

From Naturalization to Nation: The Effect of Citizenship Laws on Immigrants' National Identification

Alessio Albarello*
National University of Singapore

Carles Boix†
Princeton University

January 20, 2026

Abstract

We examine the impact of 1990 and 2000 laws of citizenship in Germany, which liberalized the path to the acquisition of citizenship, on the national identity of immigrants. Leveraging the exogenous variation in waiting time for naturalization generated by those two reforms, we find that immigrants who benefited from less restrictive conditions to become citizens developed a stronger national identification with Germany, both after and during their waiting time for naturalization. The effect was particularly strong for women and for those immigrants that were older at the time of their arrival. A higher attachment to Germany seems to have been mainly driven by psychological and socioeconomic mechanisms: a more liberal regime reduced subjective concerns about discrimination, heightened immigrants' social and political participation, and fostered their use of the German language.

*alessioa@nus.edu.sg

†cboix@princeton.edu

We would like to thank Andreas B. Wiedemann, Chris Blattman, Davide Cantoni, Germán Gieczewski, Hans Lueders, Jonathan Chu, Rafaela Dancygier, Roberto M. Valli, Tim Lars Allinger, as well as seminar participants at the Nationalism in the Global South Conference at Princeton University, and the Politics and IR Brownbag Seminar at the Lee Kuan Yew School of Public Policy for helpful comments and suggestions. Responsibility for any errors remains our own.

In the last decades, immigration flows to developed countries have risen significantly, leading to a share of foreign-born population similar to or larger than the levels reached during the first age of globalization at the turn of the twentieth century, and encouraging a growing partisan realignment in the electoral arena. By 2020, anti-globalization parties were gathering between one sixth and one fifth of the vote in most European countries. [Margalit, Raviv and Solodoch \(2022\)](#) find that over half of populist voters are strongly concerned about the social and political consequences of a rapid change in the ethnic and cultural demographic composition of their countries—topping all other cultural concerns animating populism.

Naturalization policy and its capacity to foster the integration of newcomers stand at the core of current debates over immigration and its political and legal treatment. The conditions for the acquisition of citizenship by immigrants vary widely across countries, ranging from exclusionary “*ius sanguinis*” regimes, which restrict citizenship to descendants of nationals, to liberal naturalization systems that only impose short-term legal residency requirements ([Howard, 2013](#)). Those different legal frameworks result in significant variation in the proportion of naturalized immigrants. In the early 2010s, the proportion of working-age immigrants (15-64 years old) with at least 10 years of residence that held citizenship from their country of destination varied from around 90 percent in Canada to around 40 percent or less in Greece, Italy or Switzerland ([OECD and EU, 2015](#)).

Different naturalization laws partly reflect each country’s self-understanding of their nationhood markers. Some political communities give special import to their historical and cultural heritage to the point of judging demographic diversity as disruptive of their identity and civic life. On the opposite side, nationhood is defined in a much ‘thinner’ manner: new citizens are simply recognized as such as the result of fulfilling some formal requirements and independently of their private commitments, personal history and subjective allegiances ([Soysal, 1994](#); [Brubaker, 2009](#); [Bloemraad and Sheares, 2017](#)). Naturalization regimes also reflect the extent to which citizenship is seen as either the arrival point or the catalyst of the integration of immigrants ([Hainmueller, Hangartner and Pietrantuono, 2017](#)). Strict naturalization regimes rely on the notion that the successful incorporation of immigrants requires a “waiting period” during which the latter assimilate

to the linguistic, cultural and social norms of the hosting population. National identification precedes rather than follows citizenship rights. By contrast, liberal naturalization requirements are predicated upon the claim that granting immigrants equal political and civil rights empowers them economically, speeds up their integration in the social and civil life of their country of destination, and fosters their national identification with the country of destination.

In this paper, we explore the effects of naturalization policy on national identification by leveraging the evolution of citizenship law in Germany in the last decades. Before unification, a strict “*ius sanguinis*” regime linked citizenship to ancestry and specified no criteria for naturalization. In 1990, the German parliament made naturalization mainly conditional on the duration of permanent residency, which varied from a minimum of 8 to 16 years depending on the immigrant’s age of arrival. A second reform introduced in 2000 shortened the residency requirements for the oldest immigrants and opened a path for the birth-right acquisition of German nationality among children of foreign parents. As a result, Germany moved from one of the most closed regulatory systems in the world to a naturalization regime in line with the average OECD country. Our fundamental expectation is then that the liberalizing conditions and timing of citizenship eligibility, by equalizing (or credibly promising to equalize) immigrants to native nationals, made immigrants harbor stronger national feelings toward Germany.

To estimate the effect of naturalization requirements, we compare the national identification of immigrants entering Germany at the same year but becoming eligible to German citizenship in different years due to varying age-at-arrival residency requirements. In our estimations, we control for year of birth as well as age, time of residency, and region of origin. Our identification strategy relies on the assumption that differences in the time that it took immigrants to become eligible (and naturalize) measure the nature and flexibility of the naturalization system and, therefore, its impact on the extent to which immigrants identified as Germans.

Our results are as follows. A shorter waiting time to naturalize raised the national identification of immigrants with Germany. Reducing the waiting time by 10 years led to an increase of 0.06 points in the 0-1 scale of feeling German—equivalent to about a 10-percent rise in the mean of

national identification of foreign-born individuals. To put it differently, our results indicate that shortening by two years the waiting period to become eligible had the same effect on national identification as one additional year of residence in Germany. It is worth noting here that the length of the waiting period affected the level of national identification among immigrants not only when they could actually naturalize but even before they were eligible to apply for citizenship. The impact of naturalization law varied by gender, time since arrival in Germany, and age of the immigrant at the time of arrival. The positive effect of a shorter waiting time was almost twice larger among women than among men. A longer time since arrival to Germany reduced the positive effect on national identification brought about by a shorter waiting time. The older the immigrant when entering Germany, the stronger the impact of a shorter waiting period.

The mechanisms through which naturalization had a nationalizing effect on immigrants appear to have been psychological, political and economic in nature. The legal recognition of immigrants as equals to natives improved how the former felt treated—particularly by reducing their concerns about xenophobia. This, in turn, fostered their sense of belonging to Germany. Likewise, the acquisition of citizenship reduced the costs of civic and political participation, building up social capital (especially through sport activities and activities helping others) among naturalized immigrants and stimulating their individual interest in politics and their exposure to and consumption of German media. A higher level of political engagement then raised their sense of political agency, their concern for German affairs, and their national self-identification. Finally, the instrumental gains (in terms of better employment opportunities, higher wages, and a stronger educational and linguistic investment) generated by naturalization probably encouraged a stronger sense of feeling German. In line with existing economic research showing that the employment and earning gains derived from citizen eligibility took place mainly among women and only marginally among male immigrants ([Gathmann and Keller, 2018](#); [Gathmann and Garbers, 2023](#)), the nationalizing effects of the naturalization reforms appear to have been stronger among women.

Our paper speaks to two main strands of research. On the one hand, our paper contributes directly to the literature on naturalization policy and its effects. Exploiting variation on recent

legal reforms of naturalization requirements across European countries, several researchers have found a generally positive impact of citizenship acquisition on employment, wages and earnings in France (Govind, 2021), Germany (Gathmann and Keller, 2018), and Switzerland (Hainmueller, Hangartner and Ward, 2019). Obtaining citizenship improved also the social integration of (mainly marginalized) immigrants in terms of lower perceived discrimination and higher social capital (Hainmueller, Hangartner and Pietrantuono, 2017) as well as a faster adjustment to the fertility patterns and gender attitudes of the country of destination (Keller, Gathmann and Monscheuer, 2015).¹ We know much less, however, about the political effects of naturalization. Most studies have focused on measuring its impact on political knowledge, efficacy and participation employing survey data (Just and Anderson, 2012; Bloemraad and Sheares, 2017) or local naturalization referenda (treated as if-random events) (Hainmueller, Hangartner and Pietrantuono, 2015).

We contribute to the naturalization literature by examining how a more liberal citizenship regime accelerates national identification or slows it down. Specifically, we are the first to analyze the political effects of the most commonly used policy instrument for regulating access to citizenship, the waiting time for citizenship acquisition, rather than focusing solely on the effect of citizenship acquisition itself. We do so by employing arguably exogenous variation in naturalization norms generated by two main legal reforms on citizenship in Germany. This implies that all non-citizens are treated at the time they first entered Germany—with the treatment given by their age and year of entry in Germany.

Importantly, we examine not only the impact of potentially becoming citizens but also the effect of the expectation of access to citizenship. We show that individuals respond to this expectation by increasing their engagement with the host society and developing stronger feelings of national belonging well before possibly acquiring citizenship. This has important policy implications, as it reveals effects of citizenship policies that extend beyond the formal acquisition of citizenship. Naturalization requirements influence how immigrants feel and behave from the outset, acceler-

¹ For a recent review of the literature on the effects of naturalization policy on the economic and social outcomes of immigrants, including correlational research relying on cross-sectional and panel data, see Gathmann and Garbers (2023).

ating their integration into the social and civic life of their destination country and fostering their national identification. The waiting period as a policy instrument has an independent effect and can be leveraged separately from the act of acquiring citizenship.

On the other hand, our paper speaks to a literature on the drivers of national identity that has alternatively emphasized the effect of state indoctrination, the role of individual instrumental calculations, and the impact of discrimination. A first line of inquiry sees mass schooling as crucial in instilling a set of specific beliefs about the nature of their national community, its historical and linguistic foundations, and so on (Weber, 1976; Darden and Grzymala-Busse, 2006). Those national sentiments, inculcated in children at an age when political identities crystallize, remain then in place through adult life and are passed on to children (and once more reinforced by schools) (Jennings, Stoker and Bowers, 2009). A second explanation ties the adoption of a particular national identity to the economic gains and policy benefits accrued by individuals (Laitin, 1998; Posner, 2005). Finally, national identity, understood as another form of social or group identification (Turner, 2010), responds to the level of acceptance or of discrimination experienced by individuals from the community and which in which they operate (Theiss-Morse, 2009). Empirical work on these explanations relies mostly on historical narratives and, in a few cases, on survey evidence (Bonikowski and DiMaggio, 2016) or cross-sectional statistics (Wimmer, 2018). More recently, Fouka (2019, 2020) and Abdelgadir and Fouka (2020) focus on instances of discrimination of particular ethnic or religious collectives to examine the latter's national identification feelings—mainly leveraging plausible exogenous policy changes (such as a ban on the use of headscarves or on the teaching of a minority language) and measuring identity through behavioral responses such as marriage, name adoption and military enrollment.

We move forward the literature on national identity formation in several ways. We focus on naturalization policy (rather than discriminatory measures) and then measure national identity directly. We rely on exogenous variation in eligibility conditions driven by immigration reforms, hence overcoming the selection problems faced by previous research. We find that a more liberal citizenship regime is conducive to a stronger sense of nationhood among foreign-born citizens—

arguably showing that the act of granting of an equal legal standing fosters a sense of nationhood. This appears to imply also that, at least for newcomers, national identity is not just fixed at adolescence or as a result of education: individuals respond in a flexible way to the treatment they receive by the community they live in.

Citizenship Laws and National Identification

The existing literature on citizenship and national identity offers three classes of theoretical arguments to explain how the requirements of citizenship eligibility may foster the national identification of naturalized immigrants with their host country: psychological, participatory, and instrumental.

First, the acquisition of citizenship is likely to raise the political integration and the national allegiance of immigrants for psychological reasons. The process of naturalization implies granting newcomers a legal standing equal to the one held by natives, that is, recognizing them as full citizens with complete rights and obligations. Even if the implementation of the latter may sometimes remain at the formal level, treating individuals as equals satisfies a fundamental human desire to be recognized and respected by others, and should lead to a stronger disposition among naturalized immigrants to self-identify with their host country ([Smith, 1991](#)). In addition, as developed by the literature on social identification, holding similar markers with a given group (and citizenship, with its rights and obligations, is one of them) increases the psychological sense of compatibility of an individual with that social collective and encourages the former to identify with the latter ([Turner, 2010](#); [Schneider et al., 2012](#)). Research on the relationship between immigrants' citizenship status and national identification is sparse. However, existing data indicate a positive correlation between the two. In France, for example, 98 percent of native citizens, 79 percent of naturalized immigrants and 52 percent of noncitizens feel French ([Bloemraad and Sheares, 2017](#)).

Second, by facilitating the civic and political engagement of naturalized immigrants, citizenship increases the latter's sense of political agency and interest and concern for their host country's affairs. [Just and Anderson \(2012\)](#) see citizenship as a "resource that facilitates political engage-

ment” because it “has the capacity to lower the legal risks and the potential costs of participation” (p.486). Besides enabling naturalized immigrants to participate in politics through formal procedures such as elections, citizenship reduces the costs of participating in actions such as illegal protests, which could result in the deportation of non-naturalized individuals. Although the existing evidence faces methodological limitations, naturalized immigrants have been found to participate more than noncitizen immigrants. Examining survey data from 19 European countries in 2002-03, [Just and Anderson \(2012\)](#) find that naturalization increases noninstitutionalized forms of participation, especially among immigrants coming from nondemocratic countries. In a comparison of immigrants before and after acquiring German citizenship that relies on panel data, [Street \(2017\)](#) finds a positive effect of naturalization (limited to party identification) among second-generation immigrants who were exposed to German politics during the “formative years” of their early adulthood. In turn, [Hainmueller, Hangartner and Pietrantuono \(2015\)](#) report an effect on turnout and political knowledge and efficacy but not on informal political participation.² A higher probability of participation (due to a reduction in its costs) results in a higher sense of national belonging both directly and indirectly. Directly, a higher level of participation builds up the social psychological mechanisms of collective empowerment and group identification, as identified by the literature on community psychology ([Stevenson et al., 2015](#)). Indirectly, a higher level of participation leads to higher levels of social trust, a corresponding increase in the willingness to think about the interests of the broader community beyond pure self-interest considerations, and, accordingly, an expansive feeling of social belonging ([Putnam, 1993](#)).

Finally, naturalization may have an instrumental effect on national identification through the economic gains it generates. In a sizable number of countries, the acquisition of citizenship gives access to public sector jobs and the practice of high-paying professions. In several Anglo-American and central European countries, noncitizens are excluded from social security systems. As pointed out earlier, a literature in economics has found that naturalization raises the labor sup-

² For a comprehensive review of the literature, including cases and surveys, see [Bloemraad and Sheares \(2017\)](#).

ply and language skill investment of female immigrants, accelerates the convergence of newcomers with natives in marriage and fertility, and improves the educational performance of their children.³

Two main factors may annul, however, the potentially nationalizing effects of naturalization: the persistence of real (as opposed to formal) discrimination, and the life-cycle dynamics of political socialization. First, the formal acquisition of citizenship does not erase automatically the inequalities that exist between natives and immigrants. Poor newcomers in particular do not have the resources to fully exploit the rights embedded within citizenship. More importantly, natives may maintain prejudicial attitudes and engage in actual discriminatory behavior (particularly in employment and housing markets) toward naturalized immigrants ([Dancygier and Laitin, 2014](#); [Esses, 2021](#)). In the face of strong enough discriminatory practices, the positive effect of naturalization on national identity may become muted.

Second, a substantial body of research on political behavior has found that political attitudes and behavior crystallize in the “formative years” of adolescence, hardly changing afterward ([Bartels and Jackman, 2014](#)). Partisan identification hardens in the late teens and twenties ([Green, Palmquist and Schickler, 2004](#)). Political interest does too ([Prior, 2010](#)). An important strand of research on nationalism sees schooling (reinforced by the family transmission of ideas) as shaping stable, life-long national attachments ([Weber, 1976](#); [Darden and Grzymala-Busse, 2006](#); [Balcells, 2013](#); [Peisakhin, 2015](#)). Hence, if the shadow of early adulthood proves to be long enough, citizenship eligibility (and acquisition) may be unable to change the national identification of immigrants.

Naturalization Reforms

Since the Imperial and State Citizenship Act of 1913 and throughout most of the twentieth century, an “*ius sanguinis*” regime determined access to German nationality. German citizenship was acquired through descent and the naturalization of foreigners residing in Germany was left at the (arbitrary) discretion of the government (with the exception of individuals who had served in the

³ For a recent literature review on the consequences of naturalization on the economic and social integration of immigrants, see [Gathmann and Garbers \(2023\)](#).

army or bureaucracy). After World War II, the Federal Republic of Germany, which saw itself as the continuation of prewar Germany, claimed as its nationals both East Germans and ethnic Germans displaced by the war who managed to enter West Germany. As a result of unprecedented growth and a growing need for labor supply during the Cold War, West Germany allowed the entry of low-skilled immigrants as “guest workers”—mostly through bilateral agreements with their country of origin. By the mid-1970s, around 2.6 million guest workers were employed in Germany. Even though immigrants were expected to stay for a fixed period of time, a large number ended up settling permanently (Jurgens, 2010).

The Alien Act of 1990, effective on January 1, 1991, introduced a formal path to naturalization. The acquisition of citizenship became conditional on residency requirements that varied with age. Immigrants arriving at the age of 15 or older needed a minimum of 15 years of legal residency to apply for naturalization. The residency requirement was of 8 years for those that had arrived between the ages of 8 and 14. Immigrants younger than 8 at the age of arrival could apply at age 16 or older. In addition to introducing a residency requirement, the 1990 law banned the possibility of dual citizenship (with the exception of EU nationals) and imposed a set of strict integration conditions. Lawful applicants should not have been convicted for any criminal offence, had to prove “economic self-sufficiency” if they had arrived at age 15 or more, ought to have been schooled in Germany for at least 6 years if they were 14 or younger, and had to swear the democratic principles of the republic. Ten years later, the Citizenship Act reduced the residency requirement to 8 years for all individuals arriving at the age of 15 or older while adding a linguistic competence test to the existing integration tests. In addition, it embraced the principle of “*ius solis*” for the first time by granting citizenship to children born in German territory from foreign parents (conditional on an application procedure and a minimum number of years of legal residency of at least one parent).⁴

As a result of the two reforms, Germany’s citizenship law switched from being the most re-

⁴ Because we only examine first generation immigrants, our study is not affected by the “*ius soli*” provisions introduced in 2000. We discuss the potential implications of the integration conditions set by the two laws in our section on “Empirical Strategy”.

strictive among developed countries to providing a naturalization path similar to an average OECD economy. Graeber (2020) has recently developed scores (ranging from 0 to 4 with 4 indicating maximum restrictions) for the naturalization policy of sixteen OECD economies between 1970 and 2017 along two dimensions: “ascriptive” (the combination of residency requirement, “*ius solis*”, and acceptance of dual citizenship) and “performative” (the combination of “integration” conditions such as criminal and economic requirement and linguistic tests). On the first dimension, Germany moved from the maximum score of 4 in 1970 to 1.6 in 2017. The average for the whole sample dropped from 2.1 to 1.4 in the same period of time. On the performative side, Germany’s score for the conditions for integration increased from 0.7 in 1970 to 3.3 in 2017. That evolution tracked the OECD average, which also rose, from 0.9 to 2.8.

Foreign-born individuals in Germany represented 6.7 percent of all the population at the end of 1990. That share hovered around 8.5 percent in the following two decades, reached 10 in 2014 and 16.9 by 2023. In 2000, the number of naturalizations equaled 4.9 percent of all foreigners with at least 10 years of residence in Germany. That proportion fell to around 2.2 percent by the early 2010s.⁵

Data

To study the consequences of naturalization on immigrants national identification we use the German Socio-Economic Panel (GSOEP) (Goebel et al., 2019). The GSOEP is a comprehensive, interdisciplinary longitudinal survey designed for the analysis and interpretation of social and economic behavior. It has been conducted annually since 1984, and it collects data from more than 20,000 individuals, representing the entire resident population of Germany.

We restrict our sample to first-generation immigrants, meaning those born outside of Germany. To ensure greater homogeneity, our analysis focuses on those who arrived in Germany between 1975 and 2002, became eligible for citizenship between 1991 and 2010, and entered Germany

⁵ Data retrieved from Statistisches Bundesamt, Genesis-Online database, <https://www-genesis.destatis.de/genesis/>, on May 22, 2024.

before the age of 23, consistent with existing economic literature on German citizenship laws (Gathmann and Keller, 2018; Gathmann et al., 2021). Furthermore, we utilize survey data starting from 1991, when the first naturalization reform was implemented.

Our main explanatory variable is the residency requirement for naturalization, which refers to the number of years an immigrant must reside in Germany before applying for citizenship. We determine this requirement based on the year of immigration and age of arrival, in accordance with the naturalization laws in effect at that time, as detailed in the next section. Understanding the impact of the residency requirement is crucial because it represents the inherent value of the option to naturalize. Indeed, the residency requirement is one of the most significant tools policymakers have to regulate immigrants' access to citizenship.

Our primary dependent variable is the sense of German nationality, measured by the commonly used question: "To what extent do you feel German?" To simplify the interpretation of the results in this paper, we use the convention to recode the question responses on a scale from 0 to 1, where higher values represent greater engagement with Germany. Specifically, the sense of German nationality is recoded as follows: 1 for "Completely," 0.75 for "Mostly," 0.5 for "In some respects," 0.25 for "Hardly," and 0 for "Not at all."

Our secondary dependent variable is the sense of foreign nationality, measured by the question: "How connected do you feel to your country of origin?" This variable is recoded in the same manner as the sense of German nationality. Additionally, we examine two related identity questions available in the GSOEP. The first question addresses the immigrant's sense of being without a country, and the second explores the feelings of immigrants when visiting their native country.⁶ Moreover, we look at the naturalization status of immigrants by combining data from two survey questions: one asking respondents when they acquired German citizenship, and the other asking about their nationality.⁷ We also explore potential mechanisms that contribute to a stronger identi-

⁶ Given our focus on immigrants' identity, we limit our sample to respondents for whom we have data on at least one of the four identity measures.

⁷ The GSOEP did not consistently ask respondents when they acquired citizenship. Consequently, we have this information for only a very small subsample of our respondents. For those

fication of immigrants with Germany in three domains. Specifically, we examine how immigrants feel within German society, their social and political participation in Germany, and their use of the German language. For easiness of interpretation, we describe the mechanism variables together with their analysis in the subsection on "Potential Mechanisms".

Our control variables are the duration of an immigrant's stay in Germany, age, arrival cohort, birth year, region of origin, and the year the survey was conducted. In total, our sample comprises 3,733 respondents, with an average age of 32 years and an average residency period in Germany of 19 years. We report the summary statistics of our sample in Table A.1 in the Supplementary Material.

Empirical Strategy

Our empirical strategy leverages the exogenous variation in eligibility rules introduced by the 1990 and 2000 citizenship reforms. We compare first-generation immigrants who arrived in Germany at the same time but experienced different waiting periods to apply for citizenship due to their age at arrival. The reforms categorize immigrants into three groups based on their age upon arrival, each subject to different citizenship eligibility periods. The first group consists of immigrants who arrived before the age of 8, becoming eligible for citizenship at age 16 after residing in Germany for 9 to 16 years. The second group includes immigrants who arrived between the ages of 8 and 14, who can apply for citizenship after 8 years. The third group comprises immigrants who arrived between the ages of 15 and 22, facing a 15-year waiting period before the 2000 reform and an 8-year waiting period after the 2000 reform. We summarize the residency requirements based on age of arrival and time in Table 1.

without this information, we inferred it by examining their nationality. We determined the year an immigrant acquired citizenship as the year they first declared German nationality and consistently maintained it in subsequent surveys. However, it is possible that a respondent might report a foreign nationality despite being naturalized, or vice versa, introducing potential noise or bias into our analysis. Therefore, the results regarding naturalization decisions should be interpreted with caution. This situation is common in studies using the GSOEP to assess immigrants' naturalization status (See for example [Gathmann and Keller, 2018](#)).

Table 1: Residency Requirement

Age of arrival in Germany	Residency Requirement (after 1990 Reform)	Residency Requirement (after 2000 Reform)
0-7	9-16 years	=
8-14	8 years	=
15-22	15 years	8 years

Number of years an immigrant has to wait before becoming eligible for citizenship in function of age and time of arrival.

In addition, immigrants already residing in Germany when the reforms were implemented, and who had already waited longer than the reform provisions, effectively were subject to a longer waiting period. Consider, for instance, an immigrant who relocated to Germany in 1988 and was over 15 years old at the time. Due to the 2000 reform, her required waiting period for citizenship was reduced to 8 years. However, she had already fulfilled a 12-year waiting period by the time she became eligible in year 2000, as the required waiting time before year 2000 was 15 years. We report the full description of the residency requirement treatment as a function of the immigration year and year of birth, including these special cases, in Table A.2 in the Supplementary Material.

To examine the impact of residency requirements on immigrant integration, we employ the following model:⁸

$$Y_{it} = \beta_W Wait_i + \beta_Y YearsGer_{it} + \beta_A Age_{it} + \lambda_A Arrival_i + \lambda_B Birth_i + \lambda_O Origin_i + \lambda_Y Year_t + \epsilon_{it}$$

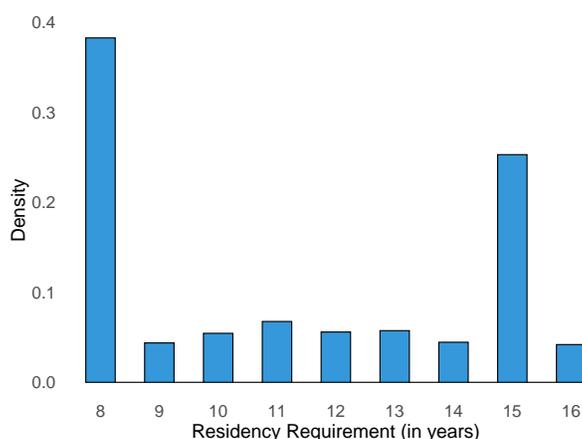
In this model, Y_{it} represents the main outcome of interest for immigrant i at time t , such as the degree to which the immigrant identifies as German. The variable $Wait_i$ is the residency requirement, our treatment variable, which indicates the number of years the immigrant must wait to apply for citizenship.⁹ This waiting period varies based on the year of birth and year of arrival. We re-

⁸ We also include in the Supplementary Material (Table A.4) a simpler difference-in-difference design exploiting the reduction in residency requirement for older immigrants due to the 2000 reform. By bundling different waiting times in the control and treatment groups, this empirical strategy loses important variation in the treatment and it estimates the effect only on the treated group which is only 0.35% of the full sample. Still, the two empirical strategies lead to analogous results, as we discuss in the following section.

⁹ While our focus is on the effect of the policy instrument, namely the residency requirement, as an exogenous treatment, eligibility for naturalization and naturalization itself are strongly correlated (Gathmann and Keller, 2018).

port the distribution of the residency requirement in Figure 1.¹⁰ Our primary parameter of interest, β_W , measures the extent to which a longer waiting period affects the dependent variable, such as immigrants’ feelings of identification with Germany. Given the anticipated effects of time spent in Germany and the age of immigrants on their societal integration, we include in the regressions a term for the number of years the immigrant has resided in Germany, $YearsGer_{it}$, and a term for the immigrant’s age, Age_{it} .¹¹

Figure 1: Distribution of the Residency Requirement



Our empirical strategy relies on differences among immigrants who arrived in the same year but face different waiting times for citizenship due to their age at arrival. Accordingly, we include year of arrival fixed effects, $Arrival_i$, to control for temporal differences in the types of immigrants. We also incorporate birth cohort fixed effects, $Birth_i$, to account for potential differences among immigrants born in various years. Additionally, we include region of origin fixed effects, $Origin_i$, and survey year fixed effects, $Year_t$. To address potential correlations within the same aggregation

¹⁰ The 2000 reform changed the waiting period from 15 years to 8 years for immigrants who were older than 14 years when they immigrated. Thus, their residency requirement was adjusted accordingly in 2000.

¹¹ Ideally, we would include fixed effects for both years in Germany and age. However, we face a constraint on adding such terms. Specifically, we already include fixed effects for year and year of arrival, whose difference equals years in Germany. Similarly, we already include fixed effects for year and birth year, whose difference equals age.

group for each survey in our treatment variable (respondents who arrived in Germany at the same time and are of the same age), we cluster standard errors by age * arrival year.¹²

Our identification strategy remains valid as long as the effect of the residency requirement is identified solely by the age of arrival and year of arrival, conditional on the fixed effects for year of arrival, birth cohort, region of origin, and survey year. A possible concern is that immigrants arriving in Germany at a younger age might experience higher returns on their integration efforts simply because they have more time to reap the benefits of being integrated. In theory, controlling for age of arrival could address this concern. However, age of arrival is perfectly collinear with the difference between the year of arrival and birth year, both of which are already included as fixed effects in our estimated equation. Consequently, we cannot estimate a full set of age of arrival fixed effects. Nevertheless, we can incorporate partial controls for age of arrival by grouping different arrival ages, a method we discuss in the Specification Checks Section. Beyond the robustness of our findings to this approach, it is essential to note that the relationship between age of arrival and the residency requirement is non-monotonic. Specifically, younger immigrants (aged 0-7) and older immigrants (aged 15-22) face longer waiting periods compared to middle-aged immigrants (aged 8-14), at least prior to the 2000 reform. Therefore, any possible differential effects due to the age of arrival, say immigrants who arrive at a younger age assimilate more regardless of treatment, would push the estimate of the residency requirement in opposite directions, thus tending to cancel out.

Beyond meeting the residency requirement, immigrants must satisfy several additional criteria to apply for citizenship. These include demonstrating economic self-sufficiency, having no severe criminal record, and affirming their allegiance to the democratic principles outlined in Germany's Basic Law. Furthermore, immigrants must renounce their previous citizenship unless they are EU citizens, and those who arrived before the age of 15 must complete a minimum of six years of schooling in Germany. Additionally, family members of eligible immigrants can be included in

¹² A similar empirical strategy has been employed by [Gathmann and Keller \(2018\)](#) to analyze the impact of access to citizenship on the economic performance of immigrants.

the application if they do not independently meet the eligibility requirements. We lack information on whether the individuals in our sample meet these additional criteria. Consequently, while some immigrants may fulfill the residency requirement, they may not qualify for citizenship due to other factors. Nonetheless, our analysis remains unbiased as long as the likelihood of not meeting these additional criteria is not correlated with the residency requirement. If anything, the presence of additional criteria would increase the standard errors, making it more challenging to detect an effect of the residency requirement.

Analysis

In this section, we examine how naturalization policy affects immigrants' sense of identity and their engagement in the host country. First, we examine whether a shorter residency period strengthens immigrants' sense of national identity. The effect of the residency requirement on feeling German is presented in the first column of Table 2. Our results show a negative and significant effect, suggesting that a shorter waiting period for citizenship boosts immigrants' sense of identification with Germany. As expected, we find also a positive relationship between the length of time spent in Germany and the strength of national identification. Conversely, our analysis does not report any significant impact of the immigrant's age. Still, it is important to note that the identification strategy used may diminish much of the age-related variation in the feeling of being German.

We can utilize our estimates to assess the relative impact of residency requirements on national identification. The effect of the residency requirement is approximately half that of the number of years spent in Germany. In practical terms, this implies that reducing the waiting period for citizenship by two years has the same effect on national identification as an additional year spent in Germany. Consequently, the 2000 reform, which shortened the waiting period for older immigrants from 15 years to 8 years, produced a net boost equivalent to roughly three additional years of residence in Germany for immigrants' national identification, holding all else constant.¹³

¹³ [Gathmann and Keller \(2018\)](#) report a similar magnitude regarding the impact of residency requirements on immigrants' earnings, where each year of residency requirement is comparable to

Table 2: Effect of Residency Requirement on National Identification

	<i>Dependent variable:</i>	
	Feeling German	Feeling of Foreign Nationality
Residency requirement (in years)	-0.006*** (0.001)	0.003* (0.002)
Years in Germany	0.014*** (0.001)	-0.013*** (0.001)
Age	-0.001 (0.001)	0.007*** (0.001)
Cohort of arrival fixed effects	✓	✓
Year of birth fixed effects	✓	✓
Region of origin fixed effects	✓	✓
Year fixed effects	✓	✓
Observations	10,614	9,710
R ²	0.368	0.278
Adjusted R ²	0.362	0.271
Mean of dependent variable	0.62	0.55

OLS models with Clustered Standard Errors by Age * Arrival year. Feeling German: 1 Completely, 0.75 Mostly, 0.5 In some respects, 0.25 Hardly, 0 Not at all. Feeling of Foreign Nationality: 1 Completely, 0.75 Mostly, 0.5 In some respects, 0.25 Hardly, 0 Not at all. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

Along with enhancing immigrants' identification with the host country, we find that a shorter residency requirement also decreases immigrants' sense of belonging to their native country, as shown in the second column of Table 2. We observe a negative effect associated with years spent in Germany, indicating that the longer an immigrant has been away from their country of origin, the weaker their identification with it. Additionally, age has a positive effect, suggesting that older immigrants tend to maintain a stronger identification with their country of origin, although the same caveats regarding age effects apply here.¹⁴

Our data and empirical strategy enable a direct comparison between feeling German and feeling foreign. In principle, these are distinct identities. Immigration could lead an immigrant to half a year spent in Germany. Earnings increase by 0.014 log points for each reduced waiting year, and increase by 0.033 log points for each extra year in Germany.

¹⁴ In Table A.3 in the Supplementary Material, we examine two related feelings. First, we look at the feeling of being without a country, which measures the extent to which respondents feel homeless, finding no effect for the residency requirement. Second, we explore how immigrants feel when visiting their native country, with responses ranging from feeling immediately at home to feeling foreign, showing that shorter residency requirements lead to feeling less at home in the country of origin.

substitute the new national identity for the original one, to maintain both identities, or even to lose all sense of identification with a particular national community.¹⁵ Examining the estimated results in the first two columns of Table 2, we observe that the coefficients for the effect of time spent in Germany on national identification have the same magnitude and opposite signs. However, this pattern does not hold for the effect of the residency requirement on national identification. This suggests that, although the length of stay in the host country may lead to a substitution of identities, the residency requirement itself appears to produce only a partial substitution effect. That is, a shorter residency requirement enhances feelings of national belonging in the host country more than it diminishes immigrants' original sense of belonging to their country of origin.

Notice that a reduction in the waiting period heightened the national identification of immigrants not only at the time they could formally apply to citizenship, but also earlier in their process of legally integrating into the host country, that is even before they were eligible to naturalize. This result is shown in Table A.7 in the Supplementary Material, where we replicate Table 2 allowing for the effect of the residency requirement to be different before and after the end of the waiting period.¹⁶ Substantively, this means that immigrants reacted to the possibility of becoming a citizen by both identifying with and engaging more within the host society even in their early years in the host country, in expectation of becoming citizens.¹⁷

Our results rely on the assumption that we can compare immigrants who arrived in the same year but faced different waiting times for citizenship due to their age at arrival. We address potential threats to this identification strategy in the Specification Checks section below.

Difference-in-Difference Estimations. Additionally, we show that our results are consistent when exploiting only the within-individual changes in waiting time introduced by the 2000 reform, using a difference-in-differences approach. The 2000 reform reduced the residency requirement

¹⁵ For an exploration of these questions, see a discussion in [Lelie, Crul and Schneider \(2012\)](#); [Abramitzky and Boustan \(2022\)](#).

¹⁶ Tables A.8, A.9, and A.10 replicate all the results in the paper also for the pre-citizenship years, except for political interest, which has a p-value of 0.147.

¹⁷ [Gathmann and Keller \(2018\)](#) find a similar result for labor market outcomes.

for immigrants who were older than 15 at the time of arrival from 15 years to 8 years. This allows us to compare the feelings of immigrants who were affected by the residency reduction before and after 2000 with those of immigrants who did not receive a reduction in waiting time. We present this analysis in Table A.4 in the Supplementary Material.

While the difference in differences approach may provide a valid estimate of the effect of a change in waiting time, we believe that using the length of the waiting time as the treatment is superior, and hence we use this latter in the main analysis, for several reasons. First, unlike our main identification strategy, which directly estimates the effect of the policy regulating immigrant access to citizenship by capturing the effect of waiting time, the difference in differences strategy estimates only the effect of a reduction in waiting time. This estimate may conflate the magnitude of the reduction with the effect of receiving a reduction per se. Second and third, the difference in differences approach captures less variation in the treatment and applies only to a subsample of the population affected by the policy. In particular, only respondents who were older than 15 at the time of immigration are potentially treated in the difference in differences framework. Fourth, the difference in differences approach relies on pre 2000 comparison groups for which the available data are more limited.

Nonetheless, the results from the difference-in-differences approach are consistent with those from the main identification strategy. Immigrants who were subject to a reduction in waiting time after the reform were more likely to feel German and less likely to feel foreign. Notably, dividing the treatment effect on feeling German (0.046) by the average reduction in waiting time for the treated group (5.91 years) yields a unit effect of 0.007, which closely aligns with the one-year effect shown in Table 2 (0.006).¹⁸

Heterogeneous Treatment Effects

Up to this point, we have evaluated the overall average effect of citizenship eligibility on national identification with the host country. In this subsection, we explore how the impact of a shorter

¹⁸ The reduction in waiting time is not always seven years due to the presence of immigrants who, by the year 2000, had already waited more than the eight years required under the reform.

naturalization period varies among different immigrant groups.

First, we investigate potential differences in attachment to Germany between immigrant women and men. We interact our treatment variable with a dummy for women and report the results in the first column of Table 3. Our results reveal that, although the residency requirement has a significant effect for men, its effect is more than fifty percent larger for women. This suggests that women derive significantly greater benefits from expedited access to citizenship compared to men. While our estimate does not reach conventional levels of statistical significance (p-value 0.108), it aligns closely with existing findings on gender differences in labor market outcomes following a reduced waiting period for citizenship. While men see financial gains from faster naturalization due to increased job mobility into more stable positions, women gain even more. Women enhance their language skills, are more likely to be employed, tend to work as white-collar professionals, work more hours, and have longer job tenures (Gathmann and Keller, 2018; Gathmann and Monscheuer, 2020a,b), which may, in turn, increase interaction with native Germans, strengthen incentives to integrate, and foster national identification.

Second, we examine how naturalization policy might differentially influence national identification among immigrants based on their duration of stay in Germany and their age at arrival. In the second model presented in Table 3, we interact the residency requirement with the number of years immigrants have spent in Germany. Our findings indicate that the magnitude of the treatment effect declines the longer an immigrant has been in Germany, counteracting the greater integration benefits associated with early naturalization (Hainmueller, Hangartner and Pietrantonio, 2017). Conversely, the residency requirement has a stronger effect during the early stages of immigration when overall integration through socialization within the host country is typically lower.

In the third model of Table 3, we interact the residency requirement with the age at which immigrants arrived in Germany. Our results show that the treatment effect is more pronounced for immigrants who arrived at an older age. This finding aligns with the relatively easier integration process for younger immigrants, who have a greater propensity to learn the host country's language (Johnson and Newport, 1989; Newport, 2002; Birdsong, 2006), while more adult immigrants may

Table 3: Heterogeneous Treatment Effects

	<i>Dependent variable: Feeling German</i>		
	By Gender	By Years in Germany	By Age of Arrival
Residency requirement (in years)	-0.005*** (0.002)	-0.014*** (0.003)	-0.0004 (0.002)
Residency requirement x Women	-0.003 (0.002)		
Residency requirement x Years in Germany		0.0004*** (0.0001)	
Residency requirement x Age of Arrival			-0.001*** (0.0002)
Years in Germany	0.013*** (0.001)	0.009*** (0.002)	0.013*** (0.001)
Age	-0.0005 (0.001)	-0.001 (0.001)	
Cohort of arrival fixed effects	✓	✓	✓
Year of birth fixed effects	✓	✓	✓
Region of origin fixed effects	✓	✓	✓
Year fixed effects	✓	✓	✓
Observations	9,697	9,697	9,697
R ²	0.378	0.378	0.378
Adjusted R ²	0.371	0.371	0.372
Mean of dependent variable	0.63	0.63	0.63

OLS models with Clustered Standard Errors by Age * Arrival year and lower order interaction terms. Feeling German: 1 Completely, 0.75 Mostly, 0.5 In some respects, 0.25 Hardly, 0 Not at all. *p<0.1; **p<0.05; ***p<0.01.

have already developed a stronger national identity in their country of origin.

Potential Mechanisms

In this subsection, we investigate the potential impact of three main factors on the national identification of immigrants: psychological effects, that is, immigrants' feelings of concern and discrimination; political and participatory effects; and linguistic integration.

1. *Psychological effects.* Increasing the recognition of immigrants as equals to natives appears to improve the former's perception of being treated fairly. Column 1 in Table 4 shows that a reduction in residency waiting time decreases immigrants' worries about anti-foreigner sentiment and xenophobia ("Do you worry about anti-foreigner sentiment and xenophobia in Germany?"). Additionally, immigrants do not seem to report higher instances of discrimination based on ethnic origins over the past two years ("How often in the last two years have you felt discriminated against here in Germany because of your ethnic origins?"), as indicated in the second model in Table 4.

However, the negative coefficient suggest that immigrants with a shorter waiting time, which are more likely to engage with German society as we show later, may also have greater exposure to discriminatory treatment.

Table 4: Concerns and Discriminations

	<i>Dependent variable:</i>			
	Worry About Xenophobia	Discrimination on Ethnic Origin	Concerns About Immigration	Concerns About Crime
Residency requirement (in years)	0.003* (0.002)	-0.003 (0.002)	0.001 (0.003)	0.001 (0.002)
Years in Germany	-0.002 (0.001)	-0.001 (0.002)	-0.002 (0.001)	-0.001 (0.001)
Age	0.003** (0.001)	0.018* (0.011)	0.009*** (0.002)	-0.002 (0.001)
Cohort of arrival fixed effects	✓	✓	✓	✓
Year of birth fixed effects	✓	✓	✓	✓
Region of origin fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Observations	13,475	6,638	9,537	11,696
R ²	0.117	0.085	0.113	0.051
Adjusted R ²	0.110	0.072	0.104	0.042
Mean of dependent variable	0.55	0.28	0.47	0.63

OLS models with Clustered Standard Errors by Age * Arrival year. Worry About Xenophobia: 1 Big worries; 0.5 Some concerns; 0 No worries. Discrimination on Ethnic Origin (over last two years): 1 Frequently; 0.5 Rare; 0 Never. Concerns About Immigration: 1 Big worries; 0.5 Some concerns; 0 No worries. Concerns About Crime (in Germany): 1 Big worries; 0.5 Some concerns; 0 No worries. *p<0.1; **p<0.05; ***p<0.01.

The residency requirement has no effect on immigrants' opinions on issues that are unrelated to their differential treatment compared to natives. The third and fourth columns of Table 4 show that the residency condition has no impact on two aspects of immigrants' lives: immigration ("How concerned are you about the following issues? - Immigration to Germany") and crime ("How concerned are you about the following issues? - Crime in Germany"). In these two issue, which can, in principle, affect both immigrants and natives similarly, we see no differences attributable to the naturalization process, therefore pointing to the fact that the latter works on national identification through immigrants' perceptions about their treatment by natives.

2. *Social and political participation.* Faster access to citizenship enhances immigrants' involvement in society and their political engagement. Regarding social participation, we analyze an aggregate measure of social capital based on respondents' average scores across the 10 social capital activity questions in the GSOEP, which range from attending sports events to helping others. As

shown in the first column of Table 5, a shorter waiting period for citizenship increases immigrants’ social capital, with most of the effect coming from attending and practicing sports, helping out friends and relatives, and volunteering in clubs.¹⁹ The relative effect of the residency requirement compared to the effect of time spent in Germany on social capital is similar to their relative effect on feeling German. In fact, two years of residency requirement have almost the same effect as an additional year in Germany.

Table 5: Social and Political Life

	<i>Dependent variable:</i>		
	Social Capital	Political Interest	Party Identification
Residency requirement (in years)	−0.002*** (0.001)	−0.004*** (0.001)	−0.003 (0.002)
Years in Germany	0.006*** (0.001)	0.002*** (0.001)	0.002 (0.001)
Age	−0.015*** (0.002)	0.002* (0.001)	0.0003 (0.002)
Cohort of arrival fixed effects	✓	✓	✓
Year of birth fixed effects	✓	✓	✓
Region of origin fixed effects	✓	✓	✓
Year fixed effects	✓	✓	✓
Observations	4,238	13,879	13,455
R ²	0.258	0.076	0.044
Adjusted R ²	0.244	0.069	0.036
Mean of dependent variable	0.22	0.31	0.26

OLS models with Clustered Standard Errors by Age * Arrival year. Social Capital: average of all social capital activities by respondent and time, weighted in the regression by the number of activities reported: 1 Daily; 0.75 Min 1x per week; 0.5 Min 1x per month; 0.25 Rare; 0 Never. Political Interest: 1 Very strong; 0.66 Strong; 0.33 Not so strong; 0 Not at all. Party Identification: 1 Yes; 0.5 Not Sure; 0 No. *p<0.1; **p<0.05; ***p<0.01.

Regarding political engagement, we assess the impact of the residency requirement on political interest (“How interested are you in politics?”) and party identification (“Do you lean towards a particular party?”). The results, presented in the second and third columns of Table 5, indicate that reducing the residency requirement has a positive effect on political interest. Notably, this effect is

¹⁹ The effects of the residency requirement on individual social capital activities are detailed in Table A.5 and Table A.6 in the Supplementary Material. We find negative and significant coefficients for four activities and negative but not significant coefficients for five activities. The higher variance is likely due to the limited number of observations for the social capital survey questions. The only non-negative coefficient, which is virtually zero, pertains to socializing with friends and relatives. This measure might not accurately reflect the socialization of first-generation immigrants within the host country, given the high likelihood of having relatives abroad.

particularly strong. Each year of waiting for citizenship has an effect comparable to two to three additional years spent in Germany. We do not recover a significant effect on party identification, but the magnitude and direction of the estimated coefficient are consistent with our other findings.

3. *Linguistic integration.* An examination of the use of native versus German language in general media (If you inform yourself about world events in media newspapers, television, radio, Internet, etc.: Do you use these media ...) indicates that a shorter waiting time for naturalization increases the likelihood of immigrants using media in German rather than their native language (Column 1, Table 6), In addition, a shorter residency requirement increases both the likelihood of reading newspapers and reading them in German (Columns 2 and 3, Table 6). Our findings on media usage are consistent with the increased incentive for immigrants to invest in education and language skills associated with a shorter waiting period for naturalization (Gathmann and Keller, 2018).

Table 6: Media Use

	<i>Dependent variable:</i>		
	Language Media	Read Newspaper	Language Newspaper
Residency requirement (in years)	-0.007*** (0.003)	-0.008*** (0.002)	-0.006*** (0.002)
Years in Germany	0.017*** (0.001)	0.003 (0.002)	0.018*** (0.003)
Age	-0.018*** (0.002)	-0.003 (0.002)	-0.008*** (0.003)
Cohort of arrival fixed effects	✓	✓	✓
Year of birth fixed effects	✓	✓	✓
Region of origin fixed effects	✓	✓	✓
Year fixed effects	✓	✓	✓
Observations	4,755	4,680	4,251
R ²	0.234	0.058	0.484
Adjusted R ²	0.220	0.041	0.474
Mean of dependent variable	0.72	0.91	0.65

OLS models with Clustered Standard Errors by Age * Arrival year. Language media: 1 Exclusively in German; 0.75 Predominantly in German; 0.5 Approximately equally in different languages; 0.25 predominantly in the language of country of origin; 0 Only in the language of country of origin. Read newspaper: 1 Yes; 0 No. Language newspaper: 1 Exclusively German; 0.75 Mostly German; 0.5 Balanced; .25 Mostly country of origin; 0 Excludes country of origin. *p<0.1; **p<0.05; ***p<0.01.

Specification Checks

We now turn to address potential violations of our identifying assumptions. First, we consider the possibility that our treatment—the length of the residency requirement for citizenship eligibility—might correlate with other immigrant characteristics in a way that enhances their sense of national belonging independently of the treatment itself. To investigate this, we examine the effect of the treatment before its implementation, specifically before the first naturalization law was enacted in 1991. If other factors were influencing the results, we would expect to find a similar correlation between the residency requirement and national identification before the treatment was introduced. We allow for a buffer zone of a few years before the treatment to ensure that the long political debate leading to the 1990 reform, which may have led immigrants to develop naturalization expectations correlated with treatment, does not affect the estimate of the pre-treatment period (Hailbronner and Farahat, 2015). We analyze the impact of the residency requirement on feeling German using data from GSOEP surveys conducted before 1987, as presented in model (1) of Table 7. The results indicate no significant correlation between the residency requirement and feeling German prior to 1987, thereby supporting the validity of our treatment.

After 1990, the treatment could influence outcomes in two primary ways. First, there could be the direct effect of the residency requirement on how immigrants already in Germany identify with the country. Second, the reforms could alter the type of immigrants entering Germany, potentially attracting those who intend to settle permanently the shorter the waiting time for citizenship. If the latter is the case, our estimates might reflect a positive selection into treatment rather than the true effect of the citizenship policy change on foreign-born residents.²⁰ To distinguish the direct effect of the policy on current immigrants from the selection effect on potential immigrants, we compare the impact of the residency requirement on those who immigrated after the 1990 reform with those who immigrated before 1991. The latter group could not have been aware of the reform and thus could not have self-selected based on the treatment. We present the results for the residency

²⁰ By analyzing foreign-born individuals, we limit this possibility, as most immigrated to Germany as children with their parents and likely did not influence the decision to immigrate.

requirement, controlling for its interaction with a dummy variable for post-1990 immigration, in model (2) of Table 7. We find that the effect for immigrants who arrived before the 1990 reform is significant and in the expected direction, indicating a positive direct effect of the policy reform on national identification with Germany, even when self-selection is not possible.

The 2000 reform increased certain requirements for obtaining citizenship, such as sufficient proficiency in the German language. Given that the reform also shortened the residency requirement, this additional hurdle would, if anything, bias the results against a shorter residency requirement fostering German identification. We replicate the analysis using only surveys conducted after 2000 to account for any potential effect of this additional requirement in Model (3) of Table 7, confirming our expectations.

Table 7: Specifications Checks

	<i>Dependent variable: Feeling German</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Residency requirement (in years)	-0.002 (0.009)	-0.005*** (0.002)	-0.004** (0.002)	-0.008*** (0.002)	-0.007*** (0.002)	-0.011*** (0.002)	-0.009*** (0.002)	-0.010*** (0.002)	-0.006*** (0.002)
Years in Germany	0.018 (0.015)	0.047** (0.021)	0.012*** (0.001)	0.045** (0.021)	0.047** (0.019)	0.013*** (0.001)	0.012*** (0.001)	0.013*** (0.001)	0.014*** (0.001)
Age	-0.002 (0.018)	-0.034* (0.021)	-0.001 (0.001)	-0.032 (0.021)	-0.034* (0.019)	-0.001 (0.001)	0.0004 (0.001)	-0.001 (0.001)	-0.001 (0.001)
Only feelings pre 1987	✓	—	—	—	—	—	—	—	—
Residency x Arrived after 1990	—	✓	—	—	—	—	—	—	—
Only feelings after 2000	—	—	✓	—	—	—	—	—	—
Year of birth FE x Arrived after 1990	—	—	—	✓	—	—	—	—	—
Year of birth FE x 5-year arrival cohort	—	—	—	—	✓	—	—	—	—
Residency x Age of arrival dummy	—	—	—	—	—	< 11	< 8	—	—
Residency x Ethnic German	—	—	—	—	—	—	—	✓	—
Residency x Refugee	—	—	—	—	—	—	—	—	✓
Cohort of arrival fixed effects	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year of birth fixed effects	✓	✓	✓	✓	✓	✓	✓	✓	✓
Region of origin fixed effects	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	899	10,614	8,637	10,614	10,614	10,614	10,614	10,614	10,614
R ²	0.099	0.368	0.233	0.372	0.385	0.369	0.369	0.375	0.368
Adjusted R ²	0.064	0.362	0.225	0.365	0.373	0.363	0.363	0.369	0.362
Mean of dependent variable	0.20	0.62	0.68	0.62	0.62	0.62	0.62	0.62	0.62

OLS models with Clustered Standard Errors by Age * Arrival year and lower order interaction terms. Column (1): sample with surveys pre 1987. Column (2): controlling for immigrants immigrated after the approval of the 1990 reform. Column (3): sample with surveys after 2000. Column (4): with year of birth fixed effects separated for respondents immigrated after 1990. Column (5): with year of birth fixed effects separated for five-year arrival cohorts. Column (6): controlling for immigrant arrived before age 11. Column (7): controlling for immigrant arrived before age 8. Column (8): controlling for immigrants with possible ethnic German background (country of origin Czech Republic, Hungary, Kazakhstan, Poland, Romania, Russia, Slovakia, or Ukraine). Column (9): controlling for immigrants with possible refugees and asylum seekers status (country of origin in ex-Yugoslavia and the Middle East). *p<0.1; **p<0.05; ***p<0.01.

We further investigate the possibility of self-selection among immigrants by examining whether

different age cohorts select differently over time. For instance, younger immigrants might be more or less favorably selected in recent cohorts compared to older immigrants. As previously noted, including a full set of interactions between age of arrival and year of birth fixed effects is not feasible, as it would absorb all the variation in the treatment variable. However, we can employ a similar approach to model (2) and account for the differences in the effect of birth cohort for immigrants who arrived before and after the 1990 reform. The results, presented in model (4) of Table 7, indicate that this specification does not change the results of the residency requirement on feeling German. We provide an even more flexible analysis in model (5) in the same Table, allowing the year of birth fixed effects to vary within five-year arrival cohorts (i.e., 1975-1979, 1980-1984, 1985-1989, 1990-1994, 1995-1999, and 2000-2002). Once again, this adjustment does not alter the estimated effect of the residency requirement.

Our analysis compares immigrants who arrived in the same year but experienced different waiting periods for citizenship due to variations in their age of arrival. Therefore, another factor that could influence our results, beyond the treatment effect itself, is the potential differential effects by age of arrival. For instance, immigrants who arrive at a younger age are more likely to learn the host country's language (Johnson and Newport, 1989; Newport, 2002; Birdsong, 2006), which could impact their integration regardless of the residency requirement. One counterargument to this concern is that our treatment is neither linear nor monotonic with regards to age of arrival. Specifically, younger immigrants aged 0-7 and older immigrants aged 15-22 faced longer waiting periods compared to those aged 8-14, at least prior to the 2000 reform. Therefore, differential effects due to age of arrival, such as ease of language acquisition, would tend to cancel each other out. Moreover, as shown in the third model of Table 3, the interaction between the residency requirement and age of arrival indicates that the effect of the residency requirement on feeling German is actually stronger for immigrants who arrived at an older age. Thus, factors like the higher propensity of younger immigrants to acquire the host country's language cannot be driving our results. Additionally, we conduct two robustness checks for the potential effect of age of arrival, following existing approaches. We interact our treatment variable with a dummy for arrival

age under 11 years old (Bleakley and Chin, 2004) and with a dummy for arrival age under 8 years old (Gathmann and Keller, 2018). The respective results, presented in columns (6) and (7) of Table 3, show that the residency requirement estimate remains unaffected when accounting for the possible differential effects of immigrants' age of arrival.

Additionally, there are two groups of immigrants who may not be subject to the standard waiting period for citizenship. The first group consists of ethnic Germans, primarily from Eastern Europe and the former Soviet Union, who could apply for citizenship after only three years residing in Germany. The second group includes refugees and asylum seekers, mainly coming from former Yugoslavia republics and the Middle East, who can apply for citizenship after six years. As previously noted, as long as these types of immigrants are not correlated with our treatment, our standard errors might increase, but our estimates would remain unbiased. Ideally, we would control for the differing residency requirements at the individual level. However, the GSOEP does not provide information on the ethnicity of immigrants or their refugee and asylum seeker status. Therefore, we allow for the possibility that the residency requirement has a differential effect on migrants from Eastern Europe and the former Soviet Union, and from ex-Yugoslavia and the Middle East, who may have larger share of migrants that may be subjected to different waiting times for citizenship. The results for ethnic Germans and for refugees and asylum seekers are reported in models (8) and (9) in Table 3, respectively. In both cases, we find significant effects in the same direction for our treatment variable, indicating that the presence of immigrants who might benefit from shorter waiting periods for citizenship does not impact our results.²¹

We analyze out-sample selection, the possible selective likelihood of answering the German identification feelings, and the representativeness of the sample in Section A.1 in the Supplementary Material.

²¹ The estimate for the residency requirement when controlling for immigrants from ex-Yugoslavia and the Middle East decreases in magnitude, which could also be attributed to specific factors related to the country of origin.

Conclusion

In our paper, we explore the impact of naturalization policy on national identification by examining the evolution of German citizenship law from a pure ‘*ius sanguinis*’ regime to an increasingly ‘*ius solis*’ system. More specifically, we exploit the impact of varying lengths of the residency requirement to acquire the German citizenship, introduced by the citizenship laws of 1990 and 2000, on the national identification of immigrants.

We find that a shorter waiting time increases the national identification of newcomers with Germany. A reduction of two years of waiting time has an effect on feeling more German equivalent to an extra year of actual residence in Germany. The effect is stronger among women than men and among older than younger immigrants. Notably, the reduction in the waiting period affects immigrants’ national identification positively not only when they are eligible for citizenship, but even before possibly they may naturalize. Immigrants who know, in expectation, that they may become a citizen sooner, react by belonging and engaging more within the host society even in their early years in the latter.

This heightened national identification arguably works through three main channels. First, it reduces immigrants’ worries about xenophobia. Second, it encourages their political and social investment as attested by higher levels of social capital, a growing interest in German politics, and stronger party identification. Finally, it seems to be reinforced by the fact that an easier naturalization system has measurable economic gains for eligible immigrants.

Our work contributes to at least two types of research. First, it expands current work on the effects of naturalization regimes, which, to date, has mostly focused on economic variables (wages and employment), social outcomes (such as marriage and fertility), and, in terms of its political consequences, on political engagement and participation. As far as we know, we are the first to examine how citizenship law may shape national identification outcomes. Second, we contribute to the literature on national identity formation and transmission in at least two ways. Substantively, most of the research on the latter has emphasized the role of socialization (either within the family

or at school) and of utilitarian calculations (mainly in the context of coordination games) on political and national identities. Here we show that a change in the political-legal regime toward more liberal naturalization norms facilitates integration in a direct, unmediated way. To some extent, our findings amend the ‘rigidity’ or slowness in the adoption and development of national identities implied by the existing work on national identification. Empirically, we push the national identity literature forward by developing credible ways of measuring and testing the sources of national identity.

Our paper has substantial policy implications. In light of current demographic trends (low fertility rates and very delayed maternity), immigration will likely become increasingly important to sustain mature economies and preserve welfare states. This will in turn pressure governments to develop systems that successfully integrate immigrants and prevent their marginalization. A naturalization regime that provides a predictable and proximate point of entry into equal rights appears to be a crucial element in fostering integrated citizens and functional societies.

References

- Abdelgadir, Aala and Vasiliki Fouka. 2020. “Political secularism and Muslim integration in the West: Assessing the effects of the French headscarf ban.” *American Political Science Review* 114(3):707–723.
- Abramitzky, Ran and Leah Boustan. 2022. *Streets of gold: America’s untold story of immigrant success*. Hachette UK.
- Balcells, Laia. 2013. “Mass schooling and Catalan nationalism.” *Nationalism and Ethnic Politics* 19(4):467–486.
- Bartels, Larry M and Simon Jackman. 2014. “A generational model of political learning.” *Electoral Studies* 33:7–18.

- Birdsong, David. 2006. "Age and second language acquisition and processing: A selective overview." *Language learning* 56:9–49.
- Bleakley, Hoyt and Aimee Chin. 2004. "Language skills and earnings: Evidence from childhood immigrants." *Review of Economics and statistics* 86(2):481–496.
- Bloemraad, Irene and Alicia Sheares. 2017. "Understanding membership in a world of global migration:(How) does citizenship matter?" *International Migration Review* 51(4):823–867.
- Bonikowski, Bart and Paul DiMaggio. 2016. "Varieties of American popular nationalism." *American Sociological Review* 81(5):949–980.
- Brubaker, Rogers. 2009. *Citizenship and nationhood in France and Germany*. Harvard University Press.
- Dancygier, Rafaela M and David D Laitin. 2014. "Immigration into Europe: Economic discrimination, violence, and public policy." *Annual Review of Political Science* 17:43–64.
- Darden, Keith and Anna Grzymala-Busse. 2006. "The great divide: Literacy, nationalism, and the communist collapse." *World Politics* 59(1):83–115.
- Esses, Victoria M. 2021. "Prejudice and discrimination toward immigrants." *Annual review of psychology* 72:503–531.
- Fouka, Vasiliki. 2019. "How do immigrants respond to discrimination? The case of Germans in the US during World War I." *American Political Science Review* 113(2):405–422.
- Fouka, Vasiliki. 2020. "Backlash: The unintended effects of language prohibition in US schools after World War I." *The Review of Economic Studies* 87(1):204–239.
- Gathmann, Christina, Christina Vonnahme, Anna Busse and Jongoh Kim. 2021. *Marginal returns to citizenship and educational performance*. Number 920 Ruhr Economic Papers.

- Gathmann, Christina and Julio Garbers. 2023. “Citizenship and integration.” *Labour Economics* 82:102343.
- Gathmann, Christina and Nicolas Keller. 2018. “Access to citizenship and the economic assimilation of immigrants.” *The Economic Journal* 128(616):3141–3181.
- Gathmann, Christina and Ole Monscheuer. 2020a. Does Citizenship Foster Economic and Social Integration? In *CESifo Forum*. Vol. 21 München: ifo Institut-Leibniz-Institut für Wirtschaftsforschung an der ... pp. 08–13.
- Gathmann, Christina and Ole Monscheuer. 2020b. Naturalization and citizenship: Who benefits? Technical report IZA World of Labor 2020: 125.
- Goebel, Jan, Markus M Grabka, Stefan Liebig, Martin Kroh, David Richter, Carsten Schröder and Jürgen Schupp. 2019. “The German socio-economic panel (SOEP).” *Jahrbücher für Nationalökonomie und Statistik* 239(2):345–360.
- Govind, Yajna. 2021. “Is naturalization a passport for better labor market integration? Evidence from a quasi-experimental setting.” *HAL open science: halshs-03265055* .
- Graeber, John D. 2020. “Quo vadis, citizenship? A long-term assessment of policy continuity, convergence, and change in contemporary Europe.” *Journal of Contemporary European Studies* 28(2):236–256.
- Green, Donald P, Bradley Palmquist and Eric Schickler. 2004. *Partisan hearts and minds: Political parties and the social identities of voters*. Yale University Press.
- Hailbronner, Kay and Anuscheh Farahat. 2015. Country report on citizenship law: Germany. Technical report.
- Hainmueller, Jens, Dominik Hangartner and Dalston Ward. 2019. “The effect of citizenship on the long-term earnings of marginalized immigrants: Quasi-experimental evidence from Switzerland.” *Science advances* 5(12):eaay1610.

- Hainmueller, Jens, Dominik Hangartner and Giuseppe Pietrantuono. 2015. "Naturalization fosters the long-term political integration of immigrants." *Proceedings of the National Academy of Sciences* 112(41):12651–12656.
- Hainmueller, Jens, Dominik Hangartner and Giuseppe Pietrantuono. 2017. "Catalyst or crown: Does naturalization promote the long-term social integration of immigrants?" *American Political Science Review* 111(2):256–276.
- Howard, Marc Morjé. 2013. Continuity and Change in the Citizenship Laws of Europe. The Impact of Public Mobilization and the Far Right. In *Outsiders No More? Models of Immigrant Political Incorporation*, ed. Jennifer Hochschild, Jacqueline Chattopadhyay, Claudine Gay and Michael Jones-Correa. Oxford University Press pp. 227–240.
- Jennings, M Kent, Laura Stoker and Jake Bowers. 2009. "Politics across generations: Family transmission reexamined." *The Journal of Politics* 71(3):782–799.
- Johnson, Jacqueline S and Elissa L Newport. 1989. "Critical period effects in second language learning: The influence of maturational state on the acquisition of English as a second language." *Cognitive psychology* 21(1):60–99.
- Jurgens, Jeffrey. 2010. "The legacies of labor recruitment: The guest worker and green card programs in the Federal Republic of Germany." *Policy and Society* 29(4):345–355.
- Just, Aida and Christopher J Anderson. 2012. "Immigrants, citizenship and political action in Europe." *British Journal of Political Science* 42(3):481–509.
- Keller, Nicolas, Christina Gathmann and Ole Monscheuer. 2015. Citizenship and the social integration of immigrants: Evidence from Germany's immigration reforms. Technical report ZBW-Deutsche Zentralbibliothek für Wirtschaftswissenschaften, Leibniz-Informationzentrum Wirtschaft.

- Laitin, David D. 1998. *Identity in formation: The Russian-speaking populations in the near abroad*. Cornell University Press.
- Lelie, Frans, Maurice Crul and Jens Schneider. 2012. *The European second generation compared: Does the integration context matter?* Amsterdam University Press.
- Margalit, Yotam, Shir Raviv and Omer Solodoch. 2022. "The cultural origins of populism." *Available at SSRN 4001543* .
- Newport, Elissa L. 2002. Critical periods in language development. In *Encyclopedia of Cognitive Science*,. London: Macmillan Publishers and Nature Publishing Group pp. 737–40.
- OECD and EU. 2015. *Indicators of Immigrant Integration 2015: Settling In*. Paris: OECD Publishing.
- Peisakhin, Leonid. 2015. Cultural legacies: Persistence and transmission. In *The Political Economy of Governance: Institutions, Political Performance and Elections*. Springer pp. 21–39.
- Posner, Daniel N. 2005. *Institutions and ethnic politics in Africa*. Cambridge University Press.
- Prior, Markus. 2010. "You've either got it or you don't? The stability of political interest over the life cycle." *The Journal of Politics* 72(3):747–766.
- Putnam, Robert. 1993. *Making democracy work*. Princeton University Press.
- Schneider, Jens, Tineke Fokkema, Raquel Matias, Snežana Stojčić, Dušan Ugrina and Constanza Vera-Larrucea. 2012. Identities: Urban belonging and intercultural relations. In *The European Second Generation Compared*, ed. Maurice Crul and Jens Schneider and Frans Leslie. Amsterdam University Press pp. 225–284.
- Smith, Steven B. 1991. *Hegel's critique of liberalism: rights in context*. University of Chicago Press.

- Soysal, Yasemin Nuhoglu. 1994. *Limits of citizenship: Migrants and postnational membership in Europe*. University of Chicago Press.
- Stevenson, Clifford, John Dixon, Nick Hopkins and Russell Luyt. 2015. "The social psychology of citizenship, participation and social exclusion: Introduction to the special thematic section." *Journal of Social and political Psychology* 3(2):1–19.
- Street, Alex. 2017. "The political effects of immigrant naturalization." *International Migration Review* 51(2):323–343.
- Theiss-Morse, Elizabeth. 2009. *Who counts as an American? The boundaries of national identity*. Cambridge University Press.
- Turner, John C. 2010. Towards a cognitive redefinition of the social group. In *Research Colloquium on Social Identity of the European Laboratory of Social Psychology, Dec, 1978, Université de Haute Bretagne, Rennes, France*. Psychology Press.
- Weber, Eugen. 1976. *Peasants into Frenchmen: the modernization of rural France, 1870-1914*. Stanford University Press.
- Wimmer, Andreas. 2018. *Nation Building: Why Some Countries Come Together While Others Fall Apart*. Princeton University Press.

Supplementary Material

Table A.1: Summary Statistics

	Mean	Std.Dev
Residency Requirement (in years)	11.23	3.06
Years in Germany	18.83	8.39
Age	32.25	8.92
Birth Year	1974	9.22
Year of Arrival	1988	7.81
Survey Year	2007	8.91
Feeling German	0.62	0.31
Feeling Foreign	0.55	0.31
Feeling of Being Without A Country	0.35	0.28
Feeling when Visiting Native Country	0.59	0.31
Region of origin:		
Traditional EU Member Countries (EU 15)	0.13	
New EU Member Countries (EU 12)	0.17	
Ex-Yugoslavia	0.08	
Turkey	0.32	
Middle East	0.04	
Asia	0.13	
Africa	0.02	
North and South America	0.01	
Former Soviet Union	0.11	
Other or no Citizenship	0.00	

Table A.2: Residency Requirement with Transition Rule

Immigration Year	Birth Year Range	Waiting Period	(after 2000)
1975	1953-1974	16	
1976	1954-1974	15	
1977	1955-1962	15	
1977	1963-1974	14	
1978	1956-1963	15	
1978	1964-1974	13	
1979	1957-1964	15	
1979	1965-1974	12	
1980	1958-1965	15	
1980	1966-1974	11	
1981	1959-1966	15	
1981	1967-1974	10	
1982	1960-1967	15	
1982	1968-1974	9	
1983	1961-1968	15	
1983	1969-1975	8	
1984	1962-1969	15	
1984	1970-1976	8	
1985	1963-1970	15	
1985	1971-1977	8	
1986	1964-1971	15	14
1986	1972-1978	8	
1987	1965-1972	15	13
1987	1973-1979	8	
1988	1966-1973	15	12
1988	1974-1980	8	
1989	1967-1974	15	11
1989	1975-1981	8	
1990	1968-1975	15	10
1990	1976-1982	8	
1991	1969-1976	15	9
1991	1977-1983	8	
1992	1970-1977	15	8
1992	1978-1984	8	
1993	1971-1978	15	8
1993	1979-1985	8	
1994	1972-1979	15	8
1994	1980-1986	8	
1995	1973-1980	15	8
1995	1981-1987	8	
1996	1974-1981	15	8
1996	1982-1988	8	
1997	1975-1982	15	8
1997	1983-1989	8	
1998	1976-1983	15	8
1998	1984-1990	8	
1999	1977-1984	15	8
1999	1985-1991	8	
2000	1978-1992	8	
2001	1979-1993	8	
2002	1980-1994	8	
remaining 1975 - 2002	age immig. < 8	16 – age immig.	

Number of years an immigrant has to wait before becoming eligible for citizenship in function of age and time of arrival.

Table A.3: Effect of Residency Requirement on Other Identity Feelings

	<i>Dependent variable:</i>	
	Feeling of Being Without A Country	Feeling when Visiting Native Country
Residency requirement (in years)	0.0004 (0.003)	0.005** (0.002)
Years in Germany	-0.007* (0.004)	-0.016*** (0.002)
Age	0.006 (0.004)	0.014*** (0.003)
Cohort of arrival fixed effects	✓	✓
Year of birth fixed effects	✓	✓
Region of origin fixed effects	✓	✓
Year fixed effects	✓	✓
Observations	2,745	4,206
R ²	0.108	0.157
Adjusted R ²	0.081	0.140
Mean of dependent variable	0.35	0.58

OLS models with Clustered Standard Errors by Age * Arrival year. Feeling of Being Without A Country: "If you live as a foreigner or resettle in Germany, with the time a certain feeling of homelessness occur. Some do not feel like members of the country of origin still as a German citizen. You sit, so to speak, between two chairs, without somewhere like that to belong properly. How often does it happen that you have such feelings?"; 1 Very often, 0.75 Frequently, 0.5 Every now and then, 0.25 Rare, 0 Never. Feeling when Visiting Native Country: "If people live in Germany for a longer time and they come to visit in her (former) homeland, some things may have changed in the past. How is that with you? What is your feeling in this situation?"; 1 Immediately at home, 0.75 Quickly at home, 0.5 Several days, 0.25 Very long, 0 Feel foreign. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

Table A.4: Effect of Residency Requirement on Naturalization Decision and National Identification, Difference in Differences

	<i>Dependent variable:</i>	
	Feeling German	Feeling of Foreign Nationality
Affected by 2000 Reform * Post 2000	0.045*** (0.018)	-0.034** (0.017)
Respondent fixed effects	✓	✓
Year fixed effects	✓	✓
Observations	10,681	9,775
R ²	0.651	0.627
Adjusted R ²	0.770	0.762
Mean of dependent variable	0.62	0.55

OLS models with Clustered Standard Errors by Respondent. Feeling German: 1 Completely, 0.75 Mostly, 0.5 In some respects, 0.25 Hardly, 0 Not at all. Feeling of Foreign Nationality: 1 Completely, 0.75 Mostly, 0.5 In some respects, 0.25 Hardly, 0 Not at all. Affected by 2000 Reform: 1 if respondent affected by the 2000 reform (immigrated after 1984 at age 15 to 22 years old), 0 if not (otherwise). Post 2000: 1 if after 2000, 0 if not. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

Table A.5: Social Capital Activities (1/2)

	<i>Dependent variable:</i>				
	Attending Sports	Visit Classics	Visit Modern	Active Sports	Active Artistics
Residency requirement (in years)	-0.007** (0.003)	-0.001 (0.001)	-0.001 (0.002)	-0.006** (0.002)	-0.003 (0.003)
Years in Germany	0.010*** (0.003)	0.001 (0.002)	0.012*** (0.001)	0.007*** (0.002)	0.008*** (0.001)
Age	-0.017*** (0.004)	-0.007*** (0.002)	-0.022*** (0.005)	-0.017*** (0.004)	-0.019*** (0.003)
Cohort of arrival fixed effects	✓	✓	✓	✓	✓
Year of birth fixed effects	✓	✓	✓	✓	✓
Region of origin fixed effects	✓	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓	✓
Observations	1,421	4,222	4,220	4,211	2,090
R ²	0.096	0.108	0.266	0.151	0.115
Adjusted R ²	0.048	0.091	0.252	0.135	0.084
Mean of dependent variable	0.16	0.12	0.25	0.25	0.13

OLS models with Clustered Standard Errors by Age * Arrival year. Attending sporting events: 0 never; 1 daily. Visit Classics: visit to opera, classical concerts, theater, exhibitions: 0 never; 1 daily. Visit Modern: visit to cinema, pop, jazz concerts, disco: 0 never; 1 daily. Active sports: 0 never; 1 daily. Artistic and musical activities: 0 never; 1 daily. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

Table A.6: Social Capital Activities (2/2)

	<i>Dependent variable:</i>				
	Socializing with Others	Helping Out Others	Volunteer Clubs	Involved Political Activities	Going to Church
Residency requirement (in years)	0.001 (0.002)	-0.004** (0.002)	-0.003** (0.001)	-0.001 (0.001)	-0.002 (0.002)
Years in Germany	0.005* (0.003)	-0.0002 (0.003)	0.004*** (0.001)	0.001*** (0.0004)	0.007* (0.004)
Age	-0.006* (0.003)	0.003 (0.003)	-0.003** (0.001)	-0.001 (0.001)	-0.012** (0.006)
Cohort of arrival fixed effects	✓	✓	✓	✓	✓
Year of birth fixed effects	✓	✓	✓	✓	✓
Region of origin fixed effects	✓	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓	✓
Observations	2,794	2,791	4,204	4,211	4,219
R ²	0.067	0.049	0.038	0.027	0.060
Adjusted R ²	0.043	0.024	0.020	0.008	0.042
Mean of dependent variable	0.64	0.39	0.06	0.02	0.26

OLS models with Clustered Standard Errors by Age * Arrival year. Socializing with friends, relatives: 0 never; 1 daily. Help out with friend, relative: 0 never; 1 daily. Voluntary work in clubs, associations: 0 never; 1 daily. Involved in parties, local politics, citizen initiatives: 0 never; 1 daily. Going to church, attending religious events: 0 never; 1 daily. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

Table A.7: Effect of Residency Requirement on Naturalisation Decision and National Identification pre-Residency Requirement

	<i>Dependent variable:</i>	
	Feeling German	Feeling of Foreign Nationality
Residency requirement (in years)	-0.011*** (0.003)	0.007** (0.003)
Years in Germany	0.013*** (0.001)	-0.012*** (0.001)
Age	-0.001 (0.001)	0.007*** (0.001)
Residency x post-Residency dummy	✓	✓
Cohort of arrival fixed effects	✓	✓
Year of birth fixed effects	✓	✓
Region of origin fixed effects	✓	✓
Year fixed effects	✓	✓
Observations	10,614	9,710
R ²	0.369	0.278
Adjusted R ²	0.363	0.271
Mean of dependent variable	0.62	0.55

OLS models with Clustered Standard Errors by Age * Arrival year and lower order interaction terms. Feeling German: 1 Completely, 0.75 Mostly, 0.5 In some respects, 0.25 Hardly, 0 Not at all. Feeling of Foreign Nationality: 1 Completely, 0.75 Mostly, 0.5 In some respects, 0.25 Hardly, 0 Not at all. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Post-Residency dummy: controlling for post residency effect. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

Table A.8: Concerns and Discriminations pre-Residency Requirement

	<i>Dependent variable:</i>			
	Worry About Xenophobia	Discrimination on Ethnic Origin	Concerns About Immigration	Concerns About Crime
Residency requirement (in years)	0.005* (0.003)	-0.005* (0.003)	0.007 (0.005)	0.011*** (0.003)
Years in Germany	-0.002* (0.001)	-0.001 (0.002)	-0.003* (0.001)	0.0003 (0.001)
Age	0.003** (0.001)	0.019* (0.011)	0.009*** (0.002)	-0.003* (0.001)
Residency x post-Residency dummy	✓	✓	✓	✓
Cohort of arrival fixed effects	✓	✓	✓	✓
Year of birth fixed effects	✓	✓	✓	✓
Region of origin fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Observations	13,475	6,638	9,537	11,696
R ²	0.118	0.085	0.114	0.052
Adjusted R ²	0.110	0.072	0.105	0.044
Mean of dependent variable	0.55	0.28	0.47	0.63

OLS models with Clustered Standard Errors by Age * Arrival year and lower order interaction terms. Worry About Xenophobia: 1 Big worries; 0.5 Some concerns; 0 No worries. Discrimination on Ethnic Origin (over last two years): 1 Frequently; 0.5 Rare; 0 Never. Concerns About Immigration: 1 Big worries; 0.5 Some concerns; 0 No worries. Concerns About Crime (in Germany): 1 Big worries; 0.5 Some concerns; 0 No worries. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Post-Residency dummy: controlling for post residency effect. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

Table A.9: Social and Political Life pre-Residency Requirement

	<i>Dependent variable:</i>		
	Social Capital	Political Interest	Party Identification
Residency requirement (in years)	−0.003** (0.001)	−0.003 (0.002)	−0.003 (0.003)
Years in Germany	0.006*** (0.001)	0.002** (0.001)	0.002 (0.002)
Age	−0.015*** (0.002)	0.002* (0.001)	0.0002 (0.002)
Residency x post-Residency dummy	✓	✓	✓
Cohort of arrival fixed effects	✓	✓	✓
Year of birth fixed effects	✓	✓	✓
Region of origin fixed effects	✓	✓	✓
Year fixed effects	✓	✓	✓
Observations	4,238	13,879	13,455
R ²	0.258	0.076	0.044
Adjusted R ²	0.244	0.069	0.036
Mean of dependent variable	0.22	0.31	0.26

OLS models with Clustered Standard Errors by Age * Arrival year and lower order interaction terms. Social Capital: average of all social capital activities by respondent and time, weighted in the regression by the number of activities reported: 1 Daily; 0.75 Min 1x per week; 0.5 Min 1x per month; 0.25 Rare; 0 Never. Political Interest: 1 Very strong; 0.66 Strong; 0.33 Not so strong; 0 Not at all. Party Identification: 1 Yes; 0.5 Not Sure; 0 No. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Post-Residency dummy: controlling for post residency effect. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

Table A.10: Media Use pre-Residency Requirement

	<i>Dependent variable:</i>		
	Language Media	Read Newspaper	Language Newspaper
Residency requirement (in years)	−0.007*** (0.003)	−0.008** (0.003)	−0.007** (0.003)
Years in Germany	0.017*** (0.001)	0.005** (0.002)	0.018*** (0.003)
Age	−0.018*** (0.002)	−0.004* (0.002)	−0.008*** (0.003)
Residency x post-Residency dummy	✓	✓	✓
Cohort of arrival fixed effects	✓	✓	✓
Year of birth fixed effects	✓	✓	✓
Region of origin fixed effects	✓	✓	✓
Year fixed effects	✓	✓	✓
Observations	4,755	4,680	4,251
R ²	0.234	0.059	0.484
Adjusted R ²	0.220	0.041	0.473
Mean of dependent variable	0.72	0.91	0.65

OLS models with Clustered Standard Errors by Age * Arrival year and lower order interaction terms. Language media: 1 Exclusively in German; 0.75 Predominantly in German; 0.5 Approximately equally in different languages; 0.25 predominantly in the language of country of origin; 0 Only in the language of country of origin. Read newspaper: 1 Yes; 0 No. Language newspaper: 1 Exclusively German; 0.75 Mostly German; 0.5 Balanced; .25 Mostly country of origin; 0 Excludes country of origin. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Post-Residency dummy: controlling for post residency effect. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

A.1 Additional Specification Checks

Beyond selection into the sample, the analysis could be affected by out-sample selection, for example, due to return migration among immigrants. Not all immigrants who enter Germany choose to stay permanently, some eventually move to other countries. While the decision to leave Germany can be influenced by various factors, it may be correlated with the costs of obtaining citizenship, including the residency requirement, the number of years an immigrant must wait to become a citizen. This could lead to selective out-migration based on our treatment variable. We consider this possibility in the first column of Table A.11, where we analyze whether the probability of exiting the sample for any reason correlates with the residency requirement in our specification. We find that it does not, implying that return migration, even if present, does not significantly affect our estimates.

Another potential source of bias in our analysis stems from the possibility that the likelihood of responding to our primary question, regarding the extent to which immigrants feel German, is associated with the residency requirement. Immigrants facing longer waits might feel alienated, making them less likely to respond to survey questions, especially those of a political nature. The results, reported in the second column of Table A.11, show no correlation between the probability of answering the feeling German survey question and the residency requirement.

Finally, the potential non-representativeness of the sample may be a concern. If certain immigrant groups are over-represented and exhibit heightened sensitivity to the treatment, the generalizability of our results to the entire immigrant population might be compromised. However, this concern is mitigated by the fact that the German Socio-Economic Panel is designed to be representative of the entire resident population in Germany. The GSOEP has consistently added enlargement samples following significant immigration influxes to maintain representativeness, ensuring that immigrant sampling does not exhibit major gaps. In order to provide further support to the representativeness of our results, we replicate our results by applying weights to align our sample with the demographic composition of the foreign resident population in Germany as of 2002, the

Table A.11: Sample Selection

	<i>Dependent variable:</i>	
	Probability of Exiting the Sample	Probability of not Answering Feeling German Question
Residency requirement (in years)	-0.002 (0.003)	0.0002 (0.0004)
Years in Germany	0.001 (0.002)	-0.0001 (0.0003)
Age	-0.041** (0.021)	0.002 (0.004)
Cohort of arrival fixed effects	✓	✓
Year of birth fixed effects	✓	✓
Region of origin fixed effects	✓	✓
Year fixed effects	✓	✓
Observations	9,782	10,681
R ²	0.051	0.017
Adjusted R ²	0.042	0.008
Mean of dependent variable	0.30	0.01

OLS models with Clustered Standard Errors by Age * Arrival year. Probability of Exiting the Sample: 1 if respondent exited the sample in subsequent wave, 0 otherwise. Probability of not Answering Feeling German Question: 1 if respondent answers feeling German question, 0 otherwise. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

latest year of immigration included in our analysis.²² We use data on German foreign resident population from the German Federal Statistical Office.²³ We create post-stratification weights based on gender and region of origin, with a capped weight ratio of 5.²⁴ We report the results of the weighted regressions for the Effect of Residency Requirement on Naturalization Decision and National Identification, the Heterogeneous Treatment Effects, the Concerns and Discriminations, the Social and Political Life, and the Media Use in Tables A.12, A.13, A.14, A.15, and A.16 respectively. As anticipated, the introduction of weights increases the standard errors of the residency requirement parameter estimates, rendering some parameters marginally insignificant at conventional levels. Nonetheless, the magnitude and direction of all parameters remain consistent, and indeed very similar, with those observed in the unweighted regressions.

²² Ideally, we would utilize yearly immigration data and match year by year, but such data are unavailable for Germany prior to 1998.

²³ <https://www-genesis.destatis.de/genesis/online?sequenz=statistikTabellen&selectionname=12521>, accessed on May 29, 2024.

²⁴ Although the German Federal Statistical Office provides data on the age distribution of immigrants, matching by age is not feasible due to the panel nature of our sample.

Table A.12: Effect of Residency Requirement on Naturalisation Decision and National Identification with Weighted Sample

	<i>Dependent variable:</i>	
	Feeling German	Feeling of Foreign Nationality
Residency requirement (in years)	-0.005*** (0.002)	0.001 (0.002)
Years in Germany	0.014*** (0.001)	-0.011*** (0.001)
Age	-0.0005 (0.001)	0.006*** (0.001)
Cohort of arrival fixed effects	✓	✓
Year of birth fixed effects	✓	✓
Region of origin fixed effects	✓	✓
Year fixed effects	✓	✓
Observations	10,614	9,710
R ²	0.360	0.273
Adjusted R ²	0.354	0.265
Mean of dependent variable	0.62	0.55

OLS models with Clustered Standard Errors by Age * Arrival year. Sample weights to match the foreign population of Germany in 2002 by region of origin and gender, with maximum weight = 3. Feeling German: 1 Completely, 0.75 Mostly, 0.5 In some respects, 0.25 Hardly, 0 Not at all. Feeling of Foreign Nationality: 1 Completely, 0.75 Mostly, 0.5 In some respects, 0.25 Hardly, 0 Not at all. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

Table A.13: Heterogeneous Treatment Effects with Weighted Sample

	<i>Dependent variable: Feeling German</i>		
	By Gender	By Years in Germany	By Age of Arrival
Residency requirement (in years)	-0.004** (0.002)	-0.014*** (0.003)	0.001 (0.002)
Residency requirement x Women	-0.002 (0.002)		
Residency requirement x Years in Germany		0.0004*** (0.0001)	
Residency requirement x Age of Arrival			-0.001*** (0.0002)
Years in Germany	0.013*** (0.001)	0.009*** (0.002)	0.013*** (0.001)
Age	-0.0003 (0.001)	-0.001 (0.001)	
Cohort of arrival fixed effects	✓	✓	✓
Year of birth fixed effects	✓	✓	✓
Region of origin fixed effects	✓	✓	✓
Year fixed effects	✓	✓	✓
Observations	10,614	10,614	10,614
R ²	0.361	0.361	0.361
Adjusted R ²	0.355	0.355	0.355
Mean of dependent variable	0.62	0.62	0.62

OLS models with Clustered Standard Errors by Age * Arrival year and lower order interaction terms. Sample weights to match the foreign population of Germany in 2002 by region of origin and gender, with weights ratio capped at 5. Feeling German: 1 Completely, 0.75 Mostly, 0.5 In some respects, 0.25 Hardly, 0 Not at all. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

Table A.14: Concerns and Discriminations with Weighted Sample

	<i>Dependent variable:</i>			
	Worry About Xenophobia	Discrimination on Ethnic Origin	Concerns About Immigration	Concerns About Crime
Residency requirement (in years)	0.003 (0.002)	-0.0002 (0.002)	0.001 (0.003)	0.001 (0.002)
Years in Germany	-0.003*** (0.001)	-0.00003 (0.002)	-0.002 (0.001)	-0.001 (0.001)
Age	0.004*** (0.001)	0.017 (0.011)	0.009*** (0.002)	-0.002 (0.001)
Cohort of arrival fixed effects	✓	✓	✓	✓
Year of birth fixed effects	✓	✓	✓	✓
Region of origin fixed effects	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Observations	13,475	6,638	9,537	11,696
R ²	0.123	0.096	0.115	0.054
Adjusted R ²	0.116	0.083	0.106	0.046
Mean of dependent variable	0.55	0.28	0.47	0.63

OLS models with Clustered Standard Errors by Age * Arrival year. Sample weights to match the foreign population of Germany in 2002 by region of origin and gender, with weights ratio capped at 5. Worry About Xenophobia: 1 Big worries; 0.5 Some concerns; 0 No worries. Discrimination on Ethnic Origin (over last two years): 1 Frequently; 0.5 Rare; 0 Never. Concerns About Immigration: 1 Big worries; 0.5 Some concerns; 0 No worries. Concerns About Crime (in Germany): 1 Big worries; 0.5 Some concerns; 0 No worries. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

Table A.15: Social and Political Life with Weighted Sample

	<i>Dependent variable:</i>		
	Social Capital	Political Interest	Party Identification
Residency requirement (in years)	-0.002** (0.001)	-0.003** (0.001)	-0.003 (0.002)
Years in Germany	0.007*** (0.001)	0.002*** (0.001)	-0.001 (0.001)
Age	-0.016*** (0.002)	0.002* (0.001)	0.003* (0.002)
Cohort of arrival fixed effects	✓	✓	✓
Year of birth fixed effects	✓	✓	✓
Region of origin fixed effects	✓	✓	✓
Year fixed effects	✓	✓	✓
Observations	4,238	13,879	13,455
R ²	0.251	0.082	0.046
Adjusted R ²	0.237	0.075	0.038
Mean of dependent variable	0.22	0.31	0.26

OLS models with Clustered Standard Errors by Age * Arrival year. Sample weights to match the foreign population of Germany in 2002 by region of origin and gender, with weights ratio capped at 5. Social Capital: average of all social capital activities by respondent and time, weighted in the regression by the number of activities reported: 1 Daily; 0.75 Min 1x per week; 0.5 Min 1x per month; 0.25 Rare; 0 Never. Political Interest: 1 Very strong; 0.66 Strong; 0.33 Not so strong; 0 Not at all. Party Identification: 1 Yes; 0.5 Not Sure; 0 No. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.

Table A.16: Media Use with Weighted Sample

	<i>Dependent variable:</i>		
	Language Media	Read Newspaper	Language Newspaper
Residency requirement (in years)	−0.005* (0.003)	−0.008*** (0.003)	−0.005** (0.002)
Years in Germany	0.017*** (0.002)	0.003 (0.002)	0.018*** (0.004)
Age	−0.017*** (0.003)	−0.003 (0.002)	−0.009** (0.004)
Cohort of arrival fixed effects	✓	✓	✓
Year of birth fixed effects	✓	✓	✓
Region of origin fixed effects	✓	✓	✓
Year fixed effects	✓	✓	✓
Observations	4,755	4,680	4,251
R ²	0.242	0.058	0.465
Adjusted R ²	0.228	0.040	0.454
Mean of dependent variable	0.72	0.91	0.65

OLS models with Clustered Standard Errors by Age * Arrival year. Sample weights to match the foreign population of Germany in 2002 by region of origin and gender, with weights ratio capped at 5. Language media: 1 Exclusively in German; 0.75 Predominantly in German; 0.5 Approximately equally in different languages; 0.25 predominantly in the language of country of origin; 0 Only in the language of country of origin. Read newspaper: 1 Yes; 0 No. Language newspaper: 1 Exclusively German; 0.75 Mostly German; 0.5 Balanced; .25 Mostly country of origin; 0 Excludes country of origin. Residency requirement: number of years an immigrant has to wait before becoming eligible for citizenship. Regions of origin: traditional EU countries, new EU entrants, ex-Yugoslavia, Turkey, Middle East, Asia, Africa, North and South America, Russia and other former Soviet Union republics, other or no citizenship. Source: German Socio-Economic Panel; immigrants to Germany between 1975 and 2002 and between 0 and 22 years old upon arrival. *p<0.1; **p<0.05; ***p<0.01.