The Effect of Birthright Citizenship on Parental Integration Outcomes*

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Abstract

The large increase in migration flows and recent ethnic riots in several countries have stimulated a lively debate on how to regulate the social status of newcomers and their descendants and promote their integration with the local community. Citizenship laws vary over time and across countries. However, there is no evidence on the effect of such laws on the level of integration of non natives and their children. We consider the 1999 reform of the German nationality law, which introduced elements of the birthright system, and present evidence that changes in the rules that regulate child legal status increased the level of parental integration with the German society, as measured by the probability of reading German newspapers and speaking German and the propensity to have contacts with German citizens.

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1 Introduction

In the last decades Western societies have experienced a large increase in migration inflows. The immigrant population in the OECD countries has more than tripled since the 1960s. Recent ethnic riots (various occasions of social unrest occurred in towns in the north of England in 2001 and in the Parisian suburbs in 2005 and 2006) have stimulated a lively discussion on how governments can deal with the raising level of diversity and which are the best frameworks to regulate the social status of newcomers and their descendants and promote their integration with the local community.

The legal institution of citizenship has often emerged as a key issue in political and cultural debates over immigration, welfare programs, multiculturalism and nationalism. However, there is no evidence on whether the attribution of formal citizenship can have an effect on how immigrants and ethnic groups identify themselves within the mainstream society. More in general, it is not clear whether migration policies can contribute to foster social cooperation within the society, to avoid the divisiveness of racial, religious and ethnic affiliation. Citizenship laws vary across countries and over time,[1] but they can be classified in two main groups according to the principle that regulates the possibility to acquire citizenship at birth: right of blood (*jus sanguinis*) and birthright (*jus soli*). The United States have historically a very inclusive approach and the melting-pot metaphor is often used to describe their success in the assimilation of non natives with the culture of their host country. While in the United States the jus soli is encoded in the Constitution and has never been changed since then, in Europe citizenship rules are mainly characterized by a mix of jus soli and jus sanguinis and are often the subject of debates and revisions. In 1984 the British Nationality Act restricted the jus soli in UK, while in 1999 a new citizenship law injected some elements of jus soli in the German jus sanguinis system.

This paper studies how a citizenship reform that introduces birthright citizenship for children born in Germany affects parental cultural integration, as measured by their propensity to speak in German, to read German newspapers and have contacts with Germans. In May 1999, the German parliament amended the Citizenship and Nationality Law of 1913. Before 1999, a child born in Germany would gain German

[1] Bertocchi and Strozzi (2006) provide empirical evidence on how economic, legal and cultural variables affected the evolution of citizenship laws in the postwar period

citizenship if at least one of the parents possessed German citizenship at the time of birth. Under the new regime, a child of foreign parents born on the 1^{st} January 2000 or afterwards would gain citizenship at birth if a) at least one parent had been ordinarily resident in Germany for eight years and b) had been granted a permanent right of residence. The law also introduced a transitional provision for the children of foreign residents who were under age 10 on the 1st of January 2000. Those would be naturalized upon application (to be completed before the 31^{st} of December 2000) if at least one parent had been ordinarily resident in Germany for 8 years at the moment of birth.

In order to avoid potential endogeneity issues related to the fertility decisions of immigrants and identify how changes in child citizenship status affect the cultural integration of foreign parents within the native population, we exploit the retrospective component of the 1999 citizenship reform. Among households composed of foreign citizen parents whose youngest child was born in Germany between 1990 and 1999, only those with at least one spouse that had resided in Germany for more than 8 years would be affected by the reform. In the terminology of the evaluation literature this would represent the *treatment* group. All the households where the foreign spouses either had the youngest child between 1980 and 1990 or had spent less than 8 years in Germany when the youngest child was born between 1990 and 1999 would act as a *control* group. Using data from the German Socio-Economic panel (GSOEP), a household-based panel survey that oversamples immigrants, and comparing the integration outcomes of parents in *treatment* and *control* groups before and after the reform, we identify how the legal framework of child citizenship can affect parental integration outcomes. Results show that the introduction of birthright citizenship determined a significant increase in adults' integration. In fact, parents of children affected by the reform are more likely to speak German, read German newspapers and have social interactions with German born.

A number of robustness checks support the causality of the link between child legal status and immigrants' integration. We use a semiparametric differences in differences approach and perform falsification tests in order to exclude the possibility that our results are driven by exogenous trends. Possible selection biases driven by individual characteristics are discussed and controlled for. Finally, the sample is opportunely restricted in order to rule out confounding effects driven by other provisions of the

new citizenship law.

This paper is related to the large economic literature on migration developed in the past two decades. As stressed by Borjas and Hilton (1996), the historical debate over immigration policy, especially in the US, has primarily focused on two issues: how well immigrants integrate in the natives' community and whether or not they affect labor market outcomes of natives. While the economic literature has so far addressed much attention on the second issue,[2] there is hardly any evidence on the determinants of the immigrants' integration process. We consider the 1999 reform of the German nationality law, which introduced elements of the birthright system, and present evidence that changes in the rules that regulate child legal status increased the level of parental integration with the German society, as measured by the extent to which they use the local language and the level of social interactions with the native community. Language proficiency has been shown to be positively correlated with earnings (see, among others, Chiswick (1991), Angrist and Lavy (1997) and Dustmann and Soest (2002)), while Bertrand et al. (2000) provide evidence that networks only among socially disadvantaged can inhibit upward mobility. Borjas (1992) argues that intergenerational transmission of skills and earnings among immigrants depends on parental input as well as on the quality of the ethnic environment, the so called *ethnic capital*. He provides suggestive evidence that the quality of the ethnic environment acts as an externality in the human capital accumulation process and can partially explain persistent differences between natives and non natives. Therefore, policies that facilitate immigrants' integration might promote intergenerational mobility and foster convergence to the levels of natives.[3]

We also contribute to the literature that study the determinants of group identity and its effects on individual choices.[4] A recent strand of this literature focuses on the

[2]The existing evidence on the effects of migration on natives' labor outcomes is not conclusive. Borjas (2003) finds that immigrants lower the wage of competing workers. Ottaviano and Peri (2008) provide evidence of complementarities between local and immigrant workers, showing that in the long run migration has a small positive effect on the wages of natives.

[3]Mazzolari (2009) finds that dual citizenship rights have a positive effect on the economic assimilation of immigrants in the United States. Steinhardt (2008) documents that the acquisition of citizenship is associated with a positive wage premium in Germany.

[4]In an influential series of papers, Akerlof and Kranton (2000, 2002, 2005) and Akerlof (2007) have incorporated identity, a person's sense of self, into an economic model of behavior. Charness et al. (2007), Eckel and Grossman (2005), Hargreaves et al. (2009) provide laboratory experiments that show how group identity affects individual actions in several types of games: battle of the sexes, prisoner dilemma, public goods and trust games.

determinants of ethnic identity. Bisin et al. (2006) find that, in UK, ethnic identity is more intense in mixed neighborhood than in segregated neighborhoods, Aspachs-Bracons et al. (2007) argue that the introduction of bilingual education in Catalonia in 1983 had an effect on the identity of Catalan residents and on their political preferences. Indeed, the degree of usage of German language and the extent of interactions with German citizens might be interpreted as a measure of self identification with the host country. We focus on citizenship laws and isolate another possible determinant of ethnic identification: the legal status of the children.

Finally, our results provide evidence that changes in citizenship status can generate significant indirect effects on individuals other than those directly targeted by the policy intervention. Therefore, potential externalities should be explicitly taken into account when evaluating alternative integration policies. By focusing on the effect of child status on parental integration, we also contribute to a recent literature that studies how children characteristics can affect parental behavior.[5]

The paper is organized as follows: Section 2 provides a brief description of the citizenship systems across the world and of the reform we study. Then data, empirical strategy and basic empirical evidence are discussed in Section 3. Section 4 provides several robustness checks. Finally, Section 5 concludes.

2 Background on Citizenship Laws

2.1 Jus Sanguinis vs Jus Soli

In this section we provide an overview of the legal framework of citizenship and some descriptive evidence on the link between citizenship systems and immigrants' integration. While both the benefits associated with citizenship and the rules that regulate its acquisition might vary across countries, for the purpose of our analysis we will keep the discussion in this section as general as possible. Historical information on the evolution of citizenship systems largely draws on Bertocchi and Strozzi (2006).

Citizenship is the legal institution that assigns full membership in a state and determines the associated rights and duties. There are different ways to become

[5]Washington (2008) finds that the number of daughters increases the propensity of male congressmen to vote liberally, particularly on reproductive rights issues.

citizen: at birth, by naturalization, by adoption, and by marriage. Citizenship at birth determines the legal position of second generation immigrants. In most cases citizenship provides the right to vote, the right to run for public offices, the possibility to travel without restrictions and to obtain a visa for a relative, and legal protection in case of receiving criminal charges. Additional benefits may include a wider range of public benefits and better employment opportunities. On the other hand, the citizenship status often implies costs such as the military draft and renunciation of the original citizenship. A broader set of monetary and non monetary costs are associated with the acquisition of citizenship by naturalization. In fact, those who apply for naturalization are not only required to pay for administrative charges and taxes, but in many cases need to take language and culture tests, spend long waiting times at registration offices, and avoid activities that can determine disqualification.

Citizenship laws have to be considered part of broader migration policies. However, as stressed by Bertocchi and Strozzi (2006), while other measures (i.e. quotas and visa requirements) tend to change in response to short term contingencies (economic conditions and current government orientation above all), citizenship laws are the outcome of long term and complex processes that often require constitutional changes. The rules that determine the acquisition of citizenship reflect in most cases the interplay between the legal origins of the country and the historical processes.

In the 18th century jus soli was the dominant rule in Europe as a result of the feudal tradition that linked the individual to the lord who held the land where she was born. The French revolution marked a clear discontinuity with this tradition by reintroducing the principle based on the right of descent that was central in the ancient Roman system. During the 19th century the jus sanguinis principle was adopted throughout European countries and then extended to the colonies with the only notable exception of Britain. The British maintained the jus soli principle and they spread it to all their colonies, starting with the US that later encoded the principle in the constitution. By the end of the 19th century most countries of the world had specific provisions about citizenship acquisition within a specific legal system with jus soli being the norm in common law countries, and jus sanguinis regulating citizenship law in most civil law countries, despite important exceptions. For instance, civil law Latin American countries adopted the jus soli system early on.

The next century witnessed a dramatic sequence of historical events that led to a

continuous process of transformation of citizenship laws across the world. While an exhaustive treatment of the changes in nationality laws is beyond the scope of this study,[6] a summary of the most recent regulatory changes does help to understand the relevance of the topic in the political agenda. After a progressive restriction of the criteria to become citizen following the postwar massive colonial migration, in 1984 the British Nationality Act restricted the jus soli by establishing that a child born in the UK qualifies for British citizenship only if at least one parent is a British citizen or resident. On the same line, a legislation based on the jus soli has been in place in Australia until 1986, while afterwards a person born in Australia must have at least one parent who is either an Australian citizen or a permanent resident in order to become citizen. After the Revolution experience, France reintroduced the jus soli in 1889 mainly to include immigrants' sons in the draft. After a long and lively debate, in 1993 the Chirac government introduced a restrictive revision of the criteria to become citizen, requiring a formal citizenship request from second-generation immigrants. In 1997, however, these restrictions were considerably revised by the left-wing government, with the automatic assignment of citizenship at age 18 to those immigrants' children born in France who had neither requested, nor declined it.

Bertocchi and Strozzi (2006) in their study of the determinants of citizenship rules compile a data set of citizenship laws across 162 countries in the world and classify each country according to the principle that regulates the access to citizenship at birth as recorded in three different years after World War II: 1948, 1975 and 2001. They divide countries into three groups: 1) jus sanguinis, 2) mixed regime, 3) jus soli. The mixed regime categories includes all those countries where the system includes both jus soli and jus sanguinis elements. According to the evidence presented by the authors, in 1948 jus sanguinis was the dominant principle in 41% of the countries, while jus soli was the rule in about 47% and mixed regimes in the remaining 12%. By 2001, 54% of the 162 countries would adopt a jus sanguinis regime, 24% would rely on a jus soli system and 22% a mixed regime.

As a preliminary step in understanding the relationship between the type of citizenship system and the level of immigrants' integration we provide cross country evidence based on the data obtained by merging the Bertocchi and Strozzi database

[6]More detailed analysis can be found in Bertocchi and Strozzi (2006), Joppke (1999)

with the 2005-2008 World Values Survey (WVS). The fourth wave of the WVS collects information on the socio-cultural and political attitudes and beliefs of 76,303 individuals in 53 countries. Unlike previous waves, the fourth wave reports specific information on the country of birth of both parents. In order to have the largest possible sample within each country (the number of individuals surveyed by the WVS in each country is typically very small), we consider both respondents who might have been directly affected by the citizenship system (because both their parents were not born in the country of the survey) or respondents whose children might have been affected. In order to measure the level of integration of first and second generation immigrants we report evidence on two types of outcomes: language usage and participation in social activities. Respondents are asked what language do they normally speak at home and using this information we construct a dummy variable that takes value 1 if the individual speaks at home the main language spoken in the country, 0 otherwise. We define as main language the one spoken by at least 50% of the population, as measured by the index of linguistic fractionalization (Alesina et al. (2003)).[7] The measure of involvement in social activities is based on the participation in the following: 1) church or religious organization, 2) sport or recreational organization, 3) art, music or educational organization, 3) labor union, 4) political party, 5) environmental organization, 6) professional association, 7) humanitarian or charitable organization, 8) consumer organization. We define a dummy variable that takes value 1 if the individual participates in at least one of these activities, 0 otherwise. While later in the paper we will rely on measures of interaction with natives, this information is not available in the WVS. Figure 1 shows that in countries where the jus sanguinis is in place around 65% of first and second generation immigrants speak the main country language at home. The percentage is slightly higher in those countries where there is a system that combines both jus sanguinis and jus soli, while it is around 77% in countries where the jus soli system is in place. Consistently, while less than 50% of first and second generation immigrants are involved in at least one social activity among those who live in jus sanguinis countries, the percentage is around 70% in the other two groups of countries.

[7]We rule out of the sample South Africa, India, Zambia, Indonesia, and Mali as there is no language that is spoken by at least 50% of the population. The final sample consists of 1681 individuals in 44 countries.

2.2 The German Reform

In May 1999, the German Parliament amended the Citizenship and Nationality Law of 1913. The reform had three main elements:

- introduction of birthright citizenship;
- changes in the naturalization criteria;
- denial of dual citizenship

Before 1999, a child born in Germany would gain German citizenship if at least one of the parents possessed German citizenship at the time of birth.[8] Under the new regime, a child of foreign parents born on the 1st of January 2000 or afterwards would gain citizenship at birth if a) at least one parent had been ordinarily resident in Germany for eight years and b) had been granted a permanent right of residence. The law also introduced a transitional provision for those foreigners residents in Germany who were under the age of 10 on the 1st of January 2000. Those would be naturalized upon application (to be completed before the 31st of December 2000) if at least one parent had been ordinarily resident in Germany for 8 years when the child was born.

Unlike the citizenship at birth reform, the naturalization policy had been subject to a series of changes in the years before the 1999 reform. Laws that affected the naturalization application were passed in 1990 and 1993. These changes were addressed to limit officials' discretion to deny naturalization and provide foreigners with a legal right to claim entitlement to naturalization. Before 1999, foreigners between 16 and 23 years of age with 8 or more years of residency, and foreigners above the age of 23 with a minimum of 15 years of residency, would have a legal claim to naturalization. The 1999 change established a minimum residency requirement of 8 years without any age restriction. However, it did replace the legal entitlement to naturalization with certain requirements an applicant should meet to be naturalized: expressing loyalty to the German Constitution, being able to support oneself and one's family without social security or unemployment benefits, no criminal convictions, adequate command of the German language, and renunciation of previous citizenship.

[8] In case only the father was a citizen, citizenship was pendant on the recognition or determination of paternity under the German law.

Last, the 1999 reform includes an explicit denial of dual citizenship. While anecdotal evidence suggests than dual citizenship was hardly allowed by officials before the reform, Anil (2006) reports that in 1993 about 40% of the total naturalizations in Germany involved the acceptance of dual citizenship. Under the new law children born in Germany to foreign parents are allowed to have dual citizenship up until the age of 23. Before reaching the age of 23 they must choose which citizenship to retain; this is known as the *Optionmodell*.

3 Empirical Analysis

3.1 Identification Strategy

The objective of our empirical analysis is to identify whether the introduction of the birthright system has an effect on the level of cultural integration of foreign born parents. For this purpose we exploit the retrospective provision of the 1999 citizenship reform that allows foreign born parents, who had not acquired the German citizenship, to naturalize all children born in Germany between 1990 and 1999 subject to the requirement they had resided in Germany for at least 8 years when the child was born.

In our context, foreign citizen parents who had resided for at least 8 years in Germany when the youngest child was born between 1990 and 1999 represent the *treatment* group. The *control* group includes all foreign citizen parents who either had the youngest child between 1980 and 1989 or had resided for less than 8 years in Germany when the youngest child was born between 1990 and 1999. By comparing the integration outcomes of treatment and control groups before and after the reform, we are able to capture the effect of the provision that introduces birthright citizenship on parental integration.

Since the treatment group includes all those individuals who were offered the possibility to apply for their children's citizenship, irrespective of whether they did it or not, our strategy identifies the effect of the eligibility to apply, the so called intention-to-treat effect (ITT). The main advantage of this strategy relies in the possibility to control for the potential selection issues that are inherent to the decision to apply for citizenship. The ITT is smaller than the average causal effect on those parents who

effectively took advantage of the transitional scheme to naturalize their children. The treatment effect on the treated in our case would be given by the ITT divided by the proportion of parents in the treatment group who filled the application, the so called *compliers* (Angrist et al. (1996)). Finding measures of potential and actual applicants is impossible. However, we can exploit data on the number of naturalizations by birth cohort to provide indirect evidence on to what extent non-citizen immigrants exploited the transitional component of the reform. The top panel of Figure 2 plots how the number of naturalizations evolves before and after 2000 for the group of individuals born between 1990 and 1999, that includes those who could potentially benefit from the transitory component of the reform, compared to the number of naturalizations among those born between 1980 and 1989, where none is affected by the transitional regime. Among individuals born between 1990 and 1999 there is a sharp increase in the number of naturalizations with respect to those born between 1980 and 1989 in coincidence with the time window in which parents are allowed to apply for citizenship.[9] In fact, in 2000 and 2001 the number of naturalizations among those born between 1990 and 1999 is almost double than for individuals born between 1980 and 1989. The increase in the number of naturalizations for people born between 1990 and 1999 is even more remarkable as the total number of naturalizations dramatically declines after 2000 (see the bottom panel of Figure 2). This negative trend might be partly related to some provisions of the new naturalization policy: the compulsory language tests, the denial of dual citizenship,[10] and the drop in the number of naturalizations related to ethnic Germans,[11] In 2002 the number of naturalizations for the two cohorts is practically the same.

3.2 Data and Descriptives

The main data source for our analysis is the German Socio-Economic Panel (GSOEP), which is the longest-running longitudinal survey of private households and persons

[9] It usually takes at least one year between the application and the registration as citizen.

[10] Anil (2006) argues the requirements introduced by the new law increased the average cost of naturalization for the Turkish community living in the Berlin area as most of them had been in Germany for more than 15 years in 2000.

[11] After the fall of the Berlin wall 3.5 millions of ethnic Germans returned to their home country. While before the reform they would need to apply for naturalization, afterwards it would be granted upon arrival.

in the Federal Republic of Germany. It was started in 1984 and currently there are 21 waves available. This survey provides representative micro-data on individuals and households. Most importantly, it oversamples migrants.[12] The data is therefore unique in providing repeated information on a large sample of immigrants over a long period of time. Each individual in a relevant household and over the age of 15 is interviewed. The household head provides information about all other individuals in the household and those below the interviewing age. Individuals who leave households and form their own households are also tracked and included in the panel.

The dataset contains detailed information on the country of origin and the date of arrival of immigrants and their family composition. Crucial for our analysis, foreign born individuals are asked in each survey their citizenship status. This allows us to construct a data set of foreign born non-citizen parents who had at least one child in Germany in the time period between 1980 and 1999 and to define the treatment and the control group as specified in the previous section. In order to make our treatment and control groups more homogeneous in terms of observable characteristics, in the main analysis we restrict our sample only to those households where both parents were born after 1950. Our main specification considers only surveys after 1993, with the purpose to avoid possible confounding effects due to the changes in the naturalization policies enacted in 1990 and in 1993.

In Table 1 we report the main socio-demographic characteristics of both treatment and control groups as elicited in the year before the reform was passed, 1998. On average individuals living in treated households are younger than those in control households (34 vs 40 years). Previous evidence for Germany (see Danzer and Ulku (2008)) finds that both the number of years of education and the number of years spent in Germany are positively and significantly correlated with the level of integration of immigrants, as measured by the intensity of social connections with natives. In our sample neither the number of years of education nor the number of years spent in Germany are significantly different across the two groups. The average number of children is practically the same for treated and control households. While the average income is higher for treated households than control ones, the difference is not statistically significant.

[12] Questionnaires for these households are potentially available in the home country language. This rules out potential sample selection problems due to differential response rates.

Detailed information on the use of German language are asked. Foreign born respondents are asked whether they i) only read newspapers from their country of origin, ii) mainly newspapers from their country of origin, iii) about half German and half from my native country, iv) mostly German newspapers, v) only German newspapers vi) does not apply as I read a newspaper infrequently.[13] The variable *German newspaper* is defined over the range 1-5 and takes value 1 if the individual reports that she only reads home country newspapers, while it takes value 5 if she only reads German newspapers. Immigrants are also asked what language do they speak in Germany for the most part and they are given three possible answers: i) mostly German, ii) the language of the country of origin, iii) both.[14] The variable *German spoken* is defined in the range 1-3, where 1 denotes that the individual mostly speaks the home country language, 2 if speaks both, 3 if the individual mostly speaks German. In the top panel of Table 2 we compare the two different measures of language skills for treated and control households both in the last available survey before the reform and the first available survey after the reform. In 1998 29.9% of the respondents in the treatment group reported they were reading either mostly or only German newspapers. In 2000 the percentage goes up to 38.6%. In the control groups 34.9% of the respondents were reading either mainly or only German newspapers in 1998, as opposed to 36.1% in 2000. Among the treated, 65.5% were speaking either equally or mostly German in 1998, as opposed to 73.3% among individuals in the control group. In 2000, while the percentage of treated who use equally or mostly German reaches 73.6%, the percentage among individuals in the control group drops to 68.2%.

Respondents were asked both if they had visited Germans at their home in the previous year and if they had received the visit of Germans at home.[15] We convert the answers to these two questions into two dummy variables, respectively *Visited Germans* and *Visited by Germans*. In the lower panel of Table 2 we compare the level of social interactions of immigrants with Germans immediately before and after the reform. In 1997, 67% of the respondents in the treatment group stated they visited Germans in the year before, as opposed to 80.6% in the control group. In 2001, while

[13] In the period covered by our analysis the question is asked every second year

[14] This question has been asked in the years 1996, 1997, 1998, 1999, 2000, 2001, 2003 and 2005.

[15] In the period covered by our analysis these questions have been asked every second year

the percentage of treated individuals that visited Germans in the year before increases to 70.5%, it drops to 75.9% among those in the control group. A similar pattern is observed for the probability of receiving a visit by Germans. In 1997, 75.1% of the respondents in the treatment group reported they had been visited at least once by Germans in the year before the interview, as opposed to 85.5% among those in the control group. When asked in 2001, 82.2% (81%) of the respondents in the treatment (control) group reported that they had received at least one visit of Germans at home.

In summary, the results suggest an increase in the level of cultural assimilation of foreign born individual affected by the transitional scheme of the reform, as measured both by their usage of German language and the level of social interactions with natives. At opposite, immigrants not affected by the reform display a reduction in the level of integration over time. This negative trend for the control group is consistent with the drop in the number of naturalizations we have discussed in the previous section.

3.3 Econometric Method

In order to estimate the effect of child legal status on parental integration, we estimate the following differences-in-differences (DD) model:

$$Y_{ijt} = \beta_0 + \beta_1 T_j + \beta_2 D_t + \beta_3 T_j * D_t + \gamma' \mathbf{X}_{ijt} + \mu_t + u_{ijt} \quad (1)$$

where Y_{ijt} is the integration outcome of spouse i living in household j at time t. T_j is the treatment dummy that is equal to 1 if in household j at least one spouse had resided in Germany for more than 8 years when the youngest child was born between 1st January 1990 and 31st December 1999, and is equal 0 if the foreign born parents had either the youngest child between 1980 and 1989 or they had resided for less than 8 years when the youngest child was born between 1990 and 1999. The dummy D_t takes value 1 for the surveys after the reform was passed in Parliament (May 1999), 0 otherwise.

$\mathbf{X}_{ijt}$ includes a full set of individual and household characteristics. In particular, since in the previous section we have documented that treatment and control groups differ in age, we estimate two alternative specifications. In the first one we control for age linearly, while in the second we control for individual single year age dummies in

order to control for non-linear age effects. Additional controls include gender, head of household status, years of education, dummies for the number of years spent in Germany, the number of children, marital status, household income quintiles. Since the speed of the integration process might vary according to the immigrants' origins, we include country of origin dummies in both specifications. A full set of time dummies, μ_t, controls for time specific shocks affecting all individuals in the time interval between 1994 and 2006.

The main parameter of interest is β_3 that identifies the average causal effect of the introduction of birthright citizenship on parental integration. In the main regressions we convert the language skills variables, *German Newspaper* and *German Spoken* into dummy variables as these allow for more flexible specifications. We then estimate the model in eq. 1 using an OLS method. We also report the marginal effects of an Ordered Probit model both for the variable that measures the propensity to read German newspapers and the one for the use of German language. In the main specification the standard errors are clustered at individual level in order to account for individual shocks that are correlated over time. However, when we cluster at household/year level to control for shocks that might contemporarily affect all household members, the results do not change.

By using the retrospective component of the reform we rule out two potential sources of *endogenous* selection into the treatment group: deciding to have a child and deciding to stay in Germany. In fact, when deciding whether to have a child and how long to stay in Germany, foreign born individuals might be potentially affected by the regulatory changes that became effective in 2000.

The key identifying assumption relies on the fact that integration trends would be the same for both treatment and control groups in the absence of treatment, once controlling for the number of years each household spent in Germany and the number of children. In section 4.1 we test whether there are differential time trends that can potentially explain our results.

At each period in time our sample only includes foreign born parents who are not German citizens.[16] Given the panel nature of our dataset this restriction might potentially determine two sources of sample attrition. First, individuals might become

[16]Informations about language use and social interactions have been asked only to respondents who were not German citizen.

citizens and exit our sample. As we already mentioned above, the criteria to apply for citizenship did not change after 2000 for individuals who had resided in Germany for less than 8 years. A priori it is not clear whether the reform increased the cost of becoming citizen for those who had been in Germany for more than 8 years. In section 4.2 we explicitly test whether this potential source of sample attrition varies differentially for the treatment and control groups after the reform. Second individuals might exit from the sample because they return to their home country. As the propensity to return might vary differentially for the treatment and the control group,[17] in section 4.2 we use different strategies to control for this potential bias.

3.4 Baseline Results

Baseline OLS estimates of equation 1 for language related outcomes are reported in Table 4. We convert *German Newspaper* into a dummy variable that takes value of 1 if the individual mostly reads German newspapers or only reads German newspapers.[18] In column (1) we report the results for the OLS specification that controls for age linearly. The effect of the reform on the variable that measures the propensity to read German newspapers is positive and significantly different from zero. In order to address the concerns due to age differences between treatment and control groups, we estimate eq. 1 including a full set of single year age dummies. Results displayed in column (2) are in line with those in column (1): the coefficient estimate on the interaction term suggests that the reform increases the probability of reading German newspapers by almost 10 percentage points. The magnitude of the effect corresponds approximately to one fifth of the standard deviation of the dependent variable.

We convert the variable *German spoken* into a dummy that takes value 1 when the individual reports either speaking both the German and her home country language or speaking mostly German, 0 otherwise. The OLS results when age is included linearly suggest a positive and significant effect of the reform on the propensity to use German language. However, the coefficient drops and becomes not significant when single age dummies are accounted for.

[17] Results in Dustmann (2001) for Germany suggest that the probability of returning home increases with age.

[18] The main specification does not include those who report not reading newspapers at all. However, when we include them, the results are perfectly in line with those presented

Second, we analyze the effect of the reform on the exposure to interactions with Germans. In column (1) of Table 3 we report the estimated effect of the reform on the probability of visiting Germans at their home, *Visited Germans*, for the specification that controls for age linearly. The probability significantly increases by 9.3 percentage points as a result of the reform. Also in this case part of the effect might be explained by the age differences across the two groups. However, after controlling for single year age dummies, the effect of the reform, while smaller (8.7 percentage points), is still statistically significant. In line with the results discussed for *German newspapers*, the magnitude of the effect corresponds approximately to one fifth of the standard deviation of the dependent variable. In column (3) we report the effect of the reform on the probability of receiving the visit of Germans at home, *Visited by Germans*. The effect is large and statistically different from zero (11.6 percentage points). Controlling for single year age dummies leave the results unaltered. The magnitude of the effect, while slightly larger, is in line with the one found for *Visited Germans*. In principle, the variable *Visited by Germans* might be a proxy for the level of acceptance by German citizens. However, if this was the case, it wold be hard to justify the differential increase between treatment and control groups, as Germans would change their attitudes towards all immigrants, irrespective of their treatment status.

Since both *German newspapers* and *German spoken* are originally defined as categorical variables we check the robustness of our results by estimating the model in eq. 1 with an Ordered Probit.[19] In order to reduce the computational burden of the Maximum Likelihood estimation we only estimate the basic specification that controls for age linearly. The reform reduces by 4.2 percentage points the probability of reading only home country newspapers, while it increases by 8.6 percentage points the probability of reading only German newspapers. Consistently, the reform increases by 4.6 percentage points the probability of speaking mostly German. Results for the average marginal effects of the treatment variable estimated with an Ordered Probit are reported in Table **??**.

In summary, our results suggest that the reform has a large and significant effect on the level of cultural integration of immigrants, both as measured by the propensity

[19]More details on the identification and estimation of non linear Difference-in-Differences models can be found in Athey and Imbens (2006)

to use German language and to have interactions with German citizens.

4 Robustness

4.1 Differential Trends

The identification assumption relies on the fact that integration trends would be the same in the absence of the 1999 reform for both treatment and control groups. If this was not the case our estimates could also be the artifact of these exogenous trends in the propensity to speak German, read German newspapers and have contacts with German born.

In order to boost confidence in our identifying assumption we perform several tests. First, we acknowledge the possibility that differences in observed characteristics might create non-parallel integration dynamics between treatment and control group in the absence of the reform. In order to control for this potential bias we estimate the average effect of the reform on individuals who are entitled to apply for their children's citizenship by using a two step parametric procedure (see Abadie (2005) and Heckman et al. (1997)). First, we estimate the propensity score with a logit model and compute the fitted values for the sample. We then estimate eq. 1 by Weighted Least Squares only on those observations for which the common support assumption holds. Results for this specification are shown in Table 5. The coefficients are in line with those discussed above. As before, the effect of the reform on the propensity to use German language is not significantly different from zero.

Second, we test whether differences in time trends driven by unobservable characteristics can potentially bias our results. For this purpose, we perform a falsification exercise in which we use only surveys conducted before 1999, we assume the reform has been implemented in an year X prior to 1999 and we compare the treatment and control groups before and after that year. We choose the year of reference X such that the number of surveys before and after that year is the same for each one of the variables. Results are shown in the lower panel of Table 7. Reassuringly, the coefficients are much smaller than our baseline coefficients and not significantly different from zero.[20]

[20]Results are robust to choosing a different year of reference.

Results in this subsection suggest that in the absence of the reform the treatment and control groups would not display differential integration trends, either due to observables, as it is checked using the semi parametric differences in differences specification or due to unobservable characteristics, as it is checked by performing the falsification exercise.

4.2 Attrition

Individuals might exit the sample in a non-random way and this might affect the validity of our results if the determinants of the sample attrition are correlated with the treatment variable. As far as we are concerned, there are two potential sources of sample attrition. On the one hand, foreign born parents might leave the sample because they become citizens by naturalization. On the other hand, immigrants might return to their home country. A priori, it is not clear in which direction the attrition bias would affect our results. In fact, while it is more likely that only the most integrated immigrants might apply for naturalization and obtain it, the decision to return home might be affected by the difficulty to integrate within the German society. On average, around 1.2% of the respondents in our sample make a transition from the non-citizenship to the citizenship status and there are no significant differences between the treatment and the control group before and after the reform. This suggests that, if any, the main concern is related to the possibility that immigrants leave the sample because they return to their home country. Dustmann and Soest (2002) use the GSOEP to provide evidence that the attrition bias due to return migration plays a small and not significant role in the positive association between language proficiency and earnings.

In order to boost confidence in the fact that our results are not driven by the fact that some individuals return to their home country for reasons correlated with the reform, we run eq. 1 allowing for individual fixed effect dummies, which control for time invariant unobserved characteristics that could be correlated with integration outcomes and the propensity to return home. Reassuringly, results in Table 8 are very similar to our baseline results. Overall, we interpret these results are not affected by attrition bias.

4.3 Other Provisions of the 1999 Reform

Results obtained in this paper show that the children's citizenship rights have a positive impact on the parental integration to the home country, in this case Germany, as measured by their propensity to speak in German, read German newspapers and have contacts with Germans. However, other provisions of the 1999 law that regulated the naturalization process of immigrants could have also affected integration. Thus, part of the effect obtained could be due to these provisions.

Before 1999, foreigners between 16 and 23 years of age with 8 or more years of residency, and foreigners above the age of 23 with a minimum of 15 years of residency, would have a legal claim to naturalization. The 1999 change established a minimum residency requirement of 8 years without any age restriction. However, it imposed certain requirements an applicant had to meet to be naturalized: expressing loyalty to the German Constitution, being able to support oneself and one's family without receiving social security or unemployment benefits, no criminal convictions, adequate command of the German language, and renunciation of previous citizenship.

For example, the implementation of the reform in 2000 could have fostered the level of integration of immigrants, given the decrease in the residency requirement to be naturalized. Individuals in the treated group could be more likely to be affected by such change than individuals in our control group, plus the effect of these provisions on integration could have been larger for individuals in our treated group than for individuals in the control group after 1999. In addition, the response of immigrants to these provisions could have been an increase in the frequency of their interactions with German individuals, and an increase in the interest in learning more about the German culture and language in order to meet the new language requirements to get naturalized. This might bias our results if the number respondents that plan to apply for naturalization in the treated group is larger than in the control group.

In order to check whether results in this paper capture the effects of other provisions of the 1999 reform, we restrict our sample to respondents who in 2000 had already been in Germany for 15 years or more. In fact, the new requirements to obtain naturalization either affected both individuals in the control and treatment group in such restricted sample (expressing loyalty to the German Constitution, being able to support oneself and one's family without social security or unemployment

benefits, no criminal convictions, adequate command of the German language, and renunciation of previous citizenship), or did not affect at all any of the respondents in the treatment and control groups (decrease of the minimum residency requirement from 15 to 8 years). Results are shown in Table 9, the coefficients of our variables of interest are still positive, similar in size and significantly different from zero, even if now visited by Germans is not significant any more.

In addition, as it was also shown in the previous section, very few individuals in our sample apply for naturalization, and the proportion of individuals who applied for naturalization in the control and treatment group does not vary significantly before and after the reform. Thus, it seems unlikely that our results are driven by a differential effort to meet the new citizenship requirements

5 Conclusions

This paper intervenes in the debate over the effects of migration policies. The level of integration of immigrants is the main focus of our analysis. We study how the introduction of elements of jus soli in the jus sanguinis German system had an effect on the use of the German language by immigrants and on their networks. Results show that the introduction of birthright citizenship determined a significant increase in adults‘ integration. In fact, parents of children affected by the reform are more likely to speak German, read German newspapers and have social interactions with German born.

Broadly, there are three possible mechanisms through which citizenship rights of children might have affected parental integration. Parents might change their preferences and attitudes towards the host country since they realize their descendants will have more economic opportunities as a result of their new status. A second possible explanation is related to the fact that parents might predict that their children will be more integrated with the German culture and decide to integrate more with the future culture of their offsprings since they dislike to be culturally distant from them. Finally, a further possible mechanism focuses on economic variables without incorporating changes in preferences. Suppose that the income of each individual depends on both her citizenship rights and variables like the quality of the networks of her parents and the language spoken at home when young. Then, if parents are altruistic and

care about the income of their children, they might decide to spend effort improving the quality of their networks or the knowledge of the language of their host country once their children acquire the new citizenship status.

Unfortunately our econometric exercise is unable to identify the exact mechanism at the root of our findings. The information available about each respondent in our sample are insufficient. This study, however, is a first attempt in understanding the causal link between a citizenship reform and immigrant integration and, even if more evidence would be needed, some policy implications can be derived from it. In particular, our findings can help understanding why some countries have been more successful than others in the assimilation of non natives with their culture and costumes and hope to provide guidelines on the instruments and the frameworks to adopt in order to deal with the increase level of diversity of Western societies.

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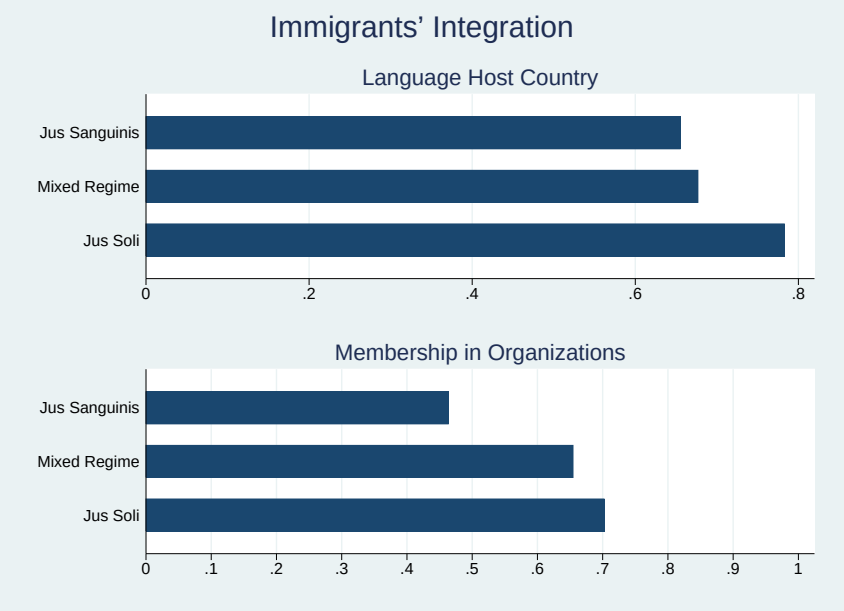
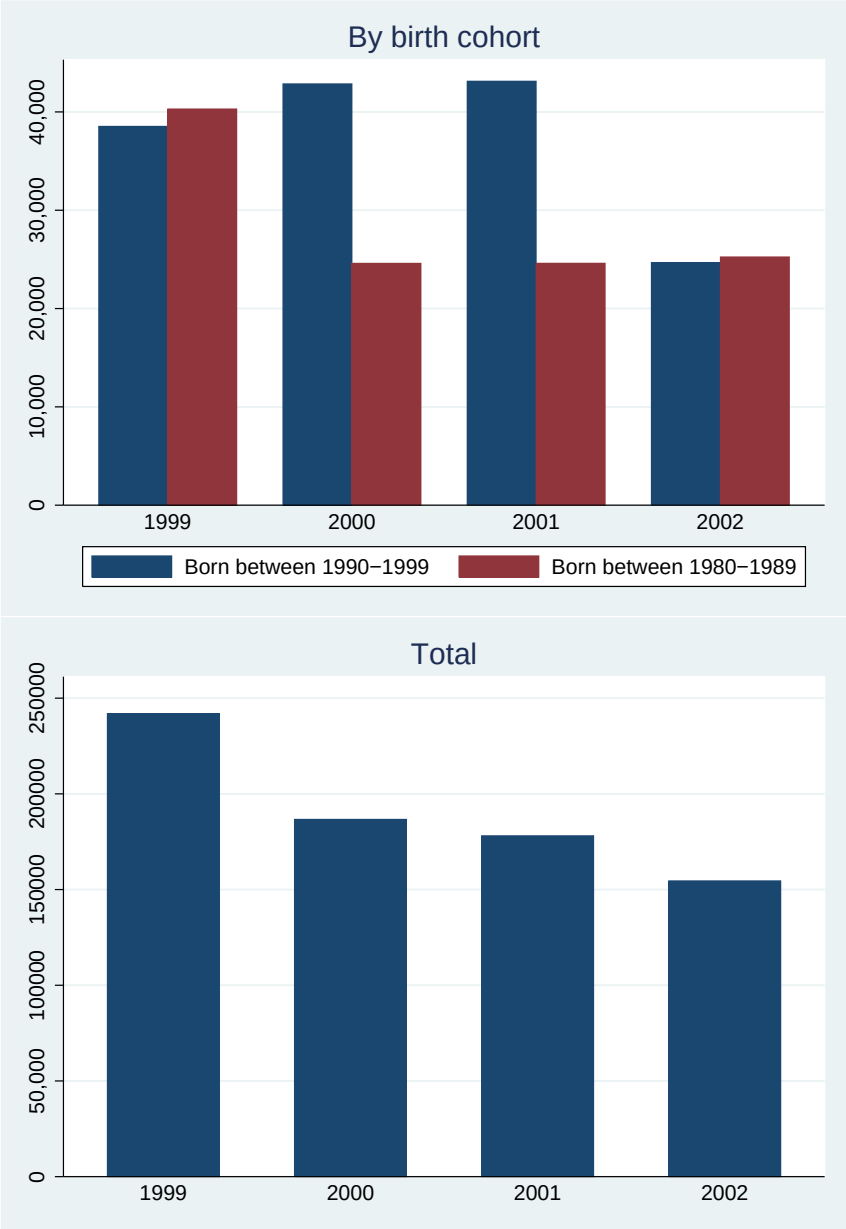
Figure 1: Integration by type of citizenship law



Note: The final sample consists of 1681 observations in 44 countries and it has been obtained by merging the 2005-2008 wave of the World Value Survey with the dataset compiled by Bertocchi and Strozzi (2006) on the evolution of citizenship laws in the postwar period. Country classification is based according to the system that regulates citizenship at birth in 2001. First and second generation immigrants are defined as those whose both parents are immigrants.

Figure 2: Naturalizations



Note: The number of naturalizations by birth cohort has been constructed using the German Statical Office data

Table 1: Individual Characteristics: Descriptives

	Treatment	Control	**DIFF**
Age	34.027	40.131	-6.104***
	(5.140)	(4.872)	(0.564)
Male	0.459	0.394	0.065
	(0.500)	(0.490)	(0.056)
Married	0.967	0.912	0.055*
	(0.179)	(0.284)	(0.028)
Head HH	0.519	0.445	0.074
	(0.501)	(0.499)	(0.056)
Years of Education	9.697	9.453	0.244
	(1.642)	(2.093)	(0.216)
Number of children	2.317	2.496	-0.179
	(1.113)	(0.994)	(0.118)
Years in Germany	19.645	20.445	-0.800
	(7.708)	(8.297)	(0.909)
HH Monthly Income	2131.579	1956.250	175.329
	(879.798)	(967.316)	(105.147)
Observations	183	137	

Note: Sample characteristics as reported in the 1998 wave. The *treatment* and the *control* groups are defined at household level. The treatment group includes all the foreign born couples who had resided for at least 8 years when the youngest child was born between 1st January 1990 and 31th December 1999. The control group includes the foreign born couples who had resided for less than 8 years when the youngest child was born between 1990 and 1999 and those who had the youngest child before between 1980 and 1989.

Table 2: Integration Outcomes: Descriptives

Integration Outcomes	**Visited Germans (d)**	**Visited by Germans (d)**	**German Spoken (d)**	**German News. (1-5)**
		Before the Reform		
Control Group	0.78	0.81	0.72	2.73
Treatment Group	0.68	0.72	0.62	2.61
Total	0.73	0.77	0.67	2.67
		After the Reform		
Control Group	0.78	0.82	0.69	2.91
Treatment Group	0.73	0.8	0.69	2.89
Total	0.75	0.81	0.69	2.9

Note: *** denotes significance at 1%, ** at 5% and * at 10%. Standard deviation is reported in parenthesis. The variable *German newspaper* varies over the range 1-5 and it takes value 1 if the individual only reads newspapers from the country of origin or does not read any newspaper at all, value 5 if she only reads German newspapers.

Table 3: Baseline results: Network

	Visited Germans		**Visited by Germans**	
After	0.033	0.024	-0.010	-0.011
	(0.055)	(0.058)	(0.057)	(0.059)
Treatment Group	-0.053	-0.043	-0.056	-0.052
	(0.042)	(0.045)	(0.039)	(0.041)
Treatment Group*After	0.093**	0.087*	0.116***	0.117**
	(0.042)	(0.048)	(0.040)	(0.046)
Time Dummies	Yes	Yes	Yes	Yes
C. Origin Dummies	Yes	Yes	Yes	Yes
Age Dummies	No	Yes	No	Yes
Observations	1804	1804	1803	1803

Note: Additional regressors include gender, marital status, head of household status, years of education, number of children, dummies for the number of years spent in Germany and the household income quintiles. Robust standard errors are clustered at individual level. * significant at the 10% level. ** significant at the 5% level. *** significant at the 1% level.

Table 4: Baseline results: Language

	German Spoken		German Newspaper	
After	-0.151**	-0.129*	-0.216	-0.116
	(0.067)	(0.069)	(0.147)	(0.156)
Treatment Group	-0.072*	-0.054	-0.035	0.001
	(0.040)	(0.041)	(0.099)	(0.106)
Treatment Group*After	0.081**	0.044	0.295***	0.243**
	(0.037)	(0.041)	(0.107)	(0.118)
Time Dummies	Yes	Yes	Yes	Yes
C. Origin Dummies	Yes	Yes	Yes	Yes
Age Dummies	No	Yes	No	Yes
Observations	2508	2508	2110	2110

Note: Additional regressors include gender, marital status, head of household status, years of education, number of children, dummies for the number of years spent in Germany and household income quintiles. Robust standard errors are clustered at individual level. * significant at the 10% level. ** significant at the 5% level. *** significant at the 1% level.

Table 5: Semiparametric DD

	Visited Germans	Visited by Germans	German Spoken	German Newspaper
After	0.046	0.018	-0.149*	-0.281
	(0.067)	(0.066)	(0.079)	(0.216)
Treatment Group	-0.013	-0.027	-0.075	-0.030
	(0.052)	(0.047)	(0.050)	(0.130)
Treatment Group*Post Reform	0.088	0.127**	0.046	0.267*
	(0.058)	(0.058)	(0.053)	(0.147)
Time Dummies	Yes	Yes	Yes	Yes
C. Origin Dummies	Yes	Yes	Yes	Yes
Age Dummies	Yes	Yes	Yes	Yes
Observations	1449	1447	1983	1654

Note: Additional regressors include gender, marital status, head of household status, years of education, number of children, dummies for the number of years spent in Germany and household income quintiles. Robust standard errors are clustered at individual level. * significant at the 10% level. ** significant at the 5% level. *** significant at the 1% level.

Table 6: Placebo Tests

	Visited Germans	**Visited by Germans**	**German Spoken**	**German Newspaper**
Placebo 1997	-0.069	-0.034		-0.092
	(0.056)	(0.056)		(0.139)
			0.004	
Placebo 1996			(0.054)	
Observations	657	657	983	971

Note: All regressions control for survey year, country of origin and single year age dummies. Additional regressors include gender, marital status, head of household status, years of education, number of children, dummies for the number of years spent in Germany and household income quintiles. Robust standard errors are clustered at individual level. * significant at the 10% level. ** significant at the 5% level. *** significant at the 1% level.

Table 7: Attrition Determinants

	Become Citizen	**In Germany Forever**
After	-0.027**	0.202***
	(0.011)	(0.033)
Treatment Group	0.001	0.113***
	(0.003)	(0.041)
Treatment Group*After	-0.005	-0.014
	(0.008)	(0.041)
Time Dummies	Yes	Yes
C. Origin Dummies	Yes	Yes
Age Dummies	Yes	Yes
Observations	3977	3828

Note: All regressions control for survey year, country of origin and single year age dummies. Additional regressors include gender, marital status, head of household status, years of education, number of children, dummies for the number of years spent in Germany and household income quintiles. Robust standard errors are clustered at individual level. * significant at the 10% level. ** significant at the 5% level. *** significant at the 1% level.

Table 8: Individual FE

	Visited Germans	**Visited by Germans**	**German Spoken**	**German Newspaper**
After	0.011	0.052	-0.036	-0.011
	(0.072)	(0.073)	(0.072)	(0.308)
Treatment Group	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Treatment Group*After	0.151**	0.112*	0.063	0.332**
	(0.066)	(0.066)	(0.043)	(0.150)
Time Dummies	Yes	Yes	Yes	Yes
C. Origin Dummies	Yes	Yes	Yes	Yes
Age Dummies	Yes	Yes	Yes	Yes
Observations	1804	1803	2508	2110

Note: All regressions control for survey year, country of origin and single year age dummies. Additional regressors include gender, marital status, head of household status, years of education, number of children, dummies for the number of years spent in Germany and household income quintiles. Robust standard errors are clustered at individual level. * significant at the 10% level. ** significant at the 5% level. *** significant at the 1% level.

Table 9: Other Provisions

	Visited Germans	**Visited by Germans**	**German Spoken**	**German Newspaper**
After	0.016	-0.012	-0.184**	0.220
	(0.064)	(0.068)	(0.078)	(0.184)
Treatment	-0.027	-0.026	-0.084*	-0.091
	(0.051)	(0.049)	(0.049)	(0.119)
After*Treatment Group	0.096*	0.104*	0.071	0.385***
	(0.057)	(0.054)	(0.047)	(0.142)
Time Dummies	Yes	Yes	Yes	Yes
C. Origin Dummies	Yes	Yes	Yes	Yes
Age Dummies	Yes	Yes	Yes	Yes
Observations	1321	1320	1775	1531

Note: The sample is restricted to foreign born individuals who have been in Germany for more than 15 years. All regressions control for survey year, country of origin and single year age dummies. Additional regressors include gender, marital status, head of household status, years of education, number of children, dummies for the number of years spent in Germany and household income quintiles. Robust standard errors are clustered at individual level. * significant at the 10% level. ** significant at the 5% level. *** significant at the 1% level.

Table 10: Heterogeneity: Turkish vs Non Turkish

	Visited Germans	**Visited by Germans**	**German Spoken**	**German Newspaper**
Non Turkish*Treatment	0.146**	0.166***	0.089*	0.391***
	(0.058)	(0.054)	(0.050)	(0.150)
Turkish*Treatment	0.045	0.082	0.014	0.139
	(0.054)	(0.050)	(0.046)	(0.128)
Observations	1804	1803	2508	2110
H_0: Non Turkish = Turkish	3.249	2.803	2.214	2.894
P Value	0.072	0.095	0.137	0.089

Note: All regressions control for survey year, country of origin and single year age dummies. Additional regressors include gender, marital status, head of household status, years of education, number of children, dummies for the number of years spent in Germany and household income quintiles. Robust standard errors are clustered at individual level. * significant at the 10% level. ** significant at the 5% level. *** significant at the 1% level.

Table 11: Heterogeneity by level of education

	Visited Germans	**Visited by Germans**	**German Spoken**	**German Newspaper**
Low*Treatment	0.148*	0.173**	-0.075	-0.130
	(0.084)	(0.075)	(0.074)	(0.192)
High*Treatment	0.072	0.104**	0.068	0.317***
	(0.049)	(0.046)	(0.042)	(0.121)
Time Dummies	Yes	Yes	Yes	Yes
C. Origin Dummies	Yes	Yes	Yes	Yes
Age Dummies	Yes	Yes	Yes	Yes
Observations	1804	1803	2508	2110
H_0: Low*Treat.=High*Treat.	0.921	0.920	3.895	6.113
P Value	0.338	0.338	0.049	0.014

Note: All regressions control for survey year, country of origin and single year age dummies. Additional regressors include gender, marital status, head of household status, years of education, number of children, dummies for the number of years spent in Germany and household income quintiles. Robust standard errors are clustered at individual level. * significant at the 10% level. ** significant at the 5% level. *** significant at the 1% level.