# Anti-Foreigner Sentiment in Europe: Turnover and Temporality in International Migration Flows and the Implications for Perceived Ethnic Threat\*

Jack DeWaard, University of Wisconsin Madison

<sup>\*</sup>Jack DeWaard, Department of Sociology, Center for Demography and Ecology, University of Wisconsin Madison, 8128 William H. Sewell Hall, 1180 Observatory Drive, Madison, WI 53706. Email: jdewaard@ssc.wisc.edu. Phone: 608.262.9518. Fax: 608.265.5389.

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# ABSTRACT

Theoretical and empirical treatments of anti-foreigner sentiment view the explanatory role of international migration patterns in terms of the *visibility* of migrants in receiving countries, measured using the percent foreign-born. I question the sufficiency of this formulation for expressing another characteristic feature of international migration— namely, the turnover and inherent temporality of flows—to natives' perceptions of ethnic threat. The visibility of migrants refers to their proportionate representation in the receiving country; yet, one can envision a related process whereby migrants reside in the receiving country for relatively longer or shorter periods, on average. In this paper, I detail a concept and develop a measure to summarize these times for 15 European countries from 2002-2003, and thus their expected time of *exposure* to migrants. I examine the dynamics of both visibility and exposure in explanatory models of anti-foreigner sentiment using data from the European Social Survey, and find clear evidence distinguishing the two. The implications of this research are to enhance understanding of the institutional context of migrant reception and incorporation in Europe and elsewhere.

# INTRODUCTION

Theoretical and empirical treatments of anti-foreigner sentiment have failed to fully appreciate the depth and diversity of institutional contexts which moderate perceptions of ethnic threat (Ceobanu and Escandell 2010). To be sure, patterns of international (i.e., country-to-country) migration have largely been viewed in terms of the *visibility* of migrants in receiving countries (Blalock 1967), measured as the percent of the population that is foreign-born or some variant—e.g., percent non-European Economic Community (EEC) or European Union (EU) persons (Quillian 1995). Accordingly, a hallmark of research on anti-foreigner sentiment to date is the positive, non-linear association between the visibility of migrants in receiving countries (typically measured using one of the percentages above) and anti-foreigner sentiment (indexes of which vary across studies), a relationship which has been remarkably stable for the past two decades (Semyonov, Raijman and Gorodzeisky 2006).

On the assumption that the visibility concept exhausts the ways we might conceptualize and operationalize international migration, recent efforts have turned to connecting the visibility of migrants in receiving countries to individual-level processes detailing how people translate information about the institutional environment (e.g., percent foreign born) to adopt and express anti-foreigner sentiment. Schneider (2008), for example, focused on interpersonal contact with immigrants toward lowering perceptions of ethnic threat. Citrin and Sides (2006) examined the congruence of perceptions of the percent

foreign born with official percentages reported by the Organisation for Economic Cooperation and Development (OECD) for 20 European countries to highlight the role of *mis*information about the relative size of the foreign born population toward exacerbating anti-foreigner sentiment.

These "cross-level interactions" (Schneider 2008:60) are a potentially important direction in research on anti-foreigner sentiment; but, in their present form, they are premature and do little to advance the position of Ceobanu and Escandell (2010:323) with respect to "enhancing the very *notion* of a country's institutional environment...[particularly] its inclusion or exclusion of immigrants" (emphasis mine; see also Pitkin and Myers 2011). The aim of this paper is therefore to propose a conceptual and empirical alternative to the percent foreign born as an indicator of international migration patterns in receiving countries, and to assess its relevance in explanatory models of anti-foreigner sentiment.

The visibility concept assumes that migrants comprise a homogenous population insofar as their movements exhibit a constant rate of turnover, and thus uniformly [im]permanent migrations. At each level of visibility (e.g., 1% versus 5% foreign born, etc.), however, one can envision heterogeneity in the total time lived by migrants in the receiving country, on average, and thus variation in the relative permanence of migration. While the visibility dynamic is well documented in the literature, absent in these accounts to date is any consideration of a country's *exposure* to migrants—the average time that a migrant is expected to reside in a receiving country over their life time given prevailing

age-specific migration and mortality schedules. A primary task of this paper is to estimate these times for EU15 countries from 2002-2003 using the techniques of multistate demography (Rogers 1995; Schoen 1988).

Distinguishing the visibility of migrants from the expected time of exposure to migrants in receiving countries raises serious questions about the adequacy of previous efforts to exhaust potentially separable mechanisms by which international migration shapes antiforeigner sentiment. In explanatory models of the latter, I examine the dynamics of both visibility and exposure using data from the 2002-2003 round of the European Social Survey (ESS), which boasts an extensive immigration module. As such, this paper is not concerned with all potential correlates or causes of anti-foreigner sentiment *per se* (see Rustenbach 2010), but with the dynamics of international migration in particular. My findings support maintaining conceptual and empirical separation between the dynamics of visibility and exposure insofar as each makes a unique and significant contribution to explaining variation in anti-foreigner sentiment.

## BACKGROUND

Theoretical and empirical models of anti-foreigner sentiment make extensive use of relative group size at the aggregate (usually country) level as an explanatory factor (Blalock 1967; Blumer 1958). Measured using a diverse set of indexes, anti-foreigner sentiment is hypothesized to increase in curvilinear fashion with the relative

concentration of migrants in receiving countries (e.g., percent foreign born) at a rate inversely proportional to latter. This formulation has inspired numerous efforts designed to show that the *visibility* of migrants in receiving countries somehow matters where antiforeigner sentiment among natives is concerned. Schneider (2008) detailed two explanations for this relationship. Toward preserving relative group status (Blumer 1958), anti-foreigner sentiment encompasses both socio-economic and cultural dimensions. The former is to suggest that anti-foreigner sentiment serves to maintain certain material advantages enjoyed by natives relative to foreigners; the latter is to attach meaningful significance to this cleft in the form of cultural and national values and identities. The increasing visibility of migrants in receiving countries is viewed as threatening the natural order in the minds of natives by inducing competition for resources and facilitating political mobilization on the part of minority group (Blalock 1967; Lieberson 1980). As a result, anti-foreigner sentiment is hypothesized to rise sharply when the relative size of the foreign born population shifts away from low levels, only to level off beyond some critical mass once the status quo is again in place.

Perhaps the most well known of cross-national efforts to test the above thesis is that of Quillian (1995), who was the first to show that the concentration of non-EEC citizens was positively related to anti-foreigner sentiment in 12 European countries. Numerous comparative and cross-national studies soon followed. Scheepers, Gijsberts and Coenders (2002) examined exclusionary attitudes (e.g., support for deporting unemployed immigrants) in 15 European countries. Among their conclusions, they noted that

perceived ethnic threat (e.g., the notion that immigrants abuse social benefits) is a key variable mediating the relationship between ethnic exclusionism and all but one contextual predictor—namely, the percent non-EU citizens, the effect of which conformed to theoretical expectations (Blalock 1967). More recent studies, e.g., Semyonov et al. (2006), have found that the magnitude of the association between the percent foreign born and anti-foreigner sentiment has changed little over the last two decades. This relationship also appears stable across contexts, as judged by the work of Citrin and Sides (2006) and Schneider (2008) using data on 20 countries from the European Social Survey.

The above studies suggest that the visibility effect is robust, prompting recent efforts to shift focus and begin connecting the visibility of migrants in receiving countries to individual-level processes whereby persons translate information about the social environment into anti-foreigner sentiment. Drawing on intergroup contact theory (Allport 1954), Schneider (2008) found that interpersonal contact with immigrant friends, colleagues, and to a lesser extent neighbors partially offsets the positive association between the percent foreign born in receiving countries and anti-foreigner sentiment. Consistent with Pettigrew and Meertens (1995:63), the presence of "intergroup friends" engenders a degree of trust and reciprocity, which has the effect of transforming exclusionary attitudes into inclusionary ones. A second approach implemented by Citrin and Sides (2006) examined individual perceptions of the percent foreign born alongside official percentages reported for 20 European countries by the OECD. They found that

inclusion of the former measure ameliorated the effect of the latter, and concluded that anti-foreigner sentiment is partly a response to *mis*information about the relative size of the foreign born population.

The above studies are useful additions to the literature on anti-foreigner sentiment, both for their unique insights and for illuminating the potential over-reliance on the visibility concept. In the first place, recalling the comment by Massey et al. (1998) that associative or causal processes are not restricted to operate at only one level of observation, these studies rightly suggest that the visibility concept might be profitably expanded to include dynamics at the individual level. Citrin and Sides (2006) provide a clear illustration with consistent theoretical mapping, which shows that information about the percent foreign born is filtered through the perceptual apparatus of the individual actor. The visibility of migrants in receiving counties is thus aptly characterized as a multilevel process; and, to the extent that anti-foreigner sentiment is or reflects a symbolic boundary (Bail 2008; Lamont and Molnar 2002), Citrin and Sides' (2006) account is broadly consistent with the tenets of multilevel process theory (Wimmer 2008).

Schneider's (2008) approach, however, raises far more questions than are answered. For instance, does the visibility of migrants in receiving countries (measured using the percent foreign born) entail an associated probability of interpersonal contact? At the extreme, one can imagine a situation where a set of foreign born persons of size n is replaced by a "fresh" set of foreign born persons, also of size n. In this case, the percent

foreign born is unaltered (assuming the size of the native population does not change), but the extent to which migrants and natives are afforded the opportunity to develop interpersonal ties contracts dramatically. Interpersonal contact with immigrants and entailed reciprocity and trust are not erected exclusively on the relative presence or absence of foreign born persons, but, instead, on the availability of and exposure to one another over time. In the presence of mobile migrant populations characterized by high rates of turnover, the connection between the percent foreign born in receiving countries and interpersonal contact with immigrants is potentially an artifact (DeWaard and Raymer 2011).

The presenting issue is whether one can identify an institutional counterpart—what Wimmer (2008:990) calls a "constraint"—which maps on to interpersonal contact with immigrants in a way that is theoretically consistent. Rectifying this issue requires revisiting how international migration is typically conceptualized and measured. DeWaard and Raymer (2011) argued for expanding descriptive studies of international migration to include not only measures of stocks (e.g., percent foreign born) and rates (e.g., emigration, immigration and net-migration), but also one summarizing the total time lived by migrants in the receiving country, on average. Whereas the former measures distinguish countries according to the visibility of migrants (measured in different ways), the latter is consistent with the notion of *exposure* in the demographic literature (Preston, Heuveline and Guillot 2001). DeWaard and Raymer (2011) develop what is effectively a period life expectancy for 31 European countries each year from 2002-2007; however, rather than summarizing the mortality conditions of receiving countries, this measure expresses the average number of months that a migrant is expected to live in a receiving country over their life time if, at each age, they are exposed to the set of migration and mortality rates prevailing during the respective period (e.g., in 2002). Their measure and the underlying concept thus tap the context of migrant reception and incorporation in receiving countries in a manner consistent with the call of Ceobanu and Escandell (2010).

Just as Citrin and Sides (2006) connected the percent foreign born in receiving countries with perceptions of the relative size of the foreign born population, I regard the above measure—i.e., the expected time of exposure to migrants in receiving countries—as an institutional counterpart to interpersonal contact with immigrants. Where immigrants reside in receiving countries for relatively longer periods, the probability of interpersonal contact increases and, as Schneider (2008) found, the magnitude of anti-foreigner sentiment subsequently decreases. The dynamics of both visibility and exposure, as I envision these, are depicted in Figure 1. Of the total variation in anti-foreigner sentiment, less than 10% is explained by country-level factors in mixed-effects models (Schneider 2008; Semyonov et al. 2006); the remainder is due to individual-level characteristics. Additionally, Citrin and Sides (2006) showed that the effect of the percent foreign born on anti-foreigner sentiment is not statistically significant—indeed, not even positive—after controlling for perceptions of the relative size of the foreign born population. Thus, in Figure 1, the country-level dynamics of both visibility and exposure—i.e., the percent

foreign born and the expected time of exposure to migrants, respectively—are viewed as operating indirectly through their individual-level counterparts—i.e., perceptions of the percent foreign born and interpersonal contact with immigrants, respectively—with the former moderating the effects of the latter on anti-foreigner sentiment.

#### ----- FIGURE 1 ABOUT HERE -----

Studies of immigrant reception and incorporation have documented a strong, positive effect of the time spent by migrants in receiving countries on their individual mobility trajectories (Adsera and Chiswick 2007; Pitkin and Myers 2011). Extending this logic to anti-foreigner sentiment, and recalling again the comment by Massey et al. (1998) above, there are few theoretical disincentives or impediments to prevent consideration of the expected time of exposure to migrants in receiving countries (DeWaard and Raymer 2011). Indeed, as I argued above, the very notion of interpersonal contact with immigrants presumes an institutional context of adequate exposure. Lack of attention to this dynamic is, as Schneider (2008) notes, likely due to problems associated with international migration data (Lemaitre 2005). The measure proposed by DeWaard and Raymer (2011) requires age-specific data on country-to-country migration flows; however, in comparing the publicly available emigration and immigration reports of sending and receiving countries, respectively, Kupiszewska and Nowok (2008:43-45) find these overwhelmingly dissimilar and frequently incomplete. These problems reflect diverse national data collection systems (e.g., population registers versus censuses and

border surveys) and timing criteria used to validate migrations (e.g., six-months, oneyear, etc.) (Nowok, Kupiszewska and Poulain 2006; Nowok and Willekens 2010; Poulain, Perrin and Singleton 2006). Thus, international migration data are subject to the unique conventions of sending and receiving countries and possess no consistent unit of analysis. Beyond implicating as suspect those findings from previous research generated from publicly available migration data (e.g., from Eurostat or the OECD), this issue also highlights one of the key contributions of the current paper, which is the use of *harmonized* migration estimates recently made available by the MIgration MOdeling for Statistical Analysis (MIMOSA) project (de Beer et al. forthcoming).

In what follows, I detail these data and my use of them in constructing a set of multistate life tables, which track the age-specific transitions of foreign born persons via migration and to death to arrive at a measure of the expected time of exposure to migrants in EU15 countries from 2002-2003 (DeWaard and Raymer 2011). In explanatory models of anti-foreigner sentiment, I then examine the dynamics of both visibility and exposure as detailed above using data from the 2002-2003 round of the ESS, and find strong evidence distinguishing the two. I close this paper with a discussion of the implications of my findings for future research on international migration and anti-foreigner sentiment, and, more broadly, on the institutional context of migrant reception and incorporation in Europe and elsewhere.

#### **DATA & METHODS**

## Estimation of Expected Time of Exposure to Migrants in EU15 Countries

Data for this portion of the paper come from the Eurostat funded, MIMOSA project, which developed harmonized, age-specific estimates of migration flows among 31 countries in the EU and European Free Trade Association (ETFA) each year from 2002-2007 (de Beer et al. forthcoming). Because of the problems associated with comparing the migration reports of sending and receiving countries (Kupiszewska and Nowok 2008), the MIMOSA estimates are standardized to the reporting conventions of Nordic countries (Denmark, Finland, Norway and Sweden), which employ a common set of rules for collecting and processing migration data consistent with the United Nations' (1998) recommendations, with all remaining missing flows imputed using covariate information (de Beer et al. forthcoming; Raymer and Abel 2008).<sup>1</sup> While the publicly available emigration and immigration reports of sending and receiving countries, respectively, are not amenable to cross-national comparison, the MIMOSA project and its recent Bayesian offshoot in progress, the Integrated Modeling of European Migration (IMEM) project (Raymer et al. 2010), are the first to provide consistent and complete migration data on such a scale.

Using the techniques of multistate demography (Rogers 1995; Schoen 1988), I employ the above harmonized estimates of country-to-country migration flows to construct

<sup>&</sup>lt;sup>1</sup> See http://www-oud.nidi.knaw.nl/en/projects/230211/ for complete details.

period increment-decrement life tables from 2002-2003. These track the age-specific transitions of migrants among EU15 countries, from and to the rest of the world (i.e., non-EU15 countries treated as a single residual category), and to death to arrive at a measure which expresses the average number of months that a migrant (defined below) is expected to reside in each EU15 country over their life time given the prevailing set of age-specific migration and mortality rates from 2002-2003 (DeWaard and Raymer 2011). The total number of potential transitions analyzed is 4,590.<sup>2</sup>

Data requirements include age-specific, country-to-country migration flows, as well as age-specific population counts, each available from the MIMOSA project. Age-specific population counts for non-EU15 countries treated as a single residual category were obtained by subtracting counts for EU15 countries from age-specific estimates of the global population taken from the U.S. Census' International Database (IDB). Age-specific death counts were obtained for EU15 countries from Eurostat's New Cronos database and, for non-EU15 countries, by subtracting the counts for EU15 countries from the total number of deaths worldwide estimated from global model life tables taken from the World Health Organization (WHO).<sup>3</sup>

<sup>2</sup> I track 255 transitions between 16 sending countries (including non-EU15 countries treated as a single residual category), 15 receiving countries, and to death for each of 18, five-year age groups from 2002-2003, totaling 255 x 18 x 1 = 4,590 possible transitions. <sup>3</sup> Global model life tables from the WHO are available for 2000 and 2008. I linearly interpolate age-specific death rates for 2002-2003 and combine these with age-specific The conceptual model presented in Figure 2 is adapted from DeWaard and Raymer (2011). A first order Markov process (Schoen 1988), both  $\lambda^{12}$  and  $\lambda^{21}$  represent country-to-country emigration rates, and  $\lambda^{13}$  and  $\lambda^{23}$  represent the force of mortality (Palloni 2001). One may view the states and transitions represented in Figure 2 in deterministic or stochastic terms. In this paper, I opt for the former given my use of population-level data. The only advantage of a stochastic approach in my case would be the ability to generalize across all possible realizations of a stochastic process with estimation of corresponding measures of uncertainty (Hsiao 2002).

#### ----- FIGURE 2 ABOUT HERE -----

Increment-decrement life tables are constructed by assembling age-specific transition matrices of all flows among sending and receiving countries and to death. For a system with k such *states*, the elements in each matrix are arranged as follows (Palloni 2001):

$$\mathbf{M}(x) = \begin{pmatrix} \sum_{j=n} M_x^{1j} & -_n M_x^{12} & \dots & -_n M_x^{1k} \\ -_n M_x^{21} & \sum_{j=n} M_x^{2j} & \dots & -_n M_x^{2k} \\ \dots & \dots & \dots & \dots \\ -_n M_x^{k1} & -_n M_x^{k2} & \dots & \sum_{j=n} M_x^{kj} \end{pmatrix}$$
(1)

estimates of the global population for the same year obtained from the U.S. Census' IDB to calculate age-specific death counts from 2002-2003.

The transition rates,  ${}_{n}M_{x}^{ij}$ , represent emigration flows from country *i* to country *j*, as well as deaths in country *i* given that death is properly considered an absorbing state *j*, between ages *x* and *x*+*n*. The main diagonal contains the summed transition rates for each row, and thus represents the total rate of transition from country *i* to each and every country *j* and to death. Since each of the rates in (1) are constructed for five-year age groups (n = 5) using period data for a single year (2002-2003), I transform the rates in (1) to reflect the fact that members of each five-year age group must be exposed to the risk of transition over *five* years.

$${}_{n}^{*}M_{x}^{ij} = \frac{1 - (1 - ({}_{n}M_{x}^{ij}/(1 + 0.5{}_{n}M_{x}^{ij})))^{5}}{5 - [2.5(1 - (1 - ({}_{n}M_{x}^{ij}/(1 + 0.5{}_{n}M_{x}^{ij})))^{5})]}$$
(2)

The transformed rate in (2) expresses the rate of transition over five years with the assumption that transitions occur halfway through the age interval. As occurrence-exposure rates (in contrast to life history or survival probabilities), I then employ Schoen's (1988) algorithm for increment-decrement life table calculations (see also Rogers 1995:47), which similarly assumes that transitions in the age interval, x to x+n, are linear (Palloni 2001):

$$\mathbf{l}(x+n) = \mathbf{l}(x)[\mathbf{I} - 2.5\mathbf{M}(x)][\mathbf{I} + 2.5\mathbf{M}(x)]^{-1}$$
(3)

As detailed above,  $\mathbf{M}(x)$  is a matrix of age-specific transition rates between all countries *i* and *j* and to death in the age interval x to x+n. The matrix,  $\mathbf{l}(x)$ , contains along the main diagonal (with zeros in the off-diagonal elements) age-specific population counts for a hypothetical cohort of persons distributed across each sending country *i* at exact age *x* prior to exposing these persons to the risk of transition via migration and mortality in the age interval x to x+n. The matrix,  $\mathbf{I}$ , is an identity matrix. The resulting quantities in the  $\mathbf{l}(x+n)$  matrix represent completed age-specific transitions among all countries *i* and *j* and to death between ages x and x+n. Summing the elements in each column of the  $\mathbf{l}(x+n)$  matrix and placing these totals along the main diagonal yields the  $\mathbf{l}(y)$  matrix, which takes the place of the  $\mathbf{l}(x)$  matrix to repeat the calculation in (3) for each subsequent age group.

The key quantities of interest in this project generated from these life tables are analogous to period life expectancies at birth; however, they express the average number of months lived by members of hypothetical cohort in country *j* beyond exact age zero if, at each age, members are exposed to the age-specific migration and mortality rates shown in (1) and transformed in (2).<sup>4</sup> These quantities are referred to as unconditional waiting times (Palloni 2001). Conditioning on zero births in country *i*, where i=j, and generating a corresponding life table yields the conditional waiting time, or the average number of months lived in country *j* beyond exact age zero if members of the hypothetical cohort are not permitted to start (i.e., were not "born") in country *i*. In the current paper, I restrict

<sup>&</sup>lt;sup>4</sup> Note, the mechanics of equations (2) and (3) are such that all rates are converted into probabilities, which are then used to construct the life tables.

the set valid starting countries to non-EU15, and thereby define migrants as persons born outside of EU15 countries.

$$e_0^{ij} = \frac{T_0^{\,j}}{l_0} \tag{4}$$

The numerator,  $T_0^{j}$ , is the total number of person-years lived in the EU15 country *j* at or above exact age zero. The denominator,  $l_0$ , is the initial size of the hypothetical birth cohort at exact age zero across all valid starting countries (i.e., non-EU15 countries).<sup>5</sup> Dividing the former by the latter,  $e_0^{ij}$  represents the average number of years (which I convert to months for ease of interpretation) that a member of a hypothetical cohort born in a non-EU15 country—recalling that all non-EU15 countries as treated as a single residual category *i*—is expected to reside in the EU15 country *j* over their life time given the set of age-specific migration and mortality rates from 2002-2003. The quantities in (4) are estimated for each and every EU15 country.

### **Explanatory Models of Anti-Foreigner Sentiment**

<sup>&</sup>lt;sup>5</sup> All radices (i.e., size of the hypothetical birth cohort in each starting country) are set to zero and 1,000 in EU15 and non-EU15 countries, respectively, to eliminate the influence of population size since the quantities in (4) are population-weighted averages.

To examine the above quantities in explanatory models of anti-foreigner sentiment, I use individual-level data from the 2002-2003 round of the ESS. The ESS devotes considerable attention to issues of cross-nationally comparability—e.g., translation of the questionnaire and random sampling to account for different selection probabilities within (via design weights) and unit differences between (via country weights) countries (Jowell et al. 2003). In the current paper, I apply both design and country weights in line with the ESS documentation (ESS 2002a). Given the focus of this paper, I wish to bypass current debates on the relative merits of competing indexes of anti-foreigner sentiment and pertinent control variables (Rustenbach 2010; Semyonov et al. 2006; Semyonov, Raijman and Gorodzeisky 2007; Wilkes, Guppy and Farris 2007). Having been provided with the source data and code used by Schneider (2008), I acknowledge and largely follow her lead in constructing these measures, reiterating that this paper is centered exclusively on the dynamics of international migration—i.e., visibility and exposure—with respect to anti-foreigner sentiment. My starting point was therefore to replicate Schneider's (2008:61—see notes following Table 3) baseline model (results not shown) using data on 33,762 respondents in 20 European countries, followed by dropping respondents from non-EU15 countries to arrive at my final sample of 24,067 persons in EU15 countries.<sup>6</sup>

The index of anti-foreigner sentiment in the current project is taken from Schneider (2008:57) and composed of six items which tap respondents' evaluations of the

<sup>&</sup>lt;sup>6</sup> Following Schneider (2008), I exclude respondents whose parents or who, themselves, are foreign born.

consequences of immigration in receiving countries. These items are detailed in Table 1, with scores for each ranging from zero (positive evaluation) to ten (negative evaluation). Respondents with fewer than three valid responses to any of the six items are excluded from the analysis. Coefficients of reliability—i.e., Cronbach's alpha—for this index are provided in the results section of this paper. Both Billiet and Philippens (2004) and Coenders, Lubbers and Scheepers (2005) provided evidence via confirmatory factor analysis for the cross-national comparability of this index, which parallels those employed by both Quillian (1995) and Scheepers et al. (2002).

### ----- TABLE 1 ABOUT HERE -----

At the individual level, measures unrelated to international migration are viewed pragmatically as control variables. Following Schneider (2008), these include relative socioeconomic position, labor market position, perceived labor market position, education, urban residence, gender, and age. Recalling that anti-foreigner sentiment is indicative of both economic self-interest (Citrin and Sides 2006) and ethnic competition and threat (Schneider 2008), relative socioeconomic position is measured using the OECD's modified relative equivalence income scale, which weights households by economies of scale—e.g., weights of 1.0, 0.5 and 0.3 are applied to the household head, other adults, and children, respectively (Hagenaars, de Vos and Zaidi 1994). Respondents in the highest income category, 120% or more of average equivalence income, are treated as the reference category. The remaining income categories include 80-120%, 50-80%

and less than 50% of average equivalence income. Due to the large number of missing responses (21.1%), I follow Schneider (2008) and group these observations into a separate response category (see also Semyonov et al. 2006).

As Lieberson (1980) showed, perhaps more consistent with the notion of economic competition and threat is one's relative position in the labor market, broadly defined at the outset as those employed, self-employed or employed by a family business, or unemployed. Using the International Standard Classification of Occupations (ISCO-80), I subdivide employed respondents into three categories—complex non-manual (the reference category), routine non-manual, and manual occupations. Respondents who are self-employed or employed by a family business are treated as a separate response category. Unemployed respondents are further distinguished from other types of unemployed persons, including those in school, those retired or permanently disabled, and homemakers.

As Citrin and Sides (2006) showed, individuals' perceptions of their relative position are also important for understanding anti-foreigner sentiment. I attempt to capture these "inner convictions" with respect to the perceived difficulty of changing one's job or employer (Schuman et al. 1997:7). Those who view these potential transitions as very easy are coded as the reference category. Three additional categories encompass those anticipating neither ease nor difficulty with such transitions, as well as those for whom such moves would prove either difficult or very difficult. A residual category includes

respondents to whom this question did not apply and those providing no valid data for this item.

Additional factors such as education, urban residence, gender, and age are also important predictors of anti-foreigner sentiment. A key factor associated with individual mobility trajectories, a respondent's level of formal educational attainment is measured in years. Urban residence, treated as a dummy variable, represents whether a respondent's place of residence falls within a large city or surrounding suburb, and is important for explaining within-country differences in anti-foreigner sentiment (Schneider 2008; for an alternative approach see Rustenbach 2010). Gender is treated as a dichotomous variable, with females coded as one. I also include a measure of age, measured in years; however, following Schneider (2008—models not shown), I do not include an age-squared term since the former is sufficient to pick up any age effect given the aims of this paper.

As discussed earlier, the concepts of both visibility and exposure with respect to international migration can be expanded by viewing these as multilevel processes (Massey et al. 1998; Wimmer 2008). Accordingly, as an individual-level measure of the visibility of migrants in receiving countries, I consider respondents' perceptions of the percent foreign born (Citrin and Sides 2006).<sup>7</sup> Respondents in the ESS were asked to answer the following question, "Out of every 100 people living in [country], how many

<sup>&</sup>lt;sup>7</sup> Unfortunately, ESS data do not afford the opportunity to disaggregate these into, for example, non-EU15 foreign born or even non-Western foreign born.

do you think were born outside [country]?" (ESS 2002b:35). In the current sample, approximately 14.7% of responses on this item were missing. I subsequently recoded these to match the within-country mean of all non-missing observations for each country.

In addition to the above measure of visibility, I follow Schneider (2008) and consider respondents' interpersonal contact with immigrant friends as an individual-level measure of exposure to migrants in receiving countries. Respondents in the ESS were asked whether they 'have any friends who have come to live in [country] from another country?" (ESS 2002b:33), and could answer in one of three ways—yes (several), yes (few), and no (none at all). I combined the former two categories into a dichotomous variable of interpersonal contact with immigrant friends (1=yes). While Schneider (2008) also considered interpersonal contact with immigrant colleagues and neighbors, ties to immigrant friends emerged as the most salient support for Allport's (1954) theory of intergroup contact, and is therefore the only of the above three measures retained in the current analysis.

At the country level, Citrin and Sides (2006) noted that a country's economic solvency is a key factor accounting for differences in anti-foreigner sentiment between countries (though not necessarily within countries over time; see Wilkes, Guppy and Farris 2008). Following Schneider (2008), I consider real GDP per capita, averaged from 1997-2001. This measure is weighted by population size and purchasing power parity, and can be interpreted in explanatory models (the results of which are later shown) in units of

thousands of constant 2000 U.S. dollars. This measure is further grand-mean centered to facilitate interpretation of each of the individual-level parameters holding GDP per capita constant at its mean across EU15 countries in explanatory models.

The primary empirical aim of this paper is to test an alternative to the percent foreign born in explanatory models of anti-foreigner sentiment. I begin by following Quillian (1995) and Semyonov et al. (2006) and construct a measure of the percent of persons in the receiving country who are non-EU15 foreign born. Despite assertions in the literature that this measure can be constructed from publicly available data (e.g., from Eurostat) on migrant stocks in a way that is unproblematic for cross-national comparison (Coenders et al. 2005; Semyonov et al. 2006), recent efforts have demonstrated this assertion false (Kupiszewska and Nowok 2008; Nowok et al. 2006; Nowok and Willekens 2010; Poulain et al. 2006). I therefore rely on harmonized estimates of migrant stocks available from the MIMOSA project to construct this measure.

In addition to the percent non-EU15 foreign born, I also consider the expected time of exposure to migrants from non-EU15 countries, as developed in the methodological portion of this paper. These quantities express the average number of months that a non-EU15 foreign born migrant is expected to live in each EU15 country over their life time given exposure to period demographic—i.e., migration and mortality—conditions at each age.

I analyze natural log transformations of the above two measures.<sup>8</sup> While previous efforts model the percent foreign born using both linear and squared terms (Schneider 2008), I maintain that this functional form is theoretically unjustified given Blalock's (1967) thesis, which posits a relationship of diminishing—but not decreasing—returns to the percent foreign born. To illustrate, consider Schneider's (2008:61—Table 5, Model 5b) parameter estimates for the percent foreign born and its corresponding squared term of 0.327 and -0.021, respectively. These imply a vertex of 7.79% foreign born, beyond which the rate of change in anti-foreigner sentiment shifts from positive to negative, violating Blalock's (1967) thesis.<sup>9</sup> I therefore analyze natural log transformations of the percent non-EU15 foreign born and the expected months of exposure to migrants from non-EU15 countries to ensure that the rate of change in anti-foreigner sentiment is consistently positive while tending toward zero.<sup>10</sup>

To examine the above dynamics with respect to anti-foreigner sentiment, I estimate a set of eight mixed effects models with random intercepts. These models permit partitioning <sup>8</sup> Since the natural log of a number less than or equal to zero is undefined, thereby precluding grand mean centering, I center these variables at their lowest observed values rounded to two decimal places.

$$9 7.79 = -\frac{0.327}{2(-.021)}$$

- $\frac{dy}{dx} = 2(-0.021)x + 0.327$ , where x = percent foreign born
- <sup>10</sup>  $\frac{dy}{dx} = \frac{\beta}{x}$ , where  $\beta$  is a coefficient to be estimated

the variance in the index of anti-foreigner sentiment into both individual- and countrylevel components, and are typically written in two-level form (Raudenbush and Bryk 2002; Snijders and Bosker 1999):

$$Y_{ij} = \beta_{0j} + \beta_1 X_{1ij} + \dots + \beta_p X_{pij} + \varepsilon_{ij}$$
(5)

$$\beta_{0j} = \gamma_0 + \gamma_1 z_{1j} + \dots + \gamma_q z_{qj} + \nu_j \tag{6}$$

where  $Y_{ij}$  is the score on the index of anti-foreigner sentiment for respondent *i* in country  $j, X_{1ij}-X_{pij}$  are the individual-level characteristics (e.g., socioeconomic position) of respondent *i* in country *j*, and  $z_{1j}-z_{qj}$  are the country-level characteristics (e.g., expected months of exposure to non-EU15 migrants) of country *j*. Each country is assigned a unique intercept,  $\beta_{0j}$ , with the parameters in (6) estimable given inclusion of the random error term,  $v_j$ . In the current paper, the intercept in (5) is thus allowed to vary randomly across countries, with all models estimated via maximum likelihood.

Though mixed effects models are characterized by the strong assumption that the unit effects, as a random variable, are uncorrelated with each explanatory variable in the model and thus warrant careful application (Halaby 2004), their use in the current paper is intended to establish continuity with previous research toward demonstrating the potential importance of the expected time of exposure to migrants from non-EU15 countries, as estimated in the methodological portion of this paper. Though alternatives are available—e.g., Generalized Estimating Equations (GEE) and Fixed Effects Vector

Decomposition (FEVD)—GEE are sensitive to nested data structures which are unbalanced and FEVD to homogeneity in the set of countries considered for analysis (DeWaard, Kim and Raymer 2009; Hardin and Hilbe 2003; Plümper and Troeger 2007).

## RESULTS

I provide an overview of the quantities estimated in the methodological portion of this paper in Panel A of Table 2. These can be interpreted as follows: 4.90 is the average number of months that a person born in any non-EU15 country is expected to live in Austria over their life time if, at each age, they are exposed to the set of migration and mortality rates prevailing in 2002-2003. By definition, these quantities are life expectancies; however, conditioning on the set of viable starting states (i.e., non-EU15 countries), these expectations of life apply only to non-EU15 born persons. They are period measures to be sure, but they are not intrinsically different from period life expectancies reported, for example, by the World Bank's World Development Indicators. Only the scope of their application and interpretation differ from life expectancies as they are typically reported and understood.

## ----- TABLE 2 ABOUT HERE -----

I stated at the outset that the visibility concept assumes uniformity in the expected time of exposure to migrants in receiving countries; however, in examining the above quantities,

there is remarkable variation in the expected months of exposure to migrants from non-EU15 countries. While a more innocuous assumption with respect to the visibility concept might hold that percent non-EU15 foreign born (also displayed in Panel A of Table 2) and the expected months of exposure to migrants from non-EU15 countries are so highly correlated that the latter captures the effect of the former in explanatory models of anti-foreigner sentiment, the bivariate correlation (not shown) between these measures is 0.235 (p=0.340). Thus, there is superficial evidence at this point that the dynamics of visibility and exposure cannot be equated or subsumed the latter under the former.

For the sake of continuity with previous research (Schneider 2008:67—Appendix, Table A1), I display mean perceived threat scores for EU15 countries—the dependent variable in the current analysis—and their corresponding standard deviations and coefficients of reliability in Panel B of Table 2. Considering the different sets of countries analyzed, these scores parallel those reported by Schneider (2008). With the exception of Greece (7.09), mean perceived threat scores are well below six. Cronbach's alpha ranges from 0.71 in Luxembourg to 0.88 in the United Kingdom, suggesting a high degree of internal consistency among the items detailed in Table 1 (Billiet and Philippens 2004; Coenders et al. 2005).

The baseline model in the current analysis is displayed in Table 3 (Model 1), and contains parameter estimates for the individual-level characteristics of respondents unrelated to international migration. Taking just this set of factors into account, the intraclass correlation coefficient (ICC)—i.e., the proportion of variation in the index of antiforeigner sentiment attributable to country-level factors (Snijders and Bosker 1999)—is 9.9%, which is roughly the same figure reported by Semyonov et al. (2006). For the remaining models displayed in Table 3, my approach is to estimate separate models detailing the dynamics of visibility and exposure, respectively (Models 2a-4b), followed by combining these into a single model (Model 5). At each step, I assess model fit relative to Model 1 via a likelihood ratio test.

#### ---TABLE 3 ABOUT HERE---

Recalling that the dynamics of visibility and exposure can be viewed as multilevel processes (Massey et al. 1998; Wimmer 2008), the results of Model 2a show that individual perceptions of the percent foreign born are positively, albeit weakly, associated with anti-foreigner sentiment. In contrast, interpersonal contact with immigrant friends reduces anti-foreigner sentiment by 0.572 points, as shown in Model 2b. These results confirm those reported by Citrin and Sides (2006) and Schneider (2008), respectively, and show that Blalock (1967) and Allport (1954) clearly had distinct sets of processes in mind in advancing their theses, which is not surprising given their disciplinary roots in sociology and psychology, respectively. Of course, as multilevel processes, we must consider not only the perceptions and experiences of individuals, but also how the dynamics of visibility and exposure unfold within the broader institutional environment (Ceobanu and Escandell 2010). In Models 3a and 3b, I include measures of

the percent non-EU15 foreign born and the expected months of exposure to migrants from non-EU15 countries, respectively. As anticipated in presenting the theoretical model displayed in Figure 1, neither of these effects is statistically significant (though, it is worth noting their opposite signs). While model fits improve and ICCs decline by over 20% relative to Model 1, there is no evidence for a direct association between either of these measures and anti-foreigner sentiment.

I suggested earlier that the dynamics of both visibility and exposure, themselves multilevel processes, shape anti-foreigner sentiment through, borrowing from Freese (2008), the embodied characteristics of individuals. This requires assessing the multiplicative relationships of the individual- and country-level dynamics of visibility and exposure, respectively, on anti-foreigner sentiment. Models 4a and 4b include these interaction terms.<sup>11</sup> In each model, the interaction terms are statistically significant, though the magnitude is considerably small in Model 4a. The results of Model 4a show that the conditioning role of the percent non-EU15 foreign born is to exacerbate anti-foreigner sentiment. Holding perceptions of the percent foreign born constant at a level comparable to that reported by the MIMOSA project, 5.77% (see Table 2), even small

<sup>11</sup> These are not cross-level interactions in the sense that the slopes associated with perceptions of the percent foreign born and interpersonal contact with immigrant friends, respectively, are allowed to vary randomly across countries, as I have no theoretical reason for imposing this condition. The slopes in Models 4a and 4b thus remain fixed across countries; see equation (5).

increases in the percent non-EU15 foreign born from, say, 2% to 3% increase scores on the index of anti-foreigner sentiment by 3.4%. In contrast, the results of Model 4b show the opposite pattern. Holding other factors constant, among those with interpersonal contact with immigrant friends, an increase in the expected time of exposure to migrants from non-EU15 countries from six months to one year reduces scores on the index of anti-foreigner sentiment by 7.3%.

Though the fits of Models 4a and 4b improve relative to Model 1, there are no substantive gains in the proportion of country-level variance explained in the index of anti-foreigner sentiment as judged by the ICCs. Thus, in combining the dynamics of both visibility and exposure in Model 5, I aim to demonstrate the following. First, to the extent that the ICC in Model 5 is reduced relative to Models 4a and 4b, there is sufficient evidence to conclude that international migration—inclusive of the dynamics of both visibility and exposure at the individual and country levels—is relevant to anti-foreigner sentiment. Second, should the dynamics of visibility and exposure each make unique contributions to explaining variation in anti-foreigner sentiment, the empirical aim of this paper is substantiated insofar as there is sufficient evidence distinguishing these dynamics, thereby warranting such separation in subsequent theoretical and empirical work.

Examining the ICC in Model 5, the proportion of country-level variance unexplained in the index of anti-foreigner sentiment declines by 34.3% relative to Model 1, and by

11.0% and 16.7% relative to Models 4a and 4b, respectively. These gains are achieved simply by considering the dynamics of both visibility and exposure in the same model, and demonstrate that international migration is relevant for understanding anti-foreigner sentiment. Moreover, each of these dynamics emerge as explanatorily salient in Model 5. Relative to Models 4a and 4b, the only substantive change in the parameter estimates occurs for the expected time of exposure to migrants from non-EU15 countries, which declines from 0.024 in Model 4b to 0.007 in Model 5. The impact of this change, however, is to strengthen the already negative association between interpersonal contact with immigrant friends and anti-foreigner sentiment. Thus, there appears sufficient evidence distinguishing the dynamics of visibility and exposure, thereby substantiating the aims of this paper.

To illustrate these dynamics, I provide two figures which plot predicted scores on the index of anti-foreigner sentiment by the percent non-EU15 foreign born (Panel A) and the expected months of exposure to migrants from non-EU15 countries (Panel B) using the results of Model 5 in Figure 3. In Panel A, two curves are plotted at the observed minimum (1.0 month) and maximum (24.9 months) months of expected exposure to migrants from non-EU15 countries, with three additional curves at the  $25^{\text{th}}$  (2.1 months),  $50^{\text{th}}$  (3.9 months) and  $75^{\text{th}}$  (8.5 months) percentiles. Conversely, in Panel B, these curves are bound by the observed minimum (1.7%) and maximum (8.2%) values of the percent non-EU15 foreign born, with three additional curves at the  $25^{\text{th}}$  (4.2%),  $50^{\text{th}}$  (5.9%) and  $75^{\text{th}}$  (7.8%) percentiles.

#### ---FIGURE 3 ABOUT HERE---

It is common in the literature on anti-foreigner sentiment to encounter figures similar to that presented in Panel A, which are used to argue that anti-foreigner sentiment is a response to ethnic threat in both material and cultural terms (Schneider 2008). Though the curves displayed in Panel A conform to the theoretical expectations prescribed by Blalock (1967), they also demonstrate that the visibility dynamic alone is insufficient to fully characterize the relationship between international migration and anti-foreigner sentiment. At each level of visibility (ranging from 1.7% to 8.2% observed in the data), a unique curve obtains. By design, these curves are proportional, with 0.208 points on the index of anti-foreigner sentiment separating the curves at the minimum and maximum expected months of exposure to migrants from non-EU15 countries. To put this gap in context, 0.208 is 2.1% of the full range of the index of anti-foreigner sentiment.

The curves displayed in Panel B provide a alternative vantage point from the perspective of the expected months of exposure to migrants from non-EU15 countries (the *x*-axis). Relative to Panel A, the exposure dynamic clearly works in the opposite direction to lower anti-foreigner sentiment. To date, the competing dynamics of visibility and exposure have not been addressed in the literature. As I noted above with respect to the dynamic of visibility (measured by the percent non-EU15 foreign born), the dynamic of exposure (measured by the expected months of exposure to migrants from non-EU15 foreign born).

countries) is insufficient to fully describe the relationship between international migration and anti-foreigner sentiment. Examining the curves plotted at the observed minimum and maximum values of the percent non-EU15 foreign born in Panel B, there is a constant gap of 0.163 points on the index of anti-foreigner sentiment. These results suggest that consideration of both the visibility and exposure dynamics is necessary to exhaust the dimensions and complexities of international migration toward a more comprehensive understanding of anti-foreigner sentiment.

#### DISCUSSION AND CONCLUSION

By one popular account, Blalock's (1967) thesis has been cited in scholarly work 1,523 times since it was first published, with over 63% of these citations coming after Quillian's (1995) seminal piece on anti-foreigner sentiment in cross-national perspective (Google Scholar 2011). The aim of this paper is not to suggest that this thesis is mistaken or misguided, but rather that the visibility concept is insufficient for a comprehensive understanding of international migration and the linkages to anti-foreigner sentiment. In theoretical and empirical work to date, unquestioned reliance on Blalock's (1967) thesis has translated into accounts largely one-dimensional and overly simplistic (Wilkes et al. 2008 is one exception). Building on work by Ceobanu and Escandell (2010:323), I sought to expand in this paper "the very *notion*" of a country's institutional environment with respect to international migration and the subsequent "inclusion or exclusion of immigrants" (emphasis mine; see also Pitkin and Myers 2011). This challenge is not well

served by "cross-level interactions" that, while statistically significant, are theoretically disjointed (Schneider 2008:60). One of the key contributions of this paper was therefore to estimate the expected number of months that non-EU15 born migrants reside in EU15 countries, on average, and to compare these against the percent non-EU15 foreign born. While the latter is consistent with the notion of *visibility* in the literature, the former taps the expected time of *exposure* to migrants in the receiving country.

In their expansive account of international migration in the twenty-first century, Castles and Miller (2003), argue that migration has increased with respect to its globalization, acceleration and differentiation. In particular, they note that migrants and the policies designed to encourage and/or dissuade their movements are characteristically heterogeneous, "a whole range of types [all] at once" (Castles and Miller 2003:8). The visibility concept is an important dynamic of international migration, but it is not the only one and "substantially still very crude" (Schneider 2008:58). Comparisons of the percent non-EU15 foreign born and the expected months of exposure to migrants from non-EU15 countries in Table 2 reveal these inconsistencies, and should be a cause for concern given the extensive and nearly exclusive reliance on the visibility concept in previous research, particularly with respect to anti-foreigner sentiment.

The explanatory models of anti-foreigner sentiment presented in this paper served to identify and distinguish the dynamics of visibility and exposure as different expressions of international migration patterns. While extensive debates have ensued around the potential correlates and causes of anti-foreigner sentiment (Rustenbach 2010) and their respective merits (Semyonov et al. 2006; Semyonov et al. 2007; Wilkes et al. 2007), these discussions have occurred at the expense of exhaustive consideration of the potentially separable mechanisms by which international migration exerts influence. The results of this paper demonstrate that international migration is heterogeneous set of processes, each with a potentially distinct set of implications for anti-foreigner sentiment. My findings thus highlight the need for more detailed accounts of the institutional context of migration in receiving countries and the inclusion and incorporation of immigrants (Ceobanu and Escandell 2010; Pitkin and Myers 2011).

While my efforts are intended to reorganize and refocus the dialogue on anti-foreigner sentiment, they are not without of their share of potential limitations. Though the current paper has broken new ground, it is an open question whether the concept and measure of the expected time of exposure to migrants in receiving countries are adequate or even necessary. Schneider (2008), for example, argued for disaggregating the percent foreign born into more homogenous subgroups—e.g., persons who are both foreign born and less skilled. Similar arguments could be advanced with respect to age and gender. What is clear, however, is that this area of research would benefit from connecting what are in many instances conjectural statements about the diversity of international migration patterns and processes to representative concepts and measures to test such claims. Accordingly, the methodological portion of this paper might be extended to consider the expected time of exposure to migrants who are, for example, of prime working age and

thus a more viable source of material and cultural threat to natives. Gender differences might also be examined.

Whatever the course of future research on anti-foreigner sentiment, this paper provides a platform for expanding the notion of the institutional context of migrant reception and incorporation in receiving countries. It also provides a blueprint going forward to guide subsequent theoretical and empirical work.

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## Figure 1: Theoretical Model of International Migration and Anti-Foreigner Sentiment



International Migration





#### Figure 3: Predicted Values of Index of Anti-Foreigner Sentiment, 2002-2003





Relative equivalence income = 80-120%; Position in the labor market = Routine non-manual; Evaluation of difficulty in changing one's job = Neither easy nor difficult; Years of education = 12; Living in a large city of suburb = Yes; Gender = Male; Age = 46; Perceived percent foreign born = 19.56; Immigrant friends = Yes; GDP 1997-2001 = 24.21

#### **Table 1: Items Comprising Index of Anti-Foreigner Sentiment**

Would you say that people who come to live here generally take jobs away from workers in [country], of generally help to create new jobs?

On balance, do you think people who come here take out more than they put in or put in more than they take out?

Would you say it is generally bad or good for [country]'s economy that people come to live here from other countries?

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

Is [country] made a worse or a better place to live by people coming to live here from other countries?

Are [country]'s crime problems made worse or better by people coming to live here from other countries?

## Table 2: Descriptive Statistics of Country Characteristics, 2002-2003

	Panel A				Panel B		
			Expected Months of Exposure to	Percent Non-EU15	Mean Perceived	Standard	Cronbach's
Country		n	Migrants from Non-EU15 countries <sup>a</sup>	Foreign Born <sup>a</sup>	Threat Score <sup>®</sup>	Deviation <sup>®</sup>	Alpha <sup>®</sup>
AT	Austria	1,992	4.90	7.56	5.31	1.70	0.86
BE	Belgium	1,602	1.71	4.65	5.72	1.50	0.83
DK	Denmark	1,396	9.41	5.34	5.19	1.60	0.85
FI	Finland	1,939	4.02	1.69	4.95	1.44	0.81
FR	France	1,343	7.07	7.05	5.45	1.88	0.87
DE	Germany	2,663	25.90	7.82	5.53	1.58	0.84
GR	Greece	2,331	4.70	7.97	7.09	1.80	0.87
IE	Ireland	1,908	1.88	2.66	5.39	1.70	0.83
IT	Italy	1,129	10.74	2.82	5.32	1.47	0.73
LU	Luxembourg	966	1.00	5.94	4.79	1.60	0.71
PL	Netherlands	2,203	3.08	8.19	5.43	1.36	0.79
PT	Portugal	1,384	1.11	4.82	5.70	1.65	0.84
ES	Spain	1,539	9.49	4.22	5.26	1.48	0.82
SE	Sweden	1,771	7.65	6.78	4.55	1.54	0.81
UK	United Kingdom	1,881	15.77	5.85	5.76	1.72	0.88
EU15 <sup>c</sup>		26,047	7.90	5.77	5.43	1.70	0.84

Data Sources:

<sup>a</sup> Author's calculations from harmonized estimates of migrant flows, stocks, and population size provided by the MIMOSA project (de Beer et al. forthcoming).

<sup>b</sup> Author's calculations from ESS 2002-2003 following the same conventions used by Schneider (2008). ESS design weights applied to calculations for each country; both design and population weights applied to pooled calculations.

<sup>c</sup> Expresses the average value across countries in Panel A and calculations made from data pooled across countries in Panel B

#### Table 3: Mixed Effects Models of Index of Anti-Foreigner Sentiment, 2002-2003

	Model 1	Model 2a	Model 2b	Model 3a	Model 3b	Model 4a	Model 4b	Model 5
Individual Level Measures								
Relative equivalence income (Ref: >120% of country average)								
80 to 120%	0.059* (0.030)	0.056* (0.030)	0.045 (0.030)	0.056* (0.030)	0.045 (0.030)	0.058* (0.030)	0.044 (0.030)	0.043 (0.030)
50-80%	0.104***	0.092***	0.084***	0.093***	0.084***	0.094***	0.083***	0.073**
<50%	0.142***	0.115***	0.124***	0.115***	0.124***	0.116***	0.124***	0.098***
Missing value	(0.034) 0.219***	(0.034) 0.200***	(0.034) 0.196***	(0.034) 0.200***	(0.034) 0.196***	(0.034) 0.202***	(0.034) 0.195***	(0.033) 0.178***
Desition in the labor market (Def. Complex non-manual)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)	(0.031)
Routine non-manual	0.211***	0.189***	0.191***	0.190***	0.191***	0.190***	0.190***	0.169***
Manual	(0.035) 0.424***	(0.035) 0.389***	(0.035) 0.394***	(0.035) 0.389***	(0.035) 0.394***	(0.035) 0.390***	(0.035) 0.394***	(0.035) 0.360***
Salf amployed/Family business	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)	(0.035)
	(0.043)	(0.043)	(0.042)	(0.043)	(0.042)	(0.043)	(0.042)	(0.042)
Unemployed	(0.058)	(0.058)	0.499*** (0.058)	(0.058)	0.499*** (0.058)	(0.058)	0.495*** (0.058)	0.468*** (0.057)
In school	-0.192*** (0.053)	-0.206*** (0.053)	-0.165*** (0.052)	-0.206*** (0.053)	-0.164*** (0.052)	-0.202*** (0.053)	-0.166*** (0.052)	-0.176*** (0.052)
Retired/Permanently disabled	0.319***	0.285***	0.279***	0.285***	0.279***	0.286***	0.276***	0.244***
Homemaker	(0.046) 0.297***	(0.046) 0.270***	(0.046) 0.271***	(0.046) 0.271***	(0.046) 0.271***	(0.046) 0.269***	(0.045) 0.275***	(0.045) 0.246***
Evaluation of difficulty in changing one's job (Ref: Very easy)	(0.054)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)	(0.053)
Neither easy nor difficult	0.043	0.050	0.022	0.050	0.022	0.050	0.020	0.028
Difficult	0.042)	0.062	0.041)	0.062	0.041)	0.062	0.041)	0.041)
Very difficult	(0.039) 0.303***	(0.039) 0.298***	(0.039) 0.280***	(0.039) 0.299***	(0.039) 0.280***	(0.039) 0.299***	(0.039) 0.277***	(0.039) 0.274***
Net emiliarly Mining endus	(0.042)	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)
Not appreade/missing value	(0.041)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)
Years of education <sup>a</sup>	-0.086***	-0.081***	-0.077***	-0.081***	-0.077***	-0.081***	-0.077***	-0.072***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Living in large city or suburb $(1 = yes)$	-0.128*** (0.021)	-0.148*** (0.021)	-0.082*** (0.021)	-0.148*** (0.021)	-0.083*** (0.021)	-0.150*** (0.021)	-0.083*** (0.021)	-0.104*** (0.021)
	0.020	0.021	0.002	0.021	0.002	0.010	0.002	0.02(*
Gender (1 = remaie)	(0.020)	(0.021)	(0.022)	(0.021)	(0.022)	(0.020)	(0.020)	-0.036* (0.020)
Age <sup>b</sup>	-0.012	-0.005	-0.036***	-0.004	-0.036***	-0.005	-0.036***	-0.028***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Perceived percent foreign born		0.012***		0.012***		0.010***		0.010***
		(0.001)	0.570***	(0.001)	0.571***	(0.001)	0 441***	0.001)
immigrant rriends (1 = yes)			(0.020)		(0.020)		(0.041)	-0.452*** (0.041)
Country Level Measures								
GDP 1997-2001 <sup>c</sup>				-0.038** (0.015)	-0.024	-0.038** (0.015)	-0.025	-0.035** (0.015)
				0.055	(00010)	0.041	(0.0017)	0.040
Percent non-EU15 foreign born				(0.055)		(0.055)		(0.048)
Expected months of exposure to migrants from non-EU15 countries <sup>e</sup>					-0.014		0.021	0.007
Interactions					(0.132)		(0.132)	(0.120)
						0.000		0.002444
Perceived percent foreign born-x-Percent non-EU15 foreign born						(0.002***		(0.002***
Immigrant friends-x-Expected months of exposure to migrants from non-FU15 countries							-0 078***	-0.071***
							(0.021)	(0.021)
Constant	5.032***	4.848***	5.345***	4.880***	5.414***	4.888***	5.356***	5.176***
Variance components	(0.137)	(0.141)	(0.129)	(0.129)	(0.253)	(0.128)	(0.253)	(0.229)
Country-level	0.261	0.273	0.226	0.188	0.197	0.186	0.196	0.159
Individual-level	2.378	2.350	2.309	2.350	2.309	2.349	2.308	2.279
Intraclass correlation	0.021)	0.104	0.020)	0.021)	0.020)	0.021)	0.020)	0.065
Log likelihood Likelihood ratio test (relative to Model 1)	-48282.46	-48127.08 310.77***	-47895.21 774.50***	-48124.29 316.35***	-47894.18 776.56***	-48116.01 332.88***	-47887.39 790.14***	-47720.46 1124.01***
N=26,047, EU-15 countries Standard errors in parentheses								
**** p<0.01, ** p<0.05, * p<0.1								
<sup>o</sup> Centered at 12 years <sup>b</sup> Centered at 46 years / 10								
<sup>c</sup> Centered at 24.21 (in thousands) <sup>d</sup> Natural log transformation after centered at lowest value (Finland 1.69%)								
<sup>e</sup> Natural log transformation after centered at lowest value (Luxembourg, 1 month)								