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### **The evolution of citizenship: economic and institutional determinants**

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# The Evolution of Citizenship

Economic and Institutional Determinants\*

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## ABSTRACT

We investigate the evolution of the legal institution of citizenship from a political economy perspective. We first present a median voter model of citizenship laws determination. Next we test the implications of the model on a new data set on citizenship laws across countries of the world. We show that they have responded endogenously to economic and institutional determinants. Migration pushes national legislation in the direction of jus sanguinis. Moreover, the impact of migration interacts with that of the legal tradition. In particular, countries with a jus soli origin tend to restrict when facing an increase in immigration, while in jus sanguinis countries migration has a negligible impact. The welfare burden proves not to be an obstacle for a jus soli legislation, while demographic stagnation encourages it. A high degree of democracy promotes the adoption of jus soli elements, while the instability of state borders determined by decolonization impedes it. Religion and ethnic diversity have no residual impact.

JEL Classification Numbers: P16, K40, F22, O15.

Key Words: citizenship laws, international migration, legal origins, democracy, borders.

# 1 Introduction

Each country of the world has established a complex system of rules that govern the attribution of citizenship. As a consequence of the increasing pressure of international migration, citizenship laws have moved to center stage on policy agendas, since citizenship laws not only affect the design of immigration policy, but also interact with the workings of labor markets, affect welfare programs, and influence demographic trends.

Citizenship is the legal institution that designates full membership in a state and the associated rights and duties. It provides benefits such as the right to vote, better employment opportunities, the ability to travel without restrictions, legal protection in case of criminal charges, and the possibility to obtain a visa for a relative. There are also costs to citizenship, such as the military draft, renunciation of the original citizenship, and the pecuniary and non pecuniary costs that may be required for naturalization and for recognition at the age of majority. Examples are language and culture tests, waiting periods, and a commitment to avoid activities leading to disqualification.

There are several ways to acquire citizenship: at birth, by naturalization, by marriage. The regulation of citizenship at birth, which determines citizenship acquisition by second-generation immigrants, is rooted in the well-defined bodies of common and civil law. The former traditionally applies the *jus soli* principle, according to which citizenship is attributed by birthplace: this implies that the child of an immigrant is a citizen, as long as he is born in the country of immigration. The latter applies the *jus sanguinis* principle, which attributes citizenship by descent, so that a child inherits citizenship from his parents, independently of where he is born. Despite being rooted in these principles, during the 20th century - and especially after World War II - in many countries citizenship laws have gone through a process of continuous adaptation, in conjunction with the decolonization phase, the collapse of the socialist system, and the mounting pressure of international migration.

In this paper we investigate the determinants and evolution of citizenship laws in the postwar period from a political economy perspective. To pursue this goal, we assemble a new data set which codifies citizenship laws across the countries of the world, with a specific focus on the provisions that regulate the access to citizenship at birth. The data set is then

used to study the dynamic adaptation of these laws, by relating the observed patterns to a number of potential determinants, including economic factors as well as other political and cultural factors which have been found relevant in related research on institutions.

Modern sociopolitical theories have advanced several hypotheses concerning the determinants of citizenship laws dynamics, on the basis of case studies and non-quantitative cross country comparisons. The legal tradition established in a given country is generally believed to exert a persistent impact on current legislation. The relevance of migration has also been investigated. In particular, pressure from a large stock of migrants is perceived as a factor that shapes a country's attitude toward citizenship policy. On the one hand, it could push toward a legislation that allows automatic citizenship granting for all newborn. On the other, migration could also drive toward restrictions of the same principle in countries where it was originally applied. According to some sociopolitical theories, the combination of these forces tends to induce convergence toward a mix of *jus soli* and *sanguinis* provisions for countries coming from different legal traditions (Weil, 2001). For the case of Europe, Bauböck et al. (2006) instead stress the presence of divergent trends, towards liberalization in some countries and toward restriction of access to citizenship in others. The influence of other economic forces is also recognized. Since citizenship rights determine the ability to enjoy welfare benefits, the shaping of nationality laws has been linked with the nature of the welfare state, with a large government representing a potential obstacle to the retention of *jus soli* (Joppke, 1998). This argument, however, has to be weighted against the potential gain coming from the acquisition of relatively young new citizens for countries with expensive pension systems and in the midst of a demographic crisis. Political factors have also been found relevant. The presence of a consolidated democracy is expected to lead to the adoption of *jus soli*, viewed as a more equal treatment of aliens. Stabilization of state borders should reduce the pressure to preserve a national identity through *jus sanguinis*. Finally, an additional factor that has been the subject of debate is the influence of national character and culture. The theory advanced by Brubaker (1992) focuses on France and Germany as two antagonistic kinds of nationhood, the former more assimilationist, the latter more ethnocentric, which also differ in their definitions of citizenship.

In this paper we formalize the above hypotheses within a simple median voter model

which can guide our empirical investigation by generating testable implications and by offering an interpretation of the resulting evidence. The model is based on the assumption that the laws regulating citizenship acquisition can be viewed as the outcome of the decision problem faced by a native median voter, in a context where citizenship confers the right to vote over policy variables. In making this decision, the native median voter takes into account the associated benefits and costs, which depend on the share of migrants over population and the other factors suggested by the literature. The model indicates that the share of migrants has a potentially ambiguous impact on the decision to grant citizenship and voting rights to migrants, since it increases the loss, for the native median voter, of letting migrants vote, but it also increases the cost associated with their exclusion. Moreover, the natives' decision is positively influenced by a relatively high income level of the migrants, a small welfare state, a relatively old native population, a high level of democracy, a stable national border, and an inclusive national culture.

We test the above empirical implications and find that in the postwar period citizenship laws have responded endogenously and systematically, through a slow but steady process of adaptation, to economic and institutional factors. Overall, our results suggest that migration pushes national legislations in the direction of *jus sanguinis*, not *jus soli*. However, this simple correlation breaks down once additional covariates are considered, revealing a complex impact of migration, which interacts with the legal tradition previously established in the matter of citizenship. On the one hand, countries with a *jus soli* origin react to increasing migration by adding *jus sanguinis* elements. On the other, in *jus sanguinis* countries the impact of migration has been negligible. Therefore, the evidence offers only mild support for the convergence hypothesis. Other economic factors also matter. While the welfare burden proves not to be an obstacle for a *jus soli* legislation, demographic stagnation encourages the adoption of mixed and *jus soli* regimes. Turning to institutional factors, we find that a high degree of democracy is significantly associated with a *jus soli* legislation while border instability, in particular following the decolonization phase, decreases its likelihood. Cultural characteristics captured by religion and ethnic fractionalization are not found to play a significant role.

The rest of the paper is organized as follows. Section 2 introduces the related literature.

Section 3 reviews the historical and legal background for the issues we address. Section 4 presents our model of citizenship laws determination. Section 5 describes our data set on citizenship laws around the world. Section 6 investigates empirically the determinants of current citizenship laws and presents our main results, together with a set of robustness checks. Section 7 develops an alternative empirical strategy that highlights the determinants of change in citizenship laws. Section 8 concludes and indicates directions for future research. The Data Appendix collects information about the data employed.

## 2 Related literature

Our work is related with several branches of the economic literature. First of all, this paper adds to research on international migration and migration policy. Timmer and Williamson (1998), Hatton and Williamson (2006) and Bertocchi and Strozzi (2007) empirically analyze immigration policies enacted at the end of the 19th century during the mass migration era, while O'Rourke and Sinnott (2005) and Mayda (2005) estimate voters' attitudes toward immigration in the postwar period. The political economy of migration has been modeled, among others, by Benhabib (1996), Gradstein and Schiff (2006), and DeVoretz (2006). More specifically, the role of citizenship policy has been discussed by DeVoretz and Pivnenko (2006), who investigate the economic costs and benefits derived from citizenship, and by Pritchett (2006), who evaluates citizenship policy within a broader discussion on labor mobility and immigration policies.

Since our theory emphasizes that citizenship rights imply the right to vote, our work is also related to Razin et al. (2002) and Dolmas and Huffman (2004), who compare the impact of migration on the welfare state with or without voting rights for the migrants. However, they do not examine the determinants of these alternative regimes. On the other hand, the issue of franchise extension has recently received considerable attention within the literature, with contributions by Acemoglu and Robinson (2000), Bertocchi and Spagat (2001), but with a focus on the conflict between rich and poor, while Bertocchi (2007) concentrates on the conflict between men and women.

More broadly, our work contributes to the research program which has focused on the

historical determinants of institutions. Engerman and Sokoloff (2002) highlight the relevance of wealth inequality and political factors in accounting for how fundamental economic institutions developed over time. Acemoglu et al. (2001) contribute to the understanding of how institutions evolve by using historical variables as instruments for contemporary measures of the quality of institutions.

This paper also relates to the comparative legal approach initiated by La Porta et al. (1998). The basic premise of this research line is the recognition that laws in different countries are adopted or transplanted from a few legal traditions and that the resulting legislative bodies reflect both the influence of the legal origin and the subsequent revision specific to individual countries. We add to this stream by focusing on the determinants of the dynamic adaptation of nationality rules.

Finally, recent work by Alesina and Spolaore (1997) and Bolton and Roland (1997) on the optimal determination of the size of nations, and thus state borders, is also relevant to our approach, both because country size in this literature is the same as population size and is potentially influenced by migration and by the legal status of immigrants, and also because borders play an important role on the determination of citizenship rules.

### **3 Citizenship laws in historical perspective**

Citizenship policy can be viewed as part of broader migration policy. However, contrary to other migration policy measures such as quotas and visa requirements, that are typically adjusted to the business cycle and to the current government orientation, citizenship laws reforms tend to be the outcome of long-term processes of adaptation often involving constitutional amendments.

In 18th century Europe *jus soli* was the dominant criterion, following feudal traditions which linked human beings to the lord who held the land where they were born. The French Revolution broke with this heritage and with the 1804 civil code reintroduced the ancient Roman custom of *jus sanguinis*. Continental modern citizenship law was subsequently built on these premises. During the 19th century the *jus sanguinis* principle was adopted throughout Europe and then transplanted to its colonies. By imitation, Japan also adopted *jus sanguinis*



in this phase. On the other hand, the British preserved their *jus soli* tradition and spread it through their own colonies, starting with the United States where it was later encoded in the Constitution. By the end of the 19th century, the process of nation-state formation and the associated codification effort were completed in Continental Europe. At the same time, the revolutionary phase was over in those countries that had been the subject of the earlier colonization era, and 19th century colonization had extended the process of transplantation of legal tradition to the rest of the world. Therefore, by that stage, most countries of the world had established specific provisions regarding citizenship acquisition within a relatively well-developed 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 America had embraced *jus soli* early on, while civil law France, with its colonies, had by then already moved toward a mixed regime. However, the next century witnessed a continuous process of transformation of citizenship laws across the world. Below are some specific cases, drawing mostly from Joppke (1998), Aleinikoff and Klusmeyer (2000, 2001) and Brubaker (1992).

**The United States** *Jus soli* was encoded in the US Constitution through the 1868 Fourteenth Amendment, with the specific purpose to protect the birthrights of black slaves. Consistently with its history as a country of immigrants, and with a general positive attitude toward economic liberalism, the US approach is still remarkably consistent with its original attitude in all its aspects, ranging from immigration policy to naturalization requirements. Debate about possible restrictions did arise recently, but never led to actual change.<sup>1</sup> In particular, *jus soli* came under attack in the 1980s regarding its applicability to the children of illegal immigrants. A relatively young and thin welfare state contributes to the fiscal sustainability of *jus soli* in this country.<sup>2</sup>

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<sup>1</sup>In his analysis of Mexican immigration, Huntington (2004) has criticized current nationality regulations on the grounds that they represent a “devaluation of citizenship”. Pritchett (2006) discusses the possible advantages of guest-worker programs which do not contemplate citizenship, from the perspective of poor countries.

<sup>2</sup>The relative thickness of the concept itself of citizenship, if compared to residency, is a related, potentially relevant consideration: in the US, for instance, citizenship is relatively thin, in the sense that it confers few additional benefits if compared with residency.

**Australia** Current citizenship law in Australia differs considerably from that of the United States, despite the common origin as countries of immigration. Jus soli had also been introduced in Australia by the colonists. In the postwar period, the country went through numerous legislative and administrative reforms. Jus soli survived 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 acquire citizenship.

**Latin America** In the face of a civil law tradition which had been transplanted by the European powers, this area has followed a rather peculiar pattern. At independence, most of the incipient states chose jus soli as a way to break with the colonial political order and to prevent the metropolises from making legitimate claims on citizens born in the new countries. Jus soli was encoded in the Constitution of Brazil in 1824, of Venezuela in 1830, of Argentina in 1853. Therefore, most of Latin America was already a jus soli country before the 19th century immigration waves began. Jus soli is still the prevalent rule in the area, even if it is no longer attracting immigrants. Mexico represents a special case where jus soli was also adopted in the 1814 insurgent Constitution, but was then abandoned in 1836, only to come back to stay with a Constitutional Amendment in 1937.

**The United Kingdom** British nationality law has been deeply affected by the imperial experience. Because of its colonial history, the concept of nationality in the UK was, up to World War II, particularly extensive, since all subjects of the British Empire had equal access to British citizenship simply by establishing residence in the UK. The 1948 Nationality Act created the status of Citizen of the United Kingdom and Colonies for people with a close connection to the UK and its colonies. Following a postwar wave of colonial immigration, this open-door policy was progressively restricted, even though special status is still attributed to citizens of the British Commonwealth. Redefinitions of national citizenship have been effectively employed, since the 1980s, as a form of selective immigration policy. The 1984 British Nationality Act restricts 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.

**France** The emergence of the nation-state in Continental Europe was the main factor that shaped citizenship law in this area. The revolutionary experience was particularly important

for France, where *jus sanguinis* was first introduced with the 1804 Civil Code and maintained for the entire course of the 19th century, even though military consideration introduced early on elements of *jus soli*. In order to secure immigrants' children born in France to the draft, in 1889 double *jus soli* became automatic, making the experience of this country a unique one. After World War II, large-scale immigration, especially from North Africa, raised concern regarding assimilation. Citizenship issues and the rights of immigrants became the object of heated debate in French politics. In 1993 Chirac introduced a restrictive revision to the legislation, that required a formal citizenship request from second-generation immigrants. With the Left regaining political power in 1997, however, these restrictions were considerably revised, with the automatic assignment of citizenship at age 18 to those immigrants' children born in France who had neither requested, nor declined it. The case of France is frequently compared with Germany. Brubaker (2002) has influentially argued that the different path followed by these countries has been shaped by their cultural difference, with France sticking to its tradition of assimilationist nation, and Germany to its ethnic identity.

**Germany** The single most relevant event in the history of German citizenship law is certainly the fall of the Berlin wall, which paved the way for the achievement of stable national borders. Prior to that, the massive guest-worker immigration of the postwar period, mostly from Turkey but also from Southern Europe, had started to put under strong pressure, but to no avail, the original Wilhelminian citizenship law of 1913, which had established strong *sanguinis* ties with German overseas emigrants. With the foundation of the GDR and the consolidation of the Eastern Block, Germany found itself in the paradoxical situation of having to live with a large population of disenfranchised foreigners born on its soil at home, and at the same time with millions of ethnic Germans living behind the Iron Curtain. Achieving border stability was a decisive factor in pushing Germany toward the long-delayed adoption of *jus soli* elements. A first step in this direction was the new Foreigner Law in 1990, which turned naturalization from the discretionary exception into the rule. A major overhaul of the legislation, following an intense political struggle, was finally approved in 1999. *Jus soli* is now the norm in Germany (under the mild requirement that one parent has lived in the country for eight years). In the evaluation of the German experience, other factors that may have delayed the introduction of *jus soli* are, as mentioned in the introduction, the strong

ethnic character of German national identity, and the thick nature of the German welfare state. The latter aspect may have played a role in shaping the evolution of citizenship policies in several other European countries and especially the Scandinavian ones, where *jus sanguinis* was functional to the large past emigration flows, but had recently to adapt to the quickly changing conditions, especially for high-immigration Sweden. As documented by Weil (2001), restricted forms of double *jus soli* are de facto applied, by now, in the vast majority of European countries, which recently adapted their legislation to the globalization of international migration and its increasing impact on Europe. In particular, in the entire EU, with the exceptions of Austria, Greece and Luxembourg, access to citizenship by second and third generation is facilitated.

**Decolonization** Postwar decolonization had a major impact on citizenship rules applied around the world, and not only through the indirect impact on the metropolitan countries we previously examined. The vast majority of the African colonies that were subject to civil law countries practicing *jus sanguinis* stuck to this principle after independence. On the other hand, many former UK and Portuguese colonies rejected the *jus soli* tradition and switched to an often strongly ethnically-tinged version of *jus sanguinis*. For instance, Sierra Leone's 1961 Constitution established that citizenship is transmitted only by descent and only to children whose father and a grandfather were Sierra Leoneans of African-Negro descent. In situations where instability was pushed to an extreme degree by the young age and the arbitrary borders of these countries, and was compounded with deep ethnic division, *jus sanguinis* tended to prevail as a way to control more easily the formation of national entities. At the same time, however, the associated exclusive notion of ethnic and tribal identity caused enormous problems in countries where colonial rule had left shaky democratic institutions. To these days, ethnic conflict lies at the roots of a chronic manipulation of citizenship rules in favor of one ethnic group over others. The 1964 Congolese Constitution, in an effort to exclude Rwandan immigrants, recognized citizenship only for persons whose parents were members of one of the tribes established within the territory by 1908. In 1981 Mobutu signed a new law on nationality requiring an ancestral connection to the population residing in the territory as far back as 1885. Marginalization and de facto statelessness of significant strata of the population is the unavoidable outcome of these policies.

**The disintegration of the USSR** Another major wave of citizenship law codification followed the disintegration of the USSR. The area had been sealed toward international migration but, as for all empires, there had been considerable migration within. The Soviet Union had occupied Estonia, Latvia and Lithuania in 1940. During the following decades millions of Russians were encouraged to settle in Latvia and Estonia (less so in Lithuania) in order to Russify them. To these days, large Russian-speaking, stateless, sizeable minorities are still present. After independence, the new citizenship laws of these three states reflected this heritage with an emphasis on *jus sanguinis* as the basis for acquiring citizenship. The hostile attitude toward ethnic Russians was especially strong in Latvia, while Lithuania, which was less affected by Soviet immigration policy, showed a more open approach. The issue for these states was how to balance a need to reconstitute their national identity around an ethnic model, and a commitment to democratic values with respect to the rights of minorities. Estonian and Latvian laws were sharply criticized by international organizations on the grounds of human rights. In the anticipation of EU integration, these recommendations were indeed fulfilled in the more recent legislation of the Baltics, while most other countries of the area still persist with discriminatory policies. By contrast, for the case of the Russian Federation, the salient fact in shaping current citizenship policy is the perception that many of its citizens are outside its borders, spread around the former regions of the USSR. Again, this perception as a country of emigrants pushes toward the persistence of *jus sanguinis* as the main principle, even though small concessions to *jus soli* have been made.

## 4 The model

This section develops a simple theoretical model which formalizes the hypotheses that a widely interdisciplinary literature has advanced with respect to the determinants of citizenship laws. The aim of the model is also to generate testable implications that can guide our interpretation of the empirical evidence.

We can view the laws regulating citizenship acquisition as the outcome of the decision problem faced by a median voter, in a context where citizenship confers the right to vote over policy variables. A native voter, when considering the decision to grant citizenship, and

thus the right to vote, to migrants, is driven by the benefits and costs associated with this decision.

A few warnings are in order, before we present the model's details. First, while in practice citizenship acquisition implies a larger set of rights, beside the right to vote, and also implies some duties, our focus on the right to vote as the main benefit of citizenship is easily justified, since political rights can be viewed as an instrument through which migrants could achieve broader political, economic and social goals. Second, even if the model concentrates on voting on a specific policy, i.e., a redistributive tax scheme which finances a public good, the same approach could be extended to consider alternative agenda. Finally, in our one-period framework the distinction between different ways to acquire citizenship becomes irrelevant, therefore the model's predictions can be applied to the laws concerning both citizenship at birth and naturalization.

We consider an economy where a population of mass  $P$  consists of natives with mass  $N$  and migrants with mass  $M$ , where  $M + N = P$  and  $M < N$ . Migrants are poorer than natives since they are relatively unskilled, i.e.,  $y^N > y > y^M$ , where  $y^N$  and  $y^M$  denote average income for natives and migrants, respectively, and  $y = \frac{N}{P}y^N + \frac{M}{P}y^M$  is the economy-wide average income. We also assume that income distribution is skewed to the right for each group, i.e., median income is lower than average income both for natives and migrants, and thus for the economy as a whole.

Both natives and migrants derive utility from consumption of a private good,  $c^i$ , and a public good,  $g$ , according to

$$u^i = c^i + \lambda g \quad (1)$$

where  $\lambda$  is a positive preference parameter. Both groups pay taxes, according to a proportional income tax rate  $\tau$ , such that  $0 < \tau < 1$ . Tax revenues are used by the government to finance the public good according to the following balanced budget constraint:

$$g = \tau y - \frac{\tau^2}{2} y \quad (2)$$

where the second term captures tax collection costs.

The tax rate is set through a political choice under majority voting, as in Meltzer and Richard (1981). Each enfranchised individual casts a vote on the tax rate. Assume initially

that only natives are citizens and are therefore allowed to vote. Assume also that society bears a cost  $k$  for the exclusion of migrants from citizenship. This cost increases with the share of migrants over population, reflecting the possibility that their disenfranchisement can lead to social unrest and even violence. The cost is also affected by factors that determine the degree of inclusiveness of a country's culture, as captured, for instance, by a jus soli tradition, according to

$$k = K + h \frac{M}{P} \quad (3)$$

where  $K$  reflects the degree of cultural inclusiveness and  $h > 0$ . The cost enters the individual budget constraint as follows:

$$c^i \leq (1 - \tau)y^i - k \quad (4)$$

where  $y^i$  denotes individual income. Equivalently,  $k$  could enter directly the utility function. The expression for the indirect utility function of a native voter with income  $y^{N_i}$  is given by

$$v^{N_i} = (1 - \tau)y^{N_i} - k + \lambda\left(\tau - \frac{\tau^2}{2}\right)y \quad (5)$$

which is single-peaked with respect to the tax rate. We can therefore apply the median voter theorem, according to which the equilibrium tax rate is the preferred tax rate of the native median voter with income  $y^{N^*}$ , according to

$$\tau^{N^*} = 1 - \frac{1}{\lambda} \frac{y^{N^*}}{y} \quad (6)$$

The level of the tax rate increases with the intensity of the preference for public goods and with inequality, which is measured by the ratio of native median income over the economy-wide average income, since migrants also pay taxes. To be noticed is that under our assumptions about income distribution it is not necessarily the case that  $\frac{y^{N^*}}{y} < 1$ , which implies that the tax rate is going to be positive only if  $\frac{y^{N^*}}{y} < \lambda$ .

The native median voter could avoid the cost  $k$  by granting citizenship to the migrants and thus accepting the tax rate that would prevail under universal enfranchisement, which is given by

$$\tau^* = 1 - \frac{1}{\gamma} \frac{y^*}{y} \quad (7)$$

where  $y^*$  is the economy-wide median income. Since  $y^{N^*} > y^*$ , it follows that  $\tau^{N^*} < \tau^*$ , i.e., the tax rate chosen by the native median voter is lower than the tax that applies under universal suffrage. In particular, given our assumptions on income distribution, the latter is certainly positive. The difference between  $\tau^{N^*}$  and  $\tau^*$  increases with the income gap between natives and migrants and with the share of migrants over population.

The native median voter faces a simple set of costs and benefits when considering the decision to grant citizenship. If migrants cannot vote, he has to face the cost  $k$ , but can enjoy a smaller tax. If migrants vote, he has to pay more taxes but  $k$  is avoided. It follows that the native median voter decides to grant citizenship to migrants if and only if

$$(1 - \tau^{N^*})y^{N^*} - k + \lambda(\tau^{N^*} - \frac{\tau^{N^*2}}{2})y \leq (1 - \tau^*)y^{N^*} + \lambda(\tau^* - \frac{\tau^{*2}}{2})y \quad (8)$$

where following (5) we find on the left hand side his indirect utility function when migrants cannot vote and on the right hand side his indirect utility function when migrants can vote. Both the disenfranchisement cost and the fiscal gain associated with the no-franchise status quo increase in the share of migrants over the population. Besides, the fiscal gain also increases with the income gap between natives and migrants, while the cost increases with the degree of inclusiveness  $K$  of the country's culture.

Even if the model is static, we can think of its dynamic implications in terms of a sequence of repeated decisions. If, following a sequence of stationary decisions, the economy is shocked by an increase of the migrants share, due to a large inflow, the median voter will respond taking into considerations all the channels involved and this may result in an adaptation of the regulation. To be noticed is that a given stock of migrants has a stronger impact on countries with a relatively small native population, since it is the share of migrants over population that matters.

The predictions so far obtained from the model indicate that a decision to extend citizenship and the associated voting rights is facilitated by a smaller income gap between natives and migrants and by a larger degree of inclusiveness of a country's culture. If we interpret a jus sanguinis tradition as a low degree of inclusiveness and thus a low cost of exclusion, it follows that jus sanguinis countries will be more reluctant to change. Finally, the effect of an increase in the share of migrants is potentially ambiguous, since a higher share increases



both the cost and the fiscal gain of disenfranchisement, generating a trade off. The net effect will depend on which factor is stronger.

While the present formulation of the model is designed to establish conditions for extension of citizenship rights to migrants, it can also encompass restriction. When the status quo is a jus soli regulation, or equivalently a particularly generous naturalization policy, migrants who are already in the country and have thus become citizens are simply to be considered as natives themselves. Together with the ethnic natives, they will decide whether or not restricting the current regulation taking into account the incoming waves of immigrants and following the simple logic previously illustrated.

The basic model can be extended to consider several other potentially relevant factors.

First, the impact of the size of government on citizenship laws can be captured by assuming that different countries exhibit different preference parameters toward government. Thus a relatively large government size, as captured by  $\lambda$ , could make an open citizenship policy more costly, by increasing the tax differential. Empirically, we should therefore expect a negative impact of the size of government on the degree of inclusiveness of citizenship laws.

Second, demographic aspects could be considered by assuming that the migrants' younger average age implies a larger ability to contribute to the welfare state, at any given level of income. While our one-period model cannot explicitly reflect these aspects, we can interpret our tax as a life-long contribution, which is higher for a migrant. This should facilitate the decision to grant them citizenship and implies that countries with a relatively old native population should be particularly sensitive to these considerations and thus display a more open attitude.

Third, the level of democracy can influence the outcome since it implies a constraint on the political rights of the natives themselves, which can be modelled with an income franchise requirement. If only rich natives are allowed to vote, the associated tax rate will be higher than otherwise, thus amplifying the tax cost which follows the decision to allow migrants to vote. The testable implication is that the decision to grant citizenship is positively influenced by the domestic level of democracy.

Fourth, border instability could be captured in a version of the model where the size of the native population, and thus the population share of migrants, is subject to uncertainty.

Indeed, when the national border is unstable, the main problem is to establish who can be considered as a native. Under standard risk aversion behavior, to introduce a random component in the model should affect the voting decision by reducing the tax rate.

To summarize, the share of migrants has a potentially ambiguous impact on the natives' decision to extend citizenship and voting right to migrants, since it increases the tax disadvantage, for the native median voter, of letting migrants vote, but it also increases the cost associated with their exclusion. Moreover, we expect the natives' decision to be positively influenced by an inclusive national culture, a relatively high income level of the migrants, a small welfare state, a relatively old native population, a high level of democracy, a stable national border, and a large native population.

## 5 The data: Citizenship laws of the world

We compile a data set of citizenship laws across the countries of the world for the postwar period. The principal source for the information we codify is a directory published by the Investigations Service of the United States Office of Personnel Management in 2001, which provides synopses of the citizenship laws currently practiced in 190 countries. The sources for this directory were Embassies, the Library of Congress, and the Department of State. We supplement this information with additional one from the CIA World Factbook (2002), the United Nations High Commission for Refugees (2003), and the survey in Weil (2001).

The principal focus of our codification is citizenship acquisition at birth, but we also collect information about naturalization requirements.

### 5.1 Citizenship at birth

We attribute to each country an appropriate code for citizenship laws in 2001, 1975 and at the beginning of the postwar period. We take 1948 as the starting point, even though there were nearly no reforms in citizenship laws during the first half of the century, so that most of the legislation in place in 1948 had actually been developed much earlier.<sup>3</sup> As in

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<sup>3</sup>By treating 1948 as the initial year, we include the postwar decolonization phase with the exemption of the Middle East, which gained independence from the British and French administration in the 1943-1948

the analysis of legal origins in La Porta et al. (1998), we treat the specific legal provisions regulating access to citizenship in 1948 as predetermined, at least relative to the subsequent developments that are the focus of the present investigation. Indeed, while the 19th century witnessed a first wave of adaptation of citizenship legislation from the civil vs. common law tradition, the subsequent half century did not see further evolution, despite the occurrence of major historical events such as World War I. By coding citizenship laws in the intermediate year 1975, we divide the postwar period into two subperiods of equal length.

In our classification we focus on the presence of *jus soli* elements in a country's legislation. This approach is justified by our primary interest in the potential impact of citizenship laws on immigrants, rather than emigrants. For 1948, 1975 and 2001, we divide countries into three groups: countries subject to *jus sanguinis* without any *jus soli* element (Group 1), countries that apply a mixed regime (Group 2), and countries subject to full *jus soli* (Group 3). A mixed regime includes elements of both *jus soli* and *jus sanguinis*.<sup>4</sup> Our data set includes those 162 countries for which we were able to collect information on both original and current citizenship laws, and for which migration data were available for the postwar period.<sup>5</sup>

#### INSERT TABLE 1

The differential patterns of evolution that citizenship laws generate in 1948, 1975 and 2001 are summarized by the transition matrices in Table 1, which reveals considerable variations both across countries and over time. The table shows that in 1948 *jus soli* was the rule in about 47% (i.e., 76 out of 162) of the countries, while *jus sanguinis* dominated in 41% (i.e., 67 out of 162), and the mixed regime was adopted in the remaining 12% (19 countries). Among the countries that were under *jus soli* in 1948, we find the United States, Canada, all the Oceanian countries, most of Latin America, within Africa and Asia the British and Portuguese colonies, within Europe the UK, Ireland and Portugal. On the other hand, in 1948 *jus sanguinis* predominated in most of Europe, including its Eastern part. As explained

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period.

<sup>4</sup>For details on our classification criteria see the Data Appendix, part A.

<sup>5</sup>For details on migration data see the Data Appendix, part C.

in Section 3, France was unique in its early choice of a mixed regime. Since we treat colonial territories as subject to the metropolitan countries' regime until independence, the group applying the mixed regime in 1948 includes France and its colonies.

By 1975, 31% (i.e., 50 out of 162) of the countries had jus soli, 62% (101) jus sanguinis, and 7% (11) a mixed regime. The main event justifying this evolution is decolonization, with many former colonies switching to jus sanguinis, from jus soli when the UK and Portugal were the metropolitan country, and from the mixed regime in the case of France (see Section 3). As of 2001, 24% (i.e., 39 out of 162) of the countries apply jus soli, 54% (88) jus sanguinis, and 22% (35) a mixed regime. It has mostly been the adaptation of the legislation of many European countries, relaxing pure jus sanguinis in favor of a mixed regime, that explains the pattern observed for the second subperiod.

Among the countries that still adhere to the jus soli principle in 2001 are the United States, Canada, New Zealand, and Ireland (which - however - recently introduced restrictions to jus soli with a June 2004 referendum). The United Kingdom and Australia, on the contrary, no longer adhere to it and now adopt a mixed regime. Overall, jus sanguinis is currently the most common regime, with 69% of the countries in Africa, 83% in Asia, and 41% (down from 88%) in Europe. The growing group where a mix of provisions is applied is particularly well-represented in Europe, with 56% of the European countries including the formerly jus soli United Kingdom. On the other hand, jus soli predominates in the Americas, with 89% of the countries in Latin America, and the entire North America (i.e., the US and Canada).

Table 1 reveals three different patterns of transitional dynamics: stability, switch, and convergence. Stable countries lie along the diagonal. Looking at the 1948 to 2001 transition, we see that a large fraction (28%, i.e., 46 out of 162) have started and ended as jus sanguinis. In other words, it is 69% (i.e., 46 out of 67) of the originally jus sanguinis countries that have remained so. By contrast, 22% (36 out of 162) are steadily jus soli countries: this means that only 47% (36 out of 76) of the originally jus soli countries have not changed their policies. Off diagonal, there is a sizeable proportion of countries (19%, or 31 out of 162) that have switched from jus soli to sanguinis, by completely eliminating birthplace as a criterion: most of them - as mentioned - are former African colonies of the UK and Portugal,

which made this radical choice at independence. Looking at the two subperiods, we see most of these switches occur between 1948 and 1975. Finally, there is evidence of a process of convergence to a *solis/sanguinis* mix, which affects 18% of the countries (29 out of 162, of which 20 converge from *jus sanguinis* by adding *jus soli* elements, while 9 converge from *jus soli* by restricting it) and intensifies between 1975 and 2001.

#### INSERT TABLE 2

In Table 2 we present further information on citizenship laws evolution by reporting changes in citizenship laws, organized by original laws. Over the 1948-2001 period, 74 countries (46%) have gone through a change in the laws. Of these, 51 have changed toward *jus sanguinis* and 23 toward *jus soli*, while 45 changes have occurred in the first subperiod and 33 in the second.<sup>6</sup> In particular, in the first subperiod, the majority of the countries that went through a change (29, or 64%) were originally *jus soli*. As mentioned, this pattern is determined largely by the behavior of former colonies. In the second subperiod, the majority of the countries that went through a change (20, or 61%) were originally *jus sanguinis*, most of which adopting a more open legislation.

#### INSERT TABLE 3

Summary statistics for our citizenship laws data set are reported in Table 3. The correlation between 1948 and 2001 citizenship laws is 0.42, which points to some persistence, as confirmed by the even higher correlation between 1948 and 1975 (0.60) and 1975 and 2001 laws (0.81).

## 5.2 Citizenship by naturalization and the citizenship policy index

Naturalization policies are also relevant to the issues at hand. Indeed, to facilitate naturalization for immigrant parents may represent a substitute mechanism to attribute citizenship to children born in *jus sanguinis* countries. Besides, the general attitude revealed by a country's regulation of citizenship at birth may be reflected in its naturalization laws, with *jus*

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<sup>6</sup>A few countries went through more than one change.

soli countries traditionally making naturalization much easier, at least for resident aliens. Within jus sanguinis countries, naturalization requirements again tend to be correlated with the revisions introduced for citizenship at birth. Basic rules for naturalization may include a period of residence, renunciation of other citizenship, familiarity with the language and customs of the country, and the availability of adequate means of support.

We code naturalization only for 2001, on the basis of the available information on 142 of our 162 countries. We classify countries on the basis of the number of years of residence required for naturalization, by constructing four classes (more than 14 years, 6 to 14 years, 5 years, 4 years or fewer).<sup>7</sup> In our data set 62 countries (i.e., 44%) require five years of residence, which can be considered a relatively open attitude, while 46% require more time and only 10% are more open.

We then combine the information we collected on citizenship at birth and naturalization within a single measure, even though data on naturalization are only available for the year 2001 and for a subset of countries. We construct an index of citizenship policy defined on the 0-1 interval. To construct the index, we treat citizenship laws in 2001 as an ordinal variable, by associating jus soli elements with lower number of years of residence required for naturalization. The corrected Cronbach's alpha of the indicator is 0.54, which can be explained by the fact that the correlation between citizenship laws and naturalization is only 0.37. Alternative ways to define naturalization classes yielded similar conclusions.<sup>8</sup> Table 3 reports summary statistics for naturalization and the citizenship policy index.

## 6 The determinants of citizenship laws

### 6.1 Empirical specification

In bringing our theoretical model to the data, in order to investigate the determinants of citizenship laws evolution in the postwar period, we select the following variables. The dependent variable is citizenship laws, which is categorical and can take three values: 1 if

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<sup>7</sup>We do not consider naturalization by marriage, since it is heavily dependent on family law.

<sup>8</sup>Dual citizenship provisions constitute another potentially relevant aspect of citizenship policy, but we do not use this variable due to limited information.

the country has a jus sanguinis regime, 2 if the country has a mixed regime, and 3 if the country has a jus soli regime. Among regressors, we employ measures of migration, the size of government, and the age structure of the population, while we cannot gauge the impact of the income gap between natives and migrants due to lack of data. We interpret the presence of a jus soli tradition as an indicator of the degree of inclusiveness of national culture. To control for other cultural characteristics, we also consider religion and ethnic diversity. Border stability is measured through dummies capturing a country's history of border changes.<sup>9</sup> We also control for countries with a particularly small population size.

We use a multinomial logit specification to achieve maximum generality. In fact, this choice does not impose any ex ante ordering among the three regimes, e.g., an ordering by increasing inclusiveness toward immigrants, with jus soli being associated with maximal, and jus sanguinis with minimal inclusiveness. Moreover, in principle those regressors that affect the probability of being a jus soli country may not always have the opposite effect on the probability of being a jus sanguinis country, or else may not have any effect at all (and vice versa). Further discussion on this point is postponed to the sub-section on robustness.

The empirical investigation is performed using a panel sample which includes information on two cross sections of 162 countries: the first cross section refers to the 1950-1975 subperiod, the second cross section to the 1976-2000 subperiod. In the full specification we present, the multinomial logit model we run has the following form:

$$L_{it} = a + bM_{it} + cS_{it} + dM_{it}S_{it} + eT_t + \mathbf{Z}'_{it}\mathbf{f} + \epsilon_{it}, \quad (9)$$

with  $i = 1, \dots, 162$  and  $t = 1, 2$  (where  $t = 1$  refers to the 1950-1975 period and  $t = 2$  refers to the 1976-2000 period).<sup>10</sup>

In specification (9),  $L_{it}$  represents citizenship laws in country  $i$  at the end of period  $t$ ,  $a$  is a constant term,  $M_{it}$  is migration stock in country  $i$  at the beginning of period  $t$ ,  $S_{it}$  is a dummy for the presence of jus sanguinis in country  $i$  at the beginning of each subperiod,  $M_{it}S_{it}$  is the interaction between the previous two variables,  $T_t$  is a period dummy,  $\mathbf{Z}_{it}$  is a

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<sup>9</sup>The Data Appendix, part B describes how the three border change dummies are constructed.

<sup>10</sup>We also run multinomial logit models for two types of more parsimonious specifications, for comparison purposes.

vector of additional explanatory variables, and  $\epsilon_{it}$  is an error term.<sup>11</sup>

The set of explanatory variables  $\mathbf{Z}_{it}$  can be divided into two groups. The first group includes dummies capturing the country's geopolitical position. Within this group we consider a set of dummies capturing a country's history of border changes (decolonization, Berlin wall, other border changes) and dummies for Latin American, Southern European and small countries. The second group of explanatory variables includes the size of government, the share of young in the population, proxies for cultural characteristics such as religious affiliation and ethnolinguistic fractionalization, and a measure of democracy.

The Data Appendix collects information on the definitions and sources of all variables we employed. Table 4 presents their summary statistics.

#### INSERT TABLE 4

We can now suggest a number of specific hypotheses, consistent with the model previously outlined, regarding the potential role of the above mentioned factors, starting with the variables we consider focal to our analysis, i.e., immigration and legal tradition. Throughout the following, we will organize our comments in terms of the effects of each of our regressors on the probability of adopting either a mixed or a jus soli regime instead of jus sanguinis. This follows the specification of our multinomial logit estimates, where we take jus sanguinis as the reference category.

Migration ( $M_{it}$ ) is measured by the stock of migrants in percent of the population at the beginning of each subperiod. For the first subperiod, the available data refer to the stock in 1960,<sup>12</sup> while for the second they refer to the stock in 1980. By entering the migrant stock near the beginning of each period, we avoid any potential endogeneity problem of migration with respect to citizenship laws, since it is unlikely that stocks evaluated at the beginning of the period can be affected by subsequent changes in citizenship laws.<sup>13</sup> A positive coefficient

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<sup>11</sup>In particular,  $L_{i1}$  and  $L_{i2}$  are citizenship laws in country  $i$  in 1975 and 2001, respectively;  $M_{i1}$  is migration stock in country  $i$  in 1960 and  $M_{i2}$  is migration stock in country  $i$  in 1980;  $S_{i1} = 1$  if country  $i$  has jus sanguinis in 1948 and  $S_{i2} = 1$  if country  $i$  has jus sanguinis in 1975;  $T_1 = 0$  and  $T_2 = 1$ .

<sup>12</sup>Earlier data are not available, see the Data Appendix, part C.

<sup>13</sup>Even taking into account the anticipation of future changes of citizenship laws in making migration decisions, the endogeneity of our migration measure is ruled out by the fact that such changes had been



for the mixed regime would indicate that high migration pushes toward it rather than toward jus sanguinis, and similarly for the jus soli regime.

As previously discussed, we view legal tradition in the matter of citizenship as a component of national culture. We measure it with a dummy for countries that apply jus sanguinis at the beginning of each subperiod ( $S_{it}$ ). We select this dummy because jus sanguinis is the most persistent of the three regimes, thus suggesting a particularly significant role of this initial legislation. A negative value of the dummy's coefficient for a mixed and jus soli regime would imply that jus sanguinis countries are less likely to end up in the mixed and jus soli groups, thus confirming persistence of the original laws.

The interaction between the jus sanguinis dummy and migration should reveal additional information: if positive, its coefficients would indicate that those jus sanguinis countries facing high migration tend to add jus soli elements. In particular, a positive coefficient for the mixed regime would suggest convergence toward the intermediate group. On the other hand, the coefficients of the interaction could also turn out to be negative since, in the presence of a large stock of migrants, the natives' reaction could be a conservative one. To assess the total impact of migration for jus sanguinis countries we also need to take into account the interaction's coefficients.

Turning to our geopolitical dummies, if border stability really counts as a prerequisite for the introduction of automatic birthrights for the immigrants, as suggested by some of the political theories introduced in Section 1, we should expect negative signs for the coefficients for our border change dummies. We introduce the Latin America dummy to capture the peculiarity of this continent's experience. As explained in Section 3, most of Latin America adopted jus soli long before our sample period, so its current position is not determined by postwar developments and in particular by its postwar migration experience. If indeed the behavior of Latin America differs significantly from the rest of the sample in being associated with a higher probability of adopting jus soli, it should exhibit a positive coefficient for this kind of legislation. For Southern Europe, we should expect a positive coefficient for the mixed regime since these countries have been experiencing quickly increasing migration during the extremely rare during the first half of the 20th century. The potential endogeneity of migration is further addressed in Section 6.3.1, where alternative measures of migration are introduced.

second subperiod, with most of the revision to the legislation toward mixed regimes occurring in the past 15 years or so. Finally, since migration data reveal that countries with a small population tend to have large and erratic figures, with a disproportionately small impact on their legislation, we should expect negative signs for this dummy's coefficients.

The size of government is meant to proxy for the nature of the welfare state: if a thicker, more expensive and more redistributive structure would represent an obstacle to automatic citizenship granting to the children of relatively poor immigrants, we would find negative coefficients. On the other hand, if young immigrants could offer a solution to domestic demographic imbalances, we would find that countries with a higher share of young in total population would be less prone to adopt *jus soli* elements, thus displaying negative coefficients.

In an effort to capture additional dimensions of cultural differences, beside legal tradition, we include the share of Catholics in total population and an index of ethnolinguistic fractionalization.

The establishment of a consolidated democracy - measured by the political rights variable - should exert a positive effect on the probability of a *jus soli* legislation even though even in a democratic country hostility toward the assimilation of outsiders may persist for a protracted period of time.

#### INSERT TABLE 5

Pairwise correlations among our dependent and independent variables are presented in Table 5. Current citizenship laws, the dependent variable, is highly correlated with the initial citizenship laws as identified by the *jus sanguinis* dummy (-0.64), while its correlation with the civil law dummy is much lower (-0.15). Citizenship laws are also significantly correlated with migration, the small country dummy, political rights, the Catholic share, and ethnolinguistic fractionalization. Pairwise correlations between all our independent variables are not reported for brevity and can be summarized as follows. The dummy reflecting *jus sanguinis* as the initial law is negatively correlated with decolonization (-0.31) and Latin America (-0.43). The Latin America dummy is positively associated with the Catholic share (0.52). Political rights tend to be low in countries with high ethnolinguistic fractionalization

(-0.36). The share of young in population is positively associated with migration stocks (0.35). Overall, these stylized facts are in line with previous research and economic intuition. It is also clear that several of our independent variables are closely interrelated and that it may be difficult to disentangle their specific effect on the evolution of citizenship laws.

## 6.2 Results

The results of our multinomial logits are presented in Table 6. The table reports three different specifications. Multinomial logit (a) is the core specification, which includes only the core variables, i.e., migration and jus sanguinis as initial citizenship law, plus the period dummy. Multinomial logit (b) is an expanded specification, which adds to (a) the dummies we discussed above. Finally, multinomial logit (c) is our full specification, which adds to (b) the other potentially relevant economic and institutional regressors. Jus sanguinis is the reference category for all the results shown. Hence, the results reported in the table indicate the impact of the explanatory variable on the probability of choosing either the mixed or the jus soli regimes, relative to jus sanguinis.

### INSERT TABLE 6

Starting with the core specification, we find that the core variables are all significant. In particular, migration and jus sanguinis display negative coefficients for both the mixed regime and jus soli, while both coefficients are positive for the period dummy. This means that high migration and a jus sanguinis origin decrease the probability of applying a mixed or a jus soli legislation rather than jus sanguinis, and that in the second subperiod the probability of applying a mixed or jus soli legislation increases.

In the specification which includes the dummies, the jus sanguinis origin still exerts a negative impact on the probability of applying a mixed or jus soli regime, while migration only remains significantly negative for the probability of applying a mixed regime. The period dummy is significantly positive only for the probability of a mixed regime. As expected, the decolonization dummy displays two negative coefficients, i.e., having gone through a decolonization border change negatively affects the probability of applying either a mixed or jus soli regime. South Europe has a positive coefficient for the mixed regime, confirming

that Southern European countries have a higher probability of becoming mixed. Latin America has a positive coefficient for jus soli, since these countries have a higher probability of applying this regime. The small country dummy is not significant in this specification.

Finally, in the full specification, the impact of migration, a jus sanguinis origin and the period dummy are confirmed.<sup>14</sup> Inspection of the marginal coefficients in Table 7 confirm that migration increases the probability of jus sanguinis and decreases that of a mixed regime. The interaction term between migration and jus sanguinis origin is significant and positive for both the mixed regime and jus soli, uncovering a tendency for countries with a jus sanguinis origin which are exposed to high migration to add jus soli elements. However, the strength of this tendency is questioned by the fact that, if one evaluates the coefficients of migration and of the interaction together, the total effect of migration becomes negligible. In this extended version the coefficient for decolonization loses significance. However, inspection of the marginal effects for decolonization confirms that even in the full specification the regressor retains a significantly negative impact on the probability of jus soli. The role of the Latin America and Southern Europe dummies is confirmed, while the small country dummy now reveals a negative impact on the probability of applying a mixed regime. The size of government has a positive and significant coefficient for the probability of applying a jus soli regime, while the share of young in the population exerts a negative impact, in support of the hypothesis that countries with a relatively old population are more likely to choose mixed and jus soli regimes. The share of Catholics and ethnolinguistic fractionalization are both insignificant, while a high degree of democracy positively affects the probability of applying either a mixed or jus soli regime.<sup>15</sup>

We also consider additional covariates that have often been found significant in related research on the determinants of institutions. Quantitative and qualitative development indicators such as income per capita and inequality could reveal if a richer, more equal country is more prone to adopting jus soli elements. However, both per capita GDP and the Gini index of inequality tend to be associated with migration, and also with democracy and frac-

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<sup>14</sup>For both multinomial logit (a) and (b) we obtain the same results using a balanced sample composed by the 224 countries which constitute the reference sample for the estimation of our full specification.

<sup>15</sup>For all three specifications, we verified that our results are not driven by outliers.

tionalization, so they are unlikely to add independent explanatory power to a regression. In fact they fail to add any further significance to the previous results. Moreover, a dummy for oil countries could account for the fact that most of them have been experiencing huge immigration which has had no impact on their still very restrictive legislation (often based on Islamic family law). A dummy for socialist countries could instead work as an alternative to our Berlin wall border change dummy.<sup>16</sup> However, we cannot include in the regressions the socialist and oil dummies, as well as the Berlin wall and the other border changes dummies, due to the fact that all countries identified by them do not exhibit enough variability with respect to the dependent variable.<sup>17</sup>

#### INSERT TABLE 7

The marginal effects reported in Table 7 for the full specification reveal further insights such as the significant role of decolonization previously mentioned. In particular, having gone through a decolonization border change decreases the probability of being *jus soli* by about 14%. Moreover, an increase in migration of one percentage point increases the probability of being a *jus sanguinis* country by about 2.5%, and decreases the probability of having a mixed regime by 2.3%. Besides, an increase in migration of one percentage point for a *jus sanguinis* country decreases the probability of being *jus sanguinis* by about 2.7%, to be evaluated together with the 2.5% increase due to direct effect of migration.

Overall, our results indicate that migration, the original laws and our geopolitical dummies exert a significant impact on current citizenship laws, and that other factors such as government size, demographics and democracy also contribute to their determination. In particular, we show that the legal tradition tends to affect the current legislation persistently, even though the process of transplantation can prove discontinuous in the case of former colonies. In addition, the legal tradition interacts with the way countries react to migration in a complex way. Overall, our results suggest that migration pushes national legislations in the direction of *jus sanguinis*, not *jus soli*. However, this simple correlation breaks down once the interaction between migration and the legal tradition in the matter of

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<sup>16</sup>The correlation between Berlin wall and socialist is 0.48.

<sup>17</sup>For example, countries affected by Berlin wall have always applied *jus sanguinis*.

citizenship is considered. On the one hand, countries with a jus soli origin react to increasing migration by adding jus sanguinis elements. On the other hand, for countries with a jus sanguinis origin which have experienced more immigration, there is evidence of a stronger tendency toward adding jus soli provisions. On balance, in jus sanguinis countries the impact of migration turns out to be negligible. Therefore, the evidence offers only mild support for the hypothesis of convergence toward a mix of provisions, suggested by some political theories (see Section 1), because liberal countries tend to restrict while restrictive countries tend to innovate only moderately. The presence of countervailing forces highlighted by the model is therefore confirmed by our findings. Contrary to the model's implications, the welfare burden proves not to be an obstacle for a jus soli legislation. However, this could be explained by the fact many of the countries with extended welfare systems may favor immigration because of their demographic crisis. Indeed, as predicted by the model, demographic stagnation encourages the adoption of mixed and jus soli regimes. Moreover, the impact we observe for the size of government could be explained by the fact that it proxies for European-style, relative open socialdemocracies. Finally, the evidence confirms that a higher degree of democracy is associated with more jus soli elements, while cultural traits captured by religious affiliation and ethnolinguistic fractionalization appears to be irrelevant.

Overall, our empirical findings match the theoretical insights coming from the model, and provide a deeper understanding of the forces shaping citizenship laws, in particular as far as the impact of migration is concerned.

## **6.3 Robustness**

In this section we present a number of alternatives to our benchmark regressions to investigate whether they are robust to different specifications, samples and estimation techniques.

### **6.3.1 Alternative specifications**

We experiment our multinomial logit specifications with alternative covariates. First, we replace our measure of migration with a range of alternative measures. As outlined above, our migration measure was chosen to minimize a potential endogeneity bias. When we replace our migrations stocks with average migration flows (computed with reference to each

subperiod),<sup>18</sup> the coefficients for migration turns out to be insignificant in all three specifications. This could suggest that migration flows are endogenous with respect to citizenship laws. Further tests involve alternative measures of migration stocks, since a possible concern is that migration stock measured in 1960 for the first subperiod and in 1980 for the second subperiod may not be appropriate to capture all the developments of the subsequent 25 years. Therefore, as possible alternatives, for the first and the second subperiod we select the years 1970 and 1990, respectively, and the 1960-70 and 1980-90 averages, respectively. In the Table Appendix, Table A.1, column (1) presents the full specification with the 1960-70 and 1980-90 averages (average migration stock). With these alternative stock measures, some differences emerge in the coefficients for migration and its interaction with *jus sanguinis*, with the latter losing significance, while the coefficients for the other regressors are largely unaffected. Since in the postwar period migration has been highly regulated by policy in most receiving countries, and citizenship laws could be viewed as part of migration policy, the simultaneous determination of citizenship laws and migration does represent a serious concern when we enter within-the-period data on migration instead of beginning-of-period data. To sum up, our beginning-of-period migration stocks prove to be the most adequate measures of the role of migration.<sup>19</sup>

Since *jus sanguinis* and *jus soli* are in principle closely linked to the civil and common systems of laws, respectively, the influence of the legal tradition can also be analyzed through a dummy capturing the presence of a civil law tradition (i.e., a dummy equal to 1 if a country belongs to the civil law tradition and equal to 0 if a country belongs to common law). If the coefficients of the two alternative dummies were the same, one could conclude that our detailed codification of the original citizenship laws does not add much to what we can already learn from a country's broader legal tradition. The correlation between the two dummies, however, is only 0.35, due to the previously illustrated historical events (namely,

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<sup>18</sup>Migration stocks and flows show a correlation of 0.45.

<sup>19</sup>We also experiment with a specification entering the migrant stock in 1960 for both subperiods, to account for the potential effect of changes in citizenship laws introduced between 1960 and 1980 on subsequent migration decisions. As previously explained, since changes had been extremely rare before 1960, the migrant stock in 1960 is not subject to this concern. Results from this instrumented specification are similar to those presented in Table 6.

the early switch to *jus soli* of civil law Latin America, the introduction of a mixed regime in France and its colonies and, more recently, the *jus sanguinis* choice of former British colonies). It follows that, when we replace the *jus sanguinis* with the civil law dummy (see Table A.1, column (2)), the latter turns out to be substantially less significant and reduces the significance of most other regressors. This demonstrates that civil law is a much weaker predictor of current citizenship laws than the original citizenship laws themselves and implies that our citizenship laws classification does contain novel information which is not already embedded in the legal origin data.

We also replace our decolonization dummy with a dummy for British or Portuguese colonies (identifying those countries that were characterized by a *jus soli* legislation during the colonial period), and with the sub-Saharan Africa dummy.<sup>20</sup> Both alternatives are associated with insignificant coefficients and marginal effects. This implies that our dummy for a decolonization border change does capture more precisely an important determinant of current citizenship laws.

We also experiment with a variant without the Latin American dummy. The main results are broadly confirmed, while not surprisingly the Catholic share becomes highly significant and positive for the *jus soli* regime, since Latin American countries are mainly *jus soli* and Catholic. However, it would be misleading to attribute a higher probability of a *jus soli* regime to this specific cultural characteristic, since as explained these countries selected *jus soli* for other historical reasons. We also rerun our regressions over a reduced sample without Latin America, and the results are in line with those of Table 6. We therefore retain the Latin America dummy in the selected specification.

Finally, we try to replace the Southern Europe dummy with a variable capturing what we believe is the crucial determinant of the peculiar behavior of this region, i.e., quickly increasing immigration during the second subperiod. We therefore add migration flows to the extended specification. While the coefficients of the other regressors are largely unaffected by this modification, the coefficient for migration flows turns out to be insignificant. However, this can be explained by the fact that, as explained at the beginning of this subsection, flows

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<sup>20</sup>Decolonization shows a significant correlation with the dummies for British or Portuguese colony (0.30) and for sub-Saharan Africa (0.31). Regression results are omitted for brevity.



are multicollinear with respect to stocks and endogenous with respect to the dependent variable. We therefore retain the Southern Europe dummy in the presentation of the main results.

### **6.3.2 Alternative estimation techniques**

Alternative estimation techniques broadly confirm the same results from Table 6. In particular, an (unreported) alternative multinomial probit model delivers the same qualitative results.

We also run ordered logit regressions where current citizenship laws are explicitly treated as an ordinal variable, which we assume here to be ordered by increasing inclusiveness, i.e., we assume that *jus sanguinis* corresponds to minimal and *jus soli* to maximal inclusiveness. These results are reported in Table A.2 in the Table Appendix. Even though the single coefficient for each covariate that characterizes an ordered logit regression fails to capture some facets of the issues which are more clearly disentangled by the two coefficients of the multinomial logit, overall the previous results are confirmed, with migration and a *jus sanguinis* origin exerting a negative impact on the application of *jus soli*.

### **6.3.3 Alternative sample criteria**

We also run multinomial logit regressions on a cross-sectional sample composed by country averages over the 1950-2000 period. In this specification the dependent variable is citizenship laws in 2001, while migration stock refers to the year 1960 and *jus sanguinis* in 1948 is the initial citizenship law. All other covariates are adapted accordingly. Therefore, for instance, the decolonization dummy identifies all decolonization events occurring during the 1950-2000 period, and the size of government is an average over the entire period. The results for this cross section reveal a much lower level of significance for several covariates, in particular for migration and for its interaction with the initial laws.<sup>21</sup> The same applies to alternative variants with a cross section over each subperiod, i.e., 1950-1975 and 1976-2000. This suggests that our panel includes more information on the determinants of citizenship

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<sup>21</sup>We also experiment with migration stocks in 1970 and 1980, and with average migration flows, with similar results.

laws than a simple cross section. An alternative ordered logit regression for the cross section also achieved much weaker results than those found in the panel.<sup>22</sup>

For the same cross section, we also run an ordinary least squares regression with an alternative dependent variable, i.e., our citizenship policy index developed in Section 5, which merges information from both citizenship laws at birth and naturalization, both in 2001. Migration turns out to be insignificant in these regressions, as it does in a comparable ordinary least squares regression with an indexed version of 2001 citizenship laws as dependent variable (see Table A.3 in the Table Appendix).<sup>23</sup> The same qualitative results arise in an unreported regression with naturalization in 2001 as dependent variable. Again these results may be due to the fact that a single cross section of countries includes less information than our panel.

## **7 An alternative approach: The determinants of change in citizenship laws**

In this section we study citizenship laws evolution using an alternative approach which is able to provide additional insights. While specification (9) focuses on current citizenship laws as the dependent variable, we developed an alternative specification which is designed to capture more specifically the determinants of a change in the laws.

### **7.1 Empirical specification**

In the alternative specification, the dependent variable is categorical and can take three values: -1 if the country changes its laws toward *jus sanguinis*, 0 if no change occurs, and 1 if the country changes its laws toward *jus soli*. For our panel, we run a multinomial logit

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<sup>22</sup>We also apply to the above results the Cook's distance method to show that they are not driven by outliers.

<sup>23</sup>The main difference between the two OLS regressions is that *jus sanguinis* as initial law becomes insignificant when the dependent variable is the citizenship policy index. This difference is to be attributed to the fact this initial condition does not exactly match the dependent variable, since data on naturalization in 1948 are not available.

model of the following form for its full specification:

$$V_{it} = \alpha + \beta M_{it} + \gamma T_t + \mathbf{Z}'_{it} \boldsymbol{\delta} + \eta_{it}, \quad (10)$$

where  $\alpha$  is a constant term and  $\eta_{it}$  is an error term.  $\mathbf{Z}_{it}$  contains all the variables previously described, except for those which present zero-cells problems, i.e., jus sanguinis as the initial citizenship law, its interaction with migration, and the Latin America dummy. Pairwise correlations among our new dependent variable, changes in citizenship laws, and the independent variables are presented in Table 5, showing that migration is again negative correlated with the dependent variable.

## 7.2 Results

Regression results for the multinomial logit model are presented in Table 8, where the reference category is no change. Hence, the results reported in the table indicate the impact of the explanatory variable on the probability of choosing either restriction toward jus sanguinis (first column) or expansion toward jus soli (second column). Migration has a positive impact on the probability to restrict and a non significant impact on the probability to expand. The period dummy indicates that the second subperiod witnesses an increase in the probability to expand. Decolonization exerts a positive impact on change in both directions, more significantly so for restriction, while the opposite holds for Southern Europe. The size of government's negative coefficient for restriction confirms that this factor actually prevents it, while again a relatively young population provokes resistance to extension, meaning that relatively old countries are more likely to liberalize their legislation. Ethnic diversity emerges as a significant factor of change toward jus sanguinis.

INSERT TABLE 8

Table 9 reports the marginal coefficients for the regressions in Table 8. The restrictive impact of migration is confirmed.

INSERT TABLE 9

As for specification (9), we perform a full set of robustness checks for (10). The Gini index once again fails to add any significance, while per capita GDP reveals a significant impact on expansion. Alternative measures of migration confirm an irrelevant impact on change in the laws. When we replace our decolonization dummy with the dummy for British or Portuguese colonies, the alternative dummy is again significant, due to the removal of the Latin America dummy which comprises several former Portuguese colonies. The sub-Saharan Africa dummy is not significant when entered instead of decolonization.

Overall, these results are complementary to those of Section 6 since they highlight which factors have induced the observed evolution of the legislation, for each possible direction of change. In particular, migration is confirmed as a factor that favors change toward restriction.

## 8 Conclusion

We studied the theoretical and empirical determinants of the legal institution of citizenship in the postwar period, on the basis of a new data set we compiled. We developed a simple median voter model where citizenship rights are granted by natives to migrants on the basis of the associated benefits and costs. The model predicts that migration has a potentially ambiguous impact on the legislation, and that this impact is affected by cultural factors including a country's degree of inclusiveness, as reflected by the original citizenship legislation. In bringing the model to the data, we found that indeed citizenship laws have responded endogenously and systematically to a number of economic and institutional factors. Our investigation reveals that migration has had an overall negative impact on liberalization of the legislation through the adoption of *jus soli* elements. Moreover, the legal tradition has affected the way countries have responded to migration. In particular, *jus soli* countries have reacted to increasing migration through restriction, while in *jus sanguinis* countries the impact of migration has been negligible. Therefore, the evidence offers only mild support for the hypothesis of convergence toward a mixed regime that includes both *jus soli* and *jus sanguinis* elements. Border instability emerges as a decisive factor in shaping citizenship laws, particularly in connection with the decolonization phase, reflecting discontinuities

for the transplanting process of legal institutions. Countries with larger welfare systems, older population and more extended political rights tend to be associated with more diffused elements of *jus soli*.

More generally, a clear implication of our investigation is that institutions should not be presumed to be exogenous, since they do adapt both to economic and non-economic factors. The endogeneity of institutions to economic factors represents a challenge for research aimed at demonstrating that institutions are crucial determinants of economic performances. By showing that citizenship laws are shaped not only by the broader legal origins, but also by other institutions such as the internal system of political rights and the international system of relations as reflected by state borders, we also establish that different institutions are interrelated. This represents another challenge for further research on the process of formation of legal rules and on the impact of institutions on economic outcomes.

Citizenship laws are still changing. Further research will study the future evolution of citizenship policy, by using projections of international migration patterns in combination with the available predictions about the future course of democratization and border changes. Finally, citizenship laws can be viewed as a link, within a legal system, between the public and the private sphere of influence. Many issues that fall within the former - such as commercial law, labor regulation, and government activities - have already been investigated. Our methodology can be extended to the study of other evolving bodies of the law, such as family law, rules of inheritance, and women's rights.

## DATA APPENDIX

### A. The citizenship-at-birth classification

**Group 1 (*jus sanguinis* countries):** We include countries where citizenship is passed on to a child based upon at least one of the parents being a citizen of that country, regardless of the child's actual country of birth, and where citizenship is not granted due to birth within the country. In the application of *jus sanguinis*, countries may differ on some factors, for example on the father's vs. mother's right to transmit citizenship by descent, the requirement of citizenship for one or both parents, the relevance of the marital status of

the parents. Most of these factors depend on the interaction between local family law and citizenship law. A common exception to the general principle of *jus sanguinis* is automatic citizenship attribution to children of unknown parents. Since we focus on the presence of *jus soli* elements in a country's legislation, our classification does not emphasize how narrowly *jus sanguinis* can be specifically applied to emigrants. Examples of restrictions are generational requirements limiting the principle of citizenship by descent to the first or second generations of individuals born and residing abroad, residence requirements for parents, and the requirement that parents must be citizens other than by descent.

**Group 2 (countries with a mixed regime):** We include those countries where elements of *jus soli* are recognized, albeit in a restrictive form, and coexist with varying degrees of *jus sanguinis*. For example, a frequent provision that limits *jus soli* is double *jus soli* (i.e., automatic citizenship for the children of those immigrants who were also born in the country). Another is the ability, for a child born in a country where *jus sanguinis* prevails, to acquire citizenship at some later point (e.g., the age of maturity) subject to either residence requirements or application. Moreover, we interpret as an element of *jus soli*, that justifies the inclusion of a country within Group 2, the existence of a provision that birth in the country matters for naturalization.

**Group 3 (*jus soli* countries):** We include those countries where citizenship is automatically granted due to birth within the country, regardless of the parents' citizenship or status. Normally countries that apply *jus soli* combine it with *jus sanguinis* provisions for the children of their citizens born outside of their territory (although limitations to the ability to transmit citizenship acquired in this manner to the next generation usually apply through, for example, residence requirements).

## **B. The border change dummies**

We construct three border change dummies (i.e. Decolonization, Berlin Wall, and Other Border Changes) based on data collected from Polity IV (2002). In particular, from the Polity IV variable CHANGE we record information on four types of events capable of affecting state borders, i.e. State Disintegration, State Transformation, State Demise, and State Creation. Even if we set 1948 as the initial date for our citizenship laws analysis, for border changes we include a few earlier events occurred in the 1943-1948 period that fit within the phase of post-

colonial independence. Examples of the events contained in the Polity IV (2002) data set are the State Disintegration of Yugoslavia in 1991; the State Transformation of Germany in 1990, East Germany in 1945, West Germany in 1945, and Russia in 1992); the State Demise of Germany in 1945, East Germany in 1990, West Germany in 1990, and the USSR in 1991. The countries affected by State Creation are the most numerous. They include the new countries gaining independence - and therefore state borders - in the postwar decolonization phase, the new countries formed in Europe after the fall of the Berlin wall, plus a few additional observations not linked to these two waves. Clearly, there is substantial overlap among the observations recorded in the Polity IV data set. We adapt these data to our needs by matching them to the 162 countries appearing in our citizenship laws data set. For instance, we count as a single event, occurring to Germany, the State Transformation of East and West Germany in 1945, but also the State Demise of Germany in the same year. Likewise, we treat as another single event, occurring again to Germany, the State Transformation of Germany in 1990 and the State Demise of East and West Germany in the same year. On the other hand, the separation of Bangladesh from Pakistan counts for two events, because it concerns two countries which are in our sample. Additional information, when necessary, was obtained from the CIA (2002). On this basis, we construct our three border change dummies for each period under consideration: Decolonization (identifying countries which went through a post-colonial redefinition of their borders), Berlin wall (identifying countries which went through a post-1989 Berlin wall border change), and other border changes (identifying countries which went through other types of boundary changes, of which examples are the split between Pakistan and Bangladesh, and the unification of Vietnam). To be noticed is that the way our variables are coded reflects stability of borders, i.e., the absence of border changes, more than the direction of a change in terms of a country's size.

### C. Definitions and sources of other covariates

**Migration stock:** International migration stock (% population). Migration stock is the number of people born in a country other than that in which they live, including refugees. The data are taken from United Nations (2003) and are available for 1960, 1970, 1980, 1990 and 2000. **Net migration flows:** International net migration rate. The data refer to incoming international migrants less outgoing international migrants, per 1,000 total pop-

ulation. The source is the United Nations (2005). The data are available over five year intervals from 1950, with projections until 2050. **Civil law:** The source is the legal origin classification in La Porta et al. (1999). We retain only the two main families of common and civil law, without distinguishing, within the broader civil law tradition, among the French, German, and Scandinavian versions, since they do not present any significant difference for the issue of citizenship. Moreover, while La Porta et al. (1999) introduce a separate class for socialist-law countries, we assign them to their own class of common or civil law as it prevailed before the communist period. **Latin America, Southern Europe and sub-Saharan Africa:** Dummies for countries belonging to Latin America, Southern Europe and sub-Saharan Africa. The classification is from UN (2002). **British or Portuguese colony:** Dummy for countries that were British or Portuguese colonies any time after 1918. The source is the "Correlates of War 2 Project" (2004). **Small country:** Dummy for countries with a population size of less than one million over all available years between 1960 and 1995, as in Easterly and Kraay (2000). **Socialist:** Dummy for socialist countries. Information is from La Porta et al. (1999). **Oil:** Dummy for oil countries (OPEC countries plus Oman, Angola, Qatar, Bahrain, and Brunei). **Government consumption:** Government share of GDP in current prices, taken from Penn World Tables (2002). **Share of young:** Share of young between age 15 and 34 (% population). The data are taken from United Nations (2005). **Ethnolinguistic fractionalization:** Composite index of ethnolinguistic fractionalization, taken from Easterly and Levine (1997). **Catholic share:** Percentage of Catholics in 1980, taken from La Porta et al. (1999). **Political rights:** Political rights index, taken from Freedom House (1996). **GDP per capita:** Logarithm of real GDP per capita at current international prices, taken from Penn World Tables (2002). **Gini index:** Gini index of inequality, taken from Deininger and Squire (1996).

## INSERT TABLE APPENDIX

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**Table 1**  
**Citizenship Laws Evolution: Transition Matrices**

	<b>Citizenship laws in 2001</b>			
<b>Citizenship laws in 1948</b>	Jus sanguinis regime	Mixed regime	Jus soli regime	<i>Total</i>
Jus sanguinis regime	46	20	1	67
Mixed regime	11	6	2	19
Jus soli regime	31	9	36	76
<i>Total</i>	88	35	39	162
	<b>Citizenship laws in 1975</b>			
<b>Citizenship laws in 1948</b>	Jus sanguinis regime	Mixed regime	Jus soli regime	<i>Total</i>
Jus sanguinis regime	63	3	1	67
Mixed regime	10	7	2	19
Jus soli regime	28	1	47	76
<i>Total</i>	101	11	50	162
	<b>Citizenship laws in 2001</b>			
<b>Citizenship laws in 1975</b>	Jus sanguinis regime	Mixed regime	Jus soli regime	<i>Total</i>
Jus sanguinis regime	81	20	0	101
Mixed regime	2	9	0	11
Jus soli regime	5	6	39	50
<i>Total</i>	88	35	39	162

**Table 2**  
**Changes in Citizenship Laws**

	<b>Changes in citizenship laws (1948 to 2001)</b>			
<b>Citizenship laws in 1948</b>	No change	Toward jus sanguinis	Toward jus soli	<i>Total</i>
Jus sanguinis regime	46	0	21	67
Mixed regime	6	11	2	19
Jus soli regime	36	40	0	76
<i>Total</i>	88	51	23	162
	<b>Changes in citizenship laws (1948 to 1975)</b>			
<b>Citizenship laws in 1948</b>	No change	Toward jus sanguinis	Toward jus soli	<i>Total</i>
Jus sanguinis regime	63	0	4	67
Mixed regime	7	10	2	19
Jus soli regime	47	29	0	76
<i>Total</i>	117	39	6	162
	<b>Changes in citizenship laws (1975 to 2001)</b>			
<b>Citizenship laws in 1975</b>	No change	Toward jus sanguinis	Toward jus soli	<i>Total</i>
Jus sanguinis regime	81	0	20	101
Mixed regime	9	2	0	11
Jus soli regime	39	11	0	50
<i>Total</i>	129	13	20	162

**Table 3**  
**Citizenship Laws Data Set: Summary Statistics**

<b>Variable</b>	<b>Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>
Citizenship laws in 2001	162	1.698	0.835	1	3
Citizenship laws in 1975	162	1.685	0.916	1	3
Citizenship laws in 1948	162	2.056	0.941	1	3
Changes in citizenship laws (1948 to 2001)	162	0.043	0.451	-1	1
Naturalization in 2001	142	2.458	0.920	1	4
Citizenship policy index in 2001	142	0.442	0.272	0	1

**Table 4**  
**Summary Statistics, 1950-2000<sup>§</sup>**

<b>Variable</b>	<b>Obs.</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>
Current citizenship laws	324	1.691	0.875	1	3
Changes in citizenship laws	324	-0.080	0.485	-1	1
Jus sanguinis as initial citizenship law	324	0.519	0.500	0	1
Civil legal origin	324	0.673	0.470	0	1
Migration stock	300	5.646	9.713	0.011	70.673
Net migration flows	318	-0.116	8.551	-47.95	63.35
Decolonization	324	0.250	0.434	0	1
Berlin wall	324	0.052	0.223	0	1
Other border changes	324	0.022	0.146	0	1
Latin America	324	0.173	0.379	0	1
Southern Europe	324	0.043	0.204	0	1
Small country	324	0.160	0.368	0	1
Sub-Saharan Africa	324	0.265	0.442	0	1
British or Portuguese colony	324	0.333	0.472	0	1
Socialist	324	0.173	0.379	0	1
Oil	324	0.086	0.281	0	1
Political rights	276	3.730	2.040	1	7
Catholic share	324	31.535	35.572	0	97.3
Ethnolinguistic fractionalization	272	0.349	0.299	0	0.890
Government consumption	263	19.617	11.342	2.492	72.233
Share of young	324	34.54	3.47	27.01	53.36
Log GDP per capita	263	7.488	1.249	4.979	10.060
Gini index	155	40.425	9.966	20.495	63.180

<sup>§</sup> The sample includes two cross sections of 162 countries. The first cross section refers to the 1950-1975 subperiod while the second cross section refers to the 1976-2000 subperiod. For details about the construction of the variables see the text.

**Table 5**  
**Pairwise Correlations Among Dependent and Independent Variables, 1950-2000<sup>§</sup>**

	Citizenship laws	Changes in citizenship laws
Migration stock	-0.12**	-0.12**
Net migration flows	-0.11*	-0.06
Jus sanguinis as initial citizenship law	-0.64***	0.48***
Civil legal origin	-0.15***	0.33***
Decolonization	-0.09	-0.42***
Berlin wall	-0.08	0.24***
Other border changes	-0.07	-0.02
Latin America	0.60***	0.04
Southern Europe	-0.05	0.10*
Small country	0.14**	-0.12**
Sub-Saharan Africa	-0.12**	-0.19***
British or Portuguese colony	0.02	-0.26***
Socialist	-0.25***	0.14**
Oil	-0.13**	-0.06
Political rights	0.29***	0.18***
Catholic share	0.39***	0.10*
Ethnolinguistic fractionalization	-0.10*	-0.20***
Government consumption	-0.03	0.06
Share of young	-0.03	-0.20***
Log GDP per capita	0.05	0.34***
Gini Index	0.22***	-0.24***

<sup>§</sup> The sample includes two cross sections of 162 countries. The first cross section refers to the 1950-1975 subperiod while the second cross section refers to the 1976-2000 subperiod. For details about the construction of the variables see the text.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 6**  
**The Determinants of Citizenship Laws:**  
**Multinomial Logit Estimates, 1950-2000<sup>§</sup>**

	(a)		(b)		(c)	
	Mixed regime	Jus soli regime	Mixed regime	Jus soli regime	Mixed regime	Jus soli regime
Migration stock	-0.051 [-1.86]*	-0.055 [-2.81]***	-0.054 [-1.79]*	-0.032 [-1.61]	-0.167 [-2.30]**	-0.045 [-1.53]
Jus sang. as init. cit. law	-2.044 [-4.39]***	-6.048 [-5.43]***	-2.712 [-4.99]***	-6.117 [-4.90]***	-4.568 [-5.24]***	-7.59 [-4.38]***
Period	1.887 [4.28]***	1.193 [3.02]***	1.409 [2.28]**	-0.272 [-0.47]	2.385 [2.65]***	0.211 [0.27]
Decolonization			-1.296 [-1.87]*	-2.211 [-3.41]***	-0.084 [-0.09]	-1.523 [-1.55]
Southern Europe			1.224 [2.03]**	-0.153 [-0.14]	1.234 [1.69]*	1.187 [0.87]
Latin America			-0.799 [-0.70]	2.866 [3.73]***	-0.621 [-0.51]	4.495 [2.93]***
Small country			-0.804 [-1.23]	0.415 [0.69]	-2.566 [-1.88]*	0.523 [0.64]
Jus san. X migration stock					0.156 [1.81]*	0.084 [1.75]*
Government consumption					0.035 [1.07]	0.063 [2.68]***
Share of young					-0.193 [-1.75]*	-0.397 [-2.43]**
Catholic share					0.012 [1.46]	0.01 [0.70]
Ethno. fractionalization					0.023 [0.02]	1.277 [1.02]
Political rights					0.548 [2.84]***	0.426 [2.46]**
Constant	-1.092 [-2.73]***	0.626 [2.48]**	-0.024 [-0.03]	1.353 [2.43]**	3.716 [1.05]	11.165 [2.09]**
Observations	300	300	300	300	224	224
Log likelihood	-195.77		-155.94		-95.24	
Maximum Likelihood R2	0.45		0.58		0.68	
McFadden's R2	0.32		0.46		0.57	
McFadden's Adj R2	0.29		0.4		0.44	
Cragg & Uhler's R2	0.53		0.68		0.79	
Count R2	0.71		0.81		0.83	
Adj Count R2	0.32		0.55		0.64	

<sup>§</sup> Jus sanguinis is the reference category.

Robust z statistics in brackets, clustered at country level.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%



**Table 7**  
**The Determinants of Citizenship Laws:**  
**Marginal Effects for Multinomial Logit Estimates, 1950-2000, Full Specification<sup>§</sup>**

	Jus sanguinis regime	Mixed regime	Jus soli regime
Migration stock	0.025 [2.49] **	-0.023 [-2.09] **	-0.001 [-0.34]
Jus sanguinis as initial cit. law	0.875 [18.7] ***	-0.193 [-2.56] **	-0.681 [-7.92] ***
Period	-0.303 [-1.95] *	0.336 [2.86] ***	-0.034 [-0.44]
Decolonization	0.123 [0.80]	0.016 [0.13]	-0.139 [-1.77] *
Southern Europe	-0.291 [-1.51]	0.170 [1.03]	0.121 [0.51]
Latin America	-0.611 [-4.15] ***	-0.194 [-2.85] ***	0.805 [5.75] ***
Small country	0.088 [0.59]	-0.203 [-3.16] ***	0.114 [0.86]
Jus sanguinis X migration stock	-0.027 [-2.36] **	0.021 [1.50]	0.006 [0.92]
Government consumption	-0.010 [-1.98] **	0.004 [0.76]	0.007 [2.01] **
Share of young	0.061 [2.65] ***	-0.018 [-1.18]	-0.043 [-2.15] **
Catholic share	-0.002 [-1.29]	0.001 [1.14]	0.001 [0.50]
Ethno. fractionalization	-0.124 [-0.56]	-0.028 [-0.16]	0.152 [0.96]
Political rights	-0.107 [-3.50] ***	0.069 [2.61] ***	0.037 [1.90] *
Observations	224	224	224

<sup>§</sup> The full specification refers to specification (c) in Table 6.

Robust z statistics in brackets, clustered at country level.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 8**  
**The Determinants of Change in Citizenship Laws:**  
**Multinomial Logit Estimates, 1950-2000<sup>§</sup>**

	Toward jus sanguinis	Toward jus soli
Migration stock	0.039 [1.90]*	-0.006 [0.12]
Period	0.652 [0.65]	1.736 [1.73]*
Decolonization	2.898 [2.82]***	2.058 [1.68]*
Southern Europe	2.2 [1.94]*	2.155 [3.44]***
Small country	-0.341 [0.50]	-0.593 [0.60]
Government consumption	-0.05 [1.95]*	0.032 [1.12]
Share of young	0.02 [0.15]	-0.493 [2.82]***
Catholic share	-0.006 [0.70]	0.001 [0.12]
Ethnolinguistic fractionalization	1.981 [2.23]**	2.508 [1.52]
Political rights	0.104 [0.84]	0.234 [1.08]
Constant	-4.364 [0.96]	9.771 [2.04]**
Observations	224	224
Log likelihood	-107.58	
Maximum Likelihood R2	0.33	
McFadden's R2	0.3	
McFadden's Adj R2	0.15	
Cragg & Uhler's R2	0.45	
Count R2	0.81	
Adj Count R2	0.16	

<sup>§</sup>No change in citizenship laws is the reference category.

Robust z statistics in brackets, clustered at country level.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table 9**  
**The Determinants of Change in Citizenship Laws:**  
**Marginal Effects for Multinomial Logit Estimates, 1950-2000, Full Specification<sup>§</sup>**

	Toward jus sanguinis	No change	Toward jus soli
Migration stock	0.003 [2.01]**	-0.003 [-1.26]	-0.000 [-0.19]
Period	0.044 [0.58]	-0.102 [-1.31]	0.058 [2.05]**
Decolonization	0.374 [2.00]**	-0.442 [-2.42]**	0.069 [1.16]
Southern Europe	0.299 [1.10]	-0.415 [-2.33]**	0.116 [1.06]
Small country	-0.022 [-0.53]	0.038 [0.74]	-0.015 [-0.65]
Government consumption	-0.004 [-2.02]**	0.003 [1.27]	0.001 [1.28]
Share of young	0.003 [0.29]	0.013 [1.18]	-0.016 [-2.74]***
Catholic share	-0.000 [-0.71]	0.000 [0.60]	0.000 [0.19]
Ethnolinguistic fractionalization	0.145 [2.12]**	-0.223 [-2.39]**	0.077 [1.89]*
Political rights	0.007 [0.75]	-0.015 [-1.10]	0.007 [1.12]
Observations	224	224	224

<sup>§</sup> Robust z statistics in brackets, clustered at country level.

\*significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

## TABLE APPENDIX

**Table A.1**  
**The Determinants of Citizenship Laws:**  
**Multinomial Logit Estimates, 1950-2000<sup>§</sup>, Alternative Covariates**

	(1)		(2)	
	Mixed regime	Jus soli regime	Mixed regime	Jus soli regime
Migration stock			-0.056 [-0.81]	-0.013 [-0.36]
Average migration stock	-0.152 [-2.12]**	-0.052 [-1.62]		
Jus sanguinis as initial citizenship law	-4.533 [-5.09]***	-7.344 [-4.12]***		
Civil legal origin			0.941 [1.21]	-1.742 [-1.88]*
Period	2.397 [2.68]***	0.260 [0.33]	1.834 [2.84]***	-0.649 [-1.31]
Decolonization	-0.140 [-0.16]	-1.525 [-1.54]	1.509 [1.79]*	-0.003 [-0.01]
Southern Europe	1.218 [1.64]	1.062 [0.76]	0.908 [1.22]	0.595 [0.42]
Latin America	-0.667 [-0.55]	4.317 [2.73]***	-0.046 [-0.03]	5.436 [3.64]***
Small country	-2.503 [-1.90]*	0.560 [0.67]	-1.894 [-1.89]*	1.128 [1.29]
Jus san. X average migration stock	0.140 [1.65]*	0.040 [0.61]		
Civil legal origin X migration stock			0.019 [0.23]	-0.110 [-1.10]
Government consumption	0.036 [1.09]	0.063 [2.65]***	0.043 [1.25]	0.068 [2.59]***
Share of young	-0.197 [-1.78]*	-0.402 [-2.46]**	-0.096 [-1.16]	-0.247 [-1.98]**
Catholic share	0.012 [1.52]	0.011 [0.75]	0.006 [0.81]	0.017 [1.38]
Ethnolinguistic fractionalization	-0.035 [-0.03]	1.290 [1.03]	1.029 [0.85]	1.950 [1.74]*
Political rights	0.539 [2.78]***	0.436 [2.52]**	0.563 [2.58]**	0.276 [1.56]
Constant	3.831 [1.08]	11.273 [2.11]**	-3.567 [-1.04]	4.527 [1.01]
Observations	224	224	224	224
Log likelihood	-95.74		-132.01	
Maximum Likelihood R2	0.68		0.55	
McFadden's R2	0.57		0.41	
McFadden's Adj R2	0.44		0.28	
Cragg & Uhler's R2	0.78		0.64	
Count R2	0.83		0.75	
Adj Count R2	0.64		0.48	

<sup>§</sup> Jus sanguinis is the reference category.

Robust z statistics in brackets, clustered at country level.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table A.2**  
**The Determinants of Citizenship Laws:**  
**Ordered Logit Estimates, 1950-2000<sup>§</sup>**

	(a)	(b)	(c)
	Citizenship laws	Citizenship laws	Citizenship laws
Migration stock	-0.048 [-2.80]***	-0.032 [-1.95]*	-0.048 [-1.71]*
Jus sanguinis as initial citizenship law	-3.356 [-11.80]***	-3.452 [-9.25]***	-4.113 [-6.40]***
Period	0.882 [3.22]***	0.084 [0.24]	0.204 [0.37]
Decolonization		-1.761 [-3.90]***	-1.187 [-1.58]
Southern Europe		0.643 [1.31]	1.071 [1.80]*
Latin America		2.616 [4.02]***	3.756 [4.45]***
Small country		0.27 [0.55]	0.502 [0.74]
Jus san. X migration stock			0.045 [1.13]
Government consumption			0.044 [2.59]***
Share of young			-0.24 [-2.32]**
Catholic share			0.001 [0.17]
Ethnolinguistic fractionalization			1.28 [1.52]
Political rights			0.357 [2.93]***
Observations	300	300	224
Log likelihood	-210.85	-174.82	-117.59
Maximum Likelihood R2	0.4	0.52	0.61
McFadden's R2	0.26	0.39	0.47
McFadden's Adj R2	0.25	0.36	0.4
Cragg & Uhler's R2	0.46	0.62	0.7
Count R2	0.71	0.78	0.79
Adj Count R2	0.32	0.5	0.56

<sup>§</sup> Jus sanguinis is the reference category.

Robust z statistics in brackets, clustered at country level.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

**Table A.3**  
**Citizenship policy index and citizenship laws index:**  
**OLS Estimates , 1950-2000<sup>§</sup>**

	Citizenship policy index	Citizenship laws index
Migration stock in 1960	0.003 [1.12]	-0.002 [-0.43]
Jus sanguinis as citizenship law in 1948	-0.078 [-1.24]	-0.223 [-2.10]**
Decolonization	-0.153 [-2.08]**	-0.166 [-1.71]*
Southern Europe	-0.096 [-1.20]	0.110 [1.29]
Latin America	0.387 [3.78]***	0.555 [5.30]***
Small country	0.020 [0.27]	0.049 [0.40]
Jus san. in 1948 X migration stock in 1960	-0.007 [-2.14]**	0.002 [0.30]
Government consumption	0.005 [1.62]	0.007 [1.95]*
Share of young	-0.025 [-2.18]**	-0.035 [-2.12]**
Catholic share	0.000 [0.23]	0.000 [0.37]
Ethnolinguistic fractionalization	0.147 [1.48]	0.190 [1.62]
Political rights	0.026 [1.57]	0.038 [1.45]
Constant	1.098 [2.57]**	1.259 [1.95]*
Number of observations	104	119
R-squared	0.549	0.536
Adjusted R-squared	0.489	0.483

<sup>§</sup> The sample is a cross section with averages over the 1950-2000 period.

Robust t statistics in brackets, clustered at country level.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

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