Supplementary Appendix:
Immigration and Nationalistic Attitudes:
Panel Evidence from Chile

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June 27, 2024

Contents

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1 Appendix A: What is Nationalism?

As with other important political concepts, nationalism has multiple definitions, as well as negative and positive connotations. While new forms of nationalism have emerged that are associated with xenophobia and discrimination (Mylonas and Tudor, 2023), the concept of nationalism has also been connected to freedom and democracy, such as during the decolonization process in Africa (Birmingham, 2008) and the independence of Latin American countries from Spain (Miller, 2006). Invoking nationalism can, therefore, generate diverse outcomes, such as intolerance of newcomers or freeing a country from external oppression.

Past work has highlighted the importance of building an imagined political community (Anderson, 1983), defining membership of that community, and building a conscious and self-aware social identity around that membership (Mylonas and Tudor, 2023). As a way to capture some elements of this imagined community, national pride and national identity were used as proxies of nationalism (Bonikowski and DiMaggio, 2016; Rosenzweig and Zhou, 2021). National pride refers to "individual sentiments of pride directed towards the nation-state," while national identity corresponds to "an awareness of affiliation with the nation that gives people a sense of who they are in relation to others" (Hjerm, 1998, p.342).

2   Appendix B: Causal Mechanisms

2.1   Exclusionary Nationalism or Patriotism

An increase in national pride and identity can be explained by different mechanisms. The first one is exclusionary nationalism (or an identitarian reaction to migration). According to social psychology explanations, migration triggers national sentiments by encouraging people to classify individuals into social categories (Tajfel and Turner, 1982), particularly in-groups and out-groups (Dunne, 2018). In this context, group membership "leads people to favor that group and see others less worthy in comparison" (Druckman, 1994, p.48). This classification fuels negative sentiments and group conflicts, especially when there is a perceived threat from a potentially competitive out-group (Piazza, 2015).In such situations, the in-group enhances its self-image and identity as a preservation mechanism, known as hierarchy-enhancing behavior (Craig and Phillips, 2023).

In the context of migration, this becomes particularly relevant since native-born citizens might feel compelled to strengthen their group's self-image and identity when faced with perceived threats from newcomers – which fuels the "us" versus "them" conflict inherent in nationalism.

However, the increase in national pride and identity could be interpreted as more positive – what is usually called *patriotism* (Feshbach, 1987) or *benign nationalism* (Fine, 1999). This concept is based on the affection for one's nation and comes with a sense of responsibility and pride (Zhai and Yan, 2022), which is often related to tolerance of newcomers (de Figueiredo Jr and Elkins, 2003; Green et al., 2011; Jeong, 2013). Previous evidence has demonstrated how patriotism can predict positive behaviors such as civic activity (Marzęcki, 2020) and is compatible with certain kinds of cosmopolitanism (Audi, 2009). Consequently, benign nationalism and patriotism are associated with positive and inclusive feelings that should not trigger exclusionary attitudes and behaviors against out-group members.

In summary, both exclusionary nationalism (i.e., identitarian reaction to demographic changes) and patriotism (i.e., being proud of living in a country that helps others in need) can explain why citizens are proud of being Chilean and likely to identify with their country. We use multiple secondary sources such as surveys, interviews, and media to document the type of nationalism Chile exhibited after the immigration shocks.

Evidence from a 2018 survey of migrants in Chile shows that half of the respondents reported discrimination by native-born Chileans in various contexts, such as job applications, housing, public transportation, and healthcare (CENEM, 2018). Qualitative evidence from interviews with migrants supports these findings. Newcomers reported differential treatment in private and public services, such as Chileans receiving care before migrants who had been waiting longer (Rojas Pedemonte et al., 2015). Latin American migrants in Chile have faced multiple obstacles to integration. For example, Chilean protesters attacked migrants and destroyed their property in a large anti-immigration demonstration in the north of the country in 2022, prompting a United Nations response condemning the violence as an erosion of human rights..[1] Due to the high levels of exclusionary attitudes against foreigners in the country, migrants have conducted their own protests asking for better working conditions, respect for their human rights, and an end to racism.[2] In 2021, many Haitians coming from Chile tried to cross the US southern border. Testimonials ob-

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[1]*Voz de America*, "The UN expresses concern about violence against Venezuelans in Chile," February 2, 2022.

[2]*El Mostrador*,"Immigrants march against labor abuse and discrimination," February 18, 2018.

tained by *The New York Times* illustrate the hostility toward them in Chile: "They tell us to go back home, that we are scum."[3] In summary, this evidence from surveys, interviews, and media reports describes widespread discrimination and hostility against newcomers.

Figure A1: Anti-migrant protests and violence in Chile. Top: sign translates as "Chile for Chileans: No more unwanted immigrants" (picture by Martin Bernetti, AFP). Bottom: protesters destroying the property of Venezuelan families living in a homeless camp (picture by Fernando Muñoz, AFP).

In Appendix J, we use a proxy of hate crime to learn about exclusionary attitudes. Hate crimes are defined as targeting a victim due to their religion, ethnicity, sexual orientation, or nation (Alrababah et al., 2019). We use crimes that are connected to hostility toward migrants (and crimes that cannot be connected as placebos). We find evidence of an increase in hostile behavior against foreigners.

In Appendix K, we use tweets between 2016 and 2018 (such as the panel survey) that can be georeferenced to Chile to evaluate sentiments about migration. The results indicate a positive correlation between immigration rates and negative sentiments toward newcomers. These findings are relevant since previous studies have documented how a negative and xenophobic national

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[3]*New York Times*, "Why Haitians in Chile keep heading north to the U.S.," September 27, 2021.

discourse about migration can result in severe forms of hostile behavior, including an increase in ethnic violence and hate crimes against migrants (Igarashi, 2021; Dipoppa et al., 2023).

In summary, it is hard to argue that an increase in violence against foreigners and more negative sentiments toward immigration are occurring in the context of more patriotism or benign nationalism. In contrast, qualitative evidence indicates an increase in exclusionary nationalism in Chile following a large and sudden demographic change. This interpretation is supported by data from media reports, interviews, and surveys that consistently show rising discrimination, hostility, and negative sentiments toward immigrants.

2.2 Elite-Driven Attitudes

Demographic transformation, in addition to increasing nationalistic attitudes, can also foster the (re)emergence of far-right parties (Lubbers et al., 2002; Abrajano and Hajnal, 2015; Hangartner et al., 2019; Reny et al., 2019; Dinas et al., 2019).[4] Such parties promote ideas such as the congruence between the state and the nation (Mudde, 2007; Golder, 2016) and have fueled the public discourse with nationalistic ideas (Rydgren, 2006). In this context, elites could be driving people's political attitudes (Vrânceanu and Lachat, 2018; Luttig, 2020; Smith et al., 2021), in which case the rise of far-right parties, rather than demographic changes, may explain the growth in nationalistic sentiment.

The Chilean case provides a unique opportunity to address the endogeneity problem associated with the emergence of far-right parties and political attitudes. The country's first far-right party, the Republican Party, was formed in 2019 (Luna and Rovira Kaltwasser, 2021). In 2021, this new party secured multiple seats in Congress and made it to the second round of the presidential election, where it obtained 44% of the votes.

We used panel data from 2016 to 2018 to leverage the timing of both the surveys and the rise of a national far-right political organization to rule out the possibility that the party's launch shaped political attitudes. Before the emergence of the Republican party in 2019, an independent far-right candidate ran in 2017.[5] However, he did not run on an anti-immigration platform (Cruz and Varetto, 2019), and immigration was not even a topic in that electoral campaign (Bunker, 2018). This candidate played only a minor role in the 2017 election and had no party or legislative candidates. The center-right and far-right candidates had separate platforms in the 2017 presidential election, but neither featured immigration. While Piñera (center-right) focused on the economic costs of the reforms implemented by the incumbent center-left government, Kast (far-right) based his campaign on social issues such as rejecting abortion and equal marriage (Bunker, 2018). Immigration was not a political and electoral issue until after 2018 (Espinoza Bianchini et al., 2022).

Therefore, although a far-right candidate emerged in 2017, he obtained less than 8% of the votes, did not make it to the second round, and played a minor role in that election with no party or congressional candidates. As a result, there is no reason to believe elites were driving nationalistic attitudes until 2019 when a far-right party was created.

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[4]Other studies have found no connection between immigration and far-right parties, which could be explained by the size of a country's immigrant community (Arzheimer and Carter, 2006; Lucassen and Lubbers, 2012), the existence of deeper rather than superficial interactions between natives and immigrants (Andersson et al., 2020; Schaub et al., 2021), or immigrant characteristics (Hainmueller and Hiscox, 2010; Valentino et al., 2019).

[5]Voters typically back independent candidates in Chile as an anti-elite statement rather than as a signal of support for their policies (Argote and Visconti, 2023).

In 2019, the Republican Party emerged, using clear anti-immigration and nationalistic rhetoric (Díaz et al., 2023).[6] In 2022, the party won seats in the Lower and Upper Chambers of Congress and made it to the second round of the presidential election, where it obtained 44% of the votes. In 2023, it had more members elected to the Constitutional Assembly than any other party. The Republican Party became very vocal about immigration; in 2021, its presidential candidate proposed digging a ditch on the northern border to stop irregular migration, mimicking Trump's wall rhetoric (Díaz et al., 2023).

Regarding the role of the media, evidence from the US shows that "when communities are undergoing sudden demographic changes at the same time that salient national rhetoric politicized immigration, immigrants can quickly become the targets of local political hostility" (Hopkins, 2010, p.40). In the context of Chile, up until the year 2018, the news media employed two predominant frames to address the rapid demographic changes unfolding in the country: one informed by humanitarian and human rights considerations and another focused on political responsibility and potential policy solutions (Severino, 2020). Notably, neither of these frames seems to contribute to the surge in nationalistic attitudes during this period.

In summary, the increase in exclusionary nationalism in Chile is primarily driven by direct social and economic interactions and the perceived threats arising from sudden demographic changes rather than elite influence or anti-immigration rhetoric from populist parties. Thus, there is no reason to believe elites were driving nationalistic attitudes until 2019, when a far-right party was created.

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[6]See Zanotti and Roberts (2021) and Rovira Kaltwasser (2022) for reviews of the emergence of the (populist) far-right in Latin America.

3 Appendix C: Support for Far-Right Parties

The main findings show that Chileans are becoming more nationalistic after a demographic shock explained by migration and before the emergence of a far-right party using nationalistic rhetoric. These results suggest that these demographic changes might make nationalistic parties more appealing to these now more nationalistic citizens. In a preliminary analysis, we evaluate whether immigration shocks impact far-right parties' electoral performance and, as a result, people's behavior. We want to document whether a far-right party obtains more votes in places that receive more immigrants as suggestive evidence of a connection between people's updated nationalistic sentiments and support for nationalistic parties.

In 2021, a far-right party competed nationally for the first time by presenting candidates for the Lower and Upper Chambers and the presidency. This party elected legislators in both chambers, and its presidential candidate received the most votes in the first round. Since the panel survey data do not include respondents' intended vote choice for the 2021 presidential election, in this section, we use municipality-level electoral results. This approach fits the main analysis in the manuscript since exposure to migration is also measured at the municipality level.[7]

Because we have only one time period for the outcome since the far-right party emerged in 2019, it is not possible to implement a DiD design as we did in the previous analysis. We, therefore, use a different empirical strategy in this section. We rely on advances in optimal matching and mathematical programming to construct a matched sample in which the matched exposed and matched control groups are similar in key observed characteristics.

Although traditional matching techniques such as propensity score matching do not guarantee covariate balance (King and Nielsen, 2019), we rely on cardinality matching where the researcher defines the tolerances for imbalances in advance and then identifies the largest matched sample that meets those tolerances (Zubizarreta et al., 2014; Visconti and Zubizarreta, 2018).[8]

We define standardized differences between the matched exposed and control groups to be no greater than 0.2 standard deviations for all covariates in our study, a threshold commonly used in the literature to illustrate covariate balance (Silber et al., 2013). As a result, our exposed and control groups will not differ on more than a fifth of a standard deviation unit. We use a mean balance constraint for all the pretreatment covariates,[9] and municipalities as the unit of analysis.

Regarding pretreatment covariates, we use the vote share of the center-right and center-left candidates in the 2013 presidential election (the two candidates who made it into the second round), income index in 2003, health index in 2003, education index in 2003, human development index (HDI) in 2003, and population in 2002.[10]

We acknowledge that matching is not an identification strategy in itself (Sekhon, 2009; Keele,

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[7]We use the same 92 municipalities included in the panel survey to be able to compare between analyses.

[8]Unfortunately, the unmatched sample is too small and the groups too different to include more constraints such as constructing a representative matched sample (Bennett et al., 2019; Kuffuor et al., 2022). However, cardinality matching is particularly good at addressing problems of limited overlap in small samples (Visconti and Zubizarreta, 2018).

[9]All of these covariates are continuous, ordinal, or binary, so the mean balance constraint is a meaningful requirement, which would not be the case if we included nominal covariates.

[10]We use official electoral results for the vote share, census data for population, and UNDP data for income, health, education, and the human development index. All covariates are pretreatment since the exposure indicator is constructed using immigration data between 2014 and 2017.

2015). However, this design allows us to implement a sensitivity analysis afterwards to assess whether the findings are robust to hidden biases of different magnitudes (Rosenbaum, 2010). We believe that this method generates more robust results than relying on techniques that also adjust on observables but do not check for sensitivity to unobservables.

Table A1 compares the averages for all covariates between the exposed and control groups before matching. It shows how both groups present important differences regarding their observed characteristics (i.e., all of the standardized differences are greater than 0.2 standard deviation units).[11]

Table A1: Average values of covariates before matching

Covariates	Control group	Exposed group	Stan. Diff.
Center-right vote share 2013	0.26	0.22	0.53
Center-left vote share 2013	0.44	0.55	1.31
Education 2003	0.77	0.70	1.27
Health 2003	0.79	0.74	0.77
Income 2003	0.69	0.60	1.03
HDI 2003	0.75	0.68	1.17
Population 2002	140,776	68,780	0.78
Observations	61	29	

Table A2 illustrates what happens after implementing cardinality matching to achieve covariate balance. Now, the matched exposed and the matched control have similar averages for the pretreatment covariates (i.e., all the standardized differences between these three groups are lower than 0.2 standard deviation units).

Table A2: Average values of covariates after matching

Covariates	Matched control	Matched exposed	Stan. Diff.
Center-right vote share 2013	0.21	0.22	0.16
Center-left vote share 2013	0.53	0.54	0.18
Education 2003	0.72	0.71	0.19
Health 2003	0.76	0.75	0.17
Income 2003	0.62	0.61	0.15
HDI 2003	0.70	0.69	0.20
Population 2002	89,932	73,322	0.18
Observations	25	25	

Finally, to assess the impact of an immigration shock, we use a one-sided permutational t-test in matched pairs that incorporates a sensitivity analysis to hidden biases (Rosenbaum, 2015). The outcome of interest is the vote share of the candidate representing the far-right party in the first round of the 2021 election. Table A3 provides the point estimates, which show that an immigration

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[11]Two municipalities were removed from the control group for lack of pretreatment covariates.

shock increases the support for the far right at the municipality level by 4.8 percentage points. As a reference, previous research indicates that the 2010 earthquake in Chile (i.e., the sixth-largest earthquake ever recorded) affected the incumbent's vote share by 1.5 percentage points (Visconti and Zubizarreta, 2018). Therefore, exposure to an immigration shock has an impact three times greater than exposure to one of the most devastating disasters in Chile's history.

For the sensitivity analysis, the parameter Γ represents the odds of differential assignment to the immigration shock due to an unobserved factor that we call u. A $\Gamma = 1.00$ means that two municipalities with the same observed characteristics have the same probability of being exposed to an immigration shock (i.e., there are no hidden biases). A $\Gamma = 1.42$ means that two municipalities with the same observed characteristics have different probabilities of being exposed to an immigration shock; one is 1.42 times more likely than the other to be exposed due to the existence of hidden biases. Therefore, since the p-values are still significant for a $\Gamma = 1.42$, we have evidence that our results are robust to medium-sized hidden biases explained by failing to adjust for some unobserved covariate u.[12]

Table A3: Effect of immigration shocks on the far-right vote share in 2021

Point estimate	0.048
p-value (Γ=1.00)	0.010
p-value (Γ=1.42)	0.049

The far-right Republican Party in Chile put forward a radical anti-immigration and nationalistic agenda in the 2021 presidential election (Díaz et al., 2023). Therefore, the results depicting an increase in electoral support for this party in areas that experienced an immigration shock can be interpreted as extra evidence of the existence of exclusionary (rather than benign) nationalism.

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[12]The results stop being significant at the 0.05 level for a $\Gamma = 1.42$.

4 Appendix D: Immigration Data

In this section, we answer three relevant questions regarding our data and immigration in Chile. First, did migrants have incentives to regularize their immigration status? Before 2018, migrants in Chile had compelling reasons to regularize their status. For instance, they could access social benefits and public services and avoid the risk of deportation. Those who stayed in the country after their 90-day permit expired faced penalties ranging from 0.22 to 4.46 times the minimum wage and the looming threat of deportation. Consequently, waiting more than 90 days was costly for migrants, but regularizing their stay entailed a straightforward bureaucratic process.

Second, is the immigration process the same across different regions of the country? Although we have data at the municipality level (i.e., where the migrant lived at the time of their application), visa applications are filed at the national level. The immigration office is a centralized agency within the Ministry of Interior; it receives applications from all regions of the country. The application processing times are, therefore, likely to be consistent across geographic locations.

Third, did migrants move to a different municipality after obtaining a visa? Data from the 2017 Census provide some insight into this question. It inquired whether individuals were living in the same municipality as they were five years ago. Those who had not relocated were classified as "non-migrants for internal migration purposes;" 75% of foreign-born individuals fell into this category. A significant majority of the foreign-born population, therefore, tended to remain in the same municipality for an extended period of time. Such decisions to stay could be attributed to various factors, including the development of safety nets and personal networks within these communities (Severino and Visconti, 2023).

5 Appendix E: Generalized Difference-in-Differences

Since our previous design can only be implemented with a binary treatment (Callaway and Sant'Anna, 2020; Callaway and Sant'Anna, 2021), in this section, we use a generalized DiD design or two-way fixed effects. We used waves to capture time-fixed effects and respondents or municipalities for unit-fixed effects and included the same controls as in the previous analysis. We use this robustness check to evaluate whether the results are robust to using a different exposure indicator (continuous rather than binary) and a different estimation approach (generalized rather than dynamic DiD). We implement the following generalized DiD design using a continuous version of the treatment:

$$Y_{it} = \beta D_{it} + X_{it}\Delta + \gamma_i + \lambda_t + \varepsilon_{it} \tag{1}$$

Table A4 indicates how a demographic change affects nationalistic attitudes (β from Equation 1). The outcome and the demographic change indicator are standardized to facilitate the interpretation of the analysis.

Table A4: Generalized DiD using a continuous exposure indicator

	Nationalistic attitudes			
	(1)	(2)	(3)	(4)
Demographic change	0.049**	0.049**	0.049**	0.048**
	(0.016)	(0.016)	(0.016)	(0.016)
Controls	No	Yes	No	Yes
Wave fixed effects	Yes	Yes	Yes	Yes
Respondent fixed effects	Yes	Yes	No	No
Municipality fixed effects	No	No	Yes	Yes
Observations	5,784	5,782	5,784	5,782

Note: *p<0.05; **p<0.01; ***p<0.001

The results show that a one-standard-deviation increase in demographic changes due to migration raises nationalistic attitudes by 0.05 standard deviation units. Effect sizes cannot be compared with the dynamic DiD due to the different structures of their exposure indicators.[13] Yet, the direction and significance of the effects are the same, which confirms that the study's main conclusions are robust to different specifications. We use national pride and identity as outcomes in Appendix G.

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[13]In this analysis, the exposure indicator is continuous and does not distinguish between the first or second exposure.

6 Appendix F: Panel Data

The Longitudinal Social Study of Chile is a survey developed by the Center for Conflict and Social Cohesion Studies to analyze the evolution of conflict and cohesion in Chilean society. The questionnaire contains both closed and open questions. Its target population is men and women aged 18–75, mainly in urban areas. It uses a probabilistic, stratified cluster, and multistage sampling design and is conducted face-to-face. It has been implemented once a year since 2016. The first wave was representative of approximately 77% of the total population of the country and 93% of the urban population.

We evaluated the representativeness of our sample against a population benchmark: the nationally representative CEP survey implemented in July 2023.[14]. Table A5 provides the descriptive statistics for three covariates traditionally used to construct or evaluate a sample: age, gender, and education. Our sample closely resembles this nationally representative survey with respect to these covariates.

Table A5: Descriptive statistics

Covariate	Sample	CEP
High school or less	0.67	0.63
Woman	0.62	0.66
Age	48	49

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[14]The CEP survey is one of the most respected surveys in the country

7 Appendix G: Pride and Identity

In the manuscript, we use the average of national pride and national identity as the main outcome to facilitate the interpretation of the main findings. In this section, we report the results for pride and identity separately.
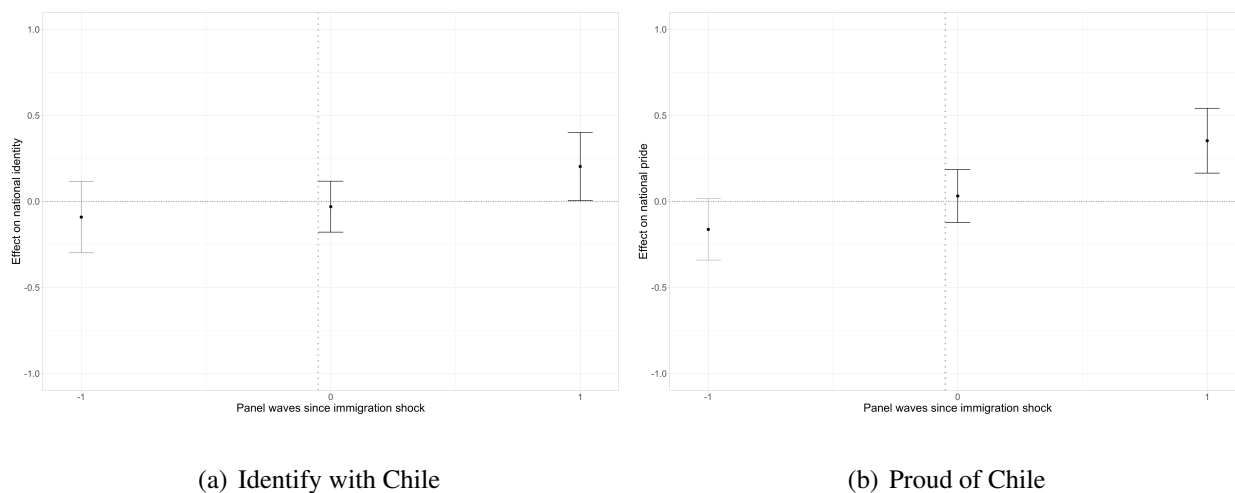

(a) Identify with Chile

(b) Proud of Chile

Figure A2: Average effect of immigration shocks on nationalistic attitudes by length of exposure. A length of exposure of -1 refers to the period before the first exposure, 0 to the first exposure, and 1 to the second exposure to an immigration shock. 5,782 observations (respondent-wave).

The result for neither outcome is significant before the first exposure (proud: 95% CI: [-0.371, 0.023], identify: 95% CI: [-0.286, 0.089]), which provides evidence in support of the parallel-trends assumption (i.e., both groups follow the same trajectory in the pre-treatment period, which is indicated by the null results). Nor is there evidence of an effect during the first exposure (proud: 95% CI: [-0.103, 0.169], identify: 95% CI: [-0.170, 0.102]). However, there is a clear effect one year from the first exposure. A second exposure to an immigration shock increases national pride by 0.34 standard deviation points (95% CI: [0.153, 0.537]) and national identity by 0.20 standard deviation points (95% CI: [0.010, 0.383]).

We also provide the results when using a generalized difference-in-differences (DiD) design and a continuous treatment for identity and pride separately.

Table A6: Generalized DiD using a continuous exposure indicator and identify with Chile as the outcome

	I identify with Chile			
	(1)	(2)	(3)	(4)
Demographic change	0.042**	0.041**	0.041**	0.040**
	(0.015)	(0.015)	(0.015)	(0.015)
Controls	No	Yes	No	Yes
Wave fixed effects	Yes	Yes	Yes	Yes
Respondent fixed effects	Yes	Yes	No	No
Municipality fixed effects	No	No	Yes	Yes
Observations	5,805	5,803	5,805	5,803

Note: $^{*}p<0.05$; $^{**}p<0.01$; $^{***}p<0.001$

Table A7: Generalized DiD using a continuous exposure indicator and proud to be Chilean as the outcome

	I feel proud to be Chilean			
	(1)	(2)	(3)	(4)
Demographic change	0.052**	0.053***	0.052**	0.052**
	(0.016)	(0.016)	(0.016)	(0.016)
Controls	No	Yes	No	Yes
Wave fixed effects	Yes	Yes	Yes	Yes
Respondent fixed effects	Yes	Yes	No	No
Municipality fixed effects	No	No	Yes	Yes
Observations	5,789	5,787	5,789	5,787

Note: $^{*}p<0.05$; $^{**}p<0.01$; $^{***}p<0.001$

   The results indicate that a one-standard-deviation increase in demographic changes due to migration boosts national identity by 0.04 and national pride by 0.05 standard deviation units. These effect sizes cannot be compared with the dynamic DiD because of the different structures of their exposure indicators.

8 Appendix H: No Controls and Unstandardized Outcomes

First, we provide the main results without controls, and the main conclusions hold. There is evidence to support the parallel-trends assumption (i.e., null findings for the pre-treatment periods), no evidence of an immediate effect, and a significant effect one year after exposure.
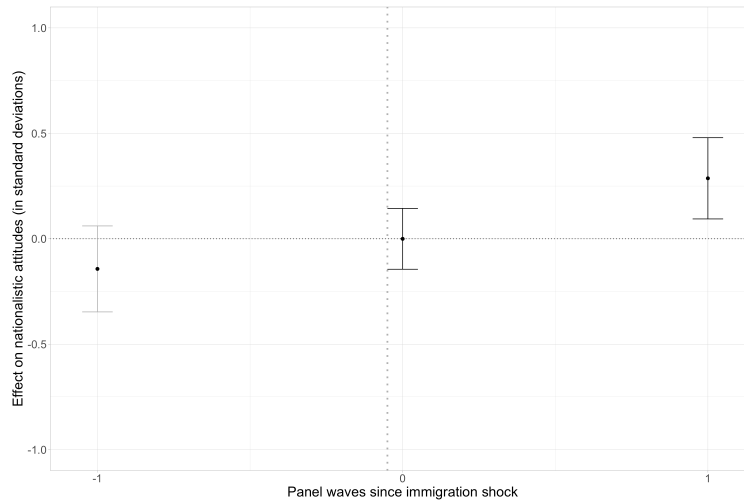

Figure A3: Average effect of immigration shocks on nationalistic attitudes by length of exposure. A length of exposure of -1 refers to the period before the first exposure, 0 to the first exposure, and 1 to the second exposure to an immigration shock. 5,782 observations (respondent-wave).

Second, we provide the main results using an unstandardized outcome (1-5 scale). As mentioned in the paper, the immigration shock increases nationalism by 0.21 points after two exposures, which we interpret as a medium-size effect, taking into account that the average score for nationalistic attitudes in the never-treated group is 4.31.
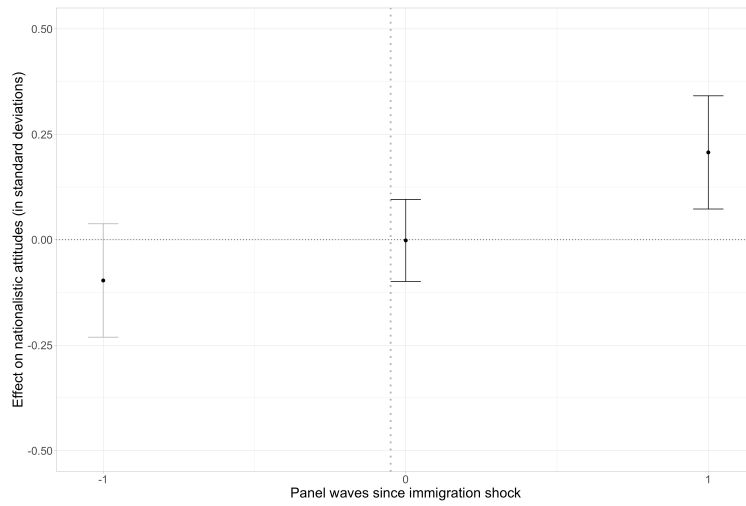
Figure A4: Average effect of immigration shocks on nationalistic attitudes by length of exposure using an unstandardized outcome. A length of exposure of -1 refers to the period before the first exposure, 0 to the first exposure, and 1 to the second exposure to an immigration shock. 5,782 observations (respondent-wave).

9 Appendix I: Descriptive statistics

In this section, we explore the descriptive statistics of nationalistic attitudes in Chile using the panel survey data presented in Table A8. We examine three groups: never treated (i.e., respondents living in a municipality that did not experience an immigration shock), first treated (i.e., respondents exposed for the first time to an immigration shock), and second treated (i.e., respondents exposed for a second time to an immigration shock).[15] Nationalistic attitudes are calculated as the average between national pride and identity (1 = least nationalistic; 5 = most nationalistic). Table A8 indicates that nationalism increased more for people who experienced an immigration shock for at least two years than among those who did not, which works as a first piece of evidence.

Table A8: Nationalistic attitudes by time of exposure

Group	Mean	Std.Dev.	Min	Max
Never Treated	4.31	0.74	1	5
First Treated	4.37	0.74	1	5
Second Treated	4.52	0.62	2	5

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[15]Units treated in the first wave (i.e., always treated) are removed from the analyses since they do not provide pre-treatment information (Callaway and Sant'Anna, 2021). They represent 2% of the sample.

10   Appendix J: Hate Crimes

In this section, we evaluate whether reports of crimes involving hostility toward migrants increased due to large demographic changes. Ideally, we would use hate crimes against migrants as the outcome, but this data is not available. We, therefore, use municipality-level data on affrays, assaults, damages, and disorderly conduct in 2016, 2017, and 2018 to construct a proxy of hostility toward migrants.[16] Previous studies and media reports have shown that hate crimes and hostility toward migrants usually involve such infractions (Arellano Calderón, 2022). Figure A5 uses a dynamic DiD to study how demographic changes influence this type of crime. The design is the same as the main analysis used in Section A6, but now we use municipalities-waves as the level of analysis rather than panel survey respondents.[17]
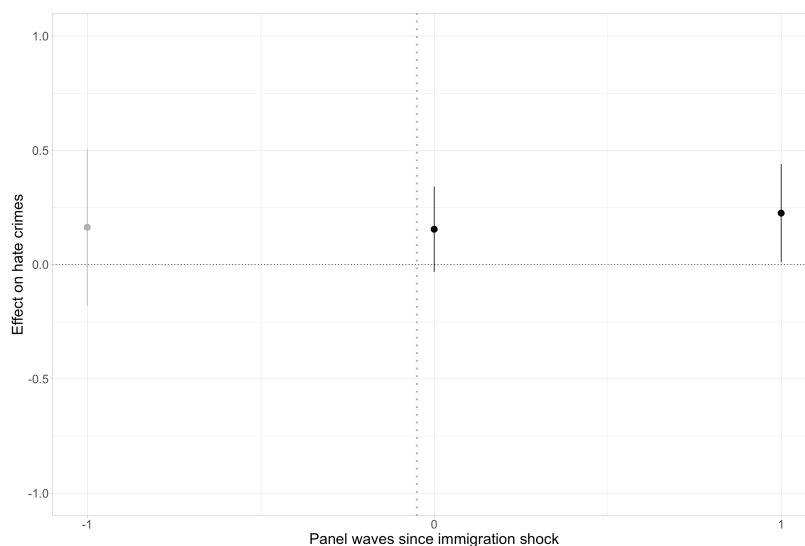

Figure A5: Average effect of immigration shocks on nationalistic attitudes by the length of exposure. A length of exposure of -1 refers to the period before the first exposure, 0 to the first exposure, and 1 to second exposure to an immigration shock. 276 observations (municipality-wave).

The findings are congruent with the previous results: there is support for the parallel-trends assumption when checking pre-exposure trends (95% CI: -0.197, 0.523), there is no immediate effect of immigration shocks (95% CI: -0.055, 0.364), and there is a significant change after one year of exposure. Crimes associated with hostility towards migrants increased by 0.230 standard deviation points (95% CI: 0.008, 0.442).

A natural concern is that these crimes and offenses may increase *not* as the result of discrimination but because migrants commit those crimes themselves. To rule out this possibility, we

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[16]We use the same years as the panel survey to keep the same structure for the dynamic DiD.

[17]We use the same municipalities included in the panel study to ensure the results for attitudes and behaviors are comparable.

implement a falsification test. We identify the impact of immigration shocks on crimes unrelated to violence against migrants, such as incivility crimes (i.e., public intoxication and disturbance of the peace), property crimes (i.e., burglaries, robbery, theft, robbery by surprise, failed robbery, and handling of stolen goods), violent crimes (i.e., homicides, sexual abuse, domestic violence against women, men, children, and the elderly), and weapon-related crimes (i.e., illegal carrying of weapons and illegal possession of weapons). If immigration shocks do not increase these 16 types of crimes, we will have strong evidence that the increase in crimes associated with hostility toward migrants cannot be attributed to migrants committing them.
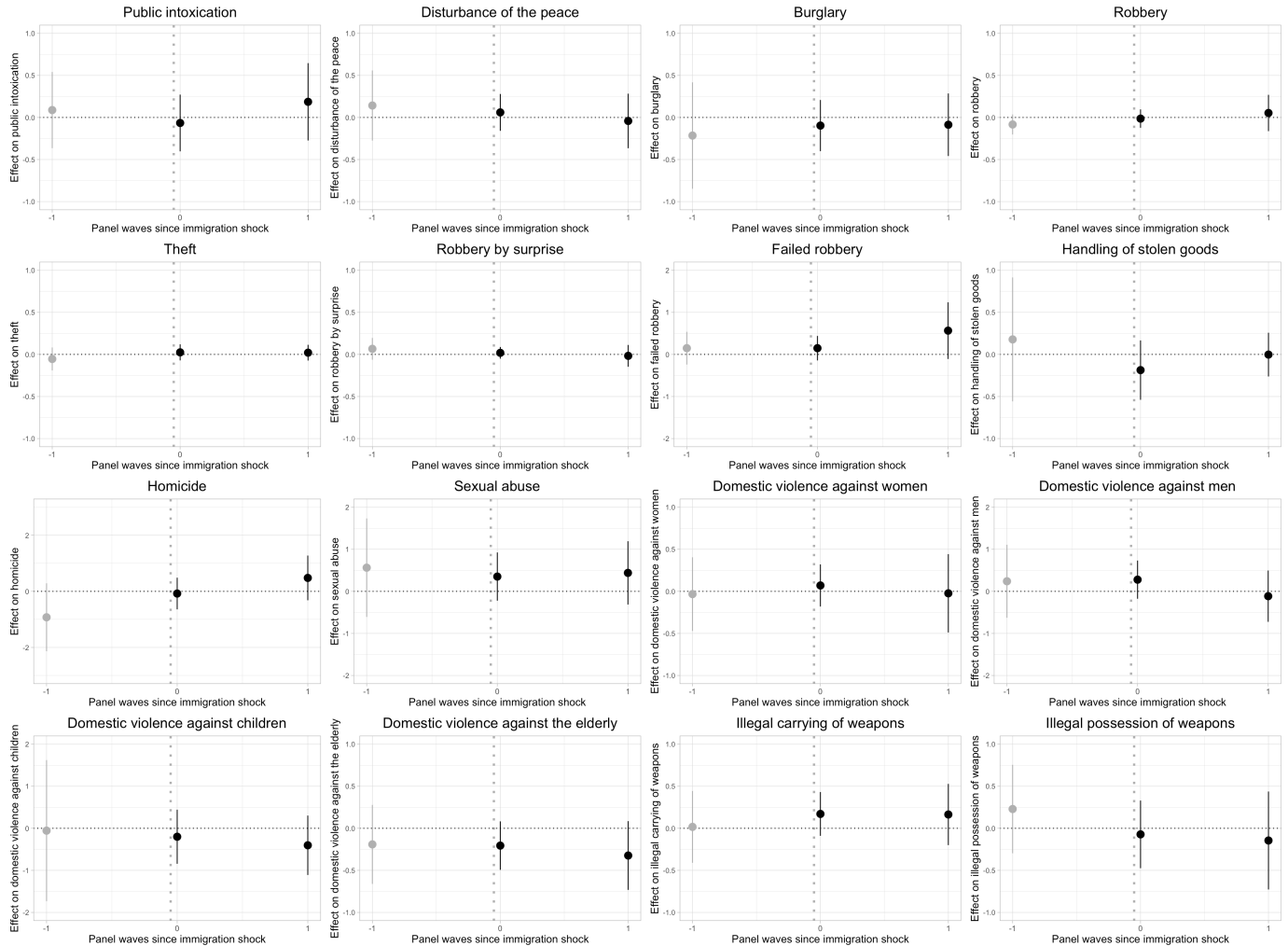

Figure A6: Average effect of immigration shocks on nationalistic attitudes by length of exposure. A length of exposure of -1 refers to the period before the first exposure, 0 to the first exposure, and 1 to the second exposure to an immigration shock. 276 observations.

All subgraphs in Figure A4 support the assumption of parallel trends. In addition, there is no evidence of an effect of immigration shocks on crimes not associated with hostility toward migrants after the first or second exposure.

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11 Appendix K: Sentiment Analysis

This analysis is structured into three phases: data collection, text pre-processing, and analysis. In the first phase, we scraped Twitter data from October 2016, October 2017, and October 2018 (the three waves of the panel survey used to capture the outcomes were implemented in these months). We collected 8,604 tweets containing the following keywords: "Chile & Inmigrantes," "Chile & Extranjeros," "Chile & Haitianos," and "Chile & Venezolanos." The data set contains the self-reported location of the Twitter account, which was used to identify tweets originating from Chile.

In the second phase, text pre-processing, we used the translate function in Excel to translate all of the tweets into English. Then, we generated a text corpus grouped by year (2016, 2017, and 2018). In this step, we segmented the character strings into individual words, often referred to as unigrams or tokens. During this segmentation process, some sentences were reduced to numbers or special characters or left empty. To ensure the precision of the lexicon-based sentiment analysis, we cleaned the text by removing URLs, @mentions, dividers, punctuation, numbers, and stop words.

In the third phase, 30,264 words were subjected to the analysis after pre-processing. To analyze sentiment, we used a natural language processing tool to categorize the negative words contained in the tweets. Sentiment analysis usually uses lexicons or dictionaries that assign numerical sentiment scores to words or phrases. The scores of the individual words in the tweets are aggregated to the annual level, and the result is a sentiment score for the tweets for that year. For this analysis, we used three types of sentiment lexicon: Bing, Afinn, and the NRC Word-Emotion Association Lexicon. The results are as follows:

BING lexicon: The count of negative words increased over time: 178 in 2016, 488 in 2017, and a significant 991 in 2018. This data constitutes evidence of an increase in negative sentiments.

NRC lexicon: We also observed an increase in the count of negative words each year using the NRC sentiment dictionary. In 2016, there were 384 negative words, which increased to 855 in 2017, and 1,271 in 2018.

AFFIN lexicon: The AFFIN Lexicon scores sentiment on a continuous scale: more extreme words receive higher values. This scoring system assigns valences on an integer scale ranging from -5 (negative) to +5 (positive). Using this lexicon, we computed sentiment scores by summing the values assigned to words in tweets for each year. The results indicate a consistent negative sentiment trend over the years. In 2016, the sentiment score was -113 (predominantly negative). The negativity intensified in 2017 to -221. The sharpest decline in sentiment was observed in 2018 (-966). These findings exhibit a clear trend toward negativity in the sentiments expressed in the tweets over the 3-year study period.

These negative sentiments are correlated with the increase in the number of migrants. In 2016, visa requests increased by seven percentage points; in 2017, they increased by 24 percentage points and in 2018 by 41 percentage points. There is thus an association between higher levels of immigration and more negative tweets about migration coming from Chile. Figure A7 summarizes the negative sentiments using the different scoring systems (AFFIN in absolute values) and the demographic changes of 2016 and 2018, illustrating the correlation between them.
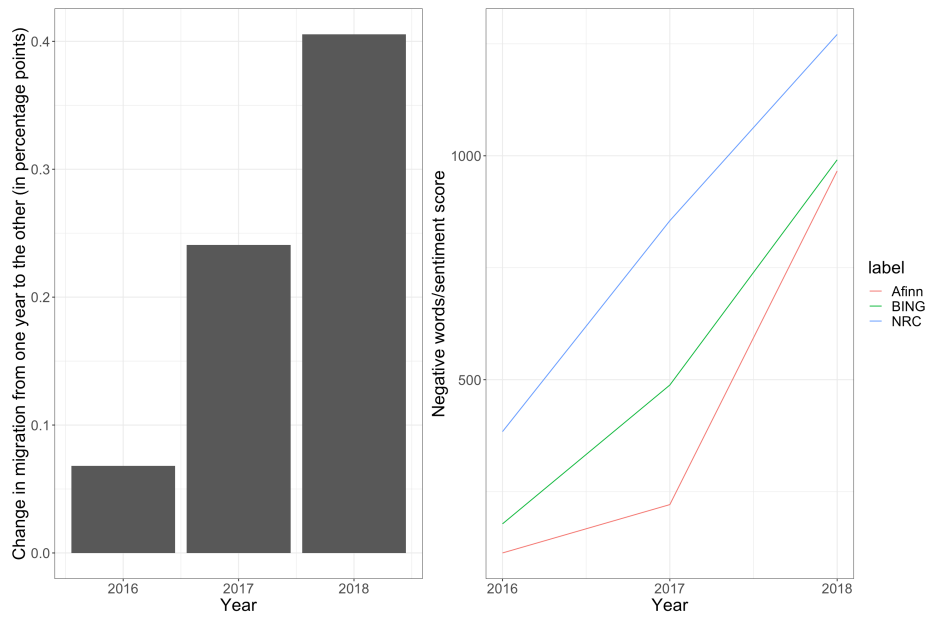
Figure A7: Left: Demographic changes in percentage points from one year to the next (2016-2018). Right: Negative words/sentiments on tweets about migration georeferenced in Chile using different lexicons (2016-2018).

12   Appendix M: External Validity

Do these results apply beyond Chile? To increase the study's external validity, we test part of our argument using survey data from eight South American countries. We use the World Values survey since it includes a proxy for nationalistic attitudes – "Willingness to fight for one's country," a binary variable associated with nationalistic sentiments and national identity in the literature (Shulman and Bloom, 2014; Torres, 2020; Kim, 2020). Since this question differs from the one used in the main analysis, this result should be interpreted with caution.

A limitation of a cross-case study is that we do not have access to high-quality administrative data to measure demographic changes, as we do for Chile. Therefore, we evaluate respondents' nationalistic attitudes before and after Venezuela's socioeconomic and political collapse in 2015–2016. This crisis generated the largest wave of regional migration in Latin American history: millions of Venezuelans left their country looking for safer and more prosperous places, and most of them migrated to countries in South America (Vega-Mendez and Visconti, 2021). We use all South American countries with survey data availability: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Peru, and Uruguay.

We used two waves before Venezuela's collapse (2013 and 2014) and two waves after (2017 and 2018) to estimate the impact of this demographic change. Since these are not panel data and we do not have exposed and control subjects, we cannot implement a dynamic DiD design as in the main analysis. Therefore, we estimate the effects of the crisis, measured with a binary indicator representing the years after the Venezuelan collapse (surveys implemented in 2017 and 2018), by using a linear regression with six different specifications using: i) controls,[18] ii) country-fixed effects with controls, iii) year-fixed effects, iv) year-fixed effects with controls, v) country and year-fixed effects, and vi) country and year fixed effects with controls.

Figure A8 displays the impact of the 2015–2016 Venezuelan collapse on the willingness to fight for one's country. We find a positive and significant impact for all our estimations. For example, when using country-fixed effects and controls (i.e., the smallest effect we found), willingness to fight increased by four percentage points after 2015 (95% CI: [0.02, 007]).

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[18]Subjects' characteristics that should be affected by exposure to migration, such as education, gender, and age.
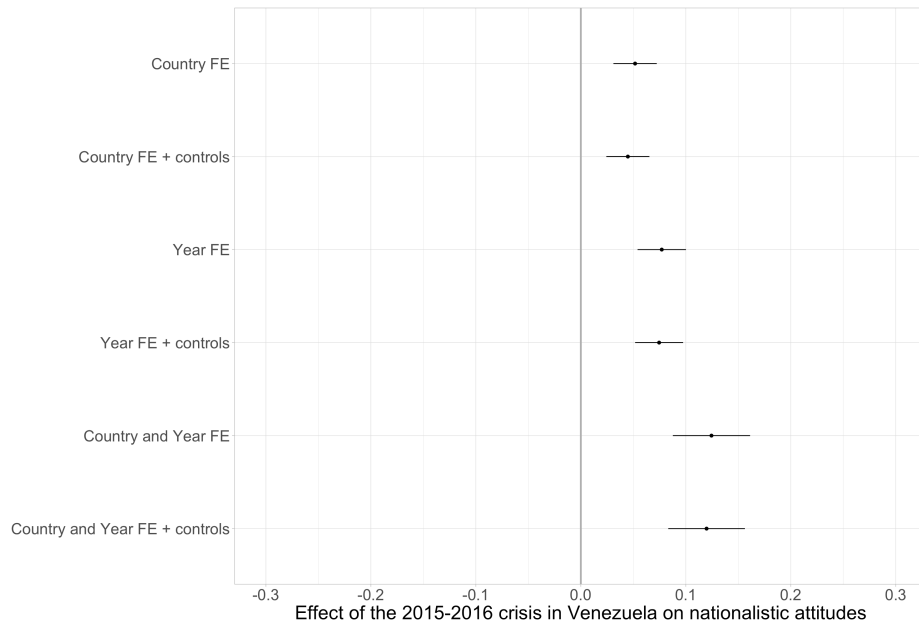
Figure A8: Effect of 2015-2016 Venezuelan crisis on willingness to fight for your country. Results for six different types of analyses. 13,670 observations.

These results align with our expectation that the Venezuelan collapse (and the subsequent large-scale migration) increased people's nationalistic attitudes. We capture these orientations with the notion of willingness to fight for one's country. The hypothetical scenario of joining a war to represent one's country allows us to evaluate people's attachment to their country. Citizens with a low national attachment should be less willing to fight for their country than those with a high national attachment. However, we acknowledge that the outcome measure is different and that the exposure indicator has important limitations, so we interpret these results as suggestive of immigration's impact on nationalism in South America.

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