Dual Citizenship Institution: A Pareto Improvement?

Oloufade, Djoulassi K. and Pongou, Roland

University of Ottawa (Department of Economics)

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Djoulassi K. Oloufade and Roland Pongou[1]

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Abstract

The right to hold dual citizenship is an important political institution that is being adopted by an increasing number of countries. We argue that this institution can generate important social and economic benefits beyond its political dimension. Dual citizenship recognition by a country allows members of its diaspora who are citizens of their host countries to retain several legal advantages in their homelands, including unrestricted residency and easy access to investment opportunities, and provides multiple incentives to maintain ties with family, friends and communities, therefore facilitating the development of transnational solidarity and business networks. We assemble a large panel dataset on dual citizenship, and exploit cross-country and cross-time variation in the timing of dual citizenship recognition to estimate its economic impacts. We find that in developing countries, dual citizenship recognition increases foreign remittance inflows by US$1.19 billion, raises GDP and household consumption, favors international labor mobility, and improves child survival. Additionally, dual citizenship is more effective in improving child survival than other institutional variables such as government stability and the absence of internal and external conflicts. In developed countries, dual citizenship recognition decreases remittance inflows by US$1.44 billion, but increases gross capital formation and foreign direct investment by US$12 trillion and US$828 billion, respectively, raises household consumption, fosters trade, and provides incentives for low- and high-skilled workers to move to foreign countries. Expatriates living in dual citizenship-granting countries positively affect economic outcomes in their origin countries. We find no effect of dual citizenship recognition on public spending on health and education, which suggests that the diaspora plays little role in homeland politics.

Keywords: Dual Citizenship Legislation, Private International Relations, Trade, Foreign Remittances, Investment, Child Survival, Institutions, Economic Development.

[1] Department of Economics, University of Ottawa; dolou047@uottawa.ca and rpongou@uottawa.ca. We are grateful to Victoria Barham, Simone Bertoli, Moussa Blimpo, Alberto Chong, Jakina Debnam, Yazid Dissou, Christian Ebeke, Fernanda Estevan, Marcel Fafchamps, Louis Hotte, Roland Kpodar, Stéphane Pallage, Marcel-Cristian Voia, Stephan Schott, and Leonard Wantchekon for useful discussions and comments. Pongou acknowledges financial support from an SSHRC grant.

1- Introduction

Dual citizenship is a status in which a person is legally recognized as a citizen of more than one country. Legislation on dual citizenship varies widely across countries and time. Certain countries at some point have had policies that prohibit dual citizenship, in which people automatically lose their citizenship if they voluntarily acquire a foreign nationality. On the opposite end, other countries not only permit it, but in fact view it as a way of allowing their citizens to connect with the rest of the world. The number of countries allowing dual citizenship has substantially increased since the 1930s. While almost all countries prohibited dual citizenship in 1930, over 24% of developed countries and 26% of developing countries now allow it (see Figures 1-a and 1-b). Debate on dual citizenship has revolved around its implications for the patriotism, cultural assimilation, and political participation of dual citizens in their new countries (Staton et *al.*, 2007; Renshon, 2004, Blatter et *al.*, 2009, Iheduru, 2011). Some scholars argue that individuals who obtain a second citizenship without giving up the benefits of their first citizenship may have dual loyalty, or may find it difficult to adopt the values of their second country, thus degrading national identity and cohesiveness (Guarnizo, Portes and Haller, 2003). While dual citizenship is primarily viewed by lawyers and political scientists as a political institution (Staton et *al.*, 2007), in this study, we argue that dual citizenship is also likely to have important social and economic impacts. We assemble new panel data on dual citizenship legislation to investigate some of these economic impacts for developed and developing countries. In particular, we focus on the role of dual citizenship in connecting diasporas with origin countries, as well as its implications for the development of transnational solidarity and business networks, and the associated benefits for households and national

economies. Furthermore, we examine how dual citizenship legislation differs from other political institutions in terms of its economic impact.

Individuals living outside of their country of origin most often become citizens of their host country because of the practical advantages that citizenship offers (Ruget and Usmanalieva, 2010). Such advantages include unrestricted residency, legal employment, property ownership, retirement funds, and eligibility for social programs including welfare, healthcare, and public education. If denied dual citizenship rights by their origin country, such individuals lose all rights and public benefits attached to their first nationality, and incur a higher cost of maintaining ties with their families, friends and communities in the homeland as, for instance, a visa is now required to travel. In addition, due to the fact that most countries have restrictive policies on investment and property ownership by foreigners, members of the diaspora who have legally lost the public benefits attached to their first citizenship also lose the incentive and the right to invest in their origin country's economic and political prosperity. Prohibiting dual citizenship therefore disconnects the diaspora from its homeland socially, economically and politically.

Allowing dual citizenship, on the contrary, is likely to produce the opposite effects. Socially, recognition of dual citizenship is likely to increase connections between members of a country's diaspora and their families, friends and communities in the origin country, developing transnational trust, cooperation, and solidarity, and therefore raising the potential for mutual assistance when needed. From the perspective of economic development, dual citizenship recognition is likely to facilitate the transfer of new ideas and technologies to the homeland by diasporic scientists and entrepreneurs, encouraging "brain circulation" (Nyarko, 2011), and

increasing the documented positive effects of brain drain – or, conversely, mitigating its negative impacts (Beine, Docquier and Rapoport, 2008; Easterly and Nyarko, 2008; Bertoli and Brücker, 2011). Dual citizenship may also foster investment by diasporic entrepreneurs by allowing them to invest, monitor their investments, and hold domestic business partners accountable in case of a legal dispute, without facing differential treatment due to foreign status. Politically, dual citizenship is likely to encourage the diaspora to participate in homeland politics, encouraging political accountability and therefore affecting the allocation of public goods.

In order to test these hypotheses regarding the likely impacts of dual citizenship, we consider three sets of outcome variables. The first set comprises the volume of remittances received by a country, and a country's child mortality rate. Variables in this set measure the extent to which the diaspora is connected with the homeland, and the implications of this connection for household welfare. The second set comprises several macroeconomic indicators including gross capital formation, foreign direct investment net inflows, GDP, household expenditures, the volume of trade and the emigration rates of low- and high-skilled workers. The third set comprises government-controlled factors such as public spending on education and health. Any impact of dual citizenship on variables in this latter set would suggest that the diaspora affects the allocation of government funds to social programs. We estimate these effects separately for developed and developing countries. [2]

Endogeneity issues often lie at the heart of econometric analyses of causality. Confidence in the causal effects of dual citizenship in our analysis comes from it being mostly exogenous to

[2]We use the World Bank classification of developing countries as low and middle-income economies, and developed countries as high income economies (OECD and non-OECD countries). See Table 8 for the list of developing and developed countries used in the analysis.

foreign pressure. Indeed, the decision to allow dual citizenship follows a long legislative process, and is sometimes made through a referendum. Any external pressure affecting such a decision might therefore only come from a country's diaspora, especially if they constitute a large enough population to wield political influence. We account for this factor in our analysis by controlling for the size of diasporic populations. Also, we control for the fraction of a country's diaspora living in countries granting dual citizenship, as they are the ones most likely to exert pressure given the possibility that they have to legally obtain the citizenship of their host countries without having to give up their first citizenship. Moreover, we control for the potential financial power of the diasporic population, proxied by the average income and populations of the destination countries of a country's emigrants, in the assumption that any external pressure exerted by the diaspora may be stronger as their financial power increases. We also control for institutional factors related to democracy. Furthermore, we control for time and country fixed effects, which takes care of potential sources of endogeneity that might vary over time but are identical for all countries in a given period, and those that might vary across countries but are fixed for each country over time, including, for instance, country-specific historical factors.

We acknowledge that our concern for potential endogeneity issues associated with dual citizenship may be a bit exaggerated. In fact, most studies analyzing the causal impacts of public policies usually assume that policies are exogenous (e.g., Osili and Paulson, 2008; Besley and Persson, 2009), even when policy decisions are made by the executive power without consulting the legislative power. Dual citizenship decisions are both legislative and constitutional decisions, and thus involve many more decision-makers with possibly "conflicting" views than do executive decisions alone. This makes dual citizenship decisions complex and less likely to be

affected by external and foreign lobbies, including foreign investors. Moreover, the temporal pattern of the introduction of dual citizenship does not differ much between developed and developing countries (Figures 1-a and 1-b), especially after the 1950s when most developing countries gained their independence, which suggests that dual citizenship policies are not determined by a country's level of economic development or level of democracy. As we argue later, among countries with very similar characteristics, some do recognize dual citizenship rights, while others do not, which indicates that these decisions may be random across countries and over time.

We first examine the relationship between dual citizenship recognition and remittances. In theory, this relationship is not easily predictable. As argued earlier, dual citizenship recognition by a country is likely to increase remittance inflows as it fosters the development of transnational solidarity and business networks. At the same time, it encourages members of the diaspora to acquire the nationality of their host countries, making it easier for them to sponsor close family members (e.g., parents, spouse, children, etc.) to become citizens as well. Once the latter individuals leave their origin country for their new country, there are no more incentives to remit, thus decreasing foreign remittances towards the origin country. However, since under most legislation, only close family members can be sponsored, dual citizenship recognition by a country is likely to decrease remittance inflows only if the predominant family structure in that country is "nuclear", as opposed to "extended". In collectivistic cultures or countries where family is defined more broadly, dual citizenship recognition is likely to foster remittance inflows, as emigrants will continue to remit to their distant family members and communities even after sponsoring and gathering their close family members. We therefore expect the effect of dual

citizenship on remittances to vary across countries. In particular, we expect the effect to be positive for developing countries, and negative for developed countries. [3]

A descriptive analysis of the relationship between dual citizenship and remittances is presented in Figure 2. It shows that countries allowing dual citizenship receive more remittances from their diasporic communities than those that do not. This is true both for developed and developing countries. In multivariate analysis, we exploit cross-country and cross-time variation in the introduction of dual citizenship rights to econometrically identify the causal effect of the latter variable on remittances. We confirm the results of the descriptive analysis for developing countries only. On average, the volume of remittances received by a developing country is about US$1.2 billion larger when it allows dual citizenship than when it does not. However, in a developed country that allows dual citizenship, remittance inflows decrease by US$1.4 billion. These results are consistent with the fact that the extended family is more prevalent in developing countries while the nuclear family is the norm in developed countries (Todaro and Smith, 2012).

As mentioned earlier, the estimated impacts of dual citizenship on remittances are robust to the control of a wide range of variables including, but not limited to, the size of the diasporic population, the potential financial power of the diaspora, and the fraction of the diaspora living in dual citizenship-granting countries. Interestingly, the latter variable has a positive effect on remittances, and partly absorbs the effect of dual citizenship itself, which suggests that dual citizenship recognition by a country produces a greater effect among its dual citizens living

[3]Indeed, it has been argued that most developing countries have collectivistic cultures, whereas most developed countries are capitalistic and individualistic (Todaro and Smith, 2012).

abroad. Indeed, expatriates who reside in dual citizenship-granting countries have a greater propensity to send remittances to their origin country.

We also examine the impact of dual citizenship recognition on child survival. This latter variable is unanimously considered an important indicator of household welfare in both developed and developing countries, as it responds promptly to better nutrition and improved health care (Boone, 1996; Ross, 2006). We find a positive effect of dual citizenship recognition on this outcome. Moreover, this effect is entirely mediated by remittances in developing countries, suggesting that dual citizenship-induced funds are primarily used for consumption purposes, which is consistent with the literature on the allocation of remittances (Gupta et *al.*, 2007; Osili, 2007; Clemens, 2011). Controls such as the size of the diasporic population as well as their potential financial power also improve child survival.

Next, we turn to the second set of variables, which are macroeconomic indicators comprising GDP, household expenditures, the net inflows of foreign direct investment (FDI), gross capital formation, domestic credit to the private sector, trade volume, and emigration rates of low- and high-skilled workers. Importantly, estimating the effect of dual citizenship recognition on investment (measured by gross capital formation and FDI net inflows) in addition to remittances is motivated by the fact that the latter may not totally account for all funds directed to investment, especially in developed countries. When the banking system in the origin country is reliable, diasporic entrepreneurs may transfer important funds directly to their bank accounts. Therefore, dual citizenship recognition is likely to have a distinct effect on investment. Our analysis indeed supports this assertion, especially in developed countries, where dual citizenship

increases gross capital formation by US$12 trillion, and FDI net inflows by US$828 billion. It also fosters trade. In developing countries, dual citizenship recognition raises GDP. In both developed and developing countries, dual citizenship recognition increases household consumption, and fosters international labor mobility, which indicates that dual citizenship may be used as an instrument to stimulate emigration and induce foreign remittances, given the positive impacts of immigrants' productive inputs (see, e.g., Borjas (1995) for the US). The fraction of the diaspora living in dual citizenship-granting countries has a significant effect on most of these outcomes (e.g., trade, household consumption, GDP, and gross capital formation), showing that they constitute an engine of economic growth for their homelands.

The estimate of the effects of dual citizenship on public spending on health and education shows no significant impact, which implies that the diasporic populations have little say in homeland politics. Importantly, diasporas do not seem to influence political outcomes in origin countries, which is consistent with the notion that dual citizenship legislation itself is exogenous to external pressure, although it may be used by a country as an instrument to attract investments from the same diasporas.

Finally, we compare the effectiveness of dual citizenship and other institutional variables including government stability and the absence of internal and external conflicts in improving child survival. We find that dual citizenship is more effective in general, although its effect is less pronounced in developed countries.

The remainder of this paper is organized as follows. In Section 2, we situate our study in the extant literature. In Section 3, we present our econometric strategy, and show our results in Sections 4 and 5. We discuss and conclude our study in Section 6.

2 Related Literature

To our knowledge, the economic impacts of dual citizenship legislation have not been widely studied. In an interesting paper, Ebeke (2011) shows that dual citizenship recognition positively affects foreign remittance inflows. The overlap between this study and ours is very small as we significantly differ in our research questions, methodology, and findings. First, Ebeke (2011) only focuses on developing countries, whereas we look at both developing and developed countries, showing that the effect of dual citizenship on remittances differs for these countries. Second, Ebeke (2011) uses a cross-sectional approach and limits his analysis to the period 2000-2008. By contrast, our analysis is based on data spanning a much longer period (1960-2010), which allows us to exploit variation in dual citizenship policies across countries and time, and also lets us control for potential sources of endogeneity. Further, we significantly differ in our scope, as we study the effect of dual citizenship legislation on several other important variables (GDP, gross capital formation, volume of trade, net inflows of foreign direct investment, domestic credit to the private sector, household consumption expenditures, public spending on education, public health expenditures, child survival, and international labor mobility of low- and high-skilled workers). Also, we are among the first to document the importance of remittance flows to developed countries as well as their effects on certain economic outcomes, finding that foreign remittance inflows decrease the unemployment rate and increase child mortality. These

results are consistent with findings that positive economic shocks lead to adverse health outcomes in developed countries (see, e.g., Ruhm (2000) for the US).

Given the political nature of dual citizenship legislation, we view our study as contributing to the literature on the economic impacts of institutions. To cite a few examples of this literature, Acemoglu and Johnson (2005) show that improvement in property rights positively affects GDP per capita. Besley (1995) finds that institutions that improve land rights induce investment incentives in Ghana. Knack and Keefer (1995) also find that institutions that protect property rights are important determinants of economic growth and investment. Mauro (1995) shows that corruption lowers investment and growth. Asiedu and Lien (2011) find that democracy encourages foreign direct investment depending on the level of minerals and oil exported. Osili and Paulson (2008) find that immigrants in the US coming from countries with honest institutions have a greater propensity to own stock. Our findings on the impacts of dual citizenship suggest that dual citizenship is primarily an institution that protects the rights of members of the diaspora in their homeland. However, as we show, the mechanisms through which dual citizenship operates differ from those documented in the extant literature on the economic impacts of institutions.

Other studies have investigated the effects of institutions on a range of human capital variables. Democracy has been found to improve infant mortality, life expectancy, literacy, and access to water and sanitation (Moon and Dixon, 1985; Besley and Kudamatsu, 2006; Tavares and Waczing, 2001; Zweifel and Navia, 2000; Stasavage, 2005; Ross, 2006). Lazarova and Mosca (2008) find that good governance increases life expectancy. Gupta et *al.* (2000) document the

negative effects of corruption on health care and education. Our study is related in that it documents, for the first time, the effect of dual citizenship, viewed as an institution, on child survival. Additionally, our study is novel in that it compares the effect of dual citizenship with that of other institutional variables such as government stability and the absence of internal and external conflicts, and finds that the former has a larger effect in both low- and high-income economies.

3 Econometric Strategy

3.1 Data

We combine a newly assembled dataset on dual citizenship with data from a variety of sources to estimate the economic effects of dual citizenship. More details on the data sources are provided as we describe the variables used in the analysis.

3.1.1 Dual Citizenship

We obtain information on dual citizenship legislation from the Citizenship Laws of the World (2001) database assembled by the Office of Personnel Management of the US Government. This database provides detailed information on dual citizenship legislation for 206 countries, classifying countries into those which accept dual citizenship and those which do not.

The Citizenship Laws of the World (2001) database has two limitations. First, information only covers the period prior to 2001. Second, it does not provide information on when dual citizenship was introduced for those countries that allowed it. We update this database until 2009, and

further complete it with information on the year of the introduction of dual citizenship. We obtain this information from the official websites of various governments.

Figure 1-a shows the proportion of countries that introduced dual citizenship rights at some point during the period 1929-2009. As evidenced in this figure, the introduction of dual citizenship recognition by developed countries is spread out over this time interval, but most developing countries introduced dual citizenship rights only after 1950. This difference in the temporal patterns of dual citizenship recognition might stem from the fact that most developing countries gained their political independence only after 1950. In particular, dual citizenship recognition accelerated during the 1990s in these countries. Figure 1-b shows that until the early 1990s, developed countries were slightly more likely to recognize dual citizenship rights than developing countries, but this pattern has subsequently reversed. In 2009, 26% of developing countries allowed dual citizenship, while it was allowed by 24% of developed countries.

Interestingly, the fact that the pattern of dual citizenship recognition does not differ much between developed and developing countries after 1950 suggests that dual citizenship policies are not determined by the level of economic development or by such institutional factors as democracy. Among countries with similar characteristics, some recognize dual citizenship rights, but others do not. For instance, the US, Canada, France and Togo allow dual citizenship, but Germany, Japan, Austria and Cameroon do not. As discussed earlier, this fact makes it hard to think of dual citizenship as being endogenous to unobservable factors likely to affect our outcome variables, which is useful for the econometric identification of the effect of dual citizenship legislation.

3.1.2 Dependent Variables

We estimate the effects of dual citizenship on three sets of variables. The first set comprises foreign workers' remittances and the under-five mortality rate. Remittances represent current transfers by emigrants who are employed or intend to remain employed for more than a year in a foreign country in which they are considered residents. Data on remittances are available only for the period 1970-2010. The under-five mortality rate is the probability that a child dies before his fifth birthday. Any impact of dual citizenship on these variables would reflect social connections between members of a country's diaspora and their families, friends, and communities in their homeland.

The second set of outcomes comprises gross domestic product (GDP), gross capital formation, the volume of trade, foreign direct investment, household final consumption expenditures, domestic credit to the private sector, and emigration rates of low-, medium- and high-skilled workers. These variables provide a global picture of a country's economy. GDP is the sum of gross value added plus product taxes minus subsidies. Gross capital formation (also called gross domestic investment) is composed of an economy's fixed assets and the net changes in the amount of inventories. The volume of trade is the sum of merchandise exports and imports. Foreign direct investment (net inflows) is new investment inflows less disinvestment and is composed of equity capital, reinvestment of earnings, long and short-term capital. Household final consumption expenditures are the market value of goods and services purchased by households. Domestic credit to the private sector is measured as the total financial resources provided to the private sector. It measures the level of financial development. Most of the variables in this set are drawn from the World Development Indicators (WDI, 2011) of the

World Bank. Information on emigration rates of low-, medium- and high-skilled workers is provided by Docquier and Marfouk (2005), and has been used in Beine et *al.* (2008).

The third set of variables comprises government-controlled factors such as public spending on education and health. These variables measure the allocation of government funds to social programs. Public health spending is calculated as total health expenditures from governmental budgets, external loans, grants, and social health insurance funds. Public spending on education is expressed as the total spending of the government on education. These variables are obtained from the World Development Indicators (WDI, 2011).

Table 1 provides summary statistics for all these variables. Columns 1 and 2 report mean values and standard deviations for the full sample. Columns 3 and 4 report mean values and standard deviations for the subsample of developing countries, while Columns 5 and 6 show mean values and standard deviations for the subsample of developed countries. In Table 9, we summarize information on the definition and sources of variables used in the analysis. Our sample is composed of 141 developing countries and 37 developed countries.

3.2 Model Specification

We use a panel of ten average five-year periods from 1960-2010 for our analysis. We estimate the following econometric model:

$$y_{c,t} = \alpha_0 + \alpha_1 Citizen_{c,t} + X'_{c,t}\alpha_2 + \eta_c + \vartheta_t + \varepsilon_{c,t} \qquad \textbf{(1)}$$

where $y_{c,t}$ represents an outcome of interest measured for country c in period t; $citizen_{c,t}$ measures dual citizenship for country c in period t; it takes on value 1 if the country permits dual citizenship for its citizens in period t, and 0 if not. Note that as we use a panel of ten periods of five years each for our estimations, the dual citizenship variable takes on value 1 in period *t* if the year in which dual citizenship was introduced belongs to that period. Also, we do not have an instance in which dual citizenship recognition has been reversed after being introduced, which implies that if the dual citizenship variable takes on value 1 in period *t*, it takes the same value in subsequent periods. All other variables are averaged over each period. $X_{c,t}$ is a vector of control variables. η_c is a country dummy variable, and ϑ_t is a period dummy variable. $\varepsilon_{c,t}$ is an error term, assumed to be uncorrelated with dual citizenship given all the controls (see below for a discussion). The coefficient α_1 is the main parameter of interest, and α_2 is a vector of coefficients capturing the effects of the control variables in $X_{c,t}$.

A number of studies have used a similar model to analyze the impact of new policies on a range of outcomes (e.g., Osili and Paulson, 2008).

3.2.1 Conditional Exogeneity of Dual Citizenship

Policies are usually viewed as exogenous (e.g., Osili and Paulson, 2008, Besley and Persson, 2009). In our analysis, as argued earlier, the fact that countries with similar characteristics have different laws regarding dual citizenship makes it hard to think of dual citizenship as being endogenous to unobservable factors that might also affect our outcomes. The legislative and constitutional nature of dual citizenship also enhances the exogeneity of dual citizenship decisions vis-à-vis external factors (e.g., foreign investors or aliens), as these decisions involve

many decision-makers with possibly "conflicting" views, unlike policy decisions made by the executive branch of a government.

Nevertheless, we control for a range of variables. First, by estimating time and country fixed effect regressions, we control for time trends, for possible sources of endogeneity that are identical for all countries in a given period, but might vary over time, and for those that are time-invariant for each country, including for instance historical factors. Our identification therefore comes from comparing the level of an outcome before and after dual citizenship is introduced in a country. One could also think of dual citizenship as being endogenous to pressure exerted by members of the diaspora on the origin country's government. To account for this, we control for several variables capturing external pressure. First, we control for the size of the diaspora in most of our analyses. This is because if diasporic populations are large enough, they are likely to wield political influence. We also control for the fraction of a country's diaspora living in dual citizenship-granting countries. Indeed, any external pressure is most likely to come from these populations, as they are the ones who would gain most from dual citizenship rights being allowed, especially given the fact that these rights are recognized by their countries of residence. We also control for the potential financial power of the diaspora, proxied by the average GDP and population of their host countries, in the assumption that members of the diaspora living in richer countries are more likely to fund lobbies in order to influence homeland politics.[4] We note that the fraction of a country's diaspora living in dual citizenship-granting countries and average GDP of destination countries are strongly correlated (the coefficient of correlation is 0.60), and

[4]These averages are weighted by the fraction of a country's emigrants living in each of the other countries in each period. For instance, if there are 5 countries $C_1,\ldots C_5$, and the fraction of country C_1's emigrants in country C_i in period t is P_{it} ($P_{1t}=0$), and if Z_{it} is the value of a variable Z (e.g., dual citizenship rights, GDP, population) in country C_i in period t, then the average of Z in the destination countries of country C_1's emigrants in period t is $0Z_{1t}+P_{2t}Z_{2t}+P_{3t}Z_{3t}+P_{4t}Z_{4t}+P_{5t}Z_{5t}$.

so, we do not control for both simultaneously. Further, we control for a range of other institutional variables related to political stability and democracy. We believe that all these controls address possible endogeneity issues associated with dual citizenship. Indeed, we assume that conditioned upon these controls, dual citizenship is exogenous ($E(Citizen\ \varepsilon | X,\ \eta,\ \vartheta)=0$). Also working in our favor is the fact that dual citizenship has no impact on the allocation of public funding to education and health, indirectly suggesting that the diaspora has limited influence in homeland politics.

3.2.2 Organizing the Analysis

We analyze the impacts of dual citizenship legislation in three main parts. First, we consider the sets of variables reflecting the economy and allocation of government funds to social programs. In the second part, we consider remittances and child mortality. We pay special attention to the latter variable since child mortality, unlike other human capital outcome variables, responds quickly to better nutrition and improved access to health care, and is therefore more sensitive to exogenous increases in income. It has been used as an important measure of poverty in developing countries (Ross, 2006), and as an indicator of child well-being in developed countries (Case, Lubotsky and Paxson, 2002; Almond, Chay and Greenstone, 2006; Condliffe and Link, 2008).

In the third part, we compare the effectiveness of dual citizenship and other institutional variables including government stability and the absence of internal and external conflicts in terms of their effects on child survival. These institutional variables are obtained from the Political Risk Services/International Country Risk Guide (PRS/ICRG) database.

4 Empirical Results

4.1 Dual Citizenship Legislation, Macroeconomic Outcomes, and Government Spending

In this section, we estimate the impact of dual citizenship legislation on macroeconomic indicators and on the allocation of government funds to education and health. The results are presented in Table 2A for developing countries and Table 2B for developed countries. For each outcome variable, we first estimate the effect of dual citizenship without any controls, and then we control for country and period fixed effects, the fraction of the diaspora's population living in dual citizenship-granting countries, and the average population of destination countries. We additionally control for the population size of each country when estimating the impact of dual citizenship on GDP and household consumption, and for population size and GDP when estimating the effect of dual citizenship on public spending on health and education.

We find that in developing countries, dual citizenship recognition raises GDP and household consumption. The effect of dual citizenship on GDP is mediated by the fraction of the diaspora's population living in dual citizenship-granting countries, as this effect loses statistical significance only after we control for this latter variable in fixed effects regressions. The effects of dual citizenship on the net inflows of FDI, trade, and domestic credit to the private sector are positive, but are not statistically significant once we control for time and country fixed effects.

In developed countries, dual citizenship recognition raises the net inflows of FDI by over US$877 billion, gross capital formation by US$11.7 trillion, and trade volume by US$12.8 trillion. It also has a positive and statistically significant effect on household consumption.

We also find that dual citizenship recognition by a country provides incentives for its low- and high-skilled workers to move to other countries without facing the risk of losing their origin citizenship, showing that dual citizenship recognition as a political institution improves a country's ability to stimulate international labor mobility, which temporally solves the problem of unemployment.

We do not find any effect of dual citizenship recognition on public spending on health and education, which suggests that the diaspora plays little role in homeland politics. Importantly, diasporas do not seem to influence political outcomes in origin countries, which is consistent with the notion that dual citizenship legislation itself is exogenous to external pressure, although it may be used by a country as an instrument to attract investments from the same diasporas.

It is also worth noting that members of the diaspora living in dual citizenship-granting countries have important and statistically significant impacts on several outcomes including GDP and household consumption for both developed and developing countries, and trade, domestic credit to the private sector, and gross capital formation for developed countries. These effects show that these diasporic populations have a greater incentive to invest in their origin country, therefore constituting an engine of economic growth.

4.2 Dual Citizenship Legislation and Foreign Remittance Inflows

In this section, we estimate the impact of dual citizenship legislation on workers' remittances. The results are presented in Table 3. We report the results both for developing countries and developed countries. In results not shown, we test a similar specification of the model, but

replace the continuous variables by their logarithmic transformation, and our conclusions regarding the effect of dual citizenship do not change. In Columns 1 and 5 of each panel, dual citizenship is the only predictor. We find that it positively affects remittances, but the effect is statistically significant only for developed countries. In Columns 2 and 6, we control for period and country fixed effects, country population size, the size of the diaspora (measured by the stock of emigrants), the inflation rate, and financial development (measured by domestic credit to the private sector). We find that recognition of dual citizenship raises remittance inflows by US$1.190 billion in developing countries. The findings show that a mere cross-sectional regression grossly underestimates the effect of dual citizenship, as the fixed-effect coefficient is about 3.25 times larger than the coefficient obtained from the cross-sectional analysis. For developed countries, however, the coefficient associated with dual citizenship becomes negative and statistically significant. As argued in the introduction, a plausible reason for this negative effect is that emigrants from developed countries who become citizens of their host countries remit less once they reunite their close family members with them in their new countries. This behavior is in contrast with that adopted by emigrants from collectivistic cultures, which are predominant in developing countries.

The fact that the effect of dual citizenship on remittances is greater for developing countries also suggests that the additional funds generated by dual citizenship are aimed at poverty alleviation in the origin country. It also indicates, as Pongou (2010) has shown theoretically, that developing countries have more skilled emigrants than more developed countries, and so receive more remittances.

In Columns 3 and 7, we additionally control for the average GDP and population of destination (or remittances-sending) countries, our proxy for the diaspora's financial power. This decreases the effect of dual citizenship, which shows that this effect is partially driven by emigrants living in richer countries. In Columns 4 and 8, we replace the average GDP of destination countries by the fraction of the diaspora populations living in dual citizenship-granting countries, which does not significantly change the coefficient on dual citizenship obtained from the previous estimation. Interestingly, consistent with the notion that developing countries are more collectivistic and developed countries more individualistic (Todaro and Smith, 2012), the fraction of the diaspora's population living in dual citizenship granting-countries positively affects remittance inflows in the former countries, whereas it has an opposite effect in the latter. Indeed, emigrants from developed countries who become citizens of their host countries remit less once they reunite their close or nuclear family members with them in their new countries, whereas those from developing countries continue to remit to their extended families and communities.

4.3 The Effects of Dual Citizenship Legislation on Child Mortality

In this section, we investigate the role of dual citizenship in alleviating household poverty, measured by the under-five child mortality rate. We also investigate the channel through which it operates. As we shall see, remittances mediate all the effects of dual citizenship, suggesting that dual citizenship and remittances parallel foreign aid in lifting the poor. Following the literature (e.g., Ross, 2006), we analyze the logarithmic transformation of the child mortality rate, therefore also considering the logarithmic transformation of all the predictors that are continuous. This allows us to interpret the coefficients as elasticities.

The results of the estimation of the effect of dual citizenship on child mortality are presented in Table 4. In Column 1, only dual citizenship is included, and in Column 2, we additionally control for country and period fixed effects, country population size, the size of the diasporic populations, inflation rate, and financial development. In both estimations, dual citizenship has a positive and statistically significant effect. To investigate the channel through which this effect operates, we control for the average GDP and population of destination countries remittances in Column 3, for the fraction of the diaspora living in dual citizenship-granting countries in Column 4, and for remittances in Column 5. We find that while the fraction of the fraction of the diaspora living in dual citizenship-granting countries reduces child mortality, its inclusion does not affect the size of the effect of dual citizenship. Including remittances however decreases the effect of dual citizenship which becomes statistically insignificant, clearly showing that dual citizenship recognition improves child survival through stimulating remittances.

In Columns 6-10, we replicate the analysis in Columns 1-5 for developed countries. Dual citizenship reduces mortality (Column 6), but this effect disappears after we control for country and period fixed effects, country population size, the size of the diasporic populations, inflation rate, and the level of financial development (Column 7). We note that the latter variable improves child survival, and its effect is persistent across estimations (Columns 8-10). The fraction of the diaspora living in dual citizenship-granting countries and remittances worsen child mortality (Columns 9-10), a surprising fact which we explain below.

The effects of remittances on child survival differ for developing and developed countries. A possible explanation is that in developing countries, poor households most often must rely on remittances sent from abroad in order to afford basic nutritional needs and better health services for their children. This finding is consistent with studies showing that remittances have poverty-alleviating and consumption-smoothing effects on recipient households (Chami et *al.*, 2009). It is also similar to Barajas et *al.* (2009) who argue that remittances, often used as social insurance, help receiving families to primarily afford basic necessities such as food, clothing, medicine and shelter. In developed countries, however, remittances are invested into activities that improve the economy. In fact, we find that remittances decrease the unemployment rate in developed countries, but have no such effect in developing countries (see Appendix Table 7). As the economy improves, that increases the price of labor, causing parents to invest more time in income-generating activities than in children. Our findings are consistent with studies showing that mortality rates are strongly procyclical in developed countries (see, e.g., Ruhm (2000) for the U.S.). The adverse effect of the fraction of the diaspora in dual citizenship-granting countries on child survival in developed countries could also be explained by the fact that this variable positively affects the economy of these countries (see Section 4.1), producing an impact similar to that of foreign remittances.

5 Comparing Dual Citizenship with other Institutional Variables

In this section, we compare the effects of dual citizenship and other institutional variables on child survival. This comparison is motivated by the fact that dual citizenship is primarily viewed as an institution by political scientists, and it is consistent with the literature on the comparative effects of institutions on political and economic outcomes (North, 1991; Sokoloff and Engerman,

2000; Acemoglu, Johnson and Robinson, 2002; Ross, 2006). The other institutional variables we use are government stability, and the absence of internal and external conflicts.[5]

The results are presented in Table 5. We control for a range of variables. While two of the institutional variables (government stability and absence of internal conflicts) improve child survival in developing countries, their effects are smaller than that of dual citizenship. In developed countries, dual citizenship recognition reduces mortality, but its effect is not statistically significant. The absence of internal conflicts, however, increases mortality. In results not shown, we also find that in the absence of internal conflicts, less public funding is allocated to public health, which suggests that internal conflicts may put pressure on the government to dedicate more funding to social programs that improve child welfare and survival. We also note that while internal conflicts are usually armed conflicts in developing countries, in developed countries, they take the form of civil disorder and strikes, and are organized to induce more social justice, which benefits lower-income households and improves welfare in general. The effect of internal conflicts for developed countries is therefore less surprising when the rationale behind those conflicts is taken into account.

Overall, it follows from our analysis that dual citizenship has a greater effect on child survival than other institutional variables both in developing and developed countries.

[5] Information on these variables is available only for the period 1984-2007. To avoid losing data in our analysis, for each variable, we set all missing values to zero, and we control for a dummy indicator for missing information.

6 Conclusion

We have analyzed the economic impacts of dual citizenship legislation for both developing and developed countries. A country that permits dual citizenship allows members of its diaspora to retain several benefits in their homeland, including unrestricted entry and residency, easy access to investment and other economic opportunities, property ownership, and entitlement to social programs and other public goods. We argue that dual citizenship recognition therefore provides multiple incentives for members of the diaspora to keep ties with family, friends and communities in the origin country. These private international relations mobilize transfers of resources from the destination country to the origin country, improving household living conditions and the national economy.

Using a newly assembled dataset on dual citizenship legislation, we have found that dual citizenship recognition in developing countries increases remittance inflows, raises GDP and household consumption, and improves child survival. Also, dual citizenship recognition is more effective in improving child survival than other institutional variables such as government stability and the absence of internal and external conflicts. In developed countries, dual citizenship recognition increases gross capital formation and FDI net inflows, raises household consumption, fosters trade, and stimulates international labor mobility. We have found no effect of dual citizenship on public spending on health and education, suggesting that the diaspora plays little role in homeland politics, and lending credence to the notion that dual citizenship recognition itself is mostly exogenous to external pressure. Importantly, however, we have controlled for several variables capturing external pressure, delivering finding that are interesting in their own rights.

Dual citizenship is a hotly debated topic among political scientists, lawyers, and in the policy circle. Its recognition leads to countries sharing citizens and their potentials, as it fosters the free flow of people, money, and goods across national borders. In this paper, we have shown that dual citizenship recognition generates huge economic gains for countries and improves household welfare.

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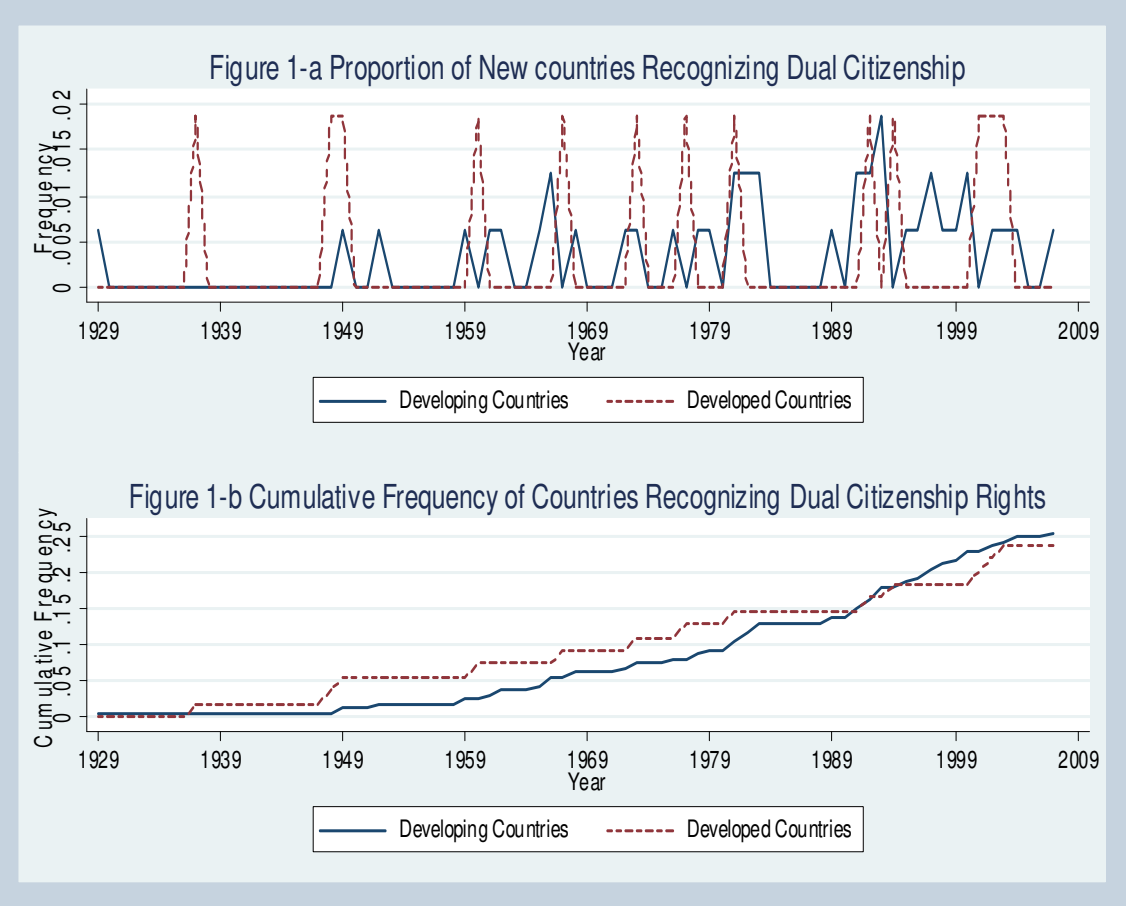
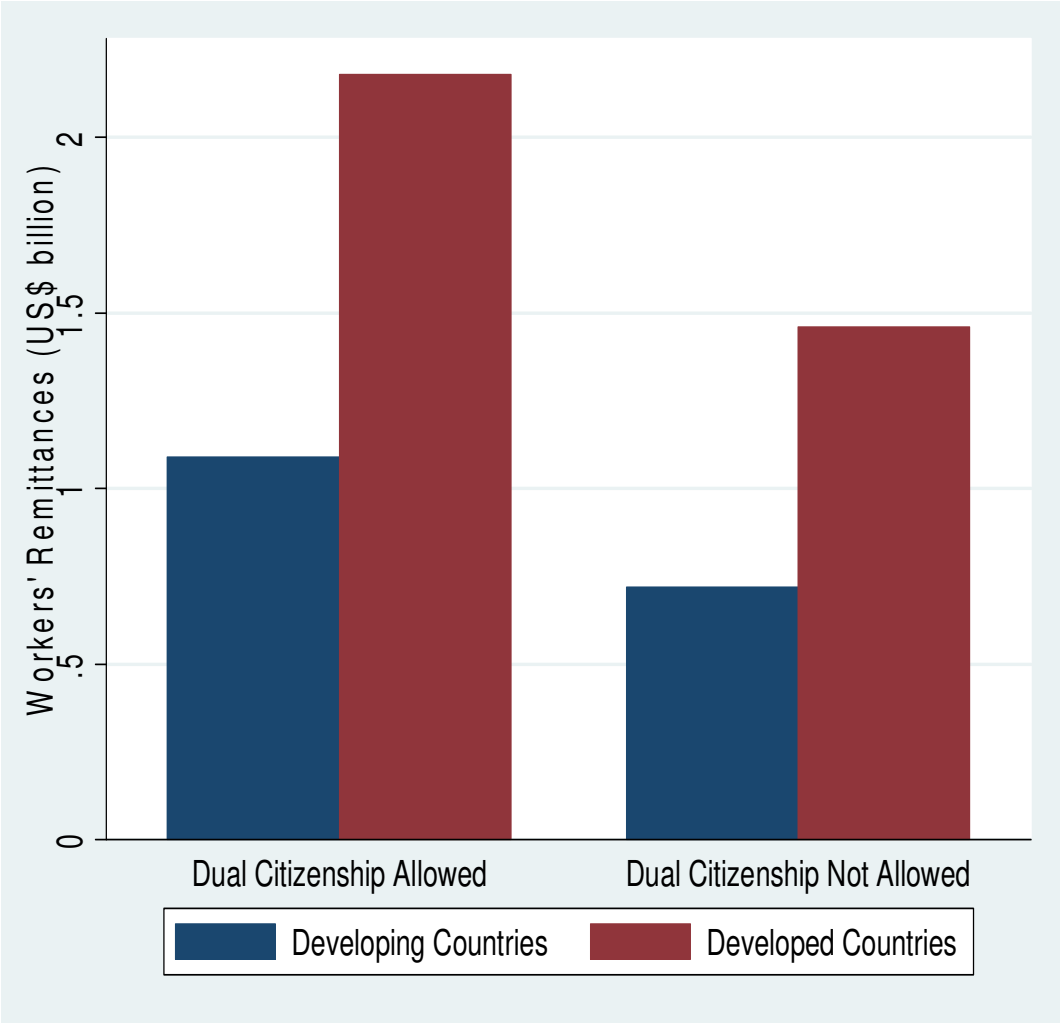
A- Figures

Figure 1: Proportion of Countries Recognizing Dual Citizenship, 1929-2009.



Data Source: Citizenship Laws of the World database provided by the Office of Personnel Management of the US Government and additional information gathered by the authors.

Figure 2: Dual Citizenship and Workers' Remittances



Data Source: Authors' estimates from the World Development Indicators (WDI) database, World Bank (2011).

B- Tables

Table 1: Summary Statistics

Variable	Full Sample		Developing Countries		Developed Countries	
	Mean	*Std Dev.*	*Mean*	*Std Dev.*	*Mean*	*Std Dev.*
	1	*2*	*3*	*4*	*5*	*6*
Dual Citizenship Legislation	0.186	0.389	0.178	0.382	0.213	0.410
Child Mortality Rate (per thousand)	85.612	79.607	103.329	79.794	18.438	22.855
Workers' Remittances[b]	0.977	2.811	0.803	2.910	1.649	2.284
Gross Domestic Product[a]	0.119	0.643	0.036	0.170	0.363	1.211
Foreign Direct Investments[a]	0.303	1.389	0.116	0.664	0.929	2.536
Volume of Trade[a]	4.998	18.673	1.862	9.121	15.674	33.271
Household Consumption Expenditures[a]	0.083	0.455	0.023	0.083	0.288	0.915
Population (billion)	0.023	0.095	0.025	0.108	0.016	0.039
Gross Capital Formation[a]	3.079	14.515	1.063	6.841	10.250	27.004
Domestic Credit to Private Sector[a]	16.297	120.548	2.129	17.602	64.834	245.656
Inflation Rate	42.678	426.107	54.729	490.741	6.123	13.586
Unemployment Rate	9.076	6.937	10.228	7.736	6.681	3.837
Public Health Spending[a]	1.137	5.993	0.163	0.583	4.924	12.521
Public Spending on Education[a]	0.782	4.159	0.175	0.576	2.548	7.917
Government Stability	7.505	2.070	7.213	2.140	8.366	1.559
Absence of Internal Conflict	8.570	2.629	7.953	2.533	10.404	1.976
Absence of External Conflict	9.497	2.248	9.154	2.240	10.517	1.947
Stock of Emigrants (million)	0.673	2.270	0.439	1.160	1.340	3.911
Emigration Rate of Low-skilled Workers	0.044	0.072	0.042	0.077	0.047	0.051
Emigration Rate of Medium-skilled Workers	0.086	0.144	0.094	0.159	0.058	0.064
Emigration Rate of High-skilled Workers	0.208	0.230	0.234	0.248	0.118	0.114
Average GDP in destination countries[a]	1.05	1.68	0.933	1.60	1.42	1.86
Average Population in destination countries[b]	0.085	0.100	0.082	0.106	0.096	0.079
% of diaspora in dual citizenship-granting countries	0.255	0.285	0.248	0.286	0.269	0.278

Detailed information about the variables is provided in Table 6.
Variables followed by [a] and [b] are in US$ trillion and US$ billion, respectively.

Table 2A: Effects of Dual Citizenship Legislation on Macroeconomic Outcomes (Developing Countries)

Panel A	Public Spending On Education		Public Health Spending		Volume of Trade	
Variable	[OLS]	[FE]	[OLS]	[FE]	[OLS]	[FE]
Dual Citizenship	-0.013	-0.014	0.020	-0.002	0.466	0.049
	(-1.00)	(-0.43)	(1.25)	(-0.12)	(0.82)	(0.09)
% Diaspora in dual citizenship-granting countries		0.041		-0.047*		1.093
		(0.73)		(-1.82)		(1.29)
Country Fixed Effect	No	Yes	No	Yes	No	Yes
Period Fixed Effect	No	Yes	No	Yes	No	Yes
Panel B	GDP		Household Consumption Expenditures		Gross Capital Formation	
Dual Citizenship	0.026***	0.012	0.017***	0.011***	-0.151	-0.233
	(3.01)	(1.63)	(2.94)	(2.61)	(-0.42)	(-0.57)
% Diaspora in dual citizenship-granting countries		0.035***		0.021***		-0.240
		(3.17)		(3.30)		(-0.41)
Country Fixed Effect	No	Yes	No	Yes	No	Yes
Period Fixed Effect	No	Yes	No	Yes	No	Yes
Panel C	FDI Net Inflows		Low-Skilled Emigrant Workers		Medium/High-Skilled Emigrant Workers	
			1990	2000	1990	2000
Dual Citizenship	0.017	0.039	0.053***	0.212**	0.036***	0.151**
	(0.40)	(0.88)	(3.82)	(2.55)	(2.82)	(2.34)
% Diaspora in dual citizenship-granting countries		0.095	n/a	n/a	n/a	n/a
		(1.44)				
Country Fixed Effect	No	Yes	n/a	n/a	n/a	n/a
Period Fixed Effect	No	Yes	n/a	n/a	n/a	n/a

Detailed information on the variables is provided in Table 6. We control for the percentage of the diaspora living in dual citizenship granting countries and the average population of destination countries in all regressions except when estimating the effect of dual citizenship on low-skilled and medium/high-skilled immigrant workers. In addition to these controls, we control for population size when estimating the effects of dual citizenship on household consumption expenditures, GDP and domestic credit to private sector. We additionally control for GDP in estimating the effect of dual citizenship on public spending on education and on public health spending. In the regressions of low-skilled and medium/high-skilled immigrant workers, we control for population size. ***, **, * denote statistical significance at 0.01, 0.05 and 0.10, respectively. *t-statistics* are in parentheses.

Table 2B: Effects of Dual Citizenship Legislation on Macroeconomic Outcomes (Developed Countries)

Panel A	Public Spending On Education		Public Health Spending		Volume of Trade	
Variable	[OLS]	[FE]	[OLS]	[FE]	[OLS]	[FE]
Dual Citizenship	0.338*	0.275	0.211	-0.139	18.897***	13.967***
	(1.74)	(1.21)	(0.97)	(-0.40)	(3.14)	(3.32)
% Diaspora in dual citizenship-granting countries		-0.635		-0.227		17.709**
		(-1.27)		(-0.38)		(2.03)
Country Fixed Effect	No	Yes	No	Yes	No	Yes
Period Fixed Effect	No	Yes	No	Yes	No	Yes
Panel B	GDP		Household Consumption Expenditures		Gross Capital Formation	
Dual Citizenship	0.363***	0.112	0.272***	0.094*	12.037**	12.164***
	(3.70)	(1.44)	(3.85)	(1.79)	(2.37)	(3.03)
% Diaspora in dual citizenship-granting countries		0.555***		0.333***		19.726**
		(3.91)		(3.03)		(2.28)
Country Fixed Effect	No	Yes	No	Yes	No	Yes
Period Fixed Effect	No	Yes	No	Yes	No	Yes
Panel C	FDI Net Inflows		Low-Skilled Emigrant Workers		Medium/High-Skilled Emigrant Workers	
			1990	2000	1990	2000
Dual Citizenship	1.326***	0.828**	0.062***	0.129**	0.030**	0.087*
	(2.83)	(1.98)	(3.16)	(2.24)	(2.07)	(1.74)
% Diaspora in dual citizenship-granting countries		-0.800	n/a	n/a	n/a	n/a
		(-0.91)				
Country Fixed Effect	No	Yes	n/a	n/a	n/a	n/a
Period Fixed Effect	No	Yes	n/a	n/a	n/a	n/a

Detailed information on the variables is provided in Table 6. We control for the percentage of the diaspora living in dual citizenship granting countries and the average population of destination countries in all regressions except when estimating the effect of dual citizenship on low-skilled and medium/high-skilled immigrant workers. In addition to these controls, we control for population size when estimating the effects of dual citizenship on household consumption expenditures, GDP and domestic credit to private sector. We additionally control for GDP in estimating the effect of dual citizenship on public spending on education and on public health spending. In the regressions of low-skilled and medium/high-skilled immigrant workers, we control for population size. ***, **, * denote statistical significance at 0.01, 0.05 and 0.10, respectively. *t-statistics* are in parentheses.

Table 3: Effects of Dual Citizenship on Workers' Remittances

	Developing Countries				Developed Countries			
Variable	[OLS]	[FE]	[FE]	[FE]	[OLS]	[FE]	[FE]	[FE]
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Dual Citizenship	0.366	1.190***	0.514***	0.598***	0.718*	-1.44***	-0.969***	-0.907***
	(1.49)	(3.92)	(2.85)	(3.19)	(1.86)	(-3.43)	(-2.92)	(-2.76)
Country Population Size		55.671***	35.196***	34.062***		255.382***	309.691***	283.824***
		(15.19)	(14.03)	(12.95)		(3.16)	(4.05)	(3.89)
Stock of Emigrants		0.092	0.439**	0.305		-0.299	-0.509**	-0.457**
		(0.31)	(2.23)	(1.49)		(-1.52)	(-2.51)	(-2.49)
Inflation Rate		28.9e+04	18.7e+03	14.3e+04		34.3e+05	21.4e+05	22.4e+05
		(0.85)	(0.10)	(0.71)		(0.48)	(0.42)	(0.44)
Domestic Credit to Private sector		0.072***	0.052***	0.053***		-0.0027*	-0.0029**	-0.0025*
		(17.22)	(8.18)	(8.08)		(-1.79)	(-2.26)	(-1.89)
Average GDP of Destination Countries			0.335***				-0.289	
			(6.11)				(-1.28)	
Average Population of Destination Countries			-4.004*	3.463			21.922**	17.496**
			(-1.65)	(1.63)			(2.56)	(2.36)
% of diaspora in Dual Citizenship granting Countries				0.646**				-1.56*
				(2.06)				(-1.75)
Period Effect	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Country Effect	No	Yes	Yes	Yes	No	Yes	Yes	Yes
# Countries	125	122	117	117	28	28	28	28
# Observations	719	636	523	523	194	189	162	162
R-squared	0.0029	0.7131	0.6429	0.6130	0.0213	0.5140	0.5645	0.5695

Detailed information on the variables is provided in Table 6. *t-statistics* are in parentheses. ***, **, * denote statistical significance at 0.01, 0.05 and 0.10, respectively.

Table 4: Effects of Dual Citizenship on Child Mortality (The dependent variable is the log of child mortality)

	Developing Countries					Developed Countries				
Variable	[OLS]	[FE]	[FE]	[FE]	[FE]	[OLS]	[FE]	[FE]	[FE]	[FE]
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Dual Citizenship	-0.6214***	-0.0766**	-0.0628*	-0.0671**	-0.0318	-0.5168***	-0.0246	-0.0315	-0.0276	-0.0628
	(-10.01)	(-2.35)	(-1.93)	(-2.04)	(-0.93)	(-7.06)	(-0.64)	(-0.78)	(-0.71)	(-1.45)
Log(Country Population Size)		0.4413***	0.3965***	0.4287***	0.4177***		-0.1553**	-0.3097***	-0.2222**	0.3592*
		(5.94)	(4.70)	(5.02)	(4.22)		(-2.24)	(-3.20)	(-2.40)	(1.70)
Log(Stock of Emigrants)		-0.0523***	-0.0544***	-0.0547***	0.0176		-0.1365**	-0.1248***	-0.1157***	-0.0035
		(-3.05)	(-3.11)	(-3.10)	(0.75)		(-4.04)	(-3.36)	(-3.21)	(-0.08)
Log(Inflation Rate)		0.0244***	0.0172*	0.0149	0.0161		0.0191	-0.0016	0.0035	0.0387
		(2.64)	(1.82)	(1.55)	(1.61)		(0.86)	(-0.07)	(0.15)	(1.37)
Log(Domestic Credit to Private sector)		-0.0100**	-0.0077*	-0.0090*	-0.0090*		-0.1161***	-0.0951***	-0.1103***	-0.0641*
		(-2.07)	(-1.68)	(-1.93)	(-1.77)		(-4.51)	(-3.42)	(-4.21)	(-1.72)
Log(Average GDP of Destination Countries)			0.1300***	0.0071	0.0587			-0.1033**	0.0346	-0.0591
			(4.50)	(0.29)	(1.58)			(-2.26)	(0.91)	(-0.75)
Log(Average Population of Destination Countries)			-0.1288***					0.1423**		
			(-3.38)					(2.22)		
Log(% of diaspora in Dual Citizenship granting Countries)				-0.1907***	0.0089				0.5175***	0.3008*
				(-2.61)	(0.11)				(4.31)	(1.95)
Log(Workers' Remittances)					-0.0195**					0.0471**
					(-2.14)					(2.31)
Period Effect	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Country Effect	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
# Countries	123	123	118	118	116	37	34	34	34	27
# Observations	1230	817	696	696	514	344	279	245	245	158
R-squared	0.0758	0.8187	0.8210	0.8168	0.7920	0.0827	0.9377	0.9373	0.9413	0.9408

Detailed information on the variables is provided in Table 6. *t-statistics* are in parentheses. ***, **, * denote statistical significance at 0.01, 0.05 and 0.10, respectively.

Table 5: Effects of Dual Citizenship and Other Institutional Variables on Child Mortality

Panel A: Developing Countries				
Variable	[1]	[2]	[3]	[4]
Dual Citizenship	-0.057*	-0.052*	-0.050*	-0.050*
	(-1.85)	(-1.70)	(-1.66)	(-1.65)
Absence of Internal Conflict	-0.009*			-0.002
	(-1.76)			(-0.34)
Absence of External Conflict		-0.002		0.005
		(-0.41)		(0.84)
Government Stability			-0.029***	-0.029***
			(-4.05)	(-3.57)
Log(GDP)	-0.238***	-0.242***	-0.233***	-0.231***
	(-9.53)	(-9.69)	(-9.70)	(-9.42)
Log(Country Population Size)	0.321***	0.299***	0.338***	0.343
	(3.95)	(3.72)	(4.25)	(4.29)
Log(Inflation Rate)	-0.002	0.0005	-0.000	-0.000
	(-0.24)	(0.06)	(-0.66)	(-0.72)
Log(Domestic Credit to Private Sector)	-0.0009	-0.001	0.0002	0.0003
	(-0.20)	(-0.31)	(0.06)	(0.08)
Log(% of diaspora in Dual Citizenship granting Countries)	-0.108	-0.124*	-0.137**	-0.144**
	(-1.52)	(-1.75)	(-1.98)	(-2.03)
Log(Average Population of Destination Countries)	-0.007	-0.005	-0.015	-0.013
	(-0.31)	(-0.23)	(-0.68)	(-0.58)
Period Effect	Yes	Yes	Yes	Yes
Country Effect	Yes	Yes	Yes	Yes
# Countries	118	118	118	118
# Observations	696	696	703	703
R-squared	0.8414	0.8406	0.8407	0.8409
Panel B: Developed Countries				
Dual Citizenship	-0.017	-0.024	-0.025	-0.021
	(-0.47)	(-0.64)	(-0.65)	(-0.55)
Absence of Internal Conflict	0.017*			0.032**
	(1.92)			(2.27)
Absence of External Conflict		0.004		-0.019
		(0.50)		(-1.46)
Government Stability			0.008	-0.0002
			(0.76)	(-0.02)
Log(GDP)	-0.201***	-0.203***	-0.210***	-0.192***
	(-4.01)	(-4.00)	(-4.08)	(-3.71)
Log(Country Population Size)	-0.290***	-0.300***	-0.321***	-0.299***
	(-3.25)	(-3.33)	(-3.50)	(-3.19)
Log(Inflation Rate)	-0.003	-0.0009	-0.0003	-0.0005
	(-0.18)	(-0.04)	(-0.41)	(-0.68)
Log(Domestic Credit to Private Sector)	-0.010	-0.009	-0.007	-0.024
	(-0.30)	(-0.25)	(-0.20)	(-0.66)
Log(% of diaspora in Dual Citizenship ranting Countries)	0.565***	0.578***	0.582***	0.554***
	(4.86)	(4.94)	(4.97)	(4.75)
Log(Average Population of Destination Countries)	0.055	0.045	0.047	0.053
	(1.46)	(1.19)	(1.26)	(1.43)
Period Effect	Yes	Yes	Yes	Yes
Country Effect	Yes	Yes	Yes	Yes
# Countries	34	34	34	34
# Observations	245	245	245	245
R-squared	0.9452	0.9443	0.9444	0.9459

Detailed information on the variables is provided in Table 6. *t-statistics* are in parentheses. ***, **, * denote statistical significance at 0.01, 0.05 and 0.10, respectively.

Table 6: Definition of Variables and Sources of Data

Variable	Definition and Sources
Institutional Variables:	
Dual Citizenship	Dual Citizenship is a binary variable that takes on value 1 if a country allows dual citizenship and 0 otherwise. Part of our data comes from the Citizenship Laws of the World (2001) database, Office of the Personnel Management of the US Government. The other portion comes from our own search.
Absence of Internal Conflict	Absence of internal conflict (civil war/coup threat, terrorism/political violence, Conflict civil disorder; ranges 0 to 12, with a higher score meaning very low risk; provided by Political Risk Services/International Country Risk Guide (PRS/ICRG).
Absence of External Conflict	Absence of external conflict (war, cross-border conflicts and foreign pressures); ranges from 0 to 12, with a higher score meaning very low risk; provided by PRS/ICRG.
Government Stability	Composite index of government stability based on government unity, legislative strength and popular support; ranges from 0 to 12, with a higher score meaning very higher stability, provided by PRS/ICRG.
Connectedness Between Diasporas and Origin Countries:	
Workers' Remittances[b]	Funds sent from abroad, defined as workers' remittances and compensation of employees, received (current US$); provided by World Development Indicators (WDI), World Bank (2011).
Child Mortality Rate (per thousand)	Risk of dying before the fifth birthday; measured in per 1000; provided by World Development Indicators (WDI), World Bank (2011).
Macroeconomic Outcomes:	
GDP[a]	Gross Domestic Product (GDP) (current US$); provided by WDI, World Bank (2011).
Inflation Rate	Consumer prices (annual %); provided by WDI, World Bank (2011).
Domestic Credit to Private Sector[a]	Domestic credit to private sector is defined as financial resources provided to the private sector; provided by WDI, World Bank (2011).
Unemployment Rate	Percentage of unemployed individuals in the labor force; provided by WDI, World Bank (2011).
Gross Capital Formation[a]	Gross capital formation (current US$); provided by WDI, World Bank (2011).
Stock of Emigrants[b]	International migration stock; provided by WDI, World Bank (2011).
Volume of Trade[a]	Merchandise trade (sum of exports and imports); provided by WDI, World Bank (2011).
FDI Net Inflows[a]	Foreign Direct Investments Net Inflows; provided by WDI, World Bank (2011).
Household Expenditures[a]	Household final consumption expenditures (current US$); provided by WDI, World Bank (2011).
Population (billion)	Total population, the values are midyear estimates; provided by WDI, World Bank (2011).
Emigration Rates	Emigration rates of low-, medium- and high-skilled workers; provided by Docquier and Marfouk (2005).
Average GDP in Destination Countries[a]	Authors' estimations based on data provided by Ozden et *al.* (2011).
Average Population of Destination Countries	Authors' estimations based on data provided by Ozden et *al.* (2011).
% of diaspora in Dual Citizenship granting Countries	Authors' estimations based on data provided by Ozden et *al.* (2011).
Variables Related to Public Spending on Social Programs:	
Health Public Spending[a]	Total volume of public health expenditures (current US$); provided by WDI, World Bank (2011).
Public Spending on education[a]	Total volume of public spending on education (current US$); provided by WDI, World Bank (2011).

All the variables indexed with "a" and "b" are in US$ trillion and US$ billion, respectively.

Table 7: Effect of Workers' Remittances on Unemployment Rate (%).

Variable	Developing Countries		Developed Countries	
	[OLS]	[FE]	[OLS]	[FE]
Workers' Remittances	-0.008	-0.009	0.313***	-0.257**
	(-0.91)	(-0.90)	(3.54)	(-2.10)
Period Effect	No	Yes	No	Yes
Country Effect	No	Yes	No	Yes
# Countries	124	124	31	31
# Observations	436	436	162	162
R-squared	0.0331	0.0658	0.0481	0.2099

Detailed information on the variables is provided in Table 6. The unemployment rate is calculated as the percentage of unemployed individuals in the labor force.We controlled for population size in both the OLS and the fixed effect regressions. *t-statistics* are in parentheses. ***, **, * denote statistical significance at 0.01, 0.05 and 0.10, respectively.

Table 8: List of Countries Included the Analysis

Low and Middle Income Countries					High Income Countries: OECD and non-OECD	
Albania	Congo, Rep,	Indonesia	Mozambique	St, Kitts and Nevis	Andorra	Singapore
Algeria	Costa Rica	Iran, Islamic Rep,	Myanmar	St, Lucia	Australia	Slovenia
Angola	Cote d'Ivoire	Iraq	Namibia	St, Vincent and the Grenadines	Austria	Spain
Antigua and Barbuda	Croatia	Jamaica	Nepal	Sudan	Bahamas, The	Sweden
Argentina	Czech Republic	Jordan	Nicaragua	Suriname	Bahrain	Switzerland
Armenia	Djibouti	Kazakhstan	Niger	Swaziland	Belgium	United Arab Emirates
Azerbaijan	Dominica	Kenya	Nigeria	Syrian Arab Republic	Brunei Darussalam	United Kingdom
Bangladesh	Dominican Republic	Kiribati	Oman	Tajikistan	Canada	United States
Barbados	Ecuador	Kyrgyz Republic	Pakistan	Tanzania	Cyprus	
Belarus	Egypt, Arab Rep,	Lao PDR	Panama	Thailand	Denmark	
Belize	El Salvador	Latvia	Papua New Guinea	Togo	Finland	
Benin	Equatorial Guinea	Lebanon	Paraguay	Tonga	France	
Bhutan	Eritrea	Lesotho	Peru	Trinidad and Tobago	Germany	
Bolivia	Estonia	Liberia	Philippines	Tunisia	Greece	
Bosnia and Herzegovina	Ethiopia	Libya	Poland	Turkey	Iceland	
Botswana	Fiji	Lithuania	Romania	Turkmenistan	Ireland	
Brazil	Gabon	Macedonia, FYR	Russian Federation	Uganda	Israel	
Bulgaria	Gambia, The	Madagascar	Rwanda	Ukraine	Italy	
Burkina Faso	Georgia	Malawi	Samoa	Uruguay	Japan	
Burundi	Ghana	Malaysia	Sao Tome and Principe	Vanuatu	Korea, Rep,	
Cambodia	Grenada	Maldives	Senegal	Venezuela, RB	Kuwait	
Cameroon	Guatemala	Mali	Serbia	Vietnam	Luxembourg	
Cape Verde	Guinea	Malta	Seychelles	Yemen, Rep,	Monaco	
Central African Republic	Guinea-Bissau	Mauritania	Sierra Leone	Zambia	Netherlands	
Chad	Guyana	Mauritius	Slovak Republic	Zimbabwe	New Zealand	
Chile	Haiti	Mexico	Solomon Islands		Norway	
China	Honduras	Moldova	Somalia		Portugal	
Colombia	Hungary	Mongolia	South Africa		Qatar	
Comoros	India	Morocco	Sri Lanka		Saudi Arabia	

We use the World Bank classification of developing countries as low and middle-income economies, and developed countries as high income economies (OECD and non-OECD countries).