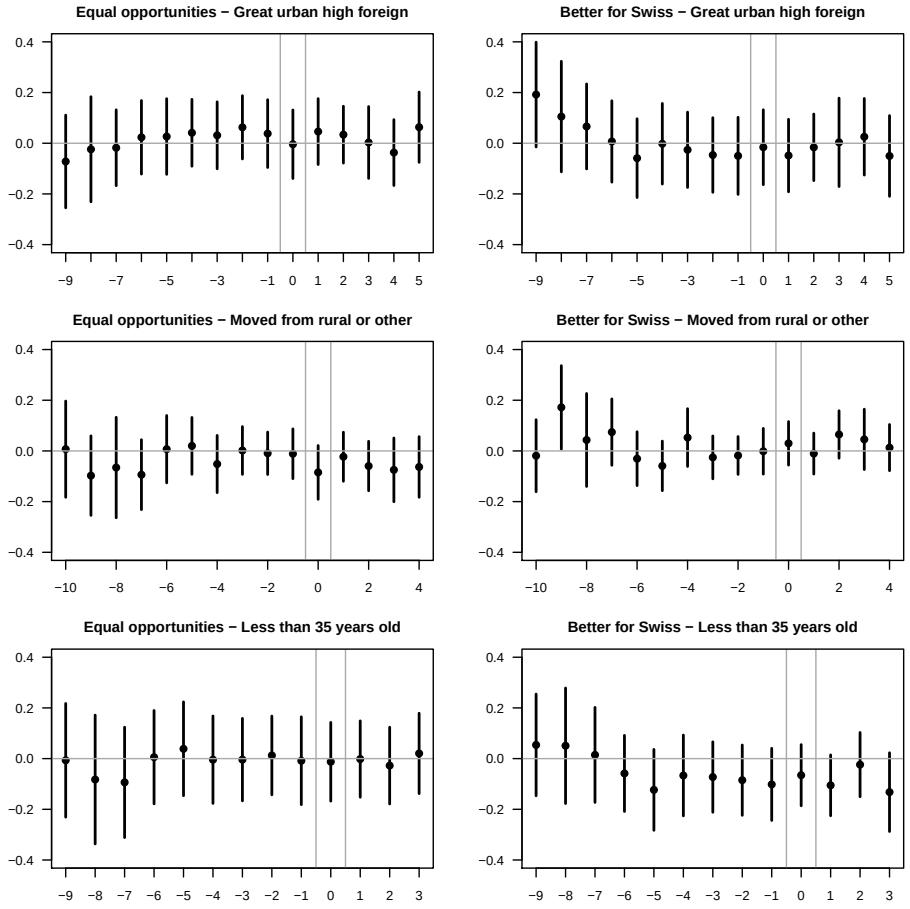
Figure E3: Immigration attitudes across geography, demography and ESS waves (2010-2016)



Weighted means from pooled ESS sample. X-axis coded 0 (negative) to 1 (positive). For Education, black circles are respondents with no secondary education (2010 N=2,426, 2012 N=2,356, 2014 N=2,007, 2016 N=1,726), and grey circles are post-secondary education (2010 N=6,104, 2012 N=6,606, 2014 N=7,247, 2016 N=7,015). For Occupation, black circles are manual occupations (2010 N=5,066, 2012 N=4,960, 2014 N=4,984, 2016 N=4,528), and grey circles are professionals (2010 N=2,492, 2012 N=3,052, 2014 N=3,507, 2016 N=3,315).

F Swiss Household Panel contextual effects

Figure F1: Immigration attitude time trends among sample subsets



Swiss Household Panel 1999-2016.
Coefficients (surrounded by 95 percent confidence intervals) from linear regression models with person fixed effects for the difference in attitudes between people who move/do not move to great urban centers. Positive/negative coefficients indicate a more positive/negative change for movers as opposed to not-movers.
The x-axis plots time before and after the move. '0' is the period the move occurred. Negative/positive numbers are the periods before/after the move. Weighted models are restricted to respondents born in Switzerland and include controls for education, occupation, age, Swiss citizenship, any household move, year, and canton.
Top panels are for people who move to great urban centers in the highest quartile of foreign residents (45,742 person-year observations, 7,241 respondents). Middle panels are from moving to great urban centers from rural or 'other' areas. (45,742 person-year observations and 7,241 respondents). Bottom panels are for moving to great urban centers and limited to respondents under 35 years old (8,461 person-year observations, 2,170 respondents). All panels limited to years with at least 40 pre or post-move person-year observations.

Table F1: Immigration attitudes among whole life in the same commune

	Equal opportunities (1)	Better for Swiss (2)
Always medium urban center	0.230	-0.196
	(0.210)	(0.218)
Always 'other'	0.105	-0.155
	(0.169)	(0.174)
Always rural	-0.351	0.387
	(0.206)	(0.212)
Year control	✓	✓
Observations	7,496	7,379
Respondents	1,075	1,075
Pseudo R^2	0.009	0.012

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Swiss Household Panel 1999-2016.
Logistic regressions with standard errors clustered by respondent.
'Equal opportunities' is Equal opportunities for foreigners. 'Better for Swiss' is better opportunities for Swiss citizens.
Coefficients compare respondents who live their whole life in great urban centers (baseline category) with those who live their whole life in other geographic contexts.
Limited to respondents born in Switzerland.

Table F2: Immigration attitudes among whole life in the same commune - youngest and oldest quartiles

	Equal opportunities		Better for Swiss	
	1	2	3	4
Always medium urban center	0.560	0.161	0.134	0.015
	(0.800)	(0.343)	(0.734)	(0.340)
Always 'other'	-0.043	-0.077	0.351	0.081
	(0.548)	(0.270)	(0.449)	(0.268)
Always rural	-0.246	-0.379	0.736	0.503
	(0.644)	(0.323)	(0.576)	(0.317)
Youngest quartile	✓		✓	
Oldest quartile		✓		✓
Observations	654	1,987	654	1,987
Respondents	210	365	210	365
Pseudo R^2	0.005	0.004	0.004	0.006

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Swiss Household Panel 1999-2016.
Logistic regressions with standard errors clustered by respondent.
'Equal opportunities' is Equal opportunities for foreigners. 'Better for Swiss' is better opportunities for Swiss citizens.
Coefficients compare respondents who live their whole life in great urban centers (baseline category) with those who live their whole life in other geographic contexts.
Youngest quartile is ages 13-20. Oldest quartile is ages 58-99. All models limited to respondents born in Switzerland.

G Contextual effects in big cities with thriving local economies?

This paper focuses on geographic divides between large European cities and the rest of the country (and in particular the countryside). However, another way of conceptualizing European political geography is a divide between economically-thriving and economically-depressed areas. According to this perspective, the geographic divide in Europe is best measured through economic and not urban-rural indicators. Therefore, contextual effects on immigration attitudes may exist only in the subset of cities that have thriving local economies.

To test this possibility, I use Swiss commune unemployment rates and percent of the population receiving social welfare as indicators of local economic prosperity.[2] However, contrary to arguments about thriving versus depressed geographies, immigration attitudes in the SHP are more positive among residents of communes with higher unemployment rates and larger percentages of residents receiving social welfare. This largely reflects the fact that unemployment rates are higher in great urban centers, where immigration attitudes tend to be more positive.[3] In bivariate logistic regression models (with standard errors clustered by respondent), commune unemployment rates and percent receiving social welfare are statistically significant (at $p < 0.05$) predictors of immigration attitudes. However, after controlling for geographic context (great urban, medium urban, other or rural), the

[2]Data on commune unemployment and social welfare rates are from the Federal Statistical Office.

[3]The mean unemployment rate is 4.0 percent for great urban centers, 3.6 percent for medium urban centers, 2.6 for 'other' areas and 1.6 for rural areas. The mean percentage of residents receiving social welfare is 6.1 in great urban centers, 5.5 in medium urban centers, 2.7 in 'other' areas and 1.6 in rural areas.

coefficients for unemployment rates and percent receiving social welfare are greatly reduced and no longer statistically significant (at $p < 0.05$).

Yet, none of these results should be interpreted as evidence that economic issues are irrelevant for geographic divides on immigration. In fact, the underlying mechanism for demographic sorting (H_2a) is the economic opportunities that attract highly-educated professionals (who are positive about immigration) to big cities. Nonetheless, my analysis suggests that - at least in Switzerland - geographic divides on immigration are not about economically-thriving versus economically-depressed areas. In part this may reflect the fact that Switzerland is a relatively-wealthy country without the severe levels of rural economic deprivation found in some European countries.

H Swiss Household Panel compositional effects

Table H1: Immigration attitudes across geography with demographic controls

	Equal opportunities for immigrants		
	(1)	(2)	(3)
Medium urban center	-0.105	-0.020	-0.046
	(0.100)	(0.099)	(0.099)
Other	-0.334***	-0.223**	-0.239**
	(0.078)	(0.077)	(0.077)
Rural	-0.476***	-0.291**	-0.297**
	(0.091)	(0.090)	(0.090)
Canton and Year	✓	✓	✓
Education and Occupation		✓	✓
Additional demographic controls			✓
Observations	54,762	54,762	54,762
Respondents	8,001	8,001	8,001
Pseudo R^2	0.009	0.040	0.046
	Better opportunities for Swiss citizens		
	(4)	(5)	(6)
Medium urban center	0.086	0.000	0.028
	(0.108)	(0.108)	(0.108)
Other	0.325***	0.209*	0.223**
	(0.085)	(0.084)	(0.084)
Rural	0.478***	0.280**	0.281**
	(0.099)	(0.098)	(0.098)
Canton and Year	✓	✓	✓
Education and Occupation		✓	✓
Additional demographic controls			✓
Observations	54,762	54,762	54,762
Respondents	8,001	8,001	8,001
Pseudo R^2	0.008	0.039	0.044

SHP 1999-2016. Standard errors in parentheses, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Logistic regressions with standard errors clustered by respondent.
In each model 'Great urban center' is the omitted geographic category.
'Additional demographic controls' are sex, Swiss citizenship and age. All models limited to respondents born in Switzerland.

Table H2: Do new arrivals change urban immigration attitudes?

	Equal opportunities		Better for Swiss	
	(1)	(2)	(3)	(4)
Will move to great urban center	1.077***	0.746*	-1.179***	-0.880**
	(0.271)	(0.295)	(0.299)	(0.321)
Year and Canton controls	✓	✓	✓	✓
Demographic controls		✓		✓
Observations	1,874	1,874	1,874	1,874
Respondents	330	330	330	330
Pseudo R^2	0.050	0.104	0.061	0.114

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Logistic regressions with standard errors clustered by respondent.

Models compare people who live their entire lives in great urban centers (the baseline category) with people who will move to great urban centers.

'Demographic controls' are education, occupation, age, sex, and Swiss citizenship. All models limited to respondents born in Switzerland.

I SOEP results

The logic of H_1b is that lifelong residence in a big city neighborhood with fewer German residents should produce more positive immigration attitudes. Figure I6 presents immigration attitudes across geographic categories among respondents who have lifelong residence in the same dwelling.[4] The results do not suggest that lifelong residence in big city neighborhoods with fewer German residents is associated with distinctively-positive immigration attitudes. For both measures, attitudes among big city residents in the lowest quartile of German residents are similar to those of big city residents with more German residents. Attitudes among big city residents in the lowest German quartile are also statistically indistinguishable (at $p < 0.05$) from other and rural respondents, although to some extent this may reflect the large confidence intervals due to the smaller sample of lifelong residents of big city neighborhoods in the lowest quartile of German residents.[5]

Results in figure I6 do not support the logic of contextual effects, but should be interpreted with some caution. First, some of the people living in the same dwelling their entire lives have been there for many decades and may have formed immigration attitudes during a time when the neighborhood was less international.[6] In addition, the SOEP measure of lifelong

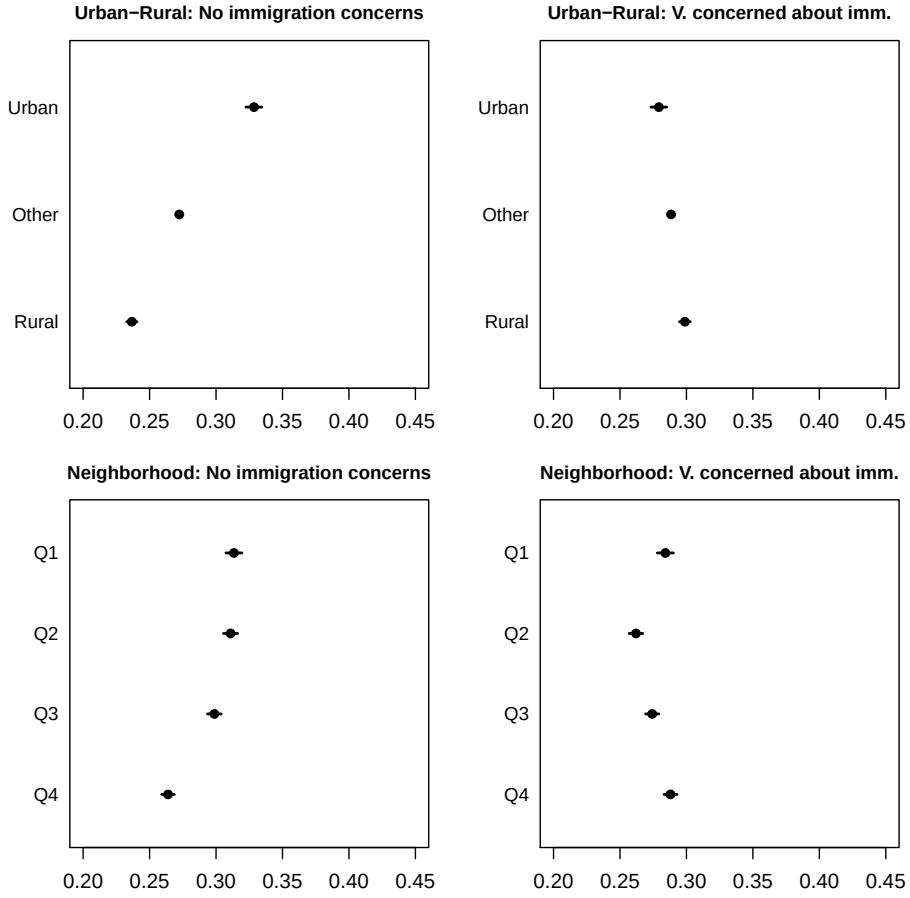
[4]Calculations are for respondents who have lived in the same dwelling since they were 10 years old. The number of respondents who have lived in the same dwelling since birth is too small for reliable analysis.

[5]There are 808 respondents with lifelong residence in big city Q1 neighborhoods, compared to 2,621 with lifelong residence in big city Q2-4 neighborhoods, 15,266 in other areas, and 5,540 in rural areas.

[6]Unfortunately MICROM data do not allow analysis of neighborhood characteristics prior to 2006. In addition, further reducing the sample to younger respondents would limit the reliability of statistical analysis.

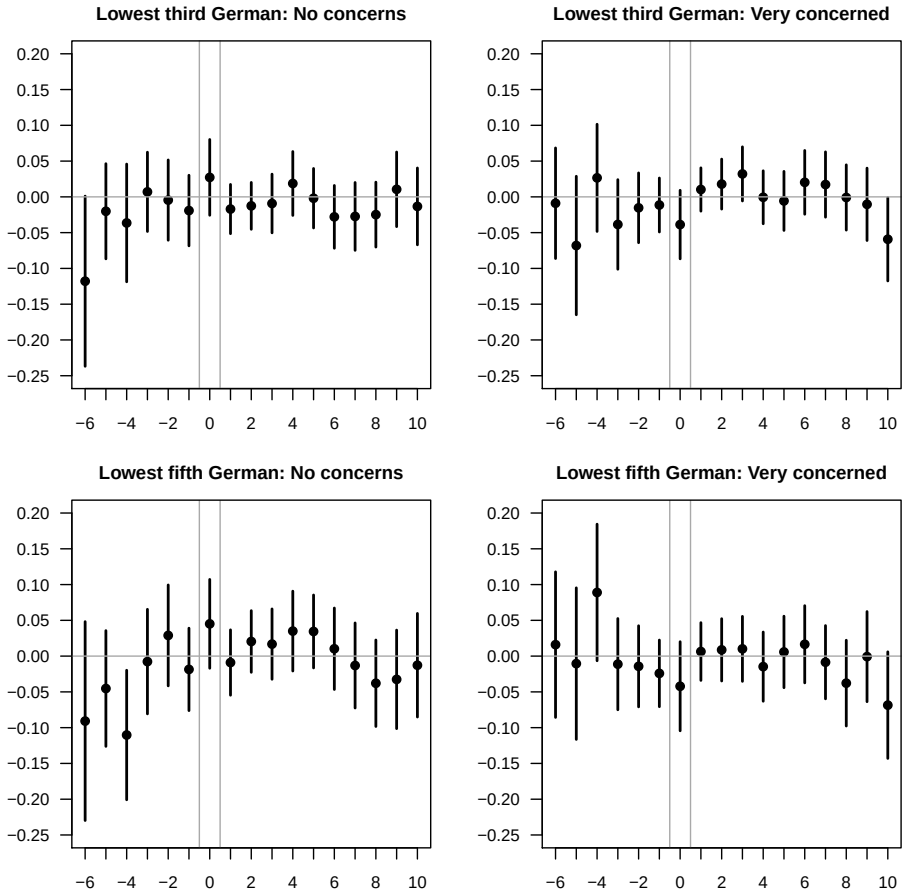
residence is for living in the same dwelling (house or apartment), which is a more restrictive criterion than in SHP data where lifelong residence was by commune. It is possible that people who live in the same dwelling their entire lives share similar (conservative) traits irrespective of big city or rural environments (Goodhart 2017). Nonetheless, given available data, there is no evidence that lifelong residence in big city neighborhoods with fewer German residents makes people more positive about immigration.

Figure I1: Immigration attitudes across geography and across neighborhoods



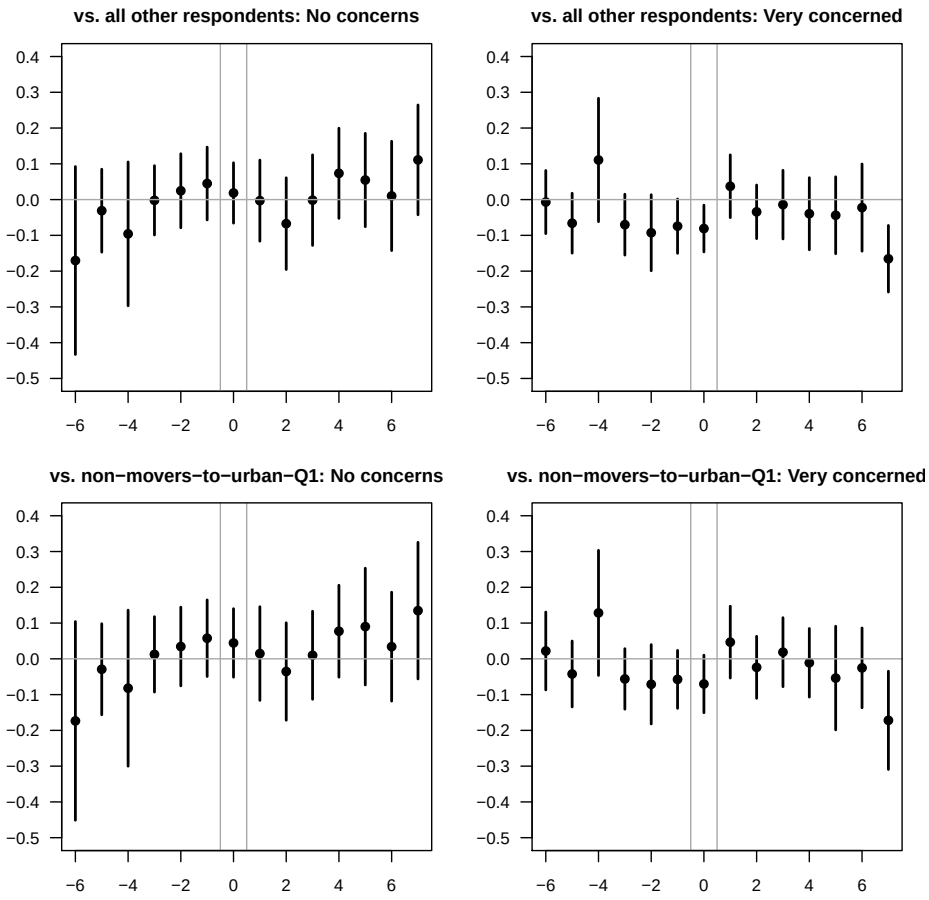
German Socio-Economic Panel 2006-2016.
X-axis coded 0 (no), 1 (yes), Respondents all born in Germany.
Q1 is the lowest neighborhood quartile of ethnic-German residents, Q4 is the highest quartile of ethnic-German residents. (305,284 person-year observations and 42,887 respondents)

Figure I2: Immigration attitude time trends for moving to big city neighborhoods with the fewest German residents



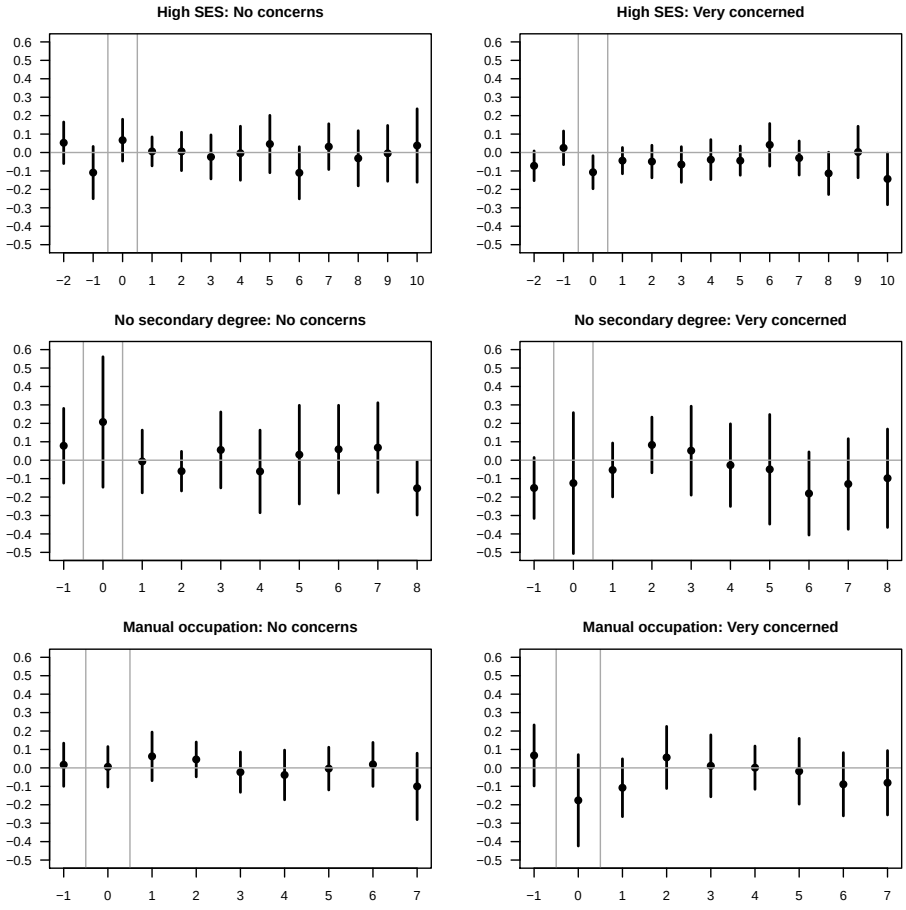
German Socio-Economic Panel 2006-2016.
Coefficients (surrounded by 95 percent confidence intervals) from linear regression models with person fixed effects for the difference between people who move/do not move. The top two panels compare people who move/do not move to big city neighborhoods with the lowest third of German residents. The bottom two panels compare people who move/do not move to big city neighborhoods with the lowest quintile of German residents.
The left two panels predict whether respondents have 'no concerns about immigration'. The right two panels predict whether respondents are 'very concerned' about immigration.
Positive/negative coefficients indicate a more positive/negative change for movers as opposed to not-movers. The x-axis plots time before and after the move. '0' is the period the move occurred. Negative/positive numbers are the periods before/after the move.
Weighted models are restricted to respondents born in Germany and include controls for education, occupation, age, German citizenship, any household move, year, state and east/west region. 186,283 person-year observations, 35,916 respondents.
Limited to years with at least 100 pre or post-move person-year observations in the regression model.

Figure I3: Immigration attitude time trends for moving to big city neighborhoods with lowest quartile German residents from non-big city neighborhoods in the top three quartiles of German residents



German Socio-Economic Panel 2006-2016.
Coefficients (surrounded by 95 percent confidence intervals) from linear regression models with person fixed effects. The top two panels compare people who do not move to big city neighborhoods with the lowest quartile German from non-big city neighborhoods in the top three quartiles of German residents. The bottom two panels compare people who do not move to big city neighborhoods with the lowest quartile German residents (people who move to big city neighborhoods with the lowest quartile of Germans from other big city neighborhoods are excluded from the analysis).
The left two panels predict whether respondents have 'no concerns about immigration'. The right two panels predict whether respondents are 'very concerned' about immigration. Positive/negative coefficients indicate a more positive/negative change for movers as opposed to not-movers. The x-axis plots time before and after the move. '0' is the period the move occurred. Negative/positive numbers are the periods before/after the move. Weighted models restricted to respondents born in Germany include controls for education, occupation, age, German citizenship, any household move, year, state and east/west region. The top two panels include 186,283 person-year observations and 35,916 respondents. The bottom two panels include 183,306 person-year observations and 35,601 respondents. Limited to years with at least 40 pre or post-move person-year observations.

Figure I4: Immigration attitude time trends for moving to big city neighborhoods with the lowest quartile German residents, across socio-economic subgroups



German Socio-Economic Panel 2006-2016.

Coefficients (surrounded by 95 percent confidence intervals) from linear regression models with person fixed effects for the difference in attitudes between people who move/do not move to big city neighborhoods with the lowest quartile of German residents. The top two panels are respondents with post-secondary degrees and professional occupations (18,032 person-year observations and 4,372 respondents). The middle panels are for respondents with no secondary degree (19,220 person-year observations, 4,795 respondents). The bottom panels are respondents in manual occupations (25,920 person-year observations, 7,231 respondents).

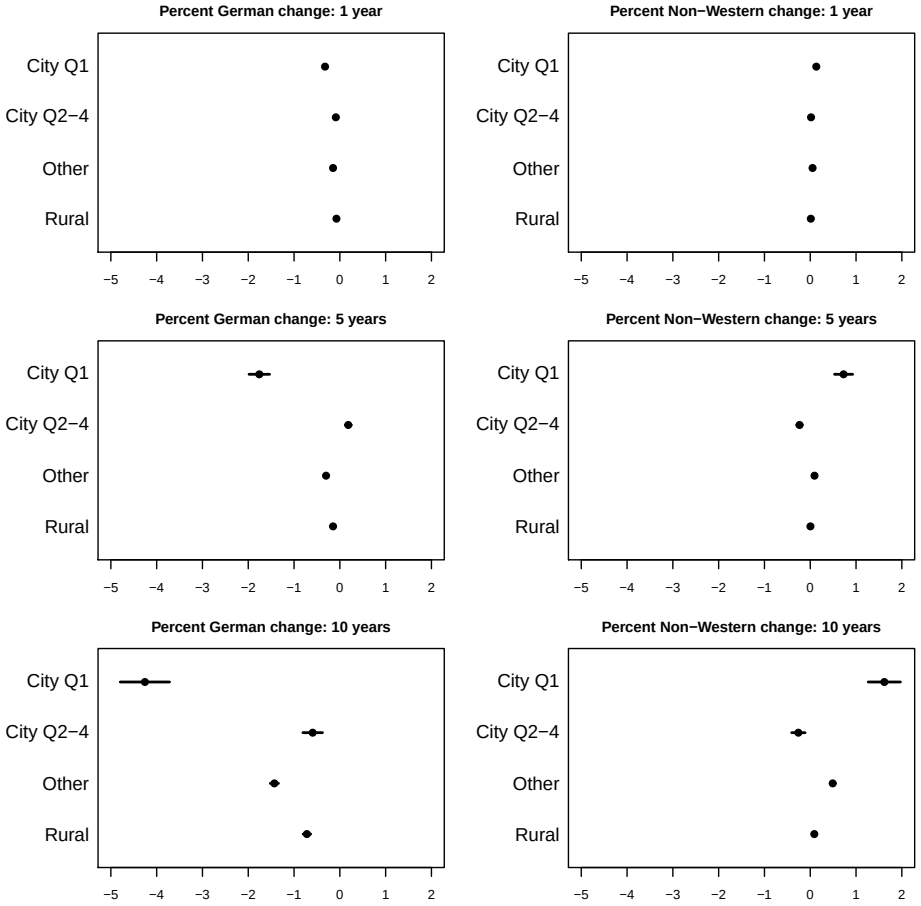
The left panels predict whether respondents have 'no concerns about immigration'. The right panels predict whether respondents are 'very concerned' about immigration.

Positive/negative coefficients indicate a more positive/negative change for movers as opposed to not-movers. The x-axis plots time before and after the move. '0' is the period the move occurred. Negative/positive numbers are the periods before/after the move.

Weighted models restricted to respondents born in Germany with controls for education, occupation, age, German citizenship, any household move, year, state and east/west region.

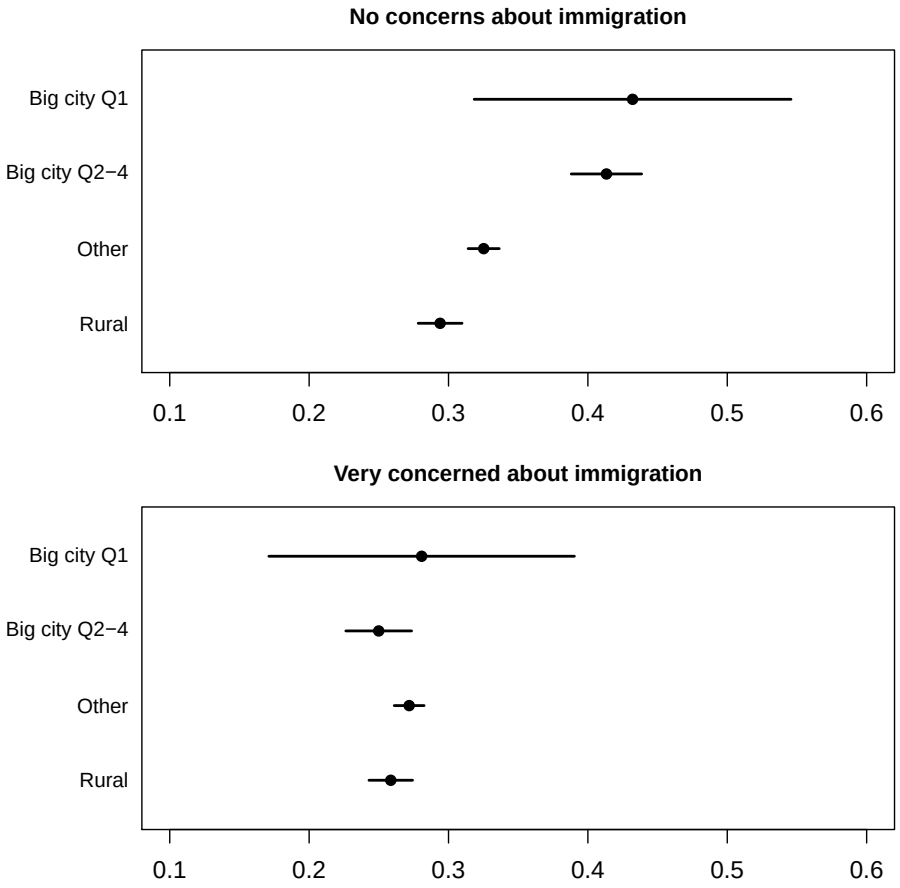
Limited to years with at least 40 pre or post-move person-year observations.

Figure I5: Neighborhood-level population change over time



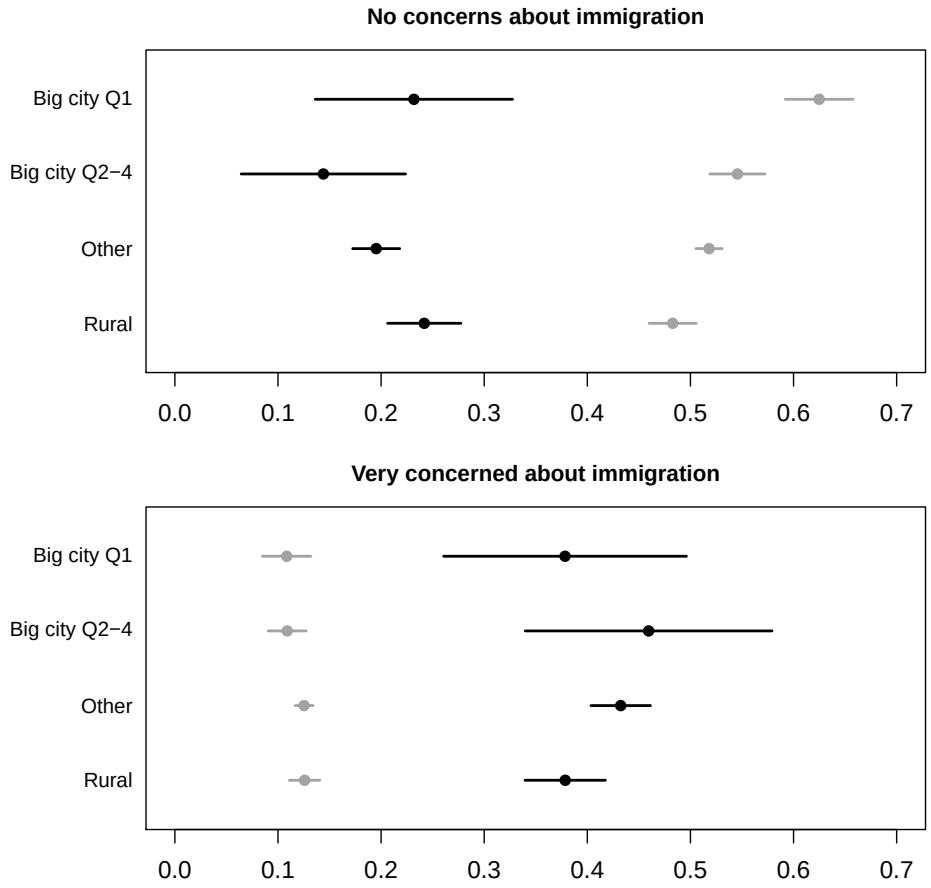
German Socio-Economic Panel 2006-2016.
X-axis is the percentage change in population over the respective time period.
The top two panels plot average change since the previous survey wave (214,673 person-year observations). The middle two panels plot average change since five years ago (83,391). The bottom two panels plot average change since ten years ago (9,923 person-year observations).
'City Q1'is residents of big city neighborhoods in the lowest quartile of German residents, 'City Q2-4' is residents of big city neighborhoods in the second, third and fourth quartiles of German residents.

Figure I6: Immigration attitudes among lifelong residence



German Socio-Economic Panel 2006-2016.
X-axis coded 0 (no), 1 (yes), Respondents all born in Germany.
'Big city Q1'is residents of big city neighborhoods in the lowest quartile of German residents, 'Big city Q2-4' is residents of big city neighborhoods in the second, third and fourth quartiles of German residents. 33,626 person-year observations, 3,148 respondents.

Figure I7: Matching immigration attitudes across socio-economic status and geography



Weighted means from German Socio-Economic Panel 2006-2016. X-axis coded 0 (no), 1 (yes), Respondents all born in Germany.
Black circles are respondents with no secondary education and manual occupations (6,824 person-year observations and 1,039 respondents). Gray circles are respondents with post-secondary education and professional occupations (30,345 person-year observations and 3,781 respondents).

Table I1: Predicting immigration attitudes with changing neighborhood demographics

	No concerns about immigration			
	(1)	(2)	(3)	(4)
Percent German	0.001			
	(0.001)			
Change in percent German		0.184		
		(0.366)		
Percent Non-West			-0.001	
			(0.002)	
Change in Percent Non-West				0.184
				(0.366)
Observations	193,336	157,446	193,336	157,446
Respondents	39,749	34,447	39,749	34,447
F-statistic	140.69	124.34	140.64	124.34
	Very concerned about immigration			
	(5)	(6)	(7)	(8)
Percent German	-0.002			
	(0.001)			
Change in percent German		0.336		
		(0.258)		
Percent Non-West			0.002	
			(0.002)	
Change in Percent Non-West				-0.541
				(0.336)
Observations	193,336	157,446	193,336	157,446
Respondents	39,749	34,447	39,749	34,447
F-statistic	136.40	126.96	136.40	126.96

$^{*}\ p < 0.05$, $^{**}\ p < 0.01$, $^{***}\ p < 0.001$

Linear regression models with person fixed effects, standard errors in parentheses.
All respondents born in Germany and did not move within the respective time frame.
All models include controls for year, state and East/West.
'Percent German' is the percentage of neighborhood residents that are ethnically German.
'Change in percent German' is the 1-year change in the percentage of neighborhood residents that are ethnically German. 'Percent Non-West' is the percentage neighborhood residents that are ethnically African, Asia, Middle Eastern or Turkish. 'Change in percent Non-West' is the 1-year change in the percentage neighborhood residents that are ethnically African, Asia, Middle Eastern or Turkish.

Table I2: Predicting who will move to/leave big city neighborhoods in lowest quartile German residents

	Move to big city Q1			Leave big city Q1		
	(1)	(2)	(3)	(4)	(5)	(6)
No concerns about immigration	0.639***	0.536***	0.424***	0.312*	0.263*	0.083
	(0.094)	(0.096)	(0.094)	(0.128)	(0.129)	(0.128)
Very concerned about immigration	-0.226	-0.168	-0.112	-0.181	-0.166	-0.151
	(0.116)	(0.117)	(0.118)	(0.138)	(0.132)	(0.135)
Year, State, East/West	✓	✓	✓	✓	✓	✓
Education, Occupation		✓	✓		✓	✓
Additional demographic			✓			✓
Observations	179,093	179,093	179,093	9,691	9,691	9,691
Respondents	39,451	39,451	39,451	2,589	2,589	2,589
Pseudo R^2	0.063	0.079	0.151	0.058	0.109	0.149

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Logistic regressions with standard errors (in parentheses) clustered by respondent.

Models 1-3 limited to observations not in big city neighborhoods with the lowest quartile German residents. Dependent variable coded '0' will not move to big city neighborhood with the lowest quartile German residents, '1' will move to big city neighborhood with the lowest quartile German residents.

Models 4-6 limited to observations in big city neighborhoods with the lowest quartile German residents. Dependent variable coded '0' will remain in big city neighborhood with the lowest quartile German residents, '1' will leave big city neighborhoods with the lowest quartile German residents.

'Additional demographic controls' are sex, citizenship, age and second-generation immigrant. All models limited to respondents born in Germany.

References

Goodhart, David. 2017. *The Road to Somewhere: The Populist Revolt and the Future of Politics*. Oxford: Oxford University Press.

Rothenbühler, Martina and Mareike Voorpostel. 2016. "Attrition in the Swiss Household Panel: Are Vulnerable Groups more Affected than Others?" *Life Course Research and Social Policies* 3:223–244.

Voorpostel, Mareike and Oliver Lipps. 2011. "Attrition in the Swiss Household Panel: Is Change Associated with Drop-out?" *Journal of Official Statistics* 27(2):301–318.