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Competitive threat and temporal change in anti-immigrant sentiment: Insights from a hierarchical age-period-cohort model

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ABSTRACT

The study focuses on over-time change in anti-immigrant attitudes across European societies and on the role played by cohorts in producing the change in attitudes. We assembled data from four waves of the European Social Surveys for 14 countries between 2002 and 2014. The data analysis is conducted within the framework of a hierarchical age-period-cohort model (HAPC) to estimate the dynamic relations between anti-immigrant sentiment and country's social and economic conditions, while taking into consideration variations across individuals and birth-cohorts. The analysis lends support to expectations derived from the 'competitive threat' theoretical model. The findings show that a higher share of non-European ethnic minorities in the country's population is associated with a higher level of ant-immigrant attitudes. Anti-immigrant sentiment was found to be more pronounced in the 'old immigration countries' than in the 'new immigration countries.' The impact of economic conditions on anti-immigrant sentiment becomes evident through the effect of cohort in the 'new immigration countries': cohorts that entered the labor market when the unemployment rate was high are likely to hold more negative attitudes toward immigrants.

1. Introduction

Social scientists have long been concerned with understanding the social mechanisms underlying the emergence of prejudice and discrimination against outgroup populations. Subsequently, several alternative theoretical models have been advanced for explaining the social conditions that lead to the emergence of prejudice and discrimination against racial and ethnic minorities. Among the alternative explanations, the 'competitive threat' or 'group threat' theoretical model (see Williams, 1947; Blalock, 1967; Blumer, 1958; Olzak, 1992) is perhaps the most dominant. According to the 'group threat' theoretical model, fear of competition resulting from either increased size of an outgroup population or depressed economic conditions or both is likely to prompt hostility, prejudice and discrimination against members of outgroup populations.

The 'competitive threat' model was originally developed in the context of American society to explain white-black race relations (Williams, 1947; Blalock, 1967; Blumer, 1958; Bobo, 1988; Olzak, 1992). However, in recent decades it was widely applied in the ever-growing body of comparative research of sources of negative attitudes toward immigrants in European countries (see Ceobanu and Escandell, 2010 for a review of the literature on the topic). To date, the overwhelming majority of studies on the topic were conducted within a cross-sectional research design and only a few comparative cross-national studies were carried out within a longitudinal research framework (see Semyonov et al., 2006; Meuleman et al., 2009; Pichler, 2010; Bohman and Hjerm, 2016;

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Polavieja, 2016)[1]. The scarcity of studies of over-time change is not only surprising but also unfortunate because theoretical formulations of the rise in antagonism and prejudice toward outgroup populations were cast in dynamic terms (Semyonov et al., 2006).

In the present paper, we contribute to the literature on anti-immigrant sentiment and interethnic relations not only by focusing on sources of over-time change in attitudes toward immigrants within a cross-national comparative perspective but mainly by examining the role played by cohorts in shaping attitudes and in producing change in attitudes. We argue that cohorts are essential for understanding change in attitudes for two main reasons: first, the composition of a national population changes between two points in time due to cohort replacement and second, cohorts differ not only in their characteristics but also by differential exposure to crucial events that shape values and attitudes (Mannheim, 1952). In other words, cohorts are exposed to crucial events that may 'scar' them for life by affecting socioeconomic success, values and attitudes over the life course (e.g. Gangl, 2006; Coenders and Scheepers, 2008; Wilkes and Corrigall-Brown, 2011). By including cohorts in the analysis, the study goes beyond previous comparative studies of change in attitudes not only by adding another dimension to the analysis but also by providing deeper insights and broader understanding of the societal conditions that affect change in attitudes.

To examine the role played by cohorts we apply the hierarchical age-period-cohort model (hereafter HAPC) (e.g. Yang and Land, 2006, 2008) to data obtained from four waves of the European Social Surveys (ESS) during the 2002–2014 period across 14 Western European countries. The HAPC analytical model takes into consideration variations across individuals, birth cohorts and periods (e.g. Reither et al., 2015). We contend that the HAPC analytical framework is more suitable for the study of the dynamic relations between over-time change in the structural sources of competitive threat and anti-immigrant sentiment than the analytical approaches utilized in previous studies on the topic. Therefore, by utilizing the HAPC analytical model we will be in a position to provide a more direct examination of the 'competitive threat' theoretical model and to delineate the ways in which change in structural characteristics of society and inter-cohort variations shapes and influences change in attitudes toward outgroup populations.

2. Theory and previous research

2.1. Theoretical framework

The logic embodied in the 'competitive threat' theoretical model (see various versions of the model that were formulated throughout the years by, e.g. Williams (1947), Blumer (1958), Blalock (1967), Bobo and Hutchings (1996), and Olzak (1992)) is rather straightforward and socio-psychological in nature. The central tenet of the model is that intergroup relations are shaped by group identification and by group competition and struggle over rewards and resources. The theory operates under the premise that members of the majority population view the relationships between groups in terms of a zero-sum game. According to the model, members of the majority population consider themselves first in line in access to privileges and resources as compared to members of the minority population. Increased competition over resources and rewards (whether real or symbolic) and especially a rise in fear of competition is likely to prompt hostility, prejudice and discrimination against the minority population. In other words, a rise in hostility and in negative attitudes toward the minority population is understood as a defensive reaction toward emerging threats and challenges to the exclusive superiority of the majority population in access to rewards and resources.

In line with the 'competitive threat' theoretical model, researchers took the view that attitudes toward immigrants are driven by both individual-level attributes and contextual characteristics of the social system (e.g. Quillian, 1995; Scheepers et al., 2002; Semyonov et al., 2006; Schlueter et al., 2013). At the individual level, the theory leads us to expect that anti-immigrant sentiments will be more pronounced among members of the majority group who are socially and economically vulnerable. This is so because vulnerable people are more threatened by the presence of an immigrant population. They are more likely to fear competition that is geared up by perceptions that immigrants take away jobs, depress the salaries of local workers and exploit the welfare system. A large number of studies lend firm, uniform and consistent support to the thesis that socioeconomically vulnerable individuals (i.e., unemployed individuals and those with low income and low education) are more likely to express negative and hostile attitudes toward immigrants (e.g. Esses et al., 2001; Scheepers et al., 2002; Raijman et al., 2003; Pichler, 2010; Gorodzeisky, 2011).

Recently, occupations were also considered as a potential source of opposition to immigrants. According to Ortega and Polavieja (2012) and Polavieja (2016), occupational content can bring differential levels of exposure to competition with immigrants and, thus, influences anti-immigrant sentiment. Specifically, these studies revealed that engagement in occupations with lower levels of skill specialization and monitoring costs as well as with prevalence of manual versus communication skills are associated with higher levels of anti-immigrant sentiment. From a theoretical point of view, the findings reported by Polavieja (2016) (p. 414) stress the importance of 'real economic experience' associated with occupations in shaping attitudes toward immigrants.

At the contextual-ecological level, the 'competitive threat' model leads us to expect that negative sentiments toward outgroup populations will be more pronounced in places with large proportions of immigrants and where economic opportunities are scarce. This is so because such places are characterized by intense competition (whether real or perceived) over social and economic resources between in- and out-group populations. Following the pioneering research by Quillian (1995), a large number of studies in European societies have lent support to the expectation that negative attitudes towards members of out-group populations tend to be more pronounced in places with a large proportion of outgroup populations (mostly captured by the share of non-EU population) and in places with depressed economic conditions (mostly captured by Gross National Product per capita or by rate of unemployment)

[1] In addition, there are several country specific studies that examined change in anti-immigrant attitudes over time (e.g. Wilkes and Corrigall-Brown, 2011; Lancee and Pardos-Prado, 2013). The present paper focuses on comparative cross-national analysis.

(see Ceobanu and Escandell, 2010 for a review).[2]

It should be noted that at the contextual-country level, attitudes toward foreigners can be also affected by the phase of the immigration cycle (Lahav, 2004; Semyonov et al., 2006). In Europe, phase of the immigration cycle reflects the distinction between old immigration (old labor-importing) countries and new immigration (new labor-importing) countries. The old immigration countries had begun recruitment of international workers (mostly from less developed poor countries) shortly after WWII. By contrast, new immigration countries had begun experiencing substantial flows of migrants only in the mid-1980s. Whereas old immigration countries are dealing with dilemmas associated with social and economic incorporation of immigrants and their descendants (second and even third generation immigrants) for many decades, immigration in the new immigration countries is a relatively recent phenomenon. In fact, one should recognize that until the beginning of the 1990th, the new immigration countries were mostly labor-exporting countries (Triandafyllidou and Gropas, 2014; Castles et al., 2014) rather than labor importing countries. Following Semyonov et al., (2006), we expect anti-immigrant sentiment to be more pronounced in the old labor-importing countries than in the new labor importing countries. The logic embodied in this expectation is rooted in the idea that unlike the new immigration countries, in the old immigration countries immigrants and their descendants have been viewed for several decades as a serious "social problem". Although they have reached sizable proportion of the total population, they are still considered "outsiders". However, we expect changes in structural conditions to be more consequential for changes in anti-immigrant sentiment in the new immigration countries than in the old immigration countries. This is so because attitudes toward immigrants are less stable at the early stages of the migration cycle (e.g. Semyonov et al., 2006), where the "immigration phenomenon" is not fully established. Subsequently, we suggest that the relations between change in the social and economic conditions and change in anti-immigrant sentiments over time are dependent on the phase of the immigration cycle. Thus, the distinction between old and new immigration countries is important, especially for a longitudinal research design.

Note that most empirical studies endorsed the thesis that *a rise in anti-immigrant sentiment is a result of greater competition due to changing societal and economic conditions* were carried out with a cross-sectional research design. However, because the theoretical model was formulated in dynamic terms, we argue that a more direct test for the thesis should be obtained by research carried out within a dynamic-longitudinal research design that takes both period and cohort into account.

2.2. Comparative cross-national studies of over-time change in attitudes

To the best of our knowledge, to date only five comparative studies have been carried out within a dynamic-longitudinal research design to examine the changing relations between societal conditions and anti-immigrant sentiment (Semyonov et al., 2006; Meuleman et al., 2009; Pichler, 2010; Bohman and Hjerm, 2016; Polavieja, 2016). The first study (by Semyonov et al., 2006) focused on change in attitudes toward foreigners in 12 European countries between 1988 and 2000 by analyzing the impact of individual- and country-level sources on change in such attitudes. Applying a hierarchical (bi-level) linear model, the researchers pooled cross-sectional data obtained from Eurobarometer for the 12 countries at four points in time into one data file to examine change in public attitudes. Controlling for individual-level variables, Semyonov et al. (2006) found that anti-foreigner sentiments increased between 1988 and 1994 and leveled off afterwards. The study demonstrated that anti-foreigner sentiment was prompted by size of foreign population, poor economic conditions and popularity of extreme rightwing parties, however, the effects of these structural sources neither changed over time nor explained the over-time rise in anti-immigrant sentiment.

Meuleman et al. (2009) examined change in restrictive attitudes toward immigration while analyzing data obtained from the European Social Survey for 17 countries in 2002, 2004 and 2006. The authors found that in most countries resistance toward immigration decreased or had not changed over the period. Yet the findings of the study suggest that over-time increase in the size of the foreign population was positively associated with more restrictive attitudes toward immigration. Meuleman et al. (2009) relied on multi-group structural equation modeling to estimate the latent mean of attitudes toward immigration for an averaged respondent (controlling only for age, education and gender) in each country at each time point. Then they linked changes in attitudes with changes in national context variables by calculating bivariate correlation.

Pichler (2010) focused on the period 2002–2006 to examine whether perceived threats (economic and cultural) posed by immigrants to the majority population varied over time and across countries due to shifts in the nature of such threats because of changing economic conditions. He pooled cross-sectional data from 24 countries (obtained by the European Social Survey) to estimate a three-level hierarchical model, in which "different people (level 1) are surveyed at different points in time within countries (level 2) across different countries (level 3)" (Pichler, 2010: 451). The study reveals that the level of overall perceived threat remained quite stable from 2002 to 2006.

Bohman and Hjerm (2016) examined the relationship between the parliamentary presence of radical right parties and anti-immigration attitudes over time using cross-sectional data for 16 countries from six rounds of the European Social Survey between

[2] It is important to note that not all studies found the expected association between relative size of the immigrant population and anti-immigrant sentiment and between economic conditions and anti-immigrant sentiments (see Ceobanu and Escandell, 2010 for a review). In addition, several studies revealed a strong association between anti-immigrant sentiments and the political climate. That is, anti-immigrant sentiments are more pronounced in places where extreme rightwing parties are relatively popular and among individuals holding rightwing ideologies (Semyonov et al., 2006, 2007; Wilkes et al., 2007). In the present research, we do not deal with the political sources of anti-immigrant sentiments for two main reasons. First, it is beyond the scope of the 'competitive threat' theoretical model. Second, the causal order between anti-immigrant sentiments and support for rightwing political parties is not clear. In fact, a recent study reveals that anti-immigrant attitudes increases support for rightwing ideologies but not vice versa (Berning and Schlueter, 2016), and Bohman and Hjerm (2016) demonstrate that the rise in popularity of rightwing parties in the 2000s did not lead to an increase in anti-immigrant attitudes.

2002 and 2012. Like Pichler (2010), Bohman and Hjerm (2016) estimated three-level hierarchical models, with individuals (first-level units), country-rounds (second-level units) and countries (third-level units). The findings of the study demonstrated somewhat different attitudinal time trends across countries but no impact of presence of radical right parties in national parliaments on opposition to immigration between 2002 and 2012.

A recent comparative study by Polavieja (2016) focused on the over-time change in anti-immigrant sentiments in 19 European countries before and after the first dip of the Great Recession (between 2004 and 2010) utilizing European Social Survey data. The study investigated the impact of occupational and environmental sources of economic competition on attitudes towards immigrants. Polavieja (2016) utilized two-level regression model. In such a model, the variation in the first-step estimates for the net change in anti-immigrant sentiments between the two time-points becomes the outcome variable in the second-step of the two-level regression, using countries as the unit of analysis. Polavieja (2016), like Bohman and Hjerm (2016) found somewhat different attitudinal time trends across countries. While in some countries experienced increase in anti-immigrant sentiments between 2004 and 2010, others experienced no substantial change or even decrease in anti-immigrant attitudes during the same period.

Although the models applied in the five aforementioned studies allowed controlling for differences in the demographic and socioeconomic composition of the population in different countries, the analysis in all studies treated the entire population of each country as one unit and did not consider the possible differences across cohorts and the possible impact of cohorts on change in attitudes.

3. The role played by cohort

Despite the apparent contributions of the five (presented above) studies to knowledge, ignoring inter-cohort variations might be problematic, because findings derived from an analysis that does not take cohort variation into account may lead to inaccurate conclusions for two main reasons. First, between any two points in time the composition of a national population may change due to exist of old cohorts and entrance of young cohorts. Second, cohorts might differ not only in their characteristics but also by differential exposure to crucial events that shape values and attitudes. For example, cohorts that entered the labor market at times of economic crisis might be more hostile towards immigrants because of the harsh competition they faced when searching for their first jobs (at times of economic crisis, young people suffer most from unemployment). The initial experience, in turn, might exert a long-lasting ‘scar’ effect on economic standing and attitudes over the life course (e.g. Blossfeld, 1986; Gangl, 2006; Coenders and Scheepers, 2008; Wilkes and Corrigall-Brown, 2011). Indeed, when cast within the framework of ‘competitive threat’ theoretical model (Blumer, 1958; Bobo, 1999), labor market conditions, and especially rate of unemployment, can be viewed as a major source of competitive threat that affects cohort's anti-immigrant attitudes. That is, when the labor market is “tight”, concerns not only about self-interests but also about the interests of the collective (in terms of the entire native country's population or in terms of cohort or age peer group) are rising. Such concerns, in turn, are likely to prompt hostility towards competitors belonging to out-group populations.

In addition to harsh labor market conditions, researchers emphasize other contextual sources that may increase cohort's anti-immigrant attitudes, including prevalence of right-wing nationalist parties (e.g. Semyonov et al., 2006, 2007; Wilkes et al., 2007) and negative media coverage (e.g. Boomgaarden and Vliegenthart, 2009; Schlueter and Davidov, 2011; McLaren et al., 2017). On the other hand, personal contact associated with increased presence of immigrants in society (e.g. Semyonov and Glikman, 2008; McLaren, 2003) as well as intergroup contact at the social context (Hewstone, 2015) is likely to decrease negative attitudes and prejudicial views toward the immigrants. Although such factors are of considerable importance for understanding attitudes and change in attitudes, and can affect, indeed, cohorts’ socialization processes, they are beyond the scope of the present research. In the present study, we focus on the impact of competitive threat associated with labor market conditions in general and at the time that cohorts entered the labor market on change in attitudes toward immigrants, in particular.

To sum up, we argue that it is possible that findings and conclusions reported by previous studies of temporal change in attitudes toward immigrants were influenced, in one way or another, by an analytical strategy that does not take into account cohorts and the contexts that may shape cohorts' attitudes toward outgroup populations. Thus, in the present research, we utilize the ‘hierarchical age-period-cohort’ analytical scheme to study temporal change in attitudes toward immigrants across countries, while considering the role of cohorts. In the following section, we provide a brief description of the basic properties of the HAPC model.

4. Using a hierarchical age-period-cohort model within a cross-national framework

The ‘hierarchical age-period-cohort’ model makes it possible to decompose over-time changes in anti-immigrant attitudes into cohort and period effects. The HAPC approach was originally proposed by Yang and Land (2006, 2008) when studying temporal change in individual differences in such variables as happiness, disease mortality or verbal test scores. Wilkes and Corrigall-Brown (2011) adapted the HAPC approach to study causes of temporal trends in attitudes toward immigrants in Canada. In the present analysis, we extend Wilkes and Corrigall-Brown’s (2011) version of the HAPC model and incorporate the model into a cross-national comparative research frame. We use the extended model to study change in attitudes towards immigrants across birth-cohorts across fourteen European countries.

In the model proposed here, individuals (first-level observations) are nested in two types of second-level units: country-cohorts (specific cohorts in a particular country) and country-periods (specific periods in a particular country). The two types of second-level units are cross-classified, because a birth cohort could appear in multiple years and multiple cohorts could appear in any year. In order to overcome dependency of repeated observations of time-variant country-level variables, the country-cohorts and the county-

periods are nested in countries as third-level units of analysis. Based on the formulations presented by Yang and Land (2006, 2008), the model can be presented by the following three equations:

Level-1:

$$Y_{ijkcl} = B_{0jkl} + B_{1jkl}X_{jijkl} + e_{jijkl}$$

where Y_{ijkl} is the anti-immigrant index score for individual *i* within country-cohort *j*, country-period *k* and country *l*, and X is a vector of individual-level characteristics.

Level-2a:

$$B_{0jkl} = Y_{0l} + U_{0jl} + V_{0kl},\ u0\ j \sim N(0, \tau u),\ v0k \sim N(0, \tau v)$$

where U_{0jl} is the residual random effect of country-cohort *j*, that is the contribution of country-cohort *j* averaged over all country-periods, assumed to be normally distributed with mean 0 and variance τ; and V_{0jl} is the residual random effect of country-period *k*, that is the contribution of country-period *k* averaged over all country-cohorts, assumed to be normally distributed with mean 0 and variance τ.

Level-2b:

$$B_{0jkl} = Y_{0\ 1} + U_{0jl} + V_{0kl} + C_{01}Z_{jl} + K_{01}T_{kl}$$

where Z is a vector of country-cohort characteristics and T is a vector of country-period characteristics.

Level-3:

$$Y_{0\ 1} = D_{000} + D_{001}S_l + M_{00l}$$

where S is a vector of country characteristics and M_{00l} refers to country-level differences from the overall mean.

The advantages of the extended model are threefold. First, in addition to information on individual- and country-level variability in attitudes toward immigrants, the variance components for the country-cohort and the country-period units provide information on how much of the variability in attitudes is generated by the cohort and period levels. Second, the model allows an estimation of the contribution of each cohort in a specific country (averaged over all periods) and the contribution of each period in a specific country (averaged over all cohorts). Third, it allows estimations of the effects of compositional and contextual variables on cohort and period random effects.

It was suggested in the literature (see Mason et al., 1973; Reither et al., 2015) that an identification problem may occur when using age-period-cohort models if two conditions are simultaneously met: 1) age, period, and cohort variables are linearly related to each other; and 2) each one of the three variables is assumed to be linearly related to the outcome. Furthermore, the identification problem is inevitable when the three linearly related variables are treated as independent and additive factors in the model. (Mason et al., 1973; Reither et al., 2015). However, when nonlinearities are present between either age, cohort or period and outcome, the Hierarchical Age Period Cohort approach "consistently preforms well" (Reither et al., 2015, p. 364). Because the data used here do not have linear associations between cohort and the outcome variable, or between period and the outcome variable, the assumptions necessary for utilization of the HAPC approach are met.

5. Data and variables

Data for the present analysis were obtained from the four rounds of the European Social Survey (ESS), conducted in 2002, 2006, 2010 and 2014. We used information provided by the ESS for 14 Western European countries, which participated in all four rounds. In each country, information was gathered from a random probability national sample of the eligible resident populations aged 15 and above. The analysis reported here was restricted to citizens whose fathers were born in the country (majority group population), who were born between 1931 and 1995 and were aged 20–75 in a year of survey. The list of the countries included in the analysis and the sample size (summed over four points in time) are presented in the Appendix Table. Individuals in the sample were nested in 13 five-year cohorts; we used the conventional practice of a 5-year interval (Reither et al., 2015).[3] Respondents in the oldest cohort were born in 1931–1935 while respondents in the youngest cohort were born in 1991–1995. The analytical sample for multivariate analysis includes 79173 individuals; 182 units at the country-cohort level (13 cohorts X 14 countries), 56 units at the country-period level (4 years X 14 countries), and 14 units at the country level.[4]

The dependent variable – attitudes toward the immigrant population – is an index constructed as the mean score of responses to three questions regarding respondents' views on the impact that immigrants exert on society. The three questions pertain to the following spheres: the economy, cultural life, and society in general. Responses are coded on an 11-point scale ranging from 0 (most

[3] In order to conduct a robustness test, we re-estimated the analysis using a 3-year interval for cohorts (respondents in the oldest cohort were born in 1931–1933). In order to keep the same age range with the main analysis, the youngest cohort included only respondents who were born in 1994–1995. In the robustness test analysis, the number of units at the country-cohort level was 308 (22 cohorts X 14 countries). The results obtained using 3-year interval for cohorts were highly similar to those discussed in the paper (when using 5-year interval). The results are available from the authors upon request.

[4] The original research sample, including missing cases in individual level variables, was 80263 respondents. The number of cases with missing data was very small; these cases were deleted from the multivariate analysis. 0.5 percent of respondents (400) were excluded from the analysis because of lack of information in the dependent variables; additional 0.8 percent (690) were excluded because of lack of information in the independent variables. There were no missing cases in second and third level units of analysis.

positive impact) to 10 (most negative impact). Several previous studies relied on these variables to construct an index that captures attitudes toward immigrants (e.g. Sides and Citrin, 2007; Gorodzeisky and Semyonov, 2016).[5] The averages of the dependent variable by country are presented in the Appendix Table.

The individual-level independent variables that are used as predictors of attitudes toward immigrants include age (in years), education (years of formal schooling), and reported subjective income (with a dummy variable distinguishing between insufficient and sufficient income).

The country-cohort level variable that is utilized here as an indicator of 'competitive threat' at the cohort level is the percentage of unemployed persons of the country's labor force at the time a cohort entered the country's labor market. As stated earlier, the logic for choosing this country-cohort characteristic as an indicator of a cohort's 'competitive threat' is based on the idea that poor economic conditions (i.e., high unemployment rates) are most salient and harmful to young persons, especially young persons searching for their first job. Thus, entering the labor market in times of economic crisis may have a long-lasting 'scar' effect on the sense of economic threat and, consequently, on anti-immigrant attitudes (Coenders and Scheepers, 2008; Wilkes and Corrigall-Brown, 2011). We calculated unemployment rate for the 1931–1935 birth-cohort as mean values of the unemployment rate in 1955, 1956 and 1957. Using the same procedure, we calculated, for each respective cohort, the unemployment rate in the period that each cohort entered the labor market.[6], [7]

In addition, we introduced a series of *country-period variables* as indicators of structural socioeconomic conditions at the country-period level to capture the level of 'competitive threat' in the country. They include GDP per capita (an indicator of a country's economic conditions), the relative size (i.e., proportion) of the foreign-born population and the relative size of the racial/ethnic minority population in the country. The logic for introducing the relative size of racial/ethnic minority as an indicators of threat at the country-period level lies on the assumption that racial/ethnic minorities (namely, first- and second-generation immigrants of non-European origin) as a group are more noticeable and visible than European origin immigrants (Lahav, 2004; Semyonov et al., 2006). Thus, nowadays, when descendants of immigrants constitute a substantial part of the population in most Western European societies, the relative size (i.e., proportion) of the racial/ethnic minority population (namely, first- and second-generation immigrants of non-European origin) in a country's population rather than the relative size of immigrants can be viewed as an indicator of competitive threat at the structural–level.[8] GDP per capita was calculated as the mean value of GDP in a country in the year of survey and in the previous year.[9] The percentage of foreign-born population was calculated as the average of the foreign-born population in a country in the year of survey and in the previous year. Unfortunately, data concerning the percentage of racial minorities (especially second-generation immigrants of non-European origin) are not available for all countries. To overcome this limitation, and following Gorodzeisky and Semyonov (2016), we calculated (directly from the ESS data set) the percentage of racial/ethnic minorities residing in a country in each of the four years when the survey was taken.[10]

At the *country-level*, we introduced variable distinguishing between old and new immigration countries. The new immigration countries include Spain, Portugal, Ireland and Finland (these countries did not experience substantial immigration flows until 1980s), and the old immigration countries include Austria, Belgium, Switzerland, Germany, Denmark, France, Great Britain, the Netherlands, Norway and Sweden.

[5] The value of Cronbach's alpha for the three items in the entire sample is .841.

[6] For youngest cohort 1991–1995 we used unemployment rate in 2015 or mean values of unemployment rate in 2015 and 2016 depending on availability of data for each country. We used the same procedure to calculate unemployment rate in the analysis with 3-year cohort interval (robustness test) with one exception. For 1931–1933 cohort we used only 1955 unemployment rate because of lack of comparable data in previous years (1953 and 1954).

[7] To test the robustness of our results, we also replaced the percentage of unemployed using a slightly different period, for example, mean values of the unemployment rate in 1954, 1955 and 1956 for the 1931–1935 cohort.

[8] A recent study on the topic reveals that anti-immigrants attitudes is more pronounced in European countries with relatively high proportion of ethnic minority population (Gorodzeisky and Semyonov, 2016).

[9] We conducted additional analyses with a different operationalization of economic conditions at the country-period level as a robustness test. In the first model, we replaced GDP per capita with relative growth in GDP (between each year of survey and the previous year); in a second model, we added to GDP per capita (at the country-year level) an average GDP (through all four time periods) at the country level to disentangle the dynamic part of the effect. The results were virtually the same as those reported in Table 2 and discussed in the text. Economic conditions at the country-year level (as reflected in different indicators based on GDP per capita) do not exert any effect on anti-immigrant attitudes.

[10] A respondent was defined as a member of a racial/ethnic minority (or as a person of non-European origin) when the respondent's father was *not* born in Europe, Australia or North America. We are aware that immigrant populations (especially first-generation immigrants) might be underrepresented in survey data. However, because we are interested in the relative proportion of the racial/ethnic minority population (first- and second-generation immigrants of non-European origin) in a country (as compared to other countries and other periods) rather than in the absolute proportion, and because underrepresentation might be common in all countries and periods, deflated values of 'percent non-Europeans' do not seem to be a serious problem for biasing model estimation. In addition, for 12 out of 14 countries, we were able to estimate, as a validity test, the correlation between the relative proportion of the racial/ethnic minority population in the ESS and the relative proportion of the racial/ethnic minority population in the European Union Labour Forces Survey 2008 (EULFS) Ad-Hoc Module "Labour market situation of migrants and their immediate descendants". The EULFS samples range from 21100 in Belgium to 85600 in UK. We calculated averaged relative proportion of the racial/ethnic minority in 2006 and 2010 (based on ESS) and estimated correlation between this measure and the relative proportion of the racial/ethnic minority using EULFC Ad-Hoc Module 2008. The *Pearson* correlation between the variables in the two data sets is $r = 0.9$. Indeed, the correlation provides quite strong evidence for the validity of the estimates derived from the ESS data.

Table 1
Coefficients (standard errors) and variance components obtained from cross-classified three level HAPC models predicting anti-immigrant sentiment.

	1	2
Intercept	4.73**	4.70**
Age	–	−0.002
		(0.002)
Education	–	−0.152**
		(0.011)
Variance component		
Individual level	3.740**	3.434**
Cohort (in country) level random effect	0.055**	0.021**
Period (in country) level random effect	0.051**	0.056**
Country random effect	0.242**	0.235**

Note: Age, education and GDP are centered around the grand mean. N = 79173.
*p < 0.05, **p < 0.01 (two-tailed).

6. Findings

6.1. Estimating unconditional model and model with control for age and education

Two hierarchical age-period-cohort models (HAPC) are estimated and displayed in Table 1. Model 1 is the unconditional model. It provides information on the variance components of anti-immigrant attitudes at each level of analysis as well as random effects of countries (averaged across cohorts and periods), country-periods (averaged across cohorts) and country-cohorts (averaged across years). In the second model (Model 2) we include predictors of anti-immigrant sentiment: age and education (as two individual-level variables) that serve mainly for control purposes. We do so in order to estimate the variance in anti-immigrant sentiment that is attributable to country-cohort level and country-cohort random effects above and beyond cross-cohort variations in age and educational composition (respondents of early cohorts are not only older but also have lower levels of formal education, and are therefore expected to express a higher level of anti-immigrant sentiments). In Table 1, we list the regression coefficients and variance components obtained from the two HAPC models.

The variance components of the *unconditional model* (Model 1) reveal statistically significant variance in anti-immigrant attitudes across country-cohorts and country-periods as well as across countries. After controlling for age and education in Model 2, the variance components remain statistically significant at all levels.

Figs. 1–3 display the random effects derived from the unconditional model (Model 1) at country, country-period and country-cohort levels, respectively. We present these graphs in order to provide a clear visual illustration of the estimated random effects obtained by the HAPC unconditional model. The findings presented in Figs. 1–3 are in lieu of a cumbersome descriptive statistics table; they serve as a graphic illustration of the values of the dependent variable – anti-immigrant sentiment – by country, period and cohort with mean equal to zero.

As shown in Fig. 1, which displays ***country random effects*** from the unconditional model, the level of anti-immigrant attitudes, averaged across cohorts and periods, is relatively high in Great Britain, Portugal, France, Austria and Belgium and relatively low in Sweden, Finland, Switzerland plus Denmark. Fig. 2, which presents ***period random effects*** (averaged across cohorts) by country, as derived from the unconditional model, reveals meaningful and statistically significant temporal changes in anti-immigrant attitudes in only three countries: Austria, Germany and Ireland. In Austria, the level of anti-immigrant attitudes rose between 2002 and 2014, while in Germany the level of anti-immigrant attitudes declined between 2006 and 2014. Ireland (new immigration country) witnessed a couple of short-term changes. The level of anti-immigrant attitudes had declined in 2006 (as compared to 2002), but

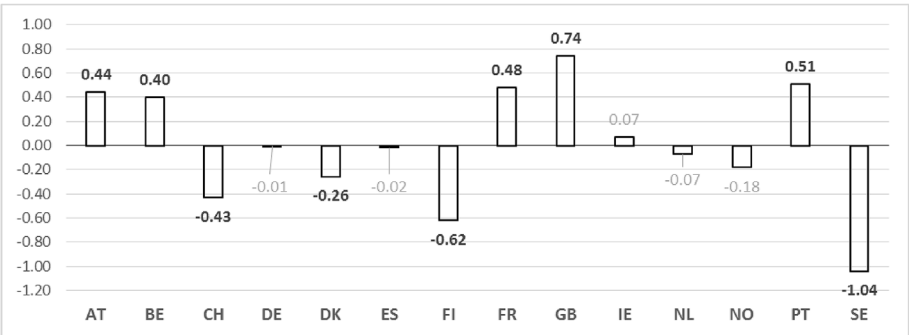


Fig. 1. Estimates of Country Random Effects (third level) obtained from Unconditional HAPC Model (1), numbers in bold refer to statistically significant effects.

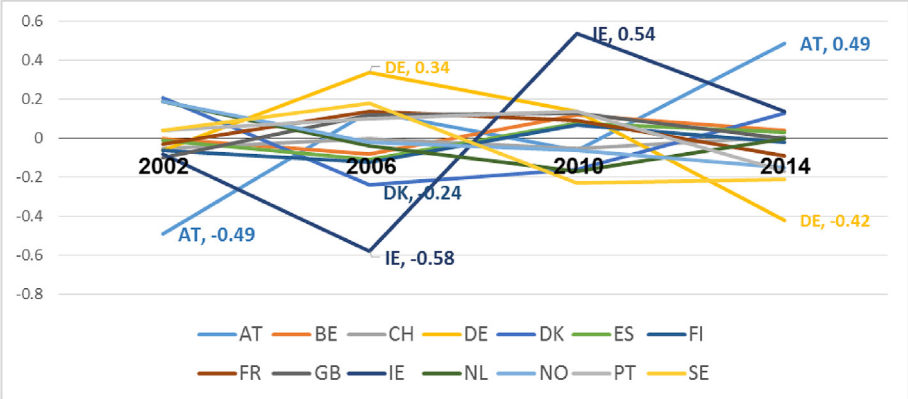


Fig. 2. Estimates of Period (in a Country) Random Effects (second level) obtained from Unconditional HAPC Model (1), numbers presented only for statistically significant effects.

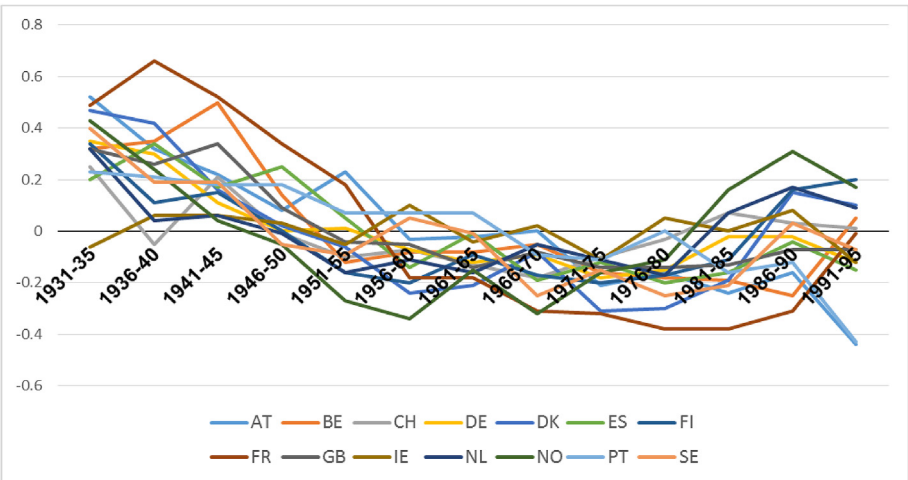


Fig. 3. Estimates of Cohort (in a Country) Random Effects (second level) obtained from Unconditional HAPC Model (1).

drastically increased by 2010, reaching its peak in that year and returning to its 2002 average level in 2014.

Fig. 3 displays ***cohort random effects*** (averaged across periods) by country, as derived from the unconditional model (Model 1). The association between cohort and anti-immigrant sentiment takes a curvilinear form. That is, among those born between 1931 and 1975, the younger the cohort the lower its level of anti-immigrant sentiment. The pattern is reversed in the cohorts that followed the 1971–1975 cohort. Among those born after 1971, the younger the cohort is the higher its level of anti-immigrant sentiments. These findings imply that the different levels of anti-immigrant sentiment across cohorts reflect much more than cross-cohort differences in age and educational composition. In other words, if cross-cohort differences were only a result of differences in age and education, we would have observed a linear relationship between cohorts and anti-immigrant attitudes, with older cohorts (also characterized by lower levels of formal education) expressing more negative attitudes toward immigrants than younger cohorts (also characterized by higher levels of formal education). Fig. 3, indeed, suggests otherwise. That is, cross-cohort variations are rather important for understanding changes in attitudes toward immigrants.

The results obtained by Model 2 (in Table 1), in which age and education are also included as control variables, reaffirm the findings observed earlier in Model 1. The findings indicate that the variance in anti-immigrant sentiment across cohorts is more than a direct reflection of cross-cohort differences in age and educational composition. Although the effect of age and education on anti-immigrant sentiments is in the expected direction (negative attitudes tend to increase with age and to be more pronounced among individuals with lower level of education),[11] and although the variance component for the country-cohort level in Model 2 was reduced when compared to Model 1, the variance at the country-cohort level remains statistically significant. Indeed, cohorts across countries vary considerably and significantly in attitudes toward immigrants. It is also interesting to note that the inclusion of age and

[11] The effect of age in Model 2 is statistically insignificant, reasonably due to the small age range within cohorts and the quite strong association between age, education and anti-immigrant sentiment. In the model without education, the effect of age was found to be positive and statistically significant (not presented here for the sake of parsimony).

education in Model 2 did not in any meaningful way alter the size of the variance component at the country-period level (as well as the period random effects displayed in Fig. 2).[12] In the multivariate analysis that follows, we examine whether cohort and period variations in anti-immigrant sentiment are systematically associated with specific characteristics of cohorts and periods or, put differently, what it is about a cohort or period that differentially affects attitudes toward immigrants.

In Fig. 4, we visually present ***cohort random effects*** (averaged across periods) by country as derived from Model 2 (net of age and education). We decided to split the figure into two panels, old and new immigration countries, because the patterns of cohort effect differ drastically between the two groups of countries. The upper panel in Fig. 4 pertains to the ***cohort random effects*** for the ***new immigration countries*** and the bottom panel pertains to the ***cohort random effects*** for the ***old immigration countries***.

The upper panel of Fig. 4 reveals that in the ***new immigration countries*** (namely, Spain, Portugal, Ireland and Finland) the oldest cohorts (i.e., birth cohorts between 1931 and 1950) had the lowest level of anti-immigrant sentiment. By contrast, the level of anti-immigrant sentiment is highest among those born between 1971 and 1990; it is somewhat lower for the 1991–1995 cohort (but not as low as for the oldest cohorts). At this point in the data analysis, we can only speculate about the possible reasons for the differences across cohorts. We believe that the oldest cohorts are most tolerant because when they entered the labor market for the first time, they did not have to compete with labor migrants, as migrants began arriving in the new immigration countries in substantial numbers only in the 1990s. Moreover, it is possible that a sizeable proportion of the oldest cohorts (and their family members) in the new immigration countries were employed as temporal labor migrants (in the old immigration countries) before returning to their country of origin. One might expect that individuals with the experience of labor migration would be more tolerant toward immigrants in their own country. The high level of anti-immigrant sentiment among the younger cohorts (i.e., those born between 1971 and 1990) could be a result of increased competition due to the dramatic influx of labor migrants at the time they entered the labor market coupled with the economic crisis of the 2000s (the economic crisis is especially relevant for the 1986–1990 cohort).

The pattern revealed by the bottom panel of Fig. 4 for ***old immigration countries*** is strikingly different from the cross-cohort variation observed in the upper panel of the figure (***new immigration countries***). In old immigration countries (with the exceptions of Norway and the Netherlands), the older cohorts are most hostile toward immigrants (even after controlling for age and education). This is especially evident for the cohorts born between 1936 and 1945. In Norway and the Netherlands, the highest level of hostility is observed for the 1981–1985 and 1986–1990 cohorts: the cohorts that were at the initial stage of their careers during the most recent economic crisis. Both Norway and the Netherlands experienced a substantial decline in GDP per capita in 2009–2010, much more than other old migration countries.

6.2. Multivariate analysis with period and cohort level characteristics

In order to examine the effect of country-period and country-cohort level characteristics (as structural level indicators of competitive threat) on anti-immigrant attitudes, we proceed by estimating a series of HAPC models with attributes of countries, periods, cohorts and individuals as predictors of anti-immigrant sentiment. Model 1 of Table 2 includes the following variables: age, education and subjective income (at the individual level); rate of unemployment in the period of entering the labor market (at the country-cohort level); GDP and percentage of foreign born population (at the country-period level); and a distinction between old versus new immigration countries (at the country level). In Model 1 we also included a cross-level interaction term between rate of unemployment (at the country-cohort level) and old versus new migration countries (at the country level), because we observed different cohort patterns in the two groups of countries. The results of the analysis are presented in Table 2.

Model 1 in Table 2 reveals, in line with expectations and consistent with previous studies on the topic, that social and economic vulnerability is likely to increase anti-immigrant sentiment. Specifically, individuals with insufficient income are more likely to hold negative attitudes toward immigrants than those with sufficient income (as implied by $b = -0.458$). Likewise, higher education is associated with lower level of anti-immigrant attitudes, as made evident by the negative and statistically significant coefficient for education ($b = -0.146$). The findings also reveal a significant meaningful difference between old and new immigration countries. Anti-immigrant sentiment is more pronounced in the old immigration countries ($b = 0.705$).

At the cohort level, the data show different effects of unemployment rate at time of entry to the labor market between new and old immigration countries. The main effect of unemployment rate ($b = 0.024$) implies that in the new immigration countries cohorts that enter the labor market for the first time during periods of higher unemployment are more likely to express negative attitudes toward immigrants. The findings observed for new immigration countries are indeed in line with the 'competitive threat' theoretical model, according to which the threat of intense competition is likely to increase hostility toward the out-group population. Apparently, in the new immigration countries entry to the labor market in times of economic decline has a long-lasting 'scar effect' on anti-immigrant attitudes[13]. However, the impact of unemployment in the old immigration countries is opposite to what the theory leads us to expect ($b = 0.024–0.052 = -0.028$). We attribute this curious effect to historical circumstances in Western Europe. The first substantial

[12] It is also interesting to add that when age and education are controlled for, the country random (negative) effect for Denmark and the country random (positive) effect for Portugal (displayed in Fig. 1) become statistically insignificant. These findings along with the comparison of average level of education across countries imply that the relatively high level of anti-immigrant attitudes among Portuguese is associated with their lowest level of education as compared to all other countries in the sample. The relatively low level of anti-immigrant attitudes in Denmark, on the other hand, is associated with the relatively high level of education in Denmark.

[13] At the same time, one may suggest that if an individual achieves high occupational status during the life course the 'scar' effect would vanish. We did look into this possibility by adding current (last) occupational status of respondents (measured by International Social-Economic Index) into the model. As expected, occupational status exerted statistically significant effect on anti-immigrant sentiments with those holding high status being less negative. Nevertheless, it hardly changed the effect of unemployment rate at cohort level on anti-immigrant attitudes.

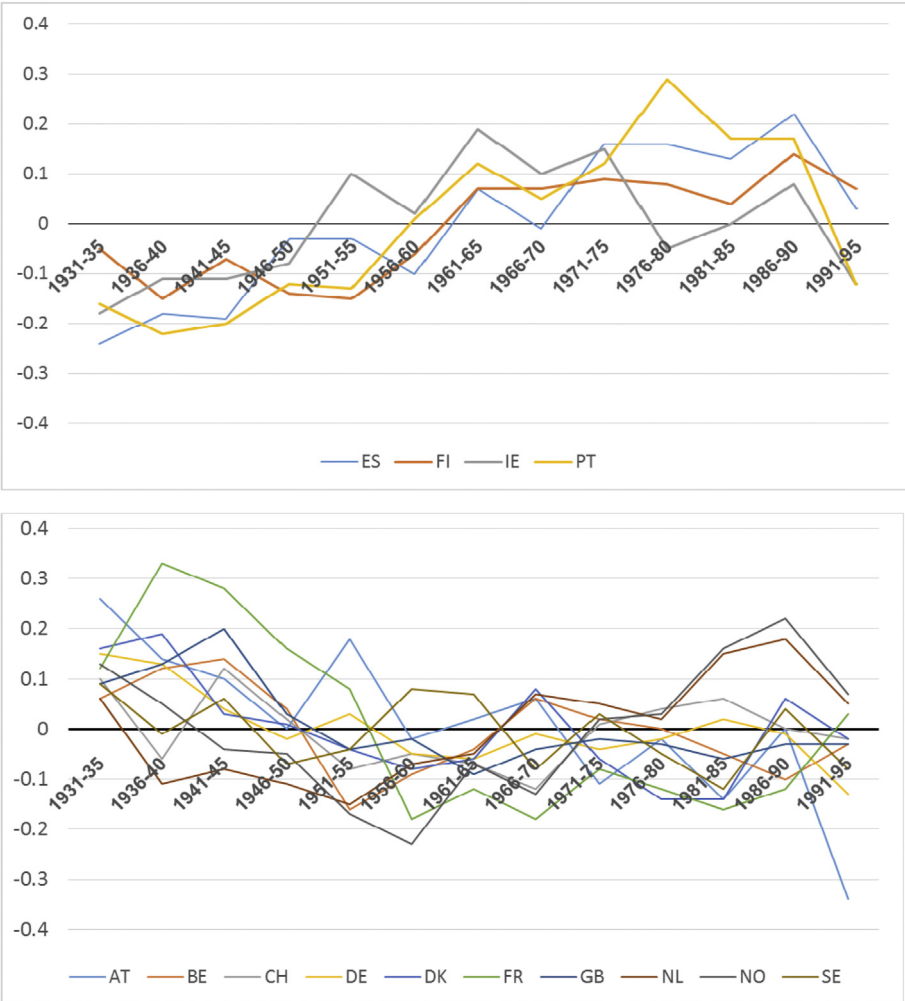


Fig. 4. Estimates of Cohort (in a Country) Random Effects (second level) obtained from Age and Education HAPC Model (2).

influx of foreign populations to the old immigration countries took place between the late 1950s and 1973 when unemployment rates were the lowest (see Appendix Figure A). Although cohorts that entered the labor market during this period did so when unemployment rates were the lowest (low unemployment rates decrease competition, hence are expected to reduce anti-immigrant sentiments), they nonetheless faced a substantial influx of migrant workers (which is expected to increase anti-immigrant sentiment). Unfortunately, no data on the share of foreign-born population by year are available for this period. Therefore, we cannot disentangle the effect of unemployment rate from the effect of labor migration influx (at the time of cohort's entry into the labor market) at the country-cohort level.[14]

The results of Model 1 also show that neither size of the foreign-born population nor GDP per capita *at the period level* exerts a statistically significant effect on anti-immigrant sentiment. However, once we introduce interaction terms between the share of foreign-born population and old/new immigration countries in Model 2, the results reveal that the effect of size of foreign-born population varies between old and new immigration countries. It should be noted that while the interaction term between the share of foreign-born population and old/new immigration countries ($b = 0.046$) is not statistically significant at the two-tailed test, it reaches a conventional level of significance ($p < 0.05$) at the one-tailed test. One-tailed test for this interaction term is consistent with the hypothesis that the effect of structural characteristics would be more pronounced in the new immigration countries than in the old immigration countries. Specifically, in the new immigration countries, the level of anti-immigrant sentiment tends to increase ($b = 0.051$) with a rise in the share of foreign-born population (consistent with the 'competitive threat' thesis). In the old immigration countries, however, the share of foreign-born population between 2002 and 2016 hardly exerts any effect on anti-immigrant attitudes ($b = 0.051–0.046 = 0.005$). Yet it should be noted that in line with theoretical expectation, anti-immigrant sentiment is higher in the

[14] As a robustness test, we also estimated models including GDP per capita at time of cohort's entry to the labor market. We found no effect of GDP at country-cohort level on anti-immigrant attitudes. The inclusion of GDP per capita at cohort level did not change the effect of unemployment at cohort level.

Table 2
Coefficients (standard errors) and variance components obtained from cross-classified three level HAPC models predicting anti-immigrant sentiment.

	1	2	3	4
Intercept	4.71**	4.87**	4.51**	4.38**
Individual level variables				
Age	−0.003	−0.003	−0.003	−0.003*
	(0.002)	(0.002)	(0.002)	(0.001)
Education	−0.146**	−0.146***	−0.146**	−0.146**
	(0.011)	(0.011)	(0.011)	(0.002)
Subjective sufficient income	−0.458**	−0.458***	−0.458**	−0.458**
	(0.050)	(0.050)	(0.050)	(0.019)
Cohort (in country) level variables and interaction terms				
Unemployment rate at time of labor market entry	0.024**	0.019*	0.024**	0.020*
	(0.007)	(0.007)	(0.007)	(0.007)
Unemployment rate at time of labor market entry X Old-migration countries	−0.052**	−0.046**	−0.052**	−0.047**
	(0.007)	(0.008)	(0.009)	(0.0090)
Period (in country) level variables and interaction terms				
GDP*1000	−0.001	−0.000	−0.001	−0.003
	(0.007)	(0.007)	(0.004)	(0.003)
Percent of Foreign Born	0.024	0.051*	–	–
	(0.022)	(0.020)		
Percent of Foreign Born X Old-migration countries	–	−0.046	–	–
		(0.024)		
Percent of Ethnic Minority (first- and second-generation immigrants of non-European origin)	–	–	0.042**	0.10**
			(0.016)	(0.03)
Percent of Ethnic Minority X Old-migration countries				−0.08**
				(0.032)
Country level variables				
Old-migration countries	0.705**	0.471*	0.618**	0.777**
	(0.17)	(0.21)	(0.198)	(0.185)
Variance component				
Individual level random effect	3.409	3.409	3.409	3.409**
Cohort (in country) level random effect	0.012**	0.012**	0.012**	0.012**
Period (in country) level random effect	0.042**	0.042**	0.048**	0.042**
Country random effect	0.249**	0.238**	0.083*	0.101**

Note: Age, education and GDP are centered around the grand mean. The effects of Unemployment Rate (cohort in country level), Percent of Foreign Born Population and Percent of Ethnic Minority Population (year in country level) are allowed to vary across countries. N = 79173.
*p < 0.05, **p < 0.01 (two-tailed).

old immigration countries than in the new ones (b = 0.471).

In Model 3, we replaced the share of foreign-born population with the share of non-European ethnic minorities (introduced at the period level). The results confirm the argument that a higher share of non-European ethnic minorities (immigrants and their descendants) in the country's population is associated with a higher level of ant-immigrant attitudes. We would also like to note that inclusion of the share of ethnic minorities (at the period level) in Model 3 decreases the country-level variance in anti-immigrant attitudes by almost 65 percent. Apparently, country variation in anti-immigrant sentiment is associated with the size of non-European ethnic minorities. However, the negative and statistically significant interaction terms between the share of ethnic minorities and old/new immigration countries in Model 4 implies that the effect of the size of ethnic minorities is more pronounced in the new immigration countries than in the old immigration countries. At the same time, the difference in the level of anti-immigrant sentiment between old and new immigration countries remains substantial and statistically significant (b = 0.777), with residents of old immigration countries expressing more negative attitudes toward immigrants.

7. Conclusions

The comparative research on anti-immigrant sentiment has grown rapidly in recent years and become substantial. Most studies on the topic that were carried out within a cross-sectional research design lend firm support to the theoretical expectation that anti-immigrant sentiment is more pronounced in places characterized by intense competition (i.e., large size of the foreign population and depressed economic conditions). Yet only very few such studies have examined change in attitudes towards immigrants within a dynamic research framework, and no comparative research has examined the role played by cohorts in affecting change in attitudes. Whereas change in attitudes toward immigrants can be also affected by social forces such as historical and cultural contexts and political climate, we focus in the present paper on the role played by competitive threat and cohorts in shaping attitudes and change in attitudes. More specifically, we put to the test the theoretical propositions derived from the ‘competitive threat model’ by examining change in anti-immigrant attitudes across fourteen European countries at four points in time (between 2002 and 2014) using the Hierarchical Age-Period-Cohort (HAPC) model. By focusing on the roles played by period and cohort in shaping attitudes toward immigrants, we are in a better position to delineate the impact of structural and compositional sources on change in attitudes across

countries and time.

In line with theoretical expectations and similar to previous studies on the topic, the findings demonstrate that socioeconomically vulnerable individuals (e.g., individuals with low education and insufficient income), who are more threatened by the presence of outgroup populations, are more likely to hold negative attitudes toward immigrants. The findings also reveal that anti-immigrant attitudes are much more pronounced in the old immigration countries than in the new immigration countries. In all immigration countries, though, whether old or new, the rise of anti-immigrant attitudes is associated with an increase in the share of non-European ethnic minorities. At the same time, it is only in the new immigration countries that an over-time increase in the relative size of the foreign-born population is associated with a rise in anti-immigrant sentiment. Thus, the findings lend support to the argument that in contemporary Europe, the share of non-European ethnic minorities rather than the share of foreign-born population has become a structural source of perceived threat and a major determinant of anti-immigrant sentiment.

The findings also suggest, contrary to theoretical expectations, that over-time change in a country's economic conditions between 2002 and 2016 (as measured by GDP per capita) does not exert a significant impact on anti-immigrant sentiment. However, in the new immigration countries the economic conditions that a cohort experienced when searching for their first jobs do affect attitudes toward immigrants. That is, the analysis reveals that in the new immigration countries the unemployment rate at the time of a cohort's entry into the country's labor market has a long-lasting influence on that cohort's attitudes toward immigrants. More specifically, cohorts that enter the labor market for the first time during periods of higher unemployment are more likely to express negative attitudes toward immigrants. Apparently, exposure to poor economic conditions at the time of searching for the first job produces a ‘scar’ effect on the sense of economic threat and, consequently, on anti-immigrant attitudes.

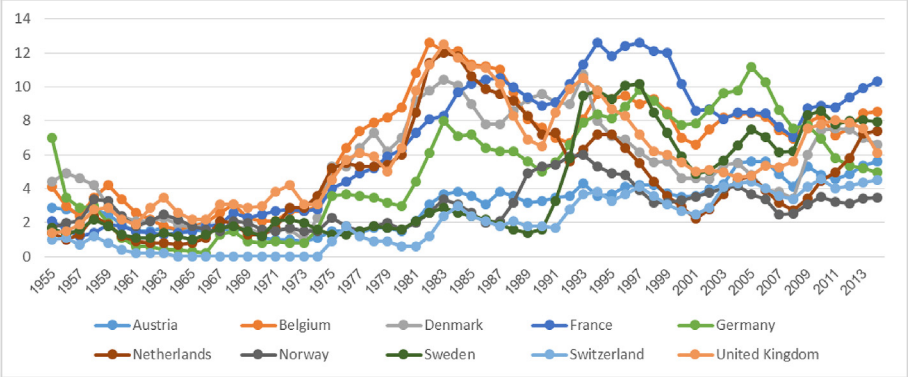
We must note, however, that in the old immigration countries the effect of unemployment rate at the cohort level differs substantially from the effect observed in the new immigration countries. How can we explain this difference between old and new immigration countries? We believe that in the old immigration countries the negative effect of a cohort's unemployment rate on anti-immigrant attitudes can be attributed to unique historical circumstances in Europe. The first substantial influx of foreign populations (i.e., labor migrants) to the old immigration countries took place between late 1950s and 1973 when unemployment rates were the lowest. Whereas the initial rise in the size of the immigrant population is expected to increase hostility toward immigrants, low unemployment rates are expected to reduce such hostility. Unfortunately, data on the size of the labor migrant group by year and by country are not available for these years. Therefore, we are unable to disentangle the impact of unemployment from the impact of the size of the immigrant population at the time of cohort's entry into the labor market. At this point, we can only speculate that in the old immigration countries the effects of the two variables (i.e., size of the immigrant population and unemployment rate) may operate in opposite directions and thus cancel each other out.

Based on the analysis and findings presented here, we would like to stress the importance of inter-cohort variation for understanding the sources of temporal changes in anti-immigrant attitudes. Apparently, attitudes toward immigrants vary considerably across cohorts (above and beyond cohorts' compositional differences in age and education). Moreover, the data reveal that the patterns and ways in which cohorts affect anti-immigrant attitudes differ substantially across social contexts. More specifically, the ways in which cohort membership affects attitudes in the new immigration countries differ substantially from those in the old immigration countries. Indeed, differential exposure of cohorts to cardinal events across societies may play an important role in shaping attitudes toward immigrants and outgroup populations. Therefore, we contend that in order to better understand the sources of anti-immigrant sentiment and temporal change in anti-immigrant sentiment, researchers should take into consideration not only the structural characteristics of societies but also those of cohorts as well as cohort's social and economic environment in its formative years.

Appendix Table A. List of countries, number of sample cases and mean of anti-immigrant sentiment obtained from four waves of ESS between 2002 and 2014

	N	Anti-immigrant sentiment (M)
Austria (AT)	6306	5.1
Belgium (BE)	4987	5.1
Switzerland (CH)	4089	4.3
Germany (DE)	8601	4.6
Denmark (DK)	4708	4.4
Spain (ES)	5510	4.7
Finland (FI)	6264	4.0
France (FR)	4920	5.2
Great Britain (UK)	6356	5.5
Ireland (IE)	6464	4.8
Netherlands (NL)	6132	4.6
Norway (NO)	5190	4.5
Portugal (PT)	5337	5.4
Sweden (SE)	4999	3.6

Appendix Figure A. Unemployment rate in the old immigration countries by year



References

Berning, Carl C., Schlueter, Elmar, 2016. The dynamics of radical right-wing populist party preferences and perceived group threat: a comparative panel analysis of three competing hypotheses in The Netherlands and Germany. Soc. Sci. Res. 55, 83–93.

Blalock Jr., Hubert M., 1967. Toward a Theory of Minority-group Relations. John Wiley and Sons, New York.

Blossfeld, Hans-Peter, 1986. Career opportunities in the federal Republic of Germany: a dynamic approach to the study of life-course, cohort, and period effects. Eur. Socio Rev. 2, 208–225.

Blumer, Herbert, 1958. Race prejudice as a sense of group relation. Pac. Socio Rev. 1, 3–7.

Bobo, Lawrence D., 1988. Group conflict, prejudice, and the paradox of contemporary racial attitudes. In: Katz, P.A., Taylor, D.A. (Eds.), Eliminating Racism: Profiles in Controversy. Plenum Press, New York, pp. 85–114.

Bobo, Lawrence D., 1999. Prejudice as group position: micro foundations of a sociological approach to racism and race relations. J. Soc. Issues 55, 445–472.

Bobo, Lawrence, Hutchings, Vincent L., 1996. Perceptions of racial group competition: extending Bulmer's theory of group position to a multiracial social context. Am. Socio. Rev. 61, 951–972.

Bohman, Andrea, Hjerm, Mikael, 2016. In the wake of radical right electoral success: a cross-country comparative study of anti-immigration attitudes over time. J. Ethnic Migrat. Stud. 42, 1729–1747.

Boomgaarden, Hajo G., Vliegenthart, Rens, 2009. How news content influences anti-immigration attitudes: Germany, 1993–2005. Eur. J. Polit. Res. 48, 516–542.

Castles, Stephen, de Haas, Hein, Miller, Mark J., 2014. The Age of Migration. Palgrave McMilian.

Ceobanu, Alin M., Escandell, Xavier, 2010. Comparative analyses of public attitudes toward immigrants and immigration using multinational survey data: a review of theories and research. Annu. Rev. Sociol. 36, 309–328.

Coenders, Marcel, Scheepers, Peter, 2008. Changes in resistance to the social integration of foreigners in Germany 1980–2000: individual and contextual determinants. J. Ethnic Migrat. Stud. 34, 1–26.

Esses, Victoria M., Dovidio, John F., Jackson, Lynne M., Armstrong, Tamara L., 2001. The immigrants dilemma: the role of perceived group competition, ethnic prejudice, and nationality identity. J. Soc. Issues 53, 389–412.

Gangl, Markus, 2006. Scar effects of unemployment: An Assessment of Institutional Complementarities. Am. Socio. Rev. 71, 986–1013.

Gorodzeisky, Anastasia, 2011. Who are the Europeans that Europeans prefer? Economic conditions and exclusionary views toward European immigrants. Int. J. Comp. Sociol. 52, 100–113.

Gorodzeisky, Anastasia, Semyonov, Moshe, 2016. Not only competitive threat but also racial prejudice: sources of anti-immigrant attitudes in European societies. Int. J. Publ. Opin. Res. 28, 331–354.

Hewstone, Miles, 2015. Consequences of diversity for social cohesion and prejudice: the missing dimension of intergroup contact. J. Soc. Issues 71, 417–438.

Lahav, Galliya, 2004. Immigration and Politics in the New Europe: Reinventing Borders. Cambridge University Press, Cambridge, UK.

Lancee, Bram, Pardos-Prado, Sergi, 2013. Group conflict theory in a longitudinal perspective: Analyzing the dynamic side of ethnic competition. Int. Migrat. Rev. 47, 106–131.

Mason, Karen Oppenheim, Mason, William M., Winsborough, Halliman H., Poole, W. Kenneth, 1973. Some methodological issues in cohort analysis of archival data. Am. Socio. Rev. 38, 242–258.

Mannheim, K., 1952. The problem of generations. [1927] In: Kecskemeti, P. (Ed.), Essays on the Sociology of Knowledge. Routledge and Kegan Paul, London, pp. 276–322 ed., trans.

Meuleman, Bart, Davidov, Eldad, Billiet, Jaak, 2009. Changing attitudes toward immigration in Europe, 2002–2007: a dynamic group conflict theory approach. Soc. Sci. Res. 38, 352–365.

McLaren, Lauren M., 2003. Anti-immigrant prejudice in Europe: contact, threat perception, and preferences for the exclusion of migrants. Soc. Forces 81, 909–936.

McLaren, Lauren, Boomgaarden, Hajo, Vliegenthart, Rens, 2017. News coverage and public concern about immigration in Britain. Int. J. Publ. Opin. Res. https://doi.org/10.1093/ijpor/edw033 edw033.

Olzak, Susan, 1992. The Dynamic of Ethnic Competition and Conflict. Stanford University Press, Stanford, CA.

Ortega, Francesc, Polavieja, Javier G., 2012. Labor-market exposure as a determinant of attitudes toward immigration. Lab. Econ. 19, 298–311.

Pichler, Florian, 2010. Foundations of anti-immigrant sentiment: the variable nature of perceived group threat across changing European societies, 2002-2006. Int. J. Comp. Sociol. 51, 445–469.

Polavieja, Javier G., 2016. Labour-market competition, recession and anti-immigrant sentiments in Europe: occupational and environmental drivers of competitive threat. Soc. Econ. Rev. 14, 395–417.

Quillian, Lincoln, 1995. Prejudice as a response to perceived group threat: population composition and anti-immigrant and racial prejudice in Europe. Am. Socio. Rev. 60, 586–611.

Raijman, Rebeca, Semyonov, Moshe, Schmidt, Peter, 2003. Do foreigners deserve rights? Determinants of public views towards foreigners in Germany and Israel. Eur. Socio Rev. 19, 379–392.
Reither, Eric N., Masters, Ryan K., Claire Yang, Yang, Powers, Daniel A., Zheng, Hui, Land, Kenneth C., 2015. Should age-period-cohort studies return to the methodologies of the 1970s? Soc. Sci. Med. 128, 356–365.
Scheepers, Peer, Gijberts, Merove, Coenders, Marcel, 2002. Ethnic exclusionism in European countries: public oppositions to civil rights for legal migrants as a response to perceived threat. Eur. Socio Rev. 18, 17–34.
Schlueter, Elmar, Meuleman, Bart, Davidov, Eldad, 2013. Immigrant integration policies and perceived group threat: a multilevel study of 27 Western and Eastern European countries. Soc. Sci. Res. 42, 670–682.
Schlueter, Elmar, Davidov, Eldad, 2011. Contextual sources of perceived group threat: negative immigration-related news reports, immigrant group size and their interaction, Spain 1996–2007. Eur. Socio Rev. 29, 179–191.
Semyonov, Moshe, Raijman, Rebeca, Gorodzeisky, Anastasia, 2006. The rise in anti-foreigner sentiment in European societies, 1988-2000. Am. Socio. Rev. 71, 426–449.
Semyonov, Moshe, Raijman, Rebeca, Gorodzeisky, Anastasia, 2007. On the relations between right-wing parties and anti-foreigner sentiment. Am. Socio. Rev. 72, 841–849.
Semyonov, Moshe, Glikman, Anya, 2008. Ethnic residential segregation, social contacts, and anti-minority attitudes in European societies. Eur. Socio Rev. 25, 693–708.
Sides, John, Citrin, Jack, 2007. European opinion about immigration: the role of identities, interests and information. Br. J. Polit. Sci. 37, 477–504.
Triandafyllidou, Anna, Gropas, Ruby (Eds.), 2014. European Immigration. A Sourcebook. Ashgate.
Wilkes, Rima, Corrigall-Brown, Catherine, 2011. Explaining time trends in public opinion: attitudes towards immigration and immigrants. Int. J. Comp. Sociol. 52, 79–99.
Wilkes, Rima, Guppy, Neil, Farris, Lily, 2007. Right-wing parties and anti-foreigner sentiment in Europe. Am. Socio. Rev. 72, 831–840.
Williams, Robin M., 1947. The Reduction of Inter-group Tensions: a Survey of Research on Problems of Ethnic, Racial, and Religious Group Relations. Social Science Research Council, New York.
Yang, Yang, Land, Kenneth C., 2006. A mixed models approach to the age-period-cohort analysis of repeated cross-section surveys, with an application to data on trends in verbal test scores. Socio. Meth. 36, 75–97.
Yang, Yang, Land, Kenneth C., 2008. Age–period–cohort analysis of repeated cross-section surveys: fixed or random effects? Socio. Meth. Res. 36, 297–326.