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Does the dual-citizenship recognition determine the level and the utilization of international remittances? Cross-Country Evidence

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Summary –. This paper shows that countries which allow a dual citizenship status for their international migrants receive on average more remittances than others. Using a cross-section of 104 developing countries with data averaged over the period 2000-2008, I distinguish between the direct effect of the dual citizenship status (incentive to remit more) and an indirect effect which passes through migration incentives. Results indicate that the direct effect of the recognition of the dual-citizenship is higher. Finally, the paper shows that remittance inflows are more likely to foster private investment in receiving countries which recognize a dual citizenship status for their migrants. These results are robust to alternative uses of datasets on dual-citizenship codification and to the instrumentation of remittances in the private investment model.

Keywords: Dual-citizenship, Remittances, Investment, Developing countries

JEL codes: F24 F22 E22 O2

1. INTRODUCTION

International remittances represent one of the most important components of external capital flows received by developing countries. According to the World Bank (2011), remittances exceed the levels of external development assistance to developing countries. It is not only the levels of remittances that retain the attention but also their dynamic properties. Several studies pointed out the fact that remittances are more stable than the other component of private capital flows (Chami et al., 2008) and they are sometimes countercyclical vis-à-vis receiving country business cycle (Sayan, 2006; Frankel, 2010). Recent papers indicated that remittances often react positively to exogenous shocks for instance natural disasters (Yang, 2008; Mohapatra et al., 2009; David, 2010). It is therefore not surprising to see that the literature on remittances has highlighted their strong impact on poverty reduction and stabilization (Adams, 2005; Bugamelli and Paternò, 2009; Chami et al., 2009; Combes and Ebeke, 2010).

Beside these developmental effects of remittances, the literature also has analyzed the potentially negative effects of large remittance inflows. The results indicate that large remittance-to-GDP ratios are appreciating the real exchange rate (Amuedo-Dorantes and Pozo, 2004; Barajas et al., 2010) and expanding domestic corruption (Abdih et al., 2008). The literature has also focused on the determinants of international remittances. Among the receiving country determinants of remittances, it appears that the level of financial development at home (a proxy for the cost of remitting money), the domestic shocks (natural disasters, civil war, and inflation) and the level and the composition of migration in terms of qualifications do matter (Lueth and Ruiz-Arranz, 2008; Freund and Spatafora, 2008; Adams, 2009). Regarding the last factors, the results of the literature are that countries which export more migrant and unskilled migrants receive on average more remittances than the others. In contrast, a high level of financial development seems to positively determine remittances by

lowering transaction costs associated with remitting activities. Giuliano and Ruiz-Arranz (2009) also found that the level of financial development determines the positive effect of remittances on growth since remittances are more likely to be used for productive purposes in less financially developing countries.

This paper revisits the literature on the determinants and the consequences of international remittances in developing countries. It explores the effect of the recognition of the dual citizenship status on the level of remittances received by each country. More specifically, the paper examines whether countries which recognize a dual citizenship status tend to receive more remittances than others and investigates whether the recognition of the dual citizenship determines significantly the utilization of remittances to achieve investments goals in the country of origin.

At least four reasons justify this study. Firstly, this paper enters the debate on the effects of the citizenship status of the migrants on their remitting behavior. The paper by using a large sample of countries aims at measuring the *between* countries effect of the legislation on the dual citizenship recognition on remittance inflows. It therefore supplements the early evidence of Vadean (2007) who found that immigrants in Germany who have a dual citizenship tend to remit more to their country of origin than others. The paper is also close to the one of Leblang (2010). The author showed using panel data that the recognition of the dual-citizenship helps increase remittance inflows and the returns of migrants at home. In this paper, I test whether between differences among countries in term of the recognition of the dual-citizenship explains the between differences in remittance inflows during the last decade. I therefore base my analysis on a cross-sectional approach. This can also been justified by the fact that a large part of the variation in the dual-citizenship legislations is between countries

instead of within countries (only a small number of developing countries (9) changed their legislation on the dual-citizenship during the recent years, see Sejersen, 2008[2]).

Secondly, I distinguish between the 'direct effect' of the dual-citizenship (defined as the effect of the dual-citizenship obtained after holding constant, the between country differences in migrant stocks of adults) and the 'indirect effect' of the recognition of the dual-citizenship on remittances which passes through the migration incentives. I also use the narrow definition of remittances as suggested in the International Monetary Fund Balance of Payments Yearbooks by taking only workers' remittances to record the remittance variable and ignoring compensation of employees and migrant transfers. This strategy is retained because these two components sometimes recorded as remittances by authors do not really reflect the decision taken by a migrant to remit nor the migrant transfers of wealth represent flows but clearly a stock. Moreover, I test the effect of the dual-citizenship recognition on alternative measures of the dependent variable: remittances per capita, remittances in percent of GDP or in logarithm form.

Thirdly, this paper is also different from earlier studies given that it quantifies the effect that the dual-citizenship exerts on the allocation of remittances into investment at home. The hypothesis tested here is that migrants with a dual citizenship are more likely to invest in their country of origin given they afford smaller transaction costs than others migrants getting only the nationality of the host country. Indeed, emigrants without a dual citizenship but only the citizenship of the host country may now require an entry visa for home visits, lose the right to buy or even own real property or start easily a business, and in the extreme they may experience discrimination in their erstwhile home country (Vadean, 2007). This might reduce

[2] According to Sejersen (2008) since the year 2000 the developing countries that changed their legislation in favor of the recognition of the dual-citizenship are the following: Afghanistan (2004), India (2004), Philippines (2003), Russia (2001), Belarus (2002), Lithuania (2002), Moldova (2003), Armenia (2004), and Hungary (2004).

the motivation of doing investments in assets (e.g. real estate) and business in the country of origin. Altogether, a country which recognizes a dual-citizenship (country A) to its international migrants can maximize the level of remittances sent for investment purposes compared to another country which do not recognize the dual-citizenship (country B). Suppose that both countries A and B export the same level of migrants abroad but that the composition of migrants originating from A is a mix of natives which have kept their former nationality (M1A) and natives with the both nationalities of their erstwhile home country and the host country (M2A). For country B, the composition of migrants is a mix of natives which have kept their former nationality (M1B) and migrants who have only the nationality of the host country and have lost their former nationality (M2B). It comes that the country A maximizes the potential level of remittances which is sent for investment purposes given that both M1A and M2A can start business at home without huge transaction costs while in country B, the migrants M2B are less incited to start business due to the additional transaction costs that the lost of their former nationality triggers.[3]

One of the best alternatives to this outcome is dual-citizenship, status which provides rights in both the host and the home country. Dual-citizenship gives the migrant the best capacity to act transnationally, i.e. full access to the markets of both the host and home country and mobility between the two, status that could stimulate investments in the home country and the related remittances to relatives. Altogether, one would therefore observe that countries which recognize a dual-citizenship status to their migrants receive (*i*) more remittances on average and (*ii*) more remittances devoted to investment purposes.

[3] It is plausible that the migrants who have lost their former nationality can send remittances to their relatives at home and start business under their names. But this is based on the hypothesis that migrants fully trust their relatives and can engage large funds under their names. However, this hypothesis can be challenged according to papers examining the spread and the causes of the mistrust in developing countries (Nunn and Wantchekon, 2009).

Fourthly, this paper uses several informations on the international recognition of the dual-citizenship. Indeed, as it has been pointed out by Blatter et al. (2009), given the very different definitions and scopes of the studies, it is not surprising that the results of the various studies are not coherent. Indeed, there are four studies with a large number of countries and a global perspective (US Office of Personnel Management, 2001, Renshon, 2005, Boll, 2007, and Sejersen, 2008) and these studies are very diverse in respect to the definitions, the number of countries included and the quality of information gathered. Some studies took into account the issue of the recognition of the dual-citizenship with treaty nations while those did not take into account these arrangements. Other studies recognize that some countries could 'tolerate' dual-citizenship (a form of de facto recognition) and all these discrepancies characterizing the four studies lead to different results regarding the spread of the dual-citizenship phenomenon around the world.

One advantage of the work of Blatter et al. (2009) is to aggregate and merge the findings of the previous four studies and to finally propose a new classification of countries. They distinguish between the 'full' recognition (if the majority of studies concludes on the same way) and the 'no' recognition. Between the two parts of the spectrum they allow for some categories such as 'tolerance and acceptance with treaty nations' and countries with a 'very limited' acceptance. In this paper, I take advantage of this recent codification. I present results obtained with the 'full' recognition and with the broad definition (merging the 'full', the 'tolerance' and the 'very limited acceptance' dimensions into a single dummy variable).

The remainder of the paper is as follows. I start with the description of the empirical strategy devoted to quantify the effect of the dual-citizenship recognition on remittance inflows. The paper uses a large cross-section of developing countries (103) observed over the period 2000-2008. This period is chosen for at least two reasons. Firstly, by retaining the most

recent decade I use the most reliable data on remittances at the cross-country level. Secondly, using the period 2000-2008 reduces the self-selection bias that could be associated with the decision to modify the legislation on the dual-citizenship. Given that almost all the countries included in the sample have not changed their legislation during this period, this ensures that the effect of the dual-citizenship on remittances is not affected by the self-selection bias during this period. However, it remains 9 countries which have changed their legislation in the mid of 2000s and these countries could bias the results. For robustness purposes, I run also regressions by excluding these 'switchers' from the sample.

Moreover, since the existing datasets on the dual-citizenship look at the dual citizenship regulations at the beginning of the 21st Century, this study would therefore provide evidence on the impact of earliest recognitions of the dual-citizenship and thus neglect the effect of the very recent innovations (recognitions occurred in 2008) for example. This can be justified by the fact that the innovations in the legislation act with a delay (due to effective implementation and enforcement costs).

The results indicate that countries which recognize a dual-citizenship receive on average more remittances than others and this effect is the combination of an indirect effect (the dual-citizenship recognition increases incentive to migrate abroad and finally increase the stock of emigrants and remittances) and a direct effect obtained once I control for the level of migration stock. This effect captures the incentives to remit more due to the economic advantages of the dual-citizenship described above.

Section 3 examines whether the positive elasticity of the private investment with respect to remittance inflows is conditional upon the recognition of the dual-citizenship law. The results obtained do not reject the hypothesis that the dual-citizenship matters. Section 4 concludes on the policy implications of these results.

2. QUANTIFYING THE EFFECT OF THE DUAL-CITIZENSHIP RECOGNITION ON THE LEVEL OF REMITTANCE INFLOWS

a) The econometric models

I take advantage of the literature on the macroeconomic determinants of remittances in developing countries (Freund and Spatafora, 2008; Adams, 2009) to quantify the effect of the dual-citizenship. The following equation is specified:

$$R_i = X_i'\beta + \theta_1 D_i + \delta_1 M_i + \alpha_j + \varepsilon_i \quad (1)$$

where R is either remittances *per capita* in $ US, remittance-to-GDP ratio, the log level of remittances *per capita* in $ US, and the logarithm of remittances in percentage of GDP. D is a dummy variable taking 1 if the country recognizes the dual-citizenship and 0 otherwise,[4] M is the log of migration of workers abroad (individuals born in their country of origin, aged 25+ and living and working abroad), **X** is the matrix of control variables (GDP per capita in the receiving country, GDP per capita growth in the host country,[5] age dependency ratio and financial development[6]), α_j the vector of regional dummies and ε is the idiosyncratic error term. According to the literature, the level of income would be negatively correlated with remittances while the proportion of inactive people, the stock of migrants abroad, the economic conjuncture in the host countries and financial development

[4] I use alternative measures for this dummy. I use the work of Blatter et al. (2009) by creating two dummies for the 'full acceptance' and the 'broad acceptance', respectively.

[5] The GDP per capita growth in the host countries is computed as the weighted sum of the GDP per capita growth in each migrant destination countries with weights being the share that each destination country represents in the emigration of individuals originating from the country observed. Data on the bilateral migration shares are drawn from the World Bank website, Migration and Remittance Prospects.

[6] The financial development variable and the dependency demographic ratio are expressed in log when the dependent variable is expressed in log.

(proxy for transaction costs in the remittance market) are positively correlated with remittances. *i* is the indicator of the country.

θ_1 in equation (1) identifies the effect on remittances of the dual citizenship status. Put differently, it measures the average differences in remittances in countries recognizing a dual citizenship versus countries that did not. This is the direct effect of the dual-citizenship since I already control for the level of migrant stock abroad. By doing so I ensure that the effect observed for the dual-citizenship is not driven by its positive effect on migration incentives.

Because the dual-citizenship could also determine the level of remittance inflows through its indirect effect on migration (people living in countries which recognize a dual-citizenship have more incentives to migrate abroad for work and to get a second nationality for themselves and for their children or spouses), the equation 2 is specified to quantify the 'total effect' of the dual-citizenship on remittances. The indirect effect which passes through the increase of the stock of migrant abroad will be derived as the difference between the 'total effect' and the direct effect θ_1. The equation measuring the 'total effect' of the dual citizenship is the following:

$$R_i = X_i'\beta + \theta_2 D_i + \delta_2 Mr_i + \alpha_j + \varepsilon_i \quad (2)$$

with *Mr* being the component of the migrant stock variable not explained by the dual-citizenship dummy. Extracting from *M* the potential effect of the dual-citizenship ensures that θ_2 now measures the 'total effect' of *D*. It is worth noting that this transformation affects only the estimated coefficient (θ_2) on the dual-citizenship variable. Pagan (1984) shows that the two-step procedure, of estimating (2) gives asymptotically efficient estimates and the correct values for the standard errors.

In cases where the 'transmission' variable (the stock of international migrants) has a positive effect on remittance inflows, and the dual-citizenship dummy has a positive effect on migration, this method will provide for a larger coefficient on the dual citizenship in equation (2). If it transpires that the dual-citizenship is not a determinant of migration, there is no effect on the coefficient of the dual-citizenship. The indirect effect of the dual-citizenship which passes through the volume of migrants is given by $\theta_2 - \theta_1$.

b) Data

The remittance variable records the money sent by migrants residing in host countries for at least one year. Data in $ US come from the IMF Balance of Payments Yearbook and are divided by each country total population. Information on the dual-citizenship laws were drawn from Blatter et al. (2009). All the other remaining control variables were drawn from the World Bank Tables. Data are again averaged for the period 2000-2008 for each country. The list of countries (with the information on the dual-citizenship recognition) and the descriptive statistics of all the variables used in the paper are presented in appendix.

c) Dual-citizenship and the level of remittances: Econometric results

(i) The direct effect of the recognition of the dual-citizenship

The results of estimations are presented in Table 1 and Table 2. The method of estimation is the OLS estimator with a full set of regional dummies. In Table 1, I present the results obtained using the narrower definition of the dual-citizenship recognition (the 'full' status corresponds to countries in which all the available informations presented in the four studies mentioned in the introduction of this paper converge toward the same conclusion). The first four columns of the Table 1 indicate that countries which have allowed the dual-citizenship status receive on average more remittances: 43 $US per capita more remittances a

year (column1), an additional 1.7% percentage point of GDP of remittances (column 2) and around 90% more remittances than the countries which did not recognize the dual-citizenship (columns 3 and 4). Interesting and expected results are also observed regarding the control variables. Indeed, the estimation results suggest that remittances are more likely to flow in countries which export a large number of migrants, in countries with high demographic dependency ratios and finally in countries with lower transaction costs associated with remittances. Moreover, in some specifications, it appears that a better economic conjuncture in the host countries affects positively remittances.

[Table 1 about here]

In the last four columns in Table 1, I exclude from the sample the countries which changed their legislation during the decade. Although these switchers had been taken in the analysis as countries allowing the dual-citizenship status, the results obtained before can be biased because these countries recognized the dual-citizenship belatedly compared to the rest of the sample for which the recognition was already enabled or not before the beginning of the period of analysis (year 2000). This corresponds to around 7 countries and excluding them does not really affect the previous results. Indeed, the results obtained in columns 5-8 are qualitatively and quantitatively similar to the previous ones.

In Table 2, I repeat the same exercises as previously but I use the second dummy of dual-citizenship (the broad codification which takes into account countries which tolerate or with a limited acceptance). The impacts quantified are a higher compared to those obtained in Table 1. Indeed, the results indicate that when I take into account the *de facto* recognitions, the effect of the dual-citizenship is stronger. Countries which fully recognize the dual-citizenship or tolerate it receive 60 $US per capita more remittances or 3 percentage points of GDP more remittances than others. In terms of relative gap, these countries receive on

average the double of the amount of remittances received by the others countries (columns 3 and 4). Even when I exclude from the sample the switchers, the results remain broadly unchanged.

[Table 2 about here]

(ii) The indirect and total effects of the recognition of the dual-citizenship

To measure the total effect of the dual-citizenship and derive the indirect effect, the migration variable is replaced by its residual component obtained after controlling for the effect of the dual-citizenship dummy on migration. The results are presented in Table 3 and Table 4.

In Table 3, I present the results obtained using the narrower measure (the 'full recognition'). It appears that the coefficients associated with the dual-citizenship dummy have increased compared to its level observed in Table 1. As expected, it is worth noting that the coefficients and the standard-errors of all the remaining variables included in the model did not change. The shift of the coefficient associated with the dual-citizenship dummy suggests that its impact on remittances is the combination of one 'direct effect' and one 'indirect effect' through the migration channel. Knowing that the coefficient estimated in Table 3 measures the 'total effect' of the dual-citizenship on remittances, the 'indirect effect' is therefore computed as the difference between the 'total effect' and the 'direct effect'. This 'indirect effect' represents around one-quarter of the 'total effect'. These results are not affected by the exclusion of the switchers from the sample (columns 5-8).

[Table 3 about here]

In Table 4, I replace the 'full recognition' dummy by the 'broad recognition' dummy. The results highlight an increase in the magnitude of the coefficients associated with the dual-

citizenship dummy. This result suggests that even with this definition of the dual-citizenship, the hypothesis that the effect is the combination of two direct and indirect effects is not rejected. The indirect effect is obtained by taking the difference between the coefficients of Table 4 and the coefficients of Table 2. It appears that the indirect effect corresponds to around one-fifth of the total effect, the remaining effect being due to the direct effect. This result is also robust to the exclusion of switchers from the sample.

[Table 4 about here]

Altogether, the effect on remittances of the recognition of the dual-citizenship is primarily due to what I called the 'incentive effect' to remit more since it is easier for migrants with dual-citizenship to start business at home and monitor it by travelling frequently. In the next section, I test empirically this proposition that remittances are more likely to be channeled into investment in countries which have recognized a dual-citizenship for their migrants.

3. DUAL-CITIZENSHIP, REMITTANCES AND PRIVATE INVESTMENT IN RECEIVING COUNTRIES

This section tests empirically whether remittances are more likely to foster the private investment ratio in receiving countries which have recognized officially a dual-citizenship status. In the previous section, I addressed the issue of the relationship between the citizenship law and the level of remittances. I turn now on the relationship between the dual citizenship law and the cross-country differences in terms of invested remittances.

a) The econometric model

The following model describes the effect of the dual-citizenship on the elasticity of the private investment ratio with respect to the remittance ratio:

$$I_i = X_i'\beta + \theta_3 R_i + \theta_4 (R_i \times D_i) + \theta_5 D_i + \alpha_j + \varepsilon_i \quad (3)$$

where *I* represents the private investment-to-GDP ratio, *R* the log of the remittance-to-GDP ratio, *D* is the dual citizenship dummy, and **X** is the few set of control variables generally introduced in the private investment equations at the macroeconomic level (Serven, 2003). I therefore control for the inflation rate, the public investment-to-GDP ratio, the private credit-to-GDP ratio, the level of public debt service-to-GDP ratio, the level of trade openness, and for the political stability index.

In equation (3), the coefficient of interest is θ_4 which measures the differential elasticity of private investment with respect to remittances in countries which recognize a dual citizenship ($D = 1$) versus countries that did not ($D = 0$). $\theta_4 > 0$ suggests that remittances increase the most private investment when the migrants can enjoy a dual-citizenship. Put differently, this means that remittances are more devoted to investment purposes in countries which recognize the dual-citizenship status for the natives. Finally, θ_3 measures the effect of remittances on investment in countries which do not recognize the dual-citizenship status for their migrants ($D = 0$).

b) Identification strategy

The main shortcoming that characterizes the estimation of the equation (3) is neglecting the plausibility that remittance inflows and the private investment are simultaneously determined. I therefore resort to the instrumental variables approach in which I allow for exogenous sources of variations in remittances. I use as instruments for remittances the remittance-to-GDP ratio for each country in 1995 and the GDP per capita growth rate in host country.

My identification assumption is that the level of remittances in 1995 and the economic conjuncture in the host country are exogenous and determine the private investment ratio only through remittances after controlling for my set of explanatory variables. For instance since I already control for the trade openness, I reduce the possibility that the economic conjuncture in the host countries could affect the private investment in receiving economic through other channels of the globalization. Finally, the validity of the instrumental variables approach will be assessed through the Hansen overidentification test and through the first-stage F-test statistics.

The second endogenous variable is the interactive term of remittances crossed with the dual-citizenship dummy. This variable is instrumented by the instruments of remittances crossed with the dual-citizenship dummy.

c) Data

The private and public investment variables are drawn from the IMF-World Economic Outlook database. The quality of institutions measured by the indicator of political stability comes from the World Bank Governance Indicators dataset. All the other explanatory variables are drawn from the World Bank Tables.

d) Dual citizenship, remittances and private investment: Econometric results

The results of the estimations are presented in Table 5 and Table 6. In Table 5, I present the results obtained using the 'full recognition' variable while in Table 6 I use the 'broad recognition' dummy.

In Table 5, I begin first by presenting the results obtained using the OLS with regional dummies method (column 1). The result indicates that the differential impact of remittances on the private investment between countries recognizing a dual-citizenship and the other

countries is positive and highly significant (the coefficient stands at around 0.4). The coefficient of the additive term of remittances which identifies the impact of remittances in countries which do not recognize the dual-citizenship status, is not statistically different from 0. Finally, the sum of the coefficients of the additive term and the multiplicative term of remittances leads to a globally positive impact of remittances in countries recognizing the dual-citizenship status.

[Table 5 around here]

In column 3, the *causal* effect on remittances is measured by performing a two-stage least squares estimations in order to reduce the endogeneity of remittances. Column 2 presents the results of the first-stage regression of the instrumentation of remittances.[7] The diagnostic statistics associated with the first-stage regression do not reject the hypotheses that the instruments are jointly strong and not correlated with the residuals of the second-stage (F-stat and Hansen OID p-value). The results obtained from the second-stage regression confirm the hypothesis that remittance inflows are more likely to be positively correlated with the private investment ratio in countries which recognize the dual-citizenship. Indeed the coefficient of the interactive is positive and statistically significant. Moreover, the sum of the two coefficients associated with remittances (which identify the effect of remittances on investment in countries which recognize the dual-citizenship) is positive and statistically significant.[8]

In column 4, even after excluding the switchers (countries which have changed their legislation in the mid of 2000s), the result that the effect of remittances on investment is more

[7] It is worth noting that the variable remittances*dual-citizenship has been also instrumented by the same set of instruments introduced linearly and non-linearly. The results are not shown but are available upon request. However, I present at the bottom of Table 5, the F-test of instrumentation of the multiplicative variable.

[8] The F-statistic test of the joint significance of these coefficients rejects the null hypothesis that the coefficients are jointly equal to zero. Results are available upon request.

positive and significant in countries which recognize the dual-citizenship status is not rejected by the data.

In Table 6, I replace the 'full recognition' dummy by the 'broad recognition' dummy and run the same estimations. Whatever the method used (OLS or IV, including or excluding the switchers), the results remain qualitatively unchanged. Countries which enable the dual-citizenship status for their natives receive more remittances channeled into investment purposes compared to the others remittance-dependent economies.

[Table 6 around here]

4. CONCLUDING REMARKS

This paper examined the role of the recognition of the dual-citizenship on both the level of remittance inflows and the utilization of remittances in receiving economies of the developing world. It mobilizes a large cross-section of countries (103) observed over the period 2000-2009 and finds that countries which recognize a dual-citizenship status receive x% more remittances than others. Moreover, the results also highlighted that remittances are strongly channeled into investment in these countries compared to the others.

The policy implications of these results are two-folds. First, the issue of the dual-citizenship recognition would be taken into account among all the strategies designed domestically and internationally in favor of sustaining remittances. Second, the recognition of the dual citizenship also enters the debate on the ways to increase the benefits of remittance inflows by encouraging their reinvestment. The paper shows that countries which have already allowed getting a dual-citizenship perform better in terms of more investment-motivated remittances.

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Table 1: Direct effect of the dual-citizenship law ('full recognition' drawn from Blatter et al., 2009) on remittance inflows.

					Excluding 'switchers'			
	Rpc	RY	*log* Rpc	*log* RY	Rpc	RY	*log* Rpc	*log* RY
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dual-citizenship dummy	43.10**	1.678*	0.886**	0.963**	47.40**	1.433	0.891*	0.975**
	(19.81)	(0.998)	(0.440)	(0.436)	(21.70)	(1.106)	(0.480)	(0.475)
log Stock of Emigrants (aged 25+)	10.84*	0.406	0.296**	0.285**	12.94*	0.477	0.324**	0.313**
	(6.206)	(0.267)	(0.119)	(0.118)	(7.114)	(0.301)	(0.131)	(0.129)
Growth in the host countries	678.4	52.52*	18.26*	15.63	806.5	54.18*	18.44*	15.52
	(460.9)	(30.16)	(10.05)	(9.871)	(513.9)	(32.54)	(11.00)	(10.79)
log GDP per capita in receiving countries	21.87	-1.577*	0.195	-0.818***	23.27	-1.436	0.228	-0.787***
	(16.42)	(0.917)	(0.280)	(0.279)	(17.95)	(0.986)	(0.298)	(0.297)
Demographic dependency ratio	4.521***	0.200**	3.492**	3.856**	4.656***	0.204**	3.620**	3.960**
	(1.593)	(0.0781)	(1.644)	(1.575)	(1.722)	(0.0837)	(1.775)	(1.709)
Financial development	2.862**	0.0805***	1.043**	0.916**	2.840**	0.0796***	1.036**	0.899**
	(1.298)	(0.0238)	(0.411)	(0.397)	(1.326)	(0.0242)	(0.424)	(0.408)
Constant	-680.4***	-8.167	-21.08**	-17.34*	-721.0**	-10.37	-22.09**	-18.19*
	(252.5)	(10.68)	(9.155)	(9.019)	(278.9)	(11.72)	(10.04)	(9.899)
Observations	103	102	98	97	96	95	92	91
R^2	0.442	0.363	0.477	0.437	0.444	0.357	0.480	0.430

Notes: Robust standard errors in parentheses. Regional dummies are included in all equations. Data are averaged for the period 2000-2009. Rpc: Remittances in per capita $ US, RY: remittance in percentage of GDP.
*** p<0.01, ** p<0.05, * p<0.1

Table 2: Direct effect of the dual-citizenship law ('Broad recognition' drawn from Blatter et al., 2009) on remittance inflows.

					Excluding 'switchers'			
	Rpc	RY	*log* Rpc	*log* RY	Rpc	RY	*log* Rpc	*log* RY
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dual-citizenship dummy	60.26**	3.233**	1.021**	1.090**	65.89**	3.354*	1.038**	1.115**
	(25.46)	(1.540)	(0.422)	(0.421)	(28.99)	(1.803)	(0.463)	(0.462)
log Stock of Emigrants (aged 25+)	10.32*	0.357	0.294**	0.283**	12.02*	0.404	0.315**	0.303**
	(6.090)	(0.258)	(0.115)	(0.114)	(6.884)	(0.283)	(0.128)	(0.126)
Growth in the host countries	676.9	54.90**	18.28*	15.64	784.9	58.02*	17.87*	14.88
	(469.1)	(27.23)	(9.761)	(9.640)	(520.9)	(29.19)	(10.62)	(10.44)
log GDP per capita in receiving countries	20.62	-1.671*	0.179	-0.834***	20.92	-1.614*	0.198	-0.819***
	(15.27)	(0.881)	(0.275)	(0.274)	(16.24)	(0.925)	(0.292)	(0.290)
Demographic dependency ratio	4.241***	0.188***	3.032*	3.344**	4.285***	0.190**	3.090*	3.373**
	(1.500)	(0.0703)	(1.573)	(1.514)	(1.583)	(0.0721)	(1.689)	(1.625)
Financial development	2.856**	0.0785***	1.090***	0.975**	2.819**	0.0757***	1.051**	0.922**
	(1.273)	(0.0236)	(0.399)	(0.386)	(1.306)	(0.0246)	(0.416)	(0.401)
Constant	-654.6***	-6.635	-19.33**	-15.42*	-675.5**	-7.650	-19.74**	-15.62
	(243.2)	(10.01)	(8.885)	(8.773)	(264.0)	(10.54)	(9.697)	(9.556)
Observations	103	102	98	97	96	95	92	91
R^2	0.457	0.404	0.489	0.452	0.461	0.400	0.491	0.444

Notes: Robust standard errors in parentheses. 'Broad recognition' of the dual-citizenship records countries with a 'fully recognition' and countries which tolerate or accept a dual-citizenship with treaty nations and finally countries with a limited acceptance (see Blatter et al., 2009 for more details). Regional dummies are included in all equations. Data are averaged for the period 2000-2009. Rpc: Remittances in per capita $ US, RY: remittance in percentage of GDP. *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Total effect of the dual-citizenship law ('full recognition' drawn from Blatter et al., 2009) on remittance inflows.

					Excluding 'switchers'			
	Rpc	RY	*log* Rpc	*log* RY	Rpc	RY	*log* Rpc	*log* RY
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dual-citizenship dummy	58.75***	2.260**	1.388***	1.444***	66.61***	2.134*	1.459***	1.521***
	(20.80)	(1.029)	(0.441)	(0.437)	(23.10)	(1.172)	(0.493)	(0.489)
log Stock of Emigrants (aged 25+), *residuals*	10.84*	0.406	0.296**	0.285**	12.94*	0.477	0.324**	0.313**
	(6.206)	(0.267)	(0.119)	(0.118)	(7.114)	(0.301)	(0.131)	(0.129)
Growth in the host countries	678.4	52.52*	18.26*	15.63	806.5	54.18*	18.44*	15.52
	(460.9)	(30.16)	(10.05)	(9.871)	(513.9)	(32.54)	(11.00)	(10.79)
log GDP per capita in receiving countries	21.87	-1.577*	0.195	-0.818***	23.27	-1.436	0.228	-0.787***
	(16.42)	(0.917)	(0.280)	(0.279)	(17.95)	(0.986)	(0.298)	(0.297)
Demographic dependency ratio	4.521***	0.200**	3.492**	3.856**	4.656***	0.204**	3.620**	3.960**
	(1.593)	(0.0781)	(1.644)	(1.575)	(1.722)	(0.0837)	(1.775)	(1.709)
Financial development	2.862**	0.0805***	1.043**	0.916**	2.840**	0.0796***	1.036**	0.899**
	(1.298)	(0.0238)	(0.411)	(0.397)	(1.326)	(0.0242)	(0.424)	(0.408)
Constant	-566.1**	-3.882	-17.97**	-14.35*	-585.8**	-5.390	-18.73**	-14.95
	(220.9)	(9.549)	(8.597)	(8.448)	(238.8)	(10.17)	(9.325)	(9.169)
Observations	103	102	98	97	96	95	92	91
R^2	0.442	0.363	0.477	0.437	0.444	0.357	0.480	0.430

Notes: Robust standard errors in parentheses. Regional dummies are included in all equations. Data are averaged for the period 2000-2009. Rpc: Remittances in per capita $ US, RY: remittance in percentage of GDP.
*** p<0.01, ** p<0.05, * p<0.1

Table 4: Total effect of the dual-citizenship law ('Broad recognition' drawn from Blatter et al., 2009) on remittance inflows.

					Excluding 'switchers'			
	Rpc	RY	*log* Rpc	*log* RY	Rpc	RY	*log* Rpc	*log* RY
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dual-citizenship dummy	74.78***	3.730**	1.502***	1.550***	83.54***	3.941**	1.578***	1.632***
	(26.38)	(1.549)	(0.435)	(0.434)	(30.47)	(1.846)	(0.481)	(0.479)
log Stock of Emigrants (aged 25+), *residuals*	10.32*	0.357	0.294**	0.283**	12.02*	0.404	0.315**	0.303**
	(6.090)	(0.258)	(0.115)	(0.114)	(6.884)	(0.283)	(0.128)	(0.126)
Growth in the host countries	676.9	54.90**	18.28*	15.64	784.9	58.02*	17.87*	14.88
	(469.1)	(27.23)	(9.761)	(9.640)	(520.9)	(29.19)	(10.62)	(10.44)
log GDP per capita in receiving countries	20.62	-1.671*	0.179	-0.834***	20.92	-1.614*	0.198	-0.819***
	(15.27)	(0.881)	(0.275)	(0.274)	(16.24)	(0.925)	(0.292)	(0.290)
Demographic dependency ratio	4.241***	0.188***	3.032*	3.344**	4.285***	0.190**	3.090*	3.373**
	(1.500)	(0.0703)	(1.573)	(1.514)	(1.583)	(0.0721)	(1.689)	(1.625)
Financial development	2.856**	0.0785***	1.090***	0.975**	2.819**	0.0757***	1.051**	0.922**
	(1.273)	(0.0236)	(0.399)	(0.386)	(1.306)	(0.0246)	(0.416)	(0.401)
Constant	-546.8**	-2.907	-16.28*	-12.49	-551.1**	-3.473	-16.51*	-12.51
	(213.9)	(9.094)	(8.310)	(8.187)	(227.5)	(9.355)	(8.973)	(8.819)
Observations	103	102	98	97	96	95	92	91
R^2	0.457	0.404	0.489	0.452	0.461	0.400	0.491	0.444

Notes: Robust standard errors in parentheses. 'Broad recognition' of the dual-citizenship records countries with a 'fully recognition' and countries which tolerate or accept a dual-citizenship with treaty nations and finally countries with a limited acceptance (see Blatter et al., 2009 for more details). Regional dummies are included in all equations. Data are averaged for the period 2000-2009. Rpc: Remittances in per capita $ US, RY: remittance in percentage of GDP. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Dual-citizenship ('Full recognition' drawn Blatter et al., 2009), remittances and private investment.

	OLS	Remittance First-stage	IV	IV-excluding switchers
	(1)	(2)	(3)	(4)
Remittances	-0.0225		-0.112	-0.00548
	(0.153)		(0.273)	(0.289)
Remittances*Dual-citizenship	0.438*		0.666**	0.567*
	(0.225)		(0.297)	(0.308)
Dual-citizenship dummy	-2.290*	-3.071	-3.210*	-2.591
	(1.295)	(3.009)	(1.690)	(1.785)
Inflation	-0.0757*	-0.0189	-0.0621	-0.0666
	(0.0425)	(0.0204)	(0.0416)	(0.0463)
Private credit	0.0353	-0.00779	0.0308	0.0272
	(0.0377)	(0.0173)	(0.0403)	(0.0424)
Public debt service-to-GDP	-0.0821	-0.132	-0.152	-0.0527
	(0.186)	(0.132)	(0.214)	(0.254)
Public investment	0.0765	-0.205*	-0.150	-0.160
	(0.303)	(0.119)	(0.253)	(0.257)
Trade openness	-0.00768	0.0242*	-0.00494	-0.00243
	(0.0220)	(0.0136)	(0.0234)	(0.0239)
Political stability	2.428**	-1.114*	2.781***	2.748***
	(1.041)	(0.591)	(0.976)	(0.933)
GDP per capita growth in host countries		29.34		
		(46.39)		
Remittances-to-GDP in 1995		0.336***		
		(0.0732)		
Remittances in 1995*Dual-citizenship		0.431***		
		(0.128)		
Growth in host countries*Dual-citizenship		91.19		
		(67.09)		
Intercept	15.92***	1.119	18.91***	18.66***
	(3.469)	(2.658)	(3.043)	(3.210)
Observations	89	73	73	68
R^2	0.341	0.661	0.310	0.308
Remittance instrumentation F-stat :		15.23		14.02
Remittances*Dual-citizenship instrumentation F-stat :		16.80		24.35
Hansen OID:p-value			0.553	0.775

Notes: Robust standard errors in parentheses. Regional dummies are included in all equations. Data are averaged for the period 2000-2009. The dependent variable is the private investment-to-GDP ratio. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Dual-citizenship ('Broad recognition' drawn Blatter et al., 2009), remittances and private investment.

	OLS	Remittance First-stage	IV	IV-excluding switchers
	(1)	(2)	(3)	(4)
Remittances	-0.250		-0.120	-0.0719
	(0.285)		(0.305)	(0.323)
Remittances*Dual-citizenship	0.546*		0.633**	0.589**
	(0.310)		(0.291)	(0.296)
Dual-citizenship dummy	-1.676	-1.749	-1.881	-1.450
	(1.434)	(3.638)	(1.699)	(1.829)
Inflation	-0.0861*	-0.0194	-0.0607	-0.0642
	(0.0432)	(0.0193)	(0.0415)	(0.0463)
Private credit	0.0306	-0.00958	0.0234	0.0205
	(0.0382)	(0.0182)	(0.0398)	(0.0427)
Public debt service-to-GDP	-0.0722	-0.101	-0.159	-0.0610
	(0.188)	(0.129)	(0.213)	(0.253)
Public investment	0.0188	-0.196*	-0.129	-0.152
	(0.307)	(0.115)	(0.263)	(0.266)
Trade openness	-0.00889	0.0256*	-0.00517	-0.00186
	(0.0222)	(0.0139)	(0.0242)	(0.0246)
Political stability	2.548**	-1.123*	2.725***	2.649***
	(1.087)	(0.593)	(0.981)	(0.959)
GDP per capita growth in host countries		19.76		
		(60.72)		
Remittances-to-GDP in 1995		0.305***		
		(0.0557)		
Remittances in 1995*Dual-citizenship		0.475***		
		(0.115)		
Growth in host countries*Dual-citizenship		57.21		
		(89.17)		
Intercept	17.16***	1.135	19.00***	18.93***
	(3.638)	(3.071)	(3.116)	(3.219)
Observations	89	73	73	68
R^2	0.336	0.661	0.319	0.325
Remittance instrumentation F-stat :		16.17		14.13
Remittances*Dual-citizenship instrumentation F-stat :		18.23		21.32
Hansen OID:p-value			0.866	0.586

Notes: Robust standard errors in parentheses. 'Broad recognition' of the dual-citizenship takes countries with a 'fully recognition' and countries which tolerate or accept a dual-citizenship with treaty nations and finally countries with a limited acceptance (see Blatter et al., 2009 for more details). Regional dummies are included in all equations. Data are averaged for the period 2000-2009. The dependent variable is the private investment-to-GDP ratio. *** p<0.01, ** p<0.05, * p<0.1.

APPENDIX

Table A1: Descriptive statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Remittances per capita $US	127	81.40	147.04	0	1098.00
Remittances (% GDP)	125	4.16	5.58	0	29.50
Private investment (%GDP)	113	15.77	6.60	2.71	39.16
Dual-citizenship ('Full')	132	0.39	0.49	0	1
Dual-citizenship ('Broad')	132	0.45	0.50	0	1
GDP per capita growth in host countries	139	0.05	0.03	0.02	0.16
log Migrant stock	131	10.98	1.97	5.73	15.68
log GDP per capita	153	7.09	1.18	4.70	10.25
Dependency ratio (%)	154	67.81	16.77	41.25	108.29
M2 (%GDP)	135	42.13	31.18	6.08	207.95
Inflation (%)	157	10.45	18.64	1.36	208.84
Public debt service (%GDP)	122	5.10	4.34	0.11	27.62
Private credit (%GDP)	135	30.32	25.40	1.96	138.02
Public investment (%GDP)	115	7.21	4.44	1.56	29.61
Trade openness	135	84.39	36.44	0.67	200.46
Political stability	135	-0.40	0.87	-2.67	1.33

Table A2: List of countries (104) in the sample and their status on the dual-citizenship.

Country	Full	Broad	Country	Full	Broad	Country	Full	Broad	Country	Full	Broad
Albania	1	1	Dominican Republic	1	1	Latvia	1	1	Peru	1	1
Angola	0	0	Ecuador	1	1	Lebanon	1	1	Philippines	1	1
Argentina	0	1	Egypt, Arab Rep.	1	1	Lesotho	0	0	Poland	1	1
Armenia	0	1	El Salvador	1	1	Liberia	0	0	Romania	1	1
Azerbaijan	0	0	Fiji	0	0	Libya	0	0	Russian Federation	1	1
Bangladesh	0	1	Gabon	0	0	Lithuania	0	0	Rwanda	0	0
Belarus	1	1	Gambia, The	0	0	Madagascar	0	0	Senegal	0	0
Belize	1	1	Georgia	0	0	Malawi	0	0	Sierra Leone	0	0
Benin	1	1	Ghana	1	1	Malaysia	0	0	Solomon Islands	0	0
Bolivia	0	0	Grenada	1	1	Maldives	1	1	Sri Lanka	1	1
Botswana	0	0	Guatemala	0	1	Mali	1	1	Sudan	0	0
Brazil	1	1	Guinea	0	0	Mauritius	1	1	Suriname	0	0
Bulgaria	1	1	Guinea-Bissau	0	0	Mexico	1	1	Swaziland	0	0
Burkina Faso	1	1	Guyana	0	0	Moldova	1	1	Syrian Arab Republic	1	1
Burundi	0	0	Haiti	0	0	Mongolia	0	0	Tajikistan	0	1
Cambodia	0	0	Honduras	1	1	Morocco	1	1	Tanzania	0	0
Cameroon	0	0	India	0	0	Mozambique	0	0	Togo	1	1
Cape Verde	1	1	Indonesia	0	0	Namibia	0	0	Tonga	0	1
China	0	0	Iran, Islamic Rep.	0	0	Nepal	0	0	Tunisia	1	1
Colombia	1	1	Iraq	1	1	Nicaragua	0	1	Turkey	1	1
Congo, Rep.	0	0	Jamaica	1	1	Niger	0	0	Uganda	0	0
Costa Rica	1	1	Jordan	1	1	Nigeria	1	1	Ukraine	0	0
Cote d'Ivoire	1	1	Kazakhstan	0	0	Pakistan	0	0	Uruguay	1	1
Croatia	0	0	Kenya	0	0	Panama	1	1	Vanuatu	0	0
Djibouti	0	0	Kyrgyz Republic	0	0	Papua New Guinea	0	0	Venezuela, RB	0	0
						Paraguay	0	1	Yemen, Rep.	0	0
									Zambia	0	0