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The Impact of Natural Disasters on Migration Attitudes

Anastasia Litina, Ioannis Patios *

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Abstract

Climate change has intensified the frequency and severity of natural disasters, making it increasingly important to understand their broader consequences on social and political outcomes. This paper examines the interplay between natural disasters measured by the number of total affected individuals and their attitudes toward immigrants, exploring whether such a shock can lead to increased solidarity or heightened resentment toward immigrants. We use a setting in which we compare Eurozone regions with non-Eurozone regions, thus exploiting the differential degree of integration across countries and the role of joint immigration policies. Linking data from the International Disaster Database (EM-DAT) and the European Social Survey (ESS), we associate disaster-affected individuals with their perceptions on various immigration issues and dimensions. We employ a difference-in-differences approach with staggered treatment adoption, where the first difference compares Eurozone and non-Eurozone countries, and the second difference accounts for the timing of being affected by a disaster. Our main findings indicate that natural disaster shocks in Eurozone countries are associated with more positive attitudes toward immigrants, particularly regarding their acceptance and perceived economic contribution. These effects emerge gradually after the shock, suggesting that disasters may foster longer-term social reflection rather than immediate solidarity responses. A plausible explanation is that Eurozone countries, being more economically and institutionally integrated, experience such shocks within a framework of shared responsibility and interdependence. In the presence of a common currency and coordinated fiscal mechanisms, these countries may also be better shielded from the economic fallout of disasters, reducing the sense of economic insecurity that can fuel exclusionary attitudes. By contrast, non-Eurozone regions facing more severe and unbuffered economic consequences may respond in more inward-looking ways, emphasizing national over collective concerns. Heterogeneity tests further highlight the critical role of factors in propagating the effect such as remittances paid, trade in services, unemployment, wage and salaried workers, and EU funding measures.

Keywords: Migration; Natural Disasters; Climate Change; Immigration Attitudes

JEL Codes: F22; Q54; R23

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1 Introduction

In recent years, both immigration and natural disasters have reshaped societies, creating significant economic, social, and political challenges. Europe, in particular, has experienced a major demographic transformation due to a continuous influx of immigrants. This demographic shift has made immigration a major political issue, as countries deal with issues of integration, economic impact, and social cohesion. While some view immigrants as a strain on resources and labor markets, others see them as essential contributors to economic growth, cultural diversity, and innovation.

Similarly, the increasing frequency and severity of natural disasters have placed additional pressure on societies worldwide. They represent a significant threat to many countries, with natural disaster events causing both direct harm, such as loss of life and property destruction, and indirect effects like economic setbacks, which exacerbate issues such as poverty and income inequality. Extreme weather events, including storms, wildfires, floods, and droughts, have disrupted economies, displaced communities, and tested government response systems. Global warming, severe climate change, and environmental degradation have led to a sharp rise in the frequency and intensity of natural disasters in recent decades. Notably, between 1970 and 2021, Europe accounted for 8% of the reported deaths worldwide. Extreme temperatures were the leading cause of reported deaths, while floods were the leading cause of economic losses.

In this paper, we examine the impact of natural disasters, measured by the total number of affected individuals, on public perceptions of immigration. We investigate whether such shocks foster greater solidarity or amplify resentment toward immigrants. We focus primarily on how individuals affected by natural disasters shift their attitudes toward immigration, using a setting that compares Eurozone regions with non-Eurozone regions. This distinction offers a valuable analytical setting: Eurozone countries share a common currency and operate within a framework of deeper economic and institutional integration, underpinned by EU budget transfers, fiscal coordination, and shared policy mechanisms. Such structures can mitigate the economic fallout of disasters and strengthen perceptions of collective resilience. In contrast, non-Eurozone countries retain greater fiscal and monetary autonomy and may experience more direct and unbuffered economic consequences from similar shocks. Comparing these two groups allows us to examine how the degree of macroeconomic integration shapes social responses to external shocks-specifically, whether belonging to the Eurozone, with its stronger sense of interdependence and stability, fosters more outward-looking and solidaristic attitudes toward immigration, while less integrated settings respond in more defensive and nationally oriented ways

To implement our analysis, we employ data from both the International Disaster Database (EM-DAT) and the European Social Survey (ESS) for the period 2002-2023. Using the survey data, we associate each individual affected by a natural disaster shock with their perceptions of various immigration issues and dimensions. We use a difference-in-differences approach with staggered treatment adoption, where the first difference is between Eurozone and non-Eurozone countries, and the second difference is the timing of being affected by a disaster. Furthermore, to address the possibility of obtaining biased estimates of the treatment effect parameters of interest due to treatment effects at different time points, we employ an event study estimator developed by De Chaisemartin and D'Haultfœuille (2020), which accounts for treatment effect heterogeneity and is robust to treatments switching on and off over time (i.e., exposure to a disaster).

Our main findings indicate that individuals affected by natural disasters in Eurozone regions experience significant changes in their attitudes toward the acceptance of immigrants and their economic and social contributions. Following a natural disaster shock, affected individuals in the Eurozone regions are more likely to allow immigrants of the same race or ethnic group, immigrants of different racial or ethnic backgrounds to come and live in their country compared to non-Eurozone regions. In addition, affected individuals in Eurozone increasingly believe that immigrants have a positive impact on the country's economy. Notably though, this is a second order effect materializing only few periods after the exposure to a shock.

A plausible explanation for these results lies in the interplay between economic integration, common immigration frameworks, and the temporal evolution of public attitudes. Two mechanisms appear to drive this pattern. The first is economic insulation: Eurozone countries benefit from common fiscal instruments and coordinated recovery frameworks that cushion the economic impact of disasters, reducing short-term insecurity. The second is policy coherence: shared immigration and governance frameworks help reframe disasters as collective challenges, encouraging more inclusive and solidaristic attitudes once the immediate crisis has passed. In the immediate aftermath of a disaster, individuals tend to focus on recovery and personal security, leaving limited scope for broader social reflection. Over time, however, as the initial shock subsides, the institutional context of the Eurozone, marked by shared economic mechanisms, coordinated fiscal support, and common immigration policies, may help frame disasters as collective challenges managed within a wider European framework. These arrangements can promote a sense of solidarity and interdependence, encouraging more inclusive attitudes toward immigrants, who are seen as part of a regulated and legitimate mobility system rather than as outsiders. In contrast, in less integrated settings where disaster impacts are more severe and policy responses remain nationally bounded, individuals may remain more inward-looking and protective of domestic resources. The delayed emergence of positive effects in Eurozone regions thus reflects a gradual process of adjustment, where collective narratives and institutional coordination take time to influence social perceptions.

We then conduct heterogeneous tests to examine factors that may influence the link between individuals affected by natural disasters and immigration attitudes. Given the extensive literature that explores the intended and unintended consequences of immigration on the economy and labor market(Borjas, 2019; Docquier et al., 2014; Alesina et al., 2021), our findings shed light on the factors influencing individual attitudes toward migration when people are confronted simultaneously with an external shock and a shared policy framework. Specifically, we investigate various measures, including remittances paid, trade in services, unemployment, wage and salaried workers, and EU funds, to assess the extent to which the empirical results are influenced. Remittances paid show a slight positive change in attitudes toward immigration. Similarly, trade in services generally leads to more positive attitudes in terms of allowing immigrants to come and live in their countries. Furthermore, unemployment rates, wage and salaried workers suggest that the arrival of immigrants, in terms of acceptance and contribution to society, does not significantly influence individuals' perceptions. Finally, EU funds show that support granted through reimbursements for natural disasters does not shift individuals' attitudes toward immigration issues.

Our study contributes to several strands of existing literature on natural disasters and migration that will be analytically discussed in the following section. Briefly, previous research has examined the consequences of natural disasters and their impact on economic growth, as well as outcomes such as poverty, consumption, and income inequality (Fomby et al., 2013; Rodriguez-Oreggia, 2010;

Anbarci et al., 2005). However, research on the broader impacts of natural disasters on migration remains limited. Additionally, our study contributes to the literature on the determinants of migration. Previous studies have explored how natural disasters influence internal migration, leading to the relocation of individuals (Boustan et al., 2012), and how migration can serve as a coping strategy in response to these events (Barrios et al., 2006; Marchiori et al., 2012). Yet, studies on the wider impacts of natural disasters on migration are still underexplored. Finally, our study contributes to the literature on shaping attitudes toward immigration. Previous studies have examined how perceptions are shaped by both economic factors, such as national economic conditions, the political climate, and individual characteristics (Wilkes et al., 2007; Schlueter and Wagner, 2008), and non-economic factors (Dustmann and Preston, 2006). However, the impact and formation of attitudes in response to natural disaster events remain underexplored.

The paper is structured as follows. Section 2 presents the existing literature on immigration and natural disasters. Section 3 introduces the data and measurement strategy. Section 4 outlines the empirical specification and identification strategy. Section 5 presents the main results. Section 6 conducts heterogeneous tests, whereas Section 7 concludes.

2 Literature Review

This paper explores how natural disasters influence public attitudes toward immigration, focusing on the interplay between environmental shocks, institutional integration, and social cohesion. While a rich literature examines economic and non-economic determinants of immigration views, the impact of natural disasters remains largely unexplored. We contribute to this literature by introducing disasters as a novel determinant of immigration attitudes and by identifying this as a second-order effect that materializes only after the immediate recovery period. Utilizing a difference-in-differences design that compares Eurozone and non-Eurozone regions, we exploit variation in economic and institutional integration to isolate how shared governance structures, including common currency and immigration frameworks, moderate the relationship between exposure to disasters and attitudes toward immigrants.

The first strand of liteature that we aspire to enrich is the migration litearture. Migration refers to the movement of people away from their usual residence, either within or across borders, and can be temporary or permanent. The economic crisis has intensified public resistance to immigration in several European countries, with native hostility undermining immigrant integration through labor market discrimination, lower wages, and higher unemployment (Kaushal et al., 2007). Economic concerns, such as job competition and pressure on public finances, drive much of this opposition (Edo et al., 2018). Natives are more likely to support restrictive immigration policies when they face labor market competition or anticipate adverse effects on wages and public resources (Ortega and Polavieja, 2012). Empirical studies from countries like Denmark, France, Germany, and the UK show that the effect of immigration on native wages is generally neutral or positive in the long run, depending on the substitutability between native and migrant workers (Brücker et al., 2014). Highly skilled immigration has helped reduce wage inequality in several countries, while the opposite holds true when low-skilled immigration dominates (Docquier et al., 2014). Immigration also affects support for redistribution: it declines as immigration rises, particularly when immigrants are seen as culturally distant or low-skilled (Alesina et al., 2021). Attitudes toward immigration are shaped by both national economic conditions and individual

characteristics (Ceobanu and Escandell, 2010). Key country-level factors include the size of the immigrant population, economic performance, and political climate (Quillian, 1995; Schlueter and Wagner, 2008; Wilkes et al., 2007). Our paper enriches this literature by introducing natural disasters as a novel determinant of immigration attitudes, linking environmental shocks to social and political perceptions and explaining the reasons why this is a second order effect.

We also aspire to contribute to the literature that highlights the social consequences of natural disasters. Natural disasters affect the entire world, with their occurrence primarily driven by geographical features and random circumstances. However, the impact can vary significantly across regions, depending on the characteristics of local communities (Eriksen et al., 2005). Natural disasters can be defined in various ways (Alexander, 2018). They can also be harmful elements of the physical environment caused by forces beyond human control (Burton and Kates, 1963), or the likelihood of damaging phenomena occurring in a given time and place (Lütem, 1985). Disasters are often measured by the number of victims and economic damage. Economically, a country's size influences its vulnerability, with larger countries often suffering greater losses (Cavallo et al., 2010). Disasters disrupt economies and may cause permanent losses, particularly impacting vulnerable groups (Hallegatte and Przyluski, 2010). While disasters can sometimes foster modernization and technological adoption (Skidmore and Toya, 2002), severe events generally hinder short-term growth, especially in smaller economies (Klomp and Valckx, 2014). Major disasters often exacerbate poverty and reduce the Human Development Index (Rodriguez-Oreggia, 2010).

Recent views suggest that climate change, particularly through an increase in the frequency and severity of natural disasters, is expected to lead to significant changes in migration patterns both within and between countries. The Fifth Assessment Report of the Intergovernmental Panel on Climate Change confirms that one of the gravest effects of extreme climatic events in the future will be human migration (Pachauri et al., 2014). The literature on the link between natural disasters and migration is growing. Naudé (2008) finds that environmental shocks can escalate conflict and increase migration. Migration is frequently used as a coping strategy in response to disaster-related shocks, especially given the rise in extreme weather events linked to climate change (Bednar-Friedl et al., 2022). Weather shocks have been shown to influence migration regardless of income settings (Henry et al., 2004; McLeman and Smit, 2006). However, migration outcomes are context-dependent and shaped by political, economic, and social constraints. For example, while rainfall shocks increase rural-to-urban migration in Sub-Saharan Africa (Barrios et al., 2006), credit constraints and weak institutions can limit mobility (Marchiori et al., 2012).

We contribute to this literature by shifting the focus from migration as a consequence of natural disasters to migration as a social and attitudinal dimension affected by them. While previous studies have examined how disasters drive population movements and shape migration flows, we explore how exposure to such shocks influences public attitudes toward immigrants, thus capturing a distinct social channel of disaster impact. By comparing Eurozone and non-Eurozone regions within a difference-in-differences framework, we identify how the degree of institutional and economic integration mediates the relationship between disaster exposure and attitudes toward immigration. This perspective enriches the existing debate by revealing that natural disasters not only displace people but also reshape the social and political environment into which migrants are received.

3 Data and Measurement

To conduct our analysis, we link the total number of disaster-affected individuals to their perceptions of immigration issues. Our total sample consists of 323,897 responses from disaster-affected individuals, with data from 111 regions in Eurozone countries and 90 regions in non-Eurozone countries (the Appendix provides the full list of countries included).

3.1 Natural Disasters

The EM-DAT center provides data on disaster events, compiled by the Centre for Research on the Epidemiology of Disasters (CRED). In order to be included in the EM-DAT database, a disaster must meet at least one of the following criteria: 10 or more reported fatalities, 100 or more individuals affected, the declaration of a state of emergency, or a call for international assistance (Noy, 2009). These disasters encompass various categories (e.g., hydro-meteorological events such as floods; storm surges, and droughts; geophysical incidents like earthquakes and volcanic eruptions; and technological events such as transport or industrial accidents). A natural disaster is defined as a natural event that disrupts the functioning of the economic system. This can sequentially result in significant negative impacts on assets, production factors, output, employment, or consumption. Natural disasters lead to both direct and indirect damages. Direct damages include loss of life, injuries, destruction of physical assets, and depletion of natural resources caused by the disaster itself. Indirect damages refer to broader economic effects that may emerge afterward (such as impacts on economic growth, poverty, and income inequality)

We use the measure of the total number of affected individuals following a natural disaster shock, associating it with each Nuts 2 region where they reside. This measure aggregates the number of people documented as injured, affected, or homeless. Specifically, injured refers to individuals with physical injuries, trauma, or illness requiring immediate medical assistance due to the disaster; affected refers to individuals requiring immediate assistance following the event; and homeless refers to those who need shelter because their homes were destroyed or severely damaged during the disaster. We then construct a binary indicator that takes the value 1 if at least one individual has been reported as injured, affected, or homeless, and 0 if no individuals have been documented. This variable allows us to capture the differential effects of exposure to regional shocks on affected individuals, enabling us to analyze their potential impact.

In Figure 1, we visualize the experience of natural disaster shocks across Europe at the Nuts 2 regional level, highlighting regions that have been exposed to such events. These shocks include disasters such as floods, storms, wildfires, and earthquakes, which have impacted individuals in both Eurozone and non-Eurozone regions during the years of interest.

[INSERT FIGURE 1 HERE]

Figure 2 represents the total number of people affected by natural disasters across European regions at the Nuts 2 level. It highlights areas where populations have suffered physical injuries, trauma, or illness requiring immediate medical care, needed urgent assistance, or lost their homes following a disaster shock. Furthermore, the map reveals disparities in the number of affected individuals documented, with the most severely impacted regions located in parts of Southern and

Eastern Europe, indicating a significant concentration of affected populations, compared to other regions.

[INSERT FIGURE 2 HERE]

3.2 Migration Perceptions

Data are drawn from the European Social Survey (ESS), a cross-national survey conducted every two years using face-to-face interviews. The survey covers, among other topics, a wide range of issues related to perceptions of immigration. We collected, cleaned, and harmonized all available survey waves from 2002 to 2023, focusing on people's attitudes towards immigration issues.

We use survey questions that explore different dimensions of perceptions related to immigration. First, we assess to what extent individuals think their country should allow people of the same race or ethnic group to come and live in it. The response scale ranges from 1 to 4, where 1 indicates allowing none to come and live, and 4 indicates allowing many to come and live. Second, we examine individuals' attitudes toward allowing people of a different race or ethnic group to come and live in their countries, based on a scale from 1 to 4, ranging from 'allow none' to 'allow many'. Third, we use a proxy variable that indicates whether individuals believe immigration is generally bad or good for the country's economy. The variable ranges from 0, representing 'bad for the economy,' to 10, representing 'good for the economy. To ensure respondents were asked about their perceptions after natural disaster shocks had occurred, these immigration variables were introduced with a one-year lag.

Figure 3 presents public attitudes toward immigrants based on survey responses from individuals residing in Eurozone and non-Eurozone countries, regarding the acceptance of immigrants of both the same and different ethnicities. For same-ethnicity immigrants, individuals in non-Eurozone countries show more favorable attitudes, expressing greater openness to allowing same-ethnicity immigrants to come and live in their countries compared to those in the Eurozone. In contrast, for different-ethnicity immigrants, individuals in the Eurozone show greater support for allowing different-ethnicity immigrants to come and live in their countries, compared to individuals in non-Eurozone countries, where support is lower, with noticeable declines during the 2015-2017 refugee crisis.

[INSERT FIGURE 3 HERE]

Similarly, in Figure 4, we show public attitudes toward immigration's economic contribution. Firstly, regarding immigrants' contributions to their countries, individuals in the Eurozone show slightly more favorable perceptions, with a mild upward trend, particularly after 2015, peaking around 2020. This suggests that Eurozone citizens view immigrants as contributors to the economy, compared to those in the non-Eurozone, who appear to have slightly lower attitudes toward the positive contributions of immigrants.

[INSERT FIGURE 4 HERE]

3.3 Descriptive Statistics

Table 1 documents the descriptive statistics for our sample. The data show a moderate level of acceptance toward immigration, with an average rating of 2.81 for allowing immigrants of the same ethnicity, and 2.52 for immigrants of different ethnicities, indicating that individuals are generally favorable but not strongly supportive. At the same time, the economic impact of immigrants generally shows a positive perception, with a rating of 5.02. Regarding the total number of affected individuals, on average about 7,933 people have been documented as either injured, affected, or homeless due to natural disaster events, such as floods, droughts, storms, and earthquakes.

Moreover, 55% of respondents belong to Eurozone regions, which provides sufficient variation for the implementation of our DiD strategy. The average respondent is about 50 years old, with a slight skew towards females compared to males. They have attained a mid-range level of education, are more likely to be in a legally registered civil union, and typically live in households with an average of about 2.43 members.

[INSERT TABLE 1 HERE]

4 Empirical Strategy

Our empirical research employs a difference-in-differences approach with staggered treatment adoption to examine how exposure to natural disaster shocks, measured by the total number of affected individuals, influences attitudes toward immigration in Eurozone regions compared to non-Eurozone regions. Specifically, we estimate the following:

$$Y_{irt} = \alpha_0 + \alpha_1 TotalAffected_{irt} + \alpha_2 Eurozone_{rt} + \alpha_3 TotalAffected_{irt} * Eurozone_{rt} + \eta X_i + \phi_r + \lambda_t + \epsilon_{irt}, \quad (1)$$

where y_{irt} denotes the immigration attitudes of individual i, residing in region r and participating in the European Social Survey (ESS) in year t. $TotalAffected_{irt}$ takes the value of 1 if at least one individual, residing in region r has been documenteed as affected in year t, and 0 otherwise. $Eurozone$ is equal to one if the region belongs to the Eurozone in year t. Additionally, ϕ and λ denote fixed effects for region and year, respectively. Our parameter of interest is α_3, which captures the main treatment effect, specifically the differential change in immigration perceptions between affected individuals, due to natural disasters, while living in the Eurozone and those living in the non-Eurozone. We also consider a vector of control variables X_i which includes individual characteristics, such as age, gender, education, marital status, and number of household members. Finally, ϵ_{irt} represents the residual. The standard errors are clustered at the Nuts 2 region level.

Since natural disaster shocks occur at different time points across European regions, treatment effects in difference-in-differences (DiD) analyses can lead to biased estimates (Goodman-Bacon, 2021; Callaway and Sant'Anna, 2021). To address this issue, we apply the event study estimator developed by De Chaisemartin and d'Haultfoeuille (2024), which accounts for treatment effect heterogeneity. They demonstrate that bias can occur when comparing groups treated at different times, as these groups may not be directly comparable, especially when treatment effects vary

over time. This method is well-suited for staggered interventions, as it compares outcomes for treated units before and after treatment with those for units that have not yet been treated. It aligns with our study, as de Chaisemartin and D'Haultfoeuille's work focuses on techniques robust to treatments switching on and off over time. This estimator does not assume constant treatment effects and uses placebo estimators to test the parallel trends assumption. It compares the trends of treated and untreated units before treatment changes, ensuring that the no-anticipation assumption holds. This assumption is critical in DiD with treatment heterogeneity, as it requires that outcomes are not influenced by future treatments. In the absence of treatment, outcomes for treated and control groups should follow parallel paths.

Using (1) and following the Chaisemartin and D'Haultfoeuille approach, we estimate event study models that account for heterogeneous and dynamic treatment effects, allowing us to examine both short-term and long-term impacts as groups are exposed at different time points.

5 Empirical Findings

To anticipate the results to be discussed in this section, all associated figures suggest that pre-shock trends are similar for both treated and control groups, and the results become evident for the treated group several periods after the event takes place. The idea that such changes, are not instantaneous responses but rather develop gradually through a process of social and political recalibration is thus supported by the observation that the effects of natural disasters on immigration attitudes only become statistically significant after two or more periods. Recovery, infrastructure repair, and local crisis management are the main priorities in the immediate aftermath of a disaster, leaving little political or cognitive room for more comprehensive thoughts on immigration. The public's attention starts to turn to structural and societal issues, such as resource distribution, perceived competition, and governance, as the recovery progresses and stabilizes. Underlying fears, particularly those related to economic strain, solidarity, or belonging, are more likely to come to the surface and solidify into altered views of immigrants and associated policies during this later stage.

Analytically, Figure 5 presents event study graphs analyzing affected individuals' perceptions of whether to allow immigrants of the same race or ethnic group, and whether to allow immigrants of different races and ethnic groups to come and live in their country, in the aftermath of a natural disaster shock in Eurozone and non-Eurozone regions. Initially, for allowing immigrants of the same race or ethnic group, the pre-shock trends for both treated and control groups are similar, supporting the parallel trends assumption. In the first period, we observe a statistically significant positive effect of 9.14%, significant at the 1% level, indicating that affected individuals in the Eurozone are more likely to allow immigrants of the same race or ethnic group to come and live in their country. In periods 2 to 6, there is no statistically significant impact, with the exception of period 3, where an increase of 8.21% is observed and is statistically significant at the 5% level. However, in periods 7 and 8, individuals affected by a natural disaster shock in the Eurozone show statistically significant positive effects on their attitudes, both at the 1% level, with increases of 24.45% and 28.52%, respectively. In the subsequent periods up to period 20, the results remain mostly statistically significant at the 1%, 5%, or 10% levels, with only a few exceptions -such as periods 9, 12, and 20 -where the effect is statistically insignificant. On average, individuals affected by natural disasters in Eurozone regions are more likely to allow immigrants of the same race or

ethnic group to come and live in their country compared to those in non-Eurozone regions, with an increase of 0.94 units. This effect is statistically significant at the 1% level.

Concerning allowing of immigrants from different races and ethnic groups to come and live in their country, pre-shock estimates show similar trends, with placebo effects close to zero and not significantly different from zero. In the initial periods after the disaster shock, the affected individuals' views in the Eurozone do not present statistically significant effects regarding the allowing of immigrants of different races and ethnic groups to come and live in their country, with the exception of period 3, where an increase of 7.89% is observed and is statistically significant at the 5% level. In periods 7 and 8, however, the perceptions of affected individuals reflect increases of 20.77% and 26.51%, respectively, compared to those in non-Eurozone regions. These results are significant at the 1% level. From periods 9 to 13, the effects appear to weaken, with no statistically significant impact except for period 11, where we observe an increase of 16.79%, which is statistically significant at the 5% level. From periods 14 to 17, individuals affected in the Eurozone show increases ranging from 21.28% to 48.18%, statistically significant at the 5% and 1% levels for these periods, respectively. Finally, periods 18 to 20 indicate no significant effects, with the exception of period 19, where an increase of 48.92% is observed and is statistically significant at the 1% level. On average, individuals affected by natural disasters in Eurozone regions show an increase of 0.84 units in their acceptance of immigrants from different racial or ethnic groups compared to those in non-Eurozone regions. This effect is statistically significant at the 1% level.

[INSERT FIGURE 5 HERE]

Figure 6 shows the event study estimates examining individuals' affected perceptions following a natural disaster shock, comparing Eurozone and non-Eurozone regions with respect to their perceptions of whether immigration is good or bad for their country's economy.

First, in the treatment and control groups, the pre-shock estimates are similar, with placebo effects close to zero and not significantly different from zero. In the first six periods, we observe an increase only in period 3, where affected individuals consider immigration to be good for their economy in the Eurozone by 23.70%, statistically significant at the 5% level. In period 7, their perceptions reflect an increase of 26.73%, also significant at the 5% level. However, from period 8 through period 14, the effect appears to fade, showing no significant impact except for period 11, where we see an increase of 33.76%, statistically significant at the 5% level. Additionally, in periods 15, 17, and 19, their belief that immigration favors their country's economy increases, with effects statistically significant at the 1% level, while the remaining periods 16, 18, and 20 show no significant impact. On average, individuals affected by natural disasters in Eurozone regions show a 1.45-unit increase in their perception that immigration is beneficial for their country, compared to those in non-Eurozone regions. This effect is statistically significant at the 5% level.

[INSERT FIGURE 6 HERE]

Overall, our findings suggest that individuals affected by natural disaster shocks in Eurozone regions experience significant changes in their opinions regarding the acceptance of immigrants and their contributions. While there are no immediate shifts in how these individuals perceive immigrants in society, natural disasters appear to have a sustained and lasting influence. Over time, the experience of a disaster shock in the Eurozone tends to foster more favorable attitudes and beliefs toward immigration, both in terms of acceptance and economic contributions, compared to

individuals in non-Eurozone. Specifically, individuals affected by natural disasters in the Eurozone appear to become less skeptical about the acceptance and contributions of immigrants to society.

6 Heterogeneous Effects

This section conducts heterogeneity tests to examine factors that may mitigate the relationship between disaster shocks in Eurozone regions and attitudes toward immigrants, compared to non-Eurozone regions. We interact our measure of individuals affected by a natural disaster shock in Eurozone regions with remittances paid, trade in services, unemployment rates, wages and salaried workers, and EU funds to assess the extent to which these factors impact our empirical results.

Empirical research underscores the crucial role of remittances in mitigating the effects of natural disasters. Studies show a positive correlation between remittances and disaster occurrence in countries with large migrant populations (Mohapatra et al., 2012). Additionally, immigration policies influence the remittance-education link and the flow of remittances from skilled emigrants (Docquier et al., 2012). Moreover, trade flows may significantly impact our findings, as previous research has established connections between natural disasters, migration, and trade flows (Gassebner et al., 2010; Felbermayr and Toubal, 2012). Interestingly, the European Union has expanded both the scope and resources of its funding initiatives (Hodson, 2012), aiming to mitigate the impacts of disasters and promote the economic inclusion of immigrants (Hochrainer-Stigler et al., 2022; Giua et al., 2022). Consequently, EU funds may significantly influence affected individuals' attitudes toward immigrants. Additionally, unemployment rates can shape individual attitudes toward immigrants in the aftermath of a disaster. Previous research highlights a significant nexus between migration, natural disasters, and unemployment (Wagan and Sidra, 2024; Kilic et al., 2019). Wages also appear to have a substantial impact on the relationship between natural disasters and attitudes toward immigrants, both in the short and long run, as shown by earlier studies (Van der Velden et al., 2019; Dustmann et al., 2013).

We collect data on personal remittances paid, trade in services, unemployment, and workers' wages and wages and salaried workers from the World Bank, while data on regional funds are obtained from the Cohesion Open Data platform under the heading 'Historic EU Payments - Regionalized and Modeled', which enables us to analyze these factors and support our empirical results.

6.1 Personal Remittances Paid

In Table 2, we examine how the interaction between individuals affected by natural disasters in the Eurozone and personal remittances paid influences attitudes toward immigration. Column 1 shows that a higher unit of personal remittances paid results in a slight increase in affected individuals' perceptions in the Eurozone of allowing immigrants of the same ethnic group to come and live in their countries following a disaster shock. The result is significant at the 10% level. In Column 2, increased personal remittances paid indicates a small increase in affected individuals in the Eurozone allowing immigrants of different ethnic groups to live in their countries, statistically significant at the 5% level. Column 3 suggests that increased personal remittances paid lead to a small increase in affected individuals' perception in the Eurozone of immigrants' contribution to the country's economy, but the effect is not statistically significant.

Overall, the results show that individuals affected by a natural disaster shock in Eurozone regions present a favorable direction and positive stances toward immigrants through personal remittances paid. There is a small, statistically significant increase in the acceptance of both the same ethnic group and different ethnic groups. These findings, although minimal, suggest subtle positive attitudes toward immigrants in terms of acceptance and allowing them to come and live in their societies.

[INSERT TABLE 2 HERE]

6.2 Trade in Services

We examine how trade in services within Eurozone regions affects the perceptions of affected individuals toward immigration following natural disaster shocks. Table 3 reports the results. Column 1 shows that high trade in services in affected individuals in Eurozone regions increases the allowing of immigrants from the same ethnic group to come and live in their countries by 0.6 percentage points. The result is statistically significant at the 10% level. In Column 2, increased trade in services is associated with a 1 percentage point increase in the perceptions of individuals affected by natural disasters in the Eurozone toward immigrants of a different ethnicity coming to live in their countries. This result is statistically significant at the 1% level. Column 3 suggests that immigration does not have a significant economic impact on the countries of the affected individuals.

In summary, the findings suggest that trade in services in Eurozone regions, where natural disasters have affected individuals, leads to more positive views on immigration. It affects the process of allowing immigrants, both from the same ethnic group and from different ethnic groups, in terms of acceptance to come and live in their countries, compared to those in non-Eurozone regions. The results show a statistically significant positive direction, indicating a favorable stance towards immigrants.

[INSERT TABLE 3 HERE]

6.3 Unemployment

We next examine whether unemployment conditions influence how disaster-affected individuals in Eurozone regions perceive immigration. Table 4 reports the interaction between disaster exposure, Eurozone membership, and unemployment rates across several measures of immigration attitudes. While the estimated coefficients are positive across specifications, none of the effects are statistically significant. Overall, the results suggest that unemployment does not meaningfully moderate the relationship between natural disasters and attitudes toward immigration in Eurozone countries.

[INSERT TABLE 4 HERE]

6.4 Wages and Salaries

We next explore whether the share of wage and salaried workers influences the relationship between disaster exposure and immigration attitudes in Eurozone regions. Table 5 reports the corresponding estimates. Although the coefficients vary in sign across different measures of immigration attitudes, none of the effects are statistically significant. These results indicate that the composition of wage and salaried workers does not materially shape how disaster-affected individuals in the Eurozone perceive immigration.

[INSERT TABLE 5 HERE]

6.5 EU Funds

In Table 6, we explore how received EU funds may influence disaster-affected individuals' perceptions toward immigrants in the Eurozone regions. Column 1 suggests that a unit increase in EU funds in the Eurozone leads to a 2.9 percentage point increase in individuals affected by disaster events toward allowing immigrants of the same ethnicity to come and live in their countries. This result is not statistically significant. In Column 2, increased EU funds in Eurozone regions are associated with a slight 0.1 percentage point reduction in the acceptance of immigrants from different ethnicities. Finally, in Column 4, individuals in Eurozone regions affected by natural disasters with increased EU funds indicate a 2.6 percentage point increase in the belief that immigrants are beneficial for their country's economy, but this effect is not statistically significant.

[INSERT TABLE 6 HERE]

7 Concluding Remarks

Natural disasters affect thousands of people around the world each year, causing widespread destruction and weakening local economies. At the same time, public views on immigration are largely influenced by concerns about the labor market and welfare systems, which have become even more pronounced during the so-called migration crisis.

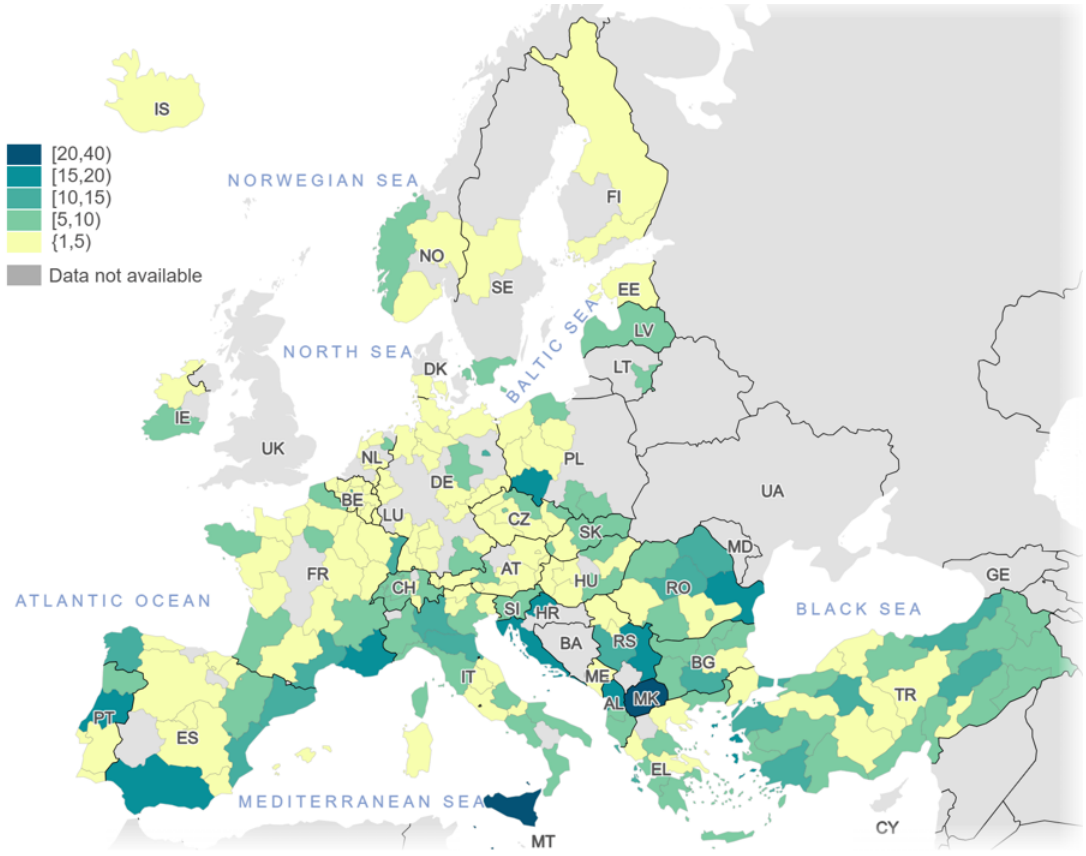
In this paper, we explore the interplay between individuals affected by environmental shocks and their attitudes toward immigration by comparing Eurozone and non-Eurozone regions to assess the moderating role of institutional integration. Our findings suggest that, following a disaster shock, disaster-affected individuals in the Eurozone present more positive attitudes towards immigrants, allowing them to come and live in their country regardless of whether they are from the same race or ethnic group, or from different racial backgrounds. In addition, they believe that immigrants have a positive impact on the country's economy, compared to non-Eurozone regions. By emphasizing both the economic insulation and policy coherence channels, our findings show that the Eurozone's institutional architecture not only mitigates the economic costs of disasters but also shapes the social narratives that emerge in their aftermath.

Furthermore, by conducting various heterogeneity tests, we find that remittances paid, trade in services, unemployment, wage and salaried workers, and received EU funds may be crucial in influencing the link between natural disasters and immigration attitudes. Remittances slightly

improve attitudes toward immigration, and high trade in services generally tends to increase favorable views. Conversely, unemployment, wage and salaried workers, and EU funds do not present any significant results, indicating that neither immigrants are perceived as a threat concerning potential fluctuations in the labor market, nor does EU funding support result in shifts in their perception of immigrants.

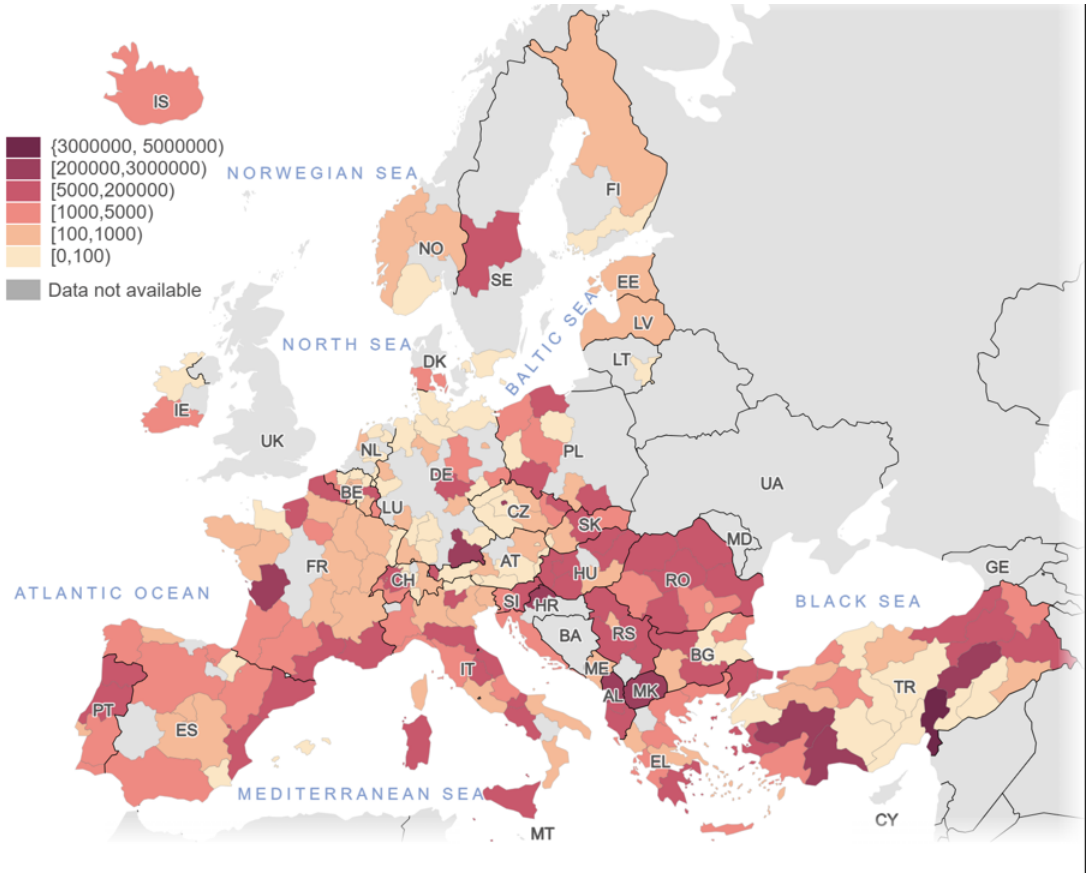
Main Tables and Figures

Figure 1: Spatial Distribution of Experiencing Natural Disasters



Notes: The figure highlights the European regions that have been exposed to natural disaster shocks at the Nuts 2 level during our years of interest. The data source is EM-DAT, which provides regional-level information on significant disasters, such as floods, storms, earthquakes, and wildfires.

Figure 2: Spatial Distribution of the Total Number of People Affected by Natural Disasters



Notes: The figure presents the total number of affected people due to natural disaster shocks at the Nuts 2 level, considering the number of people with physical injuries, trauma, or illness requiring immediate medical assistance; the number of people requiring immediate assistance; and the number of people needing shelter due to their house being destroyed or heavily damaged during the disaster. The data source is EM-DAT, which provides regional-level information on significant disasters, such as floods, storms, earthquakes, wildfires.

Figure 3: Public Perceptions Towards Immigration

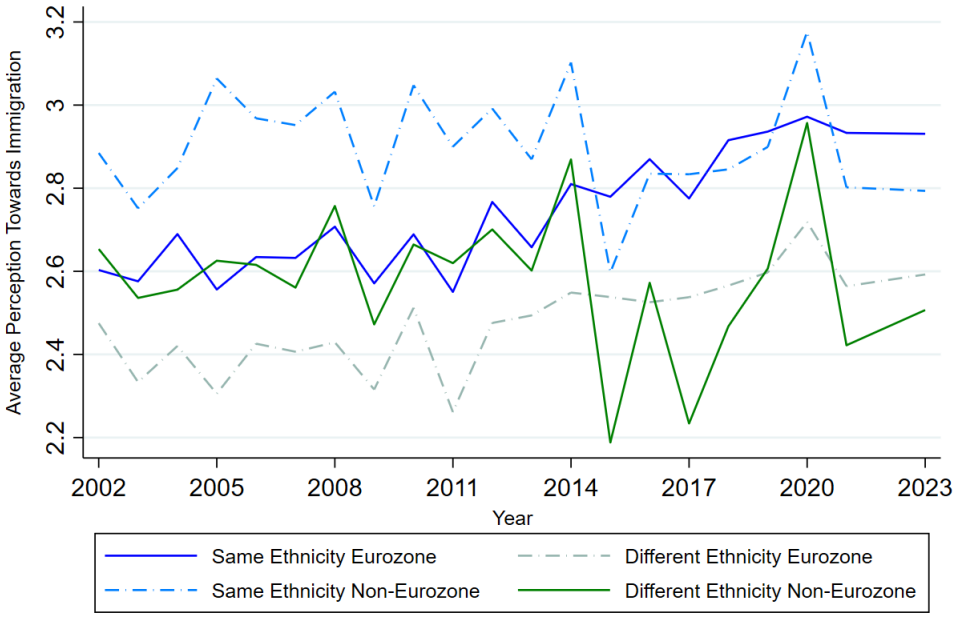
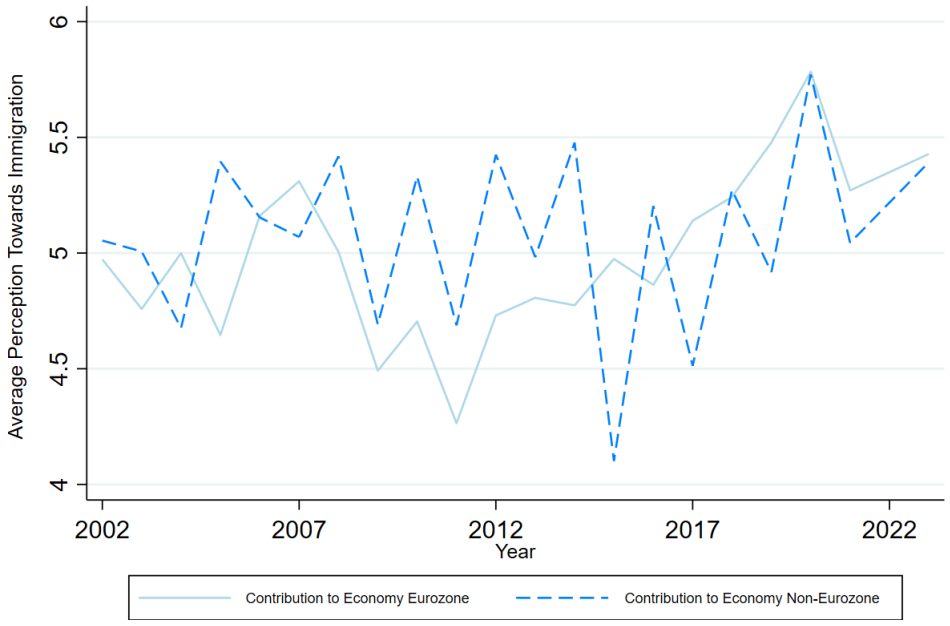


Figure 4: Public Perceptions Towards Immigration



Notes: These figures illustrate public perceptions of immigration issues, highlighting the differences between Eurozone and non-Eurozone countries during the period of interest. They include individuals' views on whether their country should allow people of the same race or ethnic group to live there, attitudes toward allowing people of a different race or ethnic group, and whether individuals believe it is generally good or bad for the economy when people from other countries move in. Overall, Eurozone countries tend to show more favorable attitudes toward immigrants from different ethnicities, and their economic contributions. In contrast, non-Eurozone countries are more favorable

toward same-ethnicity immigrants. The data source is the European Social Survey (ESS), which provides a wide range of questions related to immigration, covering various dimensions of the issue.

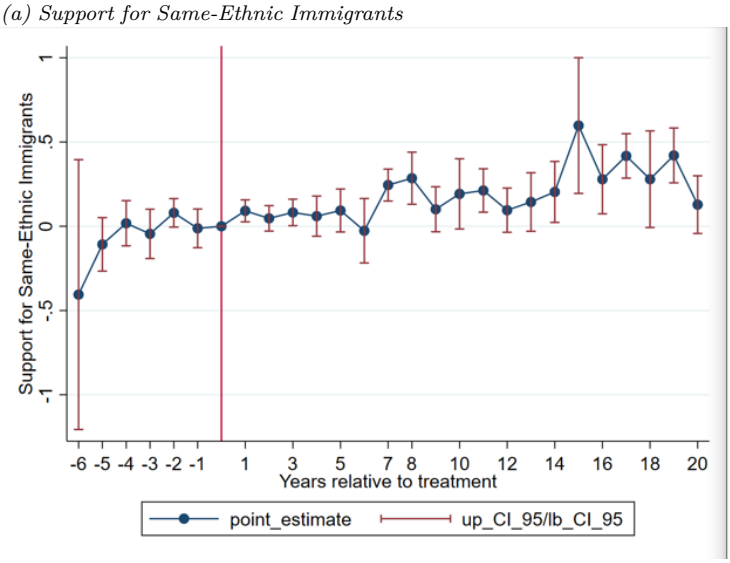
Table 1: Descriptive Statistics

	Obs.	Mean	SD	Min	Max
Immigration Variables					
Allow immigrants of same ethnicity	323.597	2.81	0.87	1	4
Allow immigrants of different ethnicity	323.151	2.52	0.90	1	4
Immigration impact on economy	321.296	5.02	2.47	0	10
Natural Disaster Variables					
Total Affected	62.656	7.933	61.894	0	1.300.000
Demographic Variables					
Eurozone	334.644	0.55	0.49	0	1
Age	333.415	49.7	17.8	18	144
Gender	334.468	1.53	0.49	1	2
Education	334.644	13.1	7.37	2	28
Marital Status	334.644	7.09	2.61	1	12
Household Members	334.233	2.64	1.37	0	19

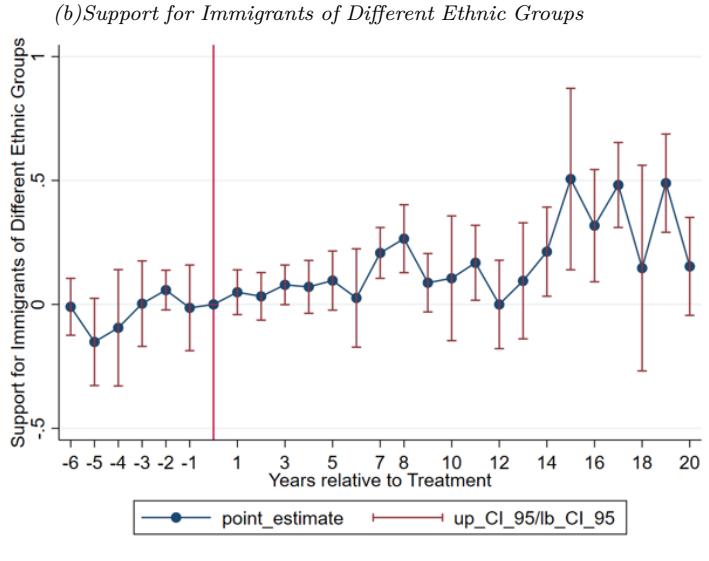
Notes - Sources: EM-DAT and European Social Survey (ESS). The table presents descriptive statistics for immigration measures, including: i) allowing immigrants of the same ethnicity, ii) allowing immigrants of different ethnicity, and iii)immigration's impact on the economy. It also includes descriptive statistics for the total number of documented affected individuals following natural disasters, as well as demographic characteristics such as age, gender, education (measured by the International Standard Classification of Education, ISCED), marital status, and number of people regularly living in the household.

Figure 5: Event Study Design: The Effect of Total Affected by Natural Disasters on Support for Same-Ethnic Immigrants and Support for Immigrants of Different Ethnic Groups

(a) Support for Same-Ethnic Immigrants



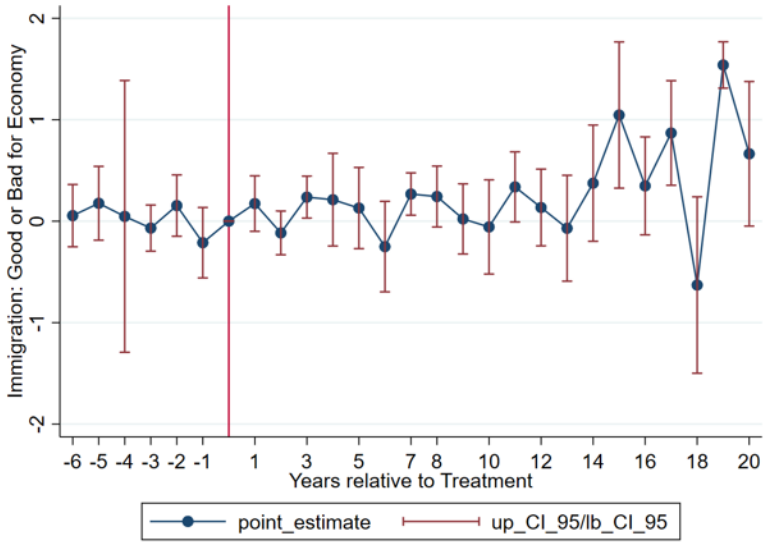
(b)Support for Immigrants of Different Ethnic Groups



Notes: This figure shows pre-shock trends and post-treatment effects for the treated and control groups, focusing on individuals' attitudes toward same-ethnic immigrants and immigrants from different ethnic groups. (a) Post-Average (Total) Effect per Treatment Unit: 0.943 (0.25), statistically significant at the 1% level. Joint placebo test p-value: 0.274. (b) Post-Average (Total) Effect per Treatment Unit: 0.842 (0.26), statistically significant at the 1% level. Joint placebo test p-value: 0.486.

Figure 6: Event Study Design: The Effect of Total Natural Disaster Impact on Perceptions of Whether Immigration is Good or Bad for the Country's Economy

(a) Immigration: Good or Bad for the Economy



Notes: This figure shows pre-shock trends and post-treatment effects for the treated and control groups, focusing on their perceptions of whether immigration is good or bad for the country's economy. (a) Post-Average (Total) Effect per Treatment Unit: 1.457 (0.67), statistically significant at the 5% level. Joint placebo test p-value: 0.350.

Table 2: Personal Remittances Paid

	(1) Same Ethnicity	(2) Different Ethnicity	(3) Economy
Total Affected	0.073**	0.101**	0.143*
	(1.97)	(2.39)	(1.66)
Eurozone	-0.011	-0.105	0.007
	(-0.14)	(-1.26)	(0.06)
Remittances	-0.000**	-0.000*	0.000
	(-2.55)	(-1.71)	(1.05)
Total Affected x Eurozone	-0.094*	-0.120**	-0.278**
	(-1.71)	(-2.34)	(-2.28)
Total Affected x Remittances	-0.000**	-0.000***	-0.000
	(-2.35)	(-2.76)	(-1.15)
Remittances x Eurozone	0.000***	0.000***	0.000**
	(4.93)	(4.49)	(2.06)
Total Affected x Eurozone x Remittances	0.000*	0.000**	0.000
	(1.72)	(2.33)	(1.39)
Sample	322.039	321.591	319.745
Controls	Yes	Yes	Yes
Nuts2FE	Yes	Yes	Yes
YearFE	Yes	Yes	Yes

Notes: This table presents the Average Treatment Effect on the Treated (ATET) for the treatment variable, which captures the combined effect of the total number of affected individuals due to natural disasters, Eurozone membership, and personal remittances paid (comprising personal transfers and compensation of employees) on perceptions of immigration. Immigration perceptions are assessed based on the extent to which individuals think their country should allow people of the same race or ethnic group to come and live there, allow people of a different race or ethnic group to come and live there, and whether individuals believe it is generally bad or good for the country's economy when people from other countries come to live there. The treatment group consists of Eurozone regions that have documented affected individuals due to natural disasters and personal remittances paid, while the control group includes regions outside the Eurozone that were documented as affected by disaster shocks and also personal remittances paid. The model controls for individual characteristics including age, gender, marital status, number of household members, and education. It also includes Nuts 2 region and year fixed effects. Standard errors, clustered at the Nuts 2 region level, are shown in parentheses. *** denotes statistical significance at the 1% level, ** at the 5% level, and * at the 10% level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 3: Trade in Services

	(1) Same Ethnicity	(2) Different Ethnicity	(3) Economy
Total Affected	0.167**	0.296***	0.287
	(2.07)	(3.71)	(1.53)
Eurozone	-0.395***	-0.448***	-0.396**
	(-3.02)	(-3.80)	(-2.20)
Trade in Services	-0.011***	-0.009**	-0.004
	(-3.11)	(-2.45)	(-0.87)
Total Affected x Eurozone	-0.212**	-0.314***	-0.239
	(-2.37)	(-3.50)	(-1.16)
Total Affected x Trade in Services	-0.005*	-0.009***	-0.007
	(-1.69)	(-3.71)	(-1.11)
Trade in Services x Eurozone	0.014***	0.012***	0.013***
	(4.33)	(3.54)	(3.15)
Total Affected x Eurozone x Trade in Services	0.006*	0.010***	0.003
	(1.96)	(3.78)	(0.49)
Sample	318.267	317.823	315.993
Controls	Yes	Yes	Yes
Nuts2FE	Yes	Yes	Yes
YearFE	Yes	Yes	Yes

Notes: This table presents the Average Treatment Effect on the Treated (ATET) for the treatment variable, which captures the combined effect of the total number of affected individuals due to natural disasters, Eurozone membership, and trade in services, where trade in services is computed as the sum of service exports and imports divided by GDP, on perceptions of immigration. Immigration perceptions are assessed based on the extent to which individuals think their country should allow people of the same race or ethnic group to come and live there, allow people of a different race or ethnic group to come and live there, and whether individuals believe it is generally bad or good for the country's economy when people from other countries come to live there. The treatment group consists of Eurozone regions that have documented affected individuals due to natural disasters and trade in services, while the control group includes regions outside the Eurozone that were documented as affected by disaster shocks and also engaged in trade in services. The model controls for individual characteristics including age, gender, marital status, number of household members, and education. It also includes Nuts 2 region and year fixed effects. Standard errors, clustered at the Nuts2 2 region level, are shown in parentheses. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4: Unemployment

	(1) Same Ethnicity	(2) Different Ethnicity	(3) Economy
Total Affected	0.035	0.040	-0.046
	(0.71)	(0.94)	(-0.51)
Eurozone	0.298***	0.304***	0.571***
	(4.39)	(4.37)	(4.10)
Unemployment	0.029***	0.036***	0.010
	(6.02)	(9.12)	(1.01)
Total Affected x Eurozone	-0.080	-0.140**	-0.413**
	(-0.96)	(-2.48)	(-2.41)
Total Affected x Unemployment	-0.001	0.000	0.015
	(-0.09)	(0.09)	(1.26)
Unemployment x Eurozone	-0.033***	-0.045***	-0.075***
	(-5.59)	(-8.14)	(-4.81)
Total Affected x Eurozone x Unemployment	0.004	0.009	0.021
	(0.39)	(1.30)	(1.23)
Sample	322.039	321.591	319.745
Controls	Yes	Yes	Yes
Nuts2FE	Yes	Yes	Yes
YearFE	Yes	Yes	Yes

Notes: This table presents the Average Treatment Effect on the Treated (ATET) for the treatment variable, which captures the combined effect of the total number of affected individuals due to natural disasters, Eurozone membership, and unemployment, where unemployment refers to the share of the labor force that is without work but available for and seeking employment, on perceptions of immigration. Immigration perceptions are assessed based on the extent to which individuals think their country should allow people of the same race or ethnic group to come and live there, allow people of a different race or ethnic group to come and live there, and whether individuals believe it is generally bad or good for the country's economy when people from other countries come to live there. The treatment group consists of Eurozone regions that have documented affected individuals due to natural disasters and unemployment, while the control group includes regions outside the Eurozone that were also affected by disaster shocks and experienced unemployment. The model controls for individual characteristics including age, gender, marital status, number of household members, and education. It also includes Nuts 2 region and year fixed effects. Standard errors, clustered at the Nuts 2 region level, are shown in parentheses. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 5: Wages and Salaries

	(1) Same Ethnicity	(2) Different Ethnicity	(3) Economy
Total Affected	0.096	-0.076	0.101
	(0.54)	(-0.34)	(0.20)
Eurozone	-2.394*	-3.603***	-3.560*
	(-1.88)	(-3.77)	(-1.92)
Wages	0.003	-0.016*	0.027*
	(0.29)	(-1.90)	(1.90)
Total Affected x Eurozone	-0.502	0.208	0.901
	(-1.29)	(0.58)	(0.99)
Total Affected x Wages	-0.001	0.002	0.000
	(-0.25)	(0.69)	(0.03)
Wages x Eurozone	0.028*	0.040***	0.041*
	(1.95)	(3.67)	(1.97)
Total Affected x Eurozone x Wages	0.005	-0.004	-0.013
	(1.16)	(-0.80)	(-1.16)
Sample	294.282	293.872	292.187
Controls	Yes	Yes	Yes
Nuts2FE	Yes	Yes	Yes
YearFE	Yes	Yes	Yes

Notes: This table presents the Average Treatment Effect on the Treated (ATET) for the treatment variable, which captures the combined effect of the total number of affected individuals due to natural disasters, Eurozone membership, and wage and salaried workers, where wage and salaried workers are employees with jobs based on written, oral, or implicit contracts, receiving regular pay not tied to the employer's revenue, on perceptions of immigration. Immigration perceptions are assessed based on the extent to which individuals think their country should allow people of the same race or ethnic group to come and live there, allow people of a different race or ethnic group to come and live there, and whether individuals believe it is generally bad or good for the country's economy when people from other countries come to live there. The treatment group consists of Eurozone regions that have documented affected individuals due to natural disasters and wage and salaried workers, while the control group includes regions outside the Eurozone that were also affected by disaster shocks and wage and salaried workers. The model controls for individual characteristics including age, gender, marital status, number of household members, and education. It also includes Nuts 2 region and year fixed effects. Standard errors, clustered at the Nuts 2 region level, are shown in parentheses. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: EU Funds

	(1) Same Ethnicity	(2) Different Ethnicity	(3) Economy
Total Affected	0.144	-0.389	0.262
	(0.49)	(-1.19)	(0.41)
Eurozone	-0.339	-0.603*	-0.614
	(-0.71)	(-1.67)	(-0.69)
EU funds	-0.019*	-0.041***	-0.012
	(-1.90)	(-4.00)	(-0.56)
Total Affected x Eurozone	-0.654	-0.098	-0.729
	(-1.28)	(-0.22)	(-0.68)
Total Affected x EU funds	-0.004	0.025	-0.006
	(-0.26)	(1.46)	(-0.17)
EU funds x Eurozone	0.017	0.027	0.031
	(0.71)	(1.33)	(0.66)
Total Affected x Eurozone x EU funds	0.029	-0.001	0.026
	(1.08)	(-0.04)	(0.45)
Sample	258.132	257.770	256.060
Controls	Yes	Yes	Yes
Nuts2FE	Yes	Yes	Yes
YearFE	Yes	Yes	Yes

Notes: This table presents the Average Treatment Effect on the Treated (ATET) for the treatment variable, which captures the combined effect of the total number of affected individuals due to natural disasters, Eurozone membership, and received EU funds on perceptions of immigration. Immigration perceptions are assessed based on the extent to which individuals think their country should allow people of the same race or ethnic group to come and live there, allow people of a different race or ethnic group to come and live there, and whether individuals believe it is generally bad or good for the country's economy when people from other countries come to live there. The treatment group consists of Eurozone regions that have documented affected individuals due to natural disasters and received EU funds, while the control group includes regions outside the Eurozone that were also affected by disaster shocks and received EU funds. The model controls for individual characteristics including age, gender, marital status, number of household members, and education. It also includes Nuts 2 region and year fixed effects. Standard errors, clustered at the Nuts 2 region level, are shown in parentheses. *** denotes statistical significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

References

Alesina, A., Harnoss, J., and Rapoport, H. (2021). Immigration and the future of the welfare state in Europe. *The Annals of the American Academy of Political and Social Science*, 697(1):120–147.

Alexander, D. (2018). *Natural disasters*. Routledge.

Anbarci, N., Escaleras, M., and Register, C. A. (2005). Earthquake fatalities: The interaction of nature and political economy. *Journal of Public Economics*, 89(9-10):1907–1933.

Barrios, S., Bertinelli, L., and Strobl, E. (2006). Climatic change and rural–urban migration: The case of Sub-Saharan Africa. *Journal of Urban Economics*, 60(3):357–371.

Bednar-Friedl, B., Biesbroek, G., Schmidt, D. N., Alexander, P., Børsheim, K. Y., Carnicer, J., Georgopoulou, E., Haasnoot, M., Le Cozannet, G., Lionello, P., et al. (2022). Europe: from chapters and cross-chapter papers. In *Climate Change 2022: Impacts, Adaptation and Vulnerability*, pages 1817–1927. Cambridge University Press.

Borjas, G. J. (2019). Immigration and economic growth. *NBER Working Papers*, (25836).

Boustan, L. P., Kahn, M. E., and Rhode, P. W. (2012). Moving to higher ground: Migration response to natural disasters in the early twentieth century. *American Economic Review*, 102(3):238–244.

Brücker, H., Hauptmann, A., Jahn, E. J., and Upward, R. (2014). Migration and imperfect labor markets: Theory and cross-country evidence from Denmark, Germany and the UK. *European Economic Review*, 66:205–225.

Burton, I. and Kates, R. W. (1963). The perception of natural hazards in resource management. *Natural Resources Journal*, 3:412.

Callaway, B. and Sant'Anna, P. H. C. (2021). Difference-in-differences with multiple time periods. *Journal of Econometrics*, 225(2):200–230.

Cavallo, E., Powell, A., and Becerra, O. (2010). Estimating the direct economic damages of the earthquake in Haiti. *The Economic Journal*, 120(546):F298–F312.

Ceobanu, A. M. and Escandell, X. (2010). Comparative analyses of public attitudes toward immigrants and immigration using multinational survey data: A review of theories and research. *Annual Review of Sociology*, 36(1):309–328.

De Chaisemartin, C. and D'Haultfœuille, X. (2020). Two-way fixed effects estimators with heterogeneous treatment effects. *American Economic Review*, 110(9).

De Chaisemartin, C. and d'Haultfoeuille, X. (2024). Difference-in-differences estimators of intertemporal treatment effects. *Review of Economics and Statistics*, pages 1–45.

Docquier, F., Ozden, Ç., and Peri, G. (2014). The labour market effects of immigration and emigration in OECD countries. *The Economic Journal*, 124(579):1106–1145.

Docquier, F., Rapoport, H., and Salomone, S. (2012). Remittances, migrants' education and immigration policy: Theory and evidence from bilateral data. *Regional Science and Urban Economics*, 42(5):817–828.

Dustmann, C., Frattini, T., and Preston, I. P. (2013). The effect of immigration along the distribution of wages. *Review of Economic Studies*, 80(1):145–173.

Dustmann, C. and Preston, I. (2006). Is immigration good or bad for the economy? Analysis of attitudinal responses. *The Economics of Immigration and Social Diversity*, page 3.

Edo, A., Ragot, L., Rapoport, H., Sardoschau, S., and Steinmayr, A. (2018). The effects of immigration in developed countries: Insights from recent economic research. *EconPol Policy Report*.

Eriksen, S. H., Brown, K., and Kelly, P. M. (2005). The dynamics of vulnerability: locating coping strategies in Kenya and Tanzania. *Geographical Journal*, 171(4):287–305.

Felbermayr, G. J. and Toubal, F. (2012). Revisiting the trade-migration nexus: Evidence from new OECD data. *World Development*, 40(5):928–937.

Fomby, T., Ikeda, Y., and Loayza, N. V. (2013). The growth aftermath of natural disasters. *Journal of Applied Econometrics*, 28(3):412–434.

Gassebner, M., Keck, A., and Teh, R. (2010). Shaken, not stirred: The impact of disasters on international trade. *Review of International Economics*, 18(2):351–368.

Giua, M., Hoxhaj, R., and Pierucci, E. (2022). Inclusive Europe: The impact of the eu cohesion policy on immigrants' economic integration in Italy. *Journal of Policy Modeling*, 44(3):532–549.

Goodman-Bacon, A. (2021). Difference-in-differences with variation in treatment timing. *Journal of Econometrics*, 225(2):254–277.

Hallegatte, S. and Przyluski, V. (2010). The economics of natural disasters. In *CESifo Forum*, volume 11, pages 14–24. München: ifo Institut für Wirtschaftsforschung an der Universität München.

Henry, S., Schoumaker, B., and Beauchemin, C. (2004). The impact of rainfall on the first out-migration: A multi-level event-history analysis in Burkina Faso. *Population and environment*, 25(5):423–460.

Hochrainer-Stigler, S., Zhu, Q., Ciullo, A., and Reiter, K. (2022). EU tools to respond to natural disasters. European Parliament, Policy Department for Structural and Cohesion Policies, Brussels.

Hodson, D. (2012). Regional and structural funds. In *The Oxford Encyclopedia of the European Union*. Oxford University Press.

Kaushal, N., Kaestner, R., and Reimers, C. (2007). Labor market effects of September 11th on Arab and Muslim residents of the United States. *Journal of Human Resources*, 42(2):275–308.

Kilic, C., Yucesan, M., and Ozekicioglu, H. (2019). Relationship between migration and unemployment: Panel data analysis for selected OECD countries. *Montenegrin Journal of Economics*, 15(3):101–111.

Klomp, J. and Valckx, K. (2014). Natural disasters and economic growth: A meta-analysis. *Global Environmental Change*, 26:183–195.

Lütem, I. (1985). The United Nations Disaster Relief Coordinator (UNDRO). *Prehospital and Disaster Medicine*, 1(S1):301–303.

Marchiori, L., Maystadt, J.-F., and Schumacher, I. (2012). The impact of weather anomalies on migration in Sub-Saharan Africa. *Journal of Environmental Economics and Management*, 63(3):355–374.

McLeman, R. and Smit, B. (2006). Migration as an adaptation to climate change. *Climatic change*, 76(1):31–53.

Mohapatra, S., Joseph, G., and Ratha, D. (2012). Remittances and natural disasters: ex-post response and contribution to ex-ante preparedness. *Environment, Development and Sustainability*, 14:365–387.

Naudé, W. (2008). Conflict, disasters and no jobs: Reasons for international migration from Sub-Saharan Africa. *WIDER Research Paper*, (2008/85).

Noy, I. (2009). The macroeconomic consequences of disasters. *Journal of Development economics*, 88(2):221–231.

Ortega, F. and Polavieja, J. G. (2012). Labor-market exposure as a determinant of attitudes toward immigration. *Labour Economics*, 19(3):298–311.

Pachauri, R. K., Meyer, L. A., Team, C. W., et al. (2014). Climate change 2014: Synthesis report. Contribution of Working Groups (i), (ii) and (iii) to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.

Quillian, L. (1995). Prejudice as a response to perceived group threat: Population composition and anti-immigrant and racial prejudice in europe. *American Sociological Review*, pages 586–611.

Rodriguez-Oreggia, E. (2010). The impact of natural disasters on human development and poverty at the municipal level in Mexico. *CID Research Fellow and Graduate Student Working Paper Series*.

Schlueter, E. and Wagner, U. (2008). Regional differences matter: Examining the dual influence of the regional size of the immigrant population on derogation of immigrants in Europe. *International Journal of Comparative Sociology*, 49(2-3):153–173.

Skidmore, M. and Toya, H. (2002). Do natural disasters promote long-run growth? *Economic Inquiry*, 40(4):664–687.

Van der Velden, P. G., Muffels, R. J., Peijen, R., and Bosmans, M. W. (2019). Wages and employment security following a major disaster: A 17-year population-based longitudinal comparative study. *Plos One*, 14(3):e0214208.

Wagan, S. M. and Sidra, S. (2024). The influence of natural and technological disasters on unemployment in Pakistan. *Journal of Applied Economic Research*, 23(4):929–950.

Wilkes, R., Guppy, N., and Farris, L. (2007). Right-wing parties and anti-foreigner sentiment in Europe. *American Sociological Review*, 72(5):831–840.

Appendix

List of Countries

Country	Eurozone Membership
Albania	No
Austria	Yes
Belgium	Yes
Bulgaria	No
Croatia	Yes
Cyprus	Yes
Czech Republic	No
Denmark	No
Estonia	Yes
Finland	Yes
France	Yes
Germany	Yes
Greece	Yes
Hungary	No
Iceland	No
Ireland	Yes
Italy	Yes
Latvia	Yes
Lithuania	Yes
Luxembourg	Yes
North Macedonia	No
Netherlands	Yes
Norway	No
Poland	No
Portugal	Yes
Romania	No
Slovakia	Yes
Slovenia	Yes
Spain	Yes
Sweden	No
Switzerland	No

Variables, Definitions, and Sources

Variables	Definitions	Sources
Allow immigrants of same ethnicity	To what extent do you think [country] should allow people of the same race or ethnic group as the majority of its population to come and live here, where 1 means allowing many to come and live here and 4 means allowing none to come and live here?	ESS
Allow immigrants of different ethnicity	How about people of a different race or ethnic group than the majority of [country]'s population, where 1 means allowing many to come and live here and 4 means allowing none to come and live here?	ESS
Immigration impact on economy	Would you say it is generally bad or good for [country]'s economy when people come to live here from other countries, where 0 means bad for the economy and 10 means good for the economy?	ESS
Total Affected	Dummy variable equal to 1 for individuals affected by a natural disaster shock, considering total number of affected people (number injured, number affected, and number homeless), and 0 otherwise.	International Disaster Database (EM-DAT)
PRP	Variable for personal remittances paid includes personal transfers and compensation of employees (annual).	World Bank
Trade in Services	Variable for trade in services is the sum of service exports and imports divided by GDP, all in current U.S. dollars (annual).	World Bank
Unemployment	Variable for the share of the labor force that is without work but available for and actively seeking employment (annual).	World Bank
Wage and salaried workers	Variable for wage and salaried workers with paid employment contracts ensuring fixed remuneration regardless of employer revenue (annual).	World Bank
EU Funds	Variable for EU grants received by regions (annual).	Cohesion Open Data