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Group Conflict Theory Revisited: Economic Risk Inequalities within the In-Group and Reactions to Immigration

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ABSTRACT:

How do increasing unemployment risk inequalities amongst natives shape growing negativity towards immigration? Group conflict theory suggests that tension between immigrant and native groups arise as a reaction to the real or perceived loss of economic privilege by majority group members. Nevertheless, such an economic basis of the sentiments towards immigration is widely debated. This paper aims to clarify and more precisely assess economic threat mechanisms of inter-group conflict remedying limitations in earlier work. First, I investigate the elusive link between increasing fiscal and job market competition due to immigration and worsening group relations. Second, I argue that distinct from the economic effects of heterogeneity, being in a relatively worse-off position amongst in-groups is a separate channel worsening inter-group relations. To study these relationships, I use high-quality longitudinal household panel data (SOEP) from Germany from 1999 to 2016 and cross-sectional survey data from the German Social Survey (ALLBUS). Despite the contestation in existing work, I provide evidence suggesting that exposure to a higher risk of being substituted by immigrants and a higher risk of being fiscally burdened by foreigners turn natives increasingly sceptical towards immigration. Importantly, exposure to increasingly higher unemployment risks compared to other native workers in the host society raises adversity towards immigration. This effect is independent of geographic differences and actual exposure to the economic impact of immigration. Overall, the paper reconciles existing accounts of economically motivated group conflict. It brings forward a comprehensive theoretical framework and empirical evidence to the study of worsening reactions towards immigration in these past decades.

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1. Introduction

In recent years, many studies link increasing tension between immigrants and natives to the rising voter support for radical-right parties (Neundorf and Adams 2018, Halikiopoulou and Vlandas 2020). Consequently, group conflict theory has seen a renewal of interest as one of the most established frameworks aimed at discerning dynamics of majority-minority group relations (Polavieja 2016, Meuleman et al. 2020, Pardos-Prado and Xena 2019). Group conflict framework initially developed for the study of racial prejudice in the American context (Blumer 1958, Quillian 1996), has been already extended to the study of relations between immigrants and natives in Europe (Meuleman, Davidov, and Billiet 2009, Lancee and Pardos-Prado 2013, Raijman, Semyonov, and Schmidt 2003, Dancygier 2010). The logic underpinning this theory is that aversion towards out-groups is rooted in the increasing competition for material resources and perceived loss of exclusive privileges from the perspective of the majority group (Blalock 1967, Bobo and Hutchings 1996, Olzak 1995, Jackson 1993). However, there is mixed evidence with respect to the role of economic effects of immigration as predictors of such reactions towards immigrants (Tingley 2013, Hainmueller and Hopkins 2014, Malhotra, Margalit, and Mo 2013, Manevska and Achterberg 2013).

On the one hand, studies testing the economic basis of group conflict have focused on a set of material threats such as increasing fiscal burden, public resources competition, and replacement risks in the labour markets due to rising immigration (Scheve and Slaughter 2001, Ortega and Polavieja 2012, Hainmueller and Hiscox 2010, Hanson, Scheve, and Slaughter 2007, Dancygier 2010). Importantly, these determinants are intimately linked to the actual level of ethnic heterogeneity in host societies (Meuleman, Davidov, and Billiet 2009, Gorodzeisky and Semyonov 2018, Billiet, Meuleman, and Dewitte 2014, Semyonov, Raijman, and Gorodzeisky 2006). Yet, in recent years, there is evidence suggesting that such ethnic group threats are not the only potential channels of economically motivated reactions towards immigration. It seems that occupationally rooted more complex considerations identify the economic interests of native with regards to their resilience and vulnerability to the changes in the labour markets (Polavieja 2016, Pardos-Prado and Xena 2019). On the other hand, relatively little theoretical attention has been paid to disentangling why defensiveness towards immigration may be on the rise as a result of broader globalisation and occupational change in the past two decades (Pardos-Prado and Xena 2019, Kaihovaara and Im 2020, Dancygier and Walter 2015). This is particularly surprising since it such developments are demonstrably

prevalent determinants of welfare attitudes, political responsiveness, and voting behaviour in this century (Rehm 2016, Schwander and Häusermann 2013, Oesch and Rodriguez Menes 2010).

To remedy these shortcomings, I propose theoretical and empirical refinements to the study of group conflict theory from an angle of economic inequalities amongst natives (Blumer 1958, Quillian 1996, Billiet, Meuleman, and Dewitte 2014, Lancee and Pardos-Prado 2013, Pardos-Prado and Xena 2019). I argue that direct competition with immigrants and unequal economic vulnerability within natives, which I refer here as 'in-group threats' for terminological simplicity, are distinct motivations. Different from earlier work, I examine both channels of material explanations simultaneously and by using precise measurement strategies in assessing such contested effects (Bolet 2020, Bearce and Roosevelt 2019, Pecoraro and Ruedin 2016, Pardos-Prado 2020). I suggest that there is a common and substantively important effect of being relatively more vulnerable than others in the majority-group that worsen the discontent towards immigration. I explain this by taking stock of the individual relative deprivation theory (Runciman 1966, Smith and Pettigrew 2015) and the idea of risk-based demands for insurance (Rehm 2016, Rehm, Hacker, and Schlesinger 2012)

For my analysis, I use longitudinal individual-level data from the German Socio-Economic Panel (SOEP) over the 1999-2016 period and construct fine-grained region- and occupation-specific measurements of ethnic competition and risk-based economic inequalities amongst natives. I complement this evidence with more specific survey items available in cross-sectional German Social Survey (ALLBUS). Adverse reactions to immigration increase when majority group members experience disproportionately higher future uncertainty compared to others. More concretely, exposure to relatively higher unemployment risks than an average German worker leads to increasing negativity towards out-groups. I confirm that such inequality-based economic threat effect is net of ethnic competition, regional differences, income, and social class. Unlike previous work finding null or weak evidence (Fetzer 2000, Manevska and Achterberg 2013, Tingley 2013, Hainmueller and Hiscox 2007), I provide consistent evidence for the labour market competition (LMC) and fiscal exposure (FE) hypotheses. Natives become increasingly sceptical towards out-groups, under conditions of higher risk of being substituted by immigrants and being fiscally exposed to the economic impact of immigration.

In this article, I make three main contributions. First, I present a theoretical framework that bridges existing work on group conflict (Bobo and Hutchings 1996, Blumer 1958, Blalock 1967) and relative material deprivation framework in an original way (Pettigrew 1998, Smith

and Pettigrew 2015, Smith et al. 2012). I argue and show that to make sense of increasing defensiveness towards immigration in recent decades; it is crucial to consider the prevalent effect of unemployment risk exposure among natives. Complementing previous research on the study of native responses towards immigration from a dynamic perspective (Lancee and Pardos-Prado 2013, Meuleman, Davidov, and Billiet 2009, Goldstein and Peters 2014), I show that changing group conflict necessitates time-variant factors fit for explaining this outcome.

Second, this paper adds to the recent work in political economy emphasising that instead of static economic status and cultural threats, uncertainties in the labour markets heighten the conflict between immigrant and natives residents (Pardos-Prado 2020, Pardos-Prado and Xena 2019). I validate and establish occupationally rooted unemployment risk inequality as a robust predictor of increasing economic anxieties, perceived labour market vulnerability, and importantly, feeling of being unfairly deprived of economic chances relative to others in the society. Importantly, I argue and empirically show that rising inequality matters for all citizens in increasing discontent and that it has a remarkably robust effect different from objective and subjective absolute evaluations of economic status. I triangulate my findings using both longitudinal and cross-sectional analyses and reveal strong validity for the measures I use. With a combination of SOEP and ALLBUS data, I bring forward some of the first evidence linking the relative unemployment risks to perceived injustices concerning individual relative deprivation and subsequent negativity and exclusionary attitudes towards immigration. This analysis strengthens the risk-based logic of opposition to immigration and adds to the ongoing work on the political consequences of increasing risk cleavages amongst European workers (Rehm 2016, Kurer et al. 2019).

Third, the analysis reconciles existing accounts of materially motivated ethnic group conflict and brings forward new evidence on the presence of LMC and FE. Notably, while higher unemployment risks are significant sources of discontent towards immigration, direct job competition and fiscal exposure are also positively related to increasing adversity. The paper adopts a precise investigation such out-group threats adding corrections to ongoing scholarly debates that relegate the role of ethnic competition in political responses to immigration (Tingley 2013, Hainmueller and Hiscox 2010). Furthermore, by isolating differently motivated economic threat effects over time, the findings help make sense of why some individuals are more prone to developing negative reactions towards immigration despite the lack of direct ethnic competition.

2. Theoretical Framework

While the link between feeling culturally threatened by immigrants and subsequent negative sentiments are well-established in previous literature, economic motivations underpinning defensiveness towards immigration have been challenged both in terms of relative importance and prevalence across host societies (Manevska and Achterberg 2013, Hainmueller and Hiscox 2007, Hainmueller and Hiscox 2010). From a material threat perspective, earlier work has chiefly focused the real or perceived effects of immigration (Meuleman, Davidov, and Billiet 2009, Semyonov, Raijman, and Gorodzeisky 2006, Billiet, Meuleman, and Dewitte 2014, Dancygier and Walter 2015). This strand of literature has placed the emphasis primarily on economic resource competition, such as for jobs and social benefits, and characterised immigration itself as the chief source of inter-group conflict. However, evidence for such ethnic competition effect is mixed (Hainmueller and Hiscox 2010, Tingley 2013). Instead, recent studies reveal that there are other economically motivated channels shaping group relations distinct from the economic effects of immigration (Pardos-Prado and Xena 2019, Pardos-Prado 2020, Pecoraro and Ruedin 2016).

Notwithstanding the importance of the social identity theory and symbolic threats emphasising the role of cultural differences in explaining anti-immigrant attitude differences between citizens (Pettigrew 1998, Manevska and Achterberg 2013, Taijfel 1982, Fetzer 2000), in this paper, I concentrate on economic grievances that *change* group relations. As convincingly argued by Lancee and Pardos-Prado, deep-seated prejudice and aversion to immigrants are distinct from time-variant forms of political reactions (2013). Subsequently, this necessitates a shift in focus from stable and structural explanations such as social class and levels of educational attainment when discerning *changing* attitudes towards immigration. In this way, the study is most similar to and adds to the earlier work on the dynamic formulation of group conflict theory (Lancee and Pardos-Prado 2013, Meuleman, Davidov, and Billiet 2009, Semyonov, Raijman, and Gorodzeisky 2006, Gorodzeisky and Semyonov 2018, Polavieja 2016).

A clear picture emerging from this strand of work is that citizens who are facing more uncertainty are more prone to reacting negatively to immigration (Pardos-Prado and Xena 2019, Lancee and Pardos-Prado 2013, Polavieja 2016). Taking stock of existing evidence, I identify two economic threat mechanisms linked to increasing anti-immigration: direct ethnic competition with immigrants, i.e. out-group threats, and unequal socioeconomic risks faced by

natives, i.e. in-group threats. The former implies increasing competition over scarce economic resources such as jobs, social help, public housing, or public services due to immigrants. The latter, instead, emphasises material threats faced by natives, due to vulnerabilities caused by developments other than immigration such as economic globalisation and the transformation of production across most post-industrial societies. I argue that differently from out-group threats, unequally vulnerable position of individuals *within* the majority group constitutes a distinct source of economic motivation.

2.1 Ethnic competition and 'out-group' threats

Two hypotheses have been the centre of attention in earlier work on the study of economic threats due to heterogeneity: labour market competition (LMC) and fiscal exposure (FE) (Ceobanu and Escandell 2010). LMC rests on the idea that risks associated with replaceability by immigrants, such as job loss, the difficulty of re-employment, and wage-dampening, incite individual negativity towards immigrants (Scheve and Slaughter 2001, Olzak 1995, Card 2001). Therefore, it implies that higher exposure to such LMC risks should increase defensiveness towards immigration. Yet, despite the wealth of studies aimed at testing the LMC, the evidence remains quite mixed and inconclusive (Hainmueller and Hopkins 2014, Polavieja 2016, Bearce and Roosevelt 2019, Hainmueller, Hiscox, and Margalit 2015). Based on this critique vocalised in earlier work, I approach the conceptualisation of the LMC with two refinements.

In recent years, there has been a revival of LMC in the field of comparative political economy (Pecoraro and Ruedin 2016, Finseraas, Roed, and Schone 2017, Polavieja 2016, Bolet 2020). Importantly, scholars document that education and related skill composition characteristics (such as high versus low) are imprecise measures for testing LMC experienced by citizens due to immigrants (Malhotra, Margalit, and Mo 2013, Polavieja 2016). The growing consensus on this front stresses that occupational characteristics are vital in determining the extent of ethnic competition in each society (Polavieja 2016, Kaihovaara and Im 2020, Pecoraro and Ruedin 2016, Pardos-Prado and Xena 2019, Dancygier and Walter 2015, Ortega and Polavieja 2012). This means that understanding ethnic competition requires a more precise focus on identifying natives who are more exposed to (or shielded from) the economic effects of immigration (Malhotra, Margalit, and Mo 2013). Therefore, in an LMC framework, while the numbers and characteristics of immigrants themselves are a crucial component, determining when and for whom the ethnic competition mechanism operates require also knowing the characteristics of natives themselves (Dancygier and Walter 2015).

Second, much of the evidence contesting LMC comes from research that brought forward national level, single case, and single time point evidence (Hainmueller and Hopkins 2014). This approach has been criticised for their inability to take into account the sub-national and contextual conditions that can alter the relevance, hence the magnitude of the LMC effect (Bearce and Roosevelt 2019, Bolet 2020). Indeed, in addition to task-based substitution effects, the basis of LMC exposure may have a lot to do with the geographic distribution of immigrants (Card 2001). For instance, while specific job categories may be particularly exposed to LMC due to increased immigration, citizens with similar skill compositions yet living in areas with low shares of foreigners may not feel the LMC effects in the same way. Studying LMC requires a more fine-grained approach to identifying ethnic competition focusing both on the grounds of occupational exposure to foreign labour and due to the differential geographical distribution of immigration. Relatedly, my first hypothesis focuses on the LMC. I expect that natives who are exposed to more ethnic LMC will become more defensive towards immigration:

> **Hypothesis 1** (**Out-group threat-LMC hypothesis**): The higher the risk of substitution by out-groups (due to occupational and geographical exposure), the more citizens become defensive towards immigration.

Turning to the fiscal exposure (FE) hypothesis, the expectation is that natives take up increasingly defensive positions towards immigrants due to the real or perceived adverse effects of immigration on public resources both in terms of increasing competition and rising costs (Tingley 2013, Dancygier 2010, 33-37). Hence, the fiscal exposure mechanism rests on two logics: crowding-out and public financing (Gerber et al. 2017, Facchini and Mayda 2009, Hanson, Scheve, and Slaughter 2007). The former is characterised by the anticipated public resource use of immigrants introducing more competition and scarcity in the future. The latter, instead, emphasises the perceived increase in costs of public financing due to immigrants who are viewed as net-beneficiaries of publicly funded resources (Reeskens and van der Meer 2019, Razin, Sadka, and Suwankiri 2011).

While precisely untangling these different fiscal exposure mechanisms is beyond the scope of this research, one common thread of either logic is the perceived likelihood that immigrants will become disproportionate users of such public resources (Hanson, Scheve, and Slaughter 2007). Therefore, I propose that when conceptualising FE, the most likely out-groups triggering such effects, are immigrants who are more likely to be beneficiaries rather than net contributors to these resources. While one can reasonably assume that all immigrants use public resources such as housing, education or healthcare, well-off immigrants are far less likely to be beneficiaries and competitors for social help and unemployment benefits (Razin, Sadka, and

Suwankiri 2011).[1] Then, my second hypothesis is concerned with the fiscally motivated economic threat channel and increasing scepticism towards immigration:

> **Hypothesis 2 (Out-group threat-FE hypothesis):** The higher the risk of fiscal exposure to out-groups (due to crowding-out and financial-burden concerns), the more citizens become defensive towards immigration.

2.2 Unemployment risk inequalities and material threats amongst natives

So far, I focused on ethnic competition and argued that when these hypotheses are evaluated using appropriate conceptualisations, they increase anti-immigration sentiments among natives. Moving forward, I contend that exposure to relatively socioeconomic risk and uncertainty than an average majority group member, i.e. in-group threat, has a distinct effect on heightening aversion to immigration. This effect occurs net of ethnic competition and other individual factors. Following earlier work on economic vulnerability and political responses (Rehm 2016, Schwander and Häusermann 2013, Kurer et al. 2019), I conceptualise socioeconomic risk as the risk of being unemployed. More specifically, I am interested in how future employment chances are not only getting more risk-prone for native workers in host societies but are becoming more skewed in terms of how they are distributed (Rehm 2016). The roots of 'out-group' *versus* 'in-group' threat logics are distinct in terms of *where* economic risks come from and compared to *which* group discontent is derived. Nevertheless, they are also similar since both logics rest on the idea of anticipated and not current hardship in increasing anti-immigration. Here, I use the label 'in-group' threats for terminological simplicity and as a clear-cut way of juxtaposing this to economic threats due to 'out-groups'. Yet, this is not to imply that latter threats are coming from natives themselves but rather to refer to the consequences of domestic and international economic transformation that generated risk-based inequalities amongst natives. Essentially, what I mean by in-group threats is the extent which certain in-group members are disproportionately worse-off when it comes to prospects and vulnerability in the labour markets.

The root causes of the uneven distribution unemployment risks are due to in one part to the internationalisation of production systems leading growth retention in manufacturing and industrial jobs (Walter 2017). In another part, they are linked to fast-paced technological advancements leading to shrinking employment opportunities for specific jobs that are at risk of being automated such as the routine manual and service sector occupations (Oesch and

[1] From a public financing aspect, well-off and higher income immigrants can in fact be net contributors rather than take away to the system (Facchini and Mayda 2009).

Rodriguez Menes 2010, Kurer and Palier 2019). In this way, my emphasis is on uncertainties and insecurities due to automation, offshoring, and more broadly, global, or domestic factors that alter economic inequalities in advanced post-industrial democracies rather than immigration itself. While out-group threats are concerned with the impact of immigration on job and welfare resources, the logic of in-group threats relates to positions within the natives. Therefore, even if economic conditions and employment chances may overall improve inequalities within the workforce still leading to worsening group relations.

Here, I propose two related logics through which being worse-off within the majority group may increase anti-immigrant reactions. The first is concerned with a socio-psychological mechanism of economic grievances and reactionary responses rooted in the individual relative deprivation theory (Runciman 1966, Smith and Pettigrew 2015). The other deals with how citizens seek closure and protection from future decline due to exposure to considerably more uncertainty than most people in their society (Rehm, Hacker, and Schlesinger 2012, Walter 2017). While both mechanisms emphasise individual-level process when considering rising discontent, the ways in which political actors can mobilise and deepen such logics are also relevant in understanding how these logics may be operating in different contexts.

In their recent study, Meuleman et al. establish group relative deprivation as a distinct channel of influence on intergroup relations (2020). They argue and convincingly demonstrate that perceptions of being relatively deprived vis-à-vis *immigrants* have substantively significant effects different from exposure to ethnic competition. Their argument rests on the idea that discontent arising from the perception of being treated worse than immigrants translates into heightening adversity towards these groups (Meuleman et al. 2020, 596). Yet, the perceived injustice and unfair relative deprivation experienced by natives, particularly at the individual level, is not limited to the threats posed by immigrants.

On the one hand, while out-group competition is an undeniable reality, an important (perhaps more important) source of unfairness and relative disadvantage exists within native groups in terms of economic security (Rehm 2016, Walter 2017, Moene and Wallerstein 2001). On the other hand, identification with the majority group is hardly the only or the most decisive source of attachment for most citizens in advanced democracies (Kitschelt and Rehm 2014). Instead, occupationally rooted task categories and social class differences have emerged as robust identifiers of cleavages amongst natives. They are evidenced to be robust correlates of differences in political outcomes such as welfare attitudes, voting behaviour, and political protest (Kurer et al. 2019, Burgoon et al. 2019, Schwander and Häusermann 2013, Rehm 2016).

Both within and across countries, individuals, have vastly different employment chances depending on where they live, their skill composition, and their social status. Relatedly, economic grievances of workers are rooted in their position within the society (more so than the ethnic competition) as evidenced widely by the individual relative deprivation scholars (Smith and Pettigrew 2015, Smith et al. 2012, Runciman 1966). Therefore, if we think of group conflict as defensive responses to feeling deprived of privileges (Gorodzeisky and Semyonov 2018, 32), then, such effects of deprivation and economic threats need not be only rooted in potential losses due to immigrants. Limiting the scope of the link between relative deprivation and group conflict to ethnic competition, then, fails to take into account broader perceived injustices experienced by citizens and subsequent political responsiveness (Smith and Pettigrew 2015, Kurer et al. 2019, Kuziemko et al. 2014). Therefore, being unfairly deprived of future security and being disproportionately exposed to future uncertainty increases economic discontent amongst natives, raises their demands for more security and protection, and this subsequently decreases their acceptance of out-groups at home.

Next, foreigners are not only perceived as disproportionate users of the economic resources of the host society; they are also viewed as least deserving of benefiting from the economic chances (Reeskens and van der Meer 2019). This is important because risk-exposed individuals seek protection and view state-resources as critical for compensation their unfairly behind status. Therefore, it does not take much for political entrepreneurs to channel risk-based grievances of citizens due to economic developments over the last decades instead to the issue of immigration. Arguably, the principle and most easily visible channel through which these economic grievances are directed to the seemingly unrelated matter of immigration are in significant part related to the presence and prevalence of such political entrepreneurs in host societies. Most emblematically, nativist populist parties construct immigration and immigrants as scapegoats for the vulnerabilities and 'most if not all current woes' of the native population (Wodak 2015, 2). In this way, even if economic grievances and subsequent need for insurance are not immediately due to ethnic competition, they can be directed towards out-groups and thus worsen inter-group relations. Accordingly, my third hypothesis is concerned with the effect of exposure to relatively higher unemployment risks and increasing reactions to immigration:

> **Hypothesis 3 (In-group threat hypothesis)** The more exposed citizens are to in-group threats, the more they will become more defensive towards immigration.

3. Data and Method

3.1 Case Selection: Germany

This paper is interested in investigating how economic threats posed by immigrants, on the one hand, and unequal distribution of unemployment risks within natives, on the other, increase negative responses to immigration. To examine these, I use a longitudinal single-case design that alleviates potential concerns present in multi-case designs due to systemic cross-national differences in group relations. Existing evidence is mixed on the matter of how contextual factors - such as media portrayals, economic and political shocks, and demographic change- alter reactions to immigration (Boomgaarden and Vliegenthart 2009, Erbring, Goldenberg, and Miller 1980, Goldstein and Peters 2014, Brader, Valentino, and Suhay 2008). Notwithstanding the importance of country-level factors, my goal here is to contribute to the debates on how responses towards immigration change over time from a bottom-up perspective. Therefore, for the specific research goals of this paper, focusing on a single country case helps isolate and identify individual determinants more precisely since potential confounding at the country level can be assumed to be the same for all citizens.

My case choice in this research is Germany from the beginning of 2000s onwards. This choice is due to both pragmatic data availability reasons and more important substantive concerns for being a particularly relevant case for this study. First, immigrant-native group relations are highly consequential and salient in the German context. This is due in great part to the fact that the country hosts one of the largest stocks of foreign-born residents in Europe and is home to a widely heterogeneous immigrant population (EMN 2016). Moreover, Germany also has a diverse and long history of immigration. For instance, certain immigration waves to Germany were predominantly based on shared culture and ancestry, such as in the case of German co-ethnic immigration in the post-1945 period. In comparison, there has also been predominantly economically motivated immigration flows such as in the case of 'guest worker' (*Gastarbeiter)* programmes between 1955-1973. These programmes aimed at attracting temporary workforce with a wide variety of ethnic origins to fill shortages in low and medium-skilled jobs, many of whom have stayed and became a permanent part of the German society (Kolb 2014, Freeman 1995).

In more recent decades, Germany's acceptance of asylum seekers and relatively liberal family migration policies led to a paradoxical scenario of seemingly closed borders with facilitated access points throughout the 80s and 90s (Finotelli and Kolb 2017). More recently,

from the 2000s onwards, Germany has reversed its 'no-immigration' policy and replaced it with the goal of attracting higher-skilled immigrants (Kolb 2014). In addition to such third-country immigrant policies, Germany is also one of the leading destination countries within the EU Schengen area of free movement. Therefore, Germany not only holds a large volume of immigrants but also hosts an immigrant population with a wide variation in skills and countries of origin making it an interesting case for this research.

Second, Germany is a suitable context for this study because of the ongoing presence of political entrepreneurs and movements which weaponise immigrant-native group relations. Over the period I study, there have consistently been nativist far-right political actors linking economic grievances and deprivation of natives to the presence and prevalence of foreign-born residents in Germany (Betz 1990, Mudde 2000). While unsuccessful in federal politics, there are several examples of this type of political actors such as the *National Demokratische Partie Deutschland* (NPD), *Deutsche Volksunion* (DVU),[2] and *Die Republikaner* in German politics. NPD, for instance, has even been able to get seats in state parliaments in the period between 2004-2011 in Saxony and Mecklenburg. Likewise, *Die Republikaner* was successful in Bavaria and Baden-Württemberg, particularly in the 90s (Betz 1990). More recently, since 2014, German politics saw the nationwide emergence of an openly anti-immigrant and nativist party *Alternative für Deutschland* (AfD) (Schmitt-Beck 2017). Therefore, if we think of the presence of such political entrepreneurs as a necessary condition for the framework here, then, the German case emerges as a fitting context where numerous and visible political actors have been active in linking economic grievances to ethnic heterogeneity.

Third, Germany is a striking case to study for how in-group threats impact group conflict over time. Like many other post-industrial European economies, there have been significant changes in the post-2000 period altering labour market chances of certain occupational groups differently**.** From the perspective of occupations, the distribution of the supply and the demand for the routine manual jobs and employment in service sectors have shifted significantly. In particular, deindustrialisation and technological advancements have increasingly widened the gaps among workers exacerbating inequalities for economic security between citizens (Kurer and Palier 2019). Moreover, improvement in educational attainment, increasing valorisation of higher skills, and routinisation have been catalysers for why certain workers have become increasingly worried about their future standing in the job market (Oesch and Rodriguez Menes 2010, Kurer and Palier 2019). Overall, while certain higher-skilled and

[2] DVU and NPD merged in 2011.

technically niche occupations have benefited much more from these developments, many others have experienced a dampening in their future economic chances despite the overall improved economic performance in Germany in this century.

Furthermore, there have also been decisive institutional changes in the labour markets and social protection systems, most importantly the 2004/5 Hartz reforms, in my observation period (Palier and Thelen 2010). These reforms have created more employment chances albeit in more insecure conditions making unemployment risks differences an increasingly important matter given declining reliance on traditional 'life-long' permanent contracts (Rehm 2016, 127-128, Seeleib-Kaiser and Fleckenstein 2007). Furthermore, despite reforms and recalibration over these decades, German welfare state still operates on a principle of equivalence, which means that the risk of losing employment is of paramount concern making it relevant case to study. This is important to note because, in this case, the loss of employment not only implies the loss of income and earning but also has considerable effects on subsequent social help and public resources available to citizens (Streeck and Trampusch 2005).

3.2 Data

Empirically, an essential requirement for investigating the dynamics of group conflict is to have observations over several years from the same respondents. Therefore, for individual-level data, I am using the German Socioeconomic Panel Survey (SOEP) from 1999 to 2016 (SOEP v33). SOEP is a representative survey of the residential population living in private households in Germany. It is also the only longitudinal study that allows me to operationalise relevant theoretical concepts of interest simultaneously with an adequate temporal scope. The study starts in 1999 since the question item for measuring my outcome of interest is asked from that year onwards. The representativeness and the broad coverage of the survey in terms of both native and foreign-born residents are uniquely helpful for this research. It allows me to calculate the measures of interest with regards to both ethnic competition and in-group threats from a large representative data source.

At the individual level, the sample consists of respondents aged between 16 and 65 who are in work and are active participants of the labour force in Germany.[3] Those who are retired

[3] Individual-year observations where respondents are unemployed are excluded. This is because the framework refers to, in principle, experiencing risks of economic losses rather than realised losses such as in the case of the unemployed. Extant work, however, has already revealed that becoming unemployed is linked to more negativity towards immigrants (Lancee

or those in school/in training are excluded from the sample.[4] Moreover, since I am interested in dynamics of group conflict from the perspective of in-group members, I restrict my sample to respondents who are born in Germany and have German citizenship following earlier work (Lancee and Pardos-Prado 2013). To be able to observe within-individual changes over time, respondents who remained in the survey for at least two waves are considered. To investigate potential issues from panel attrition, I check whether mean differences between respondents who stay in the panel for the full scope and those who remain partially diverge substantially on key covariates of interest. Inspecting these differences reveal little concern, particularly given my outcome of interest. Checking the issue further, I estimate a logistic regression predicting the probability of attrition for the respondents. I confirm that the likelihood of attrition does not correlate with any of the key variables investigated here, see Table A28.

3.3 Measuring 'in-group' economic threat: relative unemployment risks

In SOEP, there is no direct survey item that captures 'in-group threats' from a subjective perspective of individual relative deprivation and worse-off place in the society. Instead, here, I use an objective measure of relative risk exposure based on occupational unemployment rates calculated using the SOEP sample data. One advantage of this objective measure of economic risks is the lesser degree of concern about endogeneity compared to self-reported evaluations. To operationalise in-group threats, I need information on the socioeconomic risks experienced by workers and the benchmark they use to compare themselves to other natives.

When measuring risks, I adopt Rehm's indicator and use occupationally specific unemployment rates (2016). I calculate unemployment risks within each occupation at 2-digit ISCO-88 disaggregation level for jobs per each year *t* as indicative of risk exposure for each respondent.[5] By now, this occupational measure and its extensions have been widely evidenced as robust indicators of economic vulnerability and socioeconomic risks (Kurer et al. 2019,

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and Pardos-Prado 2013). My results are consistent with such earlier studies and the findings presented here do not change if individuals who are unemployed are kept in the sample (occupations of unemployed are coded by forward tracing their last reported occupation at *t-n*), see Table A24.

[4] The self-employed are included in the main sample as active labour force participants. However, their experiences of unemployment risks may be distinct given their independent employment status. Therefore, I replicate my analysis excluding the self-employed from the sample and report that the results do not change, see Table A29.

[5] See Table A3 for the list of ISCO-88 occupation tasks and Figure A2 for the pooled distribution of relative risks in each 2-digit category.

Schwander and Häusermann 2013, Rovny and Rovny 2017). While absolute occupational unemployment rates indicate risk exposure, we still need a comparison point to know where a certain level of risk exposure puts individuals within the pool of other natives. This point is vital since, theoretically, I argued that natives feel pressured by their relatively weaker position compared to other natives.

To measure in-group threats, I first choose to use a regional benchmark at the state (*Länd*) level since there is substantial variation of employment performances between regions in Germany, see for instance Figure A4. If respondents in the same job category benchmark to their own sub-national unit of residence, there would be variation in their perceived in-group threat exposure not indicated well by their occupation only. Taking this into account, for each year *t*, I capture in-group threats by relativising, i.e. dividing, each occupational unemployment rate by the average unemployment rate in each *Länd* in Germany ($risk_{occ}/\bar{x}_{reg}$). This measure indicates respondents' relative risk exposure level benchmarked to the state where they live, i.e. average unemployment rate at the *Länder* level ($\bar{x}$: 0.78, *s*: 0.73). As expected, absolute and relative risk exposure measures correlate very strongly (r=0.7431) since relativising is a transformation of these absolute rates into a relational scale.

However, if respondents instead compare themselves to the national average, which is a far more publicised information, and use a benchmark based on the broader national dynamics rather than the employment chances at the state level, then, my measure may not be as accurate. Importantly, my measure may be underestimated in worse-off states and overestimate threats in states that are performing well.[6] Therefore, I alternate my operationalisation of in-group threats, with a national benchmark ($risk_{occ}/\bar{x}_{nat}$) ($\bar{x}$: 0.60, *s*:0.46). Regional and national relativised occupational unemployment rates correlate very strongly (r=0.7541).

I further validate my measure of in-group threat and ensure that my results are not dependent on such measurement choices.[7] Details of these alternatives, descriptive information, and results of robustness tests are available in the supplementary material, see pp. 5-12. Importantly, from a face validity perspective, jobs which are much more exposed to the externalities of the economic change in the last two decades are worse-off and experience more future uncertainty compared to others in Germany such as salespersons and building,

[6] Figures A1, A2, and A3 visualise implications of using either strategy. Occupational risk divisions and the distribution of such economic risks look similar regardless of the benchmark used.

[7] Most importantly, I calculate regionally specific occupational unemployment rates and/or use 1-digit level broader occupational disaggregation.

manufacturing, and construction workers. Those who seem to be having a much more secure economic future compared others appears to be those who are employed in higher education and skill demanding training intensive jobs such as the higher-level corporate managerial positions, scientists, and engineers.

3.4 Measuring 'out-group' threats: LMC and FE

When conceptualising ethnic competition, there are two potential ways of defining out-groups. One way would be to demarcate individuals based on citizenship, and another would be to focus on immigration background with an emphasis on being foreign-born. Here, I use the latter broader definition of out-groups since my interest is not in immigrants as newcomers *per se* but as out-group members distinct from native Germans. Moreover, a drawback of using the former civic approach is that it excludes the visibility of ethnic minorities who have over time became German citizens but who may still trigger ethnically motivated competition.[8]

I measure LMC using an occupationally (ISCO-88 2-digits) and state-specific (by each *Länd*) indicator of skills and job tasks which are revealed to be vital in exploring the LMC (Bolet 2020, Dancygier and Walter 2015). In this way, the LMC measure I use indicates the extent to which respondents are exposed to threats of being replaced by immigrants based on their occupations and the state they live in ($\bar{x}$: 11.66, *s*: 11.47). I measure FE as follows: the share percentage of foreign-born residents who are *below*-median income amongst all foreign-born residents in each state ($\bar{x}$: 63.25, *s*: 10.91). I use the region-specific median income to specify the share of foreign-born individuals who are below this threshold understood as more likely to be net beneficiaries of public resources.

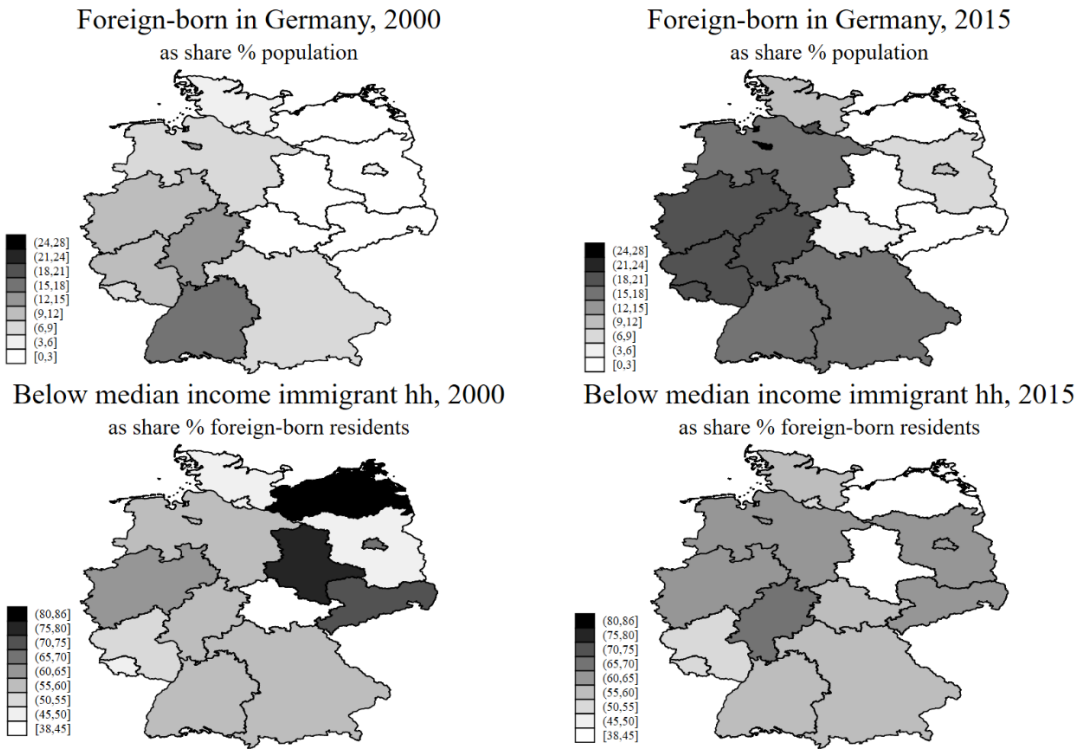
There are two alternative ways of approaching fiscal exposure. The first one is to use a more visible income threshold for capturing economically weaker foreign-born residents. To do this, I alternate the median-income threshold with having income below the lower quartile of income distribution in each state. Second, another way of looking at FE is to not just focus on the share of lower-income immigrants amongst the foreign-born but instead amongst all lower-income residents in each state. This approach focuses more so on what proportion of the potential beneficiaries consist of out-groups in each state. I report that alternating the measurement of FE does not change the results reported here, see Table A12.[9]

[8] Replicating my results using a narrower definition of out-groups as only newcomer immigrants (*Ausländer*) reveal no substantive differences, see Table A10.

[9] Further details of these alternative approaches are available in p.16 in the appendix.

In Germany, immigrant residents are distributed quite heterogeneously across regions since the beginning of the observation period, as presented in Figure 1. Most visibly is the divide between East and West demonstrating far less heterogeneity in the Eastern German states despite increases in Berlin and Brandenburg areas over time. An important observation is that while states such Baden-Württemberg and North Rhine-Westphalia have consistently been more heterogeneous, the extent to which they are also exposed to more fiscal effects of immigration does not follow straightforwardly, see also Figure A10. Instead, potential risks of fiscal exposure were still much higher in the East German states with such stark differences decreasing over time. Likewise, living in a highly heterogeneous state does not necessarily imply that everyone living in the area will be exposed to LMC since the dominant source of variation of LMC rests between occupations.[10] Nevertheless, a relevant picture emerging from Figure 1 is that testing ethnic competition mechanisms by merely looking at the share of immigrant residents hides crucial differences hindering the ability to test such hypotheses.[11]

Figure 1: Distribution of foreign-born resident and fiscal exposure in Germany in 2000 and 2015, by *Länder*



[10] See Figure A6 and A7 for a comparison of the variation of LMC between occupations and states and Figure A8 demonstrating LMC across occupations in four illustrative states.

[11] While this holds true, natives can change their state of residence and indeed occupations are the principle source of LMC regardless of the state. Therefore, I calculate LMC and FE at the national level revealing that the results are not sensitive to such differences, see Table A11.

3.5 Measuring group conflict

I measure group conflict using a survey item asking respondents' concerns over immigration [*Sorgen Zuwanderung*] formulated as 'Are you concerned (or worried) about immigration to Germany?' with three response options: 'not at all concerned', 'somewhat concerned', 'very concerned'. The question has already been used several times to measure anti-immigration and group conflict by previous research (Fitzgerald 2012, Lancee and Pardos-Prado 2013, Pardos-Prado and Xena 2019). However, some may argue that the statements going from 'not at all concerned' to being 'very concerned' reflects more so the ascribed importance to the immigration issue, i.e. salience, more so than negative attitudes (Neundorf and Adams 2018). However, the question item refers to 'concerns' about immigration, and thus responses to such question in higher values are likely to be value-laden in the negative direction (McGhee and Neiman 2009).[12]

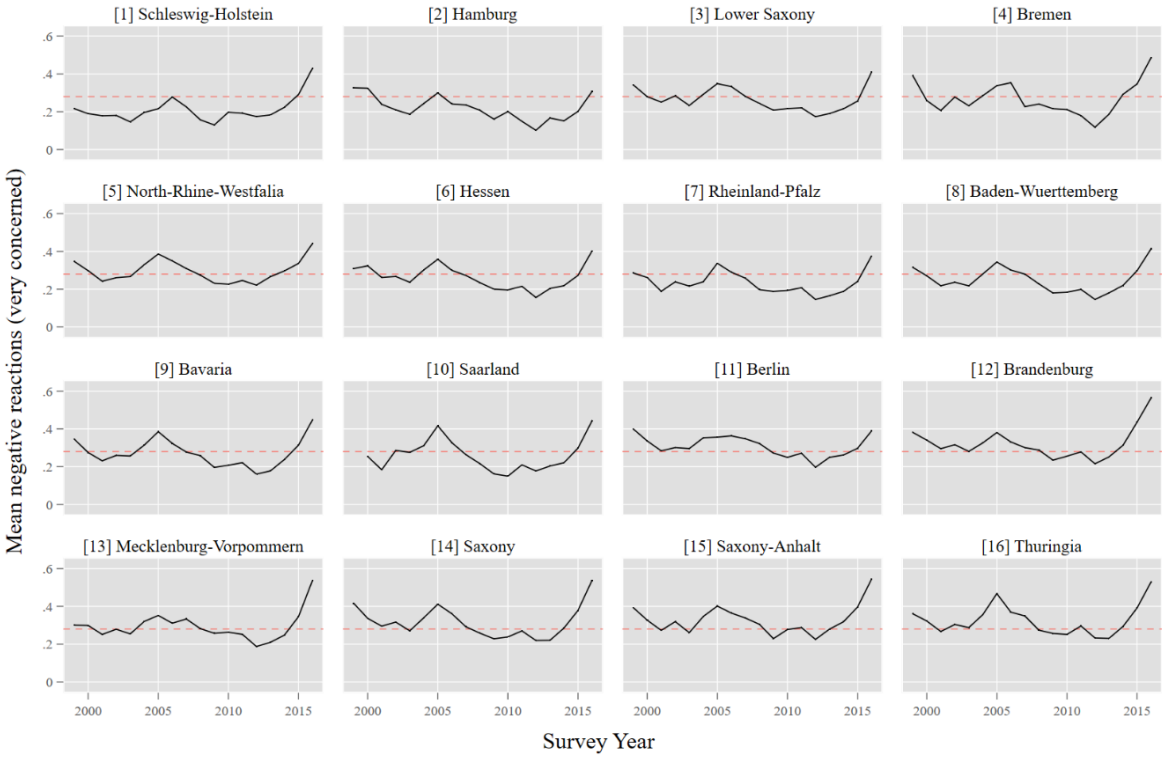
Notwithstanding the problem with the wording of this question, following earlier work, I sustain that those who choose 'very concerned' reflect negativity towards immigration or at least perceive the issue of immigration as a *problem* (Lancee and Pardos-Prado 2013, 116). Therefore, I binarise the question item, where '1' indicates being 'very concerned with immigration', to measure my dependent variable ($\bar{x}$:0.28, s:0.45). I further establish that this item captures adversity towards ethnic heterogeneity using another SOEP question asking which political party respondents prefer (*Parteipraeferenz*). Respondents who are 'very concerned with immigration' report that they support the nationalist anti-immigrant radical-right parties (Die Republikaner, NPD, DVU or AfD) disproportionately higher than those who are not, see Table A13. Figure 2 plots the mean value of this binarised measure across 16 German states over time, reference line indicates overall mean value each year.

When looking at Figure 2, there is further support suggesting that the variable indicates negative reactions which are much higher in Eastern Germany – a well-documented observation in earlier work (Ireland 1997; Weisskircher 2020). This observation means that the item is not just a measure of salience but instead also captures negativity towards out-groups accurately. Moreover, Figure 2 shows that the item has both a stable component between regions that are linked to slow-moving and deeply rooted prejudice towards immigrants and a changing part indicative of dynamic group conflict that I am interested in studying here. Therefore, while I concede that the question item is not ideal for informing outcomes such as

[12] For further discussion of this see pp.17-18 in the appendix.

policy preferences or specific attitudes targeted at different kinds of immigration, I sustain that it adequately captures both static and dynamic reactions towards immigration.

Figure 2: Dynamics of group conflict in Germany, 1999-2016



3.6 Empirical strategy

The paper aims at investigating increasing negativity towards immigration; hence, I choose a two-way binary logistic fixed effects strategy to estimate within individual variation over time (Angrist and Pischke 2009). Individual and year fixed effects remove time-constant confounders and bias due to potential omitted variables (Bell and Jones 2015) and enable studying within-individual changes over time. Moreover, Hausman tests demonstrate the better suitability of fixed effects estimations for consistency of coefficients, see Table A18.[13] Since two-way fixed effects eliminate all time-constant unobserved heterogeneity, the reported coefficients represent the effect of a unit increase of each factor on within-individual changes

[13] While I primarily use a binarised construction for my outcome variable, I alternate my model estimation strategy using ordered logit estimations preserving the original structure of the question item, see Table A14, and by treating the three-fold answer scale as linear, see Table A15.

on the likelihood of being 'very concerned' about immigration. A drawback of fixed effects models is the inability to estimate time-constant factors given that the variance in the equation is solely within-individuals. This issue is less of a concern here since my theoretically relevant variables are time-variant. Yet, using only within-individual variation increases the risk of Type II error. Therefore, I replicate my findings using random effects estimations revealing substantively the same results for the key variables of interest, see Table A17.

For model specifications, I add several theoretically relevant time-variant covariates.[14] Given the highly debated and evidenced role of education (Hainmueller and Hiscox 2007, Pecoraro and Ruedin 2016, Lancee and Pardos-Prado 2013), I include years of *education* respondents had in all model estimations. The fully specified fixed-effects models include variables for *age, income,* and *employment relations*, i.e. whether the respondent is self-employed or has a temporary or permanent work contract. I also control for *job tenure,* i.e. the total number of years respondent has had in her specific job, as longer job tenures can instil economic security distinct from occupational or skill-based factors (Pardos-Prado and Xena 2019).

4. Empirical Findings and Discussion

4.1 In-group threats, ethnic competition, and dynamic group conflict

Table 1 presents four fully specified logistic two-way fixed-effects models. I stepwise add my main explanatory variables, i.e. in-group threat, LMC, and FE, to the models to evaluate the three hypotheses formulated above. The results reported in Table 1 are average marginal effects interpreted as the percentage point change in the probability of being '*very concerned about immigration*' by a unit increase on variables shown.[15] Across the board, I find that a unit increase in relative unemployment risk exposure, i.e. in-group threats, increase anti-immigration. In Model 1, a unit increase in risk increases the chances of anti-immigration responses by about 4.1 percentage points. This effect is robust and statistically significant across different model specifications (at $p < 0.001$ level and by at least 2.2 percentage points in

[14] Summary statistics and further details of the variables used are available in Table A1 and Table A2.
[15] See Table A16 for the log-odds coefficients.

magnitude). Using an alternative benchmark, i.e. to the national average, instead of the regional unemployment rate reveal substantively the same results, see Table A6. The evidence in Table 1 is in line with the growing literature emphasising individual economic vulnerability conditions as causes of changing adversity towards immigration (Pardos-Prado and Xena 2019, Polavieja 2016, Kaihovaara and Im 2020). It adds to these studies by showing relatively worse-off natives are indeed those who are more prone to becoming more defensive about immigration over time net of ethnic competition.

Table 1: Economic threats and reactions to immigration, logistic fixed effects models

	Model 1	**Model 2**	**Model 3**	**Model 4**
In-group threat ($risk_{occ}/\bar{x}_{reg}$)	0.041***	0.031***	0.030***	0.022***
	(0.005)	(0.004)	(0.005)	(0.004)
Out-group threat: LMC		0.003***		0.003***
		(0.000)		(0.000)
Out-group threat: FE			0.002***	0.002***
			(0.000)	(0.000)
Education	-0.003	-0.002	-0.003	-0.002
	(0.005)	(0.005)	(0.004)	(0.004)
Age	0.003***	0.002***	0.002***	0.001**
	(0.001)	(0.001)	(0.000)	(0.000)
Income	0.004**	0.004**	0.003**	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)
Job Tenure	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Employment status (ref: Permanent)				
Temporary contract	0.006	0.007	0.005	0.006
	(0.007)	(0.008)	(0.006)	(0.006)
Self-employed	-0.002	0.001	-0.002	-0.000
	(0.008)	(0.009)	(0.007)	(0.007)
Number of observations	91,643	91,643	91,643	91,643
Number of individuals	11,407	11,407	11,407	11,407
Log likelihood	-36291	-36233	-36197	-36136
BIC	72662.62	72556.55	72485.94	72375.51

Note: Binary logistic two-way fixed effects estimations, robust standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05.

Next, in line with the theoretical expectations, both LMC and FE increase chances of being 'very concerned' about immigration. In Model 4, where both ethnic competition factors are considered, a 1 per cent increase in occupational immigrant rates in respondent's state leads to an increase of 0.3 percentage points of negative reactions to immigration. This finding is different from earlier work that has found null effects for LMC hypothesis (Manevska and

Achterberg 2013, Hainmueller, Hiscox, and Margalit 2015). I add that testing LMC requires a precise focus on exposure in terms of direct replaceability effects rather than broader skill competition (Bolet 2020, Halla, Wagner, and Zweimüller 2017, Finseraas, Roed, and Schone 2017, Pecoraro and Ruedin 2016, Ortega and Polavieja 2012). Likewise, a 1 per cent increase in the share of lower-income immigrants in the state of the residence increases anti-immigration reaction by 0.2 percentage points. While contextual effects of the number of immigrants in host countries are undetermined in earlier work (Pottie-Sherman and Wilkes 2017), exposure to the potential adverse fiscal impact of immigration increases negativity.

Altogether, these findings suggest that economic threats are non-negligible predictors of dynamic group conflict. Importantly, the effects of in-group and out-group threats are robust to more conservative empirical tests that further take away between-state variation and between-occupation variation. I also rule out the potential threat that the results are driven by stark between-state differences of attitudes towards out-groups.[16] Likewise, the results are robust to removing between-occupational group variation and solely isolating within-individual changes in each occupational group, see Table A19.[17]

When looking at the effect of education in Table 1, I corroborate earlier studies warning against overemphasising education as a predictor of the dynamics of group conflict (Lancee and Pardos-Prado 2013, Pecoraro and Ruedin 2016).[18] Since working-age individuals do no vary over time in terms of their educational attainment, education seems to not play any role here in discerning the dynamic component of group conflict. Increasing age and income also raise the probability of being 'very concerned' with immigration. Importantly, one potential criticism of my model specification could be the argument that individuals may have quite different perceptions of their economic well-being when considering their objective income. In this respect, if an economic vulnerability argument (at large) holds, increasing dissatisfaction with household income should, nevertheless, increase anti-immigration. Not shown here, I add subjective household income satisfaction and find that, as expected, increasing dissatisfaction

[16] I replicate the models in Table 1 using both fixed-effects and random-effects estimations and add region fixed effects revealing that the effects of both in-group and out-group threats are robust, see Table A19. I also split the sample and estimate my models only for West Germany and only for East Germany. Overall, the results support the argument that in-group and out-groups are distinct from regional differences of group relations, see Table A23.

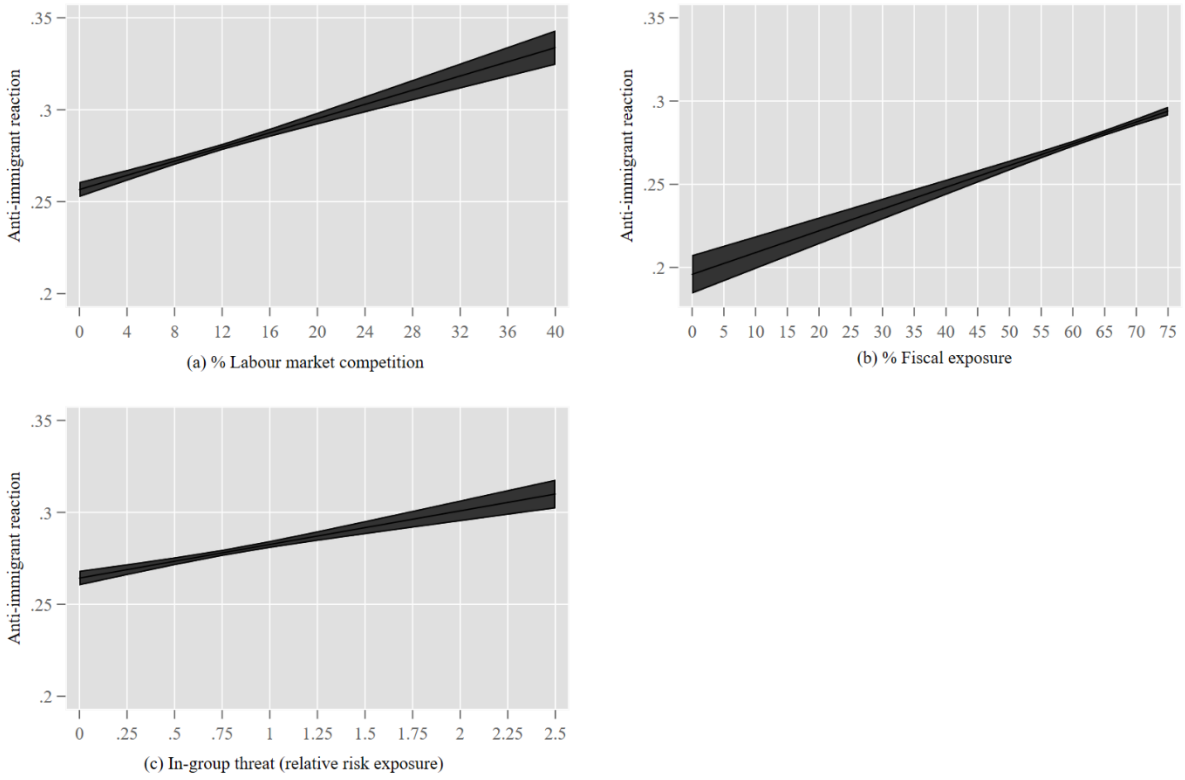
[17] Beyond occupations, controlling for the industry that the respondents work in as another indicator of employment chance do not change the results presented here, see Table A30.

[18] The effects of both types of economic threats remain robust in different sub-samples of above or below median educational attainment, see Table A23.

with household income leads to an increased likelihood of defensiveness towards immigration. The results do not change when this covariate is included in the models, see Table A30**.** [19]

Given that the measurement scales vary across my main theoretical variables of interest, it is difficult to make comparisons about the influence of in-group and out-group threats in terms of their role in predicting attitudes. To do so, I make use of an alternative strategy and estimate linear predictions of anti-immigration responses at different values of in-group and out-group threats. The predictions are made using the same specification in Model 4 with an estimated using a linear fixed-effects model instead of logistic regression, see Table A20. While the results are the same, the linear estimation presents a more intuitive way of presenting the outcome. Figures 3a-3c below plot these linear predictions of anti-immigration reactions. The top two panels (a) and (b) visualise the predictions for LMC and FE, respectively, and panel (c) focuses on the in-group threat.

Figure 3: Predicted anti-immigration reactions and economic threats, 95% CIs



[19] To further rule out the possibility that the effects of economic threats are dependent on current income and social status, I estimate my results across sub-samples of four social classes using Oesch's 4-fold categorisation (2006): upper and lower middle class and skilled and unskilled working class groups revealing substantively the same results, see Table A22.

When looking at in-group threats, compared to having half the risk exposure than the regional average, being exposed to double increases anti-immigration by about 0.05 points. While such a difference is small in magnitude, the effects of economic threat on increasing anti-immigration are nevertheless robust and non-negligible.[20] Importantly, this is particularly true if we consider that the response variable is on a binary scale with an overall mean of 0.28 and the fact that estimations are calculated using within-individual variation only. When looking at LMC, there is also about 0.05 points of differences in anti-immigration reactions if we compare the lower (3.7%) and higher (16.28 %) quartile values of LMC exposure. When considering the substantive effect of FE, it is necessary to note that the median value of FE is about 63%. An intuitive comparison for this variable, therefore, is to consider the difference between a state where half (50%) of the foreign-born are below-median income versus one where this share is 75%. This contrast seems to predict a little under 0.05 points differences on the binarised DV as well. Notwithstanding the modest effect sizes, the results provide robust evidence for two widely debated factors of group relations in previous literature.

Moving forward, I argued that unequal risk exposure driven discontent within majority groups alone could increase anti-immigration regardless of ethnic competition. If this holds, then, I should find that higher relative unemployment risks increase anti-immigration at different configurations of LMC and FE. This evidence, then, can help discern why we observe rising reactions towards immigrants, even in areas where natives are not particularly exposed to higher FE or LMC. To evaluate this, I estimate Model 1 at four different conditions by dividing the sample into high *versus* low LMC and FE using the observed median values of each factor, see Table A21.[21] Figure 4 (a) to (d) show the average marginal effects of in-group threats and other relevant variables across these four conditions.

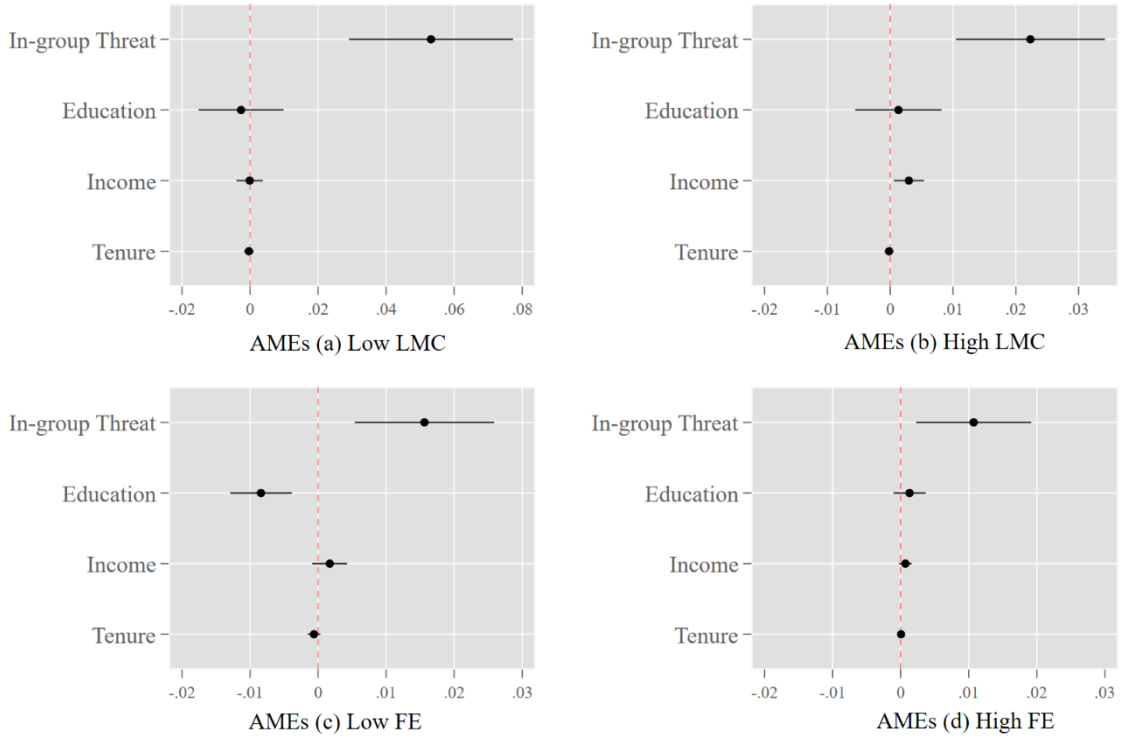
When looking at the models predicting anti-immigrant reactions at different levels of LMC, the effect of in-group threats is robust with stable effect magnitudes in both conditions. Next, when looking at the models at different levels of FE, I also confirm that the effect of in-group threats is not dependent on FE both in terms of predictability and effect size. While the results are similar across both FE conditions and the high LMC case, the effect of in-group threat is higher in the low LMC condition. This result can be thought as further evidence

[20] See also Figure A13 demonstrating the same point using instead the national performance as the benchmark.

[21] I determine higher and lower LMC and FE conditions using median the values for each variable (8.54% for LMC and 63.19% for FE) in my sample.

suggesting that LMC and in-group threats are distinct.[22] Just to present an intuitive way of thinking, on average, the effect of in-group cleavages seems to be more important on increasing defensiveness towards immigration for workers exposed to low LMC such as a teacher in Bavaria or Hamburg compared to workers who are already exposed to high LMC such as a construction worker in the same states. Across all four models, we see that the effect of education, income, and job tenure are not significant at $p<0.05$ level - except for education in low FE condition and in the expected direction.

Figure 4: Average marginal effects of in-group threats at different ethnic competition conditions, 95% CIs



[22] This is an important point because both LMC and in-group threats are calculated using occupationally specific measures. So, they are expected to correlate to some extent given that occupations that are more at-risk correlate with those that are often taken up by immigrants, particularly at the lower skill level. However, as illustrated in Figure 4, the role of in-group threats remains robust when models are fitted separately into two subsamples of low and high LMC exposure.

4.2 Subjective economic worries and in-group threats

My main analysis provided evidence supporting the theoretical framework of the paper. I established that in-group threats increase adverse reactions towards immigration and that they are distinct from the ethnic competition. However, there are two critical issues that I would like to address further to strengthen the underlying assumptions and the explanatory logics I put forward when linking in-group threats to increasing anti-immigration.

The first matter I focus on relates to strengthening the internal validity of the objective risk inequality, i.e. in-group threat, measure I use because I proposed that relative deprivation and increasing adverse reactions towards immigration operate through a logic of future uncertainty. While there is no precise survey item that can measure subjective in-group threats in SOEP, there are three questions that target different types of absolute self-reflecting perceived economic vulnerabilities. The first question I use for this purpose is the self-reported worries of respondents related to their job security [*Sorgen Arbeitsplatzsicherheit*] formulated as 'Are you concerned about: Job security?' with three response options: 'not at all concerned', 'somewhat concerned', 'very concerned'. I binarise this item where '1' indicates being 'very concerned with job security'. The second question is about the perceived chances of finding a comparable job in the future [*Chancen geeignete Stelle zu finden*] with three response options: 'easy', 'difficult', 'almost impossible'. I binarise this item where '1' means' difficult' and 'almost impossible' indicative of perceived hardship. While the first two items emphasise job-related economic worries, the third question focuses on income [*Sorgen Um Ihre eigene wirtschaftliche Situation*]. It is formulated as respondents' concern over their own personal finances. I binarise the item with three response options: 'not at all concerned', 'somewhat concerned', 'very concerned' to indicate '1' as being 'very concerned'.

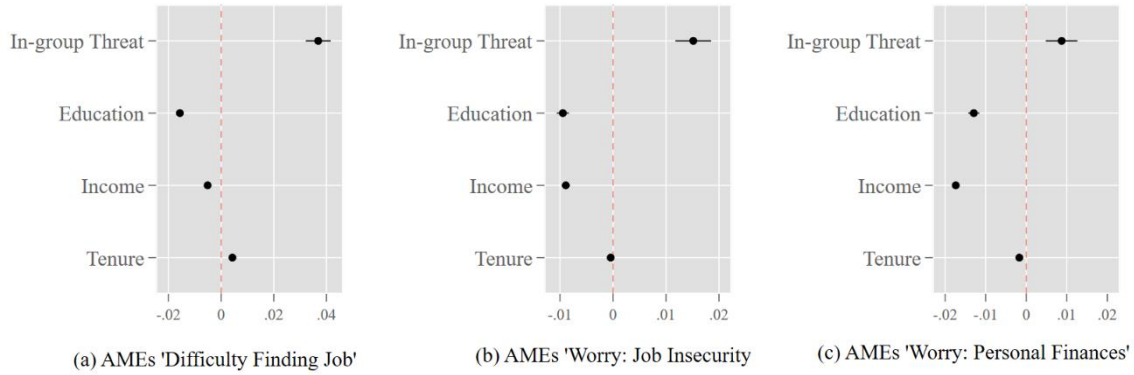
I estimate binary logistic random-effects models and test whether in-group threats predict these subjective economic worries using the three survey items separately.[23] In these estimations, I use both within and between individual variation models here because, theoretically, a great deal of the variation in terms of economic insecurities are due to differences between individuals.[24] Table A25 reports the results of these models and Figure 5 visualises the average marginal effects only for the variables of interest. Figure 5 reveals that higher in-group threat is related to the greater perceived difficulty in finding a new job by about

[23] All models include education, income, job tenure, age, employment status as well as region and occupation dummies.

[24] Fixed-effects models taking away all between respondent variations lead to the same results related to the issue studied here, see Table A25.

4 percentage points, see panel (a). It also correlates with being more likely to be worried about job insecurity with an effect about 1,5 percentage points, see panel (b) and more worries about income by about 1 percentage points, see panel (c). When looking at other relevant covariates, income and education seem to be related to lower perceived economic vulnerability as expected. While having longer tenure in a job predicts fewer worries about employment and income security, it is positively correlated with respondents feeling that it would be difficult for them to find a new position in the future. This result makes sense when considering that being out of the job market for an extended period can worsen the job market prospects of such individuals. Overall, the evidence in Figure 5 supports the underlying argument of the theoretical framework that having higher unemployment risk exposure than other natives is a robust predictor of perceptions of being in an economically vulnerable state.[25]

Figure 5: In-group threats and subjective economic risks, AMEs (95% CIs)



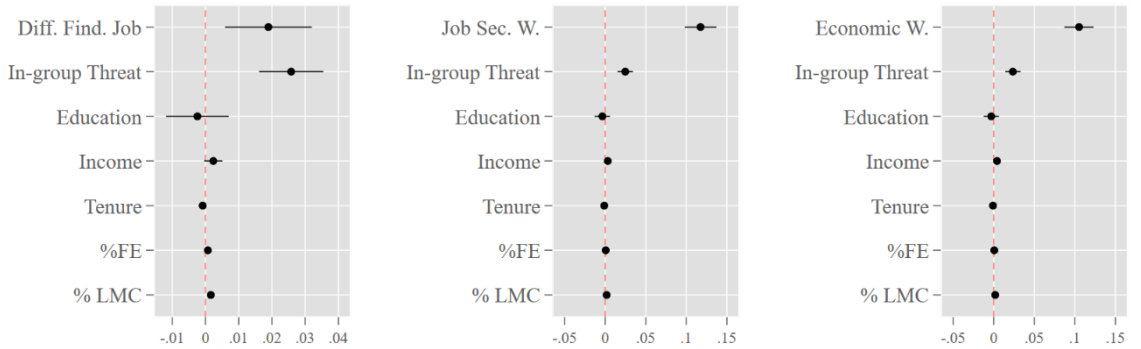
The second issue I focus on relates to the divergent validity of in-group threats indicative of inequalities of risk exposure when compared with absolute material vulnerability. Accordingly, my goal here is to evaluate whether the in-group threat becomes unpredictive when such subjective assessments of hardship are controlled for. If so, it means that the relative risk measure does not capture much more than these *absolute* economic concerns. However, if not, this would lend some evidence to the argument that relative unemployment risks are not just manifestations of job and income insecurities but also capture relative deprivation and perceived unfair position amongst natives. Addressing this, I replicate the Model 4 in Table 1

[25] I alternate this specification by adding LMC and FE and report that the effect of in-group threats remain robust, see Table A26.

with fixed-effects estimations which predict increasing anti-immigration reactions and add each subjective assessments of economic vulnerability to the model, respectively. Table A27 reports the full estimation results and Figure 6 visualises the AMEs of the variables of interest.

Even when the subjective vulnerability is considered, a unit increase in in-group threats worsens reactions to immigration. Across the board, becoming worried about economic security increases defensiveness towards immigration. It seems that there is still a role for in-group threats even when not only the economic effects of immigration but also the absolute assessments of worries about the future are considered. Unsurprisingly, these subjective hardship variables have a substantively important role in altering the chances of being very concerned with immigration. For instance, going from not being worried about job security or personal finances, to perceiving difficulties in these matters increases defensiveness towards immigration by about 10 percentage points, see panels (b) and (c).[26]

Figure 6: Subjective economic risks and reactions towards immigration, AMEs (95%CIs)



4.3 Cross-sectional evidence from ALLBUS

Finally, despite its empirical advantages in identifying the effects of in- and out-group threats on immigration attitudes over time, the question items in SOEP have limitations in terms of capturing theoretical concepts of interest. The first limitation is the inability to assess whether a logic of feeling unfairly worse-off compared to others in the country is indeed predicted using the relative occupational unemployment rates. The second limitation in the SOEP data is the formulation of the outcome variable as worries/concerns about immigration rather than

[26] The effects of all other covariates remain the same as presented in Table 1.

explicitly referring to exclusionary attitudes or prejudice as more direct manifestations of group conflict. To address these limitations, to strengthen the validity of my measurements, and to triangulate my evidence, I turn to a cross-sectional data source: German General Social Survey (ALLBUS) (GESIS 2020). ALLBUS is a nationally representative survey study of the adult German population covering all federal states.[27]

I use the cumulative ALLBUS data and restrict my analysis to when the first regular ALLBUS wave has been conducted in the post-reunification period. This way, I can focus on a period from 1992 to 2016[28] (every two years) and apply the same sampling strategy at the individual levels as my longitudinal analysis.[29] The list of all the variables used, summary statistics, and question item details are available in Table A31. First, I aim to establish that relative unemployment risk exposure indeed predicts individual relative deprivation and being unfairly worse-off. For my objective in-group threat measure, I take the occupation and region-specific in-group threat variable I calculated using SOEP and match this to ALLBUS respondents by each year, region, and occupation category at the 2-digit level. I measure *subjective relative deprivation* with the following question item: 'In comparison to how others live here in Germany: Do you think you get your fair share, more than your fair share, a little less, or a lot less?' To facilitate the interpretation of this item, I binarise it to indicate perceptions of getting 'a little less' and 'a lot less' than fair share as '1' and the other two as 0 ($\bar{x}$:0.43, *s*:0.50). All models include control variables for employment status, sex, age, income, education, whether the respondent lives in East or West Germany, and the size of the municipality respondents live in as an indicator of the urban versus rural divide. Table 2 reports the fully specified multi-level models predicting perceived relative deprivation of respondents in Germany.

Since respondents are nested in years, states, and occupations, I estimate four-level hierarchical linear models taking into account this structure of my data, see Table A32 for the full table of results.[30] To the fully specified Model 1, Model 2 adds subjective placement of individuals on the left-right scale since this may confound evaluations of position and fairness

[27] Additional information on the data is available in the technical report by GESIS: https://www.gesis.org/en/allbus/contents-search/study-profiles-1980-to-2018/cumulation-1980-2016-1

[28] Within this period, I exclude 1994 and 2012 waves because the subjective relative deprivation item is not asked in these two survey years.

[29] Restricting the temporal scope to 1999-2016 matching the SOEP coverage makes no difference in the results.

[30] I also use an alternative strategy using a binary logistic estimation with state and year fixed effects reporting that the results are not sensitive to modelling choices, see Table A34.

due to partisanship. Model 3 adds state and year fixed effects to remove confounding due to differences across years and the state of residence. Finally, Model 4 includes the unemployed respondents in the sample as they are the most likely to report higher levels of deprivation. In line with my theoretical expectations, Table 2 shows that going from lower relative unemployment risk exposure to higher is correlated with feeling unfairly deprived compared to others in Germany. Importantly, both the *p-values* and the sizes of the coefficients of in-group threats are remarkably robust to alternative specifications.

Table 2: In-group threat and subjective relative deprivation

	Model 1	**Model 2**	**Model 3**	**Model 4**
In-group threat	0.045***	0.047***	0.049***	0.047***
	(0.007)	(0.007)	(0.007)	(0.007)
Year FE	N	N	Y	Y
State FE	N	N	Y	Y
Constant	0.447***	0.434***	0.439***	0.466***
	(0.075)	(0.080)	(0.086)	(0.073)
Observations	11,311	10,966	10,966	12,508
Log likelihood	-7218	-6985	-6964	-7821

Note: Data is from the cumulative ALLBUS 1992-2016. Four-level linear hierarchical model results presented. Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05.

Finally, to address the second issue that is related to my outcome variable, I triangulate my results from the longitudinal analysis using an arguably more suitable measure of group conflict available from the ALLBUS waves in 1996, 2006, and 2016. For my dependent variable, I construct an indicator similar to the those in previous studies focusing on group conflict theory (Gorodzeisky and Semyonov 2009, Semyonov, Raijman, and Gorodzeisky 2006, Semyonov et al. 2004, Meuleman, Davidov, and Billiet 2009). The indicator is composed of the following three variables: demands for inclusion or exclusion related to the job markets ('*When jobs become scarce, foreigners living in Germany should be sent back*'), concerning social rights ('*Foreigners living in Germany should have the same right to social assistance as the Germans*'), and pertaining to political rights ('*Foreigners living in Germany should be prohibited from engaging in any political activity in Germany*') and report strong internal correlation (*alpha*= 0.65). I scale the index to vary from 0 to 1 for an intuitive interpretation of the coefficients ($\bar{x}$:0.36, *s*:0.26).

For an alternative way of testing my theoretical framework, here, moving beyond objective measures of LMC and FE in the longitudinal analysis, I use subjective responses that

directly pertain to perceived LMC and FE.[31] ALLBUS includes two question items capturing whether respondents agree with the statements that *'foreigners take jobs away from Germans'* and that *'foreigners living in Germany are a burden to the social security*'. The items are scaled to vary from 0 to 6, where higher values indicate more subjective LMC and FE. Using these variables allow me to have a more conservative test of the relationship between in-group threats and exclusionary attitudes since these subjective LMC and FE items are well-correlated with the outcome. In addition to these, I can also explicitly account for the cultural threat perceptions reported by respondents using the question on whether respondents agree that foreigners *'enrich the culture in Germany'*, going from 0 indicating completely agree to 6 indicating not at all. Table 3 presents fully specified[32] four-level hierarchical linear model estimations where exclusionary attitudes capturing group conflict is the dependent variable, see Table A35.

Table 3: In-group threat, relative deprivation, and exclusionary attitudes

	Model 1	**Model 2**	**Model 3**	**Model 4**
Subjective relative deprivation	0.047***	0.021**		
	(0.008)	(0.007)		
In-group threat (*objective*)			0.030***	0.015*
			(0.007)	(0.006)
Subjective LMC		0.036***		0.036***
		(0.002)		(0.002)
Subjective FE		0.035***		0.033***
		(0.002)		(0.002)
Cultural threat	0.046***	0.029***	0.048***	0.030***
	(0.002)	(0.002)	(0.002)	(0.002)
Constant	0.236**	0.111t	0.162*	0.089
	(0.073)	(0.066)	(0.081)	(0.073)
Year & State Fixed effects	Y	Y	Y	Y
Observations	3,734	3,717	3,413	3,396
Log likelihood	426.7	834.1	416.5	771.0

Note: Data is from 1996, 2006, and 2016 waves of ALLBUS. Four-level linear hierarchical model results presented. Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05.

[31] I replicate the results presented in Table 3 using the objective LMC and FE calculations as well based on the measures used in the longitudinal analysis by matching the data calculated using the SOEP. Substantively, there are no changes in the results, see Table A37.

[32] All models include employment status, sex, age, income, education, east *versus* west Germany, and the size of the municipality of residence variables.

The first two models show the relationship between the subjective relative deprivation with exclusionary attitudes. Next, the last two models present the relationship between objective measurement of in-group threats using relative unemployment risks revealing evidence in line with the SOEP analysis. As shown in Table 3, be it measured using the objective relative unemployment risk indicator or using the perceived relative deprivation item, being relatively worse-off amongst other Germans has a robust and significant relationship with more exclusionary attitudes. Subjective reports of ethnic competition and cultural threats all correlate positively with more conflictual views of immigration in Germany as theoretically expected.[33] Overall, the cross-sectional evidence from ALLBUS triangulates the findings from the longitudinal study and increases the leverage of the theoretical framework emphasising the role of inequalities within natives as a robust predictor of negativity towards immigration.

5. Conclusion

This paper provided a novel theoretical approach to the study of group conflict theory and comprehensive analysis of the economic grievances that shape native *versus* immigrant relations in the past two decades. While previous findings have been mixed concerning the evidence of economically motivated immigration attitudes (Tingley 2013, Hainmueller and Hopkins 2014), the analysis here showed that increasing ethnic competition raise adversity towards immigration. Furthermore, breaking from similar studies (Pardos-Prado and Xena 2019, Polavieja 2016), I presented that unemployment risk inequalities and subsequent relative deprivation are not just another ethnically motivated economic threat effect. I showed how having worse-off economic prospects amongst other natives functions as an independent channel increasing defensiveness towards immigrants. In this way, the paper contributes evidence of an economic threat factor, other than immigration, i.e. unemployment risk inequality as an essential root cause of worsening group relations.

The analysis has implications for our understanding of how natives' reactions towards immigration are shaped. This study adds to the ongoing work in the migration studies, public opinion, and comparative political economy literature. First, I revisit the group conflict theory,

[33] I check the predictability of objective LMC and FE on cross-sectional differences of subjective perceptions of ethnic competition. The findings suggest that economic effects of immigration, i.e. LMC and FE, as measured here accurately predict the subjective evaluations at conventional levels of statistical significance, see Table A39.

from a perspective of risk-based cleavages within the natives. The novel theoretical contribution of this study is that I bring together insights from individual relative deprivation (Runciman 1966, Smith and Pettigrew 2015) and group conflict theory (Blumer 1958, Blalock 1967). I argue that deepening inequalities of future uncertainty because of decisive labour market restructuring and occupational change, technological development, and growing economic globalisation in post-industrial European host societies, shape immigration attitudes to a remarkable extent. The paper makes the case that the material bases of anti-immigration reaction need to be conceived more broadly than direct competition for jobs and state resources.

Second, the findings confirm that perceiving an unfairly worse-off economic risk position is positively correlated with more exclusionary attitudes towards immigration. Using political economy theoretical frameworks on demands for insurance and risk (Rehm 2016, Rehm, Hacker, and Schlesinger 2012, Walter 2017), I proposed some explanation as to why increasing in-group threats may worsen group relations. I suggested that effects of globalisation and occupational change underpinned increasing tension between natives and immigrants from the perspective of an individual fear of 'coming last' at home compared to others (Kuziemko et al. 2014). I proposed that individual psychological processes due to relative deprivation and political messaging may be underpinning how grievances resulting from inequalities of economic prospects end up as backlash against immigration. However, while the analysis provides robust evidence for the observable links between in-group threats and negativity towards immigration using a variety of different measurement and methodological strategies, it does not trace these underlying mechanisms. Future studies can focus on these precise channels and study how messaging from a top-down perspective or individual cognition establish immigration as a source of risk and threats to socioeconomic stability even in the absence of much ethnic competition.

Third, unlike previous work, the paper adopts an encompassing approach to studying group conflict and economic threat paying careful empirical and conceptual attention to each distinct channel. While there have been many sophisticated assessments of the group conflict theory (Meuleman, Davidov, and Billiet 2009, Lancee and Pardos-Prado 2013, Semyonov et al. 2004), studies often focus on a single aspect of the framework, such as concentrating on FE, LMC, or broader economic risks. This joint approach allows me to isolate each potential effect separately and add evidence confirming that LMC and FE on the one hand and in-group threats on the other shape dynamics of group relations. To the best of my knowledge, the analysis here is first in combining occupation and region-specific empirical tests of these widely debated sources of economic threats.

Relatedly, the study adds to the existing work on the implications of LMC in the literature (Scheve and Slaughter 2001, Dancygier and Walter 2015). The analysis provided evidence of a positive relationship between increasing anti-immigration and more competition with immigrants at the job markets from an occupational substation risk and regional perspective. This finding brings new evidence to such a widely debated hypothesis proposing empirical corrections in line with the recent work on the topic (Sides and Citrin 2007, Pecoraro and Ruedin 2016, Bolet 2020). Likewise, the study provides evidence in line with the work characterising FE as a relevant channel in shaping adversity towards immigration (Facchini and Mayda 2009). A limitation of the analysis is that I could not further untangle different FE mechanisms, i.e. crowding-out and public financing. While such a focus would require theorisation and empirical analysis well beyond the scope of this research, future studies can gauge how this broad umbrella of 'fiscal exposure' threats function in different contexts and for citizens with varying socioeconomic characteristics.

Fourth, the paper adds to the evidence that when talking about increasing adversity towards immigration, future uncertainty plays an important role (Pardos-Prado 2020, Pardos-Prado and Xena 2019). I emphasise that despite persistent cross-sectional differences along with education or socio-cultural lines between citizens when determining their prejudice towards foreigners, there is nevertheless a dynamics component of such reactions (Lancee and Pardos-Prado 2013, Olzak 1995, Meuleman, Davidov, and Billiet 2009). The analysis echoes earlier scepticism about the role of education in predicting the dynamics of group conflict and subsequent political behaviour in recent decades (Pecoraro and Ruedin 2016, Halikiopoulou and Vlandas 2020). In such a way, the argument here can be extended to understanding why parties advocating issue ownership of the immigration policy area have experienced a rise in voter support in this period.

Future studies should investigate whether these relative unemployment risks indeed predict systematic differences in voting patterns and changes in party choices over time for European citizens. Notably, the analysis here focused on a single country case and did not focus on whether contextual and political factors can mitigate the effects studied. More crucially, further research is needed to untangle the role political parties specifically, and specifically, the nativist radical-right, have a role in attributing the economic grievances and worries towards immigration. Investigating these actors can help understand the extent to which their discourses and interests can lead to differences between countries in terms of how ethnic competition and risk-based inequalities raise discontent towards immigration.

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Supplementary Material for

'Group Conflict Theory Revisited: Economic Risk Inequalities within the In-Group and Reactions to Immigration'

Table of contents

Table A1: Summary statistics of variables used in the analysis, SOEP (1999-2016)

Variable	**Obs.**	**Mean**	**Std. Dev.**	**Min**	**Max**
Anti-immigration reactions	166,623	.2788931	.4484562	0	1
Measurement of in-group threat					
Relative risk exposure level ($risk_{occ}/\bar{x}_{reg}$)	179,807	.7849006	.7339704	0	14.67
Relative risk exposure level ($risk_{occ}/\bar{x}_{nat}$)	179,807	.6029318	.4552348	0	9.829661
Measurement of out-group threats					
Fiscal exposure	179,807	63.24816	10.91355	0	100
Labour market competition	179,807	11.65787	11.46522	0	85.71429
Education	179,807	12.83176	2.72434	7	18
Income (in deciles)	179,807	6.910215	2.590307	1	10
Age	179,807	42.43591	11.1001	16	65
Tenure	179,807	11.04523	10.15794	0	58
Permanent contract	179,807	.7682904	.4219256	0	1
Temporary contract	179,807	.1179987	.3226075	0	1
Self-employed	179,807	.1137108	.3174606	0	1
Household income satisfaction	176,952	6.634031	2.128769	0	10
Political interest	167,654	1.352416	.7848019	0	3
East Germany	179,807	.2548455	.4357755	0	1
Difficulty finding job	166,680	.7569474	.4289279	0	1
Worries about job security	174,905	.1206941	.3257724	0	1
Worries about personal finance	179,290	.1765575	.3812949	0	1

Note: Employment relations variable is coded and treated categorically with the baseline as being employed with a permanent contract.

Table A2: Variables used from SOEP

Measured variable	Scale
Immigration worries	2-very concerned, 1-somewhat, 0-not concerned at all (recoded)
Occupation	ISCO-88 job categories
Labour force status	11-Working, 6-Not working unemployed (recoded to specify active workforce participants and unemployment/employment status)
Contract type	1- permanent, 2-temporary, 3-self-employed (recoded)
Worry about job insecurity	2-very concerned, 1-somewhat, 0-not concerned at all (recoded)
Difficulty in finding a new job	1-difficult/almost impossible, 0-easy (recoded)
Worry about personal finances	2-very concerned, 1-somewhat, 0-not concerned at all (recoded)
Age	Age of respondents
German citizen	1-German citizen, 0-Other nationality (recoded)
	1-men, 2-women
Immigration status	0-Native (born in Germany or immigration before 1949), 1- Immigration after 1949
Länder	Schleswig-Holstein, Hamburg, Lower Saxony, Bremen, North-Rhine-Westphalia, Hessen, Rhineland-Pfalz, Baden-Wuerttemberg, Bavaria, Saarland, Berlin, Brandenburg, Mecklenburg-Vorpommern, Saxony, Saxony-Anhalt, and Thuringia
Income (net income last month)	Monthly household net income in Euros (recoded in 10 categories)
Education	Years of education respondents had
Tenure	Year since respondent is with the current employer
East-West Germany	0-West, 1-West
Industry	1-digit industry code of an individual's occupation: 1-agriculture, 2-energy, 3-mining, 4- manufacturing, 5-construction, 6.trade, 7-transport, 8-bank and insurance, 9-services
Satisfaction w/household income	0-10 (lower to higher satisfaction)
Socio-economic class	1-upper middle class, 2-lower middle class, 3-skilled working-class, 4-unskilled working class
Political interest	0-not at all, 1-not that strong, 2-a lot, 3-very strong (recoded)

Further details and checks for in-group threat measure

Table A3: ISCO-88 1-digit and 2-digit occupational job task categorisation

1	**Major Group: Legislators, Senior Officials, and Managers**
11	Legislators and senior officials
12	Corporate managers
13	Managers of small enterprises
2	**Major Group: Professionals**
21	Physical, mathematical, and engineering science professionals
22	Life science and health professionals
23	Teaching professionals
24	Other professionals (such as business professionals, accountants, lawyers, judges, social scientists etc.)
3	**Major Group: Technicians and Associate Professionals**
31	Physical and engineering science associate professionals
32	Life science and health associate professionals
33	Teaching associate professionals
34	Other associate professionals (such as finance and sales associate professionals, buyers, trade brokers, legal and related business associate professionals etc.)
4	**Major Group: Clerks**
41	Office clerks
42	Customer service clerks
5	**Major Group: Service Workers and Shop and Market Sales Workers**
51	Personal and protective services workers
52	Models, salespersons and demonstrators
6	**Major Group: Skilled Agricultural and Fishery Workers**
61	Skilled agricultural and fishery workers
7	**Major Group: Craft and Related Trade Workers**
71	Extraction and building trades workers
72	Metal, machinery, and related trades workers
73	Precision, handicraft, craft printing and related trades workers
74	Other craft and related trades workers (such as food processing and related trade workers, tailors, textile cutters, wood treaters etc.)
8	**Major Group: Plant and Machine Operators and Assemblers**
81	Stationary plant and related operators
82	Machine operators and assemblers
83	Drivers and mobile plant operators
9	**Major Group: Elementary Occupations**
91	Sales and services elementary occupations
92	Agricultural, fishery and related labourer
93	Labourers in mining, construction, manufacturing and transport

Figure A1: Occupational unemployment rates across occupations, 1999-2016

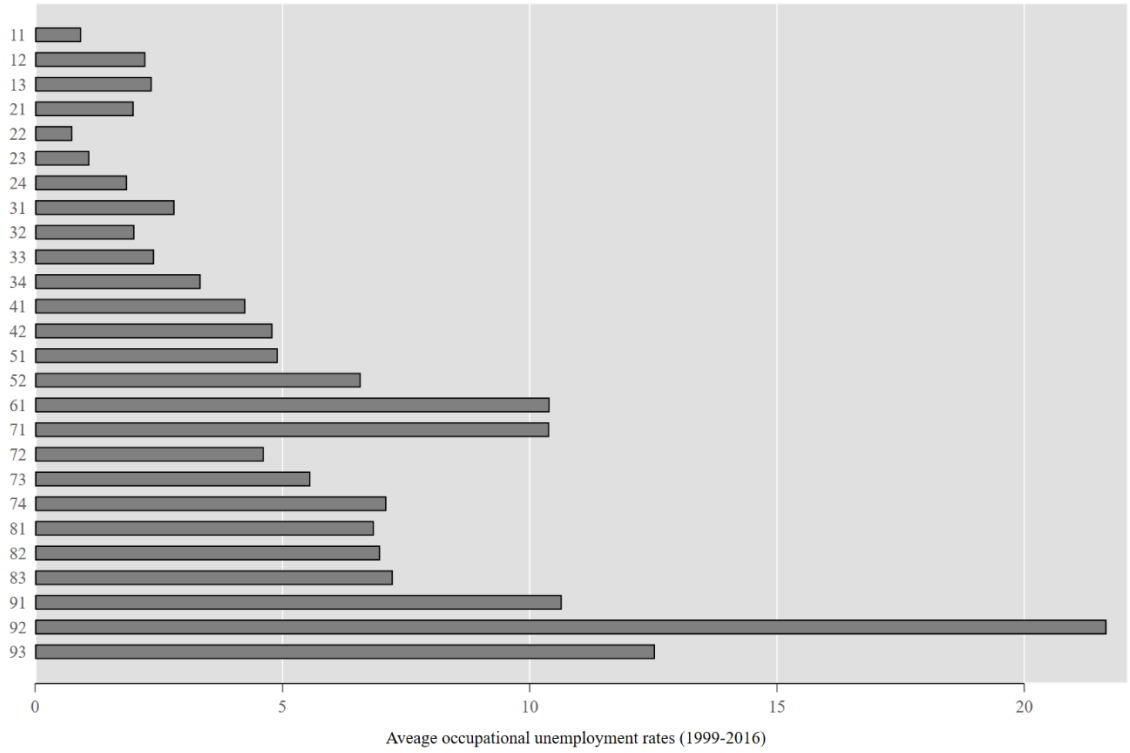


Figure A2.1: Distribution of relative risk across occupations, pooled (11-24)

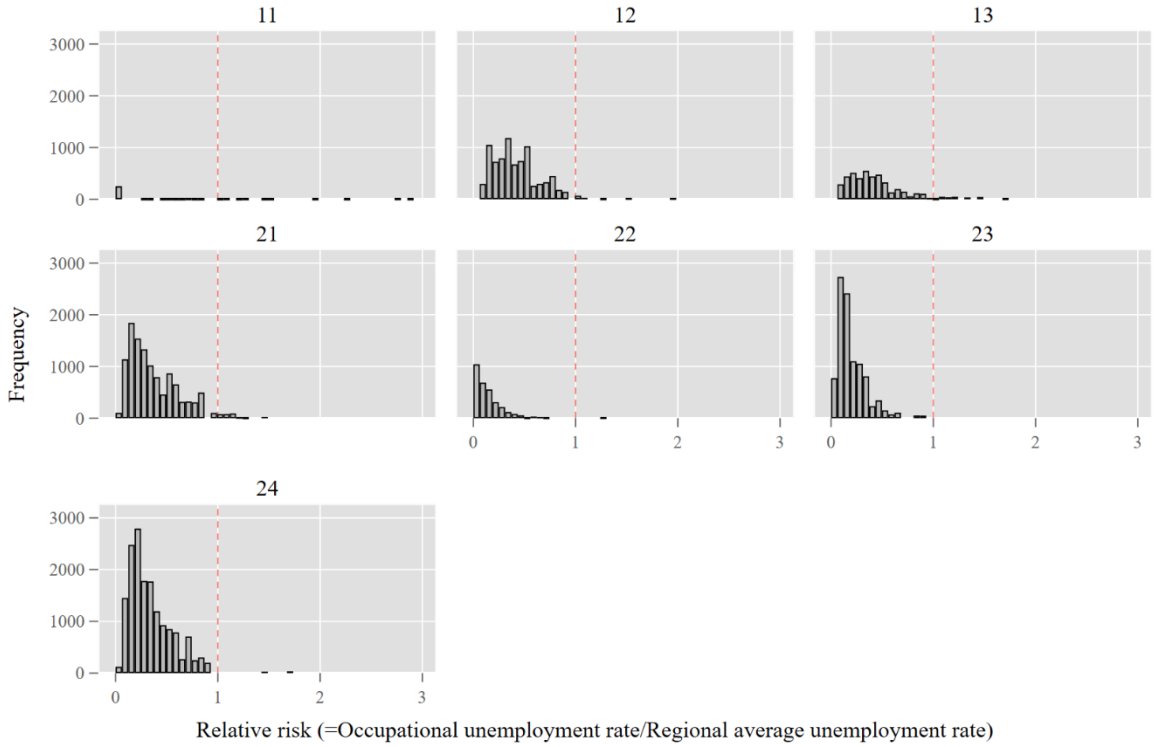


Figure A2.2: Distribution of relative risk across occupations, pooled (31-52)

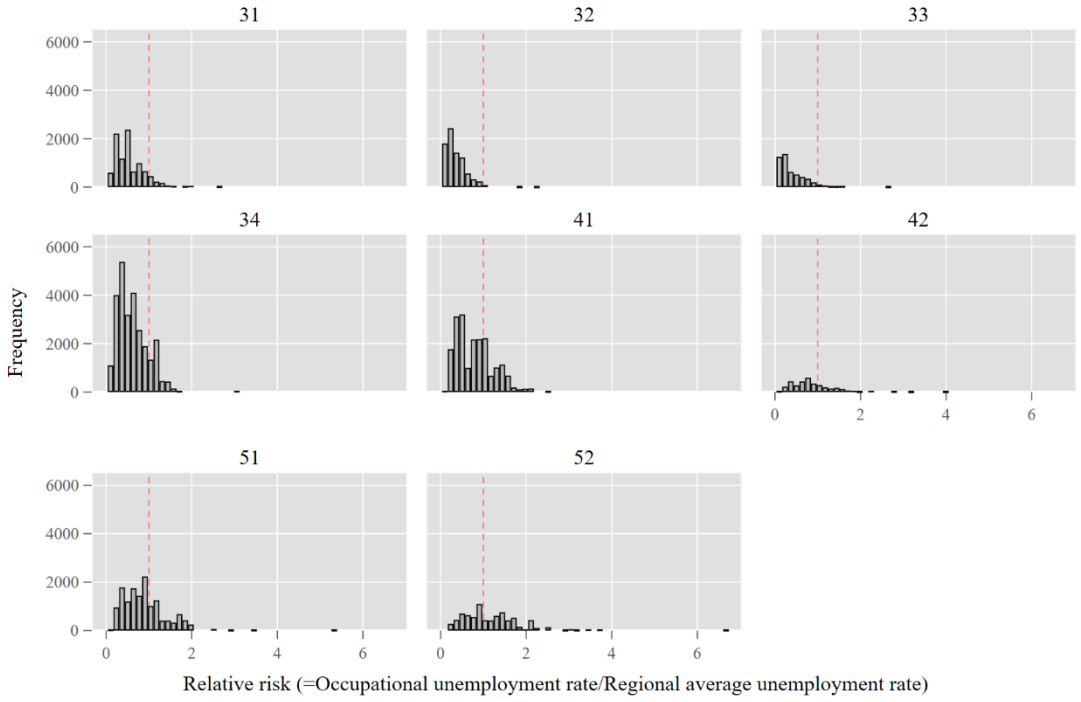


Figure A2.3: Distribution of relative risk across occupations, pooled (61-74)

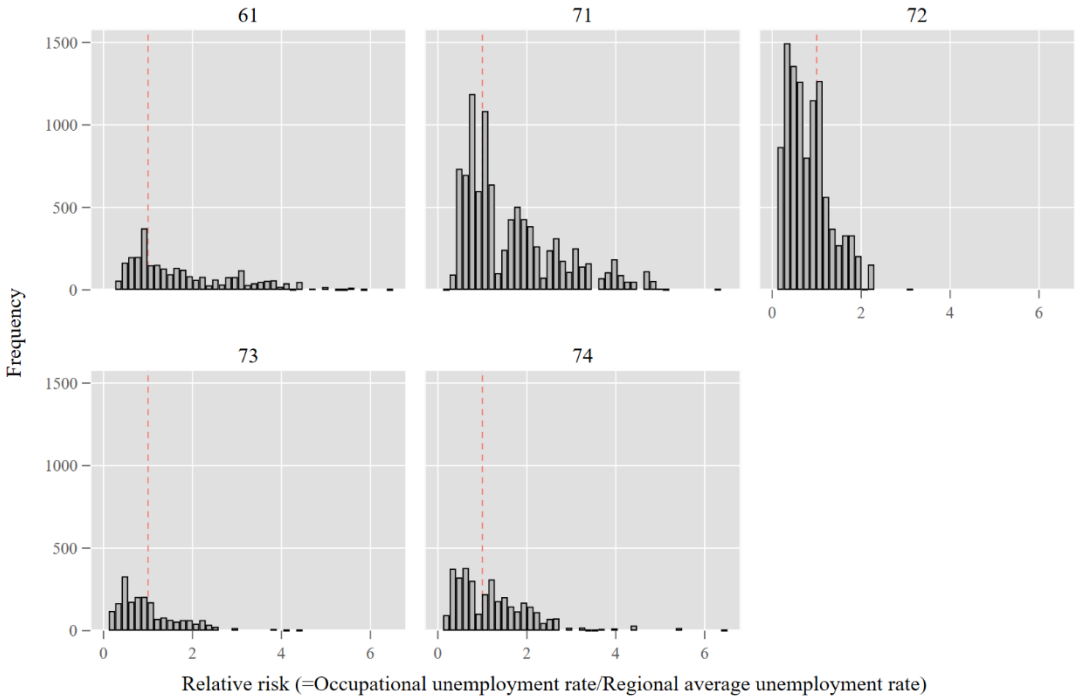


Figure A2.4: Distribution of relative risk across occupations, pooled (81-93)

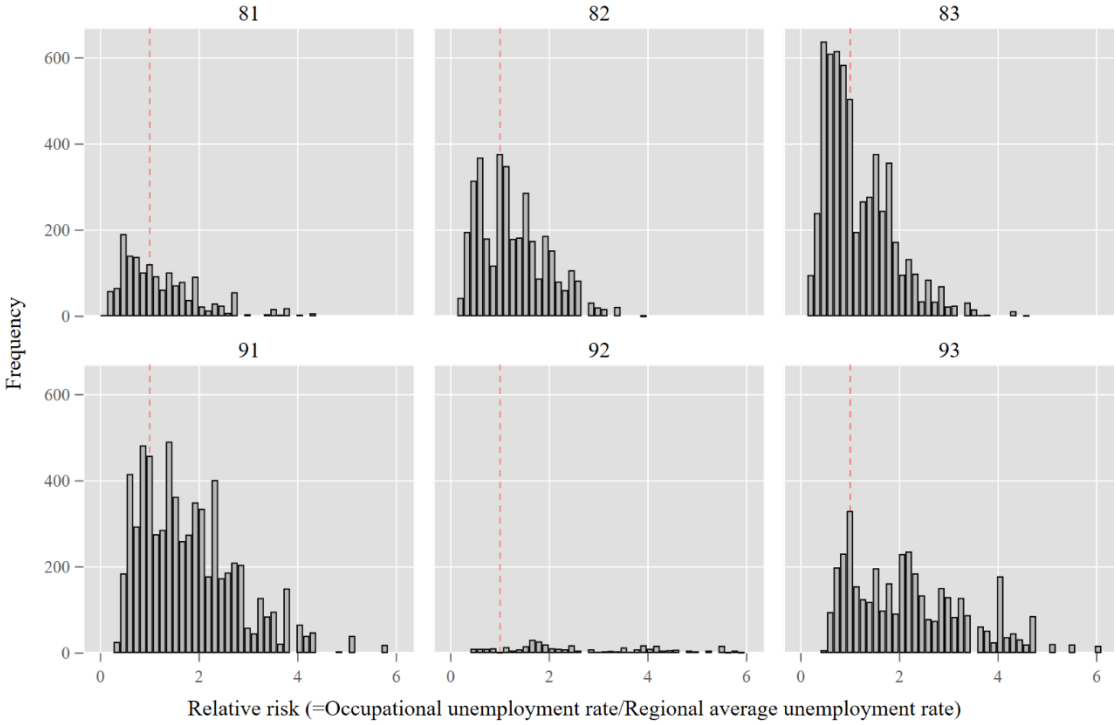


Table A4: Correlations between absolute and relative measurements of unemployment risk

	$risk_{occ}$ 2dg	$risk_{occ}$ 1dg	$risk_{occ\ 2\text{-}dgt}/\bar{x}_{reg}$	$risk_{occ\ 2\text{-}dgt}/\bar{x}_{nat}$	$risk_{occ\ 1\text{-}dig}/\bar{x}_{nat}$
Absolute unem. Rate ($risk_{occ}$ 2-digit)	1.0000				
Absolute unem. Rate ($risk_{occ}$ 1-digit)	0.8712	1.0000			
$risk_{occ\ 2\text{-}digit}/\bar{x}_{reg}$	0.7431	0.6651	1.0000		
$risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$	0.9853	0.8530	0.7541	1.0000	
$risk_{occ\ 1\text{-}digit}/\bar{x}_{nat}$	0.8558	0.9824	0.6768	0.8683	1.0000

Note: Calculations based on SOEP data, 1999-2016

Figure A3: Distribution of in-group threats (1999-2016), at four *Länder*

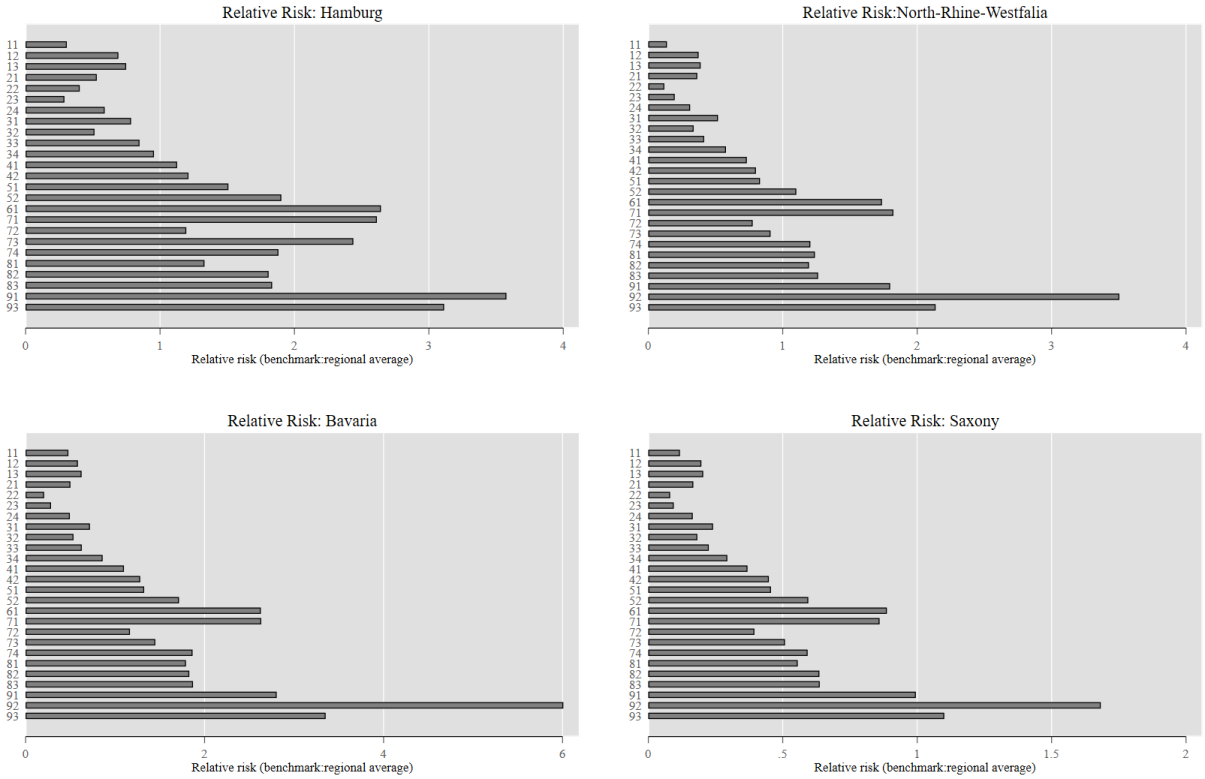
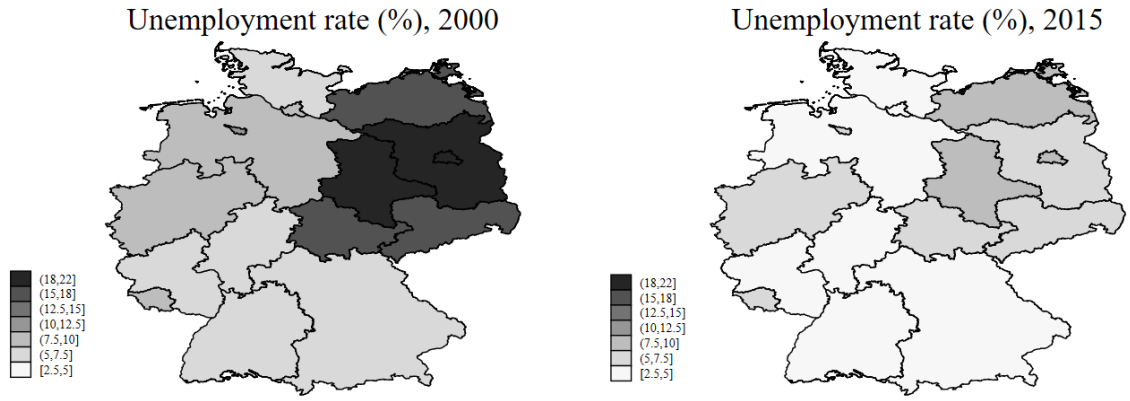


Figure A4: Regional unemployment rates within Germany by *Länder*, 2000 & 2015



As mentioned in the manuscript, I use alternative ways of measuring 'in-group threats' in order to ensure that the results are not sensitive to operationalisation differences. The *first one* is related to using an alternative benchmark of national unemployment rates instead of regional average ($risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$).

The *second one* is based on replicating the same results using 1-digit larger aggregation of occupational groups. In addition to checking for sensitivity, this alternative operationalisation allows me to use thicker groups of measurement where missingness is lower ensuring each group's sampled respondents is much higher than in 2-digit level ($risk_{occ\ 1\text{-}digit}/\bar{x}_{nat}$), here I show relative to the national average but 1-digit measurement relative to the regional average reveals substantively the same results as well.

Third, some may argue that occupational risks should already be measured at the regional level with a much more narrowly focus on local labour market dynamics. While this measure has some merit in precision in local dynamics, it risks ignoring the fact that most native workers may not think of their prospects only in local terms. Moreover, from an empirical perspective calculating such occupationally specific unemployment rate within each state raises measurement error risks even in such nationally representative survey such as the SOEP, particularly in capturing risks at the 2-digit level. Therefore, in my main results, I favour occupationally specific unemployment risks calculated at the national level. However, I also calculate such an operationalisation of risk relative to the regional average ($reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{reg}$) or native average ($reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$), see Table A5.

Table A5: Correlations across different measurement of in-group threat

	$risk_{occ\ 2\text{-}digit}/\bar{x}_{reg}$	$risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$	$risk_{occ\ 1\text{-}digit}/\bar{x}_{nat}$	$reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{reg}$	$reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$
$risk_{occ\ 2\text{-}digit}/\bar{x}_{reg}$	1.0000				
$risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$	0.7541	1.0000			
$risk_{occ\ 1\text{-}digit}/\bar{x}_{nat}$	0.6768	0.8683	1.0000		
$reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{reg}$	0.4484	0.5836	0.5206	1.0000	
$reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$	0.1428	0.5692	0.4941	0.7908	1.0000

Note: Calculations based on SOEP data, 1999-2016

Table A6: Negative responses to immigration and alternative measures of in-group threat

	(1)	(2)	(3)	(4)
$risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$	0.255***			
	(0.028)			
$risk_{occ\ 1\text{-}digit}/\bar{x}_{nat}$		0.360***		
		(0.033)		
$reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$			0.060***	
			(0.014)	
$reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{reg}$				0.070***
				(0.014)
LMC	0.014***	0.013***	0.017***	0.016***
	(0.001)	(0.001)	(0.001)	(0.001)
FE	0.010***	0.010***	0.011***	0.011***
	(0.001)	(0.001)	(0.001)	(0.001)
Observations	91,643	91,643	91,643	91,643
Number of individuals	11,407	11,407	11,407	11,407
Log likelihood	-36121	-36102	-36152	-36149

Note: All models are specified as in Model 4 in Table 1 with two-way fixed effects. Clustered standard errors in parentheses *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A7: Subjective difficulty in finding a job and alternative measures of in-group threat

DV: Difficulty finding job	(1)	(2)	(3)	(4)
$risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$	0.273***			
	(0.033)			
$risk_{occ\ 1\text{-}digit}/\bar{x}_{nat}$		0.304***		
		(0.037)		
$reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$			0.112***	
			(0.018)	
$reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{reg}$				0.106***
				(0.017)
Observations	76,184	76,184	76,184	76,184
Number of individuals	10,459	10,459	10,459	10,459
Log likelihood	-28704	-28705	-28718	-28718

Note: All models are specified as in Model A25 with two-way fixed effects. Random effects specification reveals substantively the same results. Clustered standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A8: Worrying about job insecurity and alternative measures of in-group threat

DV: Worried about job security	(1)	(2)	(3)	(4)
$risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$	0.312***			
	(0.032)			
$risk_{occ\ 1\text{-}digit}/\bar{x}_{nat}$		0.353***		
		(0.038)		
$reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$			0.096***	
			(0.016)	
$reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{reg}$				0.099***
				(0.017)
Observations	64,577	64,577	64,577	64,577
Number of individuals	8,046	8,046	8,046	8,046
Log likelihood	-22465	-22468	-22493	-22494

Note: All models are specified as in Model A25 with two-way fixed effects. Random effects specification reveals substantively the same results. Clustered standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A9: Worrying about the personal economic situation and alternative measures of in-group threat

DV: Worried about personal finances	(1)	(2)	(3)	(4)
$risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$	0.305***			
	(0.028)			
$risk_{occ\ 1\text{-}digit}/\bar{x}_{nat}$		0.336***		
		(0.032)		
$reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{nat}$			0.074***	
			(0.014)	
$reg.risk_{occ\ 2\text{-}digit}/\bar{x}_{reg}$				0.079***
				(0.015)
Observations	81,348	81,348	81,348	81,348
Number of individuals	10,219	10,219	10,219	10,219
Log likelihood	-30432	-30436	-30476	-30475

Note: All models are specified as in Model A25 with two-way fixed effects. Random effects specification reveals substantively the same results. Clustered standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Sensitivity checks on the measurements of out-group threats

Figure A6: LMC across occupations, broad and narrow definitions of out-groups

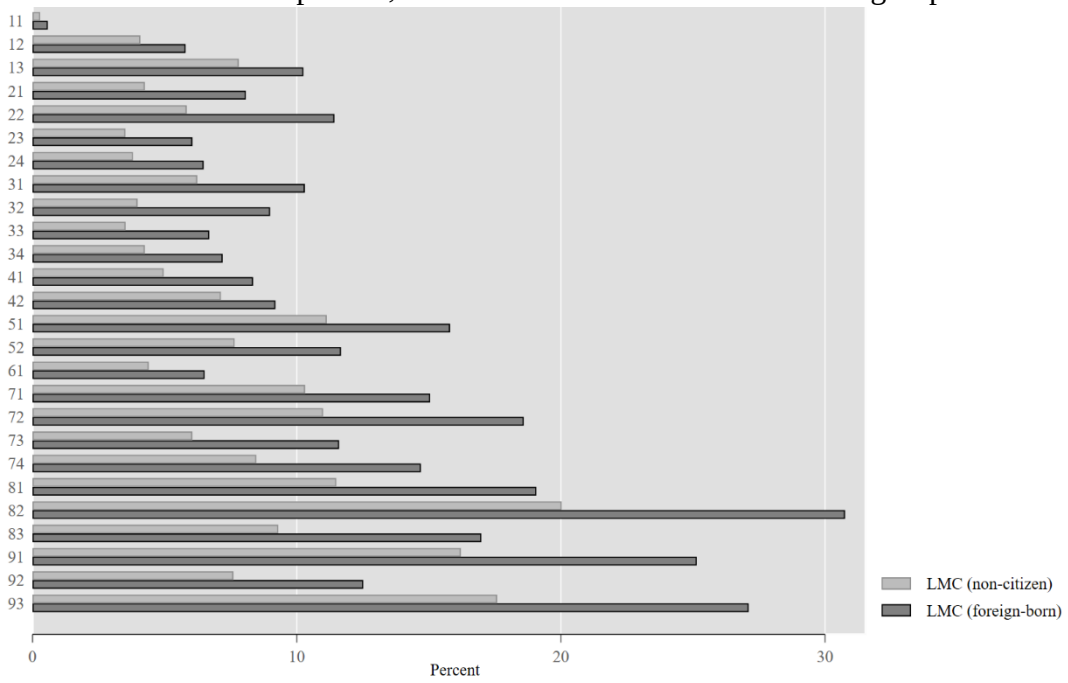


Figure A7: LMC across *Länder*, broad and narrow definitions of out-groups

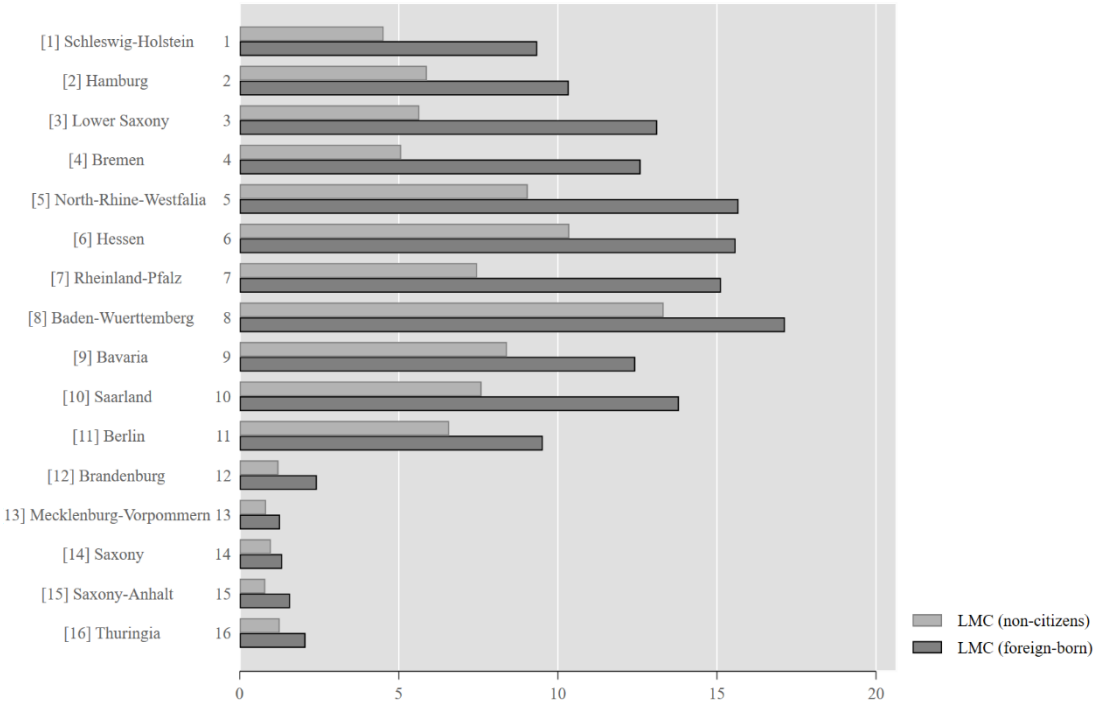


Figure A8: LMC across 4 *Länder* by occupation groups

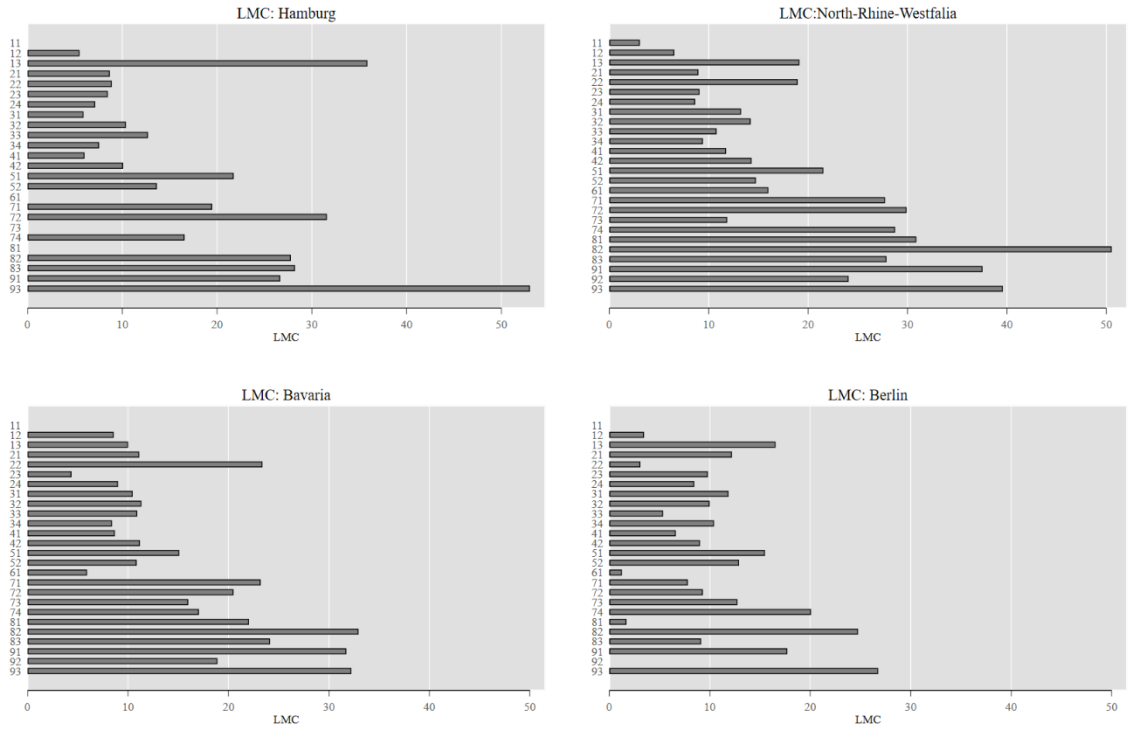


Figure A9: FE across *Länder*, broad and narrow definitions of out-groups

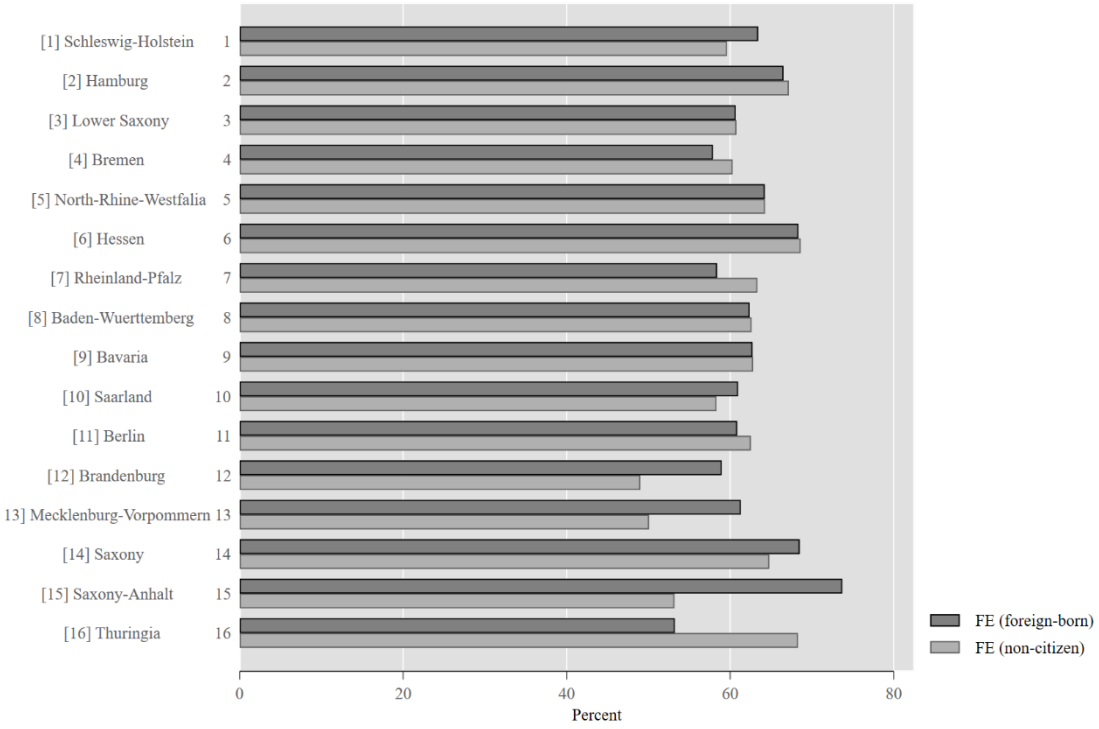


Figure A10: FE across *Länder* in 2000, 2005, 2010, and 2015

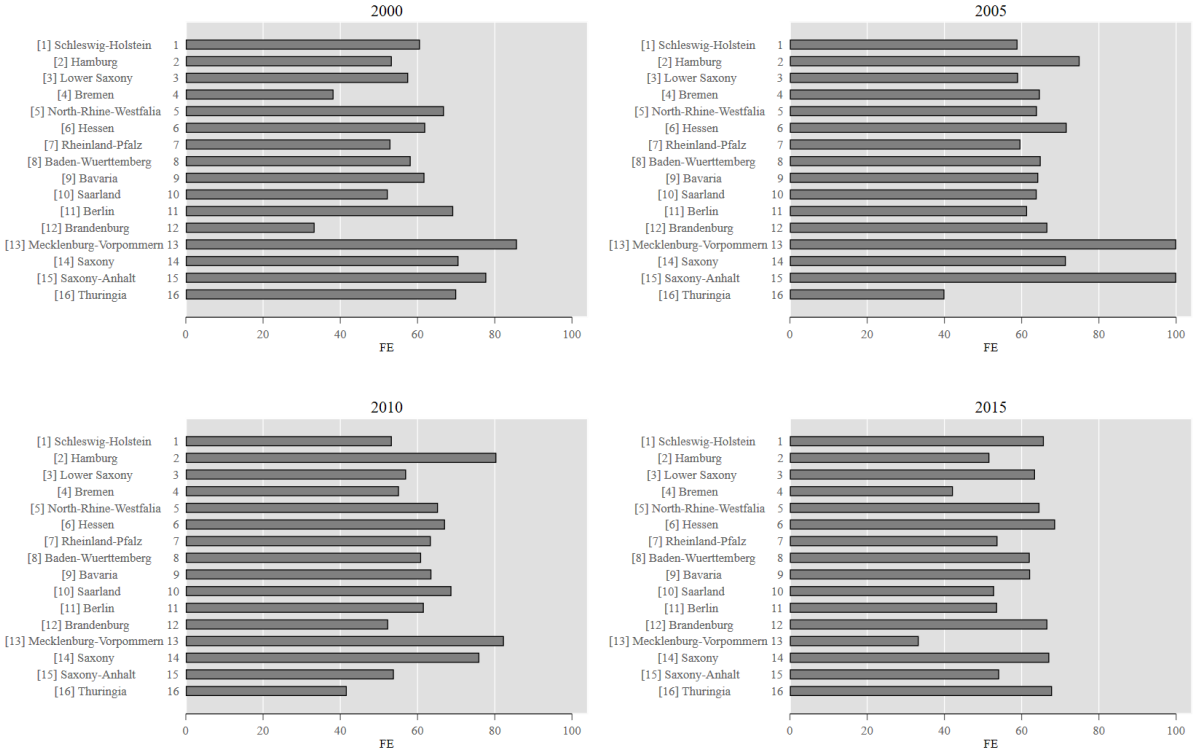


Table A10 - Negative responses to immigration and alternative measures of out-group threat- I

	(1)	(2)	(3)
In-group threat	0.128***	0.177***	0.116***
	(0.018)	(0.017)	(0.018)
LMC (non-citizens)	0.021***		0.021***
	(0.002)		(0.002)
FE (non-citizens)		0.011***	0.010***
		(0.001)	(0.001)
Observations	91,643	87,735	87,735
Number of individuals	11,407	11,162	11,162
Log likelihood	-36201	-34567	-34482

Note: FE and LMC are calculated using citizenship (instead of immigration background) as the basis of determining out-groups. All models are fully specified as in Table 1 with two-way fixed effects. Random effects specification reveals substantively the same results. Clustered standard errors in parentheses *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

While I concentrate on the regionally specific LMC and FE, some may argue that these mechanisms may instead have aggregate effects. Since both natives and immigrants can move to another state, it is possible to argue that either of these threats and most importantly, LMC should nevertheless be relevant at the national level. While this is plausible, residential mobility in Germany is lower than in most comparable Western European societies (Sanchez and Andrews 2011). Moreover, individual perceptions and information on the extent to which they are competing for jobs with out-groups may still be rooted in their experience at the sub-national level where the visibility of this competition is much higher due to direct exposure.

Likewise, there are several reasons why fiscal exposure at the national level may be important. One particularly relevant reason is due to German fiscal unity and redistribution system. Indeed, even though certain states have lower shares of fiscal exposure, they may nevertheless experience an effect of fiscal exposure since pooled resources from states do get transferred to other states. This means that it does not necessarily follow that individuals would only be concerned with their immediate area or state when thinking of financing burdens of crowding out by out-groups. Based on these considerations, then, in addition to regionally specific LMC and FE calculations, I replicate my measurements at the nationally aggregated level and find that my results do not change, see Table A11 below.

Table A11 – Negative responses to immigration and alternative measures of in-group threat- II

	(1)	(2)	(3)
In-group threat	0.121***	0.118***	0.071***
	(0.018)	(0.017)	(0.018)
LMC (at the national level)	0.025***		0.019***
	(0.002)		(0.002)
FE (at the national level)		0.116***	0.112***
		(0.003)	(0.003)
Observations	91,643	91,643	91,643
Number of individuals	11,407	11,407	11,407
Log likelihood	-36161	-35570	-35503

Note: FE and LMC are calculated at the national level. This means that LMC indicates the share percentage of foreign-born employed in each 2-digit occupational category across Germany. FE, thus, means the share percentage of below-median income foreign-born residents in Germany amongst all foreign-born residents in each year. All models are fully specified as in Table 1 with two-way fixed effects. Random effects specification reveals substantively the same results. Clustered standard errors in parentheses *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A12: Negative responses to immigration and alternative measures of fiscal exposure

	(1)	(2)	(3)	(4)	(5)	(6)
In-group threat	0.141***	0.176***	0.181***	0.130***	0.174***	0.124***
	(0.017)	(0.018)	(0.017)	(0.018)	(0.017)	(0.018)
FE-1 (*within* all below median residents)	0.045***	0.048***				
	(0.001)	(0.001)				
FE-2 (using LQ-I)			0.011***	0.011***		
			(0.001)	(0.001)		
FE-3 (using LQ-II)					0.014***	0.013***
					(0.001)	(0.001)
LMC -regional		-0.010***		0.014***		0.013***
		(0.001)		(0.001)		(0.001)
Observations	91,643	91,643	91,643	91,643	87,735	87,735
Number of individuals	11,407	11,407	11,407	11,407	11,162	11,162
Log likelihood	-35266	-35241	-36145	-36089	-34490	-34439

Note: FE-1 is the share % of below-median foreign-born amongst all below-median residents in each state. FE-2 is the share % foreign-born who are below lower quartile amongst the foreign-born in the state. FE-3 is the same as FE-2 but defines out-groups on the basis of citizenship instead. Models are fully specified as in Table 1 with two-way fixed effects. Random effects specification reveals substantively the same results—clustered standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Note on the measurement of the DV

Political attitudes, policy preferences, and issue salience are not identical responses even though they are often understood as similar indicators of an underlying tolerance (or intolerance) towards ethnic heterogeneity (Dennison 2019, Druckman and Lupia 2000). Attitudes are ways in which individuals position themselves on an issue, whereas policy preferences reflect in what direction and what type of policy intervention voters demand. If we assume that citizens demand policies aligned with their personal attitudes, such opinions and subsequent policy preferences are expected to correlate to a greater extent. Nevertheless, issue salience remains as a distinct subjective response. It refers to the importance ascribed to the immigration issue rather than what position citizens take on the matter or what type of policies they demand (Budge 2015). While attitudes are evidenced to be stable or slow-moving over time (Goldstein and Peters 2014, Kustov, Laaker, and Reller 2019), issue salience fluctuates both in short and in the long-term periods (Hatton 2017, Neundorf and Adams 2018).

Salience is often thought as a weight component of policy preferences or attitudes in determining how citizens shape their political responses towards an issue, particularly with respect to voting. Put differently, higher salience of immigration for an individual does not necessarily follow from this individual having a strongly anti-immigration sentiment. On this regard Wleizen, for example, argues that formulations of salience using 'most important problem' has distinct and mostly negative connotations arguably relating those with more scepticism to be often placed on the higher end of the scale (2005). Therefore, I argue that while it is not so straightforward to distinguish whether the question item I use relates to negative responses or salience only, the item captures an important part of negative reactions, which can be understood as negatively connotated worries and concerns about immigration. Indeed, the German original word "*Sorgen*" is not neutral and implies negatively loaded worries and concerns. Therefore, while I concede that the item is not the best way of measuring group conflict, I sustain that this measure is adequate in capturing negative responses to immigration by the natives.

Figure A11 below displays the percentages of respondents transitioning between the answer options from *t-1* to *t* and has two important implications. First, as expected, while the dominant trend of reported importance of immigration seems to be remaining in the choice from previous year making the item quite similar to capturing attitudinal dimensions, just about less than forty per cent of the observations change their answer. More strikingly is that there are even transitions from highest to lowest responses within one-year and *vice versa*. Second, this indicates that given that the paper is interested in capturing dynamics of such changes, there is indeed adequate within respondent related to capturing dynamics of group conflict. Furthermore, I also check how the respondents are distributed using a more explicit measure of negativity towards immigration based on which party respondents feel closest to and their worries about immigration. If the indicator captures an important degree of the negativity and scepticism towards immigration rather than simply the salience, those responding as feeling very concerned about immigration

should be more represented in feeling close to far-right and nationalist political parties. In the sample, there is AfD and Republikaner in the response options.

Figure A11: Transitions across responses within individuals, from *t-1*

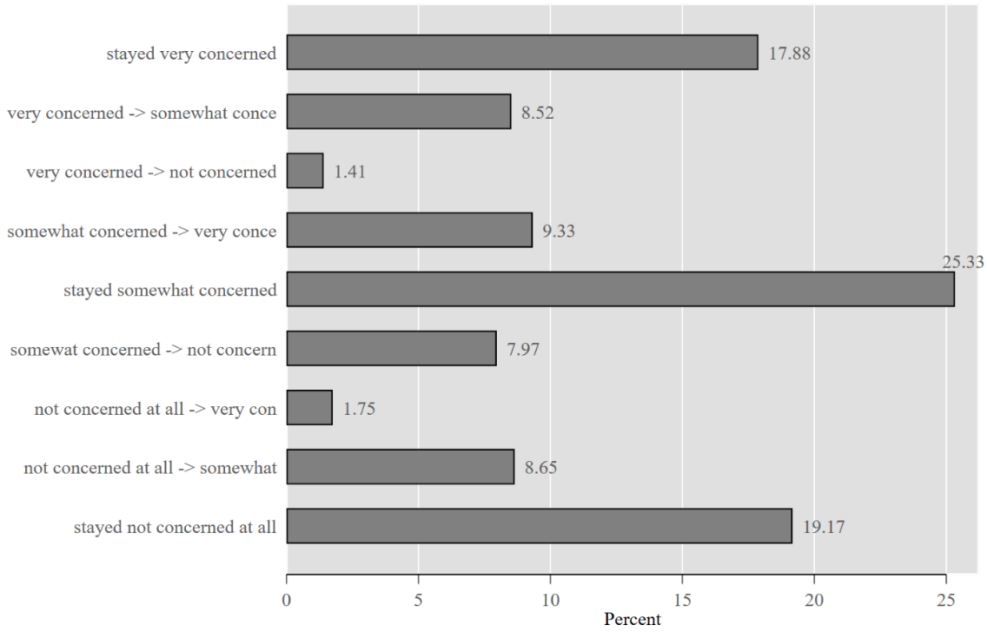


Table A13: Table of worries about immigration and closest political party

DV:	0	1	Total
Left (SDP&Grün&Link)	40,456	8,799	49,255
%	82.14	17.86	100.00
Right (Cons&Lib -CDU/CSU)	25,696	11,205	36,901
%	69.63	30.37	100.00
Far-right &Nationalist	**321**	**1,694**	**2,015**
%	**15.93**	**84.07**	**100.00**
Other parties	973	524	1,497
%	65.00	35.00	100.00
Total	67,446	22,222	89,668
%	75.22	24.78	100.00

1= Very concerned about immigration, 0= Somewhat or not at all concerned about immigration

Table A14: Ordered logistic estimating models predicting immigration reactions

	(1)	(2)	(3)	(4)
In-group threat	1.235***	1.178***	1.228***	1.170***
	(0.015)	(0.015)	(0.015)	(0.015)
Education	0.758***	0.763***	0.757***	0.761***
	(0.004)	(0.004)	(0.004)	(0.004)
Age	1.012***	1.011***	1.012***	1.011***
	(0.001)	(0.001)	(0.001)	(0.001)
Temporary	0.890***	0.890***	0.891***	0.891***
	(0.021)	(0.021)	(0.021)	(0.021)
Self-employed	0.904***	0.913***	0.902***	0.911***
	(0.023)	(0.023)	(0.023)	(0.023)
Income	0.987***	0.985***	0.986***	0.983***
	(0.003)	(0.003)	(0.003)	(0.003)
Job Tenure	0.998t	0.998t	0.998t	0.998t
	(0.001)	(0.001)	(0.001)	(0.001)
LMC		1.009***		1.009***
		(0.001)		(0.001)
FE			1.010***	1.010***
			(0.001)	(0.001)
Constant				
Observations	166,623	166,623	166,623	166,623
Number of individuals	31,904	31,904	31,904	31,904
Log likelihood	-144568	-144506	-144411	-144348

Note: The ordered logistic estimations presented are from random-effects models, including both within and between individual variation on the outcome variable. Individual clustered standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A15: Linear models predicting immigration attitudes

	(1)	(2)	(3)	(4)
	Random effects		Fixed effects	
In-group threat	0.051***	0.038***	0.055***	0.038***
	(0.003)	(0.003)	(0.003)	(0.003)
Education	-0.067***	-0.066***	-0.001	-0.000
	(0.001)	(0.001)	(0.003)	(0.003)
Age	0.003***	0.003***	0.000	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
Temporary	-0.028***	-0.028***	-0.002	-0.000
	(0.006)	(0.006)	(0.006)	(0.006)
Self-employed	-0.025***	-0.023***	-0.006	-0.005
	(0.006)	(0.006)	(0.007)	(0.007)
Income	-0.003***	-0.004***	0.004***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
Job tenure	-0.001*	-0.001*	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
LMC		0.002***		0.004***
		(0.000)		(0.000)
FE		0.002***		0.003***
		(0.000)		(0.000)
Constant	1.707***	1.548***	0.908***	0.803***
	(0.019)	(0.020)	(0.043)	(0.044)
Observations	166,623	166,623	166,623	166,623
Number of individuals	31,904	31,904	31,904	31,904
RMSE	0.530	0.529	0.529	0.528

Note: The alternative construction of the dependent variable uses the question item with its original three-fold scale and estimates models using a linear model. Individual clustered standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

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Tables of results presented in the main analysis

Table A16: Main table of results as presented in Table 1, log odds coefficients

	(M1)	(M2)	(M3)	(M4)
In-group threat	0.191***	0.138***	0.181***	0.126***
	(0.017)	(0.018)	(0.017)	(0.018)
Education	-0.013	-0.011	-0.015	-0.013
	(0.020)	(0.020)	(0.020)	(0.020)
Age	0.016***	0.009***	0.014***	0.008**
	(0.002)	(0.002)	(0.002)	(0.003)
Temporary	0.026	0.029	0.030	0.034
	(0.035)	(0.035)	(0.035)	(0.035)
Self-employed	-0.009	0.004	-0.013	-0.000
	(0.039)	(0.039)	(0.039)	(0.039)
Income	0.017**	0.016**	0.017**	0.015**
	(0.006)	(0.006)	(0.006)	(0.006)
Job tenure	-0.002	-0.001	-0.002	-0.001
	(0.002)	(0.002)	(0.002)	(0.002)
LMC		0.014***		0.014***
		(0.001)		(0.001)
FE			0.010***	0.011***
			(0.001)	(0.001)
Observations	91,643	91,643	91,643	91,643
Number of individuals	11,407	11,407	11,407	11,407
Log likelihood	-36291	-36233	-36197	-36136

Note: Clustered standard errors in parentheses *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Figure A12: AMEs of covariates presented in Table 1

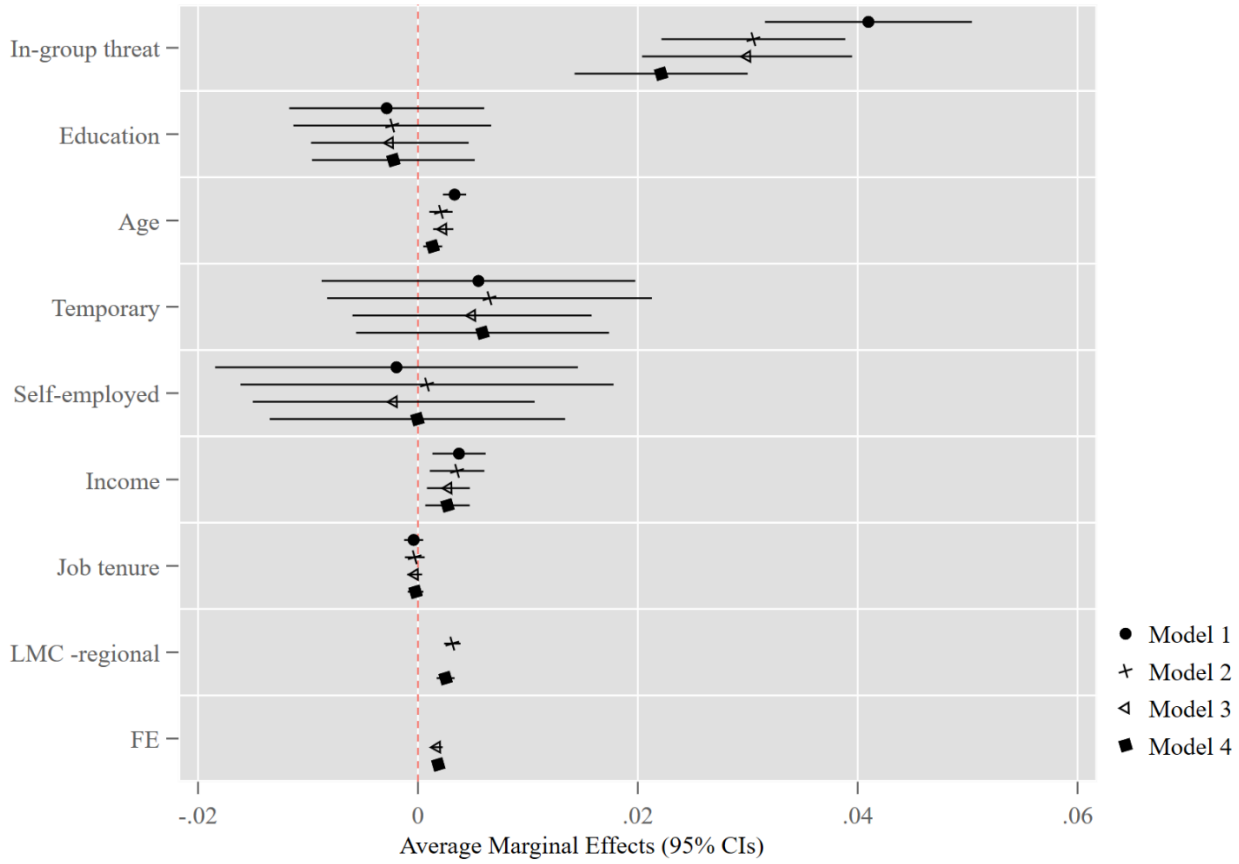


Table A17: Models in Table 1 estimated using random-effects specifications

	(1)	(2)	(3)	(4)
In-grop threat (occupat. relative risk exposure)	0.160***	0.101***	0.154***	0.095***
	(0.014)	(0.015)	(0.014)	(0.015)
Education	-0.305***	-0.298***	-0.308***	-0.301***
	(0.006)	(0.006)	(0.006)	(0.006)
Age	0.013***	0.012***	0.013***	0.012***
	(0.001)	(0.001)	(0.001)	(0.001)
Temporary	-0.074*	-0.074*	-0.074*	-0.074*
	(0.030)	(0.030)	(0.030)	(0.030)
Self-employed	-0.098**	-0.085**	-0.100**	-0.087**
	(0.032)	(0.032)	(0.032)	(0.032)
Income	-0.018***	-0.022***	-0.020***	-0.023***
	(0.004)	(0.004)	(0.004)	(0.004)
Job tenure	-0.004**	-0.003*	-0.004*	-0.003*
	(0.001)	(0.001)	(0.001)	(0.001)
LMC		0.011***		0.011***
		(0.001)		(0.001)
FE			0.011***	0.011***
			(0.001)	(0.001)
Constant	1.726***	1.612***	1.112***	0.990***
	(0.093)	(0.094)	(0.102)	(0.103)
Observations	166,623	166,623	166,623	166,623
Number of individuals	31,904	31,904	31,904	31,904
Log likelihood	-78081	-78023	-77973	-77914

Note: Clustered standard errors in parentheses *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A18: Hausman test results comparing Model 4

	(b) coefficient	(B) coefficient	(b-B)	
	FE	RE	Difference	S.E.
In-group threat	.126402	.0948842	.0315178	.009418
Education	-.0127373	-.3006183	.2878809	.0189831
Age	.0077048	.012011	-.0043062	.0021256
Temporary	.0338396	-.0738003	.1076399	.0176665
Self-employed	-.0002576	-.0870958	.0868383	.0221202
Income	.0153689	-.0229532	.0383221	.0035991
Tenure	-.00121	-.003402	.002192	.0015021
LMC	.0143991	.0109053	.0034938	.0008438
FE	.0105883	.010669	-.0000806	.0002583

chi2(9)=386.20 Prob>chi2=0.000

b = consistent under Ho and Ha; B = inconsistent under Ha, efficient under Ho

Ho: Difference in coefficients not systematic. **Result**: Differences in coefficients are systematic between RE and FE specifications.

Table A19: Random and fixed effects models using occupation and region dummies

	(1)	(2)	(3)	(4)	(5)	(6)
Relative risk	0.148***	0.129***	0.068***	0.201***	0.180***	0.208***
	(0.015)	(0.018)	(0.018)	(0.021)	(0.019)	(0.021)
Education	-0.296***	-0.011	-0.273***	-0.020	-0.283***	-0.018
	(0.006)	(0.020)	(0.007)	(0.021)	(0.007)	(0.021)
Age	0.010***	0.008**	0.012***	0.007**	0.011***	0.007**
	(0.001)	(0.003)	(0.001)	(0.003)	(0.001)	(0.003)
Temporary	-0.092**	0.032	-0.062*	0.027	-0.084**	0.024
	(0.030)	(0.035)	(0.030)	(0.035)	(0.030)	(0.035)
Self-employed	-0.067*	0.001	-0.098**	-0.013	-0.073*	-0.013
	(0.032)	(0.039)	(0.033)	(0.040)	(0.033)	(0.040)
Income	-0.010*	0.016**	-0.020***	0.014*	-0.012**	0.014*
	(0.004)	(0.006)	(0.004)	(0.006)	(0.004)	(0.006)
Job Tenure	-0.001	-0.001	-0.003t	-0.002	-0.002	-0.002
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
LMC	0.017***	0.014***	0.010***	0.020***	0.019***	0.020***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
FE	0.010***	0.011***	0.011***	0.011***	0.010***	0.011***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
RE/FE	RE	FE	RE	FE	RE	FE
Occupation (2-digit) dummy	N	N	Y	Y	Y	Y
Region dummy	Y	Y	N	N	Y	Y
Constant	0.332*		0.246		-0.060	
	(0.129)		(0.338)		(0.346)	
Observations	166,623	91,643	164,693	90,301	164,693	90,301
Number of individuals	31,904	11,407	31,754	11,284	31,754	11,284
Log likelihood	-77672	-36125	-76923	-35529	-76691	-35516

Note: Clustered standard errors in parentheses *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A20: Linear replication of Table 1, as used for Figure 3 and Figure A13

	Risk measure benchmarked to the national average	Risk measure benchmarked to the national average
In-group threat (relative risk)	0.037***	0.018***
	(0.004)	(0.002)
Education	-0.001	-0.001
	(0.002)	(0.002)
Age	0.001**	0.001**
	(0.000)	(0.000)
Temporary	0.004	0.004
	(0.004)	(0.004)

Self-employed	-0.001	-0.001
	(0.005)	(0.005)
Income	0.002**	0.002**
	(0.001)	(0.001)
Job Tenure	-0.000	-0.000
	(0.000)	(0.000)
LMC	0.002***	0.002***
	(0.000)	(0.000)
FE	0.001***	0.001***
	(0.000)	(0.000)
Constant	0.112***	0.125***
	(0.029)	(0.029)
Observations	166,623	166,623
Number of individuals	31,904	31,904
Loglikelihood	-41952	-41977
RMSE	0.346	0.346

Note: The linear estimation here uses the binarised dependent variable and uses a linear modelling strategy. Clustered standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A21: Reactions towards immigration, by FE and LMC conditions, Figure 4

	(Low LMC)	(High LMC)	(Low FE)	(High FE)
In-group threats	0.233***	0.185***	0.114***	0.236***
	(0.044)	(0.020)	(0.024)	(0.030)
Education	-0.012	0.011	-0.062*	0.029
	(0.029)	(0.032)	(0.029)	(0.037)
Age	-0.013**	0.031***	-0.024***	0.057***
	(0.004)	(0.004)	(0.004)	(0.004)
Temporary	0.036	0.059	-0.048	0.103t
	(0.053)	(0.051)	(0.055)	(0.054)
Self-employed	0.059	-0.014	-0.008	0.015
	(0.062)	(0.055)	(0.062)	(0.060)
Income	-0.000	0.025**	0.013	0.015t
	(0.009)	(0.008)	(0.009)	(0.009)
Job tenure	-0.001	-0.001	-0.004	0.001
	(0.003)	(0.003)	(0.003)	(0.003)
Observations	39,913	41,770	33,796	38,598
Number of individuals	5,626	6,674	6,381	6,984
Log likelihood	-15808	-16388	-13033	-14786

Note: Estimated from using the model specification in Model 1 in Table 1. Alternating the specification using random effects, adding LMC or FE in relevant models or adding further region or occupation dummies do not change the results presented here. Clustered standard errors in parentheses *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Figure A13: Predicted anti-immigration reactions and economic threats, 95 CIs

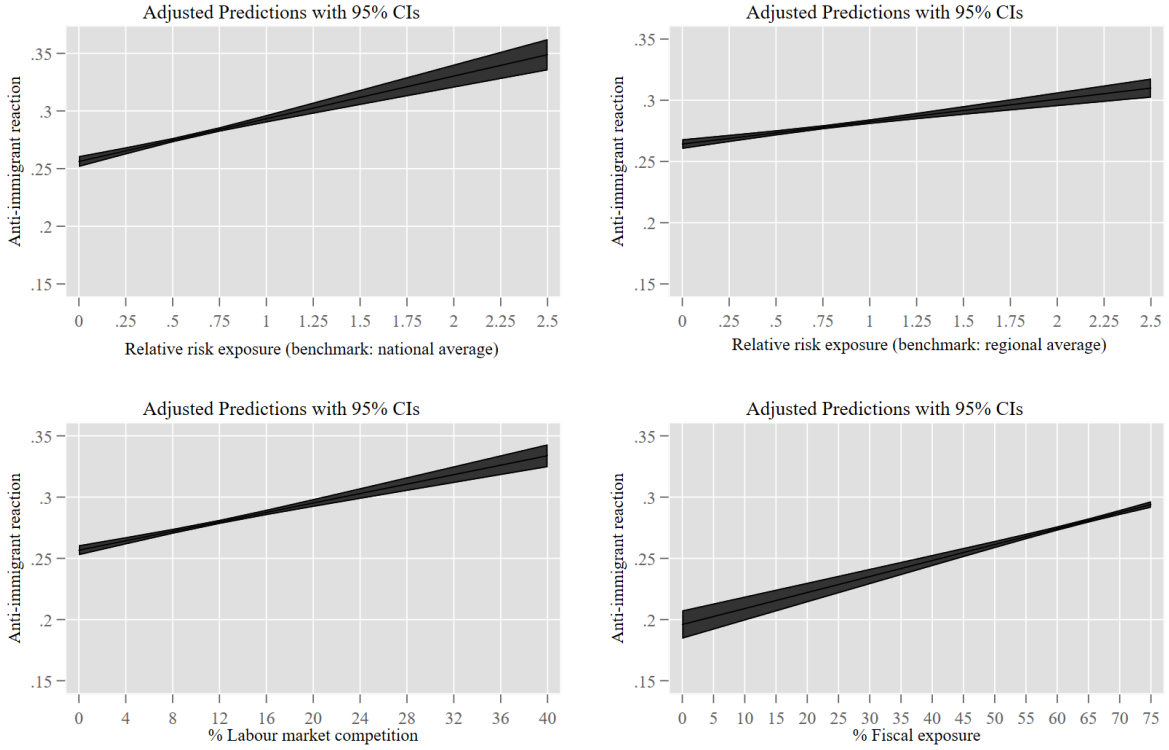


Table A22: Reactions towards immigration, by social class (Model 4)

	(Upper-middle-class)	(Lower-middle class)	(Skilled workers)	(Low-skilled workers)
In-group threat	0.438**	0.680***	0.150***	0.094*
	(0.137)	(0.068)	(0.029)	(0.037)
Education	0.005	-0.022	-0.004	0.025
	(0.048)	(0.047)	(0.041)	(0.102)
Age	0.012	-0.001	0.006	0.011
	(0.009)	(0.006)	(0.004)	(0.009)
Temporary	0.007	0.040	0.015	0.065
	(0.122)	(0.079)	(0.058)	(0.097)
Self-employed	0.041	-0.025	0.040	0.000
	(0.104)	(0.088)	(0.068)	(0.119)
Income	0.002	0.019t	0.014	0.026
	(0.019)	(0.012)	(0.009)	(0.018)
Job Tenure	0.004	0.002	-0.005	-0.005
	(0.007)	(0.004)	(0.003)	(0.008)
FE	0.016***	0.012***	0.010***	0.011***

	(0.002)	(0.002)	(0.001)	(0.002)
LMC	0.031***	0.031***	0.021***	0.016***
	(0.006)	(0.004)	(0.002)	(0.003)
Observations	12,612	22,774	33,292	10,274
Number of individuals	1,845	3,367	5,036	1,802
Log likelihood	-4628	-8822	-13281	-3957

Note: Clustered standard errors in parentheses *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A23: Results from low and high education & East/West Germany subsamples

	(Low education)	(High education)	(East Germany)	(West Germany)
In-group threat	0.107***	0.164***	0.378***	0.108***
	(0.023)	(0.029)	(0.080)	(0.019)
Age	0.013**	0.004	-0.007	0.005
	(0.004)	(0.003)	(0.005)	(0.003)
Temporary	0.062	0.054	-0.035	0.086*
	(0.058)	(0.046)	(0.061)	(0.042)
Self-employed	-0.136*	0.089t	0.009	-0.010
	(0.063)	(0.051)	(0.089)	(0.044)
income	0.023*	0.012t	0.009	0.018**
	(0.009)	(0.007)	(0.011)	(0.007)
Job Tenure	-0.004	0.001	-0.005	0.001
	(0.003)	(0.003)	(0.004)	(0.002)
FE	0.012***	0.011***	0.006***	0.039***
	(0.002)	(0.001)	(0.001)	(0.002)
LMC	0.009***	0.020***	0.055***	0.013***
	(0.002)	(0.002)	(0.005)	(0.001)
Observations	30,985	59,196	25,397	65,709
Number of individuals	4,198	7,203	3,087	8,351
Log likelihood	-12573	-22909	-10109	-25656

Note: High low education cut-offs by median value Clustered standard errors in parentheses *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A24: Reactions towards immigration and economic threats, unemployed included in the sample

	(RE)	(RE)	(FE)	(FE)
In-group threat	0.156***	0.093***	0.181***	0.120***
	(0.013)	(0.014)	(0.016)	(0.017)
Education	-0.305***	-0.299***	-0.011	-0.010
	(0.006)	(0.006)	(0.020)	(0.020)
Age	0.012***	0.011***	0.015***	0.008***
	(0.001)	(0.001)	(0.002)	(0.002)
Temporary	-0.056t	-0.056t	0.046	0.053
	(0.029)	(0.029)	(0.033)	(0.033)
Self-employed	-0.094**	-0.083**	-0.013	-0.004
	(0.032)	(0.032)	(0.038)	(0.038)
Unemployed	0.175***	0.179***	0.106*	0.109**
	(0.038)	(0.038)	(0.041)	(0.041)
Income	-0.019***	-0.024***	0.017**	0.015**
	(0.004)	(0.004)	(0.005)	(0.005)
LMC		0.011***		0.014***
		(0.001)		(0.001)
FE		0.010***		0.010***
		(0.001)		(0.001)
Constant	1.757***	1.056***		
	(0.090)	(0.099)		
Observations	175,539	175,539	98,930	98,930
Number of individuals	32,324	32,324	11,991	11,991
Log likelihood	-82844	-82671	-39399	-39237

Note: Clustered standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1
RE: Random-effects estimation, FE: Fixed-effects estimation

Table A25: In-group threats and subjective economic worries

	Random Effects (Between)			Fixed Effects (Within)		
	Difficulty finding a job	Worry: Job insecurity	Worry: Personal Finance	Difficulty finding a job	Worry: Job insecurity	Worry: Personal Finance
In-group threat	0.358***	0.209***	0.093***	0.069***	0.118***	0.116***
	(0.024)	(0.024)	(0.021)	(0.021)	(0.022)	(0.020)
Education	-0.152***	-0.130***	-0.137***	-0.066***	0.065**	-0.000
	(0.007)	(0.008)	(0.007)	(0.018)	(0.025)	(0.022)
Age	0.072***	-0.001	0.006***	0.041***	-0.062***	-0.008**
	(0.002)	(0.002)	(0.001)	(0.003)	(0.003)	(0.003)
Temporary	0.452***	1.012***	0.390***	0.426***	0.939***	0.372***
	(0.032)	(0.033)	(0.031)	(0.035)	(0.039)	(0.036)
Self-employed	-0.144***	0.136**	0.394***	-0.056	0.319***	0.367***
	(0.036)	(0.043)	(0.036)	(0.042)	(0.055)	(0.044)
Income	-0.049***	-0.123***	-0.185***	-0.003	-0.060***	-0.134***
	(0.005)	(0.005)	(0.005)	(0.006)	(0.007)	(0.006)
Job Tenure	0.042***	-0.006***	-0.018***	0.032***	0.030***	0.009***
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)
Region FE	Y	Y	Y	N	N	N
Occupation FE	Y	Y	Y	N	N	N
Observations	160,740	160,740	160,740	73,158	59,757	72,383
# of individuals	31,667	31,667	31,667	10,215	7,659	9,511
Log likelihood	-65974	-48777	-60592	-27538	-20998	-27168

Note: Clustered standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

When looking at other covariates in fixed-effects models, income seems to be reducing economic worries whereas being employed in a job longer increases job-related concerns. This makes sense when considering evidence showing that experiencing threats to socio-economic position due to occupational and economic changes has been the most prominent amongst not for those who have lost their jobs but instead have been 'stuck' in certain jobs and experience threats (Kurer 2020, Antonucci et al. 2017). Moreover, having longer tenure in a job can indeed lead to respondents feeling that it would be difficult for them to find a job in the future since they have been out of the job market for a longer period. Finally, while education does not have a significant effect on worries about income, more education reduces the perception of difficulty in finding a new job in the future. Interestingly, an additional year of education increases job insecurity potentially due in most part to the idea of more awareness of labour market conditions at increasing education or a potential reverse causality effect of those with higher job insecurity seeking more education

leading to such within-individual changes.

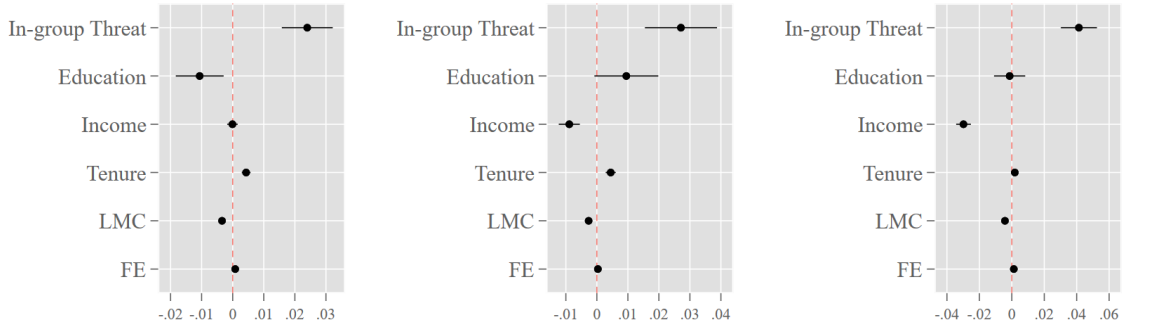
Table A26: In and out-group threats and subjective economic worries

	Difficulty finding a job	Worry: Job insecurity	Worry: Personal Finance	Difficulty finding a job	Worry: Job insecurity	Worry: Personal Finance
In-group threat	0.200***	0.205***	0.153***	0.171***	0.179***	0.184***
	(0.019)	(0.019)	(0.017)	(0.022)	(0.023)	(0.021)
Education	-0.161***	-0.167***	-0.178***	-0.076***	0.063*	-0.006
	(0.007)	(0.007)	(0.006)	(0.018)	(0.025)	(0.022)
Age	0.071***	-0.000	0.009***	0.052***	-0.057***	-0.002
	(0.002)	(0.002)	(0.001)	(0.003)	(0.003)	(0.003)
Temporary	0.455***	1.000***	0.388***	0.417***	0.938***	0.370***
	(0.032)	(0.033)	(0.031)	(0.035)	(0.039)	(0.036)
Self-employed	-0.214***	0.071t	0.370***	-0.075t	0.306***	0.350***
	(0.036)	(0.042)	(0.035)	(0.042)	(0.055)	(0.044)
Income	-0.049***	-0.141***	-0.201***	-0.001	-0.059***	-0.133***
	(0.005)	(0.005)	(0.005)	(0.006)	(0.007)	(0.006)
Job Tenure	0.043***	-0.008***	-0.022***	0.031***	0.029***	0.008***
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)
LMC	-0.035***	-0.023***	-0.014***	-0.024***	-0.018***	-0.019***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
FE	0.006***	0.002**	0.006***	0.006***	0.002*	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Constant	0.752***	-0.137	0.604***			
	(0.116)	(0.117)	(0.108)			
Fixed/Random	RE	RE	RE	FE	FE	FE
Observations	162,053	162,053	162,053	73,158	59,757	72,383
Number of individ.	31,732	31,732	31,732	10,215	7,659	9,511
Log likelihood	-66928	-49743	-61388	-27388	-20944	-27064

Note: Clustered standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1
RE: Random-effects estimation, FE: Fixed-effects estimation

While fiscal exposure seems to be positively linked to increasing subjective economic worries, higher LMC is correlated with less within individuals. This means that a unit increase in fiscal exposure increases perceived economic vulnerabilities. Conversely, the decreasing effect of LMC on economic worries can be made sense of if we consider that increasing immigration to occupations often occurs in more economically better-off states in the case studied here. This is in line with the argument of the paper that economic grievances of natives which are related to their perceived economic vulnerabilities unrelated to immigration such as the in-group threats studied here are a distinct channel from LMC. Figure A14 below visualises the AMEs of the theoretically relevant covariates of interest predicted from the fixed-effects models in Table A26.

Figure A14: In-group threats, out-group threats, and perceived economic vulnerability



(a)AMEs "Diff.Finding Job" (b)AMEs "Worry: Job Security" (c) AMEs "Worry: Personal Finance"

Table A27: In-group threats, out-group threats, and anti-immigration responses

	(1)	(2)	(3)	(4)	(5)	(6)
In-group threat	0.139***	0.135***	0.133***	0.113***	0.107***	0.104***
	(0.018)	(0.018)	(0.018)	(0.019)	(0.019)	(0.019)
Education	-0.011	-0.016	-0.014	-0.011	-0.015	-0.013
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
Age	-0.019***	-0.016***	-0.018***	-0.021***	-0.018***	-0.021***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Temporary	0.024	-0.028	0.004	0.026	-0.026	0.006
	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)
Self-employed	0.002	-0.014	-0.022	0.006	-0.009	-0.018
	(0.043)	(0.043)	(0.043)	(0.043)	(0.043)	(0.043)
Income	0.011t	0.014*	0.018**	0.010t	0.014*	0.018**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Job tenure	-0.004t	-0.005*	-0.004t	-0.004	-0.005*	-0.004t
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Subj. difficulty finding job	0.078**			0.083**		
	(0.028)			(0.028)		
Worry: job security		0.506***			0.510***	
		(0.028)			(0.028)	
Worry: personal finances			0.459***			0.463***
			(0.025)			(0.025)
FE				0.003***	0.003***	0.003***
				(0.001)	(0.001)	(0.001)
LMC				0.007***	0.008***	0.008***
				(0.001)	(0.001)	(0.001)
Observations	77,742	77,742	77,742	77,742	77,742	77,742
Number of individuals	9,938	9,938	9,938	9,938	9,938	9,938
Log likelihood	-30834	-30676	-30667	-30815	-30655	-30647

Note: Clustered standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A28: Panel Effects and Attrition Probability

	Non-attrition (participant all 1999-2016)		*Attrition* (not in the panel at least once)	
	Mean	**Std. Dev.**	**Mean**	**Std. Dev.**
'Very concerned about immigration'	.3006524	.4585561	.2765909	.4473139
Relative risk level	.7406157	.6941213	.7892211	.7376026
Education	12.85553	2.541668	12.82945	2.741506
Income	7.048426	2.378528	6.896731	2.609663
Age	44.68736	7.950615	42.21626	11.33682
LMC	10.38742	10.75052	11.78182	11.52512
FE	63.49643	12.27235	63.22394	10.77154
Tenure	13.63705	9.48912	10.79236	10.18562
Difficulty finding a job	.8461334	.3608328	.7480856	.4341138
Job insecurity worry	.1558897	.3627621	.1785771	.382999
Personal finance worry	.1052296	.3068589	.122219	.3275396

	Pr(attrition)
Pr (attrition)	1.0000
DV	-0.0545
Subjective job insecurity	-0.0629
Worry about personal finances	-0.0548
Subjective difficulty in finding a job	-0.1238

Note: Probability of attrition is estimated using logistic regression with individual clustered standard errors. Social class, education, income, state of residence, civil status, age and employment relations are added as covariates in estimating the attribution probability.

Other robustness and sensitivity checks

Table A29: Replication of results excluding the self-employed respondents

	(1)	(2)	(3)	(4)
In-group threat	0.170***	0.101***	0.203***	0.133***
	(0.015)	(0.016)	(0.019)	(0.020)
Education	-0.307***	-0.303***	-0.008	-0.007
	(0.007)	(0.007)	(0.021)	(0.021)
Age	0.014***	0.013***	0.019***	0.010***
	(0.001)	(0.001)	(0.003)	(0.003)
Temporary	-0.087**	-0.088**	0.018	0.027
	(0.030)	(0.030)	(0.036)	(0.036)
Job Tenure	-0.003*	-0.003*	-0.001	-0.000
	(0.001)	(0.002)	(0.002)	(0.002)
Income	-0.022***	-0.027***	0.017**	0.015*
	(0.005)	(0.005)	(0.006)	(0.006)
LMC		0.011***		0.015***
		(0.001)		(0.001)
FE		0.011***		0.011***
		(0.001)		(0.001)
Constant	1.762***	1.019***		
	(0.097)	(0.108)		
Observations	147,294	147,294	80,002	80,002
Number of individuals	29,663	29,663	10,366	10,366
Log likelihood	-69813	-69655	-31704	-31558

Note: All models are specified using two-way fixed effects. Clustered standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A30: Additional control variables

	Controlling for subjective income satisfaction	Controlling for political interest	The model includes dummies for the industry respondents work in
In-group threat	0.124***	0.126***	0.129***
	(0.018)	(0.018)	(0.019)
Household income satisfaction	-0.044***		
	(0.005)		
Political interest		0.101***	
		(0.017)	
Education	-0.009	-0.014	-0.021
	(0.020)	(0.020)	(0.022)
Age	0.007**	0.008**	0.009**
	(0.003)	(0.003)	(0.003)
Temporary	0.024	0.035	0.019
	(0.035)	(0.035)	(0.037)
Self-employed	-0.003	0.001	0.008
	(0.039)	(0.039)	(0.041)
Income	0.025***	0.015**	0.015*
	(0.006)	(0.006)	(0.006)
Job tenure	-0.001	-0.001	-0.001
	(0.002)	(0.002)	(0.002)
LMC	0.014***	0.014***	0.015***
	(0.001)	(0.001)	(0.001)
FE	0.010***	0.010***	0.011***
	(0.001)	(0.001)	(0.001)
Observations	89,948	91,539	85,741
Number of individuals	11,223	11,402	10,866
Log likelihood	-35455	-36083	-33714

Note: All models are specified using two-way fixed effects. Coefficients of the industry dummy variable are not shown here. Clustered standard errors in parentheses.
*** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Cross-sectional analysis using ALLBUS

Table A31: Variables used in the cross-sectional ALLBUS analysis, 1992-2016

Variables (var name in ALLBUS)	Definition/Item used in ALLBUS	Mean	Std.Dev.	Years available
In-group threat: Relative deprivation	In comparison to how others live here in Germany: Do you think you get your *fair* share, *more than your fair* share, a *little less*, or a *lot less*? (binary recoded; 1 = a little and a lot less)	0.433	0.496	All years except 1994 & 2012
In group threat: Objective relative risk exposure (SOEP) -I	Calculated from SOEP – relative to the regional average	0.895	0.893	All years
In group threat: Objective relative risk exposure (SOEP) -II	Calculated from SOEP – relative to the national average	0.668	0.456	All years
Measuring group conflict: Exclusionary views index				
Economic exclusion[a]	When jobs become scarce, foreigners living in Germany should go home send back (1-not at all,7- completely agree)	2.953	1.891	1996, 2006, 2016
Social rights exclusion[a]	Foreigners living in Germany should have the same right to social assistance and other social benefits as the Germans (1-not at all,7-completely agree)	3.610	2.057	1996, 2006, 2016
Political exclusion[a]	Foreigners living in Germany should be prohibited from engaging in any political activity in Germany (1-not at all,7- completely agree)	3.051	2.083	1996, 2006, 2016
Exclusionary view index (using PCA)	Using the three items: ma02, ma06, ma03, scaled to vary from 0-1	0.356	0.261	1996, 2006, 2016
Attitudinal measures				
Left-right placement	Many people use the terms 'left' and 'right' when it comes to different political Label settings. If you think of your think your own political views, where would you classify these views on this scale? (left 1 to the right 10)	4.014	1.703	All waves
Labour market competition	To what extent you agree with the [following] statement about foreigners: The take jobs away from Germans (0-not at all,6- completely agree)	2.143	1.818	1996, 2006, 2016
Fiscal exposure	To what extent you agree with the [following] statement about foreigners: The foreigners living in Germany are a burden to the *Soziale Netz* (0-not at all,6- completely agree)	2.911	1.864	1996, 2006, 2016
Cultural threat	To what extent you agree with the [following] statement about foreigners:	2.779	1.809	1996, 2006, 2016

	They enrich the culture in Germany (6-not at all,0- completely agree)			
Socio-economic & Demographic characteristics				
Education	5 ISCED categories: 1=Elementary (0.34 %) , 2=Lower Secondary (5.51 %), 3=Upper Secondary (48.36%), 4=Post-Secondary (6.62%), 5=Tertiary Education (39.18%)			All waves
Employment status	1=Full day employed (83.49%) 2=Half day employed (14.90 %) 3= Side job (1.60%) *[4=Not in occupation/unemployed (excluded)]*			All waves
Gender	1= Woman	0.435		All waves
Income	Household income per capita	2788.74	1905.51	All waves
Age	In years	41.791	11.401	All waves
East/West Germany	1=East Germany (*Neue Bundesländer*)	0.342		All waves
Size of the municipal area of residence	Treated as continuous: 0= Bis 1.999 residents 1= 2.000 - 4.999 residents 2= 5.000 - 19.999 residents 3= 20.000 - 49.999 residents 4= 50.000 - 99.999 residents 5=100.000 - 499.999 residents 6= 500.000 residents and more	2.935	1.880	All waves
State of residence	16 *Länder* – current state of residence			All waves

Note: Data from ALLBUS is publicly available from GESIS: https://dbk.gesis.org/dbksearch/sdesc2.asp?no=5274&db=e&doi=10.4232/1.13395

The original wording of all questions can be found in the cumulative study codebook (in German): Horst Baumann und Sarah Thiesen. 2020 GESIS-Variable Reports Nr. 2020|05 ALLBUS-Kumulation 1980-2018 – Variable Report Studien-Nr. 5274 (04/2020) https://search.gesis.org/research_data/ZA5274

a: Original scales are 1 (Don't agree at all) -7 (Totally agree). The three items are rescaled to indicate more exclusionary views at higher values.

Table A32: Full estimation results of the models presented in Table 2

DV: Subjective relative deprivation	(1)	(2)	(3)	(4)
In-group threat (unemployment risk exposure relative to the ***regional*** average)	0.045***	0.047***	0.049***	0.047***
	(0.007)	(0.007)	(0.007)	(0.007)
Employment status (*Ref: Full-time work*)				
Half-time	-0.019	-0.018	-0.018	-0.016
	(0.013)	(0.014)	(0.014)	(0.013)
Side job	0.005	-0.010	-0.010	-0.010
	(0.034)	(0.035)	(0.035)	(0.035)
Not in occupation/unemployed				0.111***
				(0.013)
Woman	0.022*	0.018t	0.018t	0.014
	(0.010)	(0.010)	(0.010)	(0.009)
Age	0.001t	0.001*	0.001t	0.001
	(0.000)	(0.000)	(0.000)	(0.000)
Size of the municipality of residence	-0.001	-0.001	-0.001	0.001
	(0.003)	(0.003)	(0.003)	(0.003)
Education (*Ref: Elementary*)				
Lower secondary	0.034	0.041	0.041	0.023
	(0.073)	(0.078)	(0.077)	(0.063)
Upper secondary	-0.022	-0.016	-0.014	-0.032
	(0.071)	(0.076)	(0.076)	(0.062)
Post-secondary	-0.109	-0.101	-0.100	-0.118t
	(0.073)	(0.077)	(0.077)	(0.064)
Tertiary	-0.154*	-0.146t	-0.142t	-0.154*
	(0.072)	(0.076)	(0.076)	(0.062)
Income	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
East Germany	0.290***	0.294***	0.178***	0.171***
	(0.014)	(0.014)	(0.046)	(0.041)
Left-right scale		-0.001	-0.001	-0.001
		(0.003)	(0.003)	(0.002)
Constant	0.447***	0.434***	0.439***	0.466***
	(0.075)	(0.080)	(0.086)	(0.073)
Year FE	N	N	Y	Y
Region FE	N	N	Y	Y
Observations	11,311	10,966	10,966	12,508
Number of groups	10	10	10	10
Log likelihood	-7218	-6985	-6964	-7821

Note: Four-level hierarchical linear model estimation coefficients are presented. Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A33: Table 2 with alternative risk measure, the national benchmark for in-group threats

DV: Subjective relative deprivation	(1)	(2)	(3)	(4)
In-group threat (unemployment risk exposure relative to the ***national*** average)	0.108***	0.114***	0.116***	0.105***
	(0.012)	(0.012)	(0.012)	(0.011)
Employment status (*Ref: Full-time work*)				
Half-time	-0.023t	-0.022	-0.023t	-0.021
	(0.013)	(0.014)	(0.014)	(0.013)
Side job	-0.001	-0.018	-0.017	-0.017
	(0.034)	(0.035)	(0.035)	(0.035)
Not in occupation/unemployed				0.101***
				(0.013)
Woman	0.030**	0.026**	0.027**	0.022*
	(0.010)	(0.010)	(0.010)	(0.009)
Age	0.001t	0.001t	0.001t	0.001
	(0.000)	(0.000)	(0.000)	(0.000)
Size of the municipality of residence	-0.001	-0.000	-0.000	0.001
	(0.002)	(0.003)	(0.003)	(0.003)
Education (*Ref: Elementary*)				
Lower secondary	0.039	0.046	0.045	0.029
	(0.073)	(0.077)	(0.077)	(0.063)
Upper secondary	-0.009	-0.004	-0.004	-0.020
	(0.071)	(0.076)	(0.076)	(0.061)
Post-secondary	-0.086	-0.079	-0.079	-0.097
	(0.073)	(0.077)	(0.077)	(0.064)
Tertiary	-0.123t	-0.114	-0.113	-0.126*
	(0.072)	(0.076)	(0.076)	(0.062)
Income	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
East Germany	0.254***	0.256***	0.179***	0.173***
	(0.013)	(0.013)	(0.045)	(0.041)
Left-right scale		-0.001	-0.002	-0.001
		(0.003)	(0.003)	(0.002)
Constant	0.400***	0.389***	0.406***	0.436***
	(0.075)	(0.080)	(0.085)	(0.072)
Year FE	N	N	Y	Y
Region FE	N	N	Y	Y
Observations	11,311	10,966	10,966	12,508
Number of groups	10	10	10	10
Log likelihood	-7197	-6962	-6941	-7799

Note: Four-level hierarchical linear model estimation coefficients are presented. Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A34: Replication of Table 2 with non-hierarchical logistic regression with state and year dummy

DV: Subjective relative deprivation	(1)	(2)	(3)	(4)
In-group threat (unemployment risk exposure relative to the ***regional*** average)	0.153***	0.135***		
	(0.031)	(0.030)		
In-group threat (unemployment risk exposure relative to the ***national*** average)			0.457***	0.436***
			(0.057)	(0.053)
Employment status (Ref: Full-time work)				
Half-time	-0.099	-0.084	-0.121t	-0.108t
	(0.066)	(0.065)	(0.066)	(0.065)
Side job	-0.134	-0.131	-0.154	-0.152
	(0.163)	(0.163)	(0.164)	(0.163)
Not in occupation/unemployed		0.450***		0.416***
		(0.069)		(0.070)
Woman	0.065	0.049	0.109*	0.095*
	(0.048)	(0.044)	(0.048)	(0.045)
Age	0.004*	0.003t	0.004*	0.003t
	(0.002)	(0.002)	(0.002)	(0.002)
Size of the municipality of residence	-0.020	-0.014	-0.015	-0.009
	(0.014)	(0.013)	(0.014)	(0.013)
Education (Ref: Elementary)				
Lower secondary	0.206	0.132	0.245	0.177
	(0.355)	(0.311)	(0.354)	(0.313)
Upper secondary	-0.007	-0.095	0.064	-0.013
	(0.347)	(0.304)	(0.345)	(0.306)
Post-secondary	-0.376	-0.471	-0.253	-0.335
	(0.356)	(0.314)	(0.354)	(0.316)
Tertiary	-0.548	-0.616*	-0.394	-0.449
	(0.349)	(0.307)	(0.348)	(0.309)
Income	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
East Germany	0.716***	0.716***	0.735***	0.737***
	(0.210)	(0.192)	(0.212)	(0.193)
Left-right scale	0.002	0.001	-0.002	-0.002
	(0.013)	(0.012)	(0.013)	(0.012)
Constant	0.017	0.185	-0.215	-0.083
	(0.388)	(0.345)	(0.387)	(0.347)
Observations	10,966	12,508	10,966	12,508
Log likelihood	-6573	-7387	-6552	-7363

Note: All models include state and year fixed effects—robust standard errors in parentheses.
*** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A35: Full estimation results of the models presented in Table 3

DV: Exclusionary attitudes index	(1)	(2)	(3)	(4)
Subjective relative deprivation	0.047***	0.021**		
	(0.008)	(0.007)		
In-group threat (unemployment risk exposure relative to the ***regional*** average)			0.030***	0.015*
			(0.007)	(0.006)
LMC (subjective/perceived)		0.036***		0.036***
		(0.002)		(0.002)
FE (subjective/perceived)		0.035***		0.033***
		(0.002)		(0.002)
Cultural threat	0.046***	0.029***	0.048***	0.030***
	(0.002)	(0.002)	(0.002)	(0.002)
Employment status (Ref: Full-time work)				
Half-time	-0.001	-0.010	-0.000	-0.010
	(0.011)	(0.010)	(0.011)	(0.010)
Side job	-0.006	0.009	-0.021	-0.001
	(0.030)	(0.027)	(0.031)	(0.028)
Woman	0.026**	0.015*	0.035***	0.022**
	(0.008)	(0.007)	(0.008)	(0.008)
Age	0.001***	0.001***	0.001***	0.001**
	(0.000)	(0.000)	(0.000)	(0.000)
Education (Ref: Elementary)				
Lower secondary	-0.115	-0.083	-0.067	-0.073
	(0.070)	(0.063)	(0.078)	(0.070)
Upper secondary	-0.146*	-0.099	-0.096	-0.089
	(0.069)	(0.062)	(0.076)	(0.069)
Post-secondary	-0.189**	-0.131*	-0.142t	-0.126t
	(0.070)	(0.063)	(0.078)	(0.070)
Tertiary	-0.204**	-0.140*	-0.148t	-0.128t
	(0.069)	(0.062)	(0.077)	(0.069)
Size of the municipality of residence	-0.009***	-0.006**	-0.007**	-0.005*
	(0.002)	(0.002)	(0.002)	(0.002)
Income	-0.000**	-0.000**	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
East Germany	0.077*	0.012	0.075*	0.006
	(0.035)	(0.032)	(0.036)	(0.033)
Left-right scale	0.031***	0.020***	0.030***	0.020***
	(0.002)	(0.002)	(0.002)	(0.002)
Constant	0.236**	0.111t	0.162*	0.089
	(0.073)	(0.066)	(0.081)	(0.073)
Observations	3,734	3,717	3,413	3,396
Log likelihood	426.7	834.1	416.5	771.0

Note: Four-level hierarchical linear model estimation coefficients. All models include state and year fixed effects. Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A36: Exclusionary attitudes and objective in-group threat, using alternative national benchmark

DV: Exclusionary attitudes index	(1)	(2)	(3)	(4)
In-group threat (unemployment risk exposure relative to the ***national*** average)	0.081***	0.037***	0.032***	0.031***
	(0.011)	(0.010)	(0.010)	(0.009)
LMC (subjective/perceived)		0.040***	0.036***	0.034***
		(0.002)	(0.002)	(0.002)
FE (subjective/perceived)		0.039***	0.033***	0.035***
		(0.002)	(0.002)	(0.002)
Cultural threat			0.030***	0.030***
			(0.002)	(0.002)
Constant	0.259**	0.136t	0.077	0.015
	(0.086)	(0.075)	(0.073)	(0.067)
Observations	3,420	3,402	3,396	3,865
Number of groups	3	3	3	3
Log likelihood	205.0	676.1	773.5	813.2

Note: Four-level hierarchical linear model estimation coefficients. All models are fully specified as in Table 4 in Table 35 and include state and year fixed effects. Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A37: Further sensitivity checks on results presented in Table 3

DV: Exclusionary attitudes index	(1) *Occupation dummy included*	(2) *Objective measure of LMC*	(3) *Objective measure of FE*
Subjective relative deprivation	0.019**	0.044***	0.044***
	(0.007)	(0.008)	(0.008)
LMC (subjective/perceived)	0.036***		
	(0.002)		
FE (subjective/perceived)	0.034***		
	(0.002)		
LMC (objective)		0.001***	
		(0.000)	
FE (objective)			-0.000
			(0.000)
Cultural threat	0.028***	0.046***	0.047***
	(0.002)	(0.002)	(0.002)

Employment status (ref: Full time)			
Half-time	-0.007	0.005	0.002
	(0.010)	(0.011)	(0.011)
Side-job	0.006	-0.022	-0.014
	(0.027)	(0.032)	(0.032)
Woman	0.031***	0.033***	0.029***
	(0.008)	(0.009)	(0.009)
Age	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)
Education (Ref: Elementary)			
Lower secondary	-0.072	-0.059	-0.070
	(0.064)	(0.078)	(0.078)
Upper secondary	-0.080	-0.083	-0.094
	(0.064)	(0.076)	(0.076)
Post-secondary	-0.108t	-0.129t	-0.147t
	(0.065)	(0.078)	(0.077)
Tertiary	-0.105	-0.136t	-0.152*
	(0.064)	(0.077)	(0.076)
Size of the municipality of residence	-0.006**	-0.010***	-0.009***
	(0.002)	(0.002)	(0.002)
Income	-0.000*	-0.000*	-0.000**
	(0.000)	(0.000)	(0.000)
East Germany	0.011	0.076***	0.053***
	(0.031)	(0.012)	(0.010)
Left right scale	0.020***	0.030***	0.030***
	(0.002)	(0.002)	(0.002)
Constant	0.115	0.160*	0.213**
	(0.099)	(0.079)	(0.080)
Observations	3,717	3,360	3,295
Occupation FE	Y	N	N
Year FE	Y	Y	Y
Region FE	Y	N	N
Log likelihood	865.5	403.1	400.4

Note: Four-level hierarchical linear model estimation coefficients. Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A38: Table 3 replicated with the unemployed respondents included in the sample

	(1)	(2)	(3)	(4)
Subjective relative deprivation	0.052***	0.024***		
	(0.008)	(0.007)		
In-group threat (unemployment risk exposure relative to the ***regional*** average)			0.032***	0.017**
			(0.006)	(0.006)
Employment status (Ref: Full-time work)				
Half-time	-0.003	-0.012	-0.002	-0.011
	(0.011)	(0.010)	(0.011)	(0.010)
Side job	-0.007	0.008	-0.023	-0.002
	(0.031)	(0.028)	(0.032)	(0.029)
Not in occupation/unemployed	0.018	0.004	0.027*	0.007
	(0.011)	(0.010)	(0.012)	(0.011)
Woman	0.027***	0.014*	0.037***	0.021**
	(0.008)	(0.007)	(0.008)	(0.007)
Age	0.002***	0.001***	0.002***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Education (Ref: Elementary)				
Lower secondary	-0.033	-0.044	0.030	-0.025
	(0.065)	(0.058)	(0.071)	(0.064)
Upper secondary	-0.073	-0.066	-0.007	-0.044
	(0.064)	(0.057)	(0.070)	(0.063)
Post-secondary	-0.118t	-0.100t	-0.055	-0.082
	(0.065)	(0.058)	(0.071)	(0.064)
Tertiary	-0.133*	-0.107t	-0.061	-0.083
	(0.064)	(0.058)	(0.070)	(0.063)
Size of the municipality of residence	-0.006**	-0.004*	-0.005*	-0.003
	(0.002)	(0.002)	(0.002)	(0.002)
Income	-0.000**	-0.000**	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
East Germany	0.087**	0.021	0.079*	0.009
	(0.032)	(0.029)	(0.034)	(0.031)
Left-right scale	0.031***	0.020***	0.032***	0.021***
	(0.002)	(0.002)	(0.002)	(0.002)
Constant	0.141*	0.066	0.047	0.026
	(0.069)	(0.062)	(0.075)	(0.067)
Observations	4,251	4,228	3,888	3,865
Region FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Log likelihood	406.6	868.0	405.6	811.3

Note: Four-level hierarchical linear model estimation coefficients. Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05, t p<0.1

Table A39: Predicting perceived ethnic competition using objective LMC, and FE calculated using SOEP

	DV: *Subjective LMC*	**DV:** *Subjective FE*	**DV:** *Subjective LMC*	**DV:** *Subjective FE*
LMC (objective)	0.010***		0.008**	
	(0.002)		(0.003)	
FE (objective)		0.004t		0.004t
		(0.002)		(0.002)
In-group threat (risk exposure relative to the ***regional*** average)			0.144**	0.183***
			(0.049)	(0.044)
Cultural threat	0.240***	0.285***	0.239***	0.281***
	(0.015)	(0.016)	(0.015)	(0.016)
Employment status (Ref: Full-time work)				
Half-time	0.101	0.088	0.091	0.079
	(0.084)	(0.087)	(0.083)	(0.087)
Side job	-0.149	-0.359	-0.144	-0.356
	(0.236)	(0.250)	(0.236)	(0.249)
Not in occupation/unemployed	0.446***	0.092	0.445***	0.095
	(0.086)	(0.091)	(0.086)	(0.091)
Woman	0.216***	0.190**	0.234***	0.218***
	(0.059)	(0.061)	(0.059)	(0.061)
Age	0.005*	0.009***	0.005*	0.009***
	(0.002)	(0.002)	(0.002)	(0.002)
Education (Ref: Elementary)				
Lower secondary	0.530	0.995t	0.551	1.035t
	(0.525)	(0.545)	(0.524)	(0.544)
Upper secondary	0.213	0.807	0.254	0.888t
	(0.516)	(0.534)	(0.515)	(0.534)
Post-secondary	0.015	0.631	0.079	0.760
	(0.525)	(0.543)	(0.525)	(0.543)
Tertiary	-0.153	0.592	-0.067	0.742
	(0.518)	(0.536)	(0.518)	(0.536)
Size of the municipality of residence	-0.033*	-0.042**	-0.032*	-0.043**
	(0.016)	(0.016)	(0.016)	(0.016)
Income	-0.000*	-0.000t	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
East Germany	0.656***	0.636***	0.714***	0.757***
	(0.086)	(0.066)	(0.088)	(0.072)
Left-right scale	0.138***	0.180***	0.136***	0.177***
	(0.016)	(0.016)	(0.016)	(0.016)

Year (Ref: 1996)				
2006	-0.346***	0.122	-0.357***	0.146t
	(0.094)	(0.085)	(0.094)	(0.084)
2016	-1.085***	-0.118	-1.065***	-0.085
	(0.095)	(0.091)	(0.096)	(0.091)
Constant	0.856	-0.060	0.657	-0.380
	(0.538)	(0.562)	(0.541)	(0.566)
Observations	3,939	3,835	3,934	3,835
Log likelihood	-7502	-7431	-7485	-7423

Note: It is important and of note, here, to report that while previous work has often argued that natives often overestimate the actual number of immigrants in their country, from an ethnic competition perspective, objective LMC and FE seem to be significantly predicting subjective perceptions as well.

Four-level hierarchical linear model estimation coefficients. Standard errors in parentheses.
*** p<0.001, ** p<0.01, * p<0.05, t p<0.1